BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S TRIENNIAL ENERGY EFFICIENCY PLAN APPLICATION REQUESTING APPROVAL OF: (1) SPS'S 2020-2022 ENERGY EFFICIENCY PLAN AND ASSOCIATED PROGRAMS; (2) A FINANCIAL INCENTIVE FOR PLAN YEAR 2020; (3) RECOVERY OF THE COSTS ASSOCIATED WITH A POTENTIAL ENERGY EFFICIENCY STUDY OVER A TWO-YEAR TIME PERIOD; AND (4) CONTINUATION OF SPS'S ENERGY EFFICIENCY TARIFF RIDER TO RECOVER ITS ANNUAL PROGRAM COSTS AND INCENTIVES,	)	**CASE NO. 19-00_____-UT**
SOUTHWESTERN PUBLIC SERVICE COMPANY,	)	
APPLICANT.	)	

DIRECT TESTIMONY

of

MARK R. SCHOENHEIDER

on behalf of

SOUTHWESTERN PUBLIC SERVICE COMPANY

TABLE OF CONTENTS

GLOSSARY OF ACRONYMS AND DEFINED TERMS

Acronym/Defined Term	Meaning
ADM	ADM Associates, Inc.
CFL	compact fluorescent light
Commission	New Mexico Public Regulation Commission
DR/LM	Demand Response/Load Management
DSM	Demand Side Management
EE	Energy Efficiency
EE/LM	Energy Efficiency/Load Management
EE Potential Study	Energy Efficiency Potential Study
EE Rule	Energy Efficiency Rule, 17.7.2 NMAC
EPE	El Paso Electric Company
EUEA	Efficient Use of Energy Act (NMSA 1978, §§62-17-1 through 62-17-11)
Evergreen	Evergreen Economics
GWh	Gigawatt-hour
HES	Home Energy Services
ICO	Interruptible Credit Option
kWh	Kilowatt-hour
LED	Light-emitting diode

Acronym/Defined Term	Meaning
LIA	Low-Income Adjustment
Low-Income HES	Low-Income Home Energy Services
LISS	Low-Income Spending Shortfall
M&V	Measurement and Verification
MWh	Megawatt-hour
NEB	Non-energy Benefit
NMGC	New Mexico Gas Company
NPV	net present value
PNM	Public Service Company of New Mexico
PY	Program Year
Seventhwave Study	Portfolio Optimization Study performed by Seventhwave
SPS	Southwestern Public Service Company, a New Mexico corporation
Staff	Utility Division Staff of the Commission
SWEEP	Southwest Energy Efficiency Project
T&D	transmission and distribution
Triennial Plan	SPS's Triennial Energy Efficiency and Load Management Plan
TRM	Technical Resource Manual for the Calculation of Energy Efficiency Savings

Acronym/Defined Term	Meaning
UCT	Utility Cost Test
Xcel Energy	Xcel Energy Inc.
XES	Xcel Energy Services Inc.

LIST OF ATTACHMENTS

Case No. 19-_____-UT
Direct Testimony
of
Mark R. Schoenheider

I. WITNESS IDENTIFICATION AND QUALIFICATIONS

Q. Please state your name and business address.

A. My name is Mark R. Schoenheider. My business address is 1800 Larimer Street, Suite 1500, Denver, Colorado 80202.

Q. On whose behalf are you testifying in this proceeding?

A. I am filing testimony on behalf of Southwestern Public Service Company, a New Mexico corporation ("SPS"), and wholly-owned subsidiary of Xcel Energy Inc. ("Xcel Energy").

Q. By whom are you employed and in what position?

A. I am employed by Xcel Energy Services Inc. ("XES"), the service company subsidiary of Xcel Energy, as a Consumer and Commercial Energy Efficiency Marketing Manager.

Q. Please briefly outline your responsibilities as Consumer and Commercial Energy Efficiency Marketing Manager.

A. As a Consumer and Commercial Energy Efficiency Marketing Manager, I manage the strategic planning and implementation of energy efficiency products across multiple jurisdictions to meet short-term regulatory and long-term resource planning goals. My responsibilities include:

- accountability for strategic leadership, product goal attainment, regulatory plans, and tracking and reporting in New Mexico, Texas, Minnesota, North Dakota, South Dakota, and Colorado;
- overseeing Product Portfolio Managers, Channel Managers, Engineers and Marketing Assistants;
- interpreting customer requirements and motivations to implement energy efficiency measures;
- providing strategic expertise on all aspects of the marketing mix; and
- determining market research requirements for team products focusing on short-term challenges, long-term planning, and product evaluation.

Q. Please describe your educational background.

A. I graduated from the University of Wyoming with a Bachelor's degree in Civil Engineering, and I have an MBA from the University of Colorado with emphasis in Finance.

Q. Please describe your professional experience.

A. I have been employed by XES for eleven years in multiple roles including Product Developer, Energy Efficiency Engineer, Team Lead Energy Efficiency Engineer, and Strategic Segment Team Lead. In January 2019, I was promoted to my current position as Consumer and Commercial Energy Efficiency Marketing Manager. Prior to Xcel Energy, I worked in multiple engineering and

environmental consulting roles for TriHydro Corporation and the Wyoming Department of Transportation.

Q. Please describe your experience with SPS's energy efficiency programs and previous Energy Efficiency and Load Management filings.

A. I have been responsible for the implementation of SPS's Energy Efficiency ("EE") programs and have been closely involved with SPS's EE filings. In particular, I have worked on forecasting the portfolio achievements and budget allocations, reconciliation of SPS's expenditures, and overall compilation of SPS's EE filings.

II. ASSIGNMENT AND RECOMMENDATIONS

Q. What is the purpose of your testimony?

A. My testimony provides an overview and support for SPS's 2020-2022 EE Plan ("Triennial Plan") and associated programs (the programs are collectively referred to as "EE Programs"), which are designed to maximize energy and demand savings in the most cost-effective manner, consistent with the requirements of the Efficient Use of Energy Act (NMSA 1978, §62-17-1 through 62-17-11, "EUEA") and the New Mexico Public Regulation Commission's ("Commission") Energy Efficiency Rule (17.7.2 NMAC, "EE Rule"). The Triennial Plan is provided as Attachment MRS-1 to my direct testimony.

Specifically, my testimony will address:

(1) how SPS's proposed savings goals for the three-year Triennial Plan are achievable and reasonable;

(2) the process used by SPS to evaluate, select, and design its proposed portfolio of Residential and Business energy efficiency programs to meet its proposed Triennial Plan goals;

(3) the Utility Cost Test ("UCT") assumptions and calculations used to evaluate the cost-effectiveness of each program;

(4) the reasonableness and necessity of the Planning and Research Segment costs to achieve the goals of the EUEA; and

(5) the background and justification for the measurement and verification ("M&V") of SPS's EE programs.

In addition, I present SPS's proposal for an incentive mechanism for SPS's EE efforts for program years ("PY") 2020-2022. In particular, I describe the proposed incentive mechanism and help support the reasonableness of the incentive mechanism for PYs 2020-2022. SPS witness Ruth M. Sakya provides the primary support for the proposed incentive mechanism and resulting incentive. SPS witness Aleah K. Beedy incorporates the incentive calculation into the 2020 EE Rider.

Q. Do you sponsor any sections of the Triennial Plan?

A. Yes, I sponsor the Executive Summary; Section I: (A)-(J); Section II: (A)-(C), (D)(II), and (D)(III); Section III: (A)-(C); Section IV; Appendix A; and Appendix B.

Q. Please summarize the recommendations presented in your testimony.

A. The Commission should approve SPS's Triennial Plan, without modification. SPS has designed a portfolio of cost-effective EE programs to maximize the potential energy savings for PYs 2020-2022 as required by the EUEA and the EE Rule. Described in Table MRS-1 below, SPS projects that implementation of the Triennial Plan will result in savings ranging from 36.886 gigawatt hours ("GWh") in 2020 to 40.052 GWh in 2022 (net customer).

Table MRS-1

	2020			2021			2022		
	Electric Budget	Net Customer kW	Net Customer kWh	Electric Budget	Net Customer kW	Net Customer kWh	Electric Budget	Net Customer kW	Net Customer kWh
Residential Segment									
Energy Feedback	$143,485	866	4,720,924	$143,485	778	4,291,520	$144,485	708	3,947,163
Heat Pump Water Heaters	$44,500	25	185,716	$78,500	45	337,666	$68,500	57	422,082
Home Energy Services: Residential and Low Income	$2,193,861	904	8,963,155	$2,213,861	904	8,963,155	$2,163,861	904	8,963,155
Home Lighting & Recycling	$1,199,817	973	5,642,488	$1,169,217	951	5,514,523	$1,158,151	914	5,300,679
Residential Cooling	$43,040	39	125,177	$43,040	39	125,177	$68,540	39	125,177
School Education Kits	$145,417	10	376,378	$145,917	10	376,378	$166,417	10	376,378
Smart Thermostats	$142,500	-37	825,149	$122,500	0	698,746	$82,500	0	742,417
Residential Segment Total	**$3,912,620**	**2,785**	**20,853,234**	**$3,916,520**	**2,733**	**20,320,915**	**$3,852,454**	**2,637**	**19,890,259**
Business Segment									
Business Comprehensive	$4,798,684	2,263	15,985,365	$5,682,482	2,764	19,763,161	$5,741,548	2,797	20,111,128
Business Segment Total	**$4,798,684**	**2,263**	**15,985,365**	**$5,682,482**	**2,764**	**19,763,161**	**$5,741,548**	**2,797**	**20,111,128**
Planning and Research Segment									
Consumer Education	$200,000	0	0	$200,000	0	0	$200,000	0	0
Market Research	$110,000	0	0	$110,000	0	0	$110,000	0	0
Measurement & Verification	$15,000	0	0	$15,000	0	0	$15,000	0	0
Planning & Administration	$285,000	0	0	$290,000	0	0	$295,000	0	0
Product Development	$190,000	0	0	$190,000	0	0	$190,000	0	0
Planning & Research Segment Total	**$800,000**	**0**	**0**	**$805,000**	**0**	**0**	**$810,000**	**0**	**0**
PORTFOLIO TOTAL	**$9,511,304**	**4,985**	**36,885,682**	**$10,404,002**	**5,425**	**40,134,737**	**$10,404,002**	**5,363**	**40,052,074**

SPS's proposed savings goals for the Triennial Plan are achievable and reasonable as they are based on SPS's historic program performance and knowledge of the market conditions in SPS's service territory.

SPS has leveraged experience in New Mexico and other Xcel Energy jurisdictions to develop a set of programs which: (i) are cost-effective, consistent with the EUEA, thus providing overall benefits to all SPS customers, including non-participants; and (ii) provide opportunities for all of SPS's customer classes

to participate, thus enabling all customers the opportunity to receive direct benefits. While developing its programs, SPS paid particular attention to minimizing costs for non-incentive and non-promotional activities as incentive and promotional costs directly benefit customers, allocating costs to the most cost-effective programs wherever possible, and balancing the need for short-term achievement with a long-term strategy. Accordingly, SPS's Triennial Plan is reasonable and necessary, as well as cost-effective. Thus, the Commission should approve SPS's Triennial Plan, including the proposed Residential and Business programs, and the associated proposed program budgets.

In addition, the incentive mechanism proposed by SPS for program years 2020-2022 is reasonable because it incents SPS to exceed its annual energy savings forecast.

Q. Were Attachments MRS-1, MRS-3, MRS-7, MRS-8 prepared by you or under your direct supervision and control?

A. Yes.

Q. Are Attachments MRS-2(CD), MRS-4, MRS-5, and MRS-6 true and correct copies of what they are represented to be?

A. Yes.

III. SPS's COMPLIANCE WITH PRIOR COMMISSION ORDERS

Q. Does SPS have any obligations resulting from prior Commission orders?

A. Yes, SPS has a number of obligations, which I will discuss below.

Q. Please discuss SPS's reliance on compact fluorescent light ("CFL") bulbs as required by Decretal Paragraph M in the Commission's Final Order Adopting Recommended Decision in Case No. 08-00333-UT.[1]

A. As discussed in the Recommended Decision, SPS agreed to consider, in future filings, its level of reliance on CFLs in light of the change in requirements in the federal Energy Independence and Securities act of 2007. With the emerging technology of light emitting diode ("LED") lighting in both the residential and business marketplace, all residential CFL incentives ended in 2017 and the majority of business CFL incentives ended in 2018. All CFL incentives have been removed from both the business and residential programs within the Triennial Plan. In 2017, SPS began offering discounts only on LEDs. SPS will no longer report on the use of CFLs in its Lighting Efficiency programs.

[1] Case No. 08-00333-UT, *In the Matter of Southwestern Public Service Company's Application for Approval of its 2009 Energy Efficiency and Load Management Plan and Associated Programs and its Program Cost Tariff Riders,* Final Order Adopting Recommended Decision (Mar. 31, 2009).

Q. Please discuss how SPS considered programs offered in other jurisdictions as required by Decretal Paragraph O in the Commission's Final Order Adopting Recommended Decision in Case No. 08-00333-UT.

A. Attachment MRS-3 is a cross-reference of programs between the various jurisdictions in which Xcel Energy operates significant energy efficiency portfolios. Furthermore, as discussed throughout my testimony as well as in the Triennial Plan, SPS has leveraged the experience of other Xcel Energy utilities in other jurisdictions to offer, where cost-effective, time-tested programs in its New Mexico portfolio.

Q. Please discuss SPS's non-firm, wholesale sales made during economic interruptions as required by Decretal Paragraph L in the Commission's Final Order Adopting Recommended Decision in Case No. 08-00333-UT.

A. SPS had no economic interruptions in 2017 or 2018. As discussed later in my testimony, SPS is proposing to remove the interruptible credit option ("ICO") program starting in PY 2020, and therefore will not need to report on this requirement in future filings.

Q. How has SPS addressed the requirement in Section 1.1(b) from the Stipulation agreement in Case No. 15-00119-UT?[2]

A. Section 1.1(b) of the Stipulation in Case No. 15-00119-UT stated:

> SPS will offer residential cooling in 2016 as a standalone program, and it will ensure that all marketing does not promote converting technologies such as conversions from evaporative to compressor-based cooling. SPS will also evaluate in 2016 whether cooling technology conversions exist in the presence of a standalone cooling program.

Prior to the start of the 2016 M&V evaluations conducted by ADM Associates, Inc. ("ADM"), SPS asked ADM to provide feedback, through the use of questions asked in their program participant survey, as to whether or not customers were switching from evaporative cooling to central air conditioning when choosing to participate in the program. Due to the low participation in the program, ADM opted not to evaluate the program, and thus customers were not surveyed for a response. To investigate technology switching within the program,

[2] Case No. 15-00119-UT, *In the Matter of Southwestern Public Service Company's Application Requesting: (1) Acceptance of its 2014 Annual Energy Efficiency and Load Management ("EE/LM") Report; (2) Approval of its 2016 EE/LM Plan and Associated Programs; (3) Approval of a Financial Incentives for 2016; (4) Approval of its Cost Recovery Tariff Rider; and (5) a Determination Whether a Separate Process should be Established to Analyze a Smart-Meter Pilot Program,* Order Adopting Certification of Stipulation (Dec. 23, 2015).

SPS added a question to the online rebate application asking for the type of equipment the central air conditioner is replacing. SPS initiated this process in June 2017 shortly after ADM notified SPS that they did not review the program. To date, SPS has not received any applications for central air conditioning units where the applicant stated they were replacing an existing evaporative cooler.

Q. How has SPS addressed the requirement in Section 1.1(g) from the Stipulation agreement in Case No. 15-00119-UT?

A. Section 1.1(g) required SPS to offer a new pilot that will install smart thermostats in participating residential customers' homes at no cost to the participant. SPS began the Smart Thermostat Pilot Program as a Demand Response/Load Management ("DR/LM") program in 2016 and will continue to offer the pilot through the end of PY 2019. As I discuss below, SPS will be transitioning this DR/LM program to an EE only program starting in plan year 2020.

Q. How has SPS addressed the requirement in Section 1.1(a) from the Stipulation agreement in Case No. 16-00110-UT?[3]

A. In Section 1.1(a) of the Stipulation for Case No. 16-00110-UT, SPS agreed to review the potential to add participants to the Energy Feedback Program for PY 2018. The review conducted in the fall of 2016, with the assistance of the third-party program implementer, indicated a larger expansion consisting of 10,000 participants would be beneficial to the 2017 program. In order to add 10,000 participants and stay within the current planned program spend and third-party implementer scope of work, a creative solution was developed that combined the smaller 2017 and 2018 contracted refills into the single, larger 10,000 participant group. The first home energy reports were mailed to this larger group beginning in early May 2017. SPS is not expecting to add additional participants to the program until it selects a new program implementer for PY 2020.

[3] Case No. 16-00110-UT, *In the Matter of Southwestern Public Service Company's Application Requesting: (1) Approval of its 2017 Energy Efficiency and Load Management Plan and Associated Programs; (3) Continuation of its Energy Efficiency Tariff Rider and Recovery of the Difference Between Collections and Expenditures through its Energy Efficiency Tariff Rider; and (3) a Financial Incentive for Plan Year 2017 and Recovery of the Incentive through its Energy Efficiency Tariff Rider,* Order Adopting and Approving Certification of Stipulation (Nov. 11, 2016).

Q. How has SPS addressed the requirement in Section 1.1(e)III from the Stipulation agreement in Case No. 16-00110-UT?

A. Section 1.1(e)III required SPS to investigate 'strategic energy management' enhancements for capturing savings from business operational improvements. SPS has had conversations with large New Mexico customers who may be willing to engage with outside parties over time to capture operational savings. Thus far, no large New Mexico customers have been receptive to ongoing operational measurement, nor have any been willing to commit to operational improvements. In Colorado, operational savings have required multi-year customer commitments and substantial third-party implementer expenses. The combination of those results indicates that an enhanced New Mexico offer for operational savings would not be cost-effective as a stand-alone program at this time. Additionally, because calculation of savings from Strategic Energy Management activities are not discussed in the Technical Resource Manual ("TRM"), SPS discussed the calculation of savings for these measures with Evergreen Economics ("Evergreen"), the State-wide program evaluator for New Mexico. Evergreen agreed with SPS that savings for these measures should be calculated individually for each potential project following the process used for customers participating

in the Custom Efficiency product within the Business Comprehensive Program. As I discuss later, SPS has included this offering within its Custom Efficiency product in the Triennial Plan.

IV. SPS's TRIENNIAL PLAN AND ASSOCIATED PROGRAMS

A. Overview

Q. Please provide an overview of SPS's Triennial Plan.

A. SPS's Triennial Plan presents a portfolio of cost-effective EE programs to maximize the potential energy savings under the program constraints experienced by SPS in the past, as well as spending and cost recovery limitations imposed under the EUEA. SPS's Triennial Plan presents eight programs that target customers in the Residential (including low-income) and Business Segments. Additionally, SPS's Triennial Plan includes a Planning and Research Segment, which is necessary for the successful implementation of the EE programs.

For the Triennial Filing years 2020-2022, SPS proposes energy savings goals of 36.886, 40.135, and 40.052 GWh (net customer) at budgets of $9,511,304 including interest for PY 2020 and $10,404,002 for PYs 2021 and 2022. Please refer to Section I of Attachment MRS-1 for the methodology and breakdown of how SPS calculated the goals. The portfolio of programs is expected to produce lifetime net benefits from avoided generation capacity, transmission and distribution capacity, and marginal energy costs ranging from

\$14,015,606 in 2020 to \$17,747,334 in 2022,[4] which accrue to all of SPS's New Mexico customers. Tables MRS-2 through MRS-4 provide a summary of the budgets and demand and energy savings at the net customer and net generator levels, as well as the UCT results at the program level.

Table MRS-2

2020	Electric Participants	Electric Budget	Net Customer kW	Net Customer kWh	Net Generator kW	Net Generator kWh	Utility Cost Test Ratio
Residential Segment							
Energy Feedback	26,315	\$143,485	866	4,720,924	1,010	5,328,357	1.09
Heat Pump Water Heaters	55	\$44,500	25	185,716	29	209,612	1.18
Home Energy Services: Residential and Low Income	3,263	\$2,193,861	904	8,963,155	1,055	10,116,428	2.06
Home Lighting & Recycling	330,500	\$1,199,817	973	5,642,488	1,131	6,298,717	2.22
Residential Cooling	96	\$43,040	39	125,177	46	141,284	1.43
School Education Kits	2,500	\$145,417	10	376,378	12	424,806	0.80
Smart Thermostats	1,671	\$142,500	-37	825,149	-43	931,320	1.26
Residential Segment Total	**364,400**	**\$3,912,620**	**2,785**	**20,853,234**	**3,240**	**23,450,523**	**1.98**
Business Segment							
Business Comprehensive	477	\$4,798,684	2,263	15,985,365	2,479	17,207,066	1.31
Business Segment Total	**477**	**\$4,798,684**	**2,263**	**15,985,365**	**2,479**	**17,207,066**	**1.31**
Planning and Research Segment							
Consumer Education	0	\$200,000	0	0	0	0	
Market Research	0	\$110,000	0	0	0	0	
Measurement & Verification	0	\$15,000	0	0	0	0	
Planning & Administration	0	\$285,000	0	0	0	0	
Product Development	0	\$190,000	0	0	0	0	
Planning & Research Segment Total	**0**	**\$800,000**	**0**	**0**	**0**	**0**	
PORTFOLIO TOTAL	**364,877**	**\$9,511,304**	**4,985**	**36,885,682**	**5,719**	**40,657,589**	**1.47**

[4] Please see Appendix A to Attachment MRS-1. The portfolio lifetime benefit is reflected in the "Total Benefits" line item.

1 **Table MRS-3**

2021	Electric Participants	Electric Budget	Net Customer kW	Net Customer kWh	Net Generator kW	Net Generator kWh	Utility Cost Test Ratio
Residential Segment							
Energy Feedback	23,418	$143,485	778	4,291,520	908	4,843,702	1.07
Heat Pump Water Heaters	100	$78,500	45	337,666	53	381,113	1.30
Home Energy Services: Residential and Low Income	3,263	$2,213,861	904	8,963,155	1,055	10,116,428	2.18
Home Lighting & Recycling	322,550	$1,169,217	951	5,514,523	1,106	6,155,861	2.37
Residential Cooling	96	$43,040	39	125,177	46	141,284	1.55
School Education Kits	2,500	$145,917	10	376,378	12	424,806	0.84
Smart Thermostats	1,296	$122,500	0	698,746	0	788,652	1.41
Residential Segment Total	**353,223**	**$3,916,520**	**2,733**	**20,320,915**	**3,180**	**22,851,845**	**2.10**
Business Segment							
Business Comprehensive	487	$5,682,482	2,764	19,763,161	3,027	21,273,586	1.46
Business Segment Total	**487**	**$5,682,482**	**2,764**	**19,763,161**	**3,027**	**21,273,586**	**1.46**
Planning and Research Segment							
Consumer Education	0	$200,000	0	0	0	0	
Market Research	0	$110,000	0	0	0	0	
Measurement & Verification	0	$15,000	0	0	0	0	
Planning & Administration	0	$290,000	0	0	0	0	
Product Development	0	$190,000	0	0	0	0	
Planning & Research Segment Total	**0**	**$805,000**	**0**	**0**	**0**	**0**	
PORTFOLIO TOTAL	**353,710**	**$10,404,002**	**5,425**	**40,134,737**	**6,207**	**44,125,431**	**1.59**

Table MRS-4

2022	Electric Participants	Electric Budget	Net Customer kW	Net Customer kWh	Net Generator kW	Net Generator kWh	Utility Cost Test Ratio
Residential Segment							
Energy Feedback	21,058	$144,485	708	3,947,163	826	4,455,038	1.14
Heat Pump Water Heaters	125	$68,500	57	422,082	66	476,391	2.01
Home Energy Services: Residential and Low Income	3,263	$2,163,861	904	8,963,155	1,055	10,116,428	2.39
Home Lighting & Recycling	309,200	$1,158,151	914	5,300,679	1,063	5,917,133	2.46
Residential Cooling	96	$68,540	39	125,177	46	141,284	1.06
School Education Kits	2,500	$166,417	10	376,378	12	424,806	0.78
Smart Thermostats	1,288	$82,500	0	742,417	0	837,943	2.35
Residential Segment Total	**337,530**	**$3,852,454**	**2,637**	**19,890,259**	**3,068**	**22,369,022**	**2.26**
Business Segment							
Business Comprehensive	486	$5,741,548	2,797	20,111,128	3,063	21,648,146	1.57
Business Segment Total	**486**	**$5,741,548**	**2,797**	**20,111,128**	**3,063**	**21,648,146**	**1.57**
Planning and Research Segment							
Consumer Education	0	$200,000	0	0	0	0	
Market Research	0	$110,000	0	0	0	0	
Measurement & Verification	0	$15,000	0	0	0	0	
Planning & Administration	0	$295,000	0	0	0	0	
Product Development	0	$190,000	0	0	0	0	
Planning & Research Segment Total	**0**	**$810,000**	**0**	**0**	**0**	**0**	
PORTFOLIO TOTAL	**338,016**	**$10,404,002**	**5,363**	**40,052,074**	**6,131**	**44,017,168**	**1.71**

Q. Does SPS propose to continue operating any programs while it awaits a Commission decision on its proposed Triennial Plan?

A. Yes. Consistent with prior practice, if the Commission has not made a final decision on SPS's Triennial Plan by December 31, 2019, SPS proposes to continue operating its 2019 suite of programs in the interim. This approach is reasonable, as temporary program stoppage creates customer confusion, can hinder customers' ability to complete energy efficiency projects, and prevents

customers from accessing programs designed to reduce their energy bills. Furthermore, temporary program stoppage is administratively inefficient, and decreases program cost-effectiveness. This interim measure would allow continuation of the 2016 programs that were most recently approved by the Commission in Case No. 16-00110-UT.

Q. Does SPS propose to operate its programs in 2020 under the 2020 budget?

A. Yes. Consistent with prior practice, SPS proposes to apply the approval of its 2020 budget to the entirety of 2020, even if the Commission has not made a final decision by December 31, 2019. Such an approach is consistent with the 3% minimum funding level required under the EUEA and the Commission's EE Rule (*i.e.*, the lower of 3% of customers' bills or $75,000 per year per customer per calendar year) (also referred to herein as the "3% funding level").

B. Program Selection Process

Q. Please generally describe the process used by SPS in the development of the Triennial Plan.

A. SPS was guided in its selection by five over-arching principles: (i) design an EE portfolio to maximize energy savings; (ii) ensure that the portfolio meets the EUEA's funding requirements; (iii) ensure a cost-effective portfolio;

(iv) minimize, to the greatest extent practical, the administrative costs of developing and implementing the programs; and (v) offer a sufficient menu of programs to allow all customers the opportunity to participate. SPS balanced each of these principles in its selection of programs for the Triennial Plan.

Q. How did SPS determine which Residential and Business Segment programs to offer as part of its Triennial Plan?

A. Using the above-listed five principles, SPS began with an evaluation of its existing portfolio of programs, which are a continuation of the programs approved by the Commission in Case No. 16-00110-UT. Each program was reviewed to ensure that it was cost-effective and that the entire portfolio provided an opportunity for all customers to participate in programs. Further, SPS carefully reviewed: (i) the current programs' historical performance from mid-2008 through 2018 with specific focus on the most recent program years; (ii) programs offered in other Xcel Energy jurisdictions, as well as other New Mexico energy efficiency portfolios; (iii) comments received at the public participation meeting; and (iv) recommendations made by the Commission's independent M&V evaluator.

Q. Did SPS conduct any market studies to determine additional market potential within SPS's New Mexico territory?

A. Yes. SPS contracted with Seventhwave (now known as Slipstream) in May of 2018 to perform a Portfolio Optimization Study ("Seventhwave Study"). The Seventhwave Study scope revolved around identifying opportunities to add new measures within SPS's existing program portfolio and identify products or measures that other utilities in New Mexico and other nearby states offer as part of their EE efforts. Please refer to Attachment MRS-4 for a copy of the Seventhwave Study.

Q. What guidance did the Seventhwave Study provide to SPS?

A. At the time the study was being conducted, SPS provided Seventhwave with avoided capacity costs from its last approved EE/Load Management ("LM") Plan. Seventhwave identified several measures within their study that SPS could cost effectively implement in the market based on the historic avoided cost assumptions provided and Seventhwave's understanding of the New Mexico market. Based on these results, SPS reviewed the proposed measures and programs further to include a more detailed understanding of the market conditions in SPS's New Mexico territory.

Q. Did SPS perform this evaluation using internal or external resources?

A. SPS used both internal and external resources to further evaluate the Seventhwave recommendations. SPS retained CleaResult to evaluate whether two programs Seventhwave proposed could be implemented cost effectively in the territory.

Q. What two programs were evaluated for SPS and why did SPS utilize CleaResult to further evaluate the programs?

A. CleaResult conducted a Commercial food service market feasibility report and a holistic irrigation program market feasibility report for SPS's New Mexico service territory. Please refer to Attachment MRS-5 for a copy of the food service study and Attachment MRS-6 for a copy of the irrigation study. SPS utilized CleaResult because they have been the third-party implementer of the Business Comprehensive program for the last five years. CleaResult has a local team in New Mexico and they have extensive knowledge of the SPS territory and its customer base. SPS's decisions regarding whether or not to include these programs in its Triennial Plan are discussed later in my testimony.

Q. What other factors did SPS take into account when selecting its Triennial Plan Programs?

A. In the spring of 2019, Evergreen released its final version of the New Mexico TRM for the Calculation of Energy Efficiency Savings, which provided multiple changes to the savings algorithms a utility is allowed to claim for energy efficiency and demand response measures. SPS took these measure level TRM changes into account when evaluating its existing and proposed portfolio programs for inclusion within the Triennial Filing.

Q. Did SPS update any other assumptions or factors in its Triennial Plan?

A. Yes. In order to determine if its current and proposed programs were still cost effective after the TRM changes were applied, SPS updated its marginal energy, avoided capacity, and avoided transmission and distribution ("T&D") costs based on its most recent rate case (Case No. 17-00255-UT[5]). Prior to this Triennial filing, SPS last provided an update of these factors in its 2016 plan approving 2017 PY programs (Case No. 16-00110-UT).

[5] Case No. 17-00255-UT, *In the Matter of Southwestern Public Service Company's Application for Revision of its Retail Electric Rates Pursuant to Advice Notice No. 272,* New Final Order on Partial Mandate from the New Mexico Supreme Court (Mar. 6, 2019).

Q. Have the marginal energy and avoided capacity costs used for the programs changed from SPS's last approved EE Plan?

A. Yes. Both have decreased.

Q. Please explain why the avoided costs have decreased since they were last approved in an EE filing.

A. The reduction in avoided costs is due to three factors. First, natural gas prices are low, which has reduced the avoided fuel costs associated with generation. This results in a decrease of the marginal energy benefit. Second, the construction cost ($/MW) of large natural gas combustion turbines have decreased on a per-unit basis. Third, SPS's current load forecasts indicates it is long on resources in the intermediate term, which eliminates the benefits of avoiding new generation construction until such time that new generation is needed for the system – approximately 2028-2029.

Q. How do the changes to avoided capacity and marginal energy costs affect the programs and portfolio?

A. The lower avoided capacity and marginal energy costs reduce the benefits generated by programs in the Triennial Plan. Specifically, these benefits make up the majority of the numerator in the UCT. Therefore, the changes to avoided

capacity and marginal energy costs significantly reduces the cost effectiveness of all measures, and the overall portfolio. SPS has adapted the programs within the portfolio to meet the goals while maximizing the value to customers and incorporating the reduced avoided capacity and marginal energy costs.

C. Public Participation Meeting Process

Q. Please describe SPS's public participation process for its Triennial Plan.

A. In accordance with 17.7.2.8(B) NMAC, SPS invited the Commission's Utility Division Staff ("Staff"), the New Mexico Attorney General, and the New Mexico Energy, Minerals, and Natural Resources Department, as well as environmental group representatives, consumer advocates, large customers, and other utilities to a public meeting to solicit non-binding recommendations on the design and implementation of the proposed Triennial Plan. SPS held its first public participation meeting on February 18, 2019 via web conference and gave an overview of 2018 performance, Seventhwave Study recommendations, and program overviews of existing programs within the current portfolio. SPS requested non-binding feedback on programs and measures it was reviewing for inclusion within the Triennial Plan, and took the feedback it received in the first meeting to continue its review and evaluation of possible measures. Participating

attendees included representatives from Staff, Southwest Energy Efficiency Project ("SWEEP"), New Mexico Gas Company ("NMGC"), El Paso Electric Company ("EPE"), and Public Service Company of New Mexico ("PNM").

SPS held its second public participation meeting on April 22, 2019 via web conference. Participating attendees included representatives from Staff, SWEEP, market actors, Vote Solar, NMGC, EPE, and PNM. SPS provided final savings from 2018, discussed measures and products SPS reviewed based on the feedback it received from Seventhwave and CleaResult, and requested additional non-binding feedback from stakeholders on the programs proposed by SPS. A comprehensive list of feedback from both meetings can be found in Section I(A) of SPS's Triennial Plan.

Q. Are there any programs presented at the public participation meeting, but not included in SPS's Triennial Portfolio?

A. No. Although there were questions and discussion on whether or not SPS had reviewed certain measures for inclusion within its Triennial Plan, there were no programs proposed by participants at either meeting.

In the first public participation meeting, SPS did allude to the possibility of bringing the Refrigerator Recycling Program back to the market in 2020. After

running several cost-effectiveness scenarios, it was determined that the program was not cost effective during the Triennial period in SPS's New Mexico service territory, and was removed from further Triennial Planning.

SPS also discussed during the first public meeting the potential of creating a food service product within the Business Comprehensive Program that would incorporate several measures that Seventhwave recommended within their study. Unfortunately, after reviewing guidance from CleaResult's market feasibility report and attempting to combine the proposed measures to create a product that would pass the current cost effectiveness test, SPS was unsuccessful due to the decreasing avoided costs and marginal energy used in the calculations. Prior experience with existing food service measures in the Business Comprehensive Program indicate that the market for new equipment within SPS's territory is relatively small and the inclusion of those measures would not drive additional savings high enough to warrant the cost of launching such a product. Even though SPS did not create a new food service product, customers can continue to utilize the custom efficiency product in the business comprehensive program to obtain rebates for qualifying food service equipment.

Additionally, SPS had discussed in the initial public meeting that it was reviewing recommendations from Seventhwave to potentially add an irrigation product to the Business Comprehensive Program. After reviewing guidance from CleaResult's market feasibility report, SPS was unsuccessful in launching a product with limited measures due to the decreasing avoided costs and marginal energy used in the cost-effectiveness calculations. Upon further review, SPS realized that one of the measures proposed (Water well pump variable frequency drives) was an existing prescriptive measure within its motors and drive product offering. As a result, SPS has allocated additional marketing and rebate funds to help drive awareness of the offering to its irrigation customers in hopes that a targeted campaign effort will help transform that customer segment.

D. Program Changes

Q. As a result of the evaluation and update process described above, has SPS included any new measures[6] or eliminate any existing measures in its Triennial Plan?

A. Yes. SPS has made the following measures-level changes for its Triennial Plan:

[6] A measure is an individual piece of equipment, technology, or practice.

- Residential Cooling
  - addition of a quality install only measure
  - elimination of ECM rebates
- Home Lighting and Recycling
  - addition of TLED (linear tube) rebates
- Home Energy Services
  - elimination of all Residential Cooling and programmable thermostat measures that are already in the Residential Cooling Program
  - elimination of radiant barrier measures.
- Smart Thermostat Program
  - addition of ENERGY STAR measure
  - discontinuation of new demand response enrollments
- Business Comprehensive- Lighting Efficiency
  - addition of standalone controls
  - addition of Networked Lighting Controls
  - addition of LED linear ambient fixtures
  - addition of LED stairwell fixtures
  - elimination of all CFL measures

- elimination of all fluorescent measures
- elimination of all optimization measures
- elimination of traffic and pedestrian signals

- Business Comprehensive- Custom Efficiency
  - addition of strategic energy management measure

Q. Has SPS included any new products or programs[7] or eliminate any products or programs measures or programs in its Triennial Plan?

A. Yes. SPS has made the following program-level changes for its Triennial Plan:

- Program additions
  - Heat Pump Water Heaters (Res)
- Products eliminated
  - Computer Efficiency (Business Comp)
- Programs eliminated
  - Saver's Switch (Res)
  - ICO (Bus)

[7] A program is the complete product offering of like (similar) measures.

Q. Is SPS proposing to add or remove any Indirect Segments in its Triennial Plan?

A. SPS is proposing to add the Consumer Education segment back in its portfolio starting in PY 2020.

E. Budgeting Process

Q. Please describe SPS's budgeting process.

A. SPS began by establishing the projected program funding it would receive in 2020 consistent with the 3% funding methodology outlined in the EUEA. As discussed further by Ms. Beedy, this process results in an overall estimated EE funding level of $10,404,002. However, consistent with 17.7.2.8(E), SPS has reduced this budget by $911,462 to account for adjustments for prior year spending and budgets. This reduced the final 2020 budget to $9,511,304, including interest, as shown in Ms. Beedy's Attachment AKB-1.

Starting from the funding level estimate, SPS then refined the budget at the program level. In doing so, SPS sought to minimize program delivery costs, while maintaining the ability to effectively deliver its programs. In general, the proposed budgets were developed by determining forecasted energy savings goals by program and the associated rebate levels that were necessary to encourage

participation, while maintaining the cost-effectiveness of the program. Other budget components, such as promotion and materials, were developed based on past experience and discussions with industry personnel. Prior to filing, SPS reviewed the budget for reasonableness given the historical and projected performance of each program. In particular, SPS evaluated its costs and made adjustments where possible, without sacrificing necessary expenditures to maximize energy savings.

Table 1a through Table 1c of Attachment MRS-1 includes specific budget information for each program.

Q. Does the EE Rule require that SPS file budgets for each of its specific programs?

A. Yes. 17.7.2.8.H(12) NMAC requires that a "detailed separate measure or program budget that identifies the estimated monetary program costs to be incurred" be provided in the utility's application. SPS has met this requirement in its application.

Q. Does SPS seek flexibility in the management of the program budgets?

A. Yes. Consistent with its prior practice, SPS presents forecasted budgets for its Triennial Plan programs; however, it may adjust those budgets throughout the

year and will explain in its annual report when variances of greater than 25% from the budgets occur. This flexibility allows SPS to adjust its annual program spending to accommodate its most successful and cost-effective programs, which in turn provides increased benefits to customers.[8] In adjusting its programs' budgets, SPS is still subject to the requirements of both the EUEA and EE Rule, specifically the requirements to fund energy efficiency programs at 3% funding level and that no less than 5% of spending be directed towards low-income programs.

Q. For purposes of managing its programs budgets, will SPS adjust incentives as needed to reflect market conditions?

A. Yes. SPS proposed a rebate or incentive for most of the measures offered in its portfolio, but SPS will adjust these incentives based on market conditions.[9]

For example, if the cost for LED lighting measures decreases, SPS could reduce the incentive it pays for these measures and thereby increase the

[8] *See* the approved Stipulation in Case No. 14-00310-UT, which allows PNM to increase the budget for any program that is reasonably anticipated to exceed the stipulated budget due to an increase in program participation costs, and reduce the stipulated budget for any program that is reasonably anticipated to be less than the stipulated budget due to a decrease in program participation costs.

[9] Customers receiving a Home Energy Report through the Energy Feedback Program do not receive an incentive or rebate for participation.

cost-effectiveness of the program. Alternatively, if SPS determines that a measure is not gaining traction in the marketplace and that additional incentives or rebates are necessary, it could increase these rates to help promote customer interest.

Q. Please discuss further how SPS evaluates and minimizes the administrative costs related to its programs.

A. SPS minimizes delivery costs by determining whether it is more efficient to deliver the programs using internal resources or contracting with third-parties. SPS self-administers its programs where it is more cost or operationally effective – meaning that internal staff, supplemented with consultants on an as-needed basis, handle product development, program planning, technical analyses, sales and marketing, rebate processing, and regulatory support.

While SPS self-administers the EE programs where possible, the actual sale and delivery of energy efficiency technologies to end-use customers is conducted by market suppliers and vendors, such as retailers and contractors. In addition to SPS-provided messages, training, and education, SPS relies upon retail suppliers and vendors to educate customers about energy efficiency and market

equipment or services. SPS has generally found this approach to be the most effective and efficient method for operating EE programs.

SPS uses third-party providers to assist in implementing certain programs including School Education Kits, Business Comprehensive, Home Energy Services ("HES"), Energy Feedback, Home Lighting, and Smart Thermostats.

F. Program Summaries

1. Residential Segment Programs

Q. Please provide a summary of the residential programs included in the Triennial Plan.

A. SPS proposes seven residential programs including:

- Energy Feedback Program – The Energy Feedback program is designed to quantify the effects of informational feedback on energy consumption in approximately 15,000 residential households, consistent with the Commission's Final Order in Case No. 09-00352-UT.[10] This program provides educational materials and communication strategies to create a change in energy usage behavior. The purpose of the program is to measure when, how, and why customers change their behavior when provided with feedback on their energy using habits.

[10] Case No. 09-00352-UT, *In the Matter of Southwestern Public Service Company's Application for Approval of its 2010/2011 Energy Efficiency and Load Management Plan and Associated Programs, Requested Variances, and Cost Recovery Tariff Rider,* Final Order Adopting Certification of Stipulation (Mar. 15, 2011).

- Residential Cooling Program – This program offers rebates for the purchase of high efficiency evaporative cooling, air conditioning, and heat pump units. Rebates for evaporative coolers are paid for purchase of new units with an efficiency greater than 85%, installed in new or existing construction, regardless of whether or not the customer is replacing an existing unit. Evaporative cooling technology is well-suited to SPS's service territory, creating an opportunity to drive customers to higher levels of efficiency within this air conditioning category. Air conditioning and heat pump rebates are paid to registered contractors who perform a quality installation.

- Home Energy Services Program – Under this program, SPS provides incentives for the installation of a wide range of energy savings measures that reduce customer energy costs. The incentives are paid to energy efficiency service providers on the basis of deemed (*i.e.,* pre-determined) energy savings. The program includes attic insulation, air infiltration reduction, refrigerators (for low-income participants) and duct leakage repairs. The program is delivered via third-party providers interacting directly with customers to perform the home improvements. This program includes the Low-Income Home Energy Services ("Low-Income HES") product, which cost-effectively ensures that all customer segments have the ability to participate in SPS programs. Multi-family buildings are also eligible to participate in the program. The residential portions of these buildings are serviced through the HES program while the non-residential spaces are serviced through the Business Comprehensive program.

- Home Lighting & Recycling Program – This program provides incentives for customers to purchase energy efficient LEDs through participating retailers. Participating retailers may include home improvement, mass merchandisers, hardware, and grocery store locations. Customers will be able to recycle used CFLs at select retail partner locations. In 2017, SPS transitioned the majority of the programs rebate promotions to LED measures.

- Heat Pump Water Heaters – This program provides rebates for the purchase of high-efficiency electric heat pump water heaters. Customers can purchase these units through local home improvement stores or heating, ventilating, and air conditioning contractors.

- School Education Kits Program – The School Education Kits Program provides free kits to fifth grade classrooms in SPS's New Mexico service area. These kits include energy efficiency educational materials and products, including four LEDs, one low-flow showerhead, a kitchen and bathroom aerator, and an LED nightlight, which are distributed along with curriculum. This program provides value beyond the direct installation of measures included in the kits by creating awareness of energy efficiency with students, teachers, and parents.

- Smart Thermostat EE Program – This program utilizes the new ENERGY STAR Connected Thermostat specification. Thermostats meeting the Energy Star performance standard will be rebated as long as they are compatible with Xcel Energy's demand response management system. SPS will offer a $50 rebate for all thermostats that meet the program criteria.

Q. As part of its Triennial Plan, does SPS propose any significant additions, modifications, or terminations to the Residential Segment programs or products that were/are offered during 2019?

A. Yes. As discussed in Section D above, SPS proposes to add a Heat Pump Water Heater program to the portfolio and remove the Saver's Switch program from its Residential segment. Additionally SPS requests to modify its Smart Thermostat Pilot Program.

Q. Why is SPS proposing to include a Heat Pump Water Heater Program in its Triennial Plan?

A. Heat Pump Water Heaters were identified as a potential program in the Seventhwave study. SPS utilized the internal experience from the program in Colorado to develop a cost-effective program. Additionally, market research indicates that more than 40% of residential customers have electric water heaters. The Heat Pump Water Heater program will offer customers a more efficient option.

Q. Why is SPS proposing to remove the Saver's Stat Program from the existing portfolio in its Triennial Plan?

A. SPS is proposing to remove the Saver's Stat program because it is not cost effective using the new avoided revenue requirements.

Q. What changes does SPS propose to be made to the Smart Thermostat Program in its Triennial Plan?

A. The Smart Thermostat program has previously focused on reducing peak demand from participating customer's air conditioning systems. SPS proposes to change this focus to reducing energy consumption for this equipment.

Q. How does SPS plan to address the requirement under the EUEA that at least 5% of total spending be directed towards low-income customers?

A. SPS plans to meet this requirement primarily through its Low-Income HES program. SPS projects to spend no less than $475,565 in 2020 and $520,200 in both 2021 and 2022 on this program, which accounts for 5% of each years' total portfolio program costs.

Q. Are the proposed programs included in the Residential Segment cost-effective?

A. Yes, all of the proposed programs, with the exception of School Education Kits, pass the UCT at the program level, with an overall UCT of 1.98 in 2020, 2.10 in 2021, and 2.26 in 2022. Please refer to Section VI of my testimony, which addresses the UCT in more detail. Table 1 in the Triennial Plan provides the UCT results for each program and Appendix A of the Triennial Plan provides detailed calculations and methodologies for each UCT calculation.

2. Business Segment Programs

Q. Please summarize the Business Segment programs presented in the Triennial Plan.

A. SPS proposes one program in the Business Segment.

- Business Comprehensive Program – This program includes the bundling of the following products: Cooling Efficiency, Custom Efficiency, Large Customer Self-Direct, Lighting Efficiency, Motor & Drive Efficiency, and Building Tune-Up.

    - Cooling Efficiency: Provides rebates for purchasing air conditioning equipment that exceeds standard efficiency equipment. This product also includes rebates for particular commercial refrigeration equipment.

    - Custom Efficiency: Offers customized rebates based on an engineering analysis of specific customer projects. This product is for technologies and strategies that are either too new or too complex for SPS to have a prescriptive rebate.

    - Large Customer Self-Direct: Customers using over 7,000 megawatt hours ("MWh") per year may choose to administer their own energy efficiency projects to receive either a bill credit or exemption from a portion of the charges under the Energy Efficiency Rider.

    - Lighting Efficiency: This product provides prescriptive rebates for the most common energy efficiency upgrades to lighting systems.

    - Motor & Drive Efficiency: This product offers prescriptive rebates for the most common energy efficiency upgrades for motors and variable speed drives. This product also includes rebates for pump-off controllers used in oil and gas operations and rebates for particular compressed air equipment.

    - Building Tune-Up: This product features a scaled-down recommissioning-style offering aimed at lower-cost efficiency improvements for small- to mid-sized business customers.

Q. As part of its Triennial Plan, does SPS propose any significant additions, modifications, or terminations to the Business Segment programs or products that were/are offered during 2019?

A. Yes. As discussed in Section D above, SPS proposes to eliminate the Computer Efficiency product from the Business Comprehensive program. SPS additionally proposes to eliminate the Business ICO program after PY 2019.

Q. Why is SPS proposing to eliminate the Computer Efficiency product within its Triennial Plan?

A. Participation in the Computer Efficiency program in New Mexico was limited in recent years compared to other jurisdictions. Additionally, the efficient equipment incentivized by this program is becoming more widely adopted in the market, a sign that market transformation is occurring and the influence of our product on these purchases is lessoning. SPS proposes to eliminate the Computer Efficiency product and dedicate the resources to measures where they can better influence adoption of efficient technologies.

Q. Why is SPS proposing to eliminate the Business ICO program within its Triennial Plan?

A. The Business ICO program had no participation in 2018 and SPS believes that it would not be cost effective using the avoided revenue requirement assumptions contained in this Triennial Plan.

Q. Are the proposed programs included in the Business Segment cost-effective?

A. Yes. All of the proposed programs pass the UCT at the program level, with an overall UCT of 1.31 in 2020, 1.46 in 2021, and 1.57 in 2022. Cost-effectiveness testing is discussed in Section VI of my testimony.

Q. Did SPS have any participants in the Large Customer Self-Direct program in 2018 and does SPS forecast any participants in 2019 or 2020?

A. No. SPS did not have participation in the Large Customer Self-Direct program in 2018 and currently has not had discussions with any customer who is interested in participating. However, if a large customer chooses to participate under 17.7.2.10 or 17.7.2.11 NMAC, SPS will comply with the requirements under those portions of the EE Rule.

3. Planning and Research Segment

Q. What is the purpose of SPS's Planning and Research Segment?

A. The Planning and Research Segment consists of internal company activities, which provide the support needed to develop, implement, and maintain SPS's portfolio of EE programs. In addition, the activities provide direct support to program operations. The Planning and Research Segment includes the following essential activities: Consumer Education, Market Research, M&V, Planning & Administration, and Product Development. I provide a brief summary of each activity below, with a more detailed discussion included in the Triennial Plan.

Q. Why is the Planning and Research Segment necessary?

A. The Planning and Research Segment is necessary because it provides the backbone support for the portfolio, unifying the development of programs with underlying technical assumptions and providing program managers with the research needed for them to target the markets and segments that are most likely to participate in their programs, as well as providing the education to increase customers' awareness of energy efficiency and load management. This segment is also necessary for maintaining the integrity of the portfolio by carefully tracking program participation and achievements and applying for and receiving

Commission endorsement and approval of the programs. Once approved, these functions are necessary for maintaining compliance with the regulatory requirements, such as cost-effectiveness standards and the requirement that programs receive M&V at least once every three years.

Q. Please provide a brief description of each component within the Planning and Research Segment.

A. The following components are included within the Planning and Research Segment:

- Consumer Education: This program includes activities to increase residential customer awareness of the benefits of energy efficiency and conservation. Examples of activities include advertising through local newspapers, third-party websites[11], newsletters, bill onserts, and radio. The messaging includes targeted communications to address seasonal energy usage challenges.

- Market Research: This activity focuses on market research to provide information for SPS to use in its decision-making process concerning EE program design, planning, and delivery.

- Measurement and Verification: This activity is responsible for managing and coordinating the overall M&V Plan for SPS and working with the Commission's Independent Program Evaluator, Evergreen, to ensure compliance with the EUEA and the EE Rule. In addition, each direct

[11] Third-party websites may include websites for community organizations, program sponsors, or partner contractors.

savings program budget includes Evergreen's estimated budget that will be needed to conduct program-specific M&V.

- Planning & Administration: This function ensures compliance with all EUEA and EE Rule requirements. Specifically, this group is responsible for the coordination and preparation of the various New Mexico EE regulatory filings. These activities include the preparation of testimony, the annual plans and reports, discovery responses, rulemaking comments, benefit-cost analyses for every program, and tracking and reporting of EE expenditures and savings achievements. Additionally, any outside consultants and external legal service fees related to EE regulatory activities are included in this budget.

- Product Development: This activity identifies, assesses, and develops new EE programs, including engineering support and technical assumptions, and also supports the modification of current programs.

Q. Has SPS proposed to terminate any components from its Planning and Research Segment?

A. No.

Q. Has SPS proposed to include any new components in its Planning and Research Segment?

A. Yes. As a result of budget decreases agreed upon in the Settlement of Case No. 16-00110-UT, SPS cut funding and removed the Consumer Education component from the portfolio in PY 2017. SPS proposes to add this component back in its Planning and Research Segment in PYs 2020-2022 as part of its Triennial Plan.

Q. How does SPS allocate the Planning and Administration costs?

A. SPS does not directly allocate the Planning and Administration costs to specific programs. As first approved by the Commission in SPS's 2008 filing (Case No. 07-00376-UT),[12] and utilized and approved since, indirect costs such as Consumer Education or Market Research are separated from the individual program budgets. Allocating these costs directly would not be appropriate for the following reasons:

- Inaccuracy: Because these indirect costs do not directly benefit a program and are not associated with the direct operation of a program, it would be inappropriate to allocate these costs in a similar manner as, for example, allocating the cost of developing a new product to an unrelated existing product.

- Irregularity: Because these indirect costs are not consistent in their accrual, direct allocation could result in significant year-to-year changes in the budgeting and reporting process that would inaccurately reflect when the benefits of these indirect programs are received.

- Management: Because of the irregularity of these indirect costs, direct allocation would require additional and unwarranted administrative efforts to account for these costs and would require a change in the SPS accounting process.

[12] Case No. 07-00376-UT, *In the Matter of Southwestern Public Service Company's Application for Approval of Electric Energy Efficiency and Load Management Programs and Program Cost Tariff Riders Pursuant to the New Mexico Public Utility Act and Efficient Use of Energy Act,* Final Order (Apr. 17, 2008).

Q. Are the Planning and Research Segment costs incorporated into the UCT ratio?

A. Yes. Consistent with the Commission's approval in Case No. 07-00376-UT, and each successive annual plan filing (Case Nos. 08-00333-UT,[13] 09-00352-UT, 11-00400-UT,[14] 13-00286-UT,[15] 15-00119-UT, and 16-00110-UT), the Planning and Research Segment costs are placed into their own segment and, therefore, impact the overall portfolio UCT ratio, but not the individual programs' UCT ratios.

Q. How was the Planning and Research Segment budget developed?

A. Each group within the Planning and Research Segment budgets for SPS's Triennial Plan is based on past history of spending for internal labor and

[13] Case No. 08-00333-UT, *In the Matter of Southwestern Public Service Company's Application for Approval of its 2009 Energy Efficiency and Load Management Plan and Associated Programs and its Program Cost Tariff Riders,* Final Order Adopting Recommended Decision (Mar. 31, 2009).

[14] Case No. 11-00400-UT, *In the Matter of Southwestern Public Service Company's Application for Approval of its (A) 2012 Energy Efficiency and Load Management Plan and Associated Programs, (B) Cost Recovery Tariff Rider, and (C) Requested Variance,* Final Order Adopting Certification of Stipulation (Jun. 7, 2012).

[15] Case No. 13-00286-UT, *In the Matter of Southwestern Public Service Company's Application for Approval of its (A) 2012 Energy Efficiency and Load Management Plan and Associated Programs, (B) Request for Financial Incentives for 2013-2015; (C) Cost Recovery Tariff Rider, and (D) Request to Establish Lower Minimum Savings Requirements for 2014 Under the Efficient Use of Energy Act,* Final Order (Jun. 24, 2014).

expenses, as well as estimates and bids received from outside consultants, vendors, and outside legal services.

Q. Is the Triennial Planning and Research Segment budgets for the next three years reasonable?

A. Yes. The total budget for the Planning and Research Segment for 2020 is $800,000, which is approximately 8% of the total portfolio budget of $9,511,304. The total budgets for the Planning and Research Segment for 2021 and 2022 are $805,000 and $810,000, which are approximately 8% of the total portfolio budgets of $10,404,002 for each year. The costs included in this segment are necessary to deliver the programs needed to meet the EUEA goals.

Q. When the Planning and Research Segment costs are included, does the total portfolio remain cost-effective?

A. Yes. When these reasonable and necessary costs are included, SPS's overall portfolio remains cost-effective with a UCT ratio of 1.47 in 2020, 1.59 in 2021, and 1.71 in 2022. Accordingly, these budgeted expenses should be approved.

V. GOAL COMPLIANCE

Q. Please explain how SPS determined its Triennial Plan goals for 2020-2022.

A. SPS's goal was developed using a top down approach informed by historic portfolio performance. As shown in Ms. Beedy's Attachment AKB-1, SPS first calculated its 2020-2022 funding levels based on 2018 actual collections, adjusted for the large customer cap and SPS's prior year amortizations. SPS then reviewed industry trends, program participation over the last three years, program experience in other jurisdictions, input from stakeholders and research including the Seventhwave and CleaResult studies. SPS next adjusted program parameters in accordance with feedback from the 2018 status report findings from Evergreen and updates to the TRM. SPS compiled this information to adjust rebate and participation levels to maximize the customer savings and net benefits while balancing the benefits across all customer classes. This resulted in a forecasted savings of 36.886 GWh in 2020, 40.135 GWh in 2021 and 40.052 GWh in 2022 (net customer).

In developing its Triennial Plan in this manner, SPS ensured that it met the requirements of the current EUEA, namely the 3% funding level while providing a diverse and impactful portfolio at a cost-effective level.

Q. Has SPS met the current EUEA requirement of achieving 8% of 2005 retail sales by 2020?

A. Yes. SPS achieved 38.680 GWh for PY 2018 based on the evaluation conducted by Evergreen. Combined with prior year's savings, SPS has saved 302 GWh of its cumulative achievement goal of 300 GWh in 2018 and met the EUEA requirement two years early. As shown in Table 2 of Attachment MRS-1, the projected 2019 and 2020 achievement targets will position SPS to exceed the 8% requirement by almost 1%.

Q. Has the EUEA rule been amended to provide guidance after 2020?

A. Yes. The EUEA was amended in 2018 to update the savings requirement targets and funding levels a utility must achieve when providing energy efficiency and load management programs. Ms. Sakya discusses these changes to the EUEA in Section IV of her testimony.

Q. How will the amended EUEA goal requirements affect SPS's future goals?

A. The amended EUEA increases the savings requirement to 5% of SPS's 2020 total retail kilowatt-hour ("kWh") sales for customer classes that have the opportunity to participate in 2025 (based on energy efficiency and load management programs implemented in 2021-2025). As a result, SPS estimates it will be required to

achieve savings of roughly 1% of total retail kWh sales, or 61 GWh per year to meet the EUEA minimum, based on 2018 retails sales.

Increasing the yearly goal requirement to this level will present some challenges for SPS. Currently the 2021 and 2022 forecasted achievement is around 40 GWh, around two-thirds of the estimated goal SPS has calculated. SPS also forecasts retail sales to increase in 2020-2022 as a result of increased oil and gas exploration within the New Mexico Territory. These factors, coupled with the decrease in avoided costs, will make it difficult to implement programs that are cost effective while generating enough achievement to satisfy the amended EUEA requirement.

Q. How will the amended EUEA requirement on program funding affect SPS's spending?

A. Given the current market conditions, the Triennial Plan strikes the ideal balance between the strategic priorities described in the EUEA. However, SPS will continue to evaluate the existing portfolio, market conditions, and new product and measure ideas throughout implementation of the Triennial Plan. The recently-amended EUEA program funding guidance will increase the budgeting

flexibility and allow SPS to take advantage of opportunities to increase the energy savings of the portfolio as cost-effective additions are identified.

Q. What proactive measures is SPS taking to ensure it complies with the new EUEA goal requirements?

A. Due to its unique customer makeup, market size, geographic location, and declining Avoided Costs, SPS has a unique challenge in implementing programs within the territory that provide opportunities for expanded achievement and customer satisfaction. SPS proposes to conduct an Energy Efficiency Potential Study ("EE Potential Study") in 2020 to identify the available opportunity for energy efficiency and demand response (load management) programs within SPS's New Mexico service territory. SPS also proposes to conduct semi-annual roundtable discussions in years 2020-2022, continue to explore potential pilot programs, and investigate partnerships with the national labs and/or local colleges.

Q. What is an EE Potential Study?

A. An EE Potential Study is focused market research that characterizes the opportunity for Demand Side Management ("DSM") programs to influence customer and market behavior in favor of selecting more efficient products and

processes. An EE Potential Study usually involves some combination of customer surveys, on-site observations at customer facilities, economic analysis, secondary research, and technical calculations of savings possible when different technologies are implemented. Uses for an EE Potential Study include, but are not limited to, identifying technologies that provide a significant savings opportunity, identifying customer segments that have either led or lagged the transition to more efficient energy end uses, and setting goals for DSM portfolios or programs.

Q. How is EE potential calculated?

A. EE potential is typically subject to multiple levels of analysis, starting with some level of screening for the technical feasibility of saving energy. Technical feasibility is often a combination of engineering calculations for the amount of savings possible when an inefficient technology is upgraded to a more efficient option and saturation, i.e. percentage of total instances of a particular end use that use a given technology (inefficient as well as efficient). Once the maximum feasible amount of savings is known, then additional analysis that examines customer likelihood to implement an efficiency project is done. This can either be in a single step that considers economic trade-offs compared to supply side energy

and quantitative and qualitative influences on decisions, or it can be split into two separate steps. The economic analysis compares the avoided cost of energy as a benefit to costs of implementation with and/or without incremental costs to the customer (depending on the parameters of the study). The assessment of influence on customer decisions typically includes many of the following: customer payback, customer awareness of different technologies, customer processes or timing that may conflict with or enable adoption of an efficient technology, and market availability of an efficient technology that would work for the customer. The end result of these different analyses is a gradual screening from feasible projects to an informed forecast of projects that can be reasonably influenced by a utility program.

Q. Why does SPS propose to conduct an EE Potential Study in 2020?

A. SPS anticipates that the goals included in this and future plans will require significant consideration for new ways to reach previous participants and/or to expand the reach of programs to include customer segments that have not participated. This study assists both of these efforts to identify end uses and customers that are more frequently using older, less efficient technology and measures that may be occurring naturally and should not be included in

programs. Furthermore, if certain customer segments do not have significant cost-effective energy efficiency potential remaining it is important to have that information available for setting goals in future plans.

VI. COST-EFFECTIVENESS TEST ASSUMPTIONS AND CALCULATIONS

A. General Description

Q. What is the New Mexico cost-effectiveness standard for EE programs?

A. The EUEA requires the use of the UCT to evaluate the cost-effectiveness of EE programs. The EUEA defines the UCT as follows:

> A standard that is met if the monetary costs that are borne by the public utility and that are incurred to develop, acquire and operate energy efficiency or load management resources on a life-cycle basis are less than the avoided monetary costs associated with developing, acquiring and operating the associated supply-side resources. In developing this test for energy efficiency and load management programs directed to low-income customers, the commission shall either quantify or assign a reasonable value to reductions in working capital, reduced collection costs, lower bad-debt expense, improved customer service effectiveness and other appropriate factors as utility system economic benefits.[16]

The UCT measures the effectiveness of the program in terms of avoided revenue requirements that are realized when customers utilize energy more efficiently in comparison to utility costs for delivery of energy efficiency projects. As a result, the UCT has these sensitivities:

[16] NMSA 1978, § 62-17-4 (C).

- an increase in rebates has a negative impact on the test;
- an increase in other project costs has a negative impact on the test; and
- an increase in avoided revenue requirements has a positive impact on the test.

In addition, 17.7.2.8(J) NMAC also requires that the public utility demonstrate that its portfolio of programs or measures be cost-effective – meaning a UCT of greater than one.

Q. Did SPS perform a UCT calculation for the proposed programs in each of its PY?

A. Yes. Each of SPS's proposed programs, with the exception of School Education Kits meets the cost-effectiveness standard (*i.e.*, each proposed program has a UCT ratio of 1.0 or greater), with a total projected portfolio UCT ratio of 1.47 for 2020, 1.59 for 2021, and 1.71 for 2022. In other words, for every $1.00 spent by SPS and participating customers to implement the programs and to upgrade to energy efficient technologies, all SPS customers save between $1.47 and $1.71 in lifetime avoided supply-side costs for years 2020-2022. The detailed cost-effectiveness test results for each program, as well as a summary table, are located in Appendix A of the Triennial Plan.

Q. Please discuss the program cost-effectiveness levels in the Triennial Plan versus 2019.

A. Overall, the cost-effectiveness of the portfolio has decreased due, primarily, to a decrease in the avoided cost inputs. Based on SPS's most recent avoided cost calculations, these values have decreased significantly compared to previous avoided cost calculations.[17]

B. Utility Cost Test Calculations

Q. Please describe how SPS calculates the UCT ratio for each program.

A. The UCT ratio is calculated as the net present value ("NPV") of the supply-side benefits (also known as system benefits or cost to serve) (numerator) divided by the NPV of the utility costs (denominator).

Q. What does SPS mean by "supply-side benefits"?

A. Supply-side benefits are system benefits which accrue to all customers by reducing or alleviating the need to build (or purchase) new generation, transmission, and/or distribution to meet growing customer demand. While the

[17] *See* Case Nos. 13-00286-UT and 15-00119-UT for SPS's past avoided cost calculations. For current calculations, see Tables 4, 5, and 6 in Attachment MRS-1.

participants in EE programs will reap the additional benefit of a decrease in their electricity consumption, all customers will benefit from the system reductions.

Q. What are the supply-side benefits and how are they calculated for each EE program?

A. SPS avoids generation capacity, T&D capacity, and marginal energy including carbon dioxide emission costs associated with reduced electricity use. SPS used deferred combustion turbine costs to calculate the value of avoided generation considering future resource needs and forecasted generation additions to the SPS system consistent with the final order in SPS's most recent rate case (Case No. 17-00255-UT).

SPS used the values of avoided T&D capacity as identified in the Public Service Company of Colorado's study of avoided T&D costs, performed in 2016 and included in the 2017 Strategic Issues Proceeding (Commission Decision No. C08-0417). SPS has not performed a T&D study since its last EE filing in 2016 (Case No. 16-00110-UT).

SPS used PLEXOS to calculate the value of marginal energy savings and avoided carbon dioxide emissions.

Q. Please generally describe what PLEXOS is.

A. PLEXOS is simulation software which simulates the operation of an electric generation system. This simulation is dependent on various inputs including an hourly load forecast, an expansion plan of existing and future generation sources, and the operating characteristics of these generation sources including a forecast of the prices to produce energy from each of the sources and the carbon emissions of each source.

Q. What data from Plexos is used to inform the Triennial Plan?

A. PLEXOS provides values of the generation price each hour of the year, as well as the system average carbon emissions (lbs CO_2/MWh) for each hour. Also included is the system load each hour of the year. The generation price of each hour is applied to a load shape for each measure in the portfolio to determine the avoided cost of energy for that measure. This same process is applied to the avoided carbon emissions associated with each measure.

Q. What costs are included in the utility costs (*i.e.*, the denominator) in the UCT calculation?

A. Utility costs consist of all the program-related expenses associated with internal administration, third-party administration, promotional costs, rebates paid to

customers, incentives paid to vendors, and M&V costs. SPS costs are found in the UCT results of Appendix A of the Triennial Plan. The utility costs are also shown in the categories listed in Table 10a-c of the Triennial Plan. Rebates paid directly to customers make up about 30% of the total portfolio costs. Promotions, the category which captures SPS's efforts to inform, educate, and market energy efficiency to customers, makes up approximately another 14% of the budget. Internal administration, third-party delivery, and M&V make up the remaining 56% of the costs.

Q. What are the estimated monetary program costs incurred by the utility for each year of the expected useful life of the measures or programs?

A. SPS only incurs costs for the measures or programs in the first-year of the measure or program. In other words, the estimated program budgets, presented in Table MRS-1, are equal to the lifetime program costs for each program. As an example, if SPS pays a rebate to a commercial customer that installs high efficiency lighting, that rebate is paid in the first year of the estimated useful life. SPS will not make any additional rebate payments nor incur any future costs for the customer's installation of that high efficiency lighting.

Q. Continuing your example, do benefits for the installed measure continue to accrue over the lifetime of the measure or are they incurred only in the first year?

A. Yes. Benefits for the installed measure continue to accrue for the life of the measure. In Appendix A to Attachment MRS-1, SPS has provided both the lifetime system benefits as well as the lifetime program costs (incurred only in the first year) as these are the primary factors used to determine the cost-effectiveness of a program.

Q. Has SPS incorporated into its Low-Income Program any of the non-energy benefit ("NEB") values, consistent with 17.7.2.9(B)(4) NMAC?

A. No. SPS has not assumed a 20% value of reductions in working capital, reduced collection costs, lower bad-debt expense, improved customer service, and effectiveness as utility system economic benefits. SPS's current Low-Income Program is cost effective under the UCT without the 20% NEB value.

Q. Tables MRS-2 through MRS-4 show the School Education Kits program with a UCT below 1. Does SPS expect this UCT to improve?

A. Yes, SPS expects the UCT for this program to improve. Specifically, SPS believes that the program administration costs will decrease over time as the

components of the kits, including LED lamps, become less expensive. Additionally, the avoided generation costs increase in later years of the Triennial Plan, which also improves the UCT of the School Education Kits program.

C. Program-Level Technical Assumptions

Q. Has SPS provided the technical assumptions associated with its proposed programs in its Triennial Plan?

A. Yes. Appendix B, "Electric Planning Assumptions," to the Triennial Plan includes SPS's Forecasted Planning Assumptions by program. These assumptions include the technical assumptions used to calculate savings. The detailed methodology and algorithms used to calculate the energy and demand savings are reviewed by the Commission's M&V evaluator.

Q. Are the technical assumption values reasonable?

A. Yes. SPS has compiled the assumptions and calculated the savings using the latest available information relevant to the SPS service territory or from Xcel Energy's other service areas when SPS-specific information is unavailable. In addition, the technical assumptions have been updated according to the TRM or based on recommendations made by Evergreen as a result of M&V conducted in prior program years on SPS's EE programs.

Q. Is SPS seeking approval of its technical assumptions?

A. No. The Commission's Independent Program Evaluator is responsible for reviewing and recommending, if necessary, any changes to the deemed savings and forecasted technical assumptions in conjunction with the M&V for each program year. Accordingly, SPS is not seeking Commission approval of these assumptions in this proceeding, as they will be reviewed and modified, on an after-the-fact basis, by the Independent Program Evaluator.

VII. MEASUREMENT AND VERIFICATION

Q. What is M&V?

A. M&V refers to an analysis performed by an independent evaluator that estimates reductions of energy usage or peak demand and determines any actual reduction of energy usage or peak demand that directly results from the utility's implementation of particular energy efficiency measures or programs or of particular load management measures or programs (17.7.2.7(F) NMAC). M&V is designed to provide accountability, risk management, and improvement to a utility's programs. In other words, M&V seeks to answer the following questions: (i) did the program deliver its estimated savings; (ii) how certain are these savings; and (iii) what can be done to improve future program performance?

Q. What are the requirements of the EUEA regarding M&V?

A. Section 62-17-8(B) of the EUEA requires public utilities to submit a comprehensive measurement, verification, and program evaluation report prepared by an Independent Program Evaluator at least every three years.

Q. What are the Commission's M&V requirements?

A. 17.7.2.15(A) NMAC requires public utilities to annually submit a comprehensive measurement, verification, and program evaluation report prepared by an

Independent Program Evaluator. It is also required that each program be independently evaluated at least once every three years. 17.7.2.15(B) NMAC requires that an Independent Program Evaluator be selected by the Commission to verify energy and demand savings. 17.7.2.8(H)(15) NMAC requires supporting documentation, underlying data, calculations, estimates, and other items shall be presented in a manner that facilitates the preparation of an M&V report by an Independent Program Evaluator, along with compilation and preparation of the public utility's reporting requirements, and that facilitates a simple comparison of measure or program estimated results to actual results, including the public utility's cost of capital and discount rate.

Q. Has SPS met the M&V requirements of the EUEA and the EE Rule?

A. Yes. SPS's 2018 Annual Report includes the Independent Program Evaluator's 2018 M&V report, which is Appendix A of that attachment. SPS's 2018 Annual EE Report is being filed separately on May 15, 2019. However, SPS's 2018 Annual EE Report is also attached to my testimony as Attachment MRS-2(CD).

Q. Has the Commission selected an Independent Program Evaluator?

A. Yes. Evergreen was selected in 2017 by the Commission's Evaluation Committee and approved by the Commission as the Independent Program Evaluator to evaluate PYs 2017 and 2018. Evergreen's contract was renewed in 2018 to cover PYs 2019 and 2020.

Q. What is the status of the selection of an Independent Program Evaluator for 2021 and 2022?

A. Currently, there is no contract in place beyond 2020. Pursuant to 17.7.2.15(C)(1) NMAC, Staff will undertake a competitive bid process to identify the next Independent Program Evaluator. Because there is no contract in place for PYs 2021-2022, SPS has used estimates from prior year evaluations of programs conducted by Evergreen.

Q. How are the results of M&V used?

A. In each Annual Report, SPS reports savings that have been modified according to the M&V results – they may be higher, lower, or the same as what SPS initially calculated depending upon the findings of Evergreen. These modified savings are then used for compliance in reaching the EUEA goals.

Q. What are the projected Triennial M&V costs?

A. The total M&V costs are forecasted to be $180,000 for 2020, $185,000 for 2021 and $175,000 for 2022, and are included in SPS's total program costs. Evergreen's costs are directly allocated to programs based upon the evaluation plan for each Triennial year. However, SPS's M&V costs include costs directly allocated to programs as well as general costs included in the Planning and Administration section. I discuss these costs further in Section IV(F)(3) of my testimony.

Q. Are the Triennial M&V costs reasonable and necessary?

A. Yes. The total budget for each year M&V activities represents approximately 2% of the total portfolio budget. This is very reasonable considering that a common guideline for M&V is 3-6% of total portfolio costs. Consequently, these costs should be approved by the Commission.

VIII. INCENTIVE MECHANISM FOR PROGRAM YEARS 2018-2022

Q. Please describe the stipulated PY 2018 incentive mechanism.

A. The incentive mechanism approved in Case No. 17-00159-UT,[18] for PY 2018, is presented in Attachment MRS-7.

(i) If SPS achieved a minimum cumulative energy savings threshold equal to 287 GWh (net customer) for plan year 2018, SPS would receive a base incentive of $668,905, adjusted for Low-Income spending, as provided below. The methodology for this incentive is based on the following calculation:

$9,836,846[19] (x) 6.80% - Low-Income Adjustment ("LIA") where:

LIA = $0, unless SPS spends less than $491,842 (*i.e.,* 5% minimum of estimated program spend), in which case the LIA is calculated as:

- Low-Income Spending Shortfall ("LISS") (x) 6.8% (x) 2 where:

[18] Case No. 17-00159-UT*, In the Matter of Southwestern Public Service Company's Energy Efficiency Compliance Application that Requests Authorization to: (1) Per Approved Variance, Continue its: (A) 2017 Energy Efficiency and Load Management Plan Programs for Plan Year 2018; (B) 2017 Energy Savings Goal for Plan Year 2018; (C) Energy Efficiency Tariff Rider to Recover the Three Percent Funding Level for Plan Year 2018; and (D) 2017 Financial Incentive for Plan Year 2018 and Recover the Incentive through its Energy Efficiency Tariff Rider; and (2) Recover the 2016 Reconciled Financial Incentive through its Energy Efficiency Rider,* Final Order Approving Certification of Stipulation (Dec. 13, 2017).

[19] This amount represents SPS's 2018 portfolio budget as approved in Case No. 17-00159-UT.

- LISS = $491,842 minus actual SPS spending in 2018 directed specifically to EE programs for low-income customers.

(ii) If SPS achieved greater than 30.698 GWh (net customer) for plan year 2018, SPS's incentive would be increased by 0.1% per incremental GWh of achievement above 30.698 GWh multiplied by $9,836,846, which would be a sliding scale extending from 6.8% up to a maximum of 7.11%.

Q. Did SPS earn an incentive for PY 2018 based on reported and verified savings from the statewide evaluator?

A. Yes. As described in Attachment MRS-2(CD), SPS achieved 42.841 GWh (net customer) in 2018 which is 13 GWh over SPS approved energy goal of 29.444 GWh (net customer). SPS also achieved a total 302.366 GWh of its cumulative energy savings goal of 300 GWh required by the EUEA. In doing so, SPS met its EUEA savings requirement two years early. Additionally, SPS met its required 5% Low-Income spend requirement, spending $1,991,654 or 18% of the total portfolio spend on Low-Income programs. Based on these inputs, SPS is allowed to earn and recover a maximum incentive of $699,399 for PY 2018. Please refer to the Direct Testimony of Ms. Beedy for the 2018 incentive reconciliation that SPS will request in its Triennial Rider.

Q. Did the Commission approve an incentive mechanism for SPS's most recent energy efficiency proceeding?

A. Yes. SPS is continuing the same incentive mechanism in 2019 as it had in 2018 as provided in Case No. 17-00159-UT.

Q. Is SPS proposing an incentive mechanism for PY 2020-2022 in this Triennial Filing?

A. Yes. SPS is proposing the same incentive mechanism for all three Triennial Plan years. However, this mechanism is different than the Commission-approved incentive mechanism that SPS currently uses.

Q. Please describe the proposed 2020-2022 incentive mechanism.

A. SPS proposes an incentive mechanism similar to that for which EPE received approval in their Triennial Filing in the spring of 2019 in Case No. 18-00116-UT.[20] The incentive mechanism proposed would utilize a sliding scale of achievement allowing SPS to earn a base incentive of 6.26% of actual spend if it meets a base incentive goal of 36 GWh net customer each year of the Plan. For every GWh achieved in excess of this base goal, SPS will incrementally achieve

[20] Case No. 18-00116-UT, *In the Matter of El Paso Electric Company Application for Approval of its 2019-2021 Energy Efficiency and Load Management Plan, Utility Incentive and Revised Rate No. 17 – Efficient Use of Energy Recovery Factor,* Final Order Adopting Recommended Decision with Modifications (Mar. 6, 2019).

an additional .075% before capping out the incentive at 6.71% of actual spend, SPS's current after-tax weighted average cost of capital ("WACC").[21] Please refer to Attachment MRS-8 for a copy of SPS's proposed incentive mechanism for PY 2020-2022.

Q. Which witness explains how SPS's proposed Triennial incentive meets the criteria under the EUEA and EE Rule for approval?

A. Ms. Sakya addresses these points in her direct testimony.

Q. Did SPS's programs perform satisfactorily in 2018 and in 2019 to date?

A. Yes. As previously noted, the 2018 Annual EE Report demonstrates that SPS met its 2018 performance and achievements as set forth in the EUEA. For 2019, SPS is on target to meet and exceed the current savings goal of 29.444 GWh with forecasted achievement of 36.815 GWh (net customer). Finally, as discussed above, the Triennial portfolio of EE programs is reasonable and expected to meet the requirements under the EUEA while achieving a UCT ratio of 1.47, 1.59, and 1.71, respectively.

[21] The maximum incentive allowable under 17.7.2.8(L)(4) NMAC is based on the WACC and SPS's WACC is 7.24% (as stated in the Direct Testimony of Ruth M. Sakya). The proposed arrangement is well within the maximum that SPS could receive for an incentive under the EE Rule (17.7.2 NMAC).

Q. Does this conclude your pre-filed direct testimony?

A. Yes.

VERIFICATION

STATE OF COLORADO)
) ss.
COUNTY OF DENVER)

Mark R. Schoenheider, first being sworn on his oath, states:

I am the witness identified in the preceding testimony. I have read the testimony and the accompanying attachments and am familiar with their contents. Based upon my personal knowledge, the facts stated in the testimony are true. In addition, in my judgment and based upon my professional experience, the opinions and conclusions stated in the testimony are true, valid, and accurate.

MARK R. SCHOENHEIDER

SUBSCRIBED AND SWORN TO before me this 9 day of May, 2019.

SCHUNA D WRIGHT
Notary Public
State of Colorado
Notary ID # 19974007693
My Commission Expires 05-06-2021

Notary Public
My Commission Expires: May 6, 2021

Southwestern Public Service Company's

2020-2022
Energy Efficiency and Load Management Plan

Case No. 19-00___-UT

Prepared in Compliance with the Efficient Use of Energy Act and 17.7.2 NMAC (Energy Efficiency Rule)

May 15, 2019

Table of Contents

Glossary of Acronyms and Defined Terms

Acronym/Defined Term	Meaning
C&I	commercial and industrial
CFL	compact fluorescent light
Commission	New Mexico Public Regulation Commission
deemed savings	Expected energy and demand savings attributed to well-known or commercially available energy efficiency and load management devices or measures based on standard engineering calculations, ratings, simulation models or field measurement studies, periodically adjusted as appropriate for New Mexico specific data, including building and household characteristics, and climate conditions in pertinent region(s) within the state
DSM	demand-side management
EE	Energy Efficiency
EE Rider	Energy Efficiency Rider
EES	Energy Efficiency Specialist
EESP or contractors	Energy Efficiency Service Provider
EMNRD	New Mexico State Energy, Minerals, and Natural Resources Department
EPE	El Paso Electric Company
EUEA	New Mexico Efficient Use of Energy Act, as amended by Senate Bill 418 (2007), House Bill 305 (2008) and House Bill 267 (2013), NMSA 1978, §§62-17-1 through 62-17-11
GWh	gigawatt-hour, a measure of energy savings
HER	Home Energy Report
HES	Home Energy Services
Home Use Study	Study of appliance saturations performed periodically

Acronym/Defined Term	Meaning
	by Wiese Research Associates
HPWH	Heat Pump Water Heater
HVAC	heating, ventilation, and air conditioning
Independent Program Evaluator or Evaluator	Person or group selected by a Commission-approved Evaluation Committee for the purpose of Measurement and Verification of the installation of cost-effective energy efficiency or load management projects
kW	kilowatt
kWh	kilowatt-hour
Large Customer	A utility customer at a single, contiguous field, location or facility, regardless of the number of meters at that field, location or facility, with electricity consumption greater than 7,000 megawatt-hours per year
LED	light-emitting diode
M&V	Measurement and Verification
Measure	The components of a public utility program, which may include material, device, technology, educational program, practice, or facility alteration.
MW	megawatt
MWh	megawatt-hour
NEB	Non-Energy Benefits
NEMA	National Electrical Manufacturers Association, an organization that rates motor efficiency
NMGC	New Mexico Gas Company
NTG	Net-to-Gross
PNM	Public Service Company of New Mexico

Acronym/Defined Term	Meaning
Portfolio	All programs which will continue to be offered, and those proposed to be offered, by the public utility
Program	One or more measures or a bundled group of two or more products provided as part of a single offering to consumers
PSCo	Public Service Company of Colorado, a Colorado corporation
Rule	Commission's Energy Efficiency Rule, 17.7.2 NMAC
Self-Direct Administrator	Person or group selected by SPS to administer and manage cost-effective energy efficiency projects under the Large Customer Self-Direct program.
SPS	Southwestern Public Service Company, a New Mexico corporation
Staff	Commission's Utility Division Staff
SWEEP	Southwest Energy Efficiency Project
Triennial Plan or Plan	SPS's 2020-2022 Energy Efficiency Plan
UCT	Utility Cost Test
VFD	variable frequency drive
WACC	weighted average cost of capital
Xcel Energy	Xcel Energy Inc.
XES	Xcel Energy Services Inc.

Executive Summary

In accordance with the Efficient Use of Energy Act, as amended by Senate Bill 418 (2007), House Bill 305 (2008) (NMSA 1978, §62-17-1 through 62-17-11, "EUEA")[1], and House Bill 267 (2013), and the New Mexico Public Regulation Commission's ("Commission") 2017 version of the Energy Efficiency Rule (17.7.2 NMAC, "Rule"), Southwestern Public Service Company, a New Mexico corporation ("SPS") and electric utility operating company that is a wholly-owned subsidiary of Xcel Energy Inc. ("Xcel Energy"), respectfully submits for Commission review and approval SPS's 2020-2022 Energy Efficiency Plan ("Triennial Plan" or "Plan").

The EUEA requires public utilities to obtain cost-effective and achievable energy efficiency ("EE") and load management and a reduction of no less than five percent of 2005 retail sales by 2014 and eight percent by 2020. In 2005, SPS's retail sales were 3,750,469 megawatt-hours ("MWh"). Therefore, the EUEA requirements equate to targets of 187.5 gigawatt-hours ("GWh") of energy efficiency savings at the customer meter by 2014 and 300 GWh by 2020 at the customer meter. SPS has achieved 8.06% of its 2005 retail sales based on the 2018 Annual Report and Evaluation and in doing so has met the EUEA requirement two years early.

The Triennial Plan provides SPS's proposed programs, budgets, and goals for its energy efficiency for program for years 2020 through 2022. SPS proposes a portfolio of electric energy efficiency direct impact programs in two main customer segments: Residential (including Low-Income) and Business (including Large Customer). In addition, the Triennial Plan includes a Planning & Research Segment, which provides support functions for the direct impact programs.

Plan Overview

SPS proposes the following energy efficiency programs for 2020-2022:

Residential Segment

- Energy Feedback Program;
- Residential Cooling;
- Home Energy Services ("HES") (includes low-income);
- Home Lighting & Recycling;
- School Education Kits;
- Heat Pump Water Heaters; and

[1] The EUEA was most recently amended in the 2019 legislative session through HB 291 and has an effective date of June 14, 2019.

- Smart Thermostat Program

Business Segment

- Business Comprehensive

Planning and Research Segment

- Market Research;
- Measurement and Verification ("M&V");
- Planning & Administration; and
- Product Development.

Tables 1a through Table 1c show SPS's proposed Triennial Plan budgets and goals for PYs 2020-2022. The portfolio-level Utility Cost Test ("UCT") ratio is forecasted to be 1.47 in 2020, 1.59 in 2021, and 1.71 in 2022.

Table 1a: SPS's 2020 Budgets & Goals

2020	Electric Participants	Electric Budget	Net Customer kW	Net Customer kWh	Net Generator kW	Net Generator kWh	Utility Cost Test Ratio
Residential Segment							
Energy Feedback	26,315	$143,485	866	4,720,924	1,010	5,328,357	1.09
Heat Pump Water Heaters	55	$44,500	25	185,716	29	209,612	1.18
Home Energy Services: Residential and Low Income	3,263	$2,193,861	904	8,963,155	1,055	10,116,428	2.06
Home Lighting & Recycling	330,500	$1,199,817	973	5,642,488	1,131	6,298,717	2.22
Residential Cooling	96	$43,040	39	125,177	46	141,284	1.43
School Education Kits	2,500	$145,417	10	376,378	12	424,806	0.80
Smart Thermostats	1,671	$142,500	-37	825,149	-43	931,320	1.26
Residential Segment Total	**364,400**	**$3,912,620**	**2,785**	**20,853,234**	**3,240**	**23,450,523**	**1.98**
Business Segment							
Business Comprehensive	477	$4,798,684	2,263	15,985,365	2,479	17,207,066	1.31
Business Segment Total	**477**	**$4,798,684**	**2,263**	**15,985,365**	**2,479**	**17,207,066**	**1.31**
Planning and Research Segment							
Consumer Education	0	$200,000	0	0	0	0	
Market Research	0	$110,000	0	0	0	0	
Measurement & Verification	0	$15,000	0	0	0	0	
Planning & Administration	0	$285,000	0	0	0	0	
Product Development	0	$190,000	0	0	0	0	
Planning & Research Segment Total	**0**	**$800,000**	**0**	**0**	**0**	**0**	
PORTFOLIO TOTAL	**364,877**	**$9,511,304**	**4,985**	**36,885,682**	**5,719**	**40,657,589**	**1.47**

Table 1b: SPS's 2021 Budgets & Goals

2021	Electric Participants	Electric Budget	Net Customer kW	Net Customer kWh	Net Generator kW	Net Generator kWh	Utility Cost Test Ratio
Residential Segment							
Energy Feedback	23,418	$143,485	778	4,291,520	908	4,843,702	1.07
Heat Pump Water Heaters	100	$78,500	45	337,666	53	381,113	1.30
Home Energy Services: Residential and Low Income	3,263	$2,213,861	904	8,963,155	1,055	10,116,428	2.18
Home Lighting & Recycling	322,550	$1,169,217	951	5,514,523	1,106	6,155,861	2.37
Residential Cooling	96	$43,040	39	125,177	46	141,284	1.55
School Education Kits	2,500	$145,917	10	376,378	12	424,806	0.84
Smart Thermostats	1,296	$122,500	0	698,746	0	788,652	1.41
Residential Segment Total	**353,223**	**$3,916,520**	**2,733**	**20,320,915**	**3,180**	**22,851,845**	**2.10**
Business Segment							
Business Comprehensive	487	$5,682,482	2,764	19,763,161	3,027	21,273,586	1.46
Business Segment Total	**487**	**$5,682,482**	**2,764**	**19,763,161**	**3,027**	**21,273,586**	**1.46**
Planning and Research Segment							
Consumer Education	0	$200,000	0	0	0	0	
Market Research	0	$110,000	0	0	0	0	
Measurement & Verification	0	$15,000	0	0	0	0	
Planning & Administration	0	$290,000	0	0	0	0	
Product Development	0	$190,000	0	0	0	0	
Planning & Research Segment Total	**0**	**$805,000**	**0**	**0**	**0**	**0**	
PORTFOLIO TOTAL	**353,710**	**$10,404,002**	**5,425**	**40,134,737**	**6,207**	**44,125,431**	**1.59**

Table 1c: SPS's 2022 Budgets & Goals

2022	Electric Participants	Electric Budget	Net Customer kW	Net Customer kWh	Net Generator kW	Net Generator kWh	Utility Cost Test Ratio
Residential Segment							
Energy Feedback	21,058	$144,485	708	3,947,163	826	4,455,038	1.14
Heat Pump Water Heaters	125	$68,500	57	422,082	66	476,391	2.01
Home Energy Services: Residential and Low Income	3,263	$2,163,861	904	8,963,155	1,055	10,116,428	2.39
Home Lighting & Recycling	309,200	$1,158,151	914	5,300,679	1,063	5,917,133	2.46
Residential Cooling	96	$68,540	39	125,177	46	141,284	1.06
School Education Kits	2,500	$166,417	10	376,378	12	424,806	0.78
Smart Thermostats	1,288	$82,500	0	742,417	0	837,943	2.35
Residential Segment Total	**337,530**	**$3,852,454**	**2,637**	**19,890,259**	**3,068**	**22,369,022**	**2.26**
Business Segment							
Business Comprehensive	486	$5,741,548	2,797	20,111,128	3,063	21,648,146	1.57
Business Segment Total	**486**	**$5,741,548**	**2,797**	**20,111,128**	**3,063**	**21,648,146**	**1.57**
Planning and Research Segment							
Consumer Education	0	$200,000	0	0	0	0	
Market Research	0	$110,000	0	0	0	0	
Measurement & Verification	0	$15,000	0	0	0	0	
Planning & Administration	0	$295,000	0	0	0	0	
Product Development	0	$190,000	0	0	0	0	
Planning & Research Segment Total	**0**	**$810,000**	**0**	**0**	**0**	**0**	
PORTFOLIO TOTAL	**338,016**	**$10,404,002**	**5,363**	**40,052,074**	**6,131**	**44,017,168**	**1.71**

I. Portfolio Characteristics

SPS's energy savings obligations under the EUEA and the Rule are shown in the following table as a percent of 2005 sales, along with SPS's verified achievements (through 2018), and forecasted savings (2019-2020). As shown in Table 2, SPS met its EUEA obligation of saving 8% of 2005 retail sales in Plan Year 2018.

Table 2: SPS Progress to EUEA Goal as a Percent of 2005 Sales

Year	Annual Net Customer Achievement (GWh)	Cumulative Net Customer Achievement (GWh)	Cumulative % of 2005 Retail Sales
2008	3.355	3.355	0.09%
2009	14.136	17.491	0.47%
2010	23.231	40.722	1.09%
2011	35.642	76.363	2.04%
2012	31.534	107.897	2.88%
2013	34.452	142.349	3.80%
2014	30.493	172.841	4.61%
2015	32.805	202.962	5.41%
2016	31.966	234.257	6.25%
2017	29.429	263.686	7.03%
2018	38.680	302.366	8.06%
2019 (Forecast)	27.687	311.776	8.31%
2020 (Forecast)	36.885	329.572	8.79%

A. Public Participation

17.7.2.8.B NMAC requires utilities to solicit public input from the Commission's Utility Division Staff ("Staff"), the New Mexico Attorney General, the New Mexico State Energy, Minerals, and Natural Resources Department ("EMNRD"), as well as environmental group representatives, consumer advocates, and other interested parties on the design and implementation of its proposed programs prior to filing its Energy Efficiency Plan. In compliance with this requirement, SPS invited representatives from Staff, the New Mexico Attorney General's office, Southwest Energy Efficiency Project ("SWEEP"), Coalition for Clean Affordable Energy, EMNRD, Occidental Petroleum, LLC, El Paso Electric ("EPE"), New Mexico Gas Company ("NMGC"), and Public Service Company of New Mexico ("PNM"). SPS held its first public participation meeting on February 18, 2019 via web conference. Representatives of SWEEP, Staff,

EPE, PNM, and NMGC participated in the meeting. SPS representatives provided a review of 2018 preliminary achievements, an overview of the 2019 Plan, and the tentative programs and products the Company was reviewing for inclusion into the Triennial filing.

SPS held its second public participation meeting on April 22, 2019 via web conference. Participating attendees included representatives from Staff, SWEEP, market actors, Vote Solar, NMGC, EPE, and PNM. SPS provided final savings from 2018, discussed measures and products SPS reviewed based on the feedback it received from Seventhwave and CleaResult, and requested additional non-binding feedback from stakeholders on the programs proposed by SPS. Table 3, below, presents a summary of the feedback SPS received from both meetings held in preparation of the Triennial Plan:

Table 3: SPS Response to Public Meeting Input

Category	Question/Suggestion	SPS Response
February 18, 2019 Public Participation Meeting		
Program Implementation	Who is the existing vendor for Energy Feedback and why is SPS transitioning to a new vendor for 2020?	Xcel Energy went out to RFP in 2018 to determine if other vendors could implement a similar program with the goal of refreshing the offering in all states that it is offered.
Home Lighting Program	The net-to-gross factor provided isn't relative to the value of the program. Will SPS be updating this factor?	SPS receives net-to-gross numbers from the Statewide Evaluator, Evergreen. The Home Lighting Program was last evaluated in 2017 and is not expected to be evaluated until 2020. If the next evaluation comes back with a different net-to-gross, SPS will update that factor.
Home Energy Services	Considering the program had great success in 2018, does SPS expect to see similar savings in 2019?	It is still too early to tell at this point. Several factors played into the higher 2018 achievement including contractors entering in the market sooner than expected.
Program Design	Would it make sense to merge HES and the Residential Cooling Program due to the low participation in cooling?	ADM (the prior statewide evaluator), recommended in their Annual Report that we separate Cooling measures to ensure that customers who just want a cooling measure,

		will not be required to sign up for HES standard offer measures. SPS agreed with this approach and separated into two separate program offerings.
Business Comprehensive	There are no customers participating in the Building Tune-Up Product. Is SPS thinking about ways to make it more attractive to customers, like direct install measures, higher incentives, etc.?	Direct install measures are currently available. SPS will update product information to promote the offering to customers considering a building tune-up.
Business Comprehensive	Within the Business Lighting Product, will SPS expand the prescriptive measures to make it easier for customers to participate?	Yes. New light-emitting diode ("LED") rebate measures that have been cost effective in other states will be considered in the Triennial Planning process.
Market Research	You mentioned earlier that SPS has a high number of electric water heaters. How did you find this out?	We conduct a Home Use Study which polls our customers on a variety of appliances and customer usage trends within their home. This study is done every other year and was last completed in August 2018.
Product Development	Is the Seventhwave Study something that can be shared or included with the filing?	Yes. We plan to include the study within our filing.
February 18, 2019 Public Participation Meeting		
2018 Achievements	Are the savings provided at generator or customer level	The achievements provided in the slide deck are at a customer level.
System Benefits Forecast	Can you speak more to the way avoided generation cost is set to zero for the first eight years?	These numbers reflect SPS being long on capacity during those years. The specific inputs come from SPS's Resource Planning group.
Residential Cooling	Does the cooling program allow someone that is switching from evaporative cooling to central AC units to participate?	Yes. The program does allow for this technology switching. Based on prior filing Final Order requirements, SPS does have

		to track these customers. At this time, SPS has not had a customer participate in the program that switched technology.
Heat Pump Water Heaters	SWEEP advocated using a market transformation type approach to focus more on upstream incentives for water heater dealers to help increase the stocking of heat pump water heaters in the last DSM plan for Colorado (Xcel accepted that recommendation). This approach may be important in the New Mexico territory.	Public Service Company of Colorado, a Colorado corporation ("PSCo"), agreed to this in Colorado due to the size of the territory and being able to apply more market influence with these stocking dealers. PSCo's intent was to buy down the cost for the models available through Home Depot and Lowes with hopes of increasing inventory in the stores. SPS expects there to be challenges with a similar approach in New Mexico due to the smaller rebates and market influence; however it will look into this approach as we build the proposed program.
Smart Thermostats	Is there an opportunity to have a combined EE/DR program?	SPS currently offers this, but during the Triennial Planning process, had identified three options to enhance the program offering. Unfortunately, with such low avoided capacity values, it made providing any DR program option non cost effective.
Energy Feedback	Does SPS provide a behavioral incentive program such as Home Energy Reports ("HER") within Consumer Education and will you claim savings?	SPS provides HERs through its Energy Feedback Program. SPS does not offer that program within its Consumer Education Segment and does not account for any savings in Consumer Education.
Smart Thermostats	Will current participants in the program be notified of the changes and will SPS account	Yes, SPS will notify current participants of the program changes at the end of 2019.

	for savings from previously installed thermostats?	After discussions with the Statewide Evaluator, Evergreen, SPS will account for the remaining life savings from the previously installed thermostats in its proposed new program.
System Benefits Forecast	There is a big drop in avoided costs. How is the cost effectiveness looking for the portfolio as a whole? Will there be some programs that fall below 1.0?	Decreasing avoided costs did change the mix of measures offered in each program. SPS expects that all programs proposed today will achieve cost effectiveness, however.
System Benefits Forecast	Are you are including a value for avoided CO2 emissions?	Yes. We do have a value for CO2 emissions currently in the forecast.
Legislative Changes	Is there anything to say regarding any thinking you've been doing for the plan (2020-2022)? The Legislature just passed an amendment to the EUEA, which includes savings/targets for 2021-2025. It also included potential for changes in funding levels? Will there be any elements in the Plan that is in response to the new legislation?	SPS is aware of the legislative changes. We won't know the actual goal in this filing and there will be some challenges to meeting that increased goal with the SPS demographic. We are still analyzing the full effects, but the filing will look at all available opportunities.

B. Broad Participation of all Classes

SPS recognizes that its customers represent a large variety of end-uses including, but not limited to: residential; irrigation; agricultural processing; oil well pumping; grain elevators; industrial; gas pipeline compression; federal installations; municipal street, guard, and flood lighting; public and parochial schools; and water pumping customers. For the purposes of this Triennial Plan, all end-uses have been divided into two customer segments: Residential and Business. Household and low-income customers fall into the Residential Segment. Commercial, agricultural, municipal, school, and industrial customers fall into the Business Segment. SPS has developed a portfolio that is well-balanced and designed to provide all customers the ability to participate. For business customers, SPS has a custom product within the Business Comprehensive program that provides rebates for any cost-effective energy efficiency measures that have not been included in a prescriptive product, ensuring that all business customers may participate in a program.

C. Estimated Energy and Demand Savings

SPS manages its energy efficiency and load management programs as cost-effectively as possible and maximizes its energy and demand savings at a reasonable cost. The 2020, 2021, and 2022 estimated energy and demand savings for the individual programs are shown in Tables 1a-1c (above). SPS's proposed goals assume that all programs will operate for a full 12 months.

D. Ease of Program Deployment

SPS continues to leverage its large institutional infrastructure to bring its energy efficiency programs to the market. Specifically, through Xcel Energy Services Inc. ("XES"), SPS has internal capabilities in product development, program management, rebate processing, and regulatory administration, which it can rely on to develop, implement, and administer the energy efficiency and load management programs.

SPS intends to administer the Business Comprehensive program in conjunction with a third-party contractor. The Business Comprehensive program includes: Cooling Efficiency, Custom Efficiency, Large Customer Self-Direct, Lighting Efficiency, Building Tune-Up, and Motor & Drive Efficiency.

Other programs, including Energy Feedback, HES (including low-income), Home Lighting & Recycling, and School Education Kits, will be partially or completely administered by third-party providers.

E. Product Development Process

For over 30 years, XES or its predecessors has successfully operated energy efficiency and load management programs, and in doing so, has gained significant expertise in the design and development of these programs. XES and SPS use a comprehensive product development process to identify, analyze, prioritize, and select the programs to include in its energy efficiency and load management portfolio. The product development process utilizes traditional stage/gate methods in order to foster sound ideas that meet customer needs and Company goals. The process begins by analyzing service territory characteristics (*e.g.*, number and types of customers, climate, and market potential) to develop a list of relevant programs that Xcel Energy's operating companies have successfully operated in other jurisdictions. The specific stages that the product development process then follows are: Opportunity Identification, Framing, Concept Evaluation, Development, Test, and Launch. Ideas are reviewed by management at the transition points between each stage, which allows for proper culling of less effective ideas early in the process before significant work is done. Descriptions of each stage are provided below.

Opportunity Identification - The objectives of this stage are to compile ideas for new programs/products from those who are closest to the customers, describe the program concept, and to filter the most viable ideas that will progress to the Framing Stage. This stage begins by asking: *"What idea do you have that will solve a customer concern?"* This stage solicits ideas from several sources and provides a brief explanation of the concept in the form of an Idea Napkin. To progress to Framing, new ideas must pass a prioritization screening process so that only the most promising ideas are worked on in the Framing Stage.

Framing - The objectives of this stage are to evaluate the market opportunity of new program/product ideas. This stage begins by asking: *"What is the opportunity for this idea?"* The ultimate deliverable of this stage will be a Framing Document, which is the due diligence needed to develop the program/product case. It will also define project boundaries and determine strategic fit from a business, technical, and market perspective. The primary gate decision here is, *"Does this concept merit spending more resources?"*

Concept Evaluation - Once it has been determined that a new concept is a viable opportunity upon which to spend more resources, the program/product idea moves to the Concept Evaluation Stage. The objectives of this stage are to refine and validate assumptions made in the Framing Stage, and to more clearly define the program/product and opportunity. The process to obtain any legal approvals or meet any regulations begins here. The deliverables of this stage are high-level requirements, a Product Case 1.0, and a high-level project plan. The primary gate decision is, *"Should we commit the resources/dollars to build this measure, product, or program?"*

Development - Once the program/product receives concept approval, the process moves to the Development Stage. All high-level requirements are broken down into detailed requirements, and the project plan is refined in order to accomplish physical development of the product and systems. Preliminary launch planning begins in this stage. The

deliverable from this stage is a testable product. The primary gate decision is, *"Is the measure, product, or program ready to be tested (if needed) or moved to launch?"*

Test - Once the measure, product, or program has passed the Development Stage, it is tested against user requirements and usage scenarios to verify desired performance. Operational processes are also tested for flow-through. Testing assesses the readiness for full deployment. Testing could take various forms such as laboratory testing or field trial (pilot testing). Any needed rework of the product before deployment is done in this stage. The deliverables of this stage are: end-to-end validation of test results, operational and product/program assessments for full deployment, and the complete marketing plan to bring the product/program to launch. The primary gate decision is, *"Are we ready to proceed with launch, or should the measure, product, or program go back to design?"*

Launch - Upon successful testing, the process moves to the Launch Stage. The objectives of this phase are to stabilize all processes, transition the new product/program into a life cycle, and execute launching the product/program. The primary gate decision is, *"Is everything ready from beginning to end that will enable this product/program to be successful?"*

F. Risk of Technologies and Methods

As discussed above, SPS's affiliated operating companies have extensive experience designing, implementing, and administering energy efficiency and load management programs in a variety of jurisdictions. The Plan benefits from those years of experience and expertise and allows SPS to have greater confidence in its program proposals. The proposed programs have been offered successfully either in New Mexico or in other jurisdictions. The third-party partnerships are with reputable, long-standing organizations. Therefore, SPS does not perceive a great risk with the technologies or methods it has chosen. However, the New Mexico service area is a significantly different market than other jurisdictions where the Company offers demand-side management ("DSM") programs. The SPS jurisdiction has much lower population density and a more homogenous business sector with the largest local industries being: oil and gas production and agriculture. In other jurisdictions, manufacturing, commercial real estate, education, and retail are more prevalent and more likely to participate. SPS is mindful of the challenges associated with its market with regards to customer participation.

G. Under Review, Rejected, and Future Programs

SPS draws on the historical knowledge it has developed over the past several years operating Energy Efficiency and Load Management programs in New Mexico. As discussed below, SPS conducted a thorough market study. SPS continuously works with customers, vendors, and other organizations to identify new opportunities.

The following programs/products were reviewed in the Product Development process, but are still under review.

1. Programs/Measures Under Review

a. Oil Field Measures

SPS continues to look for possible prescriptive measures for this market segment. One avenue for this research is to review custom projects for repeatable measures. SPS is working with CleaResult to continue pursuing custom projects with which to gain more insight into technology that could be moved to a prescriptive measure. SPS is planning to evaluate whether or not electric submersible pumps could be moved from custom to prescriptive. SPS will continue to work with the oil and gas industry to help identify potential measures specific to this customer segment.

2. Programs/Measures Rejected

CleaResult conducted a market study on behalf of SPS to explore the addition of a food service product within the Business Comprehensive Program. It was determined that several factors would make it difficult to create a cost-effective program, including a market that requires larger incentives, increased levels of interaction with customers, and competition with used equipment dealers.

3. CleaResult also evaluated the potential of a holistic irrigation program and determined that this approach would not be cost effective as a standalone program. After further review, SPS currently has technical assumptions for these measures within its existing Motors and Drives product. SPS has included additional funding within the product to account for an increased marketing initiative and incentive expenditures to target this new segment moving forward. Future Programs

SPS believes its proposed Triennial Plan provides sufficient program opportunities to cover the most common electric end-uses operated in households and businesses. As new technologies become available, the Product Development team will evaluate them for inclusion in future programs. Furthermore, any party interested in submitting a new measure to SPS for consideration can do so through the Xcel Energy website.[2]

H. Goal Setting

SPS considered the following factors while developing its energy efficiency program goals and budgets for the Triennial Plan:

- legislated goals;
- legislated budget parameters;
- historical and expected participation levels;

[2] http://www.xcelenergy.com/productideas

- settlement requirements;
- incremental cost of energy efficient equipment;
- results of Seventhwave's Portfolio Optimization Study;
- results of both CleaResult market Studies;
- recent Commission decisions; and
- cost-effectiveness.

I. General Marketing

SPS proposes to market to both the residential and business customer segments based on the number of customers, relative size of each customer, and potential for conservation at the customer site. SPS uses a more personal sales approach for large commercial and industrial ("C&I") customers because they generally have larger and more complex energy efficiency and load management opportunities. Small business customers may work with XES's Business Solutions Center to learn more about program offerings. In contrast, because energy efficiency potential for individual residential customers is relatively small and costs per participant need to be strictly controlled, SPS relies most heavily on mass-market advertising and promotion for this segment as well as trade partners that have been trained to utilize the programs.

In addition to formal rebate and incentive programs, SPS maintains a large database of energy savings information on its website.[3] All currently rebated measures, as well as rebate amounts, can be found on the website. Customers and the general public are able to access information on the latest technologies and practices available for saving energy. Residential customers can access information on low/no-cost ways to save energy, performing an energy assessment, and calculating appliance energy consumption. Business customers can keep up-to-date on new technologies and access one of several energy advisor or energy assessment tools.

The proposed programs in this Triennial are designed to accommodate diverse customer lifestyles and provide convenient participation and information to assist customers in making wise energy choices. In addition to its direct impact program portfolio, SPS plans to provide consumer education, as well as conduct market research, product development, and planning and administration to support these programs. More detailed marketing approaches are available in the program description sections of the Plan.

J. Utility Cost Test and Avoided Costs

17.7.2.8.J NMAC requires that a utility's portfolio of energy efficiency and load management programs be cost-effective, and Section 62-17-4(C) of the EUEA states the UCT shall be used to determine cost-effectiveness. Programs are cost-effective if they achieve positive net benefits in the UCT (*i.e.*, the UCT is greater than 1.0). All of the

[3] https://www.xcelenergy.com/Programs_and_Rebates

programs proposed by SPS in the Triennial Plan, with the exception of School Education Kits, are cost-effective (*i.e.*, achieve positive UCT net benefits) at the estimated budget and participation levels.

Individual program-level UCT results are provided in Table 1a-1c. The following sections describe the assumptions SPS has made in order to perform the cost-effectiveness and energy and demand savings estimates.

1. Avoided Costs

In order to determine the cost-effectiveness of its programs, SPS must first calculate the avoided generation, transmission, distribution, and marginal energy costs associated with the energy efficiency and load management savings.

a. Generation

Avoided generation represents the cost of supply-side generation resources displaced by energy efficiency and load management programs. The avoided generation values used in the Triennial Plan were derived by XES's Resource Planning group. SPS used a portfolio approach considering future resource needs and forecasted generation additions to the SPS system consistent with the final order in SPS's most recent rate case (Case No.17-00255-UT).[4] Resources were selected that most closely met resource needs based on an overall least-cost approach that balanced actual resource cost and the corresponding cost of energy. The analysis covered the entire 22-year planning period of this Plan. Table 4 below provides the annual values of avoided generation costs from 2020 to 2041.

Table 4: Estimated Annual Avoided Generation Capacity Costs for Energy Efficiency Programs

Year	Gen Capacity $/kW-yr	Year	Gen Capacity $/kW-yr
2020	$0.00	**2031**	$71.16
2021	$0.00	**2032**	$72.58
2022	$0.00	**2033**	$74.04
2023	$0.00	**2034**	$75.52
2024	$0.00	**2035**	$77.03
2025	$0.00	**2036**	$78.57
2026	$0.00	**2037**	$80.14
2027	$0.00	**2038**	$81.74
2028	$67.06	**2039**	$83.38
2029	$68.40	**2040**	$85.04
2030	$69.77	**2041**	$86.74

[4] Case No. 07-00376-UT; *In the Matter of Southwestern Public Service Company's Application for Revision of its Retail Rates Under Advice Notice No. 272;* Final Order (Sept 5, 2018).

b. Transmission and Distribution

Avoided transmission and distribution refers to the costs avoided by saving electricity rather than having to extend or improve the existing transmission and distribution system to meet increased demand. The values in the table below were provided by XES Transmission and Resource Planning groups and represent the estimated annualized cost of transmission interconnection and delivery of the proposed supply-side generation resources.

Table 5: Estimated Avoided Transmission and Distribution Costs

	Avoided Capacity $/kW-yr				Avoided Capacity $/kW-yr		
Year	**Transmission**	**Distribution**	**T&D**	**Year**	**Transmission**	**Distribution**	**T&D**
2020	$2.42	$8.88	$11.30	**2031**	$3.01	$11.05	$14.05
2021	$2.47	$9.06	$11.53	**2032**	$3.07	$11.27	$14.33
2022	$2.51	$9.24	$11.76	**2033**	$3.13	$11.49	$14.62
2023	$2.57	$9.43	$11.99	**2034**	$3.19	$11.72	$14.91
2024	$2.62	$9.62	$12.23	**2035**	$3.25	$11.96	$15.21
2025	$2.67	$9.81	$12.48	**2036**	$3.32	$12.20	$15.51
2026	$2.72	$10.01	$12.73	**2037**	$3.38	$12.44	$15.82
2027	$2.78	$10.21	$12.98	**2038**	$3.45	$12.69	$16.14
2028	$2.83	$10.41	$13.24	**2039**	$3.52	$12.94	$16.46
2029	$2.89	$10.62	$13.51	**2040**	$3.59	$13.20	$16.79
2030	$2.95	$10.83	$13.78	**2041**	$3.66	$13.47	$17.13

c. Marginal Energy

The hourly marginal energy costs represent the incremental fuel cost from owned and purchased power generation or the incremental cost of short-term market purchases, whichever are lower, after meeting SPS's load requirements. The hourly marginal costs are representative of the costs avoided by saving energy rather than generating or purchasing it. For the Triennial Plan, the Company's Generation Modelling Services group produced a PLEXOS run to produce hourly marginal energy estimates. The marginal energy cost is representative of SPS generation resources, SPS contractual assets, future-planned asset additions, and electric markets. For each individual measure in the Plan, an hourly load shape is assigned. The estimated annual avoided energy resulting from the product of hourly marginal energy estimates and the hourly load shape is used to determine the estimate annual avoided energy costs for each measure.

Table 6 below provides annual average values for the marginal energy baseline and the incremental emissions costs. The sum of these two costs equals the total marginal cost of energy when carbon dioxide costs are internalized.

Table 6: Estimated Annual Avoided Marginal Energy Costs

	Annual Average $/MWh		Annual Average $/MWh

Year	Marginal Energy without Emissions	Avoided Emissions	Year	Marginal Energy without Emissions	Avoided Emissions
2020	$22.62	$0.00	**2031**	$37.59	$1.31
2021	$22.99	$0.07	**2032**	$39.65	$1.38
2022	$24.08	$2.26	**2033**	$41.98	$1.46
2023	$26.27	$2.16	**2034**	$44.43	$1.55
2024	$27.86	$2.70	**2035**	$47.11	$1.64
2025	$29.44	$2.12	**2036**	$49.99	$1.74
2026	$30.20	$2.46	**2037**	$53.12	$1.85
2027	$30.05	$1.99	**2038**	$56.51	$1.97
2028	$31.89	$0.91	**2039**	$60.19	$2.09
2029	$33.88	$1.18	**2040**	$64.20	$2.23
2030	$35.48	$1.23	**2041**	$68.57	$2.39

2. Discount Rate/Cost of Capital

SPS used the before-tax weighted average cost of capital ("WACC") provided by XES's Finance department for the discount rate in its cost-effectiveness analysis. SPS utilized the rate of return and capital structure as filed in Case No. 17-00255-UT, SPS's most recently approved rate case filing. The following table details the calculation of the resulting 7.24 percent before-tax WACC:

Table 7: Weighted Average Cost of Capital

Component	Portion of Capital Structure	Allowed Return	Before-Tax Weighted Average Cost of Capital	Tax Rate	After-Tax Weighted Average Cost of Capital
Calculation Methodology	(A)	(B)	(C) = (A) * (B)	(D)	(E) = (C) * (1-(D))
Long-Term Debt	46.03%	4.51%	2.08%	25.66%	1.55%
Common Equity	53.97%	9.56%	5.16%		5.16%
Total	100.00%		7.24%		6.71%

3. Net-to-Gross

Net-to-Gross ("NTG") refers to the percent of customers who purchase energy efficient equipment or provide load control who would not have done so without the existence of the utility's energy efficiency and load management programs. NTG is used to determine the actual amount of energy and demand saved that can be attributed to the influence of SPS's energy efficiency and load management programs. The NTG ratio does not normally reflect the percent of customers who install the efficiency measure; instead, the "Installation Rate" is estimated through the M&V process.

The following table provides the program-level NTG ratios as calculated by Evergreen Economics in its 2018 M&V Report. SPS will utilize these NTG in the calculation of

energy savings until updated values become available. Additional details on NTG factors, including product, channel, or measure level NTG ratios can be found in Appendix B: Planning Assumptions, of the 2018 M&V Report included as Appendix A to SPS's 2018 Annual Report.

Table 8: Program Net-to-Gross Factors

Program	NTG Ratio
Business Comprehensive	0.783
Home Lighting & Recycling	0.710
Energy Feedback	1.068
Residential Cooling	0.660
School Education Kits	1.000
Home Energy Services	0.971
Saver's Switch	1.000
Saver's Stat	1.000
Overall Portfolio	0.838

4. Transmission Loss Factors

The Transmission Loss Factor accounts for the energy lost in the form of heat due to resistance while electricity is being transmitted from the generator to the customer. This value becomes important because energy and demand savings are typically measured at the customer meter and must be converted into generator savings to understand their impact on resource planning. SPS uses a weighted average loss factor of 7.1 percent for the annual energy saved, and a factor of 8.7 percent at the time of system peak for the annual capacity savings for all business programs. For residential programs, these factors are 11.4 percent for the annual energy saved, and 14.3 percent for the annual capacity savings. These factors are consistent with those used in SPS's most recently approved base rate case (Case No. 17-00255-UT).

5. Non-Energy Benefits

Non-energy benefits ("NEB") are those savings to the customer or utility that result from participation in an energy efficiency or load management program but that are not directly related to the consumption of fuel served by SPS (electricity). Such NEBs may include savings from reduced outages, arrearages, savings, or costs related to the change in consumption of fuel not served by SPS (*e.g.*, natural gas, propane, wood, etc.), or incremental operation and maintenance savings of labor, maintenance, or materials. Since the UCT does not consider participant benefits and costs, SPS has not included NEBs in its benefit-cost analyses.

6. System Benefits

System benefits refer to the benefits received by everyone served by SPS's electrical system as a result of SPS offering energy efficiency and load management programs. By definition, cost-effective energy efficiency and load management programs deliver system benefits to all customers by reducing or alleviating the need to build new generation, transmission, or distribution to meet growing customer demand. While the participants in these programs will reap the additional benefit of a decrease in their electricity consumption, all customers will benefit from the system reductions. The total portfolio UCTs for the Triennial filing are projected to be 1.47 in 2020, 1.59 in 2021, and 1.71 in 2022, which demonstrates that the benefits (the avoided costs of generation, transmission, distribution of traditional power plants or purchases of power) outweigh the projected energy efficiency programs' utility and customer costs by a ratio of nearly 2 to 1.

II. Program Delivery and Administration

A. General Marketing and Outreach Plan

SPS has developed an extensive marketing and outreach plan to target residential (including low-income) and business customers throughout the service area. The following sections describe the plans specific to each customer segment.

1. Residential Segment

The focus during the Triennial will be to increase awareness and interest in energy efficiency among homeowners and renters. Efficiency messages will be promoted through a variety of channels, including:

- efficient equipment distributors and installation contractors;
- advertising, bill inserts, newsletters, and direct mail campaigns;
- internet, email, and social media marketing; and
- SPS's residential call center; and
- joint promotions with SPS's Consumer Education program (indirect).

2. Business Segment

SPS will use a wide variety of channels and marketing tactics to reach its business customers and trade allies. The ultimate goal is to increase program awareness and knowledge with customers and trade partners, drive efficient equipment stocking practices, and increase program participation.

SPS will use the following channels to interact with customers:

- Account Managers – Account Managers will work with SPS's large, managed account customers to inform them of energy efficiency programs, help them identify qualifying energy efficiency opportunities, and walk them through the participation process. This channel is very important for the customized programs due to the participation requirements and complexities of analyzing energy savings.
- Energy Efficiency Specialists – The Energy Efficiency Specialists ("EES") from the Business Solutions Center will handle all interactions with SPS's small and mid-sized non-managed account customers. They will educate business customers about efficiency programs and cross-sell energy efficiency on incoming calls for utility issues. In addition, they will proactively reach out to customers to help promote energy efficiency programs, guide customers through the application process, and prepare paperwork for rebate submission.
- Trade Relations Manager – The Trade Relations Manager will conduct outreach to trade partners, including distributors, wholesalers, and installation contractors. This position educates local and regional trade partners about our efficiency

programs through personal meetings, workshops, and training sessions. They also provide valuable feedback on new technologies and program improvements.

- Third-Party Program Implementers – SPS will rely on a third-party program implementer to provide direct customer marketing, outreach, and trade training for specific program offerings. The implementer will perform energy efficiency audits and will recommend participation in all Business programs. The implementer will also perform a sales engineering role supporting both managed and non-managed customers. The implementer will also assist customers to complete rebate applications and process supporting documentation.

SPS will use the following marketing tactics to notify and educate business customers about the programs:

- program collateral including feature sheets, case studies, rebate applications, and engineering analysis worksheets;
- newsletters, newspaper advertising, radio advertising, and internet search advertising;
- presentations to Chambers of Commerce, trade organizations, and architectural and engineering firms; and
- targeted campaigns via direct mail or email to customers and trade allies.

SPS remains committed to delivering cost-effective projects in the future, and to that end, it is implementing strategies to accelerate customer acceptance going forward. SPS's efforts to improve business performance include:

- continuing to build general energy efficiency and program awareness with customers;
- expanding trade outreach to increase the number of energy efficiency proponents in its service territory;
- increasing large customer planning and sales efforts; and
- continuing to aggressively market all business programs.

SPS is confident that these activities will significantly augment the work already started in New Mexico and build a strong pipeline of energy efficiency projects for completion in future years.

B. Roles and Responsibilities

SPS typically uses resources from several different internal departments to administer its energy efficiency programs. Specifically, the following roles contribute to the process:

- Market Research Analyst – performs and oversees research on the energy efficiency market to help guide program planning;
- Product Developer – identifies and develops the proposed programs and products;
- Program Manager – manages overall program marketing and performance tracking;
- Account Manager – interacts with large business customers to promote programs;

- Trade Relations Manager – works with the trade (vendors, contractors, and manufacturers) to educate them about the programs;
- Energy Efficiency Engineer – reviews Custom Efficiency and Large Customer Self-Direct applications, and helps to develop and refine product deemed savings and technical assumptions;
- Energy Efficiency Specialist – works with small and mid-sized account customers;
- Rebate Processor – reviews/approves applications and invoices and pays rebates; and
- Regulatory Analyst – performs benefit-cost analyses, drafts and manages program filings, and corresponds with regulators and other interested parties.

In addition, SPS works with outside groups such as equipment vendors and manufacturers, community agencies, third-party administrators, and contractors as noted in the individual program descriptions.

C. Reporting Process

SPS filed its first annual report reflecting its 2008 program year on August 1, 2009, and has filed its reports annually each subsequent year. The 2018 Annual Report was filed on May 15, 2019. Listed below are the details provided in this report:

- actual expenditures and verified achievements of the preceding calendar year;
- reporting requirements as stated in 17.7.2.14 NMAC;
- program/project descriptions, including an explanation of deviations from goal and changes during 2018 organized into the Residential, Business, and Planning & Research Segments; and
- benefit-cost analyses for the Residential and Business programs, as well as the overall portfolio.

D. Cost Recovery

The EUEA authorizes utilities to receive cost recovery for Commission-approved energy efficiency and load management expenditures. Cost recovery from each customer is capped at $75,000 per year. To recover these expenditures, SPS proposes to continue collecting its costs through an Energy Efficiency Rider ("EE Rider") charge applied to the energy consumption adjusted for the loss factor at each of four voltage-service levels. The EE Rider rates for these service levels are summarized in Table 9a below. The EE Rider will approximate contemporaneous cost recovery of the 2020 Plan expenditures. The EE Rider will be revised with each plan to recover:

- forecasted expenditures - for 2020, expenditures are forecasted to be $9,511,304;
- any approved incentive/disincentive compensation for the program year; and
- half of the cost related to SPS's proposed EE Potential Study.

The proposed Triennial Plan costs would result in the EE Rider rates shown in Table 9a below.

Table 9a: Triennial Plan Energy Efficiency Rider

Rate Schedule	Rate (% of Bill)
Residential Service, Residential Heating Service, Residential Water Heating Service, Small General Service, Small Municipal and School Service, Municipal Street Lighting Service, Area Lighting Service	3.0%
Secondary General Service, Irrigation Power Service, Large Municipal and School Service	3.0%
Primary General Service	3.0%
Large General Service – Transmission	3.0%

1. Rate Impact and Customer Bill Impact

The following table shows the estimated average monthly bill impact of the proposed EE Rider:

Table 9b: Estimated Average Bill Impact of Triennial Plan Energy Efficiency Rider

Average Customer Impacts (assumes $9,511,304 recovery of estimated costs)			
Rate Schedule	**Monthly Bill excluding EER**	**Monthly EE Rider Charge**	**Charge as % of Bill**
Residential Service -- 800 kWh	$83.77	$ 2.51	3.000%
Small General Service – 1,500 kWh	$130.20	$ 3.91	3.000%
Secondary General Service -- 50 kW; 20,000 kWh	$1,473.32	$ 44.20	3.000%
Primary General Service -- 100 kW; 30,000 kWh	$2,452.50	$ 73.58	3.000%
Large General Service Transmission -- 4,000 kW; 800,000 kWh	$64,094.00	$ 1,922.82	3.000%

The bill impacts shown in this table do not include the effects of recoveries to compensate for disincentives or to provide incentives for SPS expenditures on energy efficiency programs, as authorized in Sections 62-17-5(F) and 62-17-6(A) of the EUEA.

2. Shared/Allocated Program Costs

SPS's plan includes indirect programs with associated costs. Since these costs cannot be directly attributed to a program, SPS uses an allocation methodology approved by the Commission in the Final Order in Case No. 07-00376-UT. The Commission adopted the

Recommended Decision of the Hearing Examiner in that case, which stated "SPS's filing demonstrates that its alternative method is appropriate and should be approved."

In accordance with its approved alternative method, SPS has allocated the projected direct program costs associated with M&V, marketing and promotion, rebates, labor, and utility administration to the individual program budgets. However, the indirect costs of Consumer Education, Market Research, M&V, Planning & Administration, and Product Development were kept out of the individual program budgets.

SPS believes that this is the most appropriate treatment of costs not specific to a particular program for several reasons:

- First, such costs are often not directly related to individual programs. Therefore, to use the direct costs of those particular programs as an allocation method would not be accurate.
- Second, these types of costs are often irregular, with large expenses in some years and almost no expenditures in other years. If SPS must allocate these charges to the programs, regardless of magnitude, it may result in certain programs becoming non-cost-effective.
- Third, given the variation in these costs from year-to-year, and the suggested method to allocate based on direct program costs, it would be very difficult for SPS to manage individual program budgets and insure their cost-effectiveness because program managers would not know how much to expect from these indirect programs.
- Finally, it is more administratively efficient for SPS to manage the indirect costs outside of the individual programs. SPS's internal accounting system uses individual accounting codes for each indirect program as well as for each direct-impact program. These indirect costs could not be allocated directly to the programs, but would first be charged to their subject area, and then allocated to the programs, creating a two-step accounting process instead of one.

3. Budget Categories

SPS intends to use the following five budget categories to track and report its annual expenditures for each energy efficiency program:

- Total Incentive – The total dollars paid in rebates to customers.
- Internal Administration – This category includes the costs for:
    - Project Delivery – to deliver the program to the customer including Program Manager labor and costs;
    - Utility Administration – to administer the program internally, including Rebate Processing and Planning & Administration;
    - Other Project Administration – internal or external costs not covered in any other cost category. These costs may include outside contractors and consultants hired to perform installation, engineering, or other services for SPS to assist in delivery or administration of programs to customers; and
    - Research & Development – internal costs to develop the programs.
- Third-Party Delivery – Used only when a third-party administers, implements, or delivers a major portion of the program to customers. This should include all

costs that the third-party incurs, minus the cost of the energy efficient equipment, which should be counted as a rebate.

- Promotion – Costs to market and promote the programs.
- M&V – Costs to perform M&V on the programs.

The following table describes SPS's proposed program expenditures split into the proposed budget categories listed above.

Table 10a: SPS's 2020 Program Costs by Budget Category

2020	Internal Administration	Third Party Delivery	Promotion	Participant Incentives	M&V	Total Program Costs
Residential Segment						
Energy Feedback	$22,000	$90,285	$1,200	$0	$30,000	$143,485
Heat Pump Water Heaters	$23,500	$0	$10,000	$11,000	$0	$44,500
Home Energy Services: Residential and Low Income	$175,000	$1,345,303	$100,000	$573,558	$0	$2,193,861
Home Lighting & Recycling	$150,000	$242,000	$470,000	$312,817	$25,000	$1,199,817
Residential Cooling	$20,000	$0	$10,000	$13,040	$0	$43,040
School Education Kits	$14,608	$76,000	$2,500	$52,309	$0	$145,417
Smart Thermostats	$25,000	$0	$50,000	$37,500	$30,000	$142,500
Residential Segment Total	$430,108	$1,753,588	$643,700	$1,000,224	$85,000	$3,912,620
Business Segment						
Business Comprehensive	$769,803	$1,465,665	$747,804	$1,720,412	$95,000	$4,798,684
Business Segment Total	$769,803	$1,465,665	$747,804	$1,720,412	$95,000	$4,798,684
Planning and Research Segment						
Consumer Education	$200,000					$200,000
Market Research	$110,000					$110,000
Measurement & Verification	$15,000					$15,000
Planning & Administration	$285,000					$285,000
Product Development	$190,000					$190,000
Planning & Research Segment Total	$800,000	$0	$0	$0	$0	$800,000
PORTFOLIO TOTAL	$1,999,911	$3,219,253	$1,391,504	$2,720,636	$180,000	$9,511,304

Table 10b: SPS's 2021 Program Costs by Budget Category

2021	Internal Administration	Third Party Delivery	Promotion	Participant Incentives	M&V	Total Program Costs
Residential Segment						
Energy Feedback	$22,000	$90,285	$1,200	$0	$30,000	$143,485
Heat Pump Water Heaters	$23,500	$0	$15,000	$20,000	$20,000	$78,500
Home Energy Services: Residential and Low Income	$175,000	$1,345,303	$80,000	$573,558	$40,000	$2,213,861
Home Lighting & Recycling	$150,000	$243,000	$470,000	$306,217	$0	$1,169,217
Residential Cooling	$20,000	$0	$10,000	$13,040	$0	$43,040
School Education Kits	$15,108	$76,000	$2,500	$52,309	$0	$145,917
Smart Thermostats	$27,500		$55,000	$40,000	$0	$122,500
Residential Segment Total	$433,108	$1,754,588	$633,700	$1,005,124	$90,000	$3,916,520
Business Segment						
Business Comprehensive	$781,137	$1,827,204	$880,912	$2,098,229	$95,000	$5,682,482
Business Segment Total	$781,137	$1,827,204	$880,912	$2,098,229	$95,000	$5,682,482
Planning and Research Segment						
Consumer Education	$200,000					$200,000
Market Research	$110,000					$110,000
Measurement & Verification	$15,000					$15,000
Planning & Administration	$290,000					$290,000
Product Development	$190,000					$190,000
Planning & Research Segment Total	$805,000	$0	$0	$0	$0	$805,000
PORTFOLIO TOTAL	$2,019,245	$3,581,792	$1,514,612	$3,103,353	$185,000	$10,404,002

Table 10c: SPS's 2022 Program Costs by Budget Category

2022	Internal Administration	Third Party Delivery	Promotion	Participant Incentives	M&V	Total Program Costs
Residential Segment						
Energy Feedback	$23,000	$90,285	$1,200	$0	$30,000	$144,485
Heat Pump Water Heaters	$23,500	$0	$20,000	$25,000	$0	$68,500
Home Energy Services: Residential and Low Income	$175,000	$1,345,303	$70,000	$573,558	$0	$2,163,861
Home Lighting & Recycling	$150,000	$243,000	$470,000	$295,151	$0	$1,158,151
Residential Cooling	$18,000	$0	$7,500	$13,040	$30,000	$68,540
School Education Kits	$15,608	$76,000	$2,500	$52,309	$20,000	$166,417
Smart Thermostats	$30,000	$0	$10,000	$42,500	$0	$82,500
Residential Segment Total	$435,108	$1,754,588	$581,200	$1,001,558	$80,000	$3,852,454
Business Segment						
Business Comprehensive	$732,633	$1,872,849	$890,912	$2,150,154	$95,000	$5,741,548
Business Segment Total	$732,633	$1,872,849	$890,912	$2,150,154	$95,000	$5,741,548
Planning and Research Segment						
Consumer Education	$200,000					$200,000
Market Research	$110,000					$110,000
Measurement & Verification	$15,000					$15,000
Planning & Administration	$295,000					$295,000
Product Development	$190,000					$190,000
Planning & Research Segment Total	$810,000	$0	$0	$0	$0	$810,000
PORTFOLIO TOTAL	$1,977,741	$3,627,437	$1,472,112	$3,151,712	$175,000	$10,404,002

III. Program Details

A. Residential Segment

SPS will continue to offer a wide range of product offerings to serve the Residential Segment throughout the Triennial. These offerings will be available to over 95,000 customers residing in single family homes, multi-family homes, and apartments and condominiums in southeastern New Mexico.

The Residential Segment will focus on educating customers about energy efficiency, giving them simple ways to participate, and encouraging them to make long-term commitments to reduce their energy usage. The marketing strategy for the Residential Segment is to build awareness and provide consumers a variety of energy efficiency offerings, including direct impact measures, indirect impact services, and educational tools.

SPS will execute Residential Segment outreach and marketing efforts through the use of targeted advertising, statement messaging, community meetings, events at local retailers, as well as content and tools on Xcel Energy's website xcelenergy.com.

SPS proposes to offer residential customers seven energy efficiency programs in the Triennial Plan, including: (i) Energy Feedback, (ii) Residential Cooling, (iii) HES(Residential and Low-Income), (iv) Home Lighting & Recycling, (v) Heat Pump Water Heaters, (vi) School Education Kits, and (viii) Smart Thermostats. The following sections detail each of the proposed programs.

1. Energy Feedback

a. Program Description

The program provides targeted Home Energy Reports ("HERs") to SPS's New Mexico residential customers, providing energy-use comparisons, and specific energy efficiency recommendations and tips to motivate and to educate customers to reduce their energy consumption. Customers receive new information with each HER that is delivered by mail or a combination of mail and email, when email addresses are available. An online version of this information provides additional energy-awareness and savings tools that are available to all SPS residential customers.

The product's main offerings include the following two components:

Personalized HERs – A targeted direct mailing and/or email that provides specific recommendations and tips to motivate customers to reduce their energy consumption. The individualized reports provide:

- customers' energy use compared to the average of similar-sized homes with similar characteristics (neighbor comparison);
- personalized energy efficiency recommendations and tips based on an analysis of the household's energy usage, demographics, and home characteristics and information provided by the participant; and
- advice on how report recipients can easily implement efficiency measures based on their individual circumstances.

The group of randomly assigned customers receiving the HERs is referred to as the Treatment Group. The Treatment Group customers are compared to a Control Group made up of randomly-assigned non-participating customers. The third-party implementer uses its extensive experience with utility behavioral programs and data analytics capabilities to determine which customers receive a mailed print version of the HER, an emailed report or both print and email reports.

Online Portal – An online suite of tools that gives customers greater insight into their energy consumption and actions they can take to become more energy efficient. These tools are available to all SPS residential customers in New Mexico, and provide the same information as customers receive in their HERs, but with a more robust set of customization options. These tools offer customers flexibility to analyze their consumption and provide options for customers to update their profiles making future HERs even more personalized and useful.

Customers who engage in the online portal are compared to similar customers who have not accessed the portal in order to determine energy savings driven by the use of the online tools. Savings from customers who are part of the HER Treatment Group who also use online tools will have all savings measured as part of their HER savings calculation. Only savings from customers who are not part of the HER Treatment Groups will be counted as attributable to online savings.

Budget

The budgets were developed based on estimated third-party implementer pricing, the Company's portfolio targets, and internal administrative cost estimates.[5] The majority of the product's budget is allocated to third-party implementation services, which include preparing and mailing the HERs, data analytics, marketing and conducting an ongoing regression analysis of Treatment and Control Group participants to determine the electric savings. Administrative costs for customer data extraction and product administration to be completed by SPS are based on costs derived from previous program years.

[5] The third-party implementer contract pricing is currently under negotiation for 2020.

The budget for the online portal is largely fixed due to the information technology and delivery method, and does not change as more customers use the tools and services. Online portal license fees are apportioned to this product's budget based on customer counts.

Changes for 2020-2022

A new third party implementer will take over program administration; however, there are no material changes planned for 2020-2022. The Company will work with the third-party administrator to determine when a refill of customers can be added based on a sample size that will provide statistically significant savings. The existing 2019 participants ("Legacy group") will roll over into 2020 and continue to receive print HERs. In addition to receiving print HERs, emailed reports will be sent to those participants with an active email address.

b. Program Administration

There is no customer application or rebate for this product. Participants for the Treatment group are secured using a random selection process administered by the third-party implementer. New participants, when added, will be informed of their selection at the beginning of treatment and will be given the opportunity to opt-out from receiving the Treatment Group communications at any time. Appropriately-sized Control Groups are identified by the third-party implementer and enable isolation of effects attributable to each Treatment Group. The Control Group customers have not and will not be directly contacted or targeted by SPS or the third-party implementer regarding this product.

The on-line version of the Energy Feedback program is opt-in. Customers become participants once they log onto My Account and go to the Energy Feedback tab.

c. Marketing and Outreach Plan

The program randomly selects and opts customers into the print HERprogram. It is not marketed for customer enrollment. Participants may opt out of outbound communications at any time.

The online portal will be available to all New Mexico residential customers who engage in the My Account portal. Active engagement of those customers will be initiated through:

- Customer visits to the My Account portion of Xcel Energy's website, which features customized energy feedback results and a prominent button for customers to select to see more details and use the portal tools. My Account customers receive periodic reminders to visit My Account to view their bill, make payments, or track energy use.
- General marketing and promotion of online tools and services as part of program communications.

- Outbound marketing efforts to targeted customers may include; email, on-bill messaging and promotion and social marketing.

d. Measurement & Verification Plan

Actual consumption in the form of meter billing data is used to M&V this program. Data for all participants, comparison homes, and control homes is provided to the third-party implementer for continuous analysis and performance reporting. The third-party implementer compares the consumption of participants (Treatment Group) to those of the Control Group to determine the savings resulting from the program. Regarding both the HER and online measures, energy savings will have a one-year life, with ongoing treatment and information exposure necessary to continue the full energy-savings benefits.

The independent evaluator will perform M&V on the program annually.

e. Cost Effectiveness Tests

See Appendix A for the Triennial program benefit-cost analyses and Appendix B for the forecast planning assumptions.

2. Residential Cooling

a. Program Description

The Residential Cooling program provides a rebate to SPS customers who purchase qualifying evaporative cooling and heating, ventilation, and air conditioning ("HVAC") equipment for residential use. This program strives to increase energy efficiency in residential homes by encouraging consumers to purchase high efficiency evaporative coolers, central air conditioning and other HVAC equipment. Because not all local retailers and contractors stock high efficiency cooling units, the overall goals of the program are to educate customers on the benefits of using high efficiency units and creating demand by encourage retailers and contractors to stock high efficiency units.

Rebates are available for premium evaporative cooling systems, which include equipment with media saturation effectiveness of 85 percent or higher. Only new, permanently installed direct, indirect, or two-stage evaporative cooling units qualify for the program. Customers must select their model from the pre-qualified equipment list. Portable coolers or systems with vapor compression backup are not eligible, nor are used or reconditioned equipment. Rebates are also available for qualifying high efficiency air conditioning, air source heat pump systems, and select mini-split heat pumps by registered contractors who perform a quality installation, which includes proper sizing and testing.

Budget

The budget for the Residential Cooling program was developed based on historical program participation. The majority of the funds will go toward customer rebates, contractor incentives, and program promotions. Residential Cooling promotions include: an advertising campaign, retailer in-store signage, program applications, educational information about high efficiency units such as brochures for customers and contractors, bill onserts along with update articles, and possible contractor training if needed.

Changes for 2020-2022

Electronically commutated motor rebates will no longer be available in the program. HVAC contractor or distributor trade incentives will be added to the program to supplement residential customer rebates for high efficiency equipment. The programmable thermostats measure has also been moved to this program from HES to better align SPS's cooling offerings in one location.

b. Program Administration

SPS will administer the Residential Cooling program internally. Customers will purchase the qualifying equipment and have it installed by a certified contractor of their choice. SPS will maintain a list of certified contractors who will assist the customer to determine eligible equipment, install equipment correctly, complete rebate applications, and answer technical questions.

c. Marketing and Outreach Plan

The Residential Cooling program will include the following strategic marketing efforts:

- advertising through local radio, print, and internet ads;
- contractor/retailer incentives to increase contractor support of the program;
- customer email newsletters;
- bill onserts during the cooling season; and
- informational packets to contractors in the SPS New Mexico area detailing the program and its benefits.

SPS will target local retailers, regional equipment distributors, and contractors in SPS's New Mexico service area to receive program literature and promote the program. Retailers, distributors, and contractors in New Mexico will be an essential part of customer awareness efforts and will receive information on program changes regularly.

d. Measurement & Verification Plan

The independent evaluator is expected to perform M&V on the program in 2022.

e. Cost Effectiveness Tests

See Appendix A for the Triennial program benefit-cost analyses and Appendix B for the forecast planning assumptions.

3. Home Energy Services (Residential and Low-Income)

a. Program Description

The HES offering will be provided to both residential and low-income customers with differing requirements and parameters for each customer group. The following sections describe these requirements by group.

The HES program provides incentives to Energy Efficiency Service Providers ("EESPs" or "contractors") for the installation of a range of upgrades that save energy and reduce costs for existing residential and low-income households. Qualifying residential customers can receive any combination of attic insulation, air infiltration reduction, duct leakage repairs, energy efficient showerheads.

The Low-Income product is designed similarly to the Residential HES product and is frequently referred to as Low-Income HES. Income-qualified customers will receive attic insulation, air infiltration reduction, duct leakage repairs, or showerheads as appropriate at reduced cost.

Additionally, Income-qualified customers will receive an offer through mail informing them of their eligibility to receive a free Energy Savings Kit. A customer is qualified by being identified as receiving energy assistance through federal Low-Income Home Energy Assistance Program (LIHEAP). If the customer chooses to receive a kit, they will send their response to the third-party implementer. Customers will receive a kit within six to eight weeks. The kits provide customers with the following measures:

- four (4) 9 Watt LED bulbs;
- high efficiency showerhead (1.5 gpm);
- kitchen aerator (1.5 gpm); and
- bathroom aerator (1.0 gpm)

The primary objective of this program is to achieve cost-effective reductions in energy consumption in residential homes. Additional objectives of the program are to:

- encourage private sector delivery of energy efficiency products and services;
- utilize a whole-house approach to upgrade efficiently; and
- significantly reduce barriers to participation by streamlining program procedures and M&V requirements.

SPS will partner with qualifying EESPs to deliver these services and will make any customers with ability to pay problems aware of the program. EESPs must apply to the program and be approved in order to participate. SPS will require EESPs to receive pre-approval for targeted multi-family sites prior to installation of any energy efficiency measures for which an incentive will be requested.

<u>Budget</u>

The budget is primarily calculated by reviewing historical costs per participant and applying those costs to the estimated number of participants. Participation rates were determined by considering a feasible number of energy efficiency projects and the most likely measures to be installed during the year. To estimate the number of projects for 2020-2022, historical participation from 2018 and feedback from the contractors were used. The HES program devotes over 60 percent of its budget to contractor incentives and third-party administration, just under 30 percent to customer incentives, and the remainder to administrative activities such as measurement and verification, data capture and analysis, processing for rebates, and communications/promotions.

Changes for 2020-2022

HVAC measures and programmable thermostats were removed from the New Mexico HES program and concentrated in the New Mexico Residential Cooling program. Radiant barrier measures were also removed due to the difficulty of installation and lack of participation over the last several years.

b. Program Administration

SPS will pay incentives to contractors on the basis of the deemed savings per measure implemented in customer homes. To determine the total rebate, each project will be evaluated individually based on the efficiency measures incorporated and the summer demand and annual energy savings achieved.

In their incentive application, contractors must include: the name of the EESP; the scope and location of work; the number and type of measures installed; the time period for completion of work; the payment requested; and the energy demand and consumption savings expected by the installed measures. Savings, rebates and contractor incentives will be tracked by the Frontier Energy P-3 database.

SPS will administer the HES program and will contract with third-party EESPs to perform all marketing and installations for this program. SPS will hold a series of contractor workshops and contact experienced contractors to explain the program, its process, and participation requirements.

In order to be approved as a certified EESP, each contractor will be required to demonstrate a commitment to fulfilling program objectives and a competency in completing the proposed project. To do so, EESPs will be required to submit the following information as part of the application process:

- a description of the EESP's business, including relevant experience, areas of expertise, and references;
- a work plan that covers the design, implementation, project schedule, operation, and management of the project, including M&V of the project (the amount of detail required in this work plan will vary with project size);
- evidence of good credit;
- proof of applicable insurance, licenses, and permits;
- a valid New Mexico Contractor's License (GB-2 or GB-98);
- a New Mexico tax number;

- a valid New Mexico business license; and
- SPS-approved certification for at least one person on each work crew.

The Low-Income Kits offering does not pay a rebate, but rather provides free energy efficiency measures to participating income-qualified customers. Identified incentive dollars are the estimated value of the measures of the kit.

c. Marketing and Outreach Plan

SPS will work with contractors to market the program in order to reach a broad audience of customers and increase participation. Additionally, SPS will continue to conduct outreach for the program sponsors through a variety of marketing methods, including brochures, workshops, advertising, bill onserts, and other appropriate means. When and if possible, SPS will also contact and coordinate with community agencies such as the New Mexico Mortgage Finance Authority or LIHEAP agencies for the low-income portion of the program.

SPS will manage the marketing and outreach for the Low-Income Kits portion of the Low-Income HES product. Income-qualified customers will receive direct mail offers for the free energy savings kits which include a pre-paid business reply card.

d. Measurement & Verification Plan

A third party inspection contractor will conduct random in person visits to ongoing and finished projects to determine if contractors have fulfilled their stated claims of energy efficiency increases. The inspection contractor will also randomly inspect customer agreements, low-income certifications, field notes, insurance, and contractor licenses to insure that contractors are complying with all requirements of the program.

The independent evaluator is expected to perform M&V on the program in 2021.

e. Cost Effectiveness Tests

See Appendix A for the Triennial program benefit-cost analyses and Appendix B for the forecast planning assumptions.

4. Home Lighting & Recycling

a. Program Description

The Home Lighting & Recycling program provides discounts for customers to purchase energy efficient LED light bulbs at participating retailers and dispose of them in an environmentally friendly manner. Energy-efficient light bulbs are an economical and easy way for customers to save electricity.

SPS promotes energy-efficient lighting by offering in-store retail discount promotions. In these promotions, the bulb manufacturer, retailer, and SPS combine funds to offer instant rebates on a variety of bulb models enabling customers to purchase discounted LEDs. SPS partners with retailers such as Home Depot, Walmart, Dollar Tree, and Ace Hardware. Customers receive the discounted price at the register at the time of the purchase. There is no mail-in rebate form.

The CFL Recycling component provides an environmentally friendly method for customers to dispose of CFLs. SPS created a partnership with retailers to serve as the retail arm for CFL recycling. Customers can bring spent CFLs to participating hardware stores and recycle them free of charge. The retailer stores the bulbs in a covered bin until it is full and ships the bulbs to the recycler in the postage paid bin. SPS covers the cost to ship and recycle the bulbs. When needed, retailer calls to ask for a replacement bin to be shipped. There is no known health risk associated with LED disposal. Therefore, SPS will not offer LED recycling at this time.

Budget
The Home Lighting & Recycling program budget is based primarily on the number of bulbs sold. SPS developed the budget by combining costs for incentives, implementation, advertising, promotion, and labor. The advertising costs will be spent on TV, radio, online, and print advertising.

The goal for this program was developed by reviewing market potential and logistics, including an analysis of historical sales data, retail store chains, and local promotional opportunities. This in turn helps determine estimated costs for budget development.

Changes in 2020-2022
The company plans on adding linear tube (TLED) discounts to the program.

b. Program Administration

The Home Lighting program is offered throughout the SPS service area. SPS works with large retail chain stores in order to obtain maximum penetration of the product and reach as many people as possible. SPS obtains sales data from the participating retailers for the sales of energy efficient bulbs including the wattage, model of bulb, date of sale, and retailer/location of sale. SPS uses a third-party implementer, Slipstream (formally known as Wisconsin Energy Conservation Corporation), to oversee manufacturer and retailer relations, develop an RFP to select partners, create parameters and contracts with partners and implement the on-site field visits to educate partners, set sale signage, and verify inventory and prices of the discounted bulbs. SPS uses a variety of retail partners to ensure optimal pricing and help reduce free-ridership, including big box, mass merchandiser, and hardware stores. SPS makes every effort to target retailers and events that serve the hard-to-reach market segment.

c. Marketing and Outreach Plan

The objectives of the Home Lighting & Recycling program are to motivate customers to purchase LEDs; persuade them to try using energy-efficient bulbs in different applications throughout their homes; and encourage them to recycle the CFL bulbs when they burn out.

SPS uses discounts to motivate customers to purchase bulbs. The value of the incentive varies by the type and cost of the bulb. The discounted bulbs are available at participating retailers. Customers can find a listing of participating retailers, locations, and the bulbs that are discounted on the Xcel Energy website: http://www.xcelenergy.com/lightingdeals. Xcel Energy creates awareness of the program and drives customers to the retailers and/or website with television, radio, print, point-of-purchase display, outdoor bill boards, and online advertising. SPS also uses local consumer events, education, and promotions to raise awareness of energy-efficiency and distribute free energy efficient bulbs.

d. Measurement & Verification Plan

The independent evaluator is expected to perform M&V on the program in 2020.

e. Cost-Effectiveness Tests

See Appendix A for the Triennial program benefit-cost analyses and Appendix B for the forecast planning assumptions.

5. Heat Pump Water Heaters

a. Program Description

The Heat Pump Water Heater ("HPWH") program is designed to encourage SPS customers to purchase and install an eligible energy-efficient electric HPWH for residential use. HPWHs are the most efficient electric fuel option for customers. The incentive will be available for self-install or professional installation through an HVAC contractor. Following installation, a completed rebate application form and invoice are submitted to SPS. Customers can expect to receive a rebate six to eight weeks after submitting an application.

Qualifying Appliances:
The electric HPWH must meet the following requirements in order to qualify for the incentive:

- residential equipment listed on the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) website or ENERGY STAR website. Indirect units and commercial water heaters are not eligible;
- installed in a new or existing home; and
- customer must receive electric service from SPS to qualify for a rebate.

Budget

The budget for the HPWH program was developed based on forecasted participation. The majority of the funds will go toward customer rebates and internal administration to launch the new program.

Changes for 2020-2022
This program is new to the SPS Portfolio in PY 2020.

b. Program Administration

SPS will administer the HPWH program internally. Customers can purchase the qualifying equipment and install it themselves or work with the contractor of their choice to have it installed.

c. Marketing and Outreach Plan

The HPWH program will include the following strategic marketing efforts:

- customer email newsletters;
- bill onserts throughout the year; and
- informational packets to contractors in the SPS New Mexico area detailing the program and its benefits.

SPS will target local retailers, regional equipment distributors, and contractors in SPS's New Mexico service area to receive program literature and promote the program. Retailers, distributors, and contractors in New Mexico will be an essential part of customer awareness efforts and will receive information on program changes regularly.

d. Measurement & Verification Plan

The independent evaluator is expected to perform M&V on the program in 2021.

e. Cost-Effectiveness Tests

See Appendix A for the Triennial program benefit-cost analyses and Appendix B for the forecasted planning assumptions.

6. School Education Kits

a. Program Description

School Education Kits is a turnkey educational program that combines energy efficiency curriculum for teachers with easy-to-install energy efficiency and water-saving measures for students to install at home. SPS targets fifth grade students in its New Mexico service area with this annual program. SPS and the third-party contractor will monitor schools in the New Mexico service area to determine if the program should be moved to another grade level to meet individual school district standards. The same content and kit

measures would be provided, and the program would remain at that specific grade level in subsequent years.

The School Education Kits program will provide the following classroom materials to each student participant:

- two 9-Watt LED bulbs;
- two 11-Watt LED bulbs;
- high efficiency showerhead (1.5 gpm);
- kitchen aerator (1.5 gpm);
- bathroom aerator (1.0 gpm);
- furnace air filter alarm;
- LED nightlight;
- digital water/air thermometer;
- toilet leak detector tablets; and
- parent evaluation card.

The program provides direct-impact conservation as part of an education program, building awareness of energy conservation in children, and providing energy efficiency programs to customers of all income levels.

Budget

The School Education Kits budget was developed based on SPS's participation goals and historical budgets. About 50 percent of the School Education Kits program budget will be paid to the third-party contractor for administration of the program. The remainder of the budget is designated for the cost of the measures in the kits, as well as internal labor to provide direction and oversight to the implementer, prepare and analyze data for reporting, and manage program expenditures.

The School Education Kits program does not pay a rebate, but rather provides free energy efficiency curriculum and activity kits to participating classrooms. Identified incentive dollars are the estimated value of the measures of the kit.

Changes for 2020-2022

None.

b. Program Administration

The program will be marketed and administered by the third-party contractor. The third-party contractor assumes all responsibility for curriculum and kit development, outreach to teachers, delivery of materials, and participant survey. SPS pays a flat rate per kit to cover all of these services.

In addition, the third-party contractor will perform pre- and post-surveys to gather installation data on the program. These surveys will confirm installation of energy and water saving devices. These results will be used, along with deemed savings estimates, to determine the demand and energy savings from the kits based on students and teacher

responses identifying the number of LEDs, high efficiency showerheads, and faucet aerators that were installed.

c. Marketing and Outreach Plan

The third-party contractor will manage all aspects of the School Education Kits program marketing and outreach activities. They will identify the schools that are within SPS's New Mexico service area and determine the approximate number of eligible teachers and students. They will send out customized marketing materials to help enroll the classrooms. The materials explain the program, while providing teachers with helpful tips to teach the energy efficiency curriculum to their students. Kits will also provide teachers with information about how and why SPS sponsors this program offering and the importance of conservation as part of their curriculum. As in the past, SPS and the third-party contractor will continue to work together to determine the strategic approach for identifying schools.

d. Measurement & Verification Plan

The independent evaluator is expected to perform M&V on the program in 2022.

e. Cost-Effectiveness Tests

See Appendix A for the Triennial benefit-cost analyses and Appendix B for the forecasted planning assumptions. Although the program is not cost effective, SPS will conduct annual reviews with the third-party contractor to determine if costs for the kit measures have declined over time.

7. Smart Thermostat Program

a. Program Description

The Smart Thermostat Pilot, marketed to customers as the "Saver's Stat Program," in SPS's 2016 Plan Filing for PY 2017, was designed to evaluate the energy efficiency and demand response impacts of Wi-Fi connected communicating "smart" thermostats in residential single family homes. The pilot ran from 2016 through 2019 and was evaluated after the 2016 program year. SPS offered customers a smart thermostat and installation at no charge in exchange for customers allowing SPS to call demand response events and measure the capacity savings of these events.

While preparing filing materials for the 2020 triennial, SPS concluded that residential demand response programs cannot be cost effectively implemented over the next three years due to the reduced avoided capacity costs. As a result, the Saver's Stat program will be transitioned into an exclusively energy efficiency program utilizing the new ENERGY STAR connected Thermostat specification. Thermostats meeting the ENERGY STAR connected thermostat specification have demonstrated the ability to achieve energy savings through HVAC equipment runtime reductions, specifically an 8%

or higher reduction in heating equipment runtime and a 10% or higher reduction for cooling equipment runtime.

While demand response is not cost effective in the short term, SPS recognizes that there will be a need for a smart thermostat demand response program in the future. Because of this, the new program will only be rebating smart thermostats that not only meet the Energy Star performance standard but are also compatible with Xcel Energy's demand response management system. This will increase the potential customer base of a future demand response program and will provide SPS with data regarding potential customers. Current dispatchable customers will be retained in case SPS is required to call and emergency event. This will also allow SPS to retain a dispatchable customer base for when a demand response program is needed in the future.

Budget
The budget will be primarily comprised of efficiency rebate dollars and program administration. Additional administration dollars were added to the program to maintain the dispatchable customer base to track and report the available dispatchable load.

Changes for 2020-2022
For the Triennial Plan the Smart Thermostat Pilot will be transitioned into an exclusively energy efficiency program using the ENERGY STAR Smart Thermostat standard.

b. Program Administration

Eligible customers will be able to receive the $50 rebate for an ENERGY STAR connected thermostat through the Xcel Energy storefront, paper applications and online applications that will be available to both end use customers and trade allies. SPS will also explore offering additional instant rebates, such as in hardware stores or other online storefronts, as program interest and budget allows. Customers must receive electric service from SPS in order to be eligible for a rebate.

c. Marketing and Outreach Plan

SPS plans to promote this program via bill inserts, email marketing, direct mail, Xcel Energy's website, community events and/or local print media or radio. Marketing efforts will be aligned with promotions from SPS's thermostat manufacturing partners in order to provide the best value to customers and encourage participation. This will include promotions surrounding holidays and new product releases. Product demand peaks in the cooling season along and end of year promotion schedule so marketing campaigns will be aligned with these trends as well.

d. Measurement & Verification Plan

The independent evaluator is expected to perform M&V on the program in 2020.

e. Cost-Effectiveness Tests

See Appendix A for the Triennial benefit-cost analyses and Appendix B for the forecasted planning assumptions.

B. Business Segment

SPS's Business Segment in New Mexico consists of approximately 24,000 active customer locations. This customer group consumes a substantial share of the total energy in the service area, and, as such, represents much of the energy efficiency and load management potential for the region.

SPS encourages business customers to reduce their energy use, offset energy peaks, and minimize environmental impacts through a variety of programs offering prescriptive rebates, customized programs, and study-funding. Despite these efforts, SPS business customers experience a number of barriers to participation, including:

- business customers often have little or no capital to invest in projects;
- business customers require very short payback periods for their projects; and
- typical business projects have very long lead times.

To combat these barriers, SPS's Account Managers, trade allies, EESPs, and EES are trained to address the specific needs of business customers. SPS commonly assigns an Account Manager to its larger, more complex customers. EES (phone-based account managers) serve the mid-market and small business customers, prospect for and promote savings opportunities, and manage the application and project completion process, assisting both customers and trade partners alike. Awareness-building communication campaigns, community and trade outreach, site visits, incentives, and direct and electronic communications are also key components of the strategy to penetrate the SPS market.

1. Business Comprehensive

a. Program Description

Business Comprehensive is the bundling of the traditional prescriptive, custom, and study/implementation products to provide customers with valuable energy management information and less complexity, as they consider participation in SPS programs. This program includes the Cooling Efficiency, Custom Efficiency, Large Customer Self-Direct, Lighting Efficiency, Motor & Drive Efficiency, and Building Tune-Up products.

A description of each of the products offered within the Business Comprehensive program follows:

<u>Cooling Efficiency</u>
The Cooling Efficiency product encourages SPS business customers to choose the most efficient air conditioning equipment to meet their needs. The product offers rebates in

both new construction and retrofit applications. Rebates reflect a significant portion of the cost of selecting high efficiency measures over standard efficiency measures.

Lighting Efficiency

The Lighting Efficiency product offers rebates to customers who purchase and install qualifying energy efficient lighting products in existing or new construction buildings. Rebates are offered to encourage customers to purchase energy efficient lighting by lowering the upfront premium costs associated with this equipment. Common lighting retrofit projects include replacing high intensity discharge or fluorescent fixtures with LED fixtures. Retrofit rebates also include networked lighting controls and standalone control rebates for occupancy sensors and photocells which are used for daylight harvesting.

Motor & Drive Efficiency

The Motor & Drive Efficiency product is designed to reduce the barriers that prevent customers from purchasing high efficiency motors, variable frequency drives ("VFDs"), or motor controls. To overcome these barriers, SPS offers rebates to customers who install:

- motors that meet the Department of Energy (DOE) efficiency standards for motors;
- VFDs to vary the speed of motors;
- motor controllers to reduce the energy consumption of motors that must operate at a constant speed;
- Pump-Off Controllers on oil wells; or
- energy efficient compressed air equipment.

Custom Efficiency

The Custom Efficiency product is designed to provide SPS's business customers rebates on a wide variety of unique or unusual equipment and process improvements that are not covered by the prescriptive products, including combined heat and power projects. Rebates are offered for measures that exceed the standard efficiency options. The rebate is intended to reduce the incremental project cost of the higher efficiency option, thereby encouraging customers to choose the more energy efficient option. Since energy applications and building system complexity can vary greatly by customer type, it is important for customers to have a customized energy efficiency option to help them implement cost-effective energy efficiency measures.

The Custom Efficiency product includes an optional evaluation component designed to introduce large commercial and industrial customers to energy efficiency opportunities and build the product pipeline for future years. This component of the Custom Efficiency product is modeled after the Process Efficiency program that Xcel Energy offers in other jurisdictions, but differs in that it is available to large commercial and industrial customers instead of being limited to manufacturing customers. The goals of this component, called the Large C&I Study, are to:

- increase customer awareness of energy consumption and opportunities to reduce consumption;

- identify and develop specific conservation opportunities;
- drive customers to implement identified measures through existing prescriptive and customized rebate programs; and
- drive customers to implement low capital and or short payback measures even though they may not qualify for an implementation rebate.

The Large C&I Study effort has several phases, which are customized and defined in a Memorandum of Understanding between SPS and each customer:

- Phase 1: Identification – Interested C&I customers will receive a free, one-day, on-site energy assessment performed by SPS staff and a contract vendor. At the end of the assessment, the customer will receive a detailed report identifying their energy consumption habits and conservation opportunities.
- Phase 2: Scoping – SPS will provide support and resources to further define and provide recommendations for energy savings opportunities identified in Phase 1. The customer will pay no more than $7,500 towards these efforts.
- Phase 3: Implementation – Implementation of measures scoped in Phase 2 will typically follow one of two paths:
    - Customers implementing measures that qualify for rebates under one of the prescriptive rebate products (*i.e.*, Lighting Efficiency, Motor & Drive Efficiency, etc.) or the Custom Efficiency product will receive rebates in accordance with the appropriate product.
    - Customers who implement measures scoped in Phase 2 that do not meet program/product requirements will not receive a rebate; however, SPS will count the energy and demand savings resulting from implementation.

SPS is targeting customers with aggregated annual consumption greater than 4 GWh for participation in the Large C&I Study. These C&I customers typically offer the largest potential conservation opportunities per study dollar spent. Account Managers will contact eligible customers and describe the product to solicit participation. Based on experience with similar products in other service territories, SPS expects project lifecycles to be greater than one year.

Large Customer Self-Direct

As an alternative to the guided process of the Custom Efficiency product, the Large Customer Self-Direct product is available to SPS customers with contiguous facilities that use over 7,000 MWh per year ("Large Customer"). Self-Direct participants are also eligible for the other Business Segment programs.

The Large Customer Self-Direct product entitles customers who use more than 7,000 MWh per year at a single, contiguous facility to apply for either:

- A bill credit of up to 70 percent of the energy efficiency tariff rider charges for approved incremental expenditures made towards cost-effective energy efficiency or load management; or
- An exemption of up to 70 percent of the energy efficiency tariff rider charges for 24 months if the customer demonstrates that it has exhausted all cost-effective energy efficiency or load management projects at its facility.

In this context, a project is cost-effective if it has a simple payback period of more than one year, but less than seven years.

To claim a credit, the customer must submit to the Self-Direct Administrator an energy efficiency project description, along with relevant engineering studies showing the projected savings, expenditures, and cost effectiveness, by November 30 of the year preceding the installation of the project. To claim an exemption, the customer must submit to the Self-Direct Administrator a detailed engineering study showing the absence of cost-effective energy efficiency investments and an affidavit confirming the results of the engineering study from the Evaluator by November 30 of the year preceding the exemption.

An energy efficiency project must reduce electric energy consumption or peak demand and be cost-effective in order to qualify for a credit. Large Customers will be able to receive the credit only after expenditures have been made, the project has been completed, and the Evaluator has determined that the efficiency measures are properly installed and are able to deliver the expected energy or peak demand savings. For projects that take more than one year to complete, annual credits for operating energy efficiency measures will be determined by the Evaluator. Eligible expenses incurred in excess of $52,500 in any year may be recovered in the subsequent year.

Eligible expenses are actual expenses reasonably incurred by a Large Customer in connection with construction, installation, or implementation of an eligible project, including but not limited to, equipment costs, engineering and consulting expenses, and finance charges.

Building Tune-Up

The Building Tune-Up product, is a study/implementation option targeted at buildings smaller than 75,000 square feet. The study vendor, selected by SPS, will work through a checklist of measures focusing on the proper operation of existing equipment and complete fixes on-site as appropriate. The Building Tune-Up product is designed to assist smaller business customers to improve the efficiency of existing building operations by identifying existing functional systems that can be “tuned up” to run as efficiently as possible through low- or no-cost improvements.

Examples of typical Building Tune-Up measures include:

- calibration/tune-up of Energy Management System points;
- adjustment of outside air and return air dampers;
- resetting the chilled water and hot water supply temperatures;
- optimizing the start/stop of air handlers and makeup air units (early shutdown in the evening, late start in the morning);
- resetting chiller condenser water temperature; and
- eliminating simultaneous heating and cooling.

Building Tune-Up consists of two phases: diagnosis (study) and implementation. SPS offers rebates for Building Tune-Up studies and the implementation of recommissioning measures. To ensure consistency with the studies and implementation of on-site fixes, SPS will hire a qualified engineering firm to complete both the study and implementation phases.

Budget

The Business Comprehensive program budget was developed based on the established goals. Rebates, promotional expenses, and labor, as described below, comprise the majority of the budget:

- Incentives: The largest portion of the Business Comprehensive budget is dedicated to customer rebates, which will be paid based on the energy savings achieved. The rebate budget is an average of all the rebate amounts which have been tracked in previous years. Prescriptive rebates are based on both the kW saved and a reasonable percent of the incremental cost of the higher efficiency option. Custom rebates are based on the calculated savings of expected projects.
- Promotions: The promotional budget includes spending for direct mail, email, radio, outdoor and print advertising, educational and sales materials, social media, online advertising, and events, webinars, and seminars for customers and the trade.
- Internal Administration: This was determined by estimating the number of full-time employees needed to manage the product and execute the marketing strategy, trade incentives, and engineering analysis and rebate processing, including internal employees, external consultants, and/or contract labor. Approximately half of the internal administration budget is dedicated to the cost of conducting engineering analysis for custom projects to ensure energy savings are accurate and credible.
- Third-Party Delivery: Much of SPS's program administration and delivery is delivered via a contracted agent/third-party. This portion of the budget includes costs that the third-party incurs, minus the cost of the energy efficient equipment, which should be counted as a rebate.
- M&V: The time and cost the Evaluator expends to verify energy savings, by in-person customer visits or post-project telephone surveys or metering.

Changes for 2020-2022

The program will add the following new measures and baselines:

- Lighting Efficiency Product
  - LED high/low bay fixtures replacing HID fixtures
  - LED replacement lamp for 400 watt HID lamps
  - Standalone controls
  - Networked Lighting Controls
  - LED stairwell fixtures
  - LED linear ambient fixtures
  - T12 baselines to all measures with fluorescent baselines
  - Fluorescent baselines to high-bay measures
- Custom Efficiency Product

- Strategic Energy Management to capture continuous improvement efforts

The program will remove the following new measures:

- Lighting Efficiency Product
  - All CFL measures
  - All fluorescent measures
  - All optimization measures
  - Traffic and pedestrian signals

b. Program Administration

Customers learn about the program and its benefits through newsletters, email, webinars, social media, online ads, direct mail, trade allies, Account Managers, and Energy Efficiency Specialists (EES). Applications for the program are available both on Xcel Energy's website[6] and from trade allies. Customers may apply for rebates by completing the application and providing a detailed invoice for the newly installed efficient equipment. The equipment must be new and meet all the qualifications detailed on the application. After the customer has installed the equipment, the application and invoice must be submitted to SPS within 12 months of the invoice date. Once the paperwork is completed and submitted, rebate checks will be mailed to the customer within six to eight weeks. Participants in the program may submit their application to their Account Manager or an EES.

The custom components of the Business Comprehensive program will be administered internally. The project review process involves the following steps:

1. Application – Prior to purchase and installation of equipment, customers must submit an application and receive pre-approval for their custom projects. The application form requests a description of the project, operating hours, and costs.
2. Pre-Approval – To qualify for a custom rebate, projects must be cost-effective using the UCT. SPS's engineering team will review the proposal, specifically reviewing the project's demand and energy savings relative to industry standards and the interactive energy effects of the system components. NEBs, such as maintenance savings and reduced water consumption, are considered in the analysis for customer benefit. These NEBs are not used to calculate the UCT by the Independent Evaluator.
3. Pre-Approval Notification – Typically, within approximately ten business days after receiving the complete proposal information, SPS will determine whether or not the project qualifies and notifies the customer of the decision and the rebate amount (if project is pre-approved).
4. Implementation – Once the customer has received pre-approval, they may purchase and install their new energy efficient equipment or process improvement.

[6] http://www.xcelenergy.com/business

5. Post-Project Review & Payment of Rebate – Upon completion of the project, the customer must notify SPS. If the project has undergone any changes of scope or equipment, a second engineering analysis will be performed to determine whether the project still qualifies under the program guidelines and what level of rebate is owed.

The study components of the Business Comprehensive program will be administered through a third-party study provider. Customers will learn about the program and its benefits through newsletters, email, online ads, direct mail, trade allies, Account Managers, and EES. Applications for the program are available both on Xcel Energy's website and from trade allies. Customers may apply for study rebates by completing the application and corresponding Building Tune-Up. Once the study is completed and paperwork submitted, rebate checks will be mailed to the customer within six to eight weeks. Participants in the program may submit their application to their Account Manager or an EES.

c. Marketing and Outreach Plan

Marketing communications will revolve around the benefits of choosing high energy efficiency equipment through paybacks, lifecycle cost and environmental benefits. The Business Comprehensive program creates a base level of awareness and knowledge in the marketplace through various tactics including, but not limited to: newsletters, online ads, radio, outdoor, case studies, social media, website, collateral, webinars, events, email and direct mail to customers and trade allies. These tactics make customers aware of the key benefits of energy efficiency and its applicability to their systems, and give the trade a platform from which to educate customers on high efficiency solutions for their particular applications and the myriad benefits of newer equipment. An effort will also be implemented to update business customer industry segments in order to craft and customize messages that would best resonate with this class. SPS Account Managers and the third-party implementer will continue efforts to target the oil and gas industry to identify energy efficiency projects. The third-party implementer will attend industry events to network with new customers and raise awareness of potential energy efficiency measures. SPS and the third-party implementer will conduct similar outreach efforts with customers and distributors within the irrigation segment.

The program also provides tools for the customers and trade allies to evaluate rebates and incorporate them into purchase decisions. SPS Account Managers and EES will educate customers on specific energy efficiency opportunities, evaluate rebate potential, and assist in the rebate application process. The trade can find similar assistance through trade trainings and in some cases, the trades may be offered a cash incentive to promote qualifying products. It is also necessary to continue to partner with the trade allies and position customer incentives as a tool to increase their sales volumes and educate on best practices in sales techniques. Trade allies are one of SPS's greatest assets in continuing to educate customers on the benefits of energy efficient equipment. SPS's internal Account Managers and EES are also an essential part of assisting customers with program participation and understanding.

To reach its energy savings goal, SPS will to continue to educate customers and increase awareness of the program offerings. In addition, SPS will work with local communities on high-level energy efficiency planning and benchmarking to assist with long-term goals through the utilization of third-party administration expertise to achieve higher level savings and sustain long-term plans and partnerships at the city level.

d. Measurement & Verification Plan

The independent evaluator is expected to perform M&V on the program annually.

e. Cost-Effectiveness Tests

See Appendix A for product-level benefit-cost analyses and Appendix B for the forecasted planning assumptions.

C. Planning & Research Segment

The Planning & Research Segment consists of internal company functions (not customer-facing), which support the direct impact energy efficiency and load management programs. The Segment includes energy efficiency-related expenses for Consumer Education, Market Research, M&V, Planning & Administration, and Product Development. The overall objectives of the Planning & Research Segment are to:

- provide strategic direction for SPS's energy efficiency and load management programs;
- support direct impact programs through education and opportunity identification;
- ensure regulatory compliance with energy efficiency and load management legislation and rules;
- guide SPS internal policy issues related to energy efficiency and load management;
- evaluate program technical assumptions, program achievements, cost-effectiveness, and marketing strategies;
- provide segment and target market information;
- analyze overall effects of SPS's energy efficiency and load management portfolio on customer usage and overall system peak demand and system energy usage;
- measure customer satisfaction with SPS's energy efficiency and load management efforts; and
- develop new energy efficiency and load management programs.

Because of the indirect nature of the Planning & Research Segment, the normal program categories (*i.e.*, rebate structure, program administration, marketing & outreach, M&V, and cost-effectiveness) do not apply. The following sections are limited to a description of each program.

1. Consumer Education

Consumer Education is an indirect impact program that focuses primarily on creating consumer awareness of energy efficiency while providing residential customers with information on what they can do in their daily lives to reduce their energy usage. The program also supports the various energy efficiency products SPS offers to residential customers. SPS employs a variety of resources and channels to communicate conservation and energy efficiency messages, including the Xcel Energy website, social media, print, direct mail, public library partnerships and sponsorship of community events. SPS has found through industry and internal market research that customers who are educated on the benefits of energy efficiency are much more likely to participate in DSM programs. This research also shows that customers need multiple exposures to the same message before it becomes knowledge. SPS believes that this general education drives customers to participate in its portfolio of programs.

SPS's Consumer Education program targets all of its New Mexico residential customers. The primary emphasis will continue to focus on:

- Power Check meters and materials placed in public libraries;
- social media (Facebook, Twitter, blogs, etc.)
- targeted communications to address seasonal usage challenges;
- conservation messaging through Xcel Energy's newsletters and bill onserts to residential customers;
- creation and publication of reference education materials (in English and Spanish);
- sponsorship of community events supporting residential conservation and energy efficiency; and
- customer feedback surveys and customized post-event emails following outreach events.

SPS has approximately 90,000 residential customers in its New Mexico service territory. SPS plans to interface with approximately 80 percent of the residential customer base through bill onserts, public library partnerships, digital kiosks, and community outreach events.

Budget

The Consumer Education budget was developed based on past experience building awareness and community outreach in New Mexico, as well as projected costs for reaching customers through multiple communication channels and tactics including:

- Power Check meters and materials in public libraries;
- social media;
- direct mail campaigns and promotions about conservation;
- bill onserts; and
- sponsorship of community events supporting residential conservation and energy efficiency.

Changes for 2020-2022
SPS will continue to focus efforts on direct program promotion and awareness with lessor emphasis on general education activities in 2020.

2. Market Research

The Market Research group oversees a variety of research efforts that are used to assist SPS with energy efficiency and load management decision-making. These research functions are needed to provide overall support for clarifying issues and for thoroughly understanding both current and potential customers. Often, similar information is collected over multiple service territories, making comparisons possible.

In 2020, the Market Research group plans to conduct several projects and studies as described below:

- **Dun & Bradstreet Business List Purchase** – Quarterly update on the demographics of existing business customers. This updated information can then be used to understand, profile, and target marketing efforts more effectively.
- **E Source Membership** – Robust repository of secondary and syndicated research resources for national marketing studies, research services, and consulting services.
- **J.D. Power Key Account Multi-Client Study** – Research of the service provided to Xcel Energy's largest customers including hospitals, universities, and military bases and how the company performs compared to our peers in the utility industry.
- **Xcel Energy Proprietary Relationship Study –** Provides more frequent feedback about customer attitudes and behaviors around energy.
- **J.D. Power Residential Electric Satisfaction Studies –** Identifies key drivers of customer satisfaction levels and benchmarks Xcel Energy's performance against utility peers.
- **Residential Segmentation –** Purchased customer data which will help in creating a new residential segmentation scheme and personas that will help identify customer groups for marketing efforts.
- **E Source Gap & Priority Studies –** Studies focus on small and midsize and large C&I customers.

Budget
The Market Research budget was developed based on past experience and the costs of the projects listed above.

Changes for 2020-2022
Market Research will be overseeing several new projects and studies in 2019, including Residential Segmentation and the J.D. Power Key Account Multi-Client Study.

3. Measurement and Verification

17.7.2.15. NMAC requires that all energy efficiency and load management programs be subject to measurement and verification through the Evaluator, where M&V is defined as

"means an analysis performed by an independent evaluator that estimates, consistent with 17.7.2.7.B NMAC, reductions of energy usage or peak demand and determines any actual reduction of energy usage or peak demand that directly results from the utility's implementation of particular energy efficiency measures or programs or of particular load management measures or programs." Under the direction of the Commission and Staff, the Evaluator will conduct an analysis of specified programs and provide a report on its findings. SPS will facilitate the M&V of all of its direct impact energy efficiency and load management programs according to the requirements set forth in the New Mexico rules and statutes.

a. Selection of the Independent Program Evaluator

While the Evaluation Committee has been eliminated as part of the statewide process, 17.7.2.15.B still provides the utilities the opportunity to participate in the selection of a statewide, M&V contractor.

b. Measurement & Verification Process

In the Triennial, SPS will require M&V of selected prescriptive programs (deemed savings) and its custom programs (calculated savings). The Evaluator will provide an individual M&V Plan for programs describing both the annual and comprehensive plans according to the program characteristics. The following are nationally accepted guidelines as to the type of M&V for each category of energy efficiency and load management programs:

Prescriptive Programs/Products

Prescriptive products are those pre-defined, common energy efficiency measures that do not require individual complex engineering analysis and are below a certain kW/kWh threshold. These measures make up a program, making the program 'prescriptive' in nature. The gross savings from prescriptive programs, which are determined using deemed savings technical assumptions, will be verified each year based on the factors identified in the deemed savings algorithm. In addition, the independent evaluator may choose to perform field measurements and verification in order to fine-tune the technical assumptions. For some programs, such as HES, which provide savings that may be detected at the whole-house level, the Evaluator may choose to perform an independent billing analysis of electric billings before and after the installation of measures, in order to calculate the gross savings.

SPS's algorithms and underlying deemed savings assumptions will be provided to the Evaluator to assist in its review. As part of their responsibilities, the Commission may rely on the Evaluator to assist the Commission in their review of these deemed savings technical assumptions. In addition, the Evaluator will review program processes and establish net-to-gross ratios to account for free-ridership.

Custom Products

For the custom projects (*e.g.*, Custom Efficiency and Large Customer Self-Direct), SPS and the Evaluator will analyze each project's savings separately, employing both internal and external engineers to calculate and provide expert engineering reviews. For projects that have large energy savings or unique technologies, the Evaluator may choose to perform pre- and post-metering of the efficiency measure or process. If metering is not physically or economically feasible, engineering models or other regression analyses may be employed to calculate the savings of each project.

c. Portfolio-Level M&V

The Evaluator will assess the cost-effectiveness of all programs each year prior to the annual status report filing. In compliance with reporting requirements, the Evaluator's M&V Report will include:

- expenditure documentation, at both the total portfolio and individual program levels;
- measured and verified savings;
- cost-effectiveness of all of SPS's energy efficiency and load management programs;
- deemed savings assumptions and all other assumptions used by the Evaluator; and
- description of the M&V process, including confirmation that:
    - measures are actually installed;
    - installations meet reasonable quality standards; and
    - measures are operating correctly and are expected to generate the predicted savings.

Budget

The Triennial budget for *indirect* M&V expenses includes the following:

- Internal labor and expenses to provide project management of the entire M&V process, to interface with the Evaluator processing invoices and tracking costs, and to ensure internally that proper M&V and data tracking is in place.
- Costs for special projects such as the development or updating of Technical Reference Manuals.

In addition, SPS has budgeted for direct program-related M&V costs for the specific programs that Evergreen has designated for M&V within its 2020 budgets. SPS also included M&V costs for PY 2021-2022 although no statewide evaluator has been selected for those program years. For total budgeted costs see Table 1a-1c, and for the cost for each program by cost category, see Table 10a-10c.

Changes for 2020-2022

None.

4. Planning & Administration

Planning & Administration provides policies and procedures for effectively addressing the requirements of the energy efficiency and load management regulatory processes. This functional team manages all regulatory filings, directs and carries out benefit-cost analyses, provides tracking and reporting of energy efficiency and load management achievements and expenditures, and analyzes and prepares cost recovery reports. The costs of outside legal services are included within this function as well. Outside legal services are retained for the purposes of preparing and filing of DSM regulatory reports, DSM plans, and settlements and representing SPS at all DSM evidentiary hearings. In addition, Planning & Administration supports the energy efficiency and load management components of resource planning, participates in rulemaking, and provides internal policy guidance. These functions are needed to ensure a cohesive and high-quality energy efficiency portfolio that meets legal requirements as well as the expectations of SPS's customers, regulators, and staff.

Budget

The Triennial budgets includes funds for: internal labor to prepare filings and benefit-cost analyses, outside legal services to support energy efficiency and load management filings and hearings, and employee expenses related to travel to and from New Mexico.

Changes for 2020-2022

None.

5. Product Development

The Product Development group identifies, assesses, and develops new energy efficiency products and services that can be offered to customers in SPS's New Mexico service area. New product development will focus on exploring ideas and concepts from customers, regulators, energy professionals, interest groups, and Xcel Energy staff. These ideas are then carefully screened and only ideas with the most potential are selected for the development process.

Measures, products, and programs are selected for development based on a variety of criteria, including: savings, potential cost of savings, ability to be developed quickly, longevity of the offering (*i.e.*, how long until a technology being rebated becomes the standard), level of market barriers and risk.

Budget

The Triennial Plan budgets include funds for internal labor as well as outside consultant support.

Changes for 2020-2022

None.

IV. Conclusion

SPS proposes the following eight programs to make up its portfolio of energy efficiency programs, consistent with the EUEA requirement:

Residential Segment

- Energy Feedback;
- Residential Cooling;
- Home Energy Services:
- Home Lighting & Recycling;
- School Education Kits;
- Heat Pump Water Heaters; and
- Smart Thermostats

Business Segment

- Business Comprehensive

These programs were designed to offer SPS's customers opportunities for broad participation and the ability to reduce their energy consumption and peak demand. SPS solicited input on the proposed Triennial Plan program design from Staff, the New Mexico Attorney General's office, Southwest Energy Efficiency Project, and Coalition for Clean Affordable Energy.

SPS has provided two appendices to this Plan:

- Appendix A contains the cost-effectiveness analyses of the individual programs, the customer segments, and the portfolio as a whole; and
- Appendix B presents the detailed forecasted planning assumptions on which the energy and demand savings projections and the cost-effectiveness analyses were calculated.

PORTFOLIO TOTAL	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$1,168,815
Transmission & Distribution Capacity	$599,029
Marginal Energy	$11,755,818
Avoided Emissions	$491,944
Total Benefits	$14,015,606
Costs	
Utility Project Costs	
Total Incentive	$2,720,636
Internal Administration	$1,999,911
Third-Party Delivery	$3,219,253
Promotion	$1,391,504
M&V	$180,000
Subtotal	$9,511,304
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$9,511,304
Net Benefit (Cost)	$4,504,302
Benefit/Cost Ratio	1.47

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.88 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	36.12%
Gross Load Factor at Customer	E	30.24%
Net-to-Gross (Energy)	F	83.8%
Net-to-Gross (Demand)	G	82.6%
Transmission Loss Factor (Energy)	H	9.277%
Transmission Loss Factor (Demand)	I	12.828%
Installation Rate (Energy)	J	99.394%
Installation Rate (Demand)	K	99.978%
UCT Net Benefit (Cost)	L	$269
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3288 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,649 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,207 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,432 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.05 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.02 kW
Gross Annual kWh Saved at Customer	(B x E x M)	121 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	101 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	111 kWh

Program Summary All Participants		
Total Participants	N	364,877
Total Budget	O	**$9,511,304**
Gross kW Saved at Customer	(N x M)	16,714 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**5,719 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	44,270,492 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	44,002,027 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	36,885,682 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**40,657,589 kWh**
UCT Net Benefits	(N x M x L)	**$4,504,302**

Utility Program Cost per kWh Lifetime	**$0.0157**
Utility Program Cost per kW at Gen	**$1,663**

PORTFOLIO TOTAL	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$1,527,456
Transmission & Distribution Capacity	$676,486
Marginal Energy	$13,713,582
Avoided Emissions	$614,669
Total Benefits	$16,532,192
Costs	
Utility Project Costs	
Total Incentive	$3,103,353
Internal Administration	$2,019,245
Third-Party Delivery	$3,581,792
Promotion	$1,514,612
M&V	$185,000
Subtotal	$10,404,002
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$10,404,002
Net Benefit (Cost)	$6,128,190
Benefit/Cost Ratio	1.59

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.14 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	38.04%
Gross Load Factor at Customer	E	31.90%
Net-to-Gross (Energy)	F	83.1%
Net-to-Gross (Demand)	G	82.1%
Transmission Loss Factor (Energy)	H	9.044%
Transmission Loss Factor (Demand)	I	12.599%
Installation Rate (Energy)	J	99.441%
Installation Rate (Demand)	K	99.980%
UCT Net Benefit (Cost)	L	$353
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3433 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,794 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,310 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,540 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.05 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.02 kW
Gross Annual kWh Saved at Customer	(B x E x M)	137 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	113 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	125 kWh

Program Summary All Participants		
Total Participants	N	353,710
Total Budget	O	**$10,404,002**
Gross kW Saved at Customer	(N x M)	17,373 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**6,207 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	48,540,417 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	48,269,063 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	40,134,737 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**44,125,431 kWh**
UCT Net Benefits	(N x M x L)	**$6,128,190**

Utility Program Cost per kWh Lifetime	**$0.0156**
Utility Program Cost per kW at Gen	**$1,676**

PORTFOLIO TOTAL	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$1,781,674
Transmission & Distribution Capacity	$688,884
Marginal Energy	$14,583,556
Avoided Emissions	$693,219
Total Benefits	$17,747,334
Costs	
Utility Project Costs	
Total Incentive	$3,151,712
Internal Administration	$1,977,741
Third-Party Delivery	$3,627,437
Promotion	$1,472,112
M&V	$175,000
Subtotal	$10,404,002
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$10,404,002
Net Benefit (Cost)	$7,343,332
Benefit/Cost Ratio	1.71

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.21 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	38.47%
Gross Load Factor at Customer	E	32.53%
Net-to-Gross (Energy)	F	83.1%
Net-to-Gross (Demand)	G	82.0%
Transmission Loss Factor (Energy)	H	9.008%
Transmission Loss Factor (Demand)	I	12.533%
Installation Rate (Energy)	J	99.440%
Installation Rate (Demand)	K	99.979%
UCT Net Benefit (Cost)	L	$432
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3464 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,850 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,354 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,587 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.05 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.02 kW
Gross Annual kWh Saved at Customer	(B x E x M)	143 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	118 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	130 kWh

Program Summary All Participants		
Total Participants	N	338,016
Total Budget	O	**$10,404,002**
Gross kW Saved at Customer	(N x M)	17,013 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**6,131 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	48,487,852 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	48,216,129 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	40,052,074 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**44,017,168 kWh**
UCT Net Benefits	(N x M x L)	**$7,343,332**

Utility Program Cost per kWh Lifetime	**$0.0155**
Utility Program Cost per kW at Gen	**$1,697**

RESIDENTIAL SEGMENT TOTAL	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$602,343
Transmission & Distribution Capacity	$301,061
Marginal Energy	$6,586,074
Avoided Emissions	$249,997
Total Benefits	$7,739,475
Costs	
Utility Project Costs	
Total Incentive	$1,000,224
Internal Administration	$430,108
Third-Party Delivery	$1,753,588
Promotion	$643,700
M&V	$85,000
Subtotal	$3,912,620
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$3,912,620
Net Benefit (Cost)	$3,826,855
Benefit/Cost Ratio	1.98

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.10 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	25.23%
Gross Load Factor at Customer	E	21.32%
Net-to-Gross (Energy)	F	88.7%
Net-to-Gross (Demand)	G	86.8%
Transmission Loss Factor (Energy)	H	11.076%
Transmission Loss Factor (Demand)	I	14.047%
Installation Rate (Energy)	J	98.953%
Installation Rate (Demand)	K	99.961%
UCT Net Benefit (Cost)	L	$301
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.2462 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,868 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,639 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,843 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.03 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.01 kW
Gross Annual kWh Saved at Customer	(B x E x M)	65 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	57 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	64 kWh

Program Summary All Participants		
Total Participants	N	364,400
Total Budget	O	**$3,912,620**
Gross kW Saved at Customer	(N x M)	12,724 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**3,240 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	23,764,229 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	23,515,482 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	20,853,234 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**23,450,523 kWh**
UCT Net Benefits	(N x M x L)	**$3,826,855**

Utility Program Cost per kWh Lifetime	**$0.0118**
Utility Program Cost per kW at Gen	**$1,208**

RESIDENTIAL SEGMENT TOTAL — 2021 — ELECTRIC — GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$698,772
Transmission & Distribution Capacity	$304,663
Marginal Energy	$6,941,822
Avoided Emissions	$278,122
Total Benefits	$8,223,379
Costs	
Utility Project Costs	
Total Incentive	$1,005,124
Internal Administration	$433,108
Third-Party Delivery	$1,754,588
Promotion	$633,700
M&V	$90,000
Subtotal	$3,916,520
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$3,916,520
Net Benefit (Cost)	$4,306,859
Benefit/Cost Ratio	2.10

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.32 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	25.33%
Gross Load Factor at Customer	E	21.27%
Net-to-Gross (Energy)	F	88.5%
Net-to-Gross (Demand)	G	86.7%
Transmission Loss Factor (Energy)	H	11.075%
Transmission Loss Factor (Demand)	I	14.048%
Installation Rate (Energy)	J	98.926%
Installation Rate (Demand)	K	99.960%
UCT Net Benefit (Cost)	L	$346
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.2468 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,863 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,631 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,835 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.04 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.01 kW
Gross Annual kWh Saved at Customer	(B x E x M)	66 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	58 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	65 kWh

Program Summary All Participants		
Total Participants	N	353,223
Total Budget	O	**$3,916,520**
Gross kW Saved at Customer	(N x M)	12,456 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**3,180 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	23,206,299 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	22,957,096 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	20,320,915 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**22,851,845 kWh**
UCT Net Benefits	(N x M x L)	**$4,306,859**

Utility Program Cost per kWh Lifetime	**$0.0120**
Utility Program Cost per kW at Gen	**$1,232**

RESIDENTIAL SEGMENT TOTAL	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$795,750
Transmission & Distribution Capacity	$305,190
Marginal Energy	$7,306,433
Avoided Emissions	$310,802
Total Benefits	$8,718,174
Costs	
Utility Project Costs	
Total Incentive	$1,001,558
Internal Administration	$435,108
Third-Party Delivery	$1,754,588
Promotion	$581,200
M&V	$80,000
Subtotal	$3,852,454
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$3,852,454
Net Benefit (Cost)	$4,865,720
Benefit/Cost Ratio	2.26

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.43 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	25.44%
Gross Load Factor at Customer	E	21.63%
Net-to-Gross (Energy)	F	88.6%
Net-to-Gross (Demand)	G	86.6%
Transmission Loss Factor (Energy)	H	11.081%
Transmission Loss Factor (Demand)	I	14.048%
Installation Rate (Energy)	J	98.903%
Installation Rate (Demand)	K	99.959%
UCT Net Benefit (Cost)	L	$406
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.2475 kW
Gross Annual kWh Saved at Customer	(B x E x C)	1,895 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,660 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	1,867 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.04 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.01 kW
Gross Annual kWh Saved at Customer	(B x E x M)	67 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	59 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	66 kWh

Program Summary All Participants		
Total Participants	N	337,530
Total Budget	O	**$3,852,454**
Gross kW Saved at Customer	(N x M)	11,983 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**3,068 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	22,709,049 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	22,459,980 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	19,890,259 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**22,369,022 kWh**
UCT Net Benefits	(N x M x L)	**$4,865,720**

Utility Program Cost per kWh Lifetime	**$0.0119**
Utility Program Cost per kW at Gen	**$1,256**

ENERGY FEEDBACK	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$0
Transmission & Distribution Capacity	$11,414
Marginal Energy	$145,650
Avoided Emissions	$3
Total Benefits	$157,067
Costs	
Utility Project Costs	
Total Incentive	$0
Internal Administration	$22,000
Third-Party Delivery	$90,285
Promotion	$1,200
M&V	$30,000
Subtotal	$143,485
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$143,485
Net Benefit (Cost)	$13,582
Benefit/Cost Ratio	1.09

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	1.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	69.57%
Gross Load Factor at Customer	E	43.31%
Net-to-Gross (Energy)	F	106.8%
Net-to-Gross (Demand)	G	106.8%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$12
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.8385 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,794 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,051 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,573 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.04 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.04 kW
Gross Annual kWh Saved at Customer	(B x E x M)	168 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	179 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	202 kWh

Program Summary All Participants		
Total Participants	N	26,315
Total Budget	O	**$143,485**
Gross kW Saved at Customer	(N x M)	1,165 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**1,010 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	4,421,169 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	4,421,169 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	4,720,924 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**5,328,357 kWh**
UCT Net Benefits	(N x M x L)	**$13,582**

Utility Program Cost per kWh Lifetime	**$0.0269**
Utility Program Cost per kW at Gen	**$142**

ENERGY FEEDBACK	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$0
Transmission & Distribution Capacity	$10,470
Marginal Energy	$142,744
Avoided Emissions	$487
Total Benefits	$153,701
Costs	
Utility Project Costs	
Total Incentive	$0
Internal Administration	$22,000
Third-Party Delivery	$90,285
Promotion	$1,200
M&V	$30,000
Subtotal	$143,485
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$143,485
Net Benefit (Cost)	$10,216
Benefit/Cost Ratio	1.07

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	1.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	70.16%
Gross Load Factor at Customer	E	44.16%
Net-to-Gross (Energy)	F	106.8%
Net-to-Gross (Demand)	G	106.8%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$10
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.8456 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,868 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,130 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,662 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.04 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.04 kW
Gross Annual kWh Saved at Customer	(B x E x M)	172 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	183 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	207 kWh

Program Summary All Participants		
Total Participants	N	23,418
Total Budget	O	**$143,485**
Gross kW Saved at Customer	(N x M)	1,039 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**908 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	4,019,030 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	4,019,030 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	4,291,520 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**4,843,702 kWh**
UCT Net Benefits	(N x M x L)	**$10,216**

Utility Program Cost per kWh Lifetime	**$0.0296**
Utility Program Cost per kW at Gen	**$158**

ENERGY FEEDBACK	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$0
Transmission & Distribution Capacity	$9,712
Marginal Energy	$149,285
Avoided Emissions	$5,584
Total Benefits	$164,581
Costs	
Utility Project Costs	
Total Incentive	$0
Internal Administration	$23,000
Third-Party Delivery	$90,285
Promotion	$1,200
M&V	$30,000
Subtotal	$144,485
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$144,485
Net Benefit (Cost)	$20,096
Benefit/Cost Ratio	1.14

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	1.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	70.81%
Gross Load Factor at Customer	E	45.07%
Net-to-Gross (Energy)	F	106.8%
Net-to-Gross (Demand)	G	106.8%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$21
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.8534 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,948 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,216 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,758 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.04 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.04 kW
Gross Annual kWh Saved at Customer	(B x E x M)	176 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	187 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	212 kWh

Program Summary All Participants		
Total Participants	N	21,058
Total Budget	O	**$144,485**
Gross kW Saved at Customer	(N x M)	936 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**826 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	3,696,538 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	3,696,538 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	3,947,163 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**4,455,038 kWh**
UCT Net Benefits	(N x M x L)	**$20,096**

Utility Program Cost per kWh Lifetime	**$0.0324**
Utility Program Cost per kW at Gen	**$175**

HEAT PUMP WATER HEATERS	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$2,086
Transmission & Distribution Capacity	$2,601
Marginal Energy	$45,399
Avoided Emissions	$2,359
Total Benefits	$52,445
Costs	
Utility Project Costs	
Total Incentive	$11,000
Internal Administration	$23,500
Third-Party Delivery	$0
Promotion	$10,000
M&V	$0
Subtotal	$44,500
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$44,500
Net Benefit (Cost)	$7,945
Benefit/Cost Ratio	1.18

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	10.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	100.00%
Gross Load Factor at Customer	E	84.84%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$318
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	1.1287 kW
Gross Annual kWh Saved at Customer	(B x E x C)	7,432 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	7,432 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	8,388 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.45 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.53 kW
Gross Annual kWh Saved at Customer	(B x E x M)	3,377 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	3,377 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	3,811 kWh

Program Summary All Participants		
Total Participants	N	55
Total Budget	O	**$44,500**
Gross kW Saved at Customer	(N x M)	25 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**29 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	185,716 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	185,716 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	185,716 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**209,612 kWh**
UCT Net Benefits	(N x M x L)	**$7,945**

Utility Program Cost per kWh Lifetime	**$0.0212**
Utility Program Cost per kW at Gen	**$1,526**

HEAT PUMP WATER HEATERS	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$5,969
Transmission & Distribution Capacity	$4,824
Marginal Energy	$86,552
Avoided Emissions	$4,892
Total Benefits	$102,237
Costs	
Utility Project Costs	
Total Incentive	$20,000
Internal Administration	$23,500
Third-Party Delivery	$0
Promotion	$15,000
M&V	$20,000
Subtotal	$78,500
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$78,500
Net Benefit (Cost)	$23,737
Benefit/Cost Ratio	1.30

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	10.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	100.00%
Gross Load Factor at Customer	E	84.84%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$522
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	1.1287 kW
Gross Annual kWh Saved at Customer	(B x E x C)	7,432 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	7,432 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	8,388 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.45 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.53 kW
Gross Annual kWh Saved at Customer	(B x E x M)	3,377 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	3,377 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	3,811 kWh

Program Summary All Participants		
Total Participants	N	100
Total Budget	O	**$78,500**
Gross kW Saved at Customer	(N x M)	45 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**53 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	337,666 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	337,666 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	337,666 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**381,113 kWh**
UCT Net Benefits	(N x M x L)	**$23,737**

Utility Program Cost per kWh Lifetime	**$0.0206**
Utility Program Cost per kW at Gen	**$1,481**

HEAT PUMP WATER HEATERS	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$10,441
Transmission & Distribution Capacity	$6,151
Marginal Energy	$113,984
Avoided Emissions	$6,913
Total Benefits	$137,488
Costs	
Utility Project Costs	
Total Incentive	$25,000
Internal Administration	$23,500
Third-Party Delivery	$0
Promotion	$20,000
M&V	$0
Subtotal	$68,500
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$68,500
Net Benefit (Cost)	$68,988
Benefit/Cost Ratio	2.01

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	10.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	100.00%
Gross Load Factor at Customer	E	84.84%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$1,215
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	1.1287 kW
Gross Annual kWh Saved at Customer	(B x E x C)	7,432 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	7,432 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	8,388 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.45 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.53 kW
Gross Annual kWh Saved at Customer	(B x E x M)	3,377 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	3,377 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	3,811 kWh

Program Summary All Participants		
Total Participants	N	125
Total Budget	O	**$68,500**
Gross kW Saved at Customer	(N x M)	57 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**66 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	422,082 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	422,082 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	422,082 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**476,391 kWh**
UCT Net Benefits	(N x M x L)	**$68,988**

Utility Program Cost per kWh Lifetime	**$0.0144**
Utility Program Cost per kW at Gen	**$1,034**

HOME ENERGY SERVICES: RESIDENTIAL AND LOW INCOME	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$270,604
Transmission & Distribution Capacity	$132,655
Marginal Energy	$3,976,104
Avoided Emissions	$131,159
Total Benefits	$4,510,522
Costs	
Utility Project Costs	
Total Incentive	$573,558
Internal Administration	$175,000
Third-Party Delivery	$1,345,303
Promotion	$100,000
M&V	$0
Subtotal	$2,193,861
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$2,193,861
Net Benefit (Cost)	$2,316,661
Benefit/Cost Ratio	2.06

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	17.34 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	85.81%
Gross Load Factor at Customer	E	97.14%
Net-to-Gross (Energy)	F	93.0%
Net-to-Gross (Demand)	G	93.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	99.895%
Installation Rate (Demand)	K	99.966%
UCT Net Benefit (Cost)	L	$2,044
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.9005 kW
Gross Annual kWh Saved at Customer	(B x E x C)	8,510 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	7,909 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	8,927 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.35 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.32 kW
Gross Annual kWh Saved at Customer	(B x E x M)	2,956 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	2,747 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	3,100 kWh

Program Summary All Participants		
Total Participants	N	3,263
Total Budget	O	**$2,193,861**
Gross kW Saved at Customer	(N x M)	1,133 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**1,055 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	9,643,954 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	9,633,864 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	8,963,155 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**10,116,428 kWh**
UCT Net Benefits	(N x M x L)	**$2,316,661**

Utility Program Cost per kWh Lifetime	**$0.0125**
Utility Program Cost per kW at Gen	**$2,079**

HOME ENERGY SERVICES: RESIDENTIAL AND LOW INCOME — 2021 — ELECTRIC — GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$317,822
Transmission & Distribution Capacity	$135,310
Marginal Energy	$4,234,070
Avoided Emissions	$146,092
Total Benefits	$4,833,293
Costs	
Utility Project Costs	
Total Incentive	$573,558
Internal Administration	$175,000
Third-Party Delivery	$1,345,303
Promotion	$80,000
M&V	$40,000
Subtotal	$2,213,861
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$2,213,861
Net Benefit (Cost)	$2,619,432
Benefit/Cost Ratio	2.18

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	17.34 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	85.81%
Gross Load Factor at Customer	E	97.14%
Net-to-Gross (Energy)	F	93.0%
Net-to-Gross (Demand)	G	93.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	99.895%
Installation Rate (Demand)	K	99.966%
UCT Net Benefit (Cost)	L	$2,311
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.9005 kW
Gross Annual kWh Saved at Customer	(B x E x C)	8,510 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	7,909 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	8,927 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.35 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.32 kW
Gross Annual kWh Saved at Customer	(B x E x M)	2,956 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	2,747 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	3,100 kWh

Program Summary All Participants		
Total Participants	N	3,263
Total Budget	O	**$2,213,861**
Gross kW Saved at Customer	(N x M)	1,133 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**1,055 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	9,643,954 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	9,633,864 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	8,963,155 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**10,116,428 kWh**
UCT Net Benefits	(N x M x L)	**$2,619,432**

Utility Program Cost per kWh Lifetime	**$0.0126**
Utility Program Cost per kW at Gen	**$2,098**

HOME ENERGY SERVICES: RESIDENTIAL AND LOW INCOME	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$369,248
Transmission & Distribution Capacity	$138,017
Marginal Energy	$4,505,821
Avoided Emissions	$161,404
Total Benefits	$5,174,489
Costs	
Utility Project Costs	
Total Incentive	$573,558
Internal Administration	$175,000
Third-Party Delivery	$1,345,303
Promotion	$70,000
M&V	$0
Subtotal	$2,163,861
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$2,163,861
Net Benefit (Cost)	$3,010,628
Benefit/Cost Ratio	2.39

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	17.34 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	85.81%
Gross Load Factor at Customer	E	97.14%
Net-to-Gross (Energy)	F	93.0%
Net-to-Gross (Demand)	G	93.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	99.895%
Installation Rate (Demand)	K	99.966%
UCT Net Benefit (Cost)	L	$2,657
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.9005 kW
Gross Annual kWh Saved at Customer	(B x E x C)	8,510 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	7,909 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	8,927 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.35 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.32 kW
Gross Annual kWh Saved at Customer	(B x E x M)	2,956 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	2,747 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	3,100 kWh

Program Summary All Participants		
Total Participants	N	3,263
Total Budget	O	**$2,163,861**
Gross kW Saved at Customer	(N x M)	1,133 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**1,055 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	9,643,954 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	9,633,864 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	8,963,155 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**10,116,428 kWh**
UCT Net Benefits	(N x M x L)	**$3,010,628**

Utility Program Cost per kWh Lifetime	**$0.0123**
Utility Program Cost per kW at Gen	**$2,051**

HOME LIGHTING & RECYCLING	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$317,081
Transmission & Distribution Capacity	$147,565
Marginal Energy	$2,098,028
Avoided Emissions	$99,346
Total Benefits	$2,662,020
Costs	
Utility Project Costs	
Total Incentive	$312,817
Internal Administration	$150,000
Third-Party Delivery	$242,000
Promotion	$470,000
M&V	$25,000
Subtotal	$1,199,817
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$1,199,817
Net Benefit (Cost)	$1,462,203
Benefit/Cost Ratio	2.22

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	18.31 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	13.42%
Gross Load Factor at Customer	E	8.88%
Net-to-Gross (Energy)	F	71.3%
Net-to-Gross (Demand)	G	71.3%
Transmission Loss Factor (Energy)	H	10.418%
Transmission Loss Factor (Demand)	I	13.983%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$144
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.1068 kW
Gross Annual kWh Saved at Customer	(B x E x C)	778 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	555 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	619 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.03 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.00 kW
Gross Annual kWh Saved at Customer	(B x E x M)	24 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	17 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	19 kWh

Program Summary All Participants		
Total Participants	N	330,500
Total Budget	O	**$1,199,817**
Gross kW Saved at Customer	(N x M)	10,169 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**1,131 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	7,911,807 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	7,911,807 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	5,642,488 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**6,298,717 kWh**
UCT Net Benefits	(N x M x L)	**$1,462,203**

Utility Program Cost per kWh Lifetime	**$0.0104**
Utility Program Cost per kW at Gen	**$1,060**

HOME LIGHTING & RECYCLING	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$359,866
Transmission & Distribution Capacity	$147,097
Marginal Energy	$2,157,168
Avoided Emissions	$108,242
Total Benefits	$2,772,372
Costs	
Utility Project Costs	
Total Incentive	$306,217
Internal Administration	$150,000
Third-Party Delivery	$243,000
Promotion	$470,000
M&V	$0
Subtotal	$1,169,217
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$1,169,217
Net Benefit (Cost)	$1,603,155
Benefit/Cost Ratio	2.37

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	18.31 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	13.42%
Gross Load Factor at Customer	E	8.88%
Net-to-Gross (Energy)	F	71.3%
Net-to-Gross (Demand)	G	71.3%
Transmission Loss Factor (Energy)	H	10.418%
Transmission Loss Factor (Demand)	I	13.983%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$161
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.1069 kW
Gross Annual kWh Saved at Customer	(B x E x C)	778 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	555 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	620 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.03 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.00 kW
Gross Annual kWh Saved at Customer	(B x E x M)	24 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	17 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	19 kWh

Program Summary All Participants		
Total Participants	N	322,550
Total Budget	O	**$1,169,217**
Gross kW Saved at Customer	(N x M)	9,935 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**1,106 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	7,730,470 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	7,730,470 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	5,514,523 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**6,155,861 kWh**
UCT Net Benefits	(N x M x L)	**$1,603,155**

Utility Program Cost per kWh Lifetime	**$0.0104**
Utility Program Cost per kW at Gen	**$1,057**

HOME LIGHTING & RECYCLING	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$398,172
Transmission & Distribution Capacity	$144,209
Marginal Energy	$2,188,050
Avoided Emissions	$115,384
Total Benefits	$2,845,816
Costs	
Utility Project Costs	
Total Incentive	$295,151
Internal Administration	$150,000
Third-Party Delivery	$243,000
Promotion	$470,000
M&V	$0
Subtotal	$1,158,151
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$1,158,151
Net Benefit (Cost)	$1,687,665
Benefit/Cost Ratio	2.46

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	18.31 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	13.42%
Gross Load Factor at Customer	E	8.88%
Net-to-Gross (Energy)	F	71.4%
Net-to-Gross (Demand)	G	71.4%
Transmission Loss Factor (Energy)	H	10.418%
Transmission Loss Factor (Demand)	I	13.983%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$177
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.1069 kW
Gross Annual kWh Saved at Customer	(B x E x C)	778 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	555 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	620 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.03 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.00 kW
Gross Annual kWh Saved at Customer	(B x E x M)	24 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	17 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	19 kWh

Program Summary All Participants		
Total Participants	N	309,200
Total Budget	O	**$1,158,151**
Gross kW Saved at Customer	(N x M)	9,545 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**1,063 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	7,427,624 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	7,427,624 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	5,300,679 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**5,917,133 kWh**
UCT Net Benefits	(N x M x L)	**$1,687,665**

Utility Program Cost per kWh Lifetime	**$0.0107**
Utility Program Cost per kW at Gen	**$1,090**

RESIDENTIAL COOLING	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$8,551
Transmission & Distribution Capacity	$5,119
Marginal Energy	$46,257
Avoided Emissions	$1,795
Total Benefits	$61,723
Costs	
Utility Project Costs	
Total Incentive	$13,040
Internal Administration	$20,000
Third-Party Delivery	$0
Promotion	$10,000
M&V	$0
Subtotal	$43,040
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$43,040
Net Benefit (Cost)	$18,683
Benefit/Cost Ratio	1.43

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.23 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	92.23%
Gross Load Factor at Customer	E	33.66%
Net-to-Gross (Energy)	F	66.0%
Net-to-Gross (Demand)	G	66.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$290
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6871 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,948 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,946 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,196 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.67 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.48 kW
Gross Annual kWh Saved at Customer	(B x E x M)	1,976 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	1,304 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	1,472 kWh

Program Summary All Participants		
Total Participants	N	96
Total Budget	O	**$43,040**
Gross kW Saved at Customer	(N x M)	64 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**46 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	189,663 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	189,663 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	125,177 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**141,284 kWh**
UCT Net Benefits	(N x M x L)	**$18,683**

Utility Program Cost per kWh Lifetime	**$0.0214**
Utility Program Cost per kW at Gen	**$942**

RESIDENTIAL COOLING	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$10,533
Transmission & Distribution Capacity	$5,222
Marginal Energy	$49,147
Avoided Emissions	$2,017
Total Benefits	$66,918
Costs	
Utility Project Costs	
Total Incentive	$13,040
Internal Administration	$20,000
Third-Party Delivery	$0
Promotion	$10,000
M&V	$0
Subtotal	$43,040
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$43,040
Net Benefit (Cost)	$23,878
Benefit/Cost Ratio	1.55

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.23 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	92.23%
Gross Load Factor at Customer	E	33.66%
Net-to-Gross (Energy)	F	66.0%
Net-to-Gross (Demand)	G	66.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$371
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6871 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,948 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,946 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,196 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.67 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.48 kW
Gross Annual kWh Saved at Customer	(B x E x M)	1,976 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	1,304 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	1,472 kWh

Program Summary All Participants		
Total Participants	N	96
Total Budget	O	**$43,040**
Gross kW Saved at Customer	(N x M)	64 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**46 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	189,663 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	189,663 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	125,177 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**141,284 kWh**
UCT Net Benefits	(N x M x L)	**$23,878**

Utility Program Cost per kWh Lifetime	**$0.0214**
Utility Program Cost per kW at Gen	**$942**

RESIDENTIAL COOLING	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$12,695
Transmission & Distribution Capacity	$5,326
Marginal Energy	$52,260
Avoided Emissions	$2,247
Total Benefits	$72,529
Costs	
Utility Project Costs	
Total Incentive	$13,040
Internal Administration	$18,000
Third-Party Delivery	$0
Promotion	$7,500
M&V	$30,000
Subtotal	$68,540
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$68,540
Net Benefit (Cost)	$3,989
Benefit/Cost Ratio	1.06

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.23 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	92.23%
Gross Load Factor at Customer	E	33.66%
Net-to-Gross (Energy)	F	66.0%
Net-to-Gross (Demand)	G	66.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$62
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6871 kW
Gross Annual kWh Saved at Customer	(B x E x C)	2,948 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	1,946 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,196 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.67 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.48 kW
Gross Annual kWh Saved at Customer	(B x E x M)	1,976 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	1,304 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	1,472 kWh

Program Summary All Participants		
Total Participants	N	96
Total Budget	O	**$68,540**
Gross kW Saved at Customer	(N x M)	64 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**46 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	189,663 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	189,663 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	125,177 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**141,284 kWh**
UCT Net Benefits	(N x M x L)	**$3,989**

Utility Program Cost per kWh Lifetime	**$0.0341**
Utility Program Cost per kW at Gen	**$1,500**

SCHOOL EDUCATION KITS	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$4,022
Transmission & Distribution Capacity	$1,706
Marginal Energy	$104,875
Avoided Emissions	$5,268
Total Benefits	$115,870
Costs	
Utility Project Costs	
Total Incentive	$52,309
Internal Administration	$14,608
Third-Party Delivery	$76,000
Promotion	$2,500
M&V	$0
Subtotal	$145,417
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$145,417
Net Benefit (Cost)	($29,547)
Benefit/Cost Ratio	0.80

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	11.53 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	10.17%
Gross Load Factor at Customer	E	60.89%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	64.144%
Installation Rate (Demand)	K	93.000%
UCT Net Benefit (Cost)	L	-$269
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.1068 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,334 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,422 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,862 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.04 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.00 kW
Gross Annual kWh Saved at Customer	(B x E x M)	235 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	151 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	170 kWh

Program Summary All Participants		
Total Participants	N	2,500
Total Budget	O	**$145,417**
Gross kW Saved at Customer	(N x M)	110 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**12 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	586,771 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	376,378 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	376,378 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**424,806 kWh**
UCT Net Benefits	(N x M x L)	**($29,547)**

Utility Program Cost per kWh Lifetime	**$0.0297**
Utility Program Cost per kW at Gen	**$11,978**

SCHOOL EDUCATION KITS	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$4,583
Transmission & Distribution Capacity	$1,740
Marginal Energy	$110,102
Avoided Emissions	$5,962
Total Benefits	$122,387
Costs	
Utility Project Costs	
Total Incentive	$52,309
Internal Administration	$15,108
Third-Party Delivery	$76,000
Promotion	$2,500
M&V	$0
Subtotal	$145,917
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$145,917
Net Benefit (Cost)	($23,530)
Benefit/Cost Ratio	0.84

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	11.53 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	10.17%
Gross Load Factor at Customer	E	60.89%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	64.144%
Installation Rate (Demand)	K	93.000%
UCT Net Benefit (Cost)	L	-$214
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.1068 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,334 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,422 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,862 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.04 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.00 kW
Gross Annual kWh Saved at Customer	(B x E x M)	235 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	151 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	170 kWh

Program Summary All Participants		
Total Participants	N	2,500
Total Budget	O	**$145,917**
Gross kW Saved at Customer	(N x M)	110 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**12 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	586,771 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	376,378 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	376,378 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**424,806 kWh**
UCT Net Benefits	(N x M x L)	**($23,530)**

Utility Program Cost per kWh Lifetime	**$0.0298**
Utility Program Cost per kW at Gen	**$12,020**

SCHOOL EDUCATION KITS	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$5,193
Transmission & Distribution Capacity	$1,775
Marginal Energy	$116,069
Avoided Emissions	$6,697
Total Benefits	$129,734
Costs	
Utility Project Costs	
Total Incentive	$52,309
Internal Administration	$15,608
Third-Party Delivery	$76,000
Promotion	$2,500
M&V	$20,000
Subtotal	$166,417
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$166,417
Net Benefit (Cost)	($36,683)
Benefit/Cost Ratio	0.78

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	11.53 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	10.17%
Gross Load Factor at Customer	E	60.89%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	64.144%
Installation Rate (Demand)	K	93.000%
UCT Net Benefit (Cost)	L	-$333
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.1068 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,334 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,422 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,862 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.04 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.00 kW
Gross Annual kWh Saved at Customer	(B x E x M)	235 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	151 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	170 kWh

Program Summary All Participants		
Total Participants	N	2,500
Total Budget	O	**$166,417**
Gross kW Saved at Customer	(N x M)	110 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**12 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	586,771 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	376,378 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	376,378 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**424,806 kWh**
UCT Net Benefits	(N x M x L)	**($36,683)**

Utility Program Cost per kWh Lifetime	**$0.0340**
Utility Program Cost per kW at Gen	**$13,708**

SMART THERMOSTATS	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$0
Transmission & Distribution Capacity	$0
Marginal Energy	$169,762
Avoided Emissions	$10,067
Total Benefits	$179,828
Costs	
Utility Project Costs	
Total Incentive	$37,500
Internal Administration	$25,000
Third-Party Delivery	$0
Promotion	$50,000
M&V	$30,000
Subtotal	$142,500
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$142,500
Net Benefit (Cost)	$37,328
Benefit/Cost Ratio	1.26

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	9.18 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	-65.11%
Gross Load Factor at Customer	E	165.10%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	100.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$654
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	(0.7349)kW
Gross Annual kWh Saved at Customer	(B x E x C)	14,463 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	14,463 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	16,324 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.03 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	-0.03 kW
Gross Annual kWh Saved at Customer	(B x E x M)	494 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	494 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	557 kWh

Program Summary All Participants		
Total Participants	N	1,671
Total Budget	O	**$142,500**
Gross kW Saved at Customer	(N x M)	57 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**-43 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	825,149 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	825,149 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	825,149 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**931,320 kWh**
UCT Net Benefits	(N x M x L)	**$37,328**

Utility Program Cost per kWh Lifetime	**$0.0167**
Utility Program Cost per kW at Gen	**($3,287)**

SMART THERMOSTATS	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$0
Transmission & Distribution Capacity	$0
Marginal Energy	$162,040
Avoided Emissions	$10,432
Total Benefits	$172,471
Costs	
Utility Project Costs	
Total Incentive	$40,000
Internal Administration	$27,500
Third-Party Delivery	$0
Promotion	$55,000
M&V	$0
Subtotal	$122,500
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$122,500
Net Benefit (Cost)	$49,971
Benefit/Cost Ratio	1.41

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	10.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	0.00%
Gross Load Factor at Customer	E	61.92%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	0.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	0.000%
UCT Net Benefit (Cost)	L	$388
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	- kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,424 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	5,424 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	6,122 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.10 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.00 kW
Gross Annual kWh Saved at Customer	(B x E x M)	539 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	539 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	609 kWh

Program Summary All Participants		
Total Participants	N	1,296
Total Budget	O	**$122,500**
Gross kW Saved at Customer	(N x M)	129 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**0 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	698,746 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	698,746 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	698,746 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**788,652 kWh**
UCT Net Benefits	(N x M x L)	**$49,971**

Utility Program Cost per kWh Lifetime		**$0.0155**
Utility Program Cost per kW at Gen		**#DIV/0!**

SMART THERMOSTATS	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$0
Transmission & Distribution Capacity	$0
Marginal Energy	$180,964
Avoided Emissions	$12,572
Total Benefits	$193,536
Costs	
Utility Project Costs	
Total Incentive	$42,500
Internal Administration	$30,000
Third-Party Delivery	$0
Promotion	$10,000
M&V	$0
Subtotal	$82,500
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$82,500
Net Benefit (Cost)	$111,036
Benefit/Cost Ratio	2.35

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	10.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	0.00%
Gross Load Factor at Customer	E	61.92%
Net-to-Gross (Energy)	F	100.0%
Net-to-Gross (Demand)	G	0.0%
Transmission Loss Factor (Energy)	H	11.400%
Transmission Loss Factor (Demand)	I	14.300%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	0.000%
UCT Net Benefit (Cost)	L	$811
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	- kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,424 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	5,424 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	6,122 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.11 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.00 kW
Gross Annual kWh Saved at Customer	(B x E x M)	576 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	576 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	651 kWh

Program Summary All Participants		
Total Participants	N	1,288
Total Budget	O	**$82,500**
Gross kW Saved at Customer	(N x M)	137 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**0 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	742,417 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	742,417 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	742,417 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**837,943 kWh**
UCT Net Benefits	(N x M x L)	**$111,036**

Utility Program Cost per kWh Lifetime		**$0.0098**
Utility Program Cost per kW at Gen		**#DIV/0!**

BUSINESS SEGMENT TOTAL	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$566,472
Transmission & Distribution Capacity	$297,968
Marginal Energy	$5,169,744
Avoided Emissions	$241,947
Total Benefits	$6,276,131
Costs	
Utility Project Costs	
Total Incentive	$1,720,412
Internal Administration	$769,803
Third-Party Delivery	$1,465,665
Promotion	$747,804
M&V	$95,000
Subtotal	$4,798,684
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$4,798,684
Net Benefit (Cost)	$1,477,447
Benefit/Cost Ratio	1.31

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.82 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	72.97%
Gross Load Factor at Customer	E	58.66%
Net-to-Gross (Energy)	F	78.0%
Net-to-Gross (Demand)	G	77.7%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$370
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6104 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,138 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,006 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,312 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	8.36 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	5.19 kW
Gross Annual kWh Saved at Customer	(B x E x M)	42,957 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	33,486 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	36,046 kWh

Program Summary All Participants		
Total Participants	N	477
Total Budget	O	**$4,798,684**
Gross kW Saved at Customer	(N x M)	3,991 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**2,479 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	20,506,263 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	20,506,263 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	15,985,365 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**17,207,066 kWh**
UCT Net Benefits	(N x M x L)	**$1,477,447**

Utility Program Cost per kWh Lifetime	**$0.0176**
Utility Program Cost per kW at Gen	**$1,936**

BUSINESS SEGMENT TOTAL — 2021 — ELECTRIC — GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$828,684
Transmission & Distribution Capacity	$371,823
Marginal Energy	$6,771,760
Avoided Emissions	$336,547
Total Benefits	$8,308,813
Costs	
Utility Project Costs	
Total Incentive	$2,098,229
Internal Administration	$781,137
Third-Party Delivery	$1,827,204
Promotion	$880,912
M&V	$95,000
Subtotal	$5,682,482
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$5,682,482
Net Benefit (Cost)	$2,626,331
Benefit/Cost Ratio	1.46

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.93 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	72.25%
Gross Load Factor at Customer	E	58.82%
Net-to-Gross (Energy)	F	78.0%
Net-to-Gross (Demand)	G	77.8%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$534
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6051 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,153 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,019 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,327 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	10.09 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	6.21 kW
Gross Annual kWh Saved at Customer	(B x E x M)	52,003 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	40,567 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	43,668 kWh

Program Summary All Participants		
Total Participants	N	487
Total Budget	O	**$5,682,482**
Gross kW Saved at Customer	(N x M)	4,917 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**3,027 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	25,334,118 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	25,334,118 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	19,763,161 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**21,273,586 kWh**
UCT Net Benefits	(N x M x L)	**$2,626,331**

Utility Program Cost per kWh Lifetime	**$0.0168**
Utility Program Cost per kW at Gen	**$1,877**

BUSINESS SEGMENT TOTAL	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$985,925
Transmission & Distribution Capacity	$383,694
Marginal Energy	$7,277,123
Avoided Emissions	$382,418
Total Benefits	$9,029,160
Costs	
Utility Project Costs	
Total Incentive	$2,150,154
Internal Administration	$732,633
Third-Party Delivery	$1,872,849
Promotion	$890,912
M&V	$95,000
Subtotal	$5,741,548
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$5,741,548
Net Benefit (Cost)	$3,287,612
Benefit/Cost Ratio	1.57

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.92 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	71.45%
Gross Load Factor at Customer	E	58.50%
Net-to-Gross (Energy)	F	78.0%
Net-to-Gross (Demand)	G	77.8%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$654
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.5984 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,125 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,998 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,304 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	10.35 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	6.30 kW
Gross Annual kWh Saved at Customer	(B x E x M)	53,025 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	41,367 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	44,528 kWh

Program Summary All Participants		
Total Participants	N	486
Total Budget	O	**$5,741,548**
Gross kW Saved at Customer	(N x M)	5,030 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**3,063 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	25,778,804 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	25,778,804 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	20,111,128 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**21,648,146 kWh**
UCT Net Benefits	(N x M x L)	**$3,287,612**

Utility Program Cost per kWh Lifetime	**$0.0167**
Utility Program Cost per kW at Gen	**$1,874**

BUSINESS COMPREHENSIVE	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$566,472
Transmission & Distribution Capacity	$297,968
Marginal Energy	$5,169,744
Avoided Emissions	$241,947
Total Benefits	$6,276,131
Costs	
Utility Project Costs	
Total Incentive	$1,720,412
Internal Administration	$769,803
Third-Party Delivery	$1,465,665
Promotion	$747,804
M&V	$95,000
Subtotal	$4,798,684
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$4,798,684
Net Benefit (Cost)	$1,477,447
Benefit/Cost Ratio	1.31

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.82 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	72.97%
Gross Load Factor at Customer	E	58.66%
Net-to-Gross (Energy)	F	78.0%
Net-to-Gross (Demand)	G	77.7%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$370
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6104 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,138 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,006 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,312 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	8.36 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	5.19 kW
Gross Annual kWh Saved at Customer	(B x E x M)	42,957 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	33,486 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	36,046 kWh

Program Summary All Participants		
Total Participants	N	477
Total Budget	O	**$4,798,684**
Gross kW Saved at Customer	(N x M)	3,991 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**2,479 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	20,506,263 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	20,506,263 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	15,985,365 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**17,207,066 kWh**
UCT Net Benefits	(N x M x L)	**$1,477,447**

Utility Program Cost per kWh Lifetime	**$0.0176**
Utility Program Cost per kW at Gen	**$1,936**

BUSINESS COMPREHENSIVE	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$828,684
Transmission & Distribution Capacity	$371,823
Marginal Energy	$6,771,760
Avoided Emissions	$336,547
Total Benefits	$8,308,813
Costs	
Utility Project Costs	
Total Incentive	$2,098,229
Internal Administration	$781,137
Third-Party Delivery	$1,827,204
Promotion	$880,912
M&V	$95,000
Subtotal	$5,682,482
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$5,682,482
Net Benefit (Cost)	$2,626,331
Benefit/Cost Ratio	1.46

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.93 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	72.25%
Gross Load Factor at Customer	E	58.82%
Net-to-Gross (Energy)	F	78.0%
Net-to-Gross (Demand)	G	77.8%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$534
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6051 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,153 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,019 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,327 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	10.09 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	6.21 kW
Gross Annual kWh Saved at Customer	(B x E x M)	52,003 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	40,567 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	43,668 kWh

Program Summary All Participants		
Total Participants	N	487
Total Budget	O	**$5,682,482**
Gross kW Saved at Customer	(N x M)	4,917 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**3,027 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	25,334,118 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	25,334,118 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	19,763,161 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**21,273,586 kWh**
UCT Net Benefits	(N x M x L)	**$2,626,331**

Utility Program Cost per kWh Lifetime	**$0.0168**
Utility Program Cost per kW at Gen	**$1,877**

BUSINESS COMPREHENSIVE	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$985,925
Transmission & Distribution Capacity	$383,694
Marginal Energy	$7,277,123
Avoided Emissions	$382,418
Total Benefits	$9,029,160
Costs	
Utility Project Costs	
Total Incentive	$2,150,154
Internal Administration	$732,633
Third-Party Delivery	$1,872,849
Promotion	$890,912
M&V	$95,000
Subtotal	$5,741,548
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$5,741,548
Net Benefit (Cost)	$3,287,612
Benefit/Cost Ratio	1.57

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.92 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	71.45%
Gross Load Factor at Customer	E	58.50%
Net-to-Gross (Energy)	F	78.0%
Net-to-Gross (Demand)	G	77.8%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$654
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.5984 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,125 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,998 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,304 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	10.35 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	6.30 kW
Gross Annual kWh Saved at Customer	(B x E x M)	53,025 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	41,367 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	44,528 kWh

Program Summary All Participants		
Total Participants	N	486
Total Budget	O	**$5,741,548**
Gross kW Saved at Customer	(N x M)	5,030 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**3,063 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	25,778,804 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	25,778,804 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	20,111,128 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**21,648,146 kWh**
UCT Net Benefits	(N x M x L)	**$3,287,612**

Utility Program Cost per kWh Lifetime	**$0.0167**
Utility Program Cost per kW at Gen	**$1,874**

BUILDING TUNE-UP	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$0
Transmission & Distribution Capacity	$134
Marginal Energy	$4,563
Avoided Emissions	$277
Total Benefits	$4,975
Costs	
Utility Project Costs	
Total Incentive	$14,000
Internal Administration	$3,000
Third-Party Delivery	$1,700
Promotion	$1,500
M&V	$0
Subtotal	$20,200
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$20,200
Net Benefit (Cost)	($15,225)
Benefit/Cost Ratio	0.25

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	7.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	48.44%
Gross Load Factor at Customer	E	89.97%
Net-to-Gross (Energy)	F	90.0%
Net-to-Gross (Demand)	G	90.0%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	-$3,651
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.4693 kW
Gross Annual kWh Saved at Customer	(B x E x C)	7,881 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	7,093 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	7,635 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.70 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.33 kW
Gross Annual kWh Saved at Customer	(B x E x M)	5,477 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	4,930 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	5,306 kWh

Program Summary All Participants		
Total Participants	N	6
Total Budget	O	**$20,200**
Gross kW Saved at Customer	(N x M)	4 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**2 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	32,864 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	32,864 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	29,577 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**31,838 kWh**
UCT Net Benefits	(N x M x L)	**($15,225)**

Utility Program Cost per kWh Lifetime	**$0.0906**
Utility Program Cost per kW at Gen	**$10,145**

BUILDING TUNE-UP — 2021 — ELECTRIC — GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$0
Transmission & Distribution Capacity	$137
Marginal Energy	$4,755
Avoided Emissions	$339
Total Benefits	$5,231
Costs	
Utility Project Costs	
Total Incentive	$14,000
Internal Administration	$3,000
Third-Party Delivery	$1,700
Promotion	$1,500
M&V	$0
Subtotal	$20,200
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$20,200
Net Benefit (Cost)	($14,969)
Benefit/Cost Ratio	0.26

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	7.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	48.44%
Gross Load Factor at Customer	E	89.97%
Net-to-Gross (Energy)	F	90.0%
Net-to-Gross (Demand)	G	90.0%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	-$3,590
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.4693 kW
Gross Annual kWh Saved at Customer	(B x E x C)	7,881 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	7,093 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	7,635 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.70 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.33 kW
Gross Annual kWh Saved at Customer	(B x E x M)	5,477 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	4,930 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	5,306 kWh

Program Summary All Participants		
Total Participants	N	6
Total Budget	O	**$20,200**
Gross kW Saved at Customer	(N x M)	4 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**2 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	32,864 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	32,864 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	29,577 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**31,838 kWh**
UCT Net Benefits	(N x M x L)	**($14,969)**

Utility Program Cost per kWh Lifetime	**$0.0906**
Utility Program Cost per kW at Gen	**$10,145**

BUILDING TUNE-UP	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$85
Transmission & Distribution Capacity	$140
Marginal Energy	$4,986
Avoided Emissions	$382
Total Benefits	$5,593
Costs	
Utility Project Costs	
Total Incentive	$14,000
Internal Administration	$3,000
Third-Party Delivery	$1,700
Promotion	$1,500
M&V	$0
Subtotal	$20,200
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$20,200
Net Benefit (Cost)	($14,607)
Benefit/Cost Ratio	0.28

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	7.00 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	48.44%
Gross Load Factor at Customer	E	89.97%
Net-to-Gross (Energy)	F	90.0%
Net-to-Gross (Demand)	G	90.0%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	-$3,503
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.4693 kW
Gross Annual kWh Saved at Customer	(B x E x C)	7,881 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	7,093 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	7,635 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	0.70 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.33 kW
Gross Annual kWh Saved at Customer	(B x E x M)	5,477 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	4,930 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	5,306 kWh

Program Summary All Participants		
Total Participants	N	6
Total Budget	O	**$20,200**
Gross kW Saved at Customer	(N x M)	4 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**2 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	32,864 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	32,864 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	29,577 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**31,838 kWh**
UCT Net Benefits	(N x M x L)	**($14,607)**

Utility Program Cost per kWh Lifetime	**$0.0906**
Utility Program Cost per kW at Gen	**$10,145**

COOLING EFFICIENCY	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$47,658
Transmission & Distribution Capacity	$22,723
Marginal Energy	$277,919
Avoided Emissions	$11,209
Total Benefits	$359,510
Costs	
Utility Project Costs	
Total Incentive	$84,471
Internal Administration	$79,951
Third-Party Delivery	$85,871
Promotion	$63,728
M&V	$15,000
Subtotal	$329,021
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$329,021
Net Benefit (Cost)	$30,489
Benefit/Cost Ratio	1.09

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	17.99 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	71.60%
Gross Load Factor at Customer	E	35.39%
Net-to-Gross (Energy)	F	78.3%
Net-to-Gross (Demand)	G	78.3%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$106
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6031 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,100 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,426 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,611 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	2.13 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	1.30 kW
Gross Annual kWh Saved at Customer	(B x E x M)	6,590 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	5,157 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	5,551 kWh

Program Summary All Participants		
Total Participants	N	136
Total Budget	O	**$329,021**
Gross kW Saved at Customer	(N x M)	289 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**177 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	895,576 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	895,576 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	700,788 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**754,346 kWh**
UCT Net Benefits	(N x M x L)	**$30,489**

Utility Program Cost per kWh Lifetime	**$0.0242**
Utility Program Cost per kW at Gen	**$1,856**

COOLING EFFICIENCY	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$55,637
Transmission & Distribution Capacity	$23,178
Marginal Energy	$295,498
Avoided Emissions	$12,498
Total Benefits	$386,810
Costs	
Utility Project Costs	
Total Incentive	$84,471
Internal Administration	$80,951
Third-Party Delivery	$85,871
Promotion	$63,728
M&V	$15,000
Subtotal	$330,021
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$330,021
Net Benefit (Cost)	$56,789
Benefit/Cost Ratio	1.17

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	17.99 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	71.60%
Gross Load Factor at Customer	E	35.39%
Net-to-Gross (Energy)	F	78.3%
Net-to-Gross (Demand)	G	78.3%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$197
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6031 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,100 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,426 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,611 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	2.13 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	1.30 kW
Gross Annual kWh Saved at Customer	(B x E x M)	6,590 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	5,157 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	5,551 kWh

Program Summary All Participants		
Total Participants	N	136
Total Budget	O	**$330,021**
Gross kW Saved at Customer	(N x M)	289 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**177 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	895,576 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	895,576 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	700,788 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**754,346 kWh**
UCT Net Benefits	(N x M x L)	**$56,789**

Utility Program Cost per kWh Lifetime	**$0.0243**
Utility Program Cost per kW at Gen	**$1,861**

COOLING EFFICIENCY	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$64,323
Transmission & Distribution Capacity	$23,642
Marginal Energy	$314,804
Avoided Emissions	$13,848
Total Benefits	$416,618
Costs	
Utility Project Costs	
Total Incentive	$84,471
Internal Administration	$79,951
Third-Party Delivery	$85,871
Promotion	$63,728
M&V	$15,000
Subtotal	$329,021
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$329,021
Net Benefit (Cost)	$87,597
Benefit/Cost Ratio	1.27

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	17.99 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	71.60%
Gross Load Factor at Customer	E	35.39%
Net-to-Gross (Energy)	F	78.3%
Net-to-Gross (Demand)	G	78.3%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$303
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6031 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,100 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	2,426 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	2,611 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	2.13 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	1.30 kW
Gross Annual kWh Saved at Customer	(B x E x M)	6,590 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	5,157 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	5,551 kWh

Program Summary All Participants		
Total Participants	N	136
Total Budget	O	**$329,021**
Gross kW Saved at Customer	(N x M)	289 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**177 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	895,576 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	895,576 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	700,788 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**754,346 kWh**
UCT Net Benefits	(N x M x L)	**$87,597**

Utility Program Cost per kWh Lifetime	**$0.0242**
Utility Program Cost per kW at Gen	**$1,856**

CUSTOM EFFICIENCY	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$152,860
Transmission & Distribution Capacity	$67,057
Marginal Energy	$1,306,495
Avoided Emissions	$54,646
Total Benefits	$1,581,058
Costs	
Utility Project Costs	
Total Incentive	$255,758
Internal Administration	$340,292
Third-Party Delivery	$310,113
Promotion	$275,684
M&V	$35,000
Subtotal	$1,216,847
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$1,216,847
Net Benefit (Cost)	$364,211
Benefit/Cost Ratio	1.30

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	18.28 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	88.05%
Gross Load Factor at Customer	E	77.90%
Net-to-Gross (Energy)	F	78.3%
Net-to-Gross (Demand)	G	78.3%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$560
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.7416 kW
Gross Annual kWh Saved at Customer	(B x E x C)	6,824 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	5,340 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	5,748 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	26.03 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	19.64 kW
Gross Annual kWh Saved at Customer	(B x E x M)	177,619 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	138,987 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	149,609 kWh

Program Summary All Participants		
Total Participants	N	25
Total Budget	O	**$1,216,847**
Gross kW Saved at Customer	(N x M)	651 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**491 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	4,440,474 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	4,440,474 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	3,474,671 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**3,740,227 kWh**
UCT Net Benefits	(N x M x L)	**$364,211**

Utility Program Cost per kWh Lifetime	**$0.0178**
Utility Program Cost per kW at Gen	**$2,478**

CUSTOM EFFICIENCY	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$233,147
Transmission & Distribution Capacity	$90,931
Marginal Energy	$1,879,686
Avoided Emissions	$82,222
Total Benefits	$2,285,985
Costs	
Utility Project Costs	
Total Incentive	$333,437
Internal Administration	$360,730
Third-Party Delivery	$362,073
Promotion	$345,684
M&V	$35,000
Subtotal	$1,436,924
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$1,436,924
Net Benefit (Cost)	$849,061
Benefit/Cost Ratio	1.59

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	18.47 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	89.17%
Gross Load Factor at Customer	E	80.00%
Net-to-Gross (Energy)	F	78.3%
Net-to-Gross (Demand)	G	78.3%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$994
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.7511 kW
Gross Annual kWh Saved at Customer	(B x E x C)	7,008 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	5,483 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	5,903 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	29.46 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	22.51 kW
Gross Annual kWh Saved at Customer	(B x E x M)	206,419 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	161,523 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	173,867 kWh

Program Summary All Participants		
Total Participants	N	29
Total Budget	O	**$1,436,924**
Gross kW Saved at Customer	(N x M)	854 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**653 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	5,986,143 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	5,986,143 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	4,684,157 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**5,042,150 kWh**
UCT Net Benefits	(N x M x L)	**$849,061**

Utility Program Cost per kWh Lifetime	**$0.0154**
Utility Program Cost per kW at Gen	**$2,201**

CUSTOM EFFICIENCY	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$265,697
Transmission & Distribution Capacity	$92,750
Marginal Energy	$1,991,412
Avoided Emissions	$91,340
Total Benefits	$2,441,198
Costs	
Utility Project Costs	
Total Incentive	$333,437
Internal Administration	$333,292
Third-Party Delivery	$362,073
Promotion	$355,684
M&V	$35,000
Subtotal	$1,419,486
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$1,419,486
Net Benefit (Cost)	$1,021,712
Benefit/Cost Ratio	1.72

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	18.47 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	89.17%
Gross Load Factor at Customer	E	80.00%
Net-to-Gross (Energy)	F	78.3%
Net-to-Gross (Demand)	G	78.3%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$1,196
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.7511 kW
Gross Annual kWh Saved at Customer	(B x E x C)	7,008 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	5,483 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	5,903 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	29.46 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	22.51 kW
Gross Annual kWh Saved at Customer	(B x E x M)	206,419 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	161,523 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	173,867 kWh

Program Summary All Participants		
Total Participants	N	29
Total Budget	O	**$1,419,486**
Gross kW Saved at Customer	(N x M)	854 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**653 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	5,986,143 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	5,986,143 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	4,684,157 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**5,042,150 kWh**
UCT Net Benefits	(N x M x L)	**$1,021,712**

Utility Program Cost per kWh Lifetime	**$0.0152**
Utility Program Cost per kW at Gen	**$2,174**

LIGHTING EFFICIENCY	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$45,385
Transmission & Distribution Capacity	$24,423
Marginal Energy	$608,191
Avoided Emissions	$30,078
Total Benefits	$708,077
Costs	
Utility Project Costs	
Total Incentive	$233,643
Internal Administration	$91,122
Third-Party Delivery	$303,834
Promotion	$131,892
M&V	$15,000
Subtotal	$775,491
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$775,491
Net Benefit (Cost)	($67,414)
Benefit/Cost Ratio	0.91

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.62 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	37.90%
Gross Load Factor at Customer	E	46.88%
Net-to-Gross (Energy)	F	78.3%
Net-to-Gross (Demand)	G	78.3%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	-$106
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3192 kW
Gross Annual kWh Saved at Customer	(B x E x C)	4,107 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,214 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,459 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	2.49 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	0.81 kW
Gross Annual kWh Saved at Customer	(B x E x M)	10,217 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	7,995 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	8,606 kWh

Program Summary All Participants		
Total Participants	N	255
Total Budget	O	**$775,491**
Gross kW Saved at Customer	(N x M)	634 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**206 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	2,603,380 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	2,603,380 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	2,037,145 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**2,192,837 kWh**
UCT Net Benefits	(N x M x L)	**($67,414)**

Utility Program Cost per kWh Lifetime	**$0.0242**
Utility Program Cost per kW at Gen	**$3,766**

LIGHTING EFFICIENCY — 2021 — ELECTRIC — GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$86,908
Transmission & Distribution Capacity	$39,742
Marginal Energy	$941,716
Avoided Emissions	$49,675
Total Benefits	$1,118,040
Costs	
Utility Project Costs	
Total Incentive	$352,684
Internal Administration	$94,122
Third-Party Delivery	$401,803
Promotion	$195,000
M&V	$15,000
Subtotal	$1,058,609
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$1,058,609
Net Benefit (Cost)	$59,431
Benefit/Cost Ratio	1.06

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.87 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	39.87%
Gross Load Factor at Customer	E	44.94%
Net-to-Gross (Energy)	F	78.3%
Net-to-Gross (Demand)	G	78.3%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$62
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3359 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,936 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,080 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,316 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	3.69 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	1.26 kW
Gross Annual kWh Saved at Customer	(B x E x M)	14,514 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	11,357 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	12,225 kWh

Program Summary All Participants		
Total Participants	N	261
Total Budget	O	**$1,058,609**
Gross kW Saved at Customer	(N x M)	961 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**328 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	3,782,235 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	3,782,235 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	2,959,599 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**3,185,790 kWh**
UCT Net Benefits	(N x M x L)	**$59,431**

Utility Program Cost per kWh Lifetime	**$0.0223**
Utility Program Cost per kW at Gen	**$3,224**

LIGHTING EFFICIENCY	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$114,014
Transmission & Distribution Capacity	$44,970
Marginal Energy	$1,113,060
Avoided Emissions	$62,083
Total Benefits	$1,334,127
Costs	
Utility Project Costs	
Total Incentive	$404,609
Internal Administration	$94,122
Third-Party Delivery	$442,448
Promotion	$195,000
M&V	$15,000
Subtotal	$1,151,179
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$1,151,179
Net Benefit (Cost)	$182,948
Benefit/Cost Ratio	1.16

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	14.94 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	39.53%
Gross Load Factor at Customer	E	44.92%
Net-to-Gross (Energy)	F	78.3%
Net-to-Gross (Demand)	G	78.3%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$170
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.3330 kW
Gross Annual kWh Saved at Customer	(B x E x C)	3,935 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	3,079 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	3,314 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	4.14 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	1.40 kW
Gross Annual kWh Saved at Customer	(B x E x M)	16,282 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	12,741 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	13,715 kWh

Program Summary All Participants		
Total Participants	N	260
Total Budget	O	**$1,151,179**
Gross kW Saved at Customer	(N x M)	1,074 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**364 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	4,226,921 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	4,226,921 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	3,307,566 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**3,560,351 kWh**
UCT Net Benefits	(N x M x L)	**$182,948**

Utility Program Cost per kWh Lifetime	**$0.0216**
Utility Program Cost per kW at Gen	**$3,163**

MOTORS & DRIVES	2020	ELECTRIC	GOAL

2020 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$320,568
Transmission & Distribution Capacity	$183,631
Marginal Energy	$2,972,576
Avoided Emissions	$145,736
Total Benefits	$3,622,511
Costs	
Utility Project Costs	
Total Incentive	$1,132,540
Internal Administration	$255,438
Third-Party Delivery	$764,147
Promotion	$275,000
M&V	$30,000
Subtotal	$2,457,125
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$2,457,125
Net Benefit (Cost)	$1,165,386
Benefit/Cost Ratio	1.47

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.07 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	78.33%
Gross Load Factor at Customer	E	59.29%
Net-to-Gross (Energy)	F	77.7%
Net-to-Gross (Demand)	G	77.4%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$483
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6527 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,194 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,038 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,346 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	43.35 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	28.79 kW
Gross Annual kWh Saved at Customer	(B x E x M)	225,161 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	175,027 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	188,404 kWh

Program Summary All Participants		
Total Participants	N	56
Total Budget	O	**$2,457,125**
Gross kW Saved at Customer	(N x M)	2,413 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**1,603 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	12,533,969 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	12,533,969 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	9,743,183 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**10,487,818 kWh**
UCT Net Benefits	(N x M x L)	**$1,165,386**

Utility Program Cost per kWh Lifetime	**$0.0155**
Utility Program Cost per kW at Gen	**$1,533**

MOTORS & DRIVES	2021	ELECTRIC	GOAL

2021 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$452,992
Transmission & Distribution Capacity	$217,835
Marginal Energy	$3,650,106
Avoided Emissions	$191,813
Total Benefits	$4,512,747
Costs	
Utility Project Costs	
Total Incentive	$1,313,637
Internal Administration	$242,334
Third-Party Delivery	$975,757
Promotion	$275,000
M&V	$30,000
Subtotal	$2,836,728
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$2,836,728
Net Benefit (Cost)	$1,676,019
Benefit/Cost Ratio	1.59

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.06 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	78.28%
Gross Load Factor at Customer	E	59.49%
Net-to-Gross (Energy)	F	77.8%
Net-to-Gross (Demand)	G	77.5%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$597
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6533 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,211 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,055 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,365 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	50.46 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	33.54 kW
Gross Annual kWh Saved at Customer	(B x E x M)	262,946 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	204,594 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	220,230 kWh

Program Summary All Participants		
Total Participants	N	56
Total Budget	O	**$2,836,728**
Gross kW Saved at Customer	(N x M)	2,809 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**1,867 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	14,637,300 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	14,637,300 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	11,389,040 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**12,259,462 kWh**
UCT Net Benefits	(N x M x L)	**$1,676,019**

Utility Program Cost per kWh Lifetime	**$0.0154**
Utility Program Cost per kW at Gen	**$1,519**

MOTORS & DRIVES	2022	ELECTRIC	GOAL

2022 Net Present Cost Benefit Summary

Analysis For All Participants

	Utility Cost Test ($Total)
Benefits	
System Benefits (Avoided Costs)	
Generation Capacity	$541,805
Transmission & Distribution Capacity	$222,193
Marginal Energy	$3,852,861
Avoided Emissions	$214,765
Total Benefits	$4,831,624
Costs	
Utility Project Costs	
Total Incentive	$1,313,637
Internal Administration	$222,268
Third-Party Delivery	$980,757
Promotion	$275,000
M&V	$30,000
Subtotal	$2,821,662
Participant Costs	
Costs	
Incremental Capital Costs	N/A
Incremental O&M Costs	N/A
Subtotal	N/A
Reductions to Costs	
Participant Rebates	N/A
Subtotal	N/A
Subtotal	N/A
Total Costs	$2,821,662
Net Benefit (Cost)	$2,009,962
Benefit/Cost Ratio	1.71

Note: Dollar values represent present value of impacts accumulated over the lifetime of the measures.

Input Summary and Totals

Program Inputs per Customer kW		
Lifetime (Weighted on Generator kWh)	A	15.06 years
Annual Hours	B	8760
Gross Customer kW	C	1 kW
Generator Peak Coincidence Factor	D	78.28%
Gross Load Factor at Customer	E	59.49%
Net-to-Gross (Energy)	F	77.8%
Net-to-Gross (Demand)	G	77.5%
Transmission Loss Factor (Energy)	H	7.100%
Transmission Loss Factor (Demand)	I	8.700%
Installation Rate (Energy)	J	100.000%
Installation Rate (Demand)	K	100.000%
UCT Net Benefit (Cost)	L	$716
Net coincident kW Saved at Generator	**(G x C x K) x D / (1 - I)**	0.6533 kW
Gross Annual kWh Saved at Customer	(B x E x C)	5,211 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x C x J))**	4,055 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x C x J)) / (1 - H)**	4,365 kWh

Program Summary per Participant		
Gross kW Saved at Customer	M	50.46 kW
Net coincident kW Saved at Generator	**(G x M x K) x D / (1 - I)**	33.54 kW
Gross Annual kWh Saved at Customer	(B x E x M)	262,946 kWh
Net Annual kWh Saved at Customer	**(F x (B x E x M x J))**	204,594 kWh
Net Annual kWh Saved at Generator	**(F x (B x E x M x J)) / (1 - H)**	220,230 kWh

Program Summary All Participants		
Total Participants	N	56
Total Budget	O	**$2,821,662**
Gross kW Saved at Customer	(N x M)	2,809 kW
Net coincident kW Saved at Generator	**((G x M x K) x D / (1 - I)) x N**	**1,867 kW**
Gross Annual kWh Saved at Customer	(B x E x M) x N	14,637,300 kWh
Gross Installed Annual kWh Saved at Custome	**(B x E x M) x N x J**	14,637,300 kWh
Net Annual kWh Saved at Customer	(B x E x M) x N x J x F	11,389,040 kWh
Net Annual kWh Saved at Generator	**((B x E x M) / (1 - H)) x N x J x F**	**12,259,462 kWh**
UCT Net Benefits	(N x M x L)	**$2,009,962**

Utility Program Cost per kWh Lifetime	**$0.0153**
Utility Program Cost per kW at Gen	**$1,511**

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

Measure Description			High Efficiency Product Assumptions			Baseline Product Assumptions		
Line No.	Electric Measure Group	Electric Measure Description	Efficient Product Description / Rating	Efficient Product Consumption (watts)	Efficient Hours of Operation (hrs/yr)	Baseline Product Description / Rating	Baseline Product Consumption (watts)	Baseline Hours of Operation (hrs/yr)
1	**Total**							
2	**Business**							
3	**Building Tune-Up**							
4	NM - Small Building Tune-Up Study - E	Small Building Tune-up Study	Existing systems studied for opportunities	181,881	4,856	Existing systems	181,881	4,856
5	NM - Small Building Tune-Up Measure - E	Small Building Tune-up Measure	Implemented Recommissioning measures	9,382	7,881	Existing systems	10,424	7,881
6	**Cooling Efficiency**							
7	DX Units <5.4 Tons NMx	DX Units < than 5.4 tons	Unit size 3.45 tons, 15.3 SEER & 12.4542 EER	3,324	2,007	Unit size 3.45 tons, 13 SEER & 11.18 EER	3,703	2,007
8	DX Units >=5.4 Tons NMx-RTU	DX Units 5.5-11.3 tons	Unit size 9.04 tons & 12.09 EER	8,973	1,382	Unit size 9.04 tons & 11.2 EER	9,686	1,382
9	DX Units >=5.4 Tons NMx-RTU	DX Units 11.4-19.9 tons	Unit size 17.49 tons & 12.36 EER	16,981	1,526	Unit size 17.49 tons & 11 EER	19,080	1,526
10	DX Units >=5.4 Tons NMx-RTU	DX Units 20-63.3 tons	Unit size 24.36 tons & 10.8 EER	27,067	1,603	Unit size 24.36 tons & 10 EER	29,232	1,603
11	DX Units >=5.4 Tons NMx-RTU	DX Units greater than 63.3 tons	Unit size 100 tons & 10.2 EER	117,647	1,622	Unit size 100 tons & 9.7 EER	123,711	1,622
12	RTU Economizer & DCV	RTU Economizer & Demand Control Ventilation	RTU with Demand Control	1,414	1,039	RTU with Standard Economizer	2,827	1,039
13	Water-source Heat Pumps	Water-source Heat Pumps	Unit size 2.9 tons, 17.1 SEER, 17.1 EER	2,035	555	Unit size 2.9 tons, 12 SEER, 12 EER	2,900	555
14	PTAC NMx	PTAC >= 7,000 BTUH to <=15,000 BTUH	Condensing Units size 0.71 tons, 11.95 EER	713	1,820	Condensing Units 0.71 tons, 10.7 EER	796	1,820
15	PTAC NMx	*PTAC < 7,000 BTUH*	Condensing Units size 0.58 tons, 11.95 EER	582	1,820	Condensing Units 0.58 tons, 11.7 EER	595	1,820
16	PTAC NMx	*PTAC > 15,000 BTUH*	Condensing Units size 1.26 tons, 11.95 EER	1,265	1,820	Condensing Units 1.26 tons, 9.3 EER	1,626	1,820
17	Screw/Scroll Chillers	*Scroll/Screw Chiller < 75 tons*	Chiller size 58.8 tons, 0.59 full load kW/ton, 0.48 IPLV	34,692	1,062	Chiller size 58.8 tons, 0.78 full load kW/ton, 0.63 IPLV	45,864	1,062
18	Screw/Scroll Chillers	*Scroll/Screw Chiller >= 75 tons to < 150 tons*	Chiller size 90 tons, 0.76 full load kW/ton, 0.60 IPLV	68,310	1,310	Chiller size 90 tons, 0.78 full load kW/ton, 0.62 IPLV	69,750	1,310
19	Screw/Scroll Chillers	*Scroll/Screw chiller >=150 to <300 tons*	Chiller size 225 tons, 0.57 full load kW/ton, 0.48 IPLV	128,250	1,191	Chiller size 225 tons, 0.68 full load kW/ton, 0.58 IPLV	153,000	1,191
20	Screw/Scroll Chillers	*scroll/screw chiller >= 300 tons*	Chiller size 300 tons, 0.52 full load kW/ton, 0.37 IPLV	155,100	2,226	Chiller size 300 tons, 0.62 full load kW/ton, 0.54 IPLV	186,000	2,226
21	Centrifugal Chillers	*Centrifugal Chillers < 150 tons*	Chiller size 125 tons, 0.60 full load kW/ton, 0.57 IPLV	75,000	1,117	Chiller size 125 tons, 0.63 full load kW/ton, 0.60 IPLV	79,250	1,117
22	Centrifugal Chillers	*Centrifugal Chillers >= 150 to < 300 tons*	Chiller size 225 tons, 0.55 full load kW/ton, 0.51 IPLV	123,032	1,310	Chiller size 225 tons, 0.63 full load kW/ton, 0.60 IPLV	142,650	1,310
23	Centrifugal Chillers	*Centrifugal Chillers >= 300 to < 600 tons*	Chiller size 500 tons, 0.50 full load kW/ton, 0.33 IPLV	248,000	3,521	Chiller size 500 tons, 0.58 full load kW/ton, 0.55 IPLV	288,000	3,521
24	Centrifugal Chillers	*Centrifugal Chillers >= 600 tons*	Chiller size 750 tons, 0.55 full load kW/ton, 0.53 IPLV	414,563	1,006	Chiller size 750 tons, 0.57 full load kW/ton, 0.54 IPLV	427,500	1,006
25	Air-Cooled Chillers	*Air-Cooled Chillers - avg. capacity 250 tons*	Air-cooled chiller, capacity 52 tons, 9.562 EER	61,176	1,055	Air-cooled chiller, capacity 52 tons,10.2 EER	65,258	1,055
26	Air-Cooled Chillers	*Air-Cooled Chillers - avg. capacity 250 tons*	Air-cooled chiller, capacity 250 tons, 9.562 EER	293,830	3,405	Air-cooled chiller, capacity 250 tons,10.21 EER	313,742	3,405
27	EC Motors - Display Case	*ECM - Medium Temp Display Case*	Electronically Communtated Motor (ECM)	35	8,760	Shaded Pole Motor	113	8,760
28	EC Motors - Display Case	*ECM - Low Temp Display Case*	Electronically Communtated Motor (ECM)	38	8,760	Shaded Pole Motor	124	8,760
29	EC Motors - Walk in Cooler	*ECM - Medium Temp Walk-in, Evap fan <= 15" Diameter*	Electronically Communtated Motor (ECM)	91	8,760	Shaded Pole Motor	235	8,760
30	EC Motors - Walk in Cooler	*ECM- Low Temp Walk-in, Evap fan <= 15" Diameter*	Electronically Communtated Motor (ECM)	100	8,328	Shaded Pole Motor	258	8,760
31	Anti-Sweat Heater	Anti-Sweat Heater Controls	Anti-Sweat Heater Controls	107	1,266	Anti-Sweat Heaters running constantly	129	8,760
32	No Heat Case Door NMx	No Heat Case Doors	No Heat Case Doors	0	8,760	Standard Door	175	8,760
33	Medium Temperature Reach-In Case	Medium-temp Enclosed Reach-In Case (per linear foot)	Medium-temp Reach-In Cases with Doors	20	8,760	Medium-temp Open Reach-In Cases	113	8,760
34	Evaporator Fan Motor Controller	Evap Fan Motor Controller	Evaporator Motor Fan Control	91	8,585	No Motor Fan Controls	130	8,585
35	Direct Evaporative Cooling	Tier 1 - Direct Evaporative Cooling-TOTAL	Standard Direct Evaporative Cooler	1,783	1,200	Standard Roof-top Unit	9,043	1,200
36	VFD Chiller Retrofit	*VSD Chiller Retrofit*	Chiller size 378 tons, 0.59 full load kW/ton, 0.41 IPLV	154,879	1,310	Chiller size 378 tons, 0.58 full load kW/ton, 0.56 IPLV	211,036	1,310
37	LED Ref and Frz Cases 5' or 6' doors	*LED Ref and Frz Cases 5' or 6' Doors*	LED System	20	4,850	Fluorescent System	70	4,850
38	Commercial Dishwasher - Electric Water Heating	*Commercial Dishwasher - Under Counter, Electric Only*	ENERGY STAR qualified unit	1,085	6,570	Conventional unit as defined by ENERGY STAR	1,470	6,570
39	Commercial Dishwasher - Electric Water Heating	*Commercial Dishwasher - Door Type, Electric Only*	ENERGY STAR qualified unit	3,463	6,570	Conventional unit as defined by ENERGY STAR	5,194	6,570
40	Hot Food Holding Cabinet	Hot Food Holding Cabinet	ENERGY STAR qualified unit	230	5,475	Conventional unit as defined by ENERGY STAR	504	5,475
41	Demand Controlled Ventilation	Demand Controlled Ventilation	Commercial kitchen ventilation hoods with Demand Controlled Ventilation with 8.65 HP Motor	11,766	3,307	Commercial kitchen ventilation hoods without Demand Controlled Ventilation with 8.65 HP Motor	19,597	3,307
42	Ductless Mini-Splits	Mini-Split Heat Pump	MSHP size 1.2 tons, 21.27 SEER, 11.50 HSPF	1,088	1,027	MSHP size 1.2 tons, 14 SEER, 8.2 HSPF	1,647	1,027
43	Ductless Mini-Splits	*Mini-Split AC - Data Center*	MSHP size 1.2 tons, 21.27 SEER	1,088	5,236	MSHP size 1.2 tons, 14 SEER	1,647	5,236

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

	Economic Assumptions					Stipulated Output								Economic Assumptions	
Line No.	Measure Lifetime (years)	Rebate Amount ($)	Average Baseline Product Cost ($)	Incremental Cost of Efficient Product ($)	Assumed Energy Cost ($/kWh)	Rebate as a % of Incremental Cost (%)	Incremt'l Cost Payback Period w/o Rebate (yrs)	Incremt'l Cost Payback Period w/ Rebate (yrs)	Annual Customer kWh Savings (kWh/yr)	Rebated Cost / Cust kWh Saved ($/kWh)	Rebated Lifetime cost /Cust KWh Saved ($/kWh)	Customer kW Savings (kW)	Generator Peak kW Savings (kW)	Non-Energy O&M Savings ($)	Energy O&M Savings ($)
1															
2															
3															
4	7.00	$7,000	$0	$8,000	$ 0.037	88%	N/A	N/A	0	N/A	N/A	0.000	0.000	$0.00	$0.00
5	7.00	$0	$0	$25	$ 0.038	0%	0.1	0.08	8,216	$0.00	$0.00	1.043	0.553	$0.00	$0.00
6															
7	15.00	$262	$4,500	$758	$ 0.042	35%	23.7	15.49	760	$0.34	$0.02	0.379	0.415	$0.00	$0.00
8	15.00	$378	$13,500	$916	$ 0.044	41%	20.9	12.29	986	$0.38	$0.03	0.713	0.781	$0.00	$0.00
9	15.00	$895	$22,500	$2,169	$ 0.044	41%	15.5	9.09	3,204	$0.28	$0.02	2.099	2.299	$0.00	$0.00
10	15.00	$1,169	$45,000	$8,857	$ 0.043	13%	58.8	51.04	3,472	$0.34	$0.02	2.165	2.372	$0.00	$0.00
11	15.00	$4,400	$187,500	$23,920	$ 0.043	18%	56.1	45.82	9,837	$0.45	$0.03	6.064	6.642	$0.00	$0.00
12	20.00	$197	$1,000	$1,500	$ 0.047	13%	21.7	18.89	1,469	$0.13	$0.01	1.414	1.393	$0.00	$0.00
13	15.00	$342	$4,500	$580	$ 0.056	59%	21.7	8.88	480	$0.71	$0.05	0.865	0.853	$0.00	$0.00
14	15.00	$42	$1,125	$60	$ 0.043	70%	9.2	2.75	152	$0.28	$0.02	0.083	0.051	$0.00	$0.00
15	15.00	$34	$1,125	$49	$ 0.043	70%	50.5	15.03	23	$1.51	$0.10	0.012	0.008	$0.00	$0.00
16	15.00	$74	$1,125	$106	$ 0.043	70%	3.8	1.13	656	$0.11	$0.01	0.361	0.221	$0.00	$0.00
17	20.00	$2,817	$35,280	$5,880	$ 0.047	48%	10.6	5.53	11,862	$0.24	$0.01	11.172	11.013	$0.00	$0.00
18	20.00	$720	$75,000	$9,000	$ 0.045	8%	106.4	97.85	1,886	$0.38	$0.02	1.440	1.419	$0.00	$0.00
19	20.00	$6,863	$108,000	$22,500	$ 0.046	31%	16.7	11.62	29,475	$0.23	$0.01	24.750	24.398	$0.00	$0.00
20	20.00	$11,085	$210,000	$21,000	$ 0.042	53%	7.3	3.47	68,775	$0.16	$0.01	30.900	30.460	$0.00	$0.00
21	25.00	$1,563	$75,000	$12,500	$ 0.046	13%	56.9	49.81	4,749	$0.33	$0.01	4.250	4.189	$0.00	$0.00
22	25.00	$5,805	$135,000	$22,500	$ 0.045	26%	19.5	14.48	25,700	$0.23	$0.01	19.618	19.339	$0.00	$0.00
23	25.00	$18,750	$255,000	$37,500	$ 0.040	50%	6.7	3.34	140,825	$0.13	$0.01	40.000	39.869	$0.00	$0.00
24	25.00	$5,934	$450,000	$56,250	$ 0.047	11%	91.4	81.75	13,018	$0.46	$0.02	12.937	12.753	$0.00	$0.00
25	20.00	$806	$250,000	$2,080	$ 0.047	39%	10.3	6.32	4,306	$0.19	$0.01	4.082	3.085	$0.00	$0.00
26	20.00	$4,906	$250,000	$10,000	$ 0.040	49%	3.7	1.88	67,803	$0.07	$0.00	19.912	0.000	$0.00	$0.00
27	15.00	$40	$0	$88	$ 0.038	45%	3.4	1.84	686	$0.06	$0.00	0.078	0.086	$0.00	$0.00
28	15.00	$40	$0	$88	$ 0.038	45%	3.1	1.68	753	$0.05	$0.00	0.086	0.094	$0.00	$0.00
29	15.00	$70	$0	$180	$ 0.038	39%	3.8	2.30	1,260	$0.06	$0.00	0.144	0.158	$0.00	$0.00
30	15.00	$70	$0	$180	$ 0.038	39%	3.3	2.03	1,426	$0.05	$0.00	0.158	0.173	$0.00	$0.00
31	12.00	$20	$0	$85	$ 0.037	24%	2.3	1.76	998	$0.02	$0.00	0.023	0.025	$0.00	$0.00
32	12.00	$125	$0	$665	$ 0.038	19%	11.4	9.26	1,533	$0.08	$0.01	0.175	0.192	$0.00	$0.00
33	15.00	$70	$0	$906	$ 0.038	8%	29.3	27.02	814	$0.09	$0.01	0.093	0.102	$0.00	$0.00
34	15.00	$35	$0	$120	$ 0.038	29%	9.4	6.65	335	$0.10	$0.01	0.039	0.013	$0.00	$0.00
35	10.00	$746	$11,250	-$7,880	$ 0.046	-9%	22.6	24.69	8,708	$0.09	$0.01	7.259	7.156	-$746.42	$0.00
36	20.00	$8,424	$0	$27,172	$ 0.045	31%	8.2	5.68	73,566	$0.11	$0.01	56.157	-2.084	$0.00	$0.00
37	16.00	$50	$0	$164	$ 0.039	31%	17.5	12.15	240	$0.21	$0.01	0.050	0.045	$0.00	$0.00
38	10.00	$175	$4,960	$106	$ 0.038	165%	0.6	-0.39	2,535	$0.07	$0.01	0.386	0.362	$31.63	$46.46
39	15.00	$196	$6,786	$550	$ 0.038	36%	0.8	0.54	11,369	$0.02	$0.00	1.730	1.622	$195.12	$18.22
40	12.00	$200	$2,069	$1,713	$ 0.039	12%	29.4	25.99	1,502	$0.13	$0.01	0.274	0.257	$0.00	$0.00
41	20.00	$865	$0	$19,759	$ 0.040	4%	10.1	9.62	25,896	$0.03	$0.00	7.831	4.242	$0.00	$927.67
42	18.00	$173	$3,440	$512	$ 0.047	34%	19.0	12.54	574	$0.30	$0.02	0.559	0.551	$0.00	$0.00
43	18.00	$108	$3,440	$512	$ 0.039	21%	4.5	3.56	2,926	$0.04	$0.00	0.559	0.612	$0.00	$0.00

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

	Technical Assumption	2020		2021		2022					2020			2021			2022			
Line No.	Coincidence Factor (%)	2020 Participants (-)	2020 Units (-)	2021 Participants (-)	2021 Units (-)	2022 Participants (-)	2022 Units (-)	NTG (%)	Installation Rate (%)	Realization Rate (%)	2020 NET Gen kW (kW)	2020 NET Gen kWh (kWh)	2020 Rebate Budget ($)	2021 NET Gen kW (kW)	2021 NET Gen kWh (kWh)	2021 Rebate Budget ($)	2022 NET Gen kW (kW)	2022 NET Gen kWh (kWh)	2022 Rebate Budget ($)	Measure Load Shape
1											5,719	40,657,589	3,868,705	6,207	44,125,431	4,251,423	6,131	44,017,168	4,299,783	
2																				
3																				
4	56.7%	2	2	2	2	2	2	100%	100%	100%	0.000	0	$14,000	0.000	0	$14,000	0.000	0	$14,000	NM-BUS-RECM_OUT
5	48.4%	4	4	4	4	4	4	90%	100%	100%	1.991	31,838	$0	1.991	31,838	$0	1.991	31,838	$0	NM-BUS-RECM_OUT
6																				
7	100.0%	5	10	5	10	5	10	78%	100%	100%	3.247	6,405	$2,622	3.247	6,405	$2,622	3.247	6,405	$2,622	NM-BUS-COOL_OUT
8	100.0%	2	2	2	2	2	2	78%	100%	100%	1.222	1,661	$756	1.222	1,661	$756	1.222	1,661	$756	NM-BUS-COOL_OUT
9	100.0%	2	2	2	2	2	2	78%	100%	100%	3.599	5,398	$1,791	3.599	5,398	$1,791	3.599	5,398	$1,791	NM-BUS-COOL_OUT
10	100.0%	3	3	3	3	3	3	78%	100%	100%	5.567	8,773	$3,508	5.567	8,773	$3,508	5.567	8,773	$3,508	NM-BUS-COOL_OUT
11	100.0%	1	1	1	1	1	1	78%	100%	100%	5.197	8,286	$4,400	5.197	8,286	$4,400	5.197	8,286	$4,400	NM-BUS-COOL_OUT
12	90.0%	1	1	1	1	1	1	78%	100%	100%	1.090	1,237	$197	1.090	1,237	$197	1.090	1,237	$197	NM-BUS-COOL_OUT
13	90.0%	1	1	1	1	1	1	78%	100%	100%	0.667	404	$342	0.667	404	$342	0.667	404	$342	NM-BUS-COOL_OUT
14	56.0%	1	1	1	1	1	1	78%	100%	100%	0.040	128	$42	0.040	128	$42	0.040	128	$42	NM-BUS-COOL_OUT
15	56.0%	4	125	4	125	4	125	78%	100%	100%	0.747	2,385	$4,278	0.747	2,385	$4,278	0.747	2,385	$4,278	NM-BUS-COOL_OUT
16	56.0%	1	1	1	1	1	1	78%	100%	100%	0.173	553	$74	0.173	553	$74	0.173	553	$74	NM-BUS-COOL_OUT
17	90.0%	0	0	0	0	0	0	78%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-BUS-COOL_OUT
18	90.0%	1	1	1	1	1	1	78%	100%	100%	1.111	1,589	$720	1.111	1,589	$720	1.111	1,589	$720	NM-BUS-COOL_OUT
19	90.0%	1	1	1	1	1	1	78%	100%	100%	19.091	24,827	$6,863	19.091	24,827	$6,863	19.091	24,827	$6,863	NM-BUS-COOL_OUT
20	90.0%	0	0	0	0	0	0	78%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-BUS-COOL_OUT
21	90.0%	1	1	1	1	1	1	78%	100%	100%	3.278	4,000	$1,563	3.278	4,000	$1,563	3.278	4,000	$1,563	NM-BUS-COOL_OUT
22	90.0%	0	0	0	0	0	0	78%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-BUS-COOL_OUT
23	91.0%	1	1	1	1	1	1	78%	100%	100%	31.197	118,617	$18,750	31.197	118,617	$18,750	31.197	118,617	$18,750	NM-BUS-COOL_OUT
24	90.0%	0	0	0	0	0	0	78%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-BUS-COOL_OUT
25	69.0%	1	1	1	1	1	1	78%	100%	100%	2.414	3,627	$806	2.414	3,627	$806	2.414	3,627	$806	NM-BUS-COOL_OUT
26	0.0%	1	1	1	1	1	1	78%	100%	100%	0.000	57,110	$4,906	0.000	57,110	$4,906	0.000	57,110	$4,906	NM-BUS-COOL_OUT
27	100.0%	10	45	10	45	10	45	78%	100%	100%	3.021	26,009	$1,800	3.021	26,009	$1,800	3.021	26,009	$1,800	NM-BUS-FLAT
28	100.0%	10	45	10	45	10	45	78%	100%	100%	3.317	28,555	$1,800	3.317	28,555	$1,800	3.317	28,555	$1,800	NM-BUS-FLAT
29	100.0%	10	30	10	30	10	30	78%	100%	100%	3.697	31,832	$2,100	3.697	31,832	$2,100	3.697	31,832	$2,100	NM-BUS-FLAT
30	100.0%	10	30	10	30	10	30	78%	100%	100%	4.059	36,043	$2,100	4.059	36,043	$2,100	4.059	36,043	$2,100	NM-BUS-COOL_OUT
31	100.0%	2	31	2	31	2	31	78%	100%	100%	0.604	26,064	$620	0.604	26,064	$620	0.604	26,064	$620	NM-BUS-COOL_OUT
32	100.0%	2	5	2	5	2	5	78%	100%	100%	0.750	6,456	$625	0.750	6,456	$625	0.750	6,456	$625	NM-BUS-COOL_OUT
33	100.0%	2	5	2	5	2	5	78%	100%	100%	0.398	3,428	$350	0.398	3,428	$350	0.398	3,428	$350	NM-BUS-COOL_OUT
34	29.4%	5	20	5	20	5	20	78%	100%	100%	0.197	5,639	$700	0.197	5,639	$700	0.197	5,639	$700	NM-BUS-COOL_OUT
35	90.0%	4	4	4	4	4	4	78%	100%	100%	22.399	29,339	$2,986	22.399	29,339	$2,986	22.399	29,339	$2,986	NM-BUS-COOL_OUT
36	-3.4%	0	0	0	0	0	0	78%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-BUS-COOL_OUT
37	83.0%	12	60	12	60	12	60	78%	100%	100%	2.113	12,135	$3,000	2.113	12,135	$3,000	2.113	12,135	$3,000	NM-BUS-FLAT
38	85.6%	0	0	0	0	0	0	78%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-BUS-FOODSVC
39	85.6%	0	0	0	0	0	0	78%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-BUS-FOODSVC
40	85.6%	0	0	0	0	0	0	78%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-BUS-FOODSVC
41	49.5%	12	12	12	12	12	12	78%	100%	100%	39.834	261,748	$10,380	39.834	261,748	$10,380	39.834	261,748	$10,380	NM-BUS-COOL_OUT
42	90.0%	30	30	30	30	30	30	78%	100%	100%	12.892	14,459	$5,184	12.892	14,459	$5,184	12.892	14,459	$5,184	NM-BUS-COOL_OUT
43	100.0%	0	11	0	11	0	11	78%	100%	100%	5.372	27,639	$1,209	5.372	27,639	$1,209	5.372	27,639	$1,209	NM-BUS-COOL_OUT

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

Measure Description			High Efficiency Product Assumptions			Baseline Product Assumptions		
Line No.	Electric Measure Group	Electric Measure Description	Efficient Product Description / Rating	Efficient Product Consumption (watts)	Efficient Hours of Operation (hrs/yr)	Baseline Product Description / Rating	Baseline Product Consumption (watts)	Baseline Hours of Operation (hrs/yr)
44	**Custom Efficiency**							
45	NM - Custom Efficiency	*Custom Custom*	High Efficiency Product/Systems	163,937	6,570	Less Efficient Product/Systems	204,921	6,570
46	NM - Custom Efficiency - Cooling	*Custom Cooling*	High Efficiency Product/Systems	100,143	6,248	Less Efficient Product/Systems	125,179	6,248
47	NM - Custom Efficiency - Lighting	Custom Lighting	High Efficiency Product/Systems	60,936	4,715	Less Efficient Product/Systems	76,170	4,715
48	NM - Custom Efficiency - Motors	Custom Motors	High Efficiency Product/Systems	528,184	8,579	Less Efficient Product/Systems	660,230	8,579
49	Energy Information Systems	*Energy Information Systems*	High Efficiency Product/Systems	45,662	0	Less Efficient Product/Systems	45,662	4,380
50	**Lighting Efficiency**							
51	LED Interior Lamp (Incandescent Baseline)	LED Interior Lamp (Incandescent Baseline)	LED Interior Lamp	7	2,791	EISA Tier 2	15	2,791
52	Network Lighting Controls	Network Lighting Controls	Networked Lighting Controls	33	4,107	Manual Switch	62	4,107
53	LED Linear Ambient	*LED Linear Ambient*	LED Linear Ambients	59	4,107	Fluorescent Fixture	100	4,107
54	LED Mogul-Base Lamps	*LED High Bay Mogul-Base Lamps*	LED High Bay Replacement Lamp	98	3,071	HID Lamp	339	3,071
55	Standalone Controls	*Standalone Controls*	Sensor	156	4,055	Manual Switch	210	4,055
56	Stairwell Fixtures	*Stairwell Fixtures*	LED Stairwell Fixture	28	8,413	Fluorescent Fixture	58	8,413
57	LED Interior Screw In Fixture Retrofit	*LED Interior Screw In Fixture Retrofit*	LED Screw-In Fixture	15	4,443	Incandescent Lamp	61	4,443
58	LED/LEC Exit Sign	LED/LEC Exit Sign	LED Exit Sign	2	8,760	Incandescent Exit Sign	40	8,760
59	LED Interior Fixture	LED Interior Fixture	LED Downlight Fixture	21	4,766	Incandescent/CFL Fixture	64	4,766
60	LED Outdoor Canopy and Soffit Lighting	LED Outdoor Canopy and Soffit Lighting	LED Canopy/Soffit Fixture	58	4,153	HID Fixture	176	4,153
61	LED Parking Garage Lighting	LED Parking Garage Lighting	LED Parking Garage Fixture	72	8,760	HID Fixture	241	8,760
62	LED Exterior Wall Pack	LED Exterior Wall Pack	LED Wall Pack Fixture	57	4,153	HID Wall Pack Fixture	305	4,153
63	LED Parking Garage Wall Pack	LED Parking Garage Wall Pack	LED Wall Pack Fixture	15	8,760	HID Wall Pack Fixture	112	8,760
64	LED Ref and Frz Cases 5' or 6' doors	LED Ref and Frz Cases 5' or 6' Doors	LED System	36	4,780	Fluorescent System	115	4,780
65	LED Troffer Fixture or Kit	LED Troffer Fixture or Kit	LED Troffer Fixtures/Kits	43	3,693	Fluorescent Fixtures	104	3,693
66	LED PL/G Based Lamp	LED PL/G Based Lamp	LED PL Lamp	14	5,906	CFL Lamp	42	5,906
67	LED High Bay Fixture	LED High Bay Fixture	LED High-Bay Luminaires	269	3,376	HID or Fluorescent Fixture	596	3,376
68	LED Area Lighting	LED Area Lighting	LED Area Light	225	4,153	HID Fixture	833	4,153
69	LED Tubes (Linear Lamps)	LED Tubes (Linear Lamps)	LED Linear Lamp	10	2,856	Fluorescent Lamp	21	2,856
70	LED Interior Lamps	*LED Interior Lamps*	LED Interior Lamp	14	4,156	Incandescent or Halogen	34	4,156
71	Restroom Aerator	*Restroom Aerator*	0.5 GPM Bathroom Faucet Aerator	4,500	66	2.2 GPM Bath Faucet Aerator	4,500	279
72	Pre-rinse Sprayer	*Pre-rinse Sprayer*	1.25 GPM Pre-rinse Sprayer	4,500	2,352	2.25 GPM Pre-rinse Sprayer	4,500	3,975
73	Kitchen Aerator	*Kitchen Aerator*	1.5 GPM Kitchen Hand Wash Lavatory Faucet Aerator	4,500	135	2.2 GPM Bath Faucet Aerator	4,500	198
74	New Construction - Lighting Power Density	*New Construction - Lighting Power Density*	Savings in addition to Code Maximum LPD	13,420	3,044	Code Maximum LPD	30,674	3,044
75	**Motors & Drives**							
76	NM - Motors and Drives - Prescriptive	*New Motor Enhanced (NEMA Premium +1%)*	New Motor Enhanced (NEMA Premium +1%)	1,384	2,906	NEMA Premium	1,400	2,906
77	NM - Motors and Drives - Prescriptive	*Upgrade Motor Enhanced (NEMA Premium +1%)*	Upgrade Motor Enhanced (NEMA Premium +1%)	2,822	4,014	EPACT Efficient Motor	2,915	4,014
78	NM - Motors and Drives - Prescriptive	*Variable Frequency Drive (Motors VFD v2)*	Variable Frequency Drive (Motors VFD v2)	18,966	5,317	Equipment without an ASD/VFD	28,856	5,317
79	NM - Motors and Drives - Prescriptive	*Water Well Pump VFDs (Water Well Pump v2)*	Water Well Pump VFDs (Water Well Pump v2)	52,695	2,321	Throttled Well Pump	74,511	2,321
80	NM - Motors and Drives - Prescriptive	Constant Speed Motor Controller	Constant Speed Motor Controller	4,849	4,878	Motor without Voltage Controller	5,717	4,878
81	NM - Motors and Drives - Prescriptive	HVAC VFD (NM HVAC VFD)	HVAC VFD (NM HVAC VFD)	3,503	7,245	Equipment without an ASD/VFD	5,765	7,245
82	NM - Motors and Drives - Prescriptive	Pump Off Controller	Pump Off Controller	147	6,132	% Clock Off Controller	2,283	6,132
83	NM - Compressed Air Prescriptive	Cycling Dryers	Cycling Dryers	645	7,269	New Non-Cycling Dryer	1,853	7,269
84	NM - Compressed Air Prescriptive	Dew Point Controls	Dew Point Controls	18,336	7,224	No Purge Control for Heatless Desiccant Dryers	24,966	7,224
85	NM - Compressed Air Prescriptive	Mist Eliminators	Mist Eliminators	70,738	7,656	New General Purpose Filter	71,906	7,656
86	NM - Compressed Air Prescriptive	No Air Loss Drain	No Air Loss Drain	0	7,523	New Electronic Solenoid/Timed Drains	517	7,523
87	NM - Compressed Air Prescriptive	VFD Compressor New	VFD Compressor New	13,383	2,830	New Modulation or load no-load with less than or equal to 2gal of storage per CFM of Capacity	19,165	2,830
88	NM - Compressed Air Prescriptive	VFD Compressor Upgrade	VFD Compressor Upgrade	11,728	2,655	Existing Modulation or load no-load with less than or equal to 2gal of storage per CFM of Capacity	17,114	2,655
89	**Residential**							
90	**Energy Feedback**							
91	NM - Energy Feedback Residential - Mass Entry	Rollup: Online Energy Feedback & Tools	Treatment	1,345	8,760	Control	1,347	8,760
92	NM - Energy Feedback Residential - Mass Entry	Print Feedback Report - Legacy Participant Group 2020	Treatment	1,302	4,187	Control	1,347	4,187
93	NM - Energy Feedback Residential - Mass Entry	Print Refill 2020 Group	Treatment	1,302	3,156	Control	1,347	3,156

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

	Economic Assumptions					Stipulated Output								Economic Assumptions	
Line No.	Measure Lifetime (years)	Rebate Amount ($)	Average Baseline Product Cost ($)	Incremental Cost of Efficient Product ($)	Assumed Energy Cost ($/kWh)	Rebate as a % of Incremental Cost (%)	Incremt'l Cost Payback Period w/o Rebate (yrs)	Incremt'l Cost Payback Period w/ Rebate (yrs)	Annual Customer kWh Savings (kWh/yr)	Rebated Cost / Cust kWh Saved ($/kWh)	Rebated Lifetime cost /Cust KWh Saved ($/kWh)	Customer kW Savings (kW)	Generator Peak kW Savings (kW)	Non-Energy O&M Savings ($)	Energy O&M Savings ($)
44															
45	19	14,699	0	53,985	0	27%	4.3	3.12	269,254	0	0	40.98424	37.12796	2,243	0
46	19	9,821	0	32,937	0	30%	4.9	3.47	156,421	0	0	25.03574	23.66241	637	0
47	19.00	$6,275	$0	$20,170	$ 0.039	31%	7.2	4.95	71,821	$0.09	$0.00	15.234	13.382	$0.00	$0.00
48	19.00	$50,431	$0	$171,736	$ 0.038	29%	3.5	2.45	1,132,773	$0.04	$0.00	132.046	142.834	$6,375.00	$0.00
49	3	0	0	0	0	N/A	0.0	0.00	200,000	0	0	0.00000	0.00000	0	0
50															
51	14.74	$6	$2	$13	$ 0.041	47%	14.5	7.74	22	$0.27	$0.02	0.008	0.006	$0.00	-$0.01
52	8.00	$25	$0	$98	$ 0.039	26%	20.8	15.48	120	$0.21	$0.03	0.029	0.027	$0.00	-$0.03
53	15.80	$27	$31	$126	$ 0.039	21%	18.1	14.31	168	$0.16	$0.01	0.041	0.035	$0.36	-$0.04
54	14.74	$25	$60	$101	$ 0.040	25%	3.4	2.56	742	$0.03	$0.00	0.242	0.185	$0.00	-$0.10
55	8.00	$13	$0	$117	$ 0.039	11%	13.6	12.07	219	$0.06	$0.01	0.054	0.046	$0.00	-$0.05
56	15.80	$40	$0	$277	$ 0.038	14%	29.1	24.91	252	$0.16	$0.01	0.030	0.033	$0.00	-$0.06
57	15.80	$10	$0	$24	$ 0.039	42%	3.0	1.76	203	$0.05	$0.00	0.046	0.041	$0.00	-$0.05
58	15.80	$25	$0	$84	$ 0.038	30%	6.6	4.66	333	$0.08	$0.00	0.038	0.042	$0.00	$0.00
59	15.80	$18	$0	$118	$ 0.039	15%	14.8	12.53	207	$0.09	$0.01	0.043	0.039	$0.00	-$0.05
60	15.80	$56	$0	$267	$ 0.039	21%	13.9	10.95	490	$0.11	$0.01	0.118	0.000	$0.00	$0.00
61	15.80	$150	$0	$314	$ 0.038	48%	5.6	2.93	1,478	$0.10	$0.01	0.169	0.185	$0.00	$0.00
62	15.80	$77	$0	$253	$ 0.039	30%	6.2	4.35	1,031	$0.07	$0.00	0.248	0.000	$0.00	$0.00
63	15.80	$35	$0	$268	$ 0.038	13%	8.3	7.21	851	$0.04	$0.00	0.097	0.106	$0.00	$0.00
64	15.80	$50	$0	$164	$ 0.039	31%	11.1	7.69	379	$0.13	$0.01	0.079	0.072	$0.00	$0.00
65	15.80	$30	$0	$166	$ 0.040	18%	18.5	15.12	227	$0.13	$0.01	0.062	0.050	$0.00	-$0.05
66	14.74	$4	$8	$10	$ 0.039	39%	1.6	0.97	169	$0.02	$0.00	0.029	0.022	$0.00	-$0.04
67	15.80	$165	$0	$500	$ 0.040	33%	11.4	7.64	1,102	$0.15	$0.01	0.326	0.278	$0.00	-$0.18
68	15.80	$223	$0	$792	$ 0.039	28%	8.0	5.73	2,522	$0.09	$0.01	0.607	0.000	$0.00	$0.00
69	14.74	$2	$2	$7	$ 0.041	25%	6.2	4.63	30	$0.06	$0.00	0.010	0.006	$0.00	-$0.01
70	13.70	$17	$0	$17	$ 0.039	100%	5.4	0.00	81	$0.21	$0.02	0.019	0.017	$0.00	-$0.02
71	10.00	$10	$0	$10	$ 0.037	100%	0.1	0.00	960	$0.01	$0.00	0.000	0.000	$38.50	$0.00
72	5.00	$130	$0	$130	$ 0.037	100%	0.3	0.00	7,301	$0.02	$0.00	0.000	0.000	$226.16	$0.00
73	10.00	$7	$0	$7	$ 0.037	100%	0.3	0.00	284	$0.02	$0.00	0.000	0.000	$11.38	$0.00
74	15.00	$6,902	$0	$21,535	$ 0.040	32%	10.3	7.00	52,524	$0.13	$0.01	17.255	14.076	$0.00	-$24.53
75															
76	20.00	$24	$682	$150	$ 0.040	16%	80.6	67.76	46	$0.52	$0.03	0.016	0.014	$0.00	$0.00
77	20.00	$89	$0	$1,012	$ 0.039	9%	69.1	63.10	371	$0.24	$0.01	0.092	0.079	$0.00	$0.00
78	15.00	$4,527	$0	$9,487	$ 0.039	48%	4.6	2.43	52,583	$0.09	$0.01	9.890	8.449	$0.00	$0.00
79	15.00	$6,913	$0	$15,720	$ 0.041	44%	7.5	4.21	50,640	$0.14	$0.01	21.816	13.614	$0.00	$0.00
80	20.00	$345	$0	$1,188	$ 0.039	29%	7.2	5.11	4,234	$0.08	$0.00	0.868	0.741	$0.00	$0.00
81	15.00	$1,294	$0	$2,737	$ 0.038	47%	4.4	2.30	16,388	$0.08	$0.01	2.262	2.477	$0.00	$0.00
82	13.00	$3,000	$0	$5,959	$ 0.039	50%	11.8	5.86	13,097	$0.23	$0.02	2.136	1.560	$0.00	$0.00
83	20.00	$371	$4,439	$832	$ 0.038	45%	2.5	1.37	8,783	$0.04	$0.00	1.208	1.323	$0.00	$0.00
84	15.00	$1,000	$0	$3,316	$ 0.038	30%	1.8	1.26	47,897	$0.02	$0.00	6.630	7.262	$0.00	$0.00
85	11.00	$1,980	$1,280	$4,327	$ 0.038	46%	7.6	4.13	8,946	$0.22	$0.02	1.168	1.280	$225.83	$0.00
86	13.00	$200	$125	$323	$ 0.038	62%	2.2	0.83	3,889	$0.05	$0.00	0.517	0.411	$0.00	$0.00
87	20.00	$2,500	$10,767	$4,730	$ 0.041	53%	7.1	3.36	16,359	$0.15	$0.01	5.782	5.623	$0.00	$0.00
88	20.00	$5,688	$0	$15,754	$ 0.041	36%	27.0	17.26	14,300	$0.40	$0.02	5.386	5.239	$0.00	$0.00
89															
90															
91	1.00	$0	$0	$0	$ 0.075	N/A	0.0	0.00	24	$0.00	$0.00	0.003	0.002	$0.00	$0.00
92	1.00	$0	$0	$0	$ 0.075	N/A	0.0	0.00	189	$0.00	$0.00	0.045	0.039	$0.00	$0.00
93	1.00	$0	$0	$0	$ 0.075	N/A	0.0	0.00	142	$0.00	$0.00	0.045	0.033	$0.00	$0.00

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

	Technical Assumption	2020		2021		2022					2020			2021			2022			
Line No.	Coincidence Factor (%)	2020 Participants (-)	2020 Units (-)	2021 Participants (-)	2021 Units (-)	2022 Participants (-)	2022 Units (-)	NTG (%)	Installation Rate (%)	Realization Rate (%)	2020 NET Gen kW (kW)	2020 NET Gen kWh (kWh)	2020 Rebate Budget ($)	2021 NET Gen kW (kW)	2021 NET Gen kWh (kWh)	2021 Rebate Budget ($)	2022 NET Gen kW (kW)	2022 NET Gen kWh (kWh)	2022 Rebate Budget ($)	Measure Load Shape
44																				
45	1	2	2	3	3	3	3	78%	100%	100%	58.105	453,587	$29,398	87.158	680,381	$44,096	87.158	680,381	$44,096	NM-BUS-CUSTOM_
46	1	0	0	0	0	0	0	78%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-BUS-COOL_OUT
47	80.2%	20	20	22	22	22	22	78%	100%	100%	209.422	1,209,903	$125,497	230.365	1,330,893	$138,047	230.365	1,330,893	$138,047	NM-BUS-LIGHTING
48	98.8%	2	2	3	3	3	3	78%	100%	100%	223.536	1,908,277	$100,863	335.304	2,862,415	$151,294	335.304	2,862,415	$151,294	NM-BUS-MTRS_OUT
49	0	1	1	1	1	1	1	78%	100%	100%	0.000	168,461	$0	0.000	168,461	$0	0.000	168,461	$0	NM-BUS-RECM_OUT
50																				
51	72.3%	4	51	4	200	4	200	78%	100%	100%	0.245	930	$301	0.959	3,635	$1,176	0.959	3,635	$1,176	NM-BUS-Light Troffer
52	84.0%	0	0	2	2	2	3	78%	100%	100%	0.000	0	$0	0.042	203	$50	0.063	304	$75	NM-BUS-Light-Network-Controls
53	78.2%	9	70	11	84	11	93	78%	100%	100%	1.920	9,904	$1,855	2.304	11,885	$2,226	2.550	13,158	$2,465	NM-BUS-Light Troffer
54	70.0%	2	40	2	200	2	200	78%	100%	100%	5.796	24,993	$1,000	28.980	124,967	$5,000	28.980	124,967	$5,000	NM-BUS-Light High Bay
55	78.3%	3	20	3	10	3	5	78%	100%	100%	0.723	3,682	$268	0.362	1,841	$134	0.181	921	$67	NM-BUS-Light-Sensor
56	100.0%	1	1	1	100	1	200	78%	100%	100%	0.026	212	$40	2.565	21,205	$4,000	5.129	42,409	$8,000	NM-BUS-Light Flat
57	81.6%	2	10	2	10	2	5	78%	100%	100%	0.320	1,711	$100	0.320	1,711	$100	0.160	856	$50	NM-BUS-Light Troffer
58	100.0%	2	2	2	2	2	2	78%	100%	100%	0.052	449	$40	0.065	561	$50	0.065	561	$50	NM-BUS-Light Flat
59	81.2%	2	11	3	60	3	60	78%	100%	100%	0.326	1,883	$193	1.813	10,460	$1,073	1.813	10,460	$1,073	NM-BUS-Light Troffer
60	0.0%	3	50	3	50	2	25	78%	100%	100%	0.000	20,629	$2,800	0.000	20,629	$2,800	0.000	10,315	$1,400	NM-BUS-RECM_OUT
61	100.0%	1	1	1	1	1	1	78%	100%	100%	0.145	1,245	$150	0.145	1,245	$150	0.145	1,245	$150	NM-BUS-Light Flat
62	0.0%	25	200	25	400	25	400	78%	100%	100%	0.000	173,606	$15,300	0.000	347,213	$30,600	0.000	347,213	$30,600	NM-BUS-RECM_OUT
63	100.0%	1	1	0	0	0	0	78%	100%	100%	0.083	717	$35	0.000	0	$0	0.000	0	$0	NM-BUS-Light Flat
64	83.0%	2	2	2	2	2	2	78%	100%	100%	0.113	638	$100	0.113	638	$100	0.113	638	$100	NM-BUS-Light Refrigerated
65	73.7%	30	536	30	600	30	600	78%	100%	100%	20.858	102,709	$16,080	23.348	114,973	$18,000	23.348	114,973	$18,000	NM-BUS-Light Troffer
66	71.0%	1	5	1	5	1	5	78%	100%	100%	0.087	714	$20	0.087	714	$20	0.087	714	$20	NM-BUS-Light Troffer
67	77.8%	16	200	16	300	16	400	78%	100%	100%	43.527	185,690	$33,050	65.290	278,535	$49,575	87.053	371,381	$66,100	NM-BUS-Light High Bay
68	0.0%	23	367	23	500	23	600	78%	100%	100%	0.000	780,136	$81,911	0.000	1,062,277	$111,534	0.000	1,274,732	$133,841	NM-BUS-RECM_OUT
69	54.5%	35	13,040	37	15,000	37	16,000	78%	100%	100%	62.973	324,181	$24,090	72.438	372,907	$27,710	77.268	397,768	$29,558	NM-BUS-Light Tube
70	77.9%	22	1,055	20	1,500	20	2,000	78%	100%	100%	13.643	71,552	$17,935	19.397	101,732	$25,500	25.863	135,643	$34,000	NM-BUS-Light Screw In
71	0.0%	50	250	50	250	50	250	78%	100%	100%	0.000	202,166	$2,500	0.000	202,166	$2,500	0.000	202,166	$2,500	NM-BUS-CUSTOM_
72	0.0%	10	10	10	10	10	10	78%	100%	100%	0.000	61,493	$1,300	0.000	61,493	$1,300	0.000	61,493	$1,300	NM-BUS-CUSTOM_
73	0.0%	10	10	10	10	10	10	78%	100%	100%	0.000	2,391	$67	0.000	2,391	$67	0.000	2,391	$67	NM-BUS-CUSTOM_
74	74.5%	2	5	3	10	3	10	78%	100%	100%	55.071	221,204	$34,509	110.142	442,408	$69,019	110.142	442,408	$69,019	NM-BUS-Light All
75																				
76	78.0%	1	1	1	1	1	1	78%	100%	100%	0.011	39	$24	0.011	39	$24	0.011	39	$24	NM-BUS-MOTORS
77	78.0%	1	1	1	1	1	1	78%	100%	100%	0.062	313	$89	0.062	313	$89	0.062	313	$89	NM-BUS-MOTORS
78	78.0%	18	209	18	249	18	249	78%	100%	100%	1,381.800	9,256,838	$946,235	1,646.260	11,028,481	$1,127,332	1,646.260	11,028,481	$1,127,332	NM-BUS-MOTORS
79	57.0%	5	6	5	6	5	6	57%	100%	100%	46.537	186,339	$41,475	46.537	186,339	$41,475	46.537	186,339	$41,475	NM-BUS-MOTORS
80	78.0%	1	5	1	5	1	5	78%	100%	100%	2.901	17,831	$1,724	2.901	17,831	$1,724	2.901	17,831	$1,724	NM-BUS-MOTORS
81	100.0%	8	55	8	55	8	55	78%	100%	100%	106.621	759,203	$71,143	106.621	759,203	$71,143	106.621	759,203	$71,143	NM-BUS-MOTORS
82	66.7%	1	4	1	4	1	4	78%	100%	100%	4.883	44,128	$12,000	4.883	44,128	$12,000	4.883	44,128	$12,000	NM-BUS-MOTORS
83	100.0%	1	1	1	1	1	1	78%	100%	100%	1.036	7,398	$371	1.036	7,398	$371	1.036	7,398	$371	NM-BUS-MOTORS
84	100.0%	1	1	1	1	1	1	78%	100%	100%	5.683	40,344	$1,000	5.683	40,344	$1,000	5.683	40,344	$1,000	NM-BUS-MOTORS
85	100.0%	1	1	1	1	1	1	78%	100%	100%	1.001	7,535	$1,980	1.001	7,535	$1,980	1.001	7,535	$1,980	NM-BUS-MOTORS
86	72.6%	5	5	5	5	5	5	78%	100%	100%	1.608	16,377	$1,000	1.608	16,377	$1,000	1.608	16,377	$1,000	NM-BUS-MOTORS
87	88.8%	4	4	4	4	4	4	78%	100%	100%	17.601	55,117	$10,000	17.601	55,117	$10,000	17.601	55,117	$10,000	NM-BUS-MOTORS
88	88.8%	8	8	8	8	8	8	78%	100%	100%	32.794	96,357	$45,500	32.794	96,357	$45,500	32.794	96,357	$45,500	NM-BUS-MOTORS
89																				
90																				
91	74.5%	500	500	500	500	500	500	107%	100%	100%	1.272	14,465	$0	1.272	14,465	$0	1.272	14,465	$0	NM-RES-COOLING_DX
92	74.2%	15,815	15,815	0	0	0	0	107%	100%	100%	659.976	3,602,278	$0	0.000	0	$0	0.000	0	$0	NM-RES-COOLING_DX
93	62.2%	10,000	10,000	0	0	0	0	107%	100%	100%	348.873	1,711,613	$0	0.000	0	$0	0.000	0	$0	NM-RES-COOLING_DX

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

Measure Description			High Efficiency Product Assumptions			Baseline Product Assumptions		
Line No.	Electric Measure Group	Electric Measure Description	Efficient Product Description / Rating	Efficient Product Consumption (watts)	Efficient Hours of Operation (hrs/yr)	Baseline Product Description / Rating	Baseline Product Consumption (watts)	Baseline Hours of Operation (hrs/yr)
94	NM - Energy Feedback Residential - Mass Entry	Print Feedback Report - Legacy Participant Group 2021	Treatment	1,302	3,862	Control	1,347	3,862
95	NM - Energy Feedback Residential - Mass Entry	Print Refill 2021 Group	Treatment	1,309	3,156	Control	1,347	3,156
96	NM - Energy Feedback Residential - Mass Entry	Print Feedback Report - Legacy Participant Group 2022	Treatment	1,302	3,941	Control	1,347	3,941
97	NM - Energy Feedback Residential - Mass Entry	Print Refill 2022 Group	Treatment	1,302	3,156	Control	1,347	3,156
98	**Heat Pump Water Heaters**							
99	Heat Pump Water Heater	Medium Draw Heat Pump Water Heater - Refrigerant Based Cooling & Electric Resistance Heat (30-50 Gallon)	High Efficiency Heat Pump Water Heater	4,085	328	Minimum Efficiency Electric Water Heater	4,580	911
100	Heat Pump Water Heater	Medium Draw Heat Pump Water Heater - Refrigerant Based Cooling & ASHP Heat (30-50 Gallon)	High Efficiency Heat Pump Water Heater	4,092	343	Minimum Efficiency Electric Water Heater	4,580	1,028
101	Heat Pump Water Heater	Medium Draw Heat Pump Water Heater - Refrigerant Based Cooling & Natural Gas Heat (30-50 Gallon)	High Efficiency Heat Pump Water Heater	4,092	343	Minimum Efficiency Electric Water Heater	4,580	1,121
102	Heat Pump Water Heater	Medium Draw Heat Pump Water Heater - Non-Refrigerant Based Cooling & Electric Resistance Heat (30-50 Gallon)	High Efficiency Heat Pump Water Heater	4,082	323	Minimum Efficiency Electric Water Heater	4,500	892
103	Heat Pump Water Heater	Medium Draw Heat Pump Water Heater - Non-Refrigerant Based Cooling & ASHP Heat (30-50 Gallon)	High Efficiency Heat Pump Water Heater	4,085	329	Minimum Efficiency Electric Water Heater	4,500	1,011
104	Heat Pump Water Heater	Medium Draw Heat Pump Water Heater - Non-Refrigerant Based Cooling & Natural Gas Heat (30-50 Gallon)	High Efficiency Heat Pump Water Heater	4,083	324	Minimum Efficiency Electric Water Heater	4,500	1,106
105	**Residential Home Energy Services**							
106	HES LF Showerhead	Low Flow Showerheads	Low Flow Shower head - 1.5 GPM	4,500	79	Federal Minimum Standard flow rate 2.5 GPM	4,500	132
107	HES Ceiling	Ceiling Insulation - Gas Heat	Average Ceiling 1649 Sq.Ft. and post R-Value of 30	113	1,355	Average Ceiling 1649 Sq.Ft. and base R-Value of 3.2	597	1,355
108	HES Ceiling	Ceiling Insulation - Heat Pump	Average Ceiling 1672 Sq.Ft. and post R-Value of 30	921	692	Average Ceiling 1672 Sq.Ft. and base R-Value of 4.1	1,335	2,202
109	HES Ceiling	Ceiling Insulation - Electric Resistance Heat	Average Ceiling 1313 Sq.Ft. and post R-Value of 30	1,766	553	Average Ceiling 1313 Sq.Ft. and base R-Value of 3.9	2,104	2,202
110	HES Duct Leakage	Duct Leakage - Gas Heat	Average home of 1591 Sq.Ft. and Post-Duct Leak CFM of 93.6	87	1,355	Average home of 1591 Sq.Ft. and Pre-Duct Leak CFM of 589	417	1,355
111	HES Duct Leakage	Duct Leakage - Heat Pump	Average home of 1625 Sq.Ft. and Post-Duct Leak CFM of 46.1	1,760	282	Average home of 1625 Sq.Ft. and Pre-Duct Leak CFM of 532.5	2,121	2,202
112	HES Duct Leakage	Duct Leakage - Electric Fumace Heat	Average home of 1485 Sq.Ft. and Post-Duct Leak CFM of 42.9	3,559	247	Average home of 1485 Sq.Ft. and Pre-Duct Leak CFM of 513.7	3,910	2,202
113	HES Infiltration	Air Infiltration - Gas Heat	Average home of 1663 Sq.Ft. and Post-CFM of 1932	237	1,355	Average home of 1663 Sq.Ft. and Pre-CFM of 4277	524	1,355
114	HES Infiltration	Air Infiltration - Heat Pump	Average home of 1928 Sq.Ft. and Post-CFM of 2089	1,338	1,264	Average home of 1928 Sq.Ft. and Pre-CFM of 4413	1,623	2,202
115	HES Infiltration	Air Infiltration - Electric Resistance Heat	Average home of 1808 Sq.Ft. and Post-CFM of 2196	2,595	1,370	Average home of 1808 Sq.Ft. and Pre-CFM of 3796	2,791	2,202
116	**Low Income Home Energy Services**							
117	HES LF Showerhead	*Low Flow Showerheads*	Low Flow Shower head - 1.5 GPM	4,500	79	Federal Minimum Standard flow rate 2.5 GPM	4,500	132
118	HES Ceiling	*Ceiling Insulation - Gas Heat*	Average Ceiling 1411 Sq.Ft. and post R-Value of 39.1	76	1,355	Average Ceiling 1411 Sq.Ft. and base R-Value of 3.1	518	1,355
119	HES Ceiling	*Ceiling Insulation - Heat Pump*	Average Ceiling 1484 Sq.Ft. and post R-Value of 32.3	820	645	Average Ceiling 1484 Sq.Ft. and base R-Value of 4	1,201	2,202
120	HES Ceiling	*Ceiling Insulation - Electric Resistance Heat*	Average Ceiling 1207 Sq.Ft. and post R-Value of 33.1	1,685	487	Average Ceiling 1207 Sq.Ft. and base R-Value of 3.6	2,019	2,202
121	HES Duct Leakage	*Duct Leakage - Gas Heat*	Average home of 1616 Sq.Ft. and Post-Duct Leak CFM of 111.4	104	1,355	Average home of 1616 Sq.Ft. and Pre-Duct Leak CFM of 509	443	1,355
122	HES Duct Leakage	*Duct Leakage - Heat Pump*	Average home of 1584 Sq.Ft. and Post-Duct Leak CFM of 84.9	1,962	466	Average home of 1584 Sq.Ft. and Pre-Duct Leak CFM of 550.6	2,326	2,202
123	HES Duct Leakage	*Duct Leakage - Electric Furnace Heat*	Average home of 1555 Sq.Ft. and Post-Duct Leak CFM of 101.5	3,966	525	Average home of 1555 Sq.Ft. and Pre-Duct Leak CFM of 502	4,301	2,202
124	HES Infiltration	Air Infiltration - Gas Heat	Average home of 1595 Sq.Ft. and Post-CFM of 2135	340	1,355	Average home of 1595 Sq.Ft. and Pre-CFM of 3932	626	1,355
125	HES Infiltration	Air Infiltration - Heat Pump	Average home of 1732 Sq.Ft. and Post-CFM of 2049	1,408	1,374	Average home of 1732 Sq.Ft. and Pre-CFM of 4011	1,721	2,202
126	HES Infiltration	Air Infiltration - Electric Resistance Heat	Average home of 1341 Sq.Ft. and Post-CFM of 1661	2,376	1,166	Average home of 1341 Sq.Ft. and Pre-CFM of 3528	2,673	2,202

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

	Economic Assumptions					Stipulated Output								Economic Assumptions	
Line No.	Measure Lifetime (years)	Rebate Amount ($)	Average Baseline Product Cost ($)	Incremental Cost of Efficient Product ($)	Assumed Energy Cost ($/kWh)	Rebate as a % of Incremental Cost (%)	Incremt'l Cost Payback Period w/o Rebate (yrs)	Incremt'l Cost Payback Period w/ Rebate (yrs)	Annual Customer kWh Savings (kWh/yr)	Rebated Cost / Cust kWh Saved ($/kWh)	Rebated Lifetime cost /Cust KWh Saved ($/kWh)	Customer kW Savings (kW)	Generator Peak kW Savings (kW)	Non-Energy O&M Savings ($)	Energy O&M Savings ($)
94	1.00	$0	$0	$0	$ 0.075	N/A	0.0	0.00	175	$0.00	$0.00	0.045	0.037	$0.00	$0.00
95	1.00	$0	$0	$0	$ 0.075	N/A	0.0	0.00	121	$0.00	$0.00	0.038	0.028	$0.00	$0.00
96	1.00	$0	$0	$0	$ 0.075	N/A	0.0	0.00	179	$0.00	$0.00	0.045	0.038	$0.00	$0.00
97	1.00	$0	$0	$0	$ 0.075	N/A	0.0	0.00	142	$0.00	$0.00	0.045	0.033	$0.00	$0.00
98															
99	10.00	$200	$959	$995	$ 0.075	20%	4.7	3.76	2,831	$0.07	$0.01	0.496	0.578	$0.00	$0.00
100	10.00	$200	$959	$995	$ 0.075	20%	4.0	3.22	3,303	$0.06	$0.01	0.488	0.570	$0.00	$0.00
101	10.00	$200	$959	$995	$ 0.075	20%	3.7	2.97	3,730	$0.05	$0.01	0.488	0.570	-$10.89	$0.00
102	10.00	$200	$959	$995	$ 0.075	20%	4.9	3.95	2,695	$0.07	$0.01	0.418	0.487	$0.00	$0.00
103	10.00	$200	$959	$995	$ 0.075	20%	4.1	3.32	3,207	$0.06	$0.01	0.415	0.484	$0.00	$0.00
104	10.00	$200	$959	$995	$ 0.075	20%	3.8	3.03	3,656	$0.05	$0.01	0.417	0.487	-$10.89	$0.00
105															
106	10.00	$24	$0	$24	$ 0.075	99%	0.8	0.01	237	$0.10	$0.01	0.000	0.000	$10.67	$0.00
107	20.00	$224	$0	$1,547	$ 0.075	15%	15.8	13.52	655	$0.34	$0.02	0.483	0.491	$0.00	$48.88
108	20.00	$453	$0	$1,516	$ 0.075	30%	8.8	6.17	2,302	$0.20	$0.01	0.414	0.421	$0.00	$0.00
109	20.00	$636	$0	$1,199	$ 0.075	53%	4.4	2.06	3,656	$0.17	$0.01	0.337	0.342	$0.00	$0.00
110	18.00	$153	$0	$382	$ 0.075	40%	3.6	2.16	447	$0.34	$0.02	0.330	0.335	$0.00	$72.67
111	18.00	$720	$0	$390	$ 0.075	185%	1.2	-1.06	4,174	$0.17	$0.01	0.361	0.366	$0.00	$0.00
112	18.00	$1,251	$0	$356	$ 0.075	351%	0.6	-1.55	7,730	$0.16	$0.01	0.351	0.356	$0.00	$0.00
113	11.00	$133	$0	$844	$ 0.075	16%	12.9	10.87	389	$0.34	$0.03	0.287	0.292	$0.00	$36.31
114	11.00	$357	$0	$837	$ 0.075	43%	5.9	3.41	1,882	$0.19	$0.02	0.285	0.289	$0.00	$0.00
115	11.00	$440	$0	$576	$ 0.075	76%	3.0	0.70	2,590	$0.17	$0.02	0.196	0.199	$0.00	$0.00
116															
117	10.00	$24	$0	$24	$ 0.075	99%	0.8	0.01	237	$0.10	$0.01	0.000	0.000	$10.67	$0.00
118	20.00	$205	$0	$1,778	$ 0.075	12%	19.9	17.56	599	$0.34	$0.02	0.442	0.449	$0.00	$44.73
119	20.00	$417	$0	$1,470	$ 0.075	28%	9.3	6.66	2,116	$0.20	$0.01	0.381	0.386	$0.00	$0.00
120	20.00	$631	$0	$1,246	$ 0.075	51%	4.6	2.27	3,626	$0.17	$0.01	0.334	0.340	$0.00	$0.00
121	18.00	$157	$0	$388	$ 0.075	41%	3.6	2.11	460	$0.34	$0.02	0.339	0.344	$0.00	$74.76
122	18.00	$726	$0	$380	$ 0.075	191%	1.2	-1.10	4,208	$0.17	$0.01	0.364	0.369	$0.00	$0.00
123	18.00	$1,196	$0	$373	$ 0.075	320%	0.7	-1.49	7,390	$0.16	$0.01	0.335	0.340	$0.00	$0.00
124	11.00	$133	$0	$647	$ 0.075	21%	11.4	9.05	388	$0.34	$0.03	0.286	0.291	$0.00	$27.82
125	11.00	$360	$0	$706	$ 0.075	51%	5.1	2.50	1,854	$0.19	$0.02	0.312	0.317	$0.00	$0.00
126	11.00	$545	$0	$672	$ 0.075	81%	2.9	0.55	3,115	$0.17	$0.02	0.297	0.302	$0.00	$0.00

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

	Technical Assumption	2020		2021		2022					2020			2021			2022			
Line No.	Coincidence Factor (%)	2020 Participants (-)	2020 Units (-)	2021 Participants (-)	2021 Units (-)	2022 Participants (-)	2022 Units (-)	NTG (%)	Installation Rate (%)	Realization Rate (%)	2020 NET Gen kW (kW)	2020 NET Gen kWh (kWh)	2020 Rebate Budget ($)	2021 NET Gen kW (kW)	2021 NET Gen kWh (kWh)	2021 Rebate Budget ($)	2022 NET Gen kW (kW)	2022 NET Gen kWh (kWh)	2022 Rebate Budget ($)	Measure Load Shape
94	70.2%	0	0	22,918	22,918	0	0	107%	100%	100%	0.000	0	$0	907.037	4,829,236	$0	0.000	0	$0	NM-RES-COOLING_DX
95	62.2%	0	0	0	0	0	0	107%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-RES-COOLING_DX
96	70.8%	0	0	0	0	20,558	20,558	107%	100%	100%	0.000	0	$0	0.000	0	$0	824.758	4,440,572	$0	NM-RES-COOLING_DX
97	62.2%	0	0	0	0	0	0	107%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-RES-COOLING_DX
98																				
99	100.0%	1	1	2	2	2	2	100%	100%	100%	0.578	3,195	$200	1.051	5,810	$364	1.314	7,262	$455	NM-RES-SFWHT
100	100.0%	14	14	25	25	32	32	100%	100%	100%	7.977	52,197	$2,800	14.504	94,904	$5,091	18.130	118,630	$6,364	NM-RES-SFWHT
101	100.0%	14	14	25	25	32	32	100%	100%	100%	7.977	58,938	$2,800	14.504	107,160	$5,091	18.130	133,950	$6,364	NM-RES-SFWHT
102	100.0%	5	5	9	9	11	11	100%	100%	100%	2.436	15,208	$1,000	4.429	27,650	$1,818	5.536	34,563	$2,273	NM-RES-SFWHT
103	100.0%	13	13	24	24	30	30	100%	100%	100%	6.293	47,060	$2,600	11.441	85,563	$4,727	14.301	106,954	$5,909	NM-RES-SFWHT
104	100.0%	8	8	15	15	18	18	100%	100%	100%	3.896	33,014	$1,600	7.084	60,025	$2,909	8.855	75,031	$3,636	NM-RES-SFWHT
105																				
106	0.0%	24	26	24	26	24	26	93%	100%	100%	0.000	6,364	$608	0.000	6,364	$608	0.000	6,364	$608	NM-RES-SFWHT
107	87.0%	16	17	16	17	16	17	93%	100%	100%	7.667	11,551	$3,770	7.667	11,551	$3,770	7.667	11,551	$3,770	NM-RES-CACNSP
108	87.0%	359	378	359	378	359	378	93%	100%	100%	147.673	912,599	$171,238	147.673	912,599	$171,238	147.673	912,599	$171,238	NM-RES-CACNSP
109	87.0%	235	247	235	247	235	247	93%	100%	100%	78.700	948,574	$157,311	78.700	948,574	$157,311	78.700	948,574	$157,311	NM-RES-CACNSP
110	87.0%	74	78	74	78	74	78	93%	100%	100%	24.406	36,768	$12,001	24.406	36,768	$12,001	24.406	36,768	$12,001	NM-RES-CACNSP
111	87.0%	341	359	341	359	341	359	93%	100%	100%	122.390	1,573,750	$258,729	122.390	1,573,750	$258,729	122.390	1,573,750	$258,729	NM-RES-CACNSP
112	87.0%	156	164	156	164	156	164	93%	100%	100%	54.324	1,330,746	$205,186	54.324	1,330,746	$205,186	54.324	1,330,746	$205,186	NM-RES-CACNSP
113	87.0%	89	94	89	94	89	94	93%	100%	100%	25.387	38,245	$12,484	25.387	38,245	$12,484	25.387	38,245	$12,484	NM-RES-CACNSP
114	87.0%	109	114	109	114	109	114	93%	100%	100%	30.750	225,971	$40,793	30.750	225,971	$40,793	30.750	225,971	$40,793	NM-RES-CACNSP
115	87.0%	29	30	29	30	29	30	93%	100%	100%	5.626	82,645	$13,366	5.626	82,645	$13,366	5.626	82,645	$13,366	NM-RES-CACNSP
116																				
117	0.0%	69	90	69	90	69	90	93%	100%	100%	0.000	22,474	$2,145	0.000	22,474	$2,145	0.000	22,474	$2,145	NM-RES-SFWHT
118	87.0%	29	38	29	38	29	38	93%	100%	100%	15.705	23,660	$7,723	15.705	23,660	$7,723	15.705	23,660	$7,723	NM-RES-CACNSP
119	87.0%	122	161	122	161	122	161	93%	100%	100%	57.783	357,094	$67,004	57.783	357,094	$67,004	57.783	357,094	$67,004	NM-RES-CACNSP
120	87.0%	105	138	105	138	105	138	93%	100%	100%	43.452	523,730	$86,855	43.452	523,730	$86,855	43.452	523,730	$86,855	NM-RES-CACNSP
121	87.0%	223	294	223	294	223	294	93%	100%	100%	94.029	141,654	$46,237	94.029	141,654	$46,237	94.029	141,654	$46,237	NM-RES-CACNSP
122	87.0%	165	217	165	217	165	217	93%	100%	100%	74.479	957,694	$157,448	74.479	957,694	$157,448	74.479	957,694	$157,448	NM-RES-CACNSP
123	87.0%	152	200	152	200	152	200	93%	100%	100%	63.332	1,551,422	$239,212	63.332	1,551,422	$239,212	63.332	1,551,422	$239,212	NM-RES-CACNSP
124	87.0%	243	319	243	319	243	319	93%	100%	100%	86.247	129,930	$42,410	86.247	129,930	$42,410	86.247	129,930	$42,410	NM-RES-CACNSP
125	87.0%	113	148	113	148	113	148	93%	100%	100%	43.661	287,950	$53,219	43.661	287,950	$53,219	43.661	287,950	$53,219	NM-RES-CACNSP
126	87.0%	211	277	211	277	211	277	93%	100%	100%	77.704	905,096	$150,822	77.704	905,096	$150,822	77.704	905,096	$150,822	NM-RES-CACNSP

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

Measure Description			High Efficiency Product Assumptions			Baseline Product Assumptions		
Line No.	Electric Measure Group	Electric Measure Description	Efficient Product Description / Rating	Efficient Product Consumption (watts)	Efficient Hours of Operation (hrs/yr)	Baseline Product Description / Rating	Baseline Product Consumption (watts)	Baseline Hours of Operation (hrs/yr)
127	Refrigerator Replacement	Refrigerator Replacement	New EnergyStar Refrigerator	66	5,592	Existing Refrigerator	130	5,592
128	**Energy Savings Kit**							
129	LED	9 W LEDs	9W LED	9	818	Incandescent Equivalent (Post-EISA)	20	818
130	Showerhead	Showerhead	Low Flow Shower head - 1.5 GPM	4,500	708	Federal Minimum Standard flow rate 2.5 GPM	4,500	739
131	Aerators - Kitchen	Aerators - Kitchen	1.5 GPM flow rate Kitchen aerator	4,500	736	Federal Minimum Standard flow rate 2.2 GPM	4,500	739
132	Aerators - Bathroom	Aerators - Bathroom	1.0 GPM flow rate bathroom aerator	4,500	735	Federal Minimum Standard flow rate 2.2 GPM	4,500	739
133	**Home Lighting & Recycling**							
134	Residential Home Lighting - Residential Customers 2020	LED Bulb - A-Line	LED Bulb - A-Line	16	632	EISATier 2	43	632
135	Residential Home Lighting - Business Customers 2020	LED Bulb - A-Line	LED Bulb - A-Line	16	3,061	EISATier 2	43	3,061
136	Residential Home Lighting - Residential Customers 2020	LED Bulb - Specialty	LED Bulb Purchase - Specialty	13	632	Exempt/Post-EISA	88	632
137	Residential Home Lighting - Business Customers 2020	LED Bulb - Specialty	LED Bulb Purchase - Specialty	13	3,061	Exempt/Post-EISA	88	3,061
138	Residential Home Lighting - Residential Customers 2020	LED Bulb - Linear Tube	LED Bulb Purchase - Type A Linear Tube	21	632	Fluorescent Equivalent	38	632
139	Residential Home Lighting - Business Customers 2020	LED Bulb - Linear Tube	LED Bulb Purchase - Type A Linear Tube	21	3,929	Fluorescent Equivalent	38	3,929
140	Residential Home Lighting - Residential Customers 2021	LED Bulb - A-Line	LED Bulb - A-Line	16	632	EISATier 2	43	632
141	Residential Home Lighting - Business Customers 2021	LED Bulb - A-Line	LED Bulb - A-Line	16	3,061	EISATier 2	43	3,061
142	Residential Home Lighting - Residential Customers 2021	LED Bulb - Specialty	LED Bulb Purchase - Specialty	13	632	Exempt/Post-EISA	88	632
143	Residential Home Lighting - Business Customers 2021	LED Bulb - Specialty	LED Bulb Purchase - Specialty	13	3,061	Exempt/Post-EISA	88	3,061
144	Residential Home Lighting - Residential Customers 2021	LED Bulb - Linear Tube	LED Bulb Purchase - Type A Linear Tube	21	632	Fluorescent Equivalent	38	632
145	Residential Home Lighting - Business Customers 2021	LED Bulb - Linear Tube	LED Bulb Purchase - Type A Linear Tube	21	3,929	Fluorescent Equivalent	38	3,929
146	Residential Home Lighting - Residential Customers 2022	LED Bulb - A-Line	LED Bulb - A-Line	16	632	EISATier 2	43	632
147	Residential Home Lighting - Business Customers 2022	LED Bulb - A-Line	LED Bulb - A-Line	16	3,061	EISATier 2	43	3,061
148	Residential Home Lighting - Residential Customers 2022	LED Bulb - Specialty	LED Bulb Purchase - Specialty	13	632	Exempt/Post-EISA	88	632
149	Residential Home Lighting - Business Customers 2022	LED Bulb - Specialty	LED Bulb Purchase - Specialty	13	3,061	Exempt/Post-EISA	88	3,061
150	Residential Home Lighting - Residential Customers 2022	LED Bulb - Linear Tube	LED Bulb Purchase - Type A Linear Tube	21	632	Fluorescent Equivalent	38	632
151	Residential Home Lighting - Business Customers 2022	LED Bulb - Linear Tube	LED Bulb Purchase - Type A Linear Tube	21	3,929	Fluorescent Equivalent	38	3,929
152	**Residential Cooling**							
153	Premium Evaporative Cooling	Premium Evaporative Cooling	Evaporative Cooler 85% effective	800	2,109	13 SEER AC Split System	3,180	1,578
154	Standard Efficiency AC with QI	Non-Qualifying Air Conditioner Equipment with Quality Install	Quality Install of Standard Eff (AC) 3 ton with 14.5 SEER & 12 EER	2,107	1,426	Standard Eff (AC) Unit without Quality Install 3 ton with 13 SEER & 11.2 EER	2,483	1,737
155	Standard Efficiency ASHP with QI	Non-Qualifying Air Source Heat Pump Equipment with Quality Install	Quality Install of Standard Eff (ASHP) 2.7 ton with 14.5 SEER & 12 EER	1,024	2,318	Standard Eff (ASHP) Unit without Quality Install 2.7 ton with 14 SEER & 11.8 EER	1,358	2,823
156	High Efficiency AC Equipment <17 SEER	Qualifying AC Equipment installation without Quality Install	High Eff (AC) 3.3 ton with 15.7 SEER & 12.6 EER without Quality Install	2,614	1,671	Baseline Eff (AC) Unit 3.3 ton with 13 SEER & 11.18 EER without Quality Install	3,031	1,737
157	High Efficiency AC Quality Install <17 SEER	Qualifying AC Equipment Quality Install	Quality Install of High Eff (AC) 3.3 ton with 15.7 SEER & 12.6 EER	2,123	1,426	High Eff (AC) Unit without Quality Install 3.3 ton with 13 SEER & 11.2 EER	2,515	1,737
158	High Efficiency AC Equipment 17+ SEER	Qualifying AC Equipment installation without Quality Install	High Eff (AC) 3.1 ton with 19.3 SEER & 14.1 EER without Quality Install	2,163	1,565	Baseline Eff (AC) Unit 3.1 ton with 13 SEER & 11.18 EER without Quality Install	2,885	1,737
159	High Efficiency AC Quality Install 17+ SEER	Qualifying AC Equipment Quality Install	Quality Install of High Eff (AC) 3.1 ton with 19.3 SEER & 14.1 EER	1,615	1,426	High Eff (AC) Unit without Quality Install 3.1 ton with 13 SEER & 11.2 EER	1,948	1,737
160	High Efficiency ASHP Equipment <17 SEER	Qualifying ASHP Equipment installation without Quality Install	High Eff (ASHP) 2.9 ton with 15.6 SEER & 12.6 EER without Quality Install	2,223	2,782	Baseline Eff (ASHP) Unit 2.9 ton with 14 SEER & 11.76 EER without Quality Install	2,430	2,823
161	High Efficiency ASHP Quality Install <17 SEER	Qualifying ASHP Equipment Quality Install	Quality Install of High Eff (ASHP) 2.9 ton with 15.6 SEER & 12.6 EER	1,026	2,318	High Eff (ASHP) Unit without Quality Install 2.9 ton with 14 SEER & 11.8 EER	1,374	2,823
162	High Efficiency ASHP Equipment 17+ SEER	Qualifying ASHP Equipment installation without Quality Install	High Eff (ASHP) 3.6 ton with 17.9 SEER & 13.6 EER without Quality Install	2,475	2,830	Baseline Eff (ASHP) Unit 3.6 ton with 14 SEER & 11.76 EER without Quality Install	2,988	2,823
163	High Efficiency ASHP Quality Install 17+ SEER	Qualifying ASHP Equipment Quality Install	Quality Install of High Eff (ASHP) 3.6 ton with 17.9 SEER & 13.6 EER	1,082	2,318	High Eff (ASHP) Unit without Quality Install 3.6 ton with 14 SEER & 11.8 EER	1,478	2,823
164	Mini-Split Heat Pump (16-20 SEER)	Mini-Split Heat Pump (16-20 SEER)	MSHP size 1.2 tons, 18.53 SEER, 11.50 HSPF	1,233	3,312	MSHP size 1.2 tons, 14 SEER, 8.2 HSPF	1,647	3,312

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

	Economic Assumptions					Stipulated Output								Economic Assumptions	
Line No.	Measure Lifetime (years)	Rebate Amount ($)	Average Baseline Product Cost ($)	Incremental Cost of Efficient Product ($)	Assumed Energy Cost ($/kWh)	Rebate as a % of Incremental Cost (%)	Incremt'l Cost Payback Period w/o Rebate (yrs)	Incremt'l Cost Payback Period w/ Rebate (yrs)	Annual Customer kWh Savings (kWh/yr)	Rebated Cost / Cust kWh Saved ($/kWh)	Rebated Lifetime cost /Cust KWh Saved ($/kWh)	Customer kW Savings (kW)	Generator Peak kW Savings (kW)	Non-Energy O&M Savings ($)	Energy O&M Savings ($)
127	13.00	$683	$0	$683	$ 0.075	100%	25.5	0.00	358	$1.91	$0.15	0.064	0.048	$0.00	$0.00
128															
129	20.00	$3	$0	$3	$ 0.075	100%	4.1	0.00	9	$0.31	$0.02	0.011	0.001	$0.00	$0.00
130	10.00	$3	$0	$3	$ 0.075	100%	0.1	0.00	140	$0.02	$0.00	0.000	0.000	$13.34	$0.00
131	10.00	$2	$0	$2	$ 0.075	100%	0.5	0.00	15	$0.11	$0.01	0.000	0.000	$1.88	$0.00
132	10.00	$1	$0	$1	$ 0.075	100%	0.1	0.00	20	$0.03	$0.00	0.000	0.000	$3.22	$0.00
133															
134	20.00	$1	$1	$1	$ 0.075	75%	0.8	0.21	17	$0.05	$0.00	0.027	0.003	$0.00	$0.00
135	12.62	$1	$1	$1	$ 0.040	75%	0.0	0.00	83	$0.01	$0.00	0.027	0.020	$0.00	$194.05
136	20.00	$2	$3	$3	$ 0.075	75%	0.9	0.22	47	$0.05	$0.00	0.075	0.009	$0.00	$0.00
137	12.62	$2	$3	$3	$ 0.040	75%	0.0	0.00	228	$0.01	$0.00	0.075	0.055	$0.00	$535.90
138	20.00	$2	$3	$4	$ 0.075	49%	5.3	2.75	10	$0.19	$0.01	0.016	0.002	$0.00	$0.00
139	9.83	$2	$3	$4	$ 0.040	49%	0.0	0.01	64	$0.03	$0.00	0.016	0.015	$0.00	$150.75
140	20.00	$1	$1	$1	$ 0.075	75%	0.8	0.21	17	$0.05	$0.00	0.027	0.003	$0.00	$0.00
141	12.62	$1	$1	$1	$ 0.040	75%	0.0	0.00	83	$0.01	$0.00	0.027	0.020	$0.00	$194.05
142	20.00	$2	$3	$3	$ 0.075	75%	0.9	0.22	47	$0.05	$0.00	0.075	0.009	$0.00	$0.00
143	12.62	$2	$3	$3	$ 0.040	75%	0.0	0.00	228	$0.01	$0.00	0.075	0.055	$0.00	$535.90
144	20.00	$2	$3	$4	$ 0.075	49%	5.3	2.75	10	$0.19	$0.01	0.016	0.002	$0.00	$0.00
145	9.83	$2	$3	$4	$ 0.040	49%	0.0	0.01	64	$0.03	$0.00	0.016	0.015	$0.00	$150.75
146	20.00	$1	$1	$1	$ 0.075	75%	0.8	0.21	17	$0.05	$0.00	0.027	0.003	$0.00	$0.00
147	12.62	$1	$1	$1	$ 0.040	75%	0.0	0.00	83	$0.01	$0.00	0.027	0.020	$0.00	$194.05
148	20.00	$2	$3	$3	$ 0.075	75%	0.9	0.22	47	$0.05	$0.00	0.075	0.009	$0.00	$0.00
149	12.62	$2	$3	$3	$ 0.040	75%	0.0	0.00	228	$0.01	$0.00	0.075	0.055	$0.00	$535.90
150	20.00	$2	$3	$4	$ 0.075	49%	5.3	2.75	10	$0.19	$0.01	0.016	0.002	$0.00	$0.00
151	9.83	$2	$3	$4	$ 0.040	49%	0.0	0.01	64	$0.03	$0.00	0.016	0.015	$0.00	$150.75
152															
153	15.00	$700	$2,587	$0	$ 0.075	N/A	0.0	-2.92	3,332	$0.21	$0.01	2.380	2.777	-$9.08	$0.00
154	18.00	$0	$0	$156	$ 0.075	0%	1.6	1.60	1,308	$0.00	$0.00	0.376	0.382	$0.00	$0.00
155	18.00	$0	$0	$156	$ 0.075	0%	1.4	1.43	1,460	$0.00	$0.00	0.334	0.339	$0.00	$0.00
156	18.00	$100	$0	$391	$ 0.075	26%	5.8	4.34	896	$0.11	$0.01	0.417	0.423	$0.00	$0.00
157	18.00	$0	$0	$156	$ 0.075	0%	1.6	1.56	1,340	$0.00	$0.00	0.392	0.398	$0.00	$0.00
158	18.00	$200	$0	$1,116	$ 0.075	18%	9.2	7.53	1,627	$0.12	$0.01	0.722	0.733	$0.00	$0.00
159	18.00	$0	$0	$156	$ 0.075	0%	1.9	1.93	1,081	$0.00	$0.00	0.333	0.338	$0.00	$0.00
160	15.00	$150	$0	$494	$ 0.075	30%	9.8	6.81	677	$0.22	$0.01	0.208	0.211	$0.00	$0.00
161	15.00	$0	$0	$156	$ 0.075	0%	1.4	1.39	1,499	$0.00	$0.00	0.347	0.353	$0.00	$0.00
162	15.00	$300	$0	$1,891	$ 0.075	16%	17.7	14.91	1,428	$0.21	$0.01	0.512	0.520	$0.00	$0.00
163	15.00	$0	$0	$156	$ 0.075	0%	1.3	1.26	1,663	$0.00	$0.00	0.396	0.402	$0.00	$0.00
164	18.00	$160	$3,303	$375	$ 0.075	43%	3.7	2.10	1,372	$0.12	$0.01	0.414	0.367	$0.00	$0.00

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

	Technical Assumption	2020		2021		2022					2020			2021			2022			
Line No.	Coincidence Factor (%)	2020 Participants (-)	2020 Units (-)	2021 Participants (-)	2021 Units (-)	2022 Participants (-)	2022 Units (-)	NTG (%)	Installation Rate (%)	Realization Rate (%)	2020 NET Gen kW (kW)	2020 NET Gen kWh (kWh)	2020 Rebate Budget ($)	2021 NET Gen kW (kW)	2021 NET Gen kWh (kWh)	2021 Rebate Budget ($)	2022 NET Gen kW (kW)	2022 NET Gen kWh (kWh)	2022 Rebate Budget ($)	Measure Load Shape
127	63.8%	0	0	0	0	0	0	93%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-RES-SFWHT
128																				
129	10.2%	284	1,600	284	1,600	284	1,600	100%	83%	100%	1.734	13,480	$4,400	1.734	13,480	$4,400	1.734	13,480	$4,400	NM-RES-SFLIT
130	0.0%	39	217	39	217	39	217	100%	85%	100%	0.000	29,196	$694	0.000	29,196	$694	0.000	29,196	$694	NM-RES-SFWHT
131	0.0%	39	217	39	217	39	217	100%	73%	100%	0.000	2,731	$358	0.000	2,731	$358	0.000	2,731	$358	NM-RES-SFWHT
132	0.0%	39	217	39	217	39	217	100%	65%	100%	0.000	3,106	$115	0.000	3,106	$115	0.000	3,106	$115	NM-RES-SFWHT
133																				
134	10.2%	278,710	278,710	0	0	0	0	71%	100%	100%	634.072	3,810,060	$220,413	0.000	0	$0	0.000	0	$0	NM-RES-SFLIT
135	67.5%	17,790	17,790	0	0	0	0	71%	100%	100%	252.148	1,123,666	$14,069	0.000	0	$0	0.000	0	$0	NM-BUS-LIGHTING
136	10.2%	25,944	25,944	0	0	0	0	71%	100%	100%	163.006	979,485	$61,603	0.000	0	$0	0.000	0	$0	NM-RES-SFLIT
137	67.5%	1,656	1,656	0	0	0	0	71%	100%	100%	64.822	288,870	$3,932	0.000	0	$0	0.000	0	$0	NM-BUS-LIGHTING
138	10.2%	6,016	6,016	0	0	0	0	100%	100%	100%	11.665	70,096	$12,032	0.000	0	$0	0.000	0	$0	NM-RES-SFLIT
139	82.5%	384	384	0	0	0	0	100%	100%	100%	5.670	26,539	$768	0.000	0	$0	0.000	0	$0	NM-BUS-Light Tube
140	10.2%	0	0	271,378	271,378	0	0	71%	100%	100%	0.000	0	$0	617.392	3,709,830	$214,614	0.000	0	$0	NM-RES-SFLIT
141	67.5%	0	0	17,322	17,322	0	0	71%	100%	100%	0.000	0	$0	245.514	1,094,106	$13,699	0.000	0	$0	NM-BUS-LIGHTING
142	10.2%	0	0	25,615	25,615	0	0	71%	100%	100%	0.000	0	$0	160.939	967,064	$60,822	0.000	0	$0	NM-RES-SFLIT
143	67.5%	0	0	1,635	1,635	0	0	71%	100%	100%	0.000	0	$0	64.000	285,207	$3,882	0.000	0	$0	NM-BUS-LIGHTING
144	10.2%	0	0	6,204	6,204	0	0	100%	100%	100%	0.000	0	$0	12.030	72,287	$12,408	0.000	0	$0	NM-RES-SFLIT
145	82.5%	0	0	396	396	0	0	100%	100%	100%	0.000	0	$0	5.847	27,368	$792	0.000	0	$0	NM-BUS-Light Tube
146	10.2%	0	0	0	0	259,064	259,064	71%	100%	100%	0.000	0	$0	0.000	0	$0	589.377	3,541,493	$204,876	NM-RES-SFLIT
147	67.5%	0	0	0	0	16,536	16,536	71%	100%	100%	0.000	0	$0	0.000	0	$0	234.374	1,044,460	$13,077	NM-BUS-LIGHTING
148	10.2%	0	0	0	0	25,098	25,098	71%	100%	100%	0.000	0	$0	0.000	0	$0	157.691	947,545	$59,594	NM-RES-SFLIT
149	67.5%	0	0	0	0	1,602	1,602	71%	100%	100%	0.000	0	$0	0.000	0	$0	62.708	279,451	$3,804	NM-BUS-LIGHTING
150	10.2%	0	0	0	0	6,486	6,486	100%	100%	100%	0.000	0	$0	0.000	0	$0	12.577	75,572	$12,972	NM-RES-SFLIT
151	82.5%	0	0	0	0	414	414	100%	100%	100%	0.000	0	$0	0.000	0	$0	6.113	28,612	$828	NM-BUS-Light Tube
152																				
153	100.0%	1	2	1	2	1	2	66%	100%	100%	3.666	4,964	$1,400	3.666	4,964	$1,400	3.666	4,964	$1,400	NM-RES-EVAPBASE
154	87.0%	0	1	0	1	0	1	66%	100%	100%	0.252	974	$0	0.252	974	$0	0.252	974	$0	NM-RES-COOLING_DX
155	87.0%	0	1	0	1	0	1	66%	100%	100%	0.224	1,088	$0	0.224	1,088	$0	0.224	1,088	$0	NM-RES-Cooling_DX_Heating_DX
156	87.0%	9	21	9	21	9	21	66%	100%	100%	5.866	14,019	$2,100	5.866	14,019	$2,100	5.866	14,019	$2,100	NM-RES-COOLING_DX
157	87.0%	9	21	9	21	9	21	66%	100%	100%	5.511	20,970	$0	5.511	20,970	$0	5.511	20,970	$0	NM-RES-COOLING_DX
158	87.0%	2	4	2	4	2	4	66%	100%	100%	1.935	4,848	$800	1.935	4,848	$800	1.935	4,848	$800	NM-RES-COOLING_DX
159	87.0%	2	4	2	4	2	4	66%	100%	100%	0.892	3,220	$0	0.892	3,220	$0	0.892	3,220	$0	NM-RES-COOLING_DX
160	87.0%	5	12	5	12	5	12	66%	100%	100%	1.669	6,052	$1,800	1.669	6,052	$1,800	1.669	6,052	$1,800	NM-RES-Cooling_DX_Heating_DX
161	87.0%	5	12	5	12	5	12	66%	100%	100%	2.793	13,403	$0	2.793	13,403	$0	2.793	13,403	$0	NM-RES-Cooling_DX_Heating_DX
162	87.0%	3	7	3	7	3	7	66%	100%	100%	2.402	7,446	$2,100	2.402	7,446	$2,100	2.402	7,446	$2,100	NM-RES-Cooling_DX_Heating_DX
163	87.0%	3	7	3	7	3	7	66%	100%	100%	1.855	8,674	$0	1.855	8,674	$0	1.855	8,674	$0	NM-RES-Cooling_DX_Heating_DX
164	76.0%	1	3	1	3	1	3	66%	100%	100%	0.727	3,067	$480	0.727	3,067	$480	0.727	3,067	$480	NM-RES-Cooling_DX_Heating_DX

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

Measure Description			High Efficiency Product Assumptions			Baseline Product Assumptions		
Line No.	Electric Measure Group	Electric Measure Description	Efficient Product Description / Rating	Efficient Product Consumption (watts)	Efficient Hours of Operation (hrs/yr)	Baseline Product Description / Rating	Baseline Product Consumption (watts)	Baseline Hours of Operation (hrs/yr)
165	Mini-Split Heat Pump (21-26 SEER)	Mini-Split Heat Pump (21-26 SEER)	MSHP size 1.2 tons, 23.19 SEER, 11.50 HSPF	987	2,315	MSHP size 1.2 tons, 14 SEER, 8.2 HSPF	1,647	2,315
166	Programmable T-Stat	Programmable Thermostat - Gas Heat	New Programmable Thermostat for a 3 Ton AC & Gas Furnace	1,797	2,272	Manual Thermostat or Non-programmed programmable thermostat	1,991	2,202
167	Programmable T-Stat	Programmable Thermostat - Heat Pump	New Programmable Thermostat for a new 3.2 Ton Heat Pump	1,867	2,128	Manual Thermostat or Non-programmed programmable thermostat	2,030	2,202
168	**School Education Kits**							
169	LED	9 Watt LED	9 W LED	9	818	Incandescent Equivalent (Post-EISA)	20	818
170	Showerhead	Showerhead	Low Flow Shower head - 1.5 GPM	4,500	704	Federal Minimum Standard flow rate 2.5 GPM	4,500	739
171	Aerators - Kitchen	Aerators - Kitchen	1.5 GPM flow rate aerator	4,500	736	Federal Minimum Standard flow rate 2.2 GPM	4,500	739
172	Aerators - Bathroom	Aerators - Bathroom	0.5 GPM flow rate aerator	4,500	733	Federal Minimum Standard flow rate 2.2 GPM	4,500	739
173	**Smart Thermostats**							
174	EnergyStar Smart Thermostat	Install EnergyStar Certified Smart Thermostat	Single family house with EnergyStar Smart Thermostat	2,016	5,424	Single family house with manual or programmable thermostat	2,177	5,424
175	NM - Smart Thermostat - DR - Prior Enrollments	Residential Smart Thermostat DR	Utility Load Control for control period with Energy Star Thermostat	0	1	Non-Controlled Energy Star Smart Thermostat	3,108	1
176	EnergyStar Smart Thermostat	Energy Star Thermostat installed in 2016	Single family house with EnergyStar Smart Thermostat	2,354	4,815	Single family house with manual or programmable thermostat	2,177	5,424

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

	Economic Assumptions					Stipulated Output								Economic Assumptions	
Line No.	Measure Lifetime (years)	Rebate Amount ($)	Average Baseline Product Cost ($)	Incremental Cost of Efficient Product ($)	Assumed Energy Cost ($/kWh)	Rebate as a % of Incremental Cost (%)	Incremt'l Cost Payback Period w/o Rebate (yrs)	Incremt'l Cost Payback Period w/ Rebate (yrs)	Annual Customer kWh Savings (kWh/yr)	Rebated Cost / Cust kWh Saved ($/kWh)	Rebated Lifetime cost /Cust KWh Saved ($/kWh)	Customer kW Savings (kW)	Generator Peak kW Savings (kW)	Non-Energy O&M Savings ($)	Energy O&M Savings ($)
165	18.00	$190	$3,536	$608	$ 0.075	31%	5.3	3.66	1,529	$0.12	$0.01	0.660	0.586	$0.00	$0.00
166	10.00	$30	$0	$30	$ 0.075	100%	0.3	0.00	302	$0.10	$0.01	0.194	0.226	$0.00	$91.44
167	10.00	$30	$0	$30	$ 0.075	100%	0.8	0.00	498	$0.06	$0.01	0.163	0.191	$0.00	$0.00
168															
169	20.00	$3	$0	$3	$ 0.075	100%	4.1	0.00	9	$0.31	$0.02	0.011	0.001	$0.00	$0.00
170	10.00	$3	$0	$3	$ 0.075	100%	0.1	0.00	156	$0.02	$0.00	0.000	0.000	$13.34	$0.00
171	10.00	$1	$0	$1	$ 0.075	100%	0.4	0.00	15	$0.08	$0.01	0.000	0.000	$1.88	$0.00
172	10.00	$0	$0	$0	$ 0.075	100%	0.1	0.00	28	$0.02	$0.00	0.000	0.000	$4.56	$0.00
173															
174	10.00	$50	$0	$175	$ 0.075	29%	2.4	1.69	873	$0.06	$0.01	0.161	0.000	$0.00	$8.71
175	1.00	$0	$0	$0	$ 0.075	N/A	0.0	0.00	2	$0.00	$0.00	3.108	1.727	$0.00	$0.00
176	6.00	$0	$0	$0	$ 0.075	N/A	0.0	0.00	472	$0.00	$0.00	-0.177	-0.120	$0.00	$0.00

Southwestern Public Service Company
Electronic Product Detailed Technical Assumptions

	Technical Assumption	2020		2021		2022					2020			2021			2022			
Line No.	Coincidence Factor (%)	2020 Participants (-)	2020 Units (-)	2021 Participants (-)	2021 Units (-)	2022 Participants (-)	2022 Units (-)	NTG (%)	Installation Rate (%)	Realization Rate (%)	2020 NET Gen kW (kW)	2020 NET Gen kWh (kWh)	2020 Rebate Budget ($)	2021 NET Gen kW (kW)	2021 NET Gen kWh (kWh)	2021 Rebate Budget ($)	2022 NET Gen kW (kW)	2022 NET Gen kWh (kWh)	2022 Rebate Budget ($)	Measure Load Shape
165	76.0%	0	1	0	1	0	1	66%	100%	100%	0.387	1,139	$190	0.387	1,139	$190	0.387	1,139	$190	NM-RES-Cooling_DX_Heating_DX
166	100.0%	0	1	0	1	0	1	66%	100%	100%	0.149	225	$30	0.149	225	$30	0.149	225	$30	NM-RES-CACNSP
167	100.0%	56	138	56	138	56	138	66%	100%	100%	17.362	51,196	$4,140	17.362	51,196	$4,140	17.362	51,196	$4,140	NM-RES-CACNSP
168																				
169	10.2%	1,429	10,000	1,429	10,000	1,429	10,000	100%	93%	100%	12.140	94,402	$27,500	12.140	94,402	$27,500	12.140	94,402	$27,500	NM-RES-SFLIT
170	0.0%	357	2,500	357	2,500	357	2,500	100%	60%	100%	0.000	263,809	$8,060	0.000	263,809	$8,060	0.000	263,809	$8,060	NM-RES-SFWHT
171	0.0%	357	2,500	357	2,500	357	2,500	100%	55%	100%	0.000	23,705	$3,039	0.000	23,705	$3,039	0.000	23,705	$3,039	NM-RES-SFWHT
172	0.0%	357	2,500	357	2,500	357	2,500	100%	55%	100%	0.000	42,889	$1,210	0.000	42,889	$1,210	0.000	42,889	$1,210	NM-RES-SFWHT
173																				
174	0.0%	750	750	800	800	850	850	100%	100%	100%	0.000	739,361	$37,500	0.000	788,652	$40,000	0.000	837,943	$42,500	NM-RES-Cooling_DX_Heating_DX
175	47.6%	561	0	496	0	438	0	100%	100%	100%	0.000	0	$0	0.000	0	$0	0.000	0	$0	NM-RES-PEAK_CNT
176	58.3%	360	360	0	0	0	0	100%	100%	100%	-43.347	191,959	$0	0.000	0	$0	0.000	0	$0	NM-RES-Cooling_DX_Heating_DX

Electric Load Shape Documentation

The following section documents the load shapes applied to electric DSM measures in this plan. These load shapes are scaled to the annual energy savings for each measure, and then applied to the hourly marginal energy price estimates to determine the avoided marginal energy benefit for each measure.

Load Shape	Description	Measures Applied To
NM-BUS-COOL_OUT	Operation of cooling equipment in business sites	Various cooling measures in the Cooling Efficiency product without economizers
NM-BUS-CUSTOM_	Operation of measures in past custom projects	Various miscellaneous measures across a few products (aerators/sprayers in business products, TV timer turning off peripherals) and custom measures* within the Custom product.
NM-BUS-FLAT	Flat load shape	Various measures in the Business program that run flat throughout the year
NM-BUS-FOODSVC	Operation of commercial kitchen equipment	Various measures related to food preparation including commercial dishwashers and food holding cabinets
NM-BUS-Light All	Blend of lighting loadshape across all building types	Custom Lighting* and bulbs purchased through Residential Home Lighting program installed at businesses
NM-BUS-Light Flat	Flat load shape	Exit signs, stairwell fixtures and parking garage lighting
NM-BUS-Light High Bay	Blend of lighting loadshape across all building types weighted on installation of high bay lamps and fixtures	High Bay lamps and fixtures
NM-BUS-Light Refrigerated	Blend of lighting loadshape across all building types weighted on installation of lighting in refrigeration applications	LED Refrigerator and Freezer Cases
NM-BUS-Light Screw In	Blend of lighting loadshape across all building types weighted on installation of screw-in bulbs	LED Midstream Interior Lamps
NM-BUS-Light Troffer	Blend of lighting loadshape across all building types weighted on installation of lighting troffers	LED troffer fixtures and lamps
NM-BUS-Light Tube	Blend of lighting loadshape across all building types weighted on installation of lighting tubes	LED tube lamps
NM-BUS-LIGHTING	Operation of general lighting technologies in business sites	Misc. lighting measures in a couple products and measures that operate in lighted area and will be operated at the same time as the lighting (aerators, dishwashers)
NM-BUS-Light-Network-Controls	Hourly savings of lighting under network control at a business site	Networked lighting controls
NM-BUS-Light-Sensor	Hourly savings of lighting under sensor control at a business site	Standalone Controls
NM-BUS-MOTORS	Operation of motors in business sites	Variable frequency drives (VFDs) and upgraded motors in the Motors product
NM-BUS-MTRS_OUT	Operation of motors in business sites	Variable frequency drives (VFDs) and upgraded motors in the Custom Efficiency product
NM-BUS-RECM_OUT	Hourly savings of recommissioning projects at a business site	Impact of recommissioning studies and area lighting measures that have the same usage pattern as recommissioning hourly savings
NM-RES-CACNSP	Operation of cooling and electric heating at residential sites	Envelope measures for residential customers with electric cooling, electric heating, and heat pump heating
NM-RES-COOLING_DX	Operation of cooling at residential sites	Electric cooling equipment and installation measures
NM-RES-Cooling_DX_Heating_DX	Operation of cooling and electric heating at residential sites	Electric cooling equipment and heat pump installation measures
NM-RES-EVAPBASE	Hourly savings of evaporative cooling replacing air conditioning at a residential site	Evaporative cooling measures replacing air-conditioning
NM-RES-PEAK_CNT	Hourly savings and load increase from a peak control product	Measures for prior enrollments in demand response programs including Smart Thermostats
NM-RES-SFLIT	Operation of lighting at single-family residential sites	Various LED bulb measures and clothes washer measures
NM-RES-SFWHT	Operation of electric water heaters at residential sites	Showerhead and aerator measures as well as electric water heating equipment in various products

*Projects including measures using this shape will be run through a custom analysis during which hourly load shapes will be determined.

Southwestern Public Service Company

2018 Energy Efficiency and Load Management Annual Report

Prepared in Compliance with the Efficient Use of Energy Act and 17.7.2 NMAC (Energy Efficiency Rule)

May 15, 2019

Table of Contents

Glossary of Acronyms and Definition

Acronym/Defined Term	**Definition**
2018 Annual Report	SPS's 2018 Energy Efficiency and Load Management Annual Report
2017 Plan	SPS's 2017 Energy Efficiency and Load Management Plan
Commission	New Mexico Public Regulation Commission
DR	Demand Response
DSM	Demand-Side Management – refers to the energy efficiency and load management programs collectively
ECM	electronically commutated motor
EE	Energy Efficiency
EE/LM	Energy Efficiency and Load Management
EUEA	New Mexico Efficient Use of Energy Act, as amended (NMSA 1978 §§62-17-1 through 62-17-11)
Evaluator	Independent Program Evaluator, the third-party contractor that will conduct all measurement and verification of the programs
Evergreen	Evergreen Economics Inc., the third-party selected as the Independent Program Evaluator for the measurement and verification of all New Mexico utility energy efficiency and load management programs
GWh	gigawatt hour
HER	Home Energy Reports

Acronym/Defined Term	**Definition**
HVAC	Heating, Ventilation, and Air Conditioning
kW	Kilowatt
kWh	kilowatt-hour
LED	light emitting diode
M&V	Measurement and Verification
PY	Plan Year
Rule	Energy Efficiency Rule (17.7.2 NMAC)
SPS	Southwestern Public Service Company, a New Mexico corporation
Staff	Commission's Utility Division Staff
Stipulation	Settlement Agreement between the parties to Case No. 16-00110-UT
UCT	Utility Cost Test - the cost-effectiveness standard implemented on July 1, 2013, also known as the Program Administrator Test
Xcel Energy	Xcel Energy Inc.

Document Layout

Southwestern Public Service Company's, a New Mexico corporation, ("SPS") 2018 Energy Efficiency and Load Management ("EE/LM") Annual Report ("2018 Annual Report") includes the following sections:

- Section I provides the Executive Summary consisting of an Introduction, Background, and Summary of Results;
- Section II provides the reporting requirements as required by 17.7.2.14 NMAC;
- Section III provides the program descriptions including an explanation of deviations from goal and changes during 2017, organized into the Residential, Business, and Planning & Research Segments;
- Section IV provides compliance requirements set forth in the Stipulation Agreement in Case No. 16-00110-UT;[1] and
- Appendix A provides the Measurement and Verification ("M&V") Report of SPS's 2018 program year prepared by Evergreen Economics Inc. ("Evergreen").

[1] *In the Matter of Southwestern Public Service Company's Energy Efficiency Compliance Application that Requests Authorization to: (1) per Approved Variance, continue its: (A) 2017 Energy Efficiency and Load Management Plan Programs for Plan Year ("PY") 2018; (B) 2017 Energy Savings Goal for Plan Year 2018; (C) Energy Efficiency Tariff Rider to Recover the Three Percent Funding Level for Plan Year 2018 and Reconciliation of 2016 Expenditures and collections; and (D) 2017 financial Incentive for Plan Year 2018 and Recover the incentive Through Its Energy Efficiency Tariff Rider; and (2) Recover the 2016 Reconciled Financial Incentive Through its Energy Efficiency Rider,* Case No. 17-00159-UT, Final Order Approving Certification of Stipulation (Dec. 13, 2017).

Section I. Executive Summary

Introduction

In accordance with the Efficient Use of Energy Act ("EUEA"), as amended by Senate Bill 418 (2007), House Bill 305 (2008), and House Bill 267 (2013), and the New Mexico Public Regulation Commission's ("Commission") Energy Efficiency ("EE") Rule (17.7.2 NMAC, "Rule"), SPS respectfully submits for Commission review its 2018 Annual Report. The EUEA and its associated Rule require public utilities to offer cost-effective energy efficiency and load management programs and authorizes them to receive cost recovery for qualified expenditures. Further, 17.7.2.8.A NMAC requires SPS to file with the Commission on May 15 of each year, a report on its energy efficiency and load management programs during the prior calendar year. The specific reporting requirements of the Rule are discussed in Section II.

Within this 2018 Annual Report, SPS provides the expenditures and savings results for nine EE/LM direct impact programs in the Residential Segment (including Low-Income) and Business Segment (including Large Customer). In addition, the 2018 Annual Report includes a summary of the Planning and Research Segment, which supports the direct impact programs. The M&V Report for SPS's 2018 savings is included as Appendix A.

Background

SPS filed its 2017 EE/LM Plan ("2017 Plan") on May 2, 2016 (Case No. 16-00110-UT). SPS, the Commission's Utility Division Staff ("Staff"), and the other parties to the case agreed to a stipulation ("Stipulation") or did not oppose the Stipulation, which was approved by the Commission on November 9, 2016. The Stipulation included the following revisions to the originally proposed 2017 Plan: review the potential for incremental participation in the Residential Energy Feedback program, removal of the Refrigerator Recycling program from the Residential Segment, removal of the Saver's Switch for Business program from the Business Segment, removal of the Consumer Education and C&I Benchmarking programs from the Indirect Segment, and reductions to several program budgets as part of the settlement agreement to reduce spending consistent with revised annual collections.

On January 25, 2017, the Commission issued notice of a rulemaking in Case No. 17-00010-UT which proposed new filing deadlines for utilities to submit annual applications under Section 17.7.2.8(A). The approved revisions to Section 17.7.2.8(A) would authorize SPS not to file an application in 2017, but instead file in 2018, for plan years 2019 and 2020.

On February 15, 2017, SPS filed its Motion for Variance, pursuant to 17.7.2.19 NMAC, which requested the Commission grant SPS a variance from Section 17.7.2.8(A) and (B) NMAC in order to allow SPS to submit a limited application for its EE/LM Plan Year ("PY") 2018 ("Limited Application") on July 1, 2017 plus file its 2016 Annual Report on July 1, 2017, rather than May 1, 2017 as was required by the EE Rule at that time. The Order Granting Variance was approved on March 1, 2017.

In accordance with the March 1 Order, on July 3, 2017, SPS filed its Application asking for an Order granting SPS's request to continue its Commission approved PY 2017 EE/LM programs for PY 2018 and authorize SPS to fund its 2018 EE/LM programs at three percent of customer bills (the "three percent funding level") in accordance with Section 62-17-6(A) of the EUEA and 17.7.2.8(C)(l) NMAC. Additionally, SPS requested to continue its Commission-approved 2017 energy savings goal for PY 2018, approve the continuation for PY 2018 of the incentive mechanism the Commission approved for PY 2017 and authorize recovery through SPS's EE Rider. SPS proposed no update or modifications to the EE/LM programs that were approved by the Commission through the Stipulation for PY 2017. The Commission approved SPS's request for continuation on December 13, 2017.

Summary of Results

In compliance with 17.7.2.14.C NMAC, Table 1 below shows SPS's program budget approved by the NMPRC goals, budgets, and Utility Cost Test ("UCT") ratios approved by the Commission on December 13, 2017.

In 2018, SPS achieved verified net electric savings of 7,539 kilowatts ("kW") and 42,841,455 kilowatt-hours ("kWh") at the customer, for a total cost of $11,000,297 (see Table 1 below.) This equals 129% of SPS's 2018 approved energy goal, while spending 112% of the approved budget. The portfolio was cost-effective with a UCT ratio of 2.32.

As shown in Table 1, most of the direct impact energy efficiency programs were cost-effective under the UCT. Three of the programs did not pass the UCT test in 2018. While each of the products listed below is discussed in more detail later in the Status Report, a summary of the primary reasons for individual programs falling below 1.0 on the UCT follows.

- Residential Cooling: The program received a low UCT in 2018 due to low participation in the program. Efficiency measures such as mini-split heat pumps, air conditioners, and conventional heat pumps launched in 2017, but the market has been slow in responding to the additional measures. In 2018, SPS relied on Heating, Ventilation, and Air Conditioning) ("HVAC") (contractors to promote customer rebates and help customers apply for the rebates. Contractor participation was lower than expected, so in 2019 SPS will also partner with HVAC distributors in order to distribute customer rebate forms and promote participation in the program.

- Interruptible Credit Option ("ICO"): ICO had no participants in 2018 and therefore achieved a UCT ratio of 0.0.

- Residential Saver's Switch: The program received a low UCT in 2018 due to a sizeable portion of installed devices being found to be either not working, not receiving over-the-air signals, or not connected to functioning air conditioning units. The program is slated to be closed down by year-end 2019. SPS works in good faith

to comply with the EUEA and to offer cost-effective EE/LM programs to all of its customers.

Table 1: Estimated and Actual Program Data for 2018

Program	2018 Estimated								2018 Reported and Verified							
	Participants	Budget	Peak Demand Savings (Customer kW)	Annual Energy Savings (Customer kWh)	Peak Demand Savings (Generator kW)	Annual Energy Savings (Generator kWh)	Utility Avoided Cost	Utility Cost Test	Participants	Expenditures	Peak Demand Savings (Net Customer kW)	Annual Energy Savings (Net Customer kWh)	Peak Demand Savings (Net Generator kW)	Annual Energy Savings (Net Generator kWh)	Utility Avoided Cost	Utility Cost Test
Residential Segment																
Residential Energy Feedback	18,090	$133,045	421	2,999,949	502	3,401,303	$ 157,051	1.18	37,438	$128,600	1,075	4,161,260	1,283	4,717,982	$ 265,923	2.07
Residential Cooling	250	$175,908	87	387,255	104	439,065	$ 311,058	1.77	58	$49,427	11	52,151	13	59,128	$ 39,033	0.79
Home Energy Services: Residential & Low Income	1,850	$2,634,220	657	5,541,450	784	6,282,823	$ 4,071,171	1.55	3,089	$3,796,983	1,148	12,782,862	1,370	14,493,041	$ 8,539,919	2.25
Home Lighting & Recycling	298,000	$2,094,918	1,365	10,117,471	1,629	11,471,055	$ 7,930,049	3.79	323,139	$1,893,165	1,302	9,588,220	1,554	10,870,997	$ 6,166,331	3.26
Residential Saver's Switch	4,203	$203,250	3,653	35,241	4,359	39,956	$ 290,158	1.43	4,360	$236,580	658	0	785	0	$ 133,031	0.56
School Education Kits	2,500	$163,417	25	850,672	30	964,480	$ 329,935	2.02	2,427	$151,213	35	1,006,950	42	1,141,667	$ 374,542	2.48
Smart Thermostat Pilot	3,440	$232,557	1,773	547,183	2,116	620,388	$ 206,685	0.89	528	$77,145	1,234	3,151	1,473	3,573	$ 249,592	3.24
Residential Segment Total	**328,333**	**$5,637,315**	**7,982**	**20,479,220**	**9,525**	**23,219,071**	**$ 13,296,107**	**2.36**	**371,039**	**$6,333,113**	**5,463**	**27,594,594**	**6,520**	**31,286,388**	**$ 15,768,370**	**2.49**
Business Segment																
Business Comprehensive	716	$3,570,861	1,953	12,764,348	2,180	13,829,197	$ 8,360,284	2.34	227	$4,355,924	2,076	15,246,861	2,317	16,518,809	$ 9,760,118	2.24
Interruptible Credit Option	2	$45,569	789	7,000	881	7,584	$ 73,060	1.60	0	$1,076	0	0	0	0	$ -	0.00
Business Segment Total	**718**	**$3,616,430**	**2,743**	**12,771,348**	**3,061**	**13,836,781**	**$ 8,433,344**	**2.33**	**227**	**$4,356,999**	**2,076**	**15,246,861**	**2,317**	**16,518,809**	**$ 9,760,118**	**2.24**
Planning & Research Segment																
Market Research		$90,000								$44,272						
Measurement & Verification		$12,000								$6,444						
Planning & Administration		$285,242								$159,699						
Product Development		$195,859								$99,769						
Planning & Research Segment Total		**$583,101**								**$310,185**						
2017 TOTAL	**329,051**	**$9,836,846**	**10,724**	**33,250,569**	**12,586**	**37,055,851**	**21,729,451**	**2.21**	**371,266**	**$11,000,297**	**7,539**	**42,841,455**	**8,836**	**47,805,197**	**25,528,488**	**2.32**

Table 2: Variance Comparison of 2018 Estimated and Reported/Verified Data

Program	2018 Estimated and Reported/Verified Variances							
	Participants	Expenditures	Peak Demand Savings (Net Customer kW)	Annual Energy Savings (Net Customer kWh)	Peak Demand Savings (Net Generator kW)	Annual Energy Savings (Net Generator kWh)	Utility Avoided Cost	Utility Cost Test
Residential Segment								
Residential Energy Feedback	207%	97%	256%	139%	256%	139%	169%	175%
Residential Cooling	23%	28%	12%	13%	12%	13%	13%	45%
Home Energy Services: Residential & Low Income	167%	144%	175%	231%	175%	231%	210%	146%
Home Lighting & Recycling	108%	90%	95%	95%	95%	95%	78%	86%
Residential Saver's Switch	104%	116%	18%	0%	18%	0%	46%	39%
School Education Kits	97%	93%	139%	118%	139%	118%	114%	123%
Smart Thermostat Pilot	15%	33%	70%	1%	70%	1%	121%	364%
Residential Segment Total	113%	112%	68%	135%	68%	135%	119%	106%
Business Segment								
Business Comprehensive	32%	122%	106%	119%	106%	119%	117%	96%
Interruptible Credit Option	0%	2%	0%	0%	0%	0%	0%	0%
Business Segment Total	32%	120%	76%	119%	76%	119%	116%	96%
Planning & Research Segment								
Market Research		49%						
Measurement & Verification		54%						
Planning & Administration		56%						
Product Development		51%						
Planning & Research Segment Total		53%						
2018 TOTAL	113%	112%	70%	129%	70%	129%	117%	105%

As shown in Tables 1 and 2 (above), SPS met, or came close to meeting, most of its program forecasts for 2018. While program performance varied, the reasons for which are discussed further in Section III of this report, the majority of programs were within 25% of their budgets. The Residential Energy Feedback, Home Energy Services, School Education Kits, and Business Comprehensive Programs far exceeded their savings forecasts.

Section II: 17.7.2.14 NMAC Reporting Requirements

17.7.2.14.C NMAC requires that annual reports include specific details on the programs offered during the report year. 17.7.2.14.C states:

C. Annual reports shall include the following for each measure and program:
(1) documentation of program expenditures;
(2) estimated and actual customer participation levels;
(3) estimated and actual energy savings;
(4) estimated and actual demand savings;
(5) estimated and actual monetary costs of the public utility;
(6) estimated and actual avoided monetary costs of the public utility;
(7) an evaluation of its cost-effectiveness; and
(8) an evaluation of the cost-effectiveness and pay-back periods of self-directed programs.

In addition, 17.7.2.14.D NMAC requires that the annual report also include:

(1) the most recent M&V report of the Independent Program Evaluator ("Evaluator"), which includes documentation, at both the portfolio and individual program levels, of expenditures, savings, and cost-effectiveness of all energy efficiency measures and programs and load management measures and programs, expenditures, savings, and cost-effectiveness of all self-direct programs, and all assumptions used by the Evaluator;
(2) a listing of each measure or program expenditure not covered by the independent M&V report and related justification as to why the evaluation was not performed;
(3) a comparison of estimated energy savings, demand savings, monetary costs, and avoided monetary costs to actual energy savings, demand savings, actual monetary costs, and avoided monetary costs for each of the utility's approved measure or programs by year;
(4) a listing of the number of program participants served for each of the utility's approved measures of programs by year;
(5) a listing of the calculated economic benefits for each of the utility's approved measures or programs by year;
(6) information on the number of customers applying for and participating in self-direct programs, the number of customers applying for and receiving exemptions, M&V of self-direct program targets, payback periods and achievements, customer expenditures on qualifying projects, oversight expenses incurred by the utility representative or administrator; and

(7) any other information required by the Commission.

The following table provides direction as to where the supporting data and narratives for each of these requirements can be found in this report.

Table 3: Location of Reporting Requirements

Reporting Requirement	Location in Annual Report
17.7.2.14.C(1)	Tables 1 & 2
17.7.2.14.C(2)	Tables 1 & 2
17.7.2.14.C(3)	Tables 1 & 2
17.7.2.14.C(4)	Tables 1 & 2
17.7.2.14.C(5)	Tables 1 & 2
17.7.2.14.C(6)	Tables 1 & 2
17.7.2.14.C(7)	Tables 1 & 2
17.7.2.14.C(8)	N/A
17.7.2.14.D(1)	Appendix A
17.7.2.14.D(2)	Appendix A and Section III
17.7.2.14.D(3)	Table 2
17.7.2.14.D(4)	Table 2
17.7.2.14.D(5)	Table 2
17.7.2.14.D(6)	N/A
17.7.2.14.D(7)	N/A

Section III: Segment and Program Descriptions

Residential Segment

SPS has approximately 89,500 customers in its Residential Segment in New Mexico. The service area is relatively rural, with only a few small cities, including Clovis, Roswell, Artesia, Carlsbad, Portales, and Hobbs.

In 2018, SPS offered seven residential programs with opportunities for all residential customers, including low-income customers, to participate. In total, SPS spent $6,333,113 on these programs and achieved 5,463 kW and 27,594,594 kWh net savings at the customer level.

Overall, the Residential Segment of programs was cost-effective with a UCT of 2.49. The segment achieved 135% of the annual kWh goal with significant contributions from the Home Lighting & Recycling and Home Energy Services programs. All of the programs under the Residential Segment are discussed in more detail below.

Residential Energy Feedback

The Residential Energy Feedback Program provides participating customers with different forms of feedback regarding their energy consumption. The feedback communication strategies and associated tips and tools result in a decrease in energy usage by encouraging changes in the behavior of participating customers. Furthermore, the program attempts to build a persistent increase in, or earlier adoption of, energy efficient technologies and energy efficient practices.

The program ended 2018 with 37,438 participants total in the control and recipient groups[2]. The program year began with 21,229 recipient participants and ended with 18,883, due to an annual attrition rate of 11%. Attrition occurs primarily for two reasons; customers who move out of their residence and those that choose to opt-out of the program. Participants consist of the Legacy Group, which entered the program in early 2012; a 2015 Refill Group that started receiving Home Energy Reports ("HER") in the summer of 2015; and a 2017 Refill Group that began receiving HERs in the summer of 2017. Participants receive their HER approximately once a quarter, however, the cadence varies based on the program design. Each report provides actionable energy saving tips and information on the customer's energy usage. For comparison purposes, the customer's energy consumption is benchmarked with that of 100 similar customers. Accessible through My Account, the My Energy online tool provides the same information that customers receive in the HER, with a more robust set of customization options and energy savings tools. These tools are available

[2] The recipient group receives paper or electronic Home Energy Reports while the control group does not. These groups are compared as a part of the randomized control trial to determine energy savings realized by the recipient group.

to all customers served by SPS, and in 2018 over 750 customers took advantage, compared to 500 in 2017.

Table 4: 2018 Program Achievements

Program	Actual Participants	Forecasted Participants	Actual Spend	Budgeted Spend	Peak Demand Savings kW (Net Customer)	Peak Demand Goal kW (Net Customer)	Annual Energy Savings kWh (Net Customer)	Energy Savings Goal kWh (Net Customer)	Utility Cost Test
Residential Energy Feedback	37,438	18,090	$ 128,600	$ 133,045	1,075	421	4,161,260	2,999,949	2.07

Deviations from Goal
The Residential Energy Feedback Program surpassed its estimated savings impact goals in 2018, and remains cost-effective under the UCT. Participants in the 2015 refill group continue to save a lower than expected amount of energy due to the statistical noise present when attempting to measure savings. Only nineteen customers elected to opt-out of the program, which is similar to the fifteen who chose to opt out in 2017, and significantly lower than the thirty-seven in 2016.

Changes in 2018
For 2018, SPS executed an RFP for a new Energy Feedback implementer and has selected a new implementer, which is expected to be announced in June 2019.

Residential Cooling
The Residential Cooling Program provides a cash rebate to electric customers who purchase and permanently install high-efficiency evaporative cooling, high efficiency air conditioners, air source heat pumps, mini-split heat pumps, or electronically commutated motors ("ECM") in air conditioning equipment for residential use in New Mexico

Table 5: 2018 Program Achievements

Program	Actual Participants	Forecasted Participants	Actual Spend	Budgeted Spend	Peak Demand Savings kW (Net Customer)	Peak Demand Goal kW (Net Customer)	Annual Energy Savings kWh (Net Customer)	Energy Savings Goal kWh (Net Customer)	Utility Cost Test
Residential Cooling	58	250	$ 49,427	$ 175,908	11	87	52,151	387,255	0.79

Deviations from Goal
In 2018, the Residential Cooling Program spent a little under 30% of its forecasted budget primarily due to lack of participation in the program. However, SPS continued to conduct outreach, including on-line media ads, bill inserts, and radio ads. Weaker than expected participation is likely attributable to the following issues:

- a low level of customer awareness about rebates and how to apply for them;
- the HVAC contractor community has been slow to recommend high efficiency equipment;

- Homeowner's Associations place restrictions on roof-mounted evaporative coolers;
- new home construction uses refrigerated air systems, which makes retrofitting for evaporative coolers costly and technically difficult;
- premium systems are not stocked by any retailers or contractors in the service territory; and
- introduction of the ECM rebates into the marketplace took some time due to the requirement that qualified contractors had to be informed of the rebates and how they worked.

In an effort to increase participation in 2019, SPS has begun to look into transitioning the program from a contractor-driven customer rebate offering to a distributor-driven customer rebate offering.

Changes in 2018
None.

Home Energy Services
The Home Energy Services Program provides incentives to energy efficiency service providers for the installation of a range of upgrades that save energy and reduce costs for existing households. Qualifying customers receive attic insulation, air infiltration reduction, duct leakage repairs, and high-efficiency central air conditioners.

The primary objective of this program is to achieve cost-effective reductions in energy consumption in residential and low-income homes. Additional objectives of the program are to:

- encourage private sector delivery of energy efficiency products and services;
- utilize a whole-house approach to efficiency upgrades; and
- significantly reduce barriers to participation by streamlining program procedures.

SPS partners with third-party contractors to deliver these services to qualifying residential customers. Contractors must apply to the program and be approved in order to participate. SPS requires contractors to receive pre-approval for targeted multifamily sites prior to installation of any energy efficiency components for which an incentive will be requested.

Table 6: 2018 Program Achievements

Program	Actual Participants	Forecasted Participants	Actual Spend	Budgeted Spend	Peak Demand Savings kW (Net Customer)	Peak Demand Goal kW (Net Customer)	Annual Energy Savings kWh (Net Customer)	Energy Savings Goal kWh (Net Customer)	Utility Cost Test
Home Energy Services: Residential & Low Income	3,089	1,850	$ 3,796,983	$2,634,220	1,148	657	12,782,862	5,541,450	2.25

Deviations from Goal
The Home Energy Services Program exceeded its energy savings goals for 2018. The program was also highly cost-effective. The Residential portion of the program also performed well, achieving savings of over 6 gigawatt hour ("GWh")at the customer level. SPS spent just over $1.9 million on the Low-Income portion of the program, which is approximately 18% of the total portfolio spend and in excess of the minimum requirement of 5%.

Changes in 2018
None.

Home Lighting and Recycling
The Home Lighting and Recycling Program helps customers save energy and money by offering energy efficient light emitting diode ("LED") bulbs at discounted prices at participating retailers. SPS works with retailers and manufacturers to buy down the prices of bulbs. LED bulbs receive a buy-down discount of up to $5, with buy-down amounts adjusted for market conditions and by bulb type. This provides a convenient and inexpensive way for customers to reduce their energy usage and impact on the environment while saving money.

SPS marketed the program extensively through a variety of advertising and promotions, including television, radio, on-line, publications, bill inserts, community events, and point-of-purchase displays. Some of the specific promotions included:

- SPS participated in many community events and implemented bulb giveaways at various events including the Eastern New Mexico State Fair, Light Up Artesia, and the Roswell Christmas Railway.
- SPS continued to partner with Domino's Pizza to deliver free energy-efficient bulbs with each pizza order for a limited time period. This was a unique promotion in that it delivered bulbs directly to customers' homes and was an extremely low-cost way to reach consumers.

Table 7: 2018 Program Achievements

Program	Actual Participants	Forecasted Participants	Actual Spend	Budgeted Spend	Peak Demand Savings kW (Net Customer)	Peak Demand Goal kW (Net Customer)	Annual Energy Savings kWh (Net Customer)	Energy Savings Goal kWh (Net Customer)	Utility Cost Test
Home Lighting & Recycling	323,139	298,000	$ 1,893,165	$2,094,918	1,302	1,365	9,588,220	10,117,471	3.26

Deviations from Goal
In 2018, the Home Lighting and Recycling Program achieved 95% its energy and demand savings goal. Budget savings were attributed to the continued reduction in the price of LED bulbs and the lower cost of buy-downs.

Changes in 2018
None.

Residential Saver's Switch
Residential Saver's Switch is a demand response ("DR") program that offers bill credits as an incentive for residential customers to allow SPS to control operation of customers' central air conditioners and electric water heaters on days when the SPS system is approaching its peak. This program is generally utilized on hot summer days when SPS's load is expected to reach near-peak capacity. Saver's Switch helps reduce the impact of escalating demand and price for peak electricity.

When the program is activated, a control signal is sent to interrupt the air conditioning load during peak periods, typically in the afternoons on weekdays. For air conditioners, SPS utilizes a cycling strategy to achieve a 50% reduction in load. For enrolled electric water heaters, the entire load is shed for the duration of the control period. Due to limitations in available over-the-air control systems, the program is currently available only in the cities of Portales, Hobbs, Clovis, Roswell, Artesia, and Carlsbad.

The 2018 program year was the ninth operational year for the Saver's Switch program. In 2018, there were seven control events.

Table 8: 2018 Program Achievements

Program	Actual Participants	Forecasted Participants	Actual Spend	Budgeted Spend	Peak Demand Savings kW (Net Customer)	Peak Demand Goal kW (Net Customer)	Annual Energy Savings kWh (Net Customer)	Energy Savings Goal kWh (Net Customer)	Utility Cost Test
Residential Saver's Switch	4,360	4,203	$ 236,580	$ 203,250	658	3,653	0	35,241	0.56

Deviations from Goal
In 2018, the program received a low UCT and did not meet the forecasted savings goal due to a sizeable portion of installed devices being found to be either not working, not receiving over-the-air signals, or not connected to functioning air conditioning units.

Changes in 2018
None.

School Education Kits
The School Education Kits Program provides classroom and in-home activities that enable students and parents to install energy efficiency and water conservation products in their homes. The program is targeted at fifth grade students. A third-party contractor fully implemented the School Education Kits program, including recruiting and training teachers, providing all materials, and tracking participation by schools and teachers. Energy savings are based on the number of measures that are installed in the homes of the students. Students complete surveys to determine the measure installation rates.

Table 9: 2018 Program Achievements

Program	Actual Participants	Forecasted Participants	Actual Spend	Budgeted Spend	Peak Demand Savings kW (Net Customer)	Peak Demand Goal kW (Net Customer)	Annual Energy Savings kWh (Net Customer)	Energy Savings Goal kWh (Net Customer)	Utility Cost Test
School Education Kits	2,427	2,500	$ 151,213	$ 163,417	35	25	1,006,950	850,672	2.48

Deviations from Goal
The program exceeded its kWh savings goal in 2018 while remaining under budget.

Changes in 2018
None.

Smart Thermostat Pilot
The Smart Thermostat Pilot is designed to evaluate if Wi-Fi connected communicating, smart thermostats can save residential customers energy by installing a smart thermostat device and connecting it to the manufacturer's cloud service. In addition to EE benefits, the Pilot also plans to evaluate DR capacity from smart thermostats in the residential market. SPS offers customers smart thermostats and installation at no cost.

Table 10: 2018 Program Achievements

Program	Actual Participants	Forecasted Participants	Actual Spend	Budgeted Spend	Peak Demand Savings kW (Net Customer)	Peak Demand Goal kW (Net Customer)	Annual Energy Savings kWh (Net Customer)	Energy Savings Goal kWh (Net Customer)	Utility Cost Test
Smart Thermostat Pilot	528	3,440	$ 77,145	$ 232,557	1,234	1,773	3,151	547,183	3.24

Deviations from Goal
The pilot did not reach the target goal of 1,385 DR Participants in 2018. New thermostat installations stopped at the end of 2016 and the pilot did not add any new participants in 2017 or most of 2018. Enrollments were reopened at the end of 2018 and sign-ups were received, however these installations were not completed until early 2019.

Changes in 2018
New customers were enrolled in the program in 2018 for the first time in two years and received thermostats installations in early 2019.

Business Segment

SPS's Business Segment in New Mexico consists of nearly 24,000 commercial, industrial, and agricultural customer premises. In 2018, SPS offered two business programs with opportunities for all commercial and industrial customers to participate.

In total, SPS spent $4,356,999 on these programs and achieved 2,076 kW and 15,246,861 kWh savings at the net customer level.

Overall, the Business Segment of programs was cost-effective with a UCT of 2.24. Achievements were 119% of the annual kWh goal. Both of the programs under the Business Segment are discussed in more detail below.

Business Comprehensive

The Business Comprehensive Program bundles traditional prescriptive and custom products in a way that is more easily understood by customers. Business Comprehensive encompasses the Recommissioning, Computer Efficiency, Cooling Efficiency, Custom Efficiency, Large Customer Self-Direct, Lighting Efficiency, and Motor & Drive Efficiency products. Customers can choose to participate in any or all of the individual program components.

Table 11: 2018 Program Achievements

Program	Actual Participants	Forecasted Participants	Actual Spend	Budgeted Spend	Peak Demand Savings kW (Net Customer)	Peak Demand Goal kW (Net Customer)	Annual Energy Savings kWh (Net Customer)	Energy Savings Goal kWh (Net Customer)	Utility Cost Test
Business Comprehensive	227	716	$ 4,355,924	$3,570,861	2,076	1,953	15,246,861	12,764,348	2.24

Deviations from Goal

The Business Comprehensive Program achieved 119% of its savings goal. The program saw increased participation in the oil and gas sector as a result of SPS's increased efforts to target the growing market within the service territory. Additionally, the Motors program saw higher than anticipated participation in the prescriptive Variable Frequency Drive measure, and several large custom Variable Frequency Drive projects were rebated in 2018.

Changes in 2018

Business Comprehensive Program added LED Type B Linear Replacement lamp rebates.

Interruptible Credit Option

The ICO Program was developed to offer significant savings opportunities to SPS business customers who can reduce their electric demand for specific periods of time when notified. In return for participating, customers receive a monthly credit on their demand charges.

Table 12: 2018 Program Achievements

Program	Actual Participants	Forecasted Participants	Actual Spend	Budgeted Spend	Peak Demand Savings kW (Net Customer)	Peak Demand Goal kW (Net Customer)	Annual Energy Savings kWh (Net Customer)	Energy Savings Goal kWh (Net Customer)	Utility Cost Test
Interruptible Credit Option	0	2	$ 1,076	$ 45,569	0	789	0	7,000	0.00

Deviations from Goal

The ICO Program did not have any participants during 2018. This program is best suited for SPS's largest customers, most of whom are in the oil and gas industries. Due to the

current economic conditions, most of these large customers have not seen a benefit to the program.

Changes in 2018
None.

Planning & Research Segment

The Planning and Research Segment consists of internal utility functions (not customer-facing), which support the direct impact programs. The overall purpose of the Planning and Research Segment is to:

- provide strategic direction for SPS's EE/LM programs;
- ensure regulatory compliance with energy efficiency legislation and rules;
- guide SPS internal policy issues related to energy efficiency;
- train SPS Marketing staff for compliance and cost-effectiveness;
- evaluate program technical assumptions, program achievements, and marketing strategies;
- provide oversight of all evaluation, measurement, and verification planning and internal policy guidance;
- provide segment and target market information;
- analyze overall effects to both customers and the system of SPS's energy efficiency portfolio;
- measure customer satisfaction with SPS's energy efficiency efforts; and
- develop new conservation and load management programs.

The segment includes EE/LM-related expenses for Demand Side Management ("DSM") Planning & Administration, Market Research, M&V, and Product Development. Each Planning and Research program is discussed below.

Planning & Administration
The Planning and Administration area manages all EE/LM regulatory filings (including this Annual Report), directs and carries out benefit-cost analyses, provides tracking results of energy conservation achievements and expenditures, and analyzes and prepares cost recovery reports. Planning and Administration, which includes outside legal assistance, coordinates and participates in all DSM-related rulemaking activities and litigated hearings. This area also supports the DSM component of resource planning and provides planning and internal policy guidance to meet all EE/LM regulatory requirements. These functions are needed to ensure a cohesive and high-quality energy efficiency portfolio that meets legal requirements as well as the expectations of SPS's customers, regulators, and Commission Staff.

Deviations from Goal
None.

Changes in 2018
None.

Market Research
The Market Research group spearheads energy efficiency-related research efforts that are used to inform SPS on EE/LM Strategy. In 2018, the Market Research group oversaw the SPS portion of several Xcel Energy Inc. ("Xcel Energy")-wide subscriptions such as SPS's E-Source Membership, and the Dun & Bradstreet list purchase.

Deviations from Goal
SPS spent less than the forecasted budget, due to lower than expected consulting costs.

Changes in 2018
Market Research worked with Wiese Research to conduct the Home Use Study in 2018 as well as a separate low income study. The Home Use Study provides research on customers in New Mexico concerning their actions taken to reduce energy consumption, and how energy is used in their homes. Another study launched in 2018 was the Xcel Energy Proprietary Relationship Study which provides more frequent feedback about customer attitudes and behaviors around energy.

Measurement & Verification
The M&V budget funds the internal staff from the Planning and Administration area who oversee M&V planning, data collection, and internal policy guidance. In addition, this area coordinates the day-to-day activities providing necessary information and program tracking data to the Evaluator, as well as serving on the Commission's Evaluation Committee.

17.7.2.14.D(1) NMAC requires that utilities submit the most recent M&V Report conducted by the approved Evaluator with its Annual Report. The 2018 M&V Report is provided as Appendix A of this document. In compliance with the reporting requirements, the 2018 M&V Report includes:

- expenditure documentation, at both the total portfolio and individual program levels;
- measured and verified savings;
- evaluation of cost-effectiveness of all of SPS's EE/LM programs;
- deemed savings assumptions and all other assumptions used by the Evaluator;
- description of the M&V process, including confirmation that:
  - measures were actually installed;
  - installations meet reasonable quality standards; and

- measures are operating correctly and are expected to generate the predicted savings.

Deviations from Goal
SPS spent less than the forecasted indirect M&V budget which is primarily used for TRM updates and portfolio wide M&V activities. Although Evergreen revised the TRM in the fall of 2018, not all costs associated with the refresh were included in 2018 spend. Additional TRM costs will be shown in PY 2019's reporting.

Changes in 2018
None.

Product Development
Product Development identifies, assesses, and develops new energy efficiency and load management products and services. The product development process starts with ideas and concepts from customers, regulators, energy professionals, interest groups, and SPS staff. These ideas are then carefully screened and only ideas with the most potential are selected for the development process.

Deviations from Goal
SPS spent less than the forecasted budget due to lower than expected consulting costs.

Changes in 2018
In May, 2018, SPS hired Seventhwave (now called Slipstream) to recommend actions to optimize the New Mexico portfolio, including proposing new efficiency measures and program improvements for increased penetration of existing measures.

Section IV: 2018 Incentive Mechanism True-Up

In Case No. 16-00110-UT, SPS indicated that it would provide its annual reconciliation of plan year incentives in its annual report. The Commission authorized SPS to collect a baseline financial incentive of $668,905 in 2018. Interest was to be symmetrically applied to the over- or under-collected monthly balance, using the customer deposit interest rate. In 2018, SPS collected $877,073, compared to the baseline financial incentive of $668,905, resulting in interest of $1,468.46 owed to customers.

Next, SPS compared its baseline incentive to its Commission-approved earned incentive. SPS exceeded its 2018 achievement goal of 29.444 GWh by 13.397 GWh, resulting in an earned incentive of $699,399. When compared to the collected amount ($878,541.46, including interest), SPS needs to return $179,142.46 to customers related to the 2018 incentive.

Appendix A: Measurement & Verification Report:

SPS 2018 Program Year

Provided by Evergreen

CASE NO. 19-00 -UT

IN THE MATTER OF SOUTHWESTERN PUBLIC SERVICE COMPANY'S TRIENNIAL ENERGY EFFICIENCY PLAN APPLICATION REQUESTING APPROVAL OF: (1) SPS'S 2020-2022 ENERGY EFFICIENCY PLAN AND ASSOCIATED PROGRAMS; (2) A FINANCIAL INCENTIVE FOR PLAN YEAR 2020; (3) RECOVERY OF THE COSTS ASSOCIATED WITH A POTENTIAL ENERGY EFFICIENCY STUDY OVER A TWO-YEAR TIME PERIOD; AND (4) CONTINUATION OF SPS'S ENERGY EFFICIENCY TARIFF RIDER TO RECOVER ITS ANNUAL PROGRAM COSTS AND INCENTIVES

Attachment MRS-2(CD)

Southwestern Public Service Company

Comparison of SPS New Mexico EE/LM Programs to Other Xcel Energy Operating Companies' Programs

Colorado	Minnesota	New Mexico	
2019	2019	2019	Why Not in New Mexico
Business Program	**Business Program**	**Business Program**	
Compressed Air Efficiency	Fluid Systems Optimization	N/A	SPS currently identifies and evaluates compressed air opportunities through the Custom Efficiency Product. A separate product currently has limited applicability due to the SPS customer mix; however, SPS has included prescriptive compressed air measures in its Motor & Drive Efficiency product.
N/A	Commercial Efficiency	N/A	Limited customer market in New Mexico to make the product cost effective. Large customers can evaluate these types of opportunities through the Custom Efficiency product or through a Study and Implementation program (Large C&I Study).
N/A	N/A	Computer Efficiency	This product will be discontinued after PY2019 due to lack of participation and changing equipment baselines.
Cooling Efficiency	Cooling Efficiency	Cooling Efficiency	N/A
Custom Efficiency	Custom Efficiency	Custom Efficiency	N/A
Data Center Efficiency	Data Center Efficiency	N/A	Limited customer market in New Mexico to make the product cost effective. Customers can evaluate these types of opportunities through the Custom Efficiency product or through existing prescriptive measures.
Energy Management Systems	Efficiency Controls (Energy Management Systems)	N/A	Limited customer market in New Mexico to make the product cost effective. Customers can evaluate these types of opportunities through the Custom Efficiency product or through existing prescriptive measures.
N/A	Foodservice Equipment	N/A	Customers can evaluate these types of opportunities through the Custom Efficiency product or through prescriptive rebates included in the Cooling Efficiency product.
Heating Efficiency	Heating Efficiency	N/A	SPS does not have gas service in New Mexico.
Lighting Efficiency	Lighting Efficiency	Lighting Efficiency	N/A
Small Business Lighting	Lighting Efficiency One-Stop Efficiency Shop	N/A	Included as part of the Lighting Efficiency product.
Motor & Drive Efficiency	Motor & Drive Efficiency	Motor & Drive Efficiency	N/A
Business New Construction (Energy Design Assistance + Energy Efficient Buildings)	Business New Construction (Energy Design Assistance + Energy Efficient Buildings)	N/A	Limited new construction market in New Mexico to make the product cost-effective. Customers can participate in the Custom Efficiency product or through prescriptive rebates.
Process Efficiency	Process Efficiency	N/A	As a measure in the Custom Efficiency product, SPS offers large customers a Study and Implementation product (Large C&I Study) that is based on the Process Efficiency product in other jurisdictions.
Recommissioning	Recommissioning	N/A	SPS offers a Building Tune-up product for buildings up to 75,000 sq. ft.
Self-Directed Custom Efficiency	Self Direct	Large Customer-Self Direct	N/A
N/A	Turn-Key Services	N/A	At this time, SPS does not believe there is sufficient opportunity in New Mexico to make the product cost-effective but will continue to evaluate expanding the product to other jurisdictions.
Small Building Tune-Up	N/A	Building Tune Up	N/A

Southwestern Public Service Company

Comparison of SPS New Mexico EE/LM Programs to Other Xcel Energy Operating Companies' Programs

Colorado	Minnesota	New Mexico	
2019	**2019**	**2019**	**Why Not in New Mexico**
Commercial Refrigeration Efficiency	Commercial Refrigeration Efficiency	N/A	Customers can evaluate these types of opportunities through the Custom Efficiency product or through prescriptive rebates included in the Cooling Efficiency product.
LED Street Lighting	N/A	N/A	Tariff-based offering outside of the EE/LM Plan.
Multifamily Buildings	Multi-Family Building Efficiency	N/A	Can be addressed through Custom Efficiency or Home Energy Services.
Residential Program	**Residential Program**	**Residential Program**	
Residential Energy Feedback	Residential Energy Feedback	Residential Energy Feedback	N/A
Energy Efficient Shower Heads	Energy Efficient Shower Heads	N/A	Primarily a natural gas savings program; however, showerheads are a measure in Home Energy Services for its electric savings.
ENERGY STAR New Homes	Efficient New Home Construction	N/A	Combination gas and electric program. Needs both to be cost-effective.
Evaporative Cooling	N/A	Residential Cooling	Rebates for qualifying evaporative coolers are available in the Residential Cooling Program
Residential Heating	Heating System Rebate	N/A	Primarily a natural gas savings program. ECM rebates will end PY2019 as the measure becomes baseline for new units.
High Efficiency Air Conditioning	Residential Cooling	Residential Cooling	N/A
Home Lighting & Recycling	Home Lighting & Recycling	Home Lighting & Recycling	N/A
Home Energy Squad	Home Energy Squad	Home Energy Services	This program encompasses many of the of the offerings in our other jurisdictions. Offering the program as a bundle of measures is unique to New Mexico.
Home Performance with ENERGY STAR	Whole Home Efficiency	N/A	Combination gas and electric program. Needs both to be cost-effective.
Insulation & Air Sealing	Insulation & Air Sealing	N/A	Primarily a natural gas savings program; however, insulation is a measure in Home Energy Services for its electric savings.
Refrigerator Recycling	Refrigerator Recycling	N/A	SPS has previously offered Refrigerator Recycling in New Mexico, however the program was removed from the portfolio because it is not cost-effective.
School Education Kits	School Education Kits	School Education Kits	N/A
Water Heaters	Water Heaters	Water Heaters	N/A
Low-Income Program	**Low-Income Program**	**Low-Income Program**	
Energy Savings Kit	N/A	Home Energy Services	The measures offered in the Colorado LI Energy Savings Kit program are offered in the New Mexico Home Energy Services program.
Multi-Family Weatherization	Multi-Family Energy Savings Program	N/A	SPS used to offer this program in New Mexico; however, it had extremely low participation and was subsequently removed from the EE/LM plan. Multi-family residences can participate through Home Energy Services.
Non-Profit Energy Efficiency	N/A	N/A	This program is offered in Colorado due to a partnership with an engaged non-profit organization. SPS would consider this offering if a similar partner could be found in its New Mexico territory.
Single-Family Weatherization	Home Energy Savings	Home Energy Services	This program encompasses many of the of the offerings in our other jurisdictions. Offering the program as a bundle of measures is unique to New Mexico.

Southwestern Public Service Company

Comparison of SPS New Mexico EE/LM Programs to Other Xcel Energy Operating Companies' Programs

Colorado	Minnesota	New Mexico	
2019	**2019**	**2019**	**Why Not in New Mexico**
N/A	LI Home Energy Squad	Home Energy Services	N/A
Load Management Program	**Load Management Program**	**Load Management Program**	
Residential Saver's Switch	Residential Saver's Switch	Residential Saver's Switch	This program will be discontinued after PY2019 because it is no longer cost effective.
N/A	Business Saver's Switch	N/A	SPS has previously offered Business Saver's Switch in New Mexico, however the program was removed from the portfolio during settlement in Case No. 16-00110 UT.
Peak Partner Rewards	N/A	N/A	This is a recently developed program that launched in Colorado in 2017 that is not cost effective in NM.
Critical Peak Pricing	N/A	N/A	This is a recently developed program that launched in Colorado in 2017 that is not cost effective in NM.
Interruptible Service Option Credit	Electric Rate Savings	Interruptible Credit Option	This program will end after PY2019 due to SPS being long on capacity.
AC Rewards	AC Rewards	Saver's Stat	This program will end after PY2019 due to SPS being long on capacity. It will be converted into an energy efficient rebate program for thermostats compatible with Xcel Energy's load management programs to support the implementation of a smart thermostat program in the future.
Indirect Products & Services	**Indirect Products & Services**	**Indirect Products & Services**	
Energy Benchmarking	Benchmarking	N/A	SPS has previously filed for an Energy Benchmarking budget, however the indirect product was removed from the portfolio during settlement in Case No. 16-00110-UT.
Business Energy Analysis	N/A	N/A	This audit-based, indirect product is too costly to offer in New Mexico.
Consumer Education - Business	Consumer Education - Business	N/A	Education and outreach are now done more directly through the products.
Consumer Education - Residential	Consumer Education - Residential	Consumer Education - Residential	N/A
Energy Efficiency Financing	N/A	N/A	This program is offered in Colorado due to a partnership with an engaged community of lenders. SPS would consider this offering if a similar partner could be found in its New Mexico territory.
Residential Home Energy Audit	Home Energy Audits	N/A	This audit-based, indirect product is too costly to offer in New Mexico.

Note 1 SPS - Texas: Programs offered in Texas are required to be standard offer programs (SOP) implemented by third parties and are not directly comparable to SPS programs. The SOP programs in Texas bundle many measures into one overall program, (e.g., Residential SOP).

Note 2 NSP - Wisconsin: Programs offered in Wisconsin are implemented by state agencies.

PREPARED BY
Seventhwave

Analysis of Southwestern Public Service Corporation's Energy Efficiency Programs

Portfolio Optimization Study

September 25, 2018

Analysis of Southwestern Public Service Corporation's Energy Efficiency Programs

Portfolio Optimization Study

September 2018

Authors

Steve Kihm, Gary Ambach, Scott Pigg, Tianyao Zhang, Mikhaila Calice, and Ben Heymer

Seventhwave
749 University Row, Suite 320
Madison, WI 53705
608.210.7120
www.seventhwave.org

Steve Kihm
Project Manager

Acknowledgements

Seventhwave staff who contributed to this project include Gary Ambach, Scott Pigg, Tianyao Zhang, Mikhaila Calice, and Ben Heymer.

TABLE OF CONTENTS

OVERVIEW

Xcel Energy asked Seventhwave to review the energy efficiency programs of its subsidiary Southwestern Public Service Corporation (hereinafter "the company"), which operates exclusively in the State of New Mexico under the jurisdiction of the New Mexico Public Regulation Commission. We were asked to recommend actions, including proposing new efficiency measures to be promoted and program improvements for increased penetration of measures currently being promoted.

Our analysis suggests that two new commercial programs—food service and irrigation—provide opportunities to capture cost-effective energy savings. It also suggests that enhanced marketing efforts for residential space cooling programs, which promote high-efficiency air conditioners and air source heat pumps, could deliver additional savings.

We gathered information on incremental costs, annual energy savings, and expected useful equipment life from technical reference manuals and industry information. We used U.S. Census and weather data to adjust the information to the company's service area, where appropriate. We based the per-kWh and per-KW savings estimates on the avoided cost estimates provided by the company. Proposed program enhancements were based in part of phone interviews of space cooling contractors that operate in the company's service area.

The new measures in the commercial program area include energy efficient:

- freezer and refrigerator doors
- ice makers
- electric convection ovens
- variable frequency drives for irrigation systems

The enhanced marketing efforts for residential space cooling technologies include scheduled meetings with contractors and mail-based marketing to customers informing them of incentives for high efficiency equipment. There appears to be debate within the company as to whether rebates for high efficiency equipment are more effective when paid to the customers or the contractors, with some programs paying the former and others the latter. It may be helpful to apply a consistent approach across programs.

The proposed programs additions and enhancements pass the Utility Cost Test (UCT). Table 1 shows the cost-benefit results without (gross) and with (net) adjustments for free riders.

Table 1
Utility Cost Test Results by Program Sector
Without and With Free Rider Adjustment

Program Sector	Annual Energy Savings (kWh)	PV Energy Savings ($)	Annual Capacity Savings (kW)	PV Capacity Savings ($)	Total Program Savings ($)	Total Program Costs ($)	Program Benefit-Cost Ratio
No adjustment for free riders (net-to-gross ratio = 1.00)							
Commercial	622,663	$227,573	123	$142,839	$370,412	$123,840	2.99
Residential	81,150	$25,562	54	$49,047	$74,608	$36,090	2.07
Total	**703,783**	**$253,135**	**177**	**$191,885**	**$445,020**	**$159,930**	**2.78**
Free rider adjusted (net-to-gross ratio = 0.80)							
Commercial	498,106	$182,058	99	$114,271	$296,329	$123,840	2.39
Residential	64,920	$20,449	43	$39,237	$59,686	$36,090	1.65
Total	**563,026**	**$202,508**	**142**	**$153,508**	**$356,016**	**$159,930**	**2.23**

We found that the benefit-cost ratios are robust, even when considering free riders. To reduce the benefit-cost ratio for the overall program to 1.00, the net-to-gross ratio would have to decline to 0.36, well below the estimated net-to-gross ratios for the company's existing programs.[1]

INFORMATION AND DATA SOURCES

We began our analysis by examining the current list of energy efficiency measures that the company offers through its existing programs. We compared the company's offerings to the information contained in the New Mexico Technical Reference Manual (NM TRM), Illinois Technical Reference Manual (IL TRM), Minnesota Technical Reference Manual (MN TRM), and California Technical Reference Manual (CA TRM). These manuals provide energy (kWh) and demand (kW) savings estimates, often along with calculation methodologies, for the energy efficiency measures promoted through programs offered by each state's utilities. These TRMs were selected since they provide a comprehensive set of energy efficiency measures for industrial, commercial and residential sectors. In addition, we looked at program offerings for Public Service Company of New Mexico, Arizona Public Service, El Paso Electric, and Tucson Electric. Our analysis also considered information obtained from discussions with company staff. The company also provided us with background data and information, along with reports including the company's 2016 residential energy use study.

COMMERCIAL MEASURES

Initially, we identified more than 20 measures that were not included in the company's current offerings but were listed in at least one state's TRM. In order to evaluate the overall energy impact of each measure and prioritize the significance from high to low, we acquired U.S. Census data of business establishments and company accounts by primary business activity category in the New Mexico service area. We analyzed this data in conjunction with the energy savings for each individual measure, which were derived based on the TRM calculation methodology. We excluded measures that had a lower impact, i.e. low energy savings potential based on New Mexico's business demographics.

We provided this preliminary list to the company and received initial feedback indicating a primary interest in the food service equipment measures including ENERGY STAR kitchen appliances and heat recovery grease trap filter measures. We then provided more detailed energy savings (both kWh and kW) based on equipment size and type for each measure, and included incremental cost information and incentives available from IL's utility program Commonwealth Edison Company (ComEd) as references. We derived the energy savings estimates from the IL TRM, which we consider to be a reliable source for New Mexico savings potential because food service equipment use is not highly sensitive to weather differences between the states.

During our analysis of the company's customer base, we noted several customers with SIC codes indicating they may have irrigation systems. Further research revealed that Xcel NM has an irrigation rate, with approximately 350 premises on this rate. We also found in our review of neighboring utilities that they included irrigation programs. As a result, irrigation was included in Seventhwave's gap analysis for further review.

In developing our proposal in this area we relied on our professional experience with irrigation systems[2] and we reviewed irrigation system programs in California, Idaho, and Nebraska. This information

[1] Cite to 2016 annual report.
[2] Gary Ambach managed a utility energy efficiency program for irrigation in California.

provided typical system performance, program designs, measures, and technical data. We reached out to the University of New Mexico-agricultural department for information specific to the company's service territory. When matched to the program and measure data from the program research, we identified likely program targets and measures for an irrigation program.

The company's irrigation customer list indicated several pecan farms. University of New Mexico staff indicated these were row water systems with little or no opportunity for pump improvements. University of New Mexico staff also informed us that the majority of the remaining systems were pivot systems. We also learned that the typical well depth was 400 to 600 feet and pump sizes averaged 75 HP. We then sorted the irrigation customer list by annual energy consumption and SIC code to further define the target market for an irrigation system efficiency program. This indicated an initial potential target market of approximately 80 premises out of the 225 premises.

Merging the program research, University of New Mexico insight, and our analysis resulted in the program design recommended. Pump upgrades cost up to $300 per pump HP. We did not recommend these measures for the final program design due to economics and the limited information about customer technical data. There are many other measures that can be included in an irrigation program, but until we know the exact nature and condition of the systems employed by customers, we have not included specific technology recommendations at this point. One technology that is likely to produce savings is variable frequency drives. Offering those measures will provide a high degree of savings, which should create customer interest. Contact with the customers will allow the company to assess the viability for a more comprehensive program including pump upgrades.

RESIDENTIAL MEASURES

We developed the initial list of measures and program gaps for the residential sector based on a combination of potential new measures, underserved markets and alternative program approaches that could increase uptake of existing program offerings. The initial list of 11 items included six new measures, six alternative program approaches and one underserved market (two recommendations involved combinations of the above attributes). Each item was accompanied by a short rationale that provided rough estimates of potential and per-unit energy impacts where these could be readily assessed. The list also described additional information that would be required to analyze the item more thoroughly.

Feedback from company staff focused us on one item in the residential sector: stocking practices related to residential and small-commercial HVAC equipment. Initial discussions raised the possibility that contractors stocked less efficient equipment. The concern was that customers who wanted higher efficiency equipment might then have to wait a day or so for the equipment to arrive—or they could purchase the less efficient equipment immediately. This inconvenience of having to wait might deter customers who would have purchased the high efficiency equipment had there not been this delay.

We explored this possibility more thoroughly through interviews with local HVAC contractors. Our analysis suggests there is no difference between delivery of higher or lower efficiency equipment as contractors generally do not maintain an inventory of equipment of any kind onsite. (See later section for further discussion.)

ANALYSIS OF U.S. CENSUS DATA

We conducted a background analysis of the company's service territory using publicly available Census data. In particular, we made use of:

- American Community Survey data
- Census estimates of housing units by place
- Census ZIP Code Business Patterns data

American Community Survey

The Census American Community Survey (ACS) is an annual survey of U.S. households. We used recent 5-year ACS Public Use Microdata Sample data (2012-2016) key residential housing and demographic characteristics, such as housing-type and heating fuel proportions, income levels and other demographic characteristics of households in SE New Mexico. The analysis focused on the three Public Use Microdata Areas that best encompass the company's service area: 400, 1100 and 1200 (Figure 1). Table 2 provides three key housing indicators from the ACS data.

Figure 1. Census Public Use Microdata Areas in New Mexico.

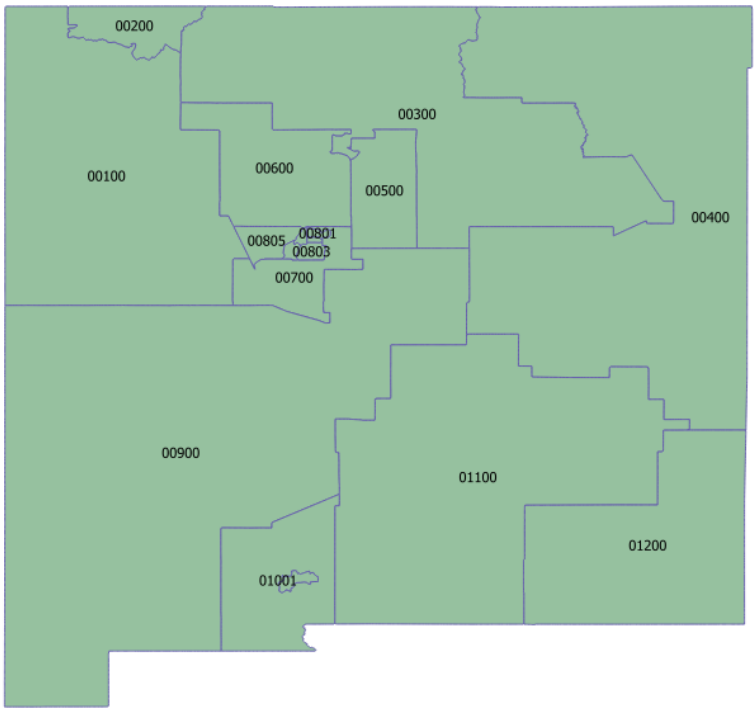


Table 2
Selected housing characteristics in company's service area, by Public Use Microdata Area.

		PUMA			
		400	*1100*	*1200*	*Combined*
Type of home	Manufactured home	15.8%	21.2%	17.4%	18.6%
	Single-family, detached	67.1%	66.7%	69.5%	67.6%
	Single-family, attached	3.0%	3.1%	1.3%	2.6%
	Duplex	3.5%	1.3%	1.8%	2.1%
	Apartment in 3-4 unit bldg	3.9%	2.7%	2.0%	2.9%
	Apartment in 5-9 unit bldg	3.1%	1.9%	1.9%	2.3%
	Apartment in 10-19 unit bldg	1.8%	1.2%	1.0%	1.3%
	Apartment in 20-49 unit bldg	1.1%	0.5%	1.8%	1.0%
	Apartment in 50+ unit bldg	0.2%	1.2%	2.8%	1.4%
	Other	0.4%	0.2%	0.6%	0.4%
	Total	100.0%	100.0%	100.0%	100.0%
Year built (single-family homes)	<1940	12.1%	6.1%	7.0%	8.1%
	1940s	9.9%	6.3%	10.0%	8.4%
	1950s	17.3%	18.1%	27.0%	20.4%
	1960s	16.8%	14.5%	17.4%	16.0%
	1970s	15.3%	15.3%	14.6%	15.1%
	1980s	8.9%	15.4%	11.0%	12.3%
	1990s	10.7%	9.4%	4.8%	8.5%
	2000s	6.8%	12.8%	5.2%	8.9%
	2010s	2.2%	2.1%	3.0%	2.4%
	Total	100.0%	100.0%	100.0%	100.0%
Heating fuel (single-family homes)	Natural gas	46.3%	58.1%	52.7%	53.1%
	Propane	9.0%	7.9%	3.6%	6.8%
	Electricity	37.6%	26.9%	42.2%	34.8%
	Fuel oil	0.6%	0.1%	0.1%	0.2%
	Wood	5.0%	6.3%	0.8%	4.2%
	Solar	0.1%	0.5%	0.2%	0.3%
	Other	1.0%	0.2%	0.4%	0.5%
	None	0.4%	0.1%	0.0%	0.2%
	Total	100.0%	100.0%	100.0%	100.0%

Source: U.S. Census American Community Survey Public Use Microdata Sample (2012-2016).

Census Estimates of Housing Type by Place

The Census Bureau also makes available housing unit counts by county and city or town. We obtained housing unit counts by type of housing for six counties and 15 cities and towns in the company's service territory. Table shows the proportion of housing units by place.

Figure 2
Key counties, cities and towns in the company's service area

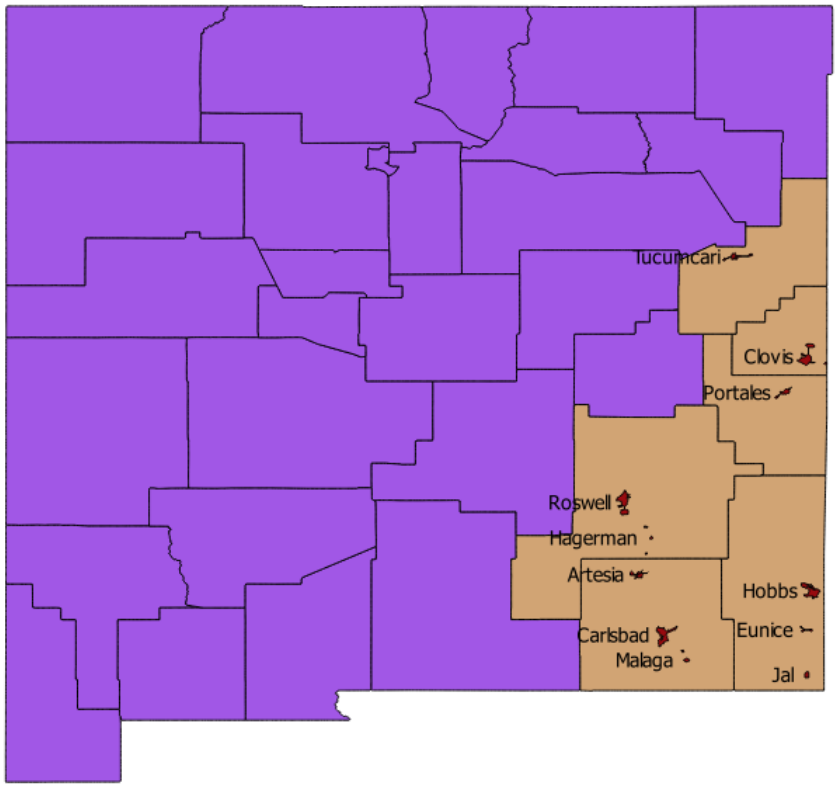


Table 3
Housing units, by place in
Company's service area

Place	Percent of housing units	Cumulative %
Roswell city	25.6%	25.6%
Clovis city	20.9%	46.4%
Hobbs city	17.1%	63.5%
Carlsbad city	14.7%	78.2%
Artesia city	6.6%	84.8%
Portales city	6.3%	91.1%
Tucumcari city	3.5%	94.6%
Eunice city	1.5%	96.2%
Jal city	1.2%	97.4%
Loving village	0.8%	98.1%
Dexter town	0.6%	98.7%
Texico city	0.6%	99.3%
Hagerman town	0.5%	99.8%
Lake Arthur town	0.2%	100.0%
Malaga CDP	0.0%	100.0%

Source: U.S. Census American Factfinder

ZIP Code Business Patterns

Based on payroll tax reporting, the U.S. Census Bureau provides information about types and sizes of businesses at the ZIP code level. Using data provided by Xcel on New-Mexico customer ZIP codes (Figure 3), we analyzed the ZBP data for business types in Xcel's New Mexico service area (Table 4).

Figure 3
ZIP codes in the company's service area

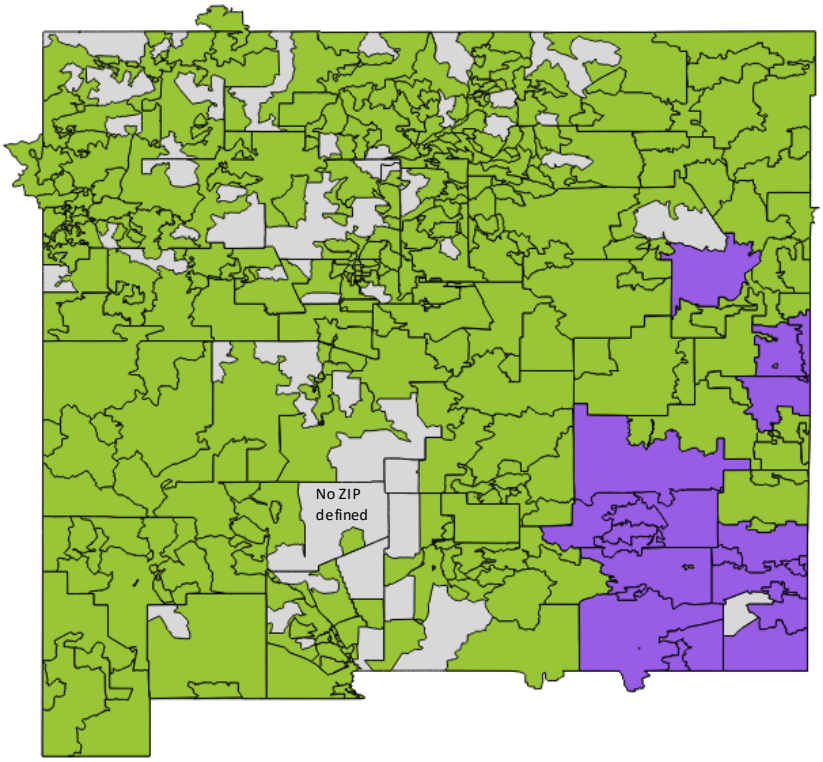


Table 4
Business types in the company's service area

Business type	Establishments
Office	1,416
Retail	641
Food service	406
Grocery & convenience	200
Education	99
Wholesale	264
Health-care offices	324
Religious	199
Auto repair	135
Personal care	36
Other Commercial	1,584
Non-Commercial (Ag, Mfr, etc.)	652
Total	5,956

Source: Census ZIP Code Business Patterns 2016.

INTERVIEWS WITH CONTRACTORS

To better understand the value of current energy efficiency measures that the company offers, we reached out to 45 heating, ventilation, and air conditioning (HVAC) contractors listed as company trade partners in the New Mexico communities of Artesia, Carlsbad, Eunice, Tucumcari, Clovis, Hobbs, Portales, and Roswell. We asked contractors to participate in over-the-phone interviews regarding their industry perspective on energy efficient equipment and Xcel rebate programs. Our goal of these interviews was to understand how contractors use current programs, to determine the contractors' views on the value and popularity of energy efficient equipment, and to solicit their opinions regarding the company's energy efficiency programs more generally.

Of the 45 contractors contacted, seven agreed to participate in the interview. The interview script focused the contractors' attention on three areas: (1) their participation in rebate programs; (2) the particular high efficiency HVAC technologies that generated the most interest; and (3) the contractor's supply chain.

Our main initial purpose for contacting the customers—to study their stocking practices with respect to energy efficient equipment—revealed an unexpected result. Contractors were confident in their ability to acquire any equipment, efficient or not, requested by their customers in a timely manner. They typically do not store any equipment on site, so high efficiency versions do not have the differential delivery lag we had expected. We did, however, gather additional helpful information during the interviews.

Those contractors that reported consistent contact with the company's New Mexico contact (Mr. Denzil Dunn) expressed confidence in the knowledge they had about available rebate programs and expressed comfort in their ability to communicate such program details to customers. However, those without consistent contact with Mr. Dunn did not feel knowledgeable of available rebate programs. It is important to note that we did not ask specifically about Mr. Dunn in the interviews. All comments about his value were offered spontaneously by the contractors.

We found that overall contractors see an interest by their customers in installing energy efficient equipment and the contractors believe that rebate programs would be useful to encourage customers to install such equipment. Nevertheless, many contractors indicated that most customers were unaware of the company's programs available.

The contractors consistently mentioned concerns about rebates for swamp coolers, which are ineffective in New Mexico's increasingly humid climate. In addition, contractors expressed great frustration with the demand side energy control box as a part of the "Saver's Switch" program. Contractors explained that residents enrolled in this program would call them complaining that their AC was broken during peak hours in summer months, not realizing that their equipment was fine, but that the company was controlling it. Several contractors mentioned that the customers enrolled in this program did not seem fully aware of what participation entailed.

The contractors also noted that service calls from company customers were answered by representatives in Minnesota. Those representatives generally were not aware of the details on the New Mexico programs.

The completed interview forms can be found in Appendix A. The contractors' names have been removed to maintain anonymity.

BENEFIT-COST ANALYSIS

The next step in the process involved selecting the individual measures that are most likely to be cost effective for the company. We used the incremental costs, energy and capacity savings estimates, and estimated useful lives for the measures derived in the preceding analysis, along with avoided energy and capacity costs provided by the company (see Appendix B), to calculate benefit-cost ratios using the Utility Cost Test. This test includes only costs and benefits that the company incurs. It does not include any costs or benefits incurred by the customer that may be in addition to those the company experiences.

Table 5 provides the key input assumptions for the measure-by-measure analysis.

Table 5
Inputs to Benefit-Cost Analysis

Program	Measure	Energy Savings (kWh)	Demand Savings (KW)	Incremental Cost	Incentive Level	Measure Life (Years)
Commercial Food Service	ES Solid Door Freezer less than 30 CF	1,065	0.114	$ 166	$ 50	12
	ES Solid Door Freezer 30 CF and larger	3,494	0.374	$ 407	$ 100	12
	ES Glass Door Freezer less than 30 CF	2,517	0.269	$ 166	$ 50	12
	ES Glass Door Freezer 30 CF and larger	6,794	0.726	$ 407	$ 100	12
	ES Solid Door Refrigerator	642	0.069	$ 180	$ 45	12
	ES Glass Door Refrigerator	988	0.106	$ 180	$ 45	12
	ES Ice Maker 100-500 lbs/day	456	0.086	$ 537	$ 100	10
	ES Ice maker 500-1500 lbs/day	1,076	0.202	$ 1,653	$ 150	10
	ES Ice maker >1500 lbs/day	1,911	0.358	$ 2,194	$ 200	10
	ES Electric Convection Oven	2,200	0.400	$ 800	$ 170	12
Irrigation Program	VFDs per HP	483	0.111	$ 150	$ 75	15
Res Space Cooling	HE Heat Pumps	410	0.150	$ 510	$ 79	18
	HE Heat Pumps quality install	936	0.632	$ 250	$ -	9
	HE Central Air Conditioning	735	0.366	$ 1,474	$ 124	15
	HE Central Air Conditioning quality install	624	0.650	$ 250	$ -	8

Key: ES = Energy Star, CF = cubic feet, VFD = variable frequency drive, HP = horse power, HE = high efficiency

Table 6 uses this information along with the company's avoided costs to calculate benefit-cost ratios based on gross savings estimates. Table 7 adjusts the estimates for potential free riders, assuming a net-to-gross ratio of 0.80.

Table 6
Utility Cost Test Results by Program Sector
Gross Savings (no free riders)

Measure	PV Energy Savings ($)	PV Capacity Savings ($)	PV Total Savings ($)	Total Costs ($)	Benefit-Cost Ratio
ES Solid Door Freezer less than 30 CF	$ 7,080	$ 2,321	$ 9,401	$ 4,967	1.89
ES Solid Door Freezer 30 CF and larger	$ 11,613	$ 3,807	$ 15,420	$ 7,507	2.05
ES Glass Door Freezer less than 30 CF	$ 12,549	$ 4,107	$ 16,656	$ 7,781	2.14
ES Glass Door Freezer 30 CF and larger	$ 11,291	$ 3,695	$ 14,986	$ 6,826	2.20
ES Solid Door Refrigerator	$ 3,201	$ 1,054	$ 4,254	$ 2,468	1.72
ES Glass Door Refrigerator	$ 2,299	$ 755	$ 3,054	$ 1,603	1.91
ES Ice Maker 100-500 lbs/day	$ 1,980	$ 1,142	$ 3,122	$ 2,774	1.13
ES Ice Maker 500-1500 lbs/day	$ 3,115	$ 1,788	$ 4,903	$ 3,504	1.40
ES Ice Maker >1500 lbs/day	$ 1,107	$ 634	$ 1,740	$ 1,112	1.57
ES Electric Convection Oven	$ 7,312	$ 4,072	$ 11,384	$ 5,797	1.96
VFDs per HP (irrigation)	$ 166,026	$ 119,464	$ 285,491	$ 79,500	3.59
Total commercial measures	**$ 227,573**	**$ 142,839**	**$ 370,412**	**$ 123,840**	**2.99**
HE Heat Pumps	$ 5,276	$ 6,078	$ 11,354	$ 6,917	1.64
HE Heat Pumps quality install	$ 7,425	$ 15,427	$ 22,852	$ 10,381	2.20
HE Central Air Conditioning	$ 8,422	$ 13,130	$ 21,552	$ 11,872	1.82
HE Central Air Conditioning quality install	$ 4,439	$ 14,411	$ 18,850	$ 6,921	2.72
Total residential measures	**$ 25,562**	**$ 49,047**	**$ 74,608**	**$ 36,090**	**2.07**
All Measures	**$ 253,136**	**$ 191,885**	**$ 445,020**	**$ 159,930**	**2.78**

Table 7
Utility Cost Test Results by Program Sector
Net Savings (net-to-gross ratio = 0.80)

Measure	PV Energy Savings ($)	PV Capacity Savings ($)	PV Total Savings ($)	Total Costs ($)	Benefit-Cost Ratio
ES Solid Door Freezer less than 30 CF	$ 5,664	$ 1,857	$ 7,520	$ 4,967	1.51
ES Solid Door Freezer 30 CF and larger	$ 9,291	$ 3,046	$ 12,336	$ 7,507	1.64
ES Glass Door Freezer less than 30 CF	$ 10,039	$ 3,286	$ 13,325	$ 7,781	1.71
ES Glass Door Freezer 30 CF and larger	$ 9,033	$ 2,956	$ 11,989	$ 6,826	1.76
ES Solid Door Refrigerator	$ 2,561	$ 843	$ 3,404	$ 2,468	1.38
ES Glass Door Refrigerator	$ 1,839	$ 604	$ 2,443	$ 1,603	1.52
ES Ice Maker 100-500 lbs/day	$ 1,584	$ 913	$ 2,498	$ 2,774	0.90
ES Ice Maker 500-1500 lbs/day	$ 2,492	$ 1,430	$ 3,922	$ 3,504	1.12
ES Ice Maker >1500 lbs/day	$ 885	$ 507	$ 1,392	$ 1,112	1.25
ES Electric Convection Oven	$ 5,850	$ 3,257	$ 9,107	$ 5,797	1.57
VFDs per HP (irrigation)	$ 132,821	$ 95,572	$ 228,392	$ 79,500	2.87
Total commercial measures	**$ 182,058**	**$ 114,271**	**$ 296,329**	**$ 123,840**	**2.39**
HE Heat Pumps	$ 4,221	$ 4,863	$ 9,083	$ 6,917	1.31
HE Heat Pumps quality install	$ 5,940	$ 12,342	$ 18,282	$ 10,381	1.76
HE Central Air Conditioning	$ 6,737	$ 10,504	$ 17,242	$ 11,872	1.45
HE Central Air Conditioning quality install	$ 3,551	$ 11,529	$ 15,080	$ 6,921	2.18
Total residential measures	$ 20,449	$ 39,237	$ 59,686	**$ 36,090**	**1.65**
All Measures	$ 202,508	$ 153,508	$ 356,016	**$ 159,930**	**2.23**

We see that moving from gross to net estimates does not alter the general conclusion regarding the cost-effectiveness of the measures. The only exception in the small Energy Star ice maker, which has a benefit-cost ratio of 1.13 under the gross savings analysis and 0.90 under the net savings analysis.

PROGRAM INFORMATION

The following are some details regarding the programs that would promote the measures just discussed.

FOOD SERVICE

This program would provide rebate incentives to non-residential customers that install qualifying equipment. To qualify, the equipment must be installed by a qualified, participating contractor.

Commercial solid and glass door refrigerators and freezers

This measure relates to the installation of a new reach-in commercial refrigerator or freezer meeting ENERGY STAR efficiency standards. ENERGY STAR labeled commercial refrigerators and freezers are more energy efficient because they are designed with components such as ECM evaporator and condenser fan motors, hot gas anti-sweat heaters, or high-efficiency compressors, which will significantly reduce energy consumption.

The efficient equipment must be a new vertical solid or glass door refrigerator or freezer or vertical chest freezer meeting the minimum ENERGY STAR efficiency level standards. The baseline equipment is assumed to be an existing solid or glass door refrigerator or freezer meeting the minimum federal manufacturing standards as specified by the Energy Policy Act of 2005.

ENERGY STAR Ice Maker

This measure relates to the installation of a new ENERGY STAR qualified commercial ice machine. The ENERGY STAR label applied to air-cooled, cube-type machines including ice-making head, self-contained, and remote-condensing units. This measure excludes flake and nugget type ice machines. This measure could relate to the replacing of an existing unit at the end of its useful life, or the installation of a new system in a new or existing building. The efficient equipment must be a new commercial ice machine meeting the minimum ENERGY STAR efficiency level standards. The baseline equipment is assumed to be a commercial ice machine meeting federal equipment standards established January 1, 2010.

ENERGY STAR Electric Convection Oven

Commercial convection ovens that are ENERGY STAR certified have higher heavy load cooking efficiencies, and lower idle energy rates, making them on average about 20 percent more efficient than standard models. Energy savings estimates are for ovens using full size (18” x 36”) sheet pans. The efficient equipment must be an ENERGY STAR qualified electric convection oven. The baseline equipment is assumed to be a standard convection oven with a heavy load efficiency of 65%.

Energy savings and incentives

The company already provides incentives for many measures that can be included in a food service program. Following are examples of these measures.

- RTU Economizer & Demand Control Ventilation
- ECM - Medium Temp Display Case
- ECM - Low Temp Display Case
- ECM - Medium Temp Walk-in, Evap fan <= 15" Diameter
- ECM- Low Temp Walk-in, Evap fan <= 15" Diameter
- Anti-Sweat Heater Controls
- No Heat Case Doors
- Medium-temp Enclosed Reach-In Case (per linear foot)
- Commercial Dishwasher - Under Counter, Electric Only
- Commercial Dishwasher - Door Type, Electric Only
- Hot Food Holding Cabinet
- Demand Controlled Ventilation

These measures have not been included in this program description and should be included in program marketing and outreach efforts.

Program budget

This is the first year budget, not including program design and launch costs.

Delivery	$26,400
Administration	$ 3,600
Marketing and outreach	$ 5,000
Incentives	$ 9,340
Total	$44,340

Launch

There are two target markets for this program-large end users such as hospitals and schools and smaller customers such as restaurants and small grocery. Restaurants and small grocery require the enrollment food service contractors to be successful. The ES refrigerator and freezer measures will be most applicable for new construction or renovations. The food service contractors will be critical to move customers to the more efficient equipment. However, the program should provide more comprehensive marketing to customers for potential replacement of old, efficient refrigerators and freezers and also to promote the other measures for this program to include measures already provided by the company.

Hospitals and schools will have larger and more progressive needs. Therefore, outreach to these customers requires both email/direct mail as well as a visit by a company representative to provide program information and promote energy efficient options to include non-energy benefits.

Marketing and outreach

This is primarily a contractor delivered program with a push-pull strategy. Since the target population is large but diverse, outreach to customers' needs to direct customers to participating contractors. Messaging must stress the benefits of energy efficiency and the non-energy benefits that impact the customer's operating cost and their customer's perception.

RESTAURANTS AND SMALL GROCERY

Make initial contact with food service suppliers to gather information to gain their support for the program and enroll them as participating contractors. These initial contacts should gather information to enable more targeted messaging for customer promotion. It is likely these suppliers will not be local, probably located in Lubbock, El Paso, and Amarillo.

Follow-up contacts with participating contractors to determine participation and gain intelligence concerning customer interest and identify any barriers to participation.

Customer direct mail and e-mail blast three times annually with targeted messaging and potentially annual promotion with increased incentives and deadline availability to spur participation. Providing special promotions at critical times of the year may be effective to motivate customers. For example, promoting ES ice makers in late spring before the heat of the summer with messages targeting old ice makers likely to fail during the hottest weather.

SCHOOLS AND HOSPITALS

These customers require an initial visit to explain the program and highlight the advantages of energy efficiency as well as the non-energy benefits. They should also receive marketing materials quarterly

highlighting measures and benefits beyond energy savings. Special promotions have also been effective with this customer type.

Food service suppliers will also play a key role in promoting energy efficient equipment. Therefore, continued interaction with these suppliers will be important. It is possible these suppliers will be participating in programs for other utilities making orientation easier.

IRRIGATION PROGRAM

This program would provide rebate incentives to customers on the Irrigation Rate that install qualifying VFDs on their pivot irrigation systems. The incentive is $75 per pump motor HP. To qualify, the pump HP must be 50 HP or greater on an existing irrigation system. VFD must be installed by qualified, participating contractors.

Qualifying measures are restricted to VFD installations on pivot irrigation systems. The baseline equipment is an irrigation system without a VFD or similar controls including a throttled well pump. Note that pump upgrades have not been included in this initial program as it was not possible to determine the current state of pump performance. Pump upgrades would require a pump test to determine whether an upgrade can achieve enough savings to be cost effective for the customer and the program. Additionally, pump upgrades are expensive and may not be cost effective as the current irrigation is low. Similarly, other measures such as improved sprinkler heads have not been included due to the lack of specific information on the current state of system performance. Contacts with contractors and customers should include gathering information concerning current irrigation system performance and conditions to determine whether adding measures to the program with benefit participation and remain cost effective.

Program budget

This is the first year budget, not including program design and launch costs.

Delivery	$ 7,200
Administration	$ 2,400
Marketing and outreach	$ 2,400
Incentives	$65,500
Total	$79,500

Launch

This limited pilot program envisions ten to twelve participants that install VFDs on existing pivot irrigation systems. This will require enrollment of two to four irrigation contractors. The goals of this limited pilot are to determine the existing condition of pivot irrigation systems and whether there are other irrigation system types employed customers. This will enable further development of an irrigation system program that may include other types of irrigation and the inclusion of more measures such as pump upgrades.

Marketing and outreach

This is primarily a contractor delivered program with a push-pull strategy. Since the target population is small, outreach to customers is very focused with targeted messaging and may be repeated during the year. The steps include the following actions.

Make initial contact with local, irrigation system contractors to gather information to gain their support for the program and enroll them as participating contractors. These initial contacts should gather information to enable more targeted messaging for customer promotion.

Make follow-up contacts with participating contractors to determine participation and gain intelligence concerning customer interest and identify any barriers to participation.

Use customer direct mail and email blast three times annually with targeted messaging and potentially annual promotion with increased incentives and deadline availability to spur participation.

STOCKING PROGRAM

Our research indicates there is not a stocking issue for high efficient central air conditioning and air source heat pumps. Therefore, the recommendation for this program is increased marketing and outreach to drive participation. We are not recommending changes to the program description or the measures. We are recommending an added marketing and outreach campaign designed to increase participation. The following pertains only to the additional marketing and outreach to achieve the added participation indicated in this report.

Program budget

This is the first year budget, not including program design and launch costs.

Delivery	$20,400
Administration	$ 4,800
Marketing and outreach	$ 4,800
Incentives	$ 6,090
Total	$36,090

Launch

This is primarily a contractor delivered program as the majority of equipment replacement occur on burn out during the summer and are emergency replacements. The contractors are ideally positioned to move customers to more efficient equipment. However, there is an opportunity to raise the awareness of the program and energy efficient products with customers and increase participation. This push-pull marketing addresses the market from both the customer and contractor perspective.

In our discussions with company personnel there appears to be a need to coordinate the interaction of Home Energy Services and Residential Cooling programs. Our proposed campaign treats them as one. Thus, there may be some resolution required before launch.

Marketing and outreach

This program is primarily a contractor delivered program. The campaign expands on the contractor outreach and engages customers to raise awareness of the program and benefits of participation. The following steps are involved.

Contact customers with direct mail and bill stuffers four times annually with targeted messaging and potentially annual promotion with increased incentives with a deadline availability to spur participation.

Provide special promotions at critical times of the year. this may be effective to motivate customers. For example, promoting energy efficient products in late spring before the heat of the summer with messages targeting old air conditioning and potential to be without air conditioning until replaced may motivate some customer to replace before burn-out. A powerful coordination point will be with contractors as they promote AC tune-ups as they can promote the program during their outreach.

Engage contractors initially to inform them of efforts to increase participation and solicit their input. Contractor incentives should continue, and efforts need to be made to simplify their rebate submittals.

Coordinate with contractors will be vital to ensure they know when promotions and marketing will occur to enable them to reinforce messaging. Marketing assistance for contractors is also recommended.

Follow-up on contacts with participating contractors to determine participation and gain intelligence concerning customer interest and identify any barriers to participation.

APPENDIX A: COMPLETED CONTRACTOR INTERVIEW FORMS

*Note: These are not direct quotes. They are notes transcribed from the phone call. Do not quote directly as contractor.

PHONE INTERVIEW QUESTIONS

A1. How long has this business been in the HVAC business? (approximate OK) 11 years

A2. How long have you worked in the HVAC business? (approximate OK) __11__ years

A3. Approximately what percentage of your business is residential versus commercial or industrial customers?

Residential__75%
Commercial____25% (includes industrial)
Industrial_____
Other: _____

Questions:

Participation in Rebate programs

- Do your residential and commercial customers utilize any of the current rebate programs offered by Xcel? Which ones? (if not Xcel, which utility and what programs)
  Don't know of any at the moment. In the past I believe we have – we did utilize one years ago. She does not look for programs, she said the owner might.
  - About what % of Residential customers utilize them?
  - About what % of Commercial customers utilize them?
- What has your experience been like when working with rebate programs? All we had to do was give the customer the paperwork and then we were hands off. So it was very easy on our part.
- How aware of the rebate programs do you think your customers are? {are customers aware of rebate programs?} Not that I'm aware of. I don't think anyone knows about them.
  - Residential:
  - Commercial:
- What sort of rebates are the most popular among your customer base?
  - Residential:
  - Commercial:
- What obstacles does your business face in selling or managing customers seeking out rebates? We don't really look into them.
- Do the rebate programs help you sell your product? Rebates don't really do much for us, aside from us selling them the product, but
- What sort of rebate programs do you think would be valuable for Xcel Energy to implement? Any rebate is great. We are in the process of building a new building and are utilizing a commercial lighting rebate through central valley electric. Any rebate that might be available to our customers is useful. We are always trying to help them. In the past, there has never been a rebate that comes to us and we turn around and give them the money, they are all programs in which we provide them the paperwork to get the rebate benefits. One issue we have seen are the Xcel boxes that turn off unites [to regulate demand side use]. These are very unpopular and gives us lots of business because customers call us saying their AC isn't working and we have to tell them that it's because Xcel turned off the power to it and there is nothing we can do about that. When it's 106 degrees at noon and everyone is turning on the AC, it's not effective for the customer to have their AC turned off because then it gets hotter in their space and they have to turn it down farther for longer, likely spending more money to do so, so they aren't really saving

anything. [Misty mentioned that this hasn't happened for a while, but has repeatedly in the past]

High Efficiency HVAC Technologies of interest

1. A/C units
2. Air-Source Heat Pumps (ASHPs)
3. Ductless mini splits (esp. as offset for electric heat)
4. Evaporative coolers (interested in whether or not they sell whole-house units)
5. Rooftop units (RTUs)

   Majority of our customers ask about the energy efficiency of units, and we try to give our customers options "good, better, best" options based on energy efficiencies.

- Does your company install many of these? – We do not sell evaporative coolers. We don't install many mini splits. They are becoming more popular, but only have done probably 2 in the last year. The others are a job to job thing, but we do regularly install all of these other [technologies of interest].

- Is there an opportunity for Xcel to provide rebates to encourage people to install high-efficiency units? Any rebates that save money and energy for customers.

- Are energy efficient HVAC products in general in high demand? Which ones? Residential vs. commercial? Majority of our customers ask about the energy efficiency of units, and we try to give our customers options "good, better, best" options based on energy efficiencies. Usually people go with the middle option, the "better" option, which is not the most energy efficient. Some people really care and choose best. Idk about the commercial side.

*Note: These are not direct quotes. They are notes transcribed from the phone call. Do not quote directly as contractor.

PHONE INTERVIEW QUESTIONS

A1. How long has this company been in the HVAC business? (approximate OK) 20 years

A2. How long have you worked in the HVAC business? (approximate OK) 47 years

A3. Approximately what percentage of your business is residential versus commercial or industrial customers? Do both, mainly residential, but also light commercial.

Residential_____ 65%
Commercial_____ 35%
Industrial_____
Other: _____

Questions:

- What services do you provide?
    - Plumbing, heating, cooling, refrigeration, sheet metal work & duct work.

Participation in Rebate programs

- Do your residential and commercial customers utilize any of the current rebate programs offered by Xcel? Which ones? (if not Xcel, which utility and what programs). I tell them they can do what they want. "I don't have time to deal with Xcel." Let's the customers deal with it themselves. I used to be a carrier dealer and they had all the rebates and it was more paperwork than I wanted to deal with. I don't make any money doing them.
    - About what % of Residential customers utilize them?
    - About what % of Commercial customers utilize them?

- What has your experience been like when working with rebate programs? "I think the whole thing is bullshit, honestly. When I got into this business, the electrical grid in Roswell was not running at full capacity" – believes that the electrical companies first had rebate programs to sell as much electricity as possible. "They made a lot of damn money. And now they offer rebates to go to he swamp cooler. So idk if I'm the only one that caught on to the lie in the last 25 years." "Anybody that's got refrigerated air isn't going to stop using it."

- How aware of the rebate programs do you think your customers are?
  They hear about them from P&M commercials and they will come to your house and do an evaluation on them. The electric company has this great energy saving device that they will install for free. And then during peak usage hours in July he gets calls because the equipment isn't working and this is very frustrating for him and his customers.

- What sort of rebates are the most popular among your customer base?
  I don't really know. Back in the day, the $2500 -$3000 rebates to go towards refrigerated air, people loved to. When I was a dealer for Carrier, I would go to all the energy efficient classes and it was a lie, the rebate Carrier was offering was not a real deal. You just add the cost of their rebate into their bill. You make them think they are getting a deal and they weren't this is called "sales dynamics" and overall that is a marketing tool.
    - Residential:
    - Commercial:

- What obstacles does your business face in selling or managing customers seeking out rebates?
  If customers want to know about them, I tell them what I know and that they need to do it themselves.
- Do the rebate programs help you sell your product?
  No.
- What sort of rebate programs do you think would be valuable for Xcel NM to implement?
  I don't really know that stuff, I'm more of a worker.

<u>High Efficiency HVAC Technologies of interest</u>

6. A/C units
7. ASHPs (air sourced heat pumps)
8. Ductless minisplits (esp. as offset for electric heat)
9. Evaporative coolers (interested in whether or not they sell whole-house units)
10. Rooftop units (RTUs)

- Does your company install many of these?
  Yes. I remove swamp coolers and install refrigerated air units, I don't install swamp coolers anymore.
- Does your company have any commercial AC or air sourced heat pumps in stock at your facility?
  I try to train my customers to not last minute me. I don't keep things on site, I order for my customers based on what they need.

- How many air source heat pumps and central air conditioners sold per year? About what % of them are energy efficient units? Back when I worked for Carrier, it was up there. I was turning close to $1 million a year in 2010 and this year I've done 45 systems this year. Everything I set this year meets federal guidelines for efficiency, it's all baseline equipment. And I recommend baseline equipment to all of my customers. That he stuff has more things that can go wrong. For instance, a baseline electric furnace I can get it fixed faster and cheaper than he equipment because my distributor won't have that fan motor in stock and even if they did, they are expensive. The motors are fine, it's the little computers inside those he units that go bad and then you have to buy a whole new motor. You already pay more for the equipment, and then the repairs are more.

- Is there an opportunity for Xcel to provide rebates to encourage people to install high-efficiency units?

- Are energy efficient HVAC products in general in high demand? Which ones?
  Oh yeah, the government is making them go up in SEER every year, so the engineers are struggling to keep up with the mandatory efficiency standards. If you have a 3-4 year old unit that is 13 SEER equipment and something goes wrong, you have to change everything. So you have more guys than not putting 16 SEER equipment/parts on 13 SEER units

  Residential vs. commercial?

*I buy Thermal Zone, it's the cheapest shit out there and it's manufactured by the Ruud company.

Any additional comments or anything you'd like to pass along?
I would say there needs to be quality control on equipment, make equipment last longer. "Don't be fucking greedy today like they did 20 years ago" – by maxing out grid 25 years ago, don't make the same mistake twice. You guys created this problem. Your CEO doesn't need to take home $10 million a year.

*Note: These are not direct quotes. They are notes transcribed from the phone call. Do not quote directly as contractor.

PHONE INTERVIEW QUESTIONS

A1. How long has this company been in the HVAC business? (approximate OK) 20+ years

A2. How long have you worked in the HVAC business? (approximate OK) 22 years

A3. Approximately what percentage of your business is residential versus commercial or industrial customers?

Residential_____ 60%
Commercial_____ 40%
Industrial_____ ^
Other: _____

Questions:

Participation in Rebate programs

- Do your residential and commercial customers utilize any of the current rebate programs offered by Xcel? Which ones? (if not Xcel, which utility and what programs)
  Some have been used in the past, don't really know which ones. Only residential customers, no commercial customers. Mostly used for Lighting, not HVAC.
  - About what % of Residential customers utilize them?
  - About what % of Commercial customers utilize them?

- What has your experience been like when working with rebate programs?
  "It's a pain" – it takes time that I don't have.
- How aware of the rebate programs do you think your customers are?
  Slim to none. Definitely not for commercial customers.
  - Residential:
  - Commercial:

- What sort of rebates are the most popular among your customer base?
  - Residential: Lighting rebates
  - Commercial: N/A

- What obstacles does your business face in selling or managing customers seeking out rebates?
  This is a difficult sell because energy efficient equipment is expensive.

- Do the rebate programs help you sell your product?
  Not helpful in selling products at all, only takes up time.

- What sort of rebate programs do you think would be valuable for Xcel NM to implement?
  Any rebates on energy efficient equipment. But need to know about the rebate ahead of time. It would be helpful if Xcel called me and told me about new programs before telling customers, then I won't look like I don't know what is going on. Send a mailer for residential customers about new rebate programs so they know about them.

High Efficiency HVAC Technologies of interest

11. A/C units
12. ASHPs (air sourced heat pumps)

13. Ductless minisplits (esp. as offset for electric heat)
14. Evaporative coolers (interested in whether or not they sell whole-house units)
15. Rooftop units (RTUs)

- Does your company install many of these?
  All of them – the most popular are Air to air AC units. Evap coolers are slim to none. In fact, tell Xcel to take swap coolers off energy efficiency programs for this area because they aren't useful units here anymore since the climate has changed in the past 15-20 years. Now it's too humid in the summer to use these. I might sell 1-2 swap coolers a year vs. 20-30 a year I sold 20 years ago.

- Is there an opportunity for Xcel to provide rebates to encourage people to install high-efficiency units? Yes I think so, absolutely. People are interested, but it's just cost-prohibitive right now.

- Are energy efficient HVAC products in general in high demand? Which ones?
  Not in high demand, but people do talk about it and are interested in energy efficiency. Residential vs. commercial?

*Note: These are not direct quotes. They are notes transcribed from the phone call. Do not quote directly as contractor.

PHONE INTERVIEW QUESTIONS

A1. How long has this company been in the HVAC business? (approximate OK) 30 years

A2. How long have you worked in the HVAC business? (approximate OK) 9.5 years

A3. Approximately what percentage of your business is residential versus commercial or industrial customers?

Residential 90%
Commercial 10%
Industrial_____
Other: _____

Participation in Rebate programs

- Do your residential and commercial customers utilize any of the current rebate programs offered by Xcel? Which ones? (if not Xcel, which utility and what programs)
  The only one I know Xcel offers for residential is for swamp coolers.
  Others? The gas company does one for energy efficient furnaces and Central Valley Electric (CVE) offers rebate for he equipment. Every time a CVE customer comes in they ask about what rebates CVE is offering.
  - About what % of Residential customers utilize them?
  - About what % of Commercial customers utilize them?

- What has your experience been like when working with rebate programs?

  Our administrator does it and she doesn't seem to mind. She doesn't complain.
- How aware of the rebate programs do you think your customers are?
  I don't even know half of them. People ask but I don't know enough about them to answer all their questions. A long time ago I went to a rebate event and there were probably only 2 other contractors there. No one comes to me to explain anything.
  - Residential:
  - Commercial:
- What sort of rebates are the most popular among your customer base?
  Anything for energy efficient equipment
  - Residential:
  - Commercial:
- What obstacles does your business face in selling or managing customers seeking out rebates?
  I sell 90% energy efficient equipment already because I believe in it and I think it's what customers want. They seem to believe in it too. So there really aren't obstacles faced in selling that equipment.

- Do the rebate programs help you sell your product?
  No

- What sort of rebate programs do you think would be valuable for Xcel NM to implement?

  Any he equipment rebates – like the ones that CVE has. Even if it's small, people like that.

High Efficiency HVAC Technologies of interest

16. A/C units

17. ASHPs (air sourced heat pumps)
18. Ductless minisplits (esp. as offset for electric heat)
19. Evaporative coolers (interested in whether or not they sell whole-house units)
    a. "I think swamp cooler rebates are a stupid thing to do"
20. Rooftop units (RTUs)

- Does your company install many of these?
  All but swamp coolers. ASHPs and split gas/electric units are the most popular.

- Is there an opportunity for Xcel to provide rebates to encourage people to install high-efficiency units? Yes, it might give people a push to try out energy efficient equipment when they wouldn't have bought that in the first place.

- Are energy efficient HVAC products in general in high demand? Which ones?
  I think they are more than they have been. I upsell he equipment a lot, but even when I wasn't as much I still had people who were interested.
  Residential vs. commercial?

Other: take away the swamp cooler rebate and put in rebates for energy efficient equipment

*Note: These are not direct quotes. They are notes transcribed from the phone call. Do not quote directly as contractor.

PHONE INTERVIEW QUESTIONS

A1. How long has this company been in the HVAC business? (approximate OK) 30 years

A2. How long have you worked in the HVAC business? (approximate OK) 2.5 years

A3. Approximately what percentage of your business is residential versus commercial or industrial customers?

Residential 50%
Commercial 50%
Industrial_____

Questions:

- What services do you provide? HVAC: repair, installation, removal, and maintenance. Sheet metal work.

Participation in Rebate programs

- Do your residential and commercial customers utilize any of the current rebate programs offered by Xcel? Which ones? (if not Xcel, which utility and what programs)
  We have had some customers use them. ECM motor rebate is the most common. Most used by residential customers, they aren't so sure about commercial
  - About what % of Residential customers utilize them?
  - About what % of Commercial customers utilize them?

- What has your experience been like when working with rebate programs? A little time consuming but not difficult.
- How aware of the rebate programs do you think your customers are? They seem pretty aware. They want all of the rebates they can get. Customers find out probably online and by themselves, but also the owners tell the customers when giving quotes for work if there are rebates possible and they encourage customers to utilize rebate opportunities.

- What sort of rebates are the most popular among your customer base?
  ECM are the most popular.
- What obstacles does your business face in selling or managing customers seeking out rebates?
  I haven't seen any.

- Do the rebate programs help you sell your product?
  I think so.

- What sort of rebate programs do you think would be valuable for Xcel NM to implement? Well I'm thinking any rebate would be good; as long as they are getting money back they will happy.

High Efficiency HVAC Technologies of interest

21. A/C units
22. ASHPs (air sourced heat pumps)
23. Ductless minisplits (esp. as offset for electric heat)
24. Evaporative coolers (interested in whether or not they sell whole-house units)
25. Rooftop units (RTUs)

- Does your company install many of these?
  All of the above. I would say mostly AC and heat pumps. We do commercial but not as much.

- Does your company have any commercial AC or air sourced heat pumps in stock at your facility?
  We order units as they are requested by the customer

- How many air source heat pumps and central air conditioners sold per year? About what % of them are energy efficient units? They try to push those more, because it actually helps the customers more. But it depends on the customer and what they are willing to pay.

- Is there an opportunity for Xcel to provide rebates to encourage people to install high-efficiency units? Yes, absolutely

- Are energy efficient HVAC products in general in high demand? Which ones?
  I think customers are interested but the bottom line is money
  Residential vs. commercial?

*Note: These are not direct quotes. They are notes transcribed from the phone call. Do not quote directly as contractor.

PHONE INTERVIEW QUESTIONS

A1. How long has this company been in the HVAC business? (approximate OK) 40 years

A2. How long have you worked in the HVAC business? (approximate OK) 22 years

A3. Approximately what percentage of your business is residential versus commercial or industrial customers?

Residential 20%
Commercial 80%
Industrial_____
Other: _____

Questions:

Participation in Rebate programs

- Do your residential and commercial customers utilize any of the current rebate programs offered by Xcel? Which ones? (if not Xcel, which utility and what programs) Yes many ECM motor rebates in commercial. For residential, HE heating and cooling and some EC motor rebates.
    - About what % of Residential customers utilize them?
    - About what % of Commercial customers utilize them? A small % for both. Often what is offered is more money than people want to spend.

- What has your experience been like when working with rebate programs?
  It's easy – no problems with it.
- How aware of the rebate programs do you think your customers are?
  Not very aware.

    - Residential: About the same as commercial. Evaporator cooling is done a couple times last year when customers were told a rebate was available.
    - Commercial: Most of our clientele are supermarkets, so they are aware for themselves but our smaller commercial customers are not because they aren't really interested in energy efficiency. Most smaller customers only know about rebates if I bring them up to them.
- What sort of rebates are the most popular among your customer base?
    - Residential: HE equipment & ECM motors, few evap cooling

    - Commercial: Not really popular as much – only ECM motors, some LED lighting

- What obstacles does your business face in selling or managing customers seeking out rebates?
  None. We've been around for so long so we have customers looking for higher end products and rebates come with the high end, energy efficiency models. A lot of these customers just want the best in the market right now, so it's easy for us to introduce the rebate.

- Do the rebate programs help you sell your product?
  No – rebates are just tacked on because we are selling the high end units. They would be sold anyway.

- What sort of rebate programs do you think would be valuable for Xcel NM to implement?
    - Dislikes the demand side energy control box – gets lots of calls that the AC is broken when it's not, it's just the box that's turning off electricity to the unit. This program is not explained to customers well.
    - None that I can think of for commercial customers.

<u>High Efficiency HVAC Technologies of interest</u>

26. A/C units
27. ASHPs (air sourced heat pumps)
28. Ductless minisplits (esp. as offset for electric heat)
29. Evaporative coolers (interested in whether or not they sell whole-house units)
    a. Selling these slowed way down when refrigerated air became more popular. I only sold 2 new Evap coolers last year.
30. Rooftop units (RTUs)

- Does your company install many of these?
  Yes. More ASHPs than anything else.

- How many air source heat pumps and central air conditioners sold per year? About what % of them are energy efficient units? N/A

- Is there an opportunity for Xcel to provide rebates to encourage people to install high-efficiency units? It's possible – I've got a different experience with it all because I don't have a lot of people out there that I can sell it to because of the rebate. The cost is still too high for a lot of customers.

- Are energy efficient HVAC products in general in high demand? Which ones?

  Yes, I think do. But I don't see people changing a unit out because of energy efficiency or energy savings.

Other comments:
Denzil Dunn keeps us updated on what's new. He visits about 2 times a year if not more. Lots of communication between us and him over email and phone. The visits are nice, but we could get the information we need just by phone, but we like the visits. "I feel like I'm well equipped because of Denzil."

*Note: These are not direct quotes. They are notes transcribed from the phone call. Do not quote directly as contractor.

PHONE INTERVIEW QUESTIONS

A1. How long has this company been in the HVAC business? (approximate OK) 65 years

A2. How long have you worked in the HVAC business? (approximate OK) 35 years

A3. Approximately what percentage of your business is residential versus commercial or industrial customers?

Residential_____ 60-70%
Commercial_____ 30-40%
Industrial_____

Participation in Rebate programs

- Do your residential and commercial customers utilize any of the current rebate programs offered by Xcel? Which ones? (if not Xcel, which utility and what programs) Only residential customers. They utilize the 4 tier efficiency rebate program.
    - About what % of Residential customers utilize them? 80% or better
    - About what % of Commercial customers utilize them? None – because efficiency ratings not yet appealing enough for commercial customers. Not cost effective.
- What has your experience been like when working with rebate programs?
  Very easy to process – Admin. processes rebates and has no problems with it.

- How aware of the rebate programs do you think your customers are?
  About 50% or less (of residential customers), no commercial customers. Advertising for programs are not really out there. Claiborne Refrigeration will advertise that energy efficiency rebates are available, but does not use Xcel's name.

    - Residential: 50%
    - Commercial: 0%

- What sort of rebates are the most popular among your customer base?
    - Residential: HE AC & HE ASHP rebate programs
    - Commercial: none
- What obstacles does your business face in selling or managing customers seeking out rebates?
  No obstacles for us because it's easy. It's hard to keep up with different programs in most places where there are lots of rebate programs, and that's why a lot of people don't like them. But with a single, broad program it's easy to manage.

- Do the rebate programs help you sell your product?
  Yes

- What sort of rebate programs do you think would be valuable for Xcel NM to implement?
  The baseline program they have now is great. HE AC or HE ASHP with the two tier charts is simple and easy to process for us, but also easy to explain to customers. Units aren't energy efficient enough to be appealing enough for commercial customers.

High Efficiency HVAC Technologies of interest

31. A/C units
32. ASHPs (air sourced heat pumps)

33. Ductless minisplits (esp. as offset for electric heat)
34. Evaporative coolers (interested in whether or not they sell whole-house units)
35. Rooftop units (RTUs)

- Does your company install many of these?
  Yes, all of them. Mostly ASHPs, but minisplits are also becoming more popular. Evap coolers: about 1-2 bought a year (very seasonal)
- Is there an opportunity for Xcel to provide rebates to encourage people to install high-efficiency units? Yes – about 50% of the time, customers are looking for and asking for energy efficiency. The other 50% is determined by price.
- Are energy efficient HVAC products in general in high demand? Which ones?
  Yes – the mid tier is the most popular, upper tier are getting more popular.
  Residential vs. commercial? Residential only.

Other notes:

- Xcel is tremendous at helping us when there are problems. Issues are taken care of very quickly.
  - Denzel Dunn is very good. He brings all info about rebates and programs, trains us in what we need to know. Easy to work out any problems through him.
- Biggest complaint is that the phone # on the customer's bill is often called by customers to inquire about rebate programs. The number is a MN one and they don't have any information regarding NM rebates (don't even know that there are any programs, when there are).

APPENDIX B: AVOIDED ENERGY AND CAPACITY COSTS

		Avoided Energy Costs			Avoided Capacity Costs		
Year		Nominal Values ($/MWh)	NPV Values per Lifetime Years - 2018 Program Year ($/MWh)		Avoided Generation Capacity Costs ($ per kW-yr)	Avoided Transmission and Distribution Capacity Costs ($ per kW-yr)	Total Avoided Capacity Costs ($ per kW-yr)
2018		$ 28.67	**$ 28.67**		$ 104.92	$ 3.05	**$ 107.97**
2019		$ 30.33	**$ 56.94**		$ 205.10	$ 5.97	**$ 211.07**
2020		$ 36.24	**$ 88.43**		$ 300.77	$ 8.76	**$ 309.52**
2021		$ 38.89	**$ 119.94**		$ 392.11	$ 11.42	**$ 403.53**
2022		$ 40.89	**$ 150.82**		$ 479.34	$ 13.95	**$ 493.30**
2023		$ 42.19	**$ 180.52**		$ 562.64	$ 16.38	**$ 579.02**
2024		$ 43.70	**$ 209.19**		$ 642.17	$ 18.69	**$ 660.87**
2025		$ 45.64	**$ 237.11**		$ 718.12	$ 20.91	**$ 739.03**
2026		$ 47.92	**$ 264.43**		$ 790.64	$ 23.02	**$ 813.66**
2027		$ 47.24	**$ 289.54**		$ 859.89	$ 25.03	**$ 884.93**
2028		$ 48.66	**$ 313.66**		$ 926.02	$ 26.96	**$ 952.98**
2029		$ 40.52	**$ 332.38**		$ 989.16	$ 28.80	**$ 1,017.96**
2030		$ 40.55	**$ 349.84**		$ 1,049.46	$ 30.55	**$ 1,080.01**
2031		$ 41.43	**$ 366.47**		$ 1,107.03	$ 32.23	**$ 1,139.26**
2032		$ 41.33	**$ 381.93**		$ 1,162.01	$ 33.83	**$ 1,195.84**
2033		$ 45.61	**$ 397.84**		$ 1,214.51	$ 35.36	**$ 1,249.87**
2034		$ 49.07	**$ 413.80**		$ 1,264.64	$ 36.82	**$ 1,301.46**
2035		$ 49.95	**$ 428.95**		$ 1,312.51	$ 38.21	**$ 1,350.72**
2036		$ 51.71	**$ 443.56**		$ 1,358.22	$ 39.54	**$ 1,397.76**
2037		$ 51.79	**$ 457.20**		$ 1,401.92	$ 40.82	**$ 1,442.74**

Source: Company estimates

APPENDIX C: INTIAL LIST OF RECOMMENDATIONS FOR XCEL ENERGY REVIEW PRESENTED SUMMER 2018

Xcel Energy requested that Seventhwave avoid any lighting measures because those were already being evaluated internally. Xcel Energy also stated that a manufactured homes program is not feasible due to the value it would provide contractors. Some of the other potential measures below were already being explored or had been determined to not be feasible. Refrigeration recycling had been a program and was cancelled when it became not cost effective.

HIGH	HIGH
manufactured homes program measures	Irrigation measures
contractor-driven AC/HP tune-up Program	advanced rooftop unit controls
	advanced LED lighting
	automatic door closer for walk-in coolers and freezers
	beverage and snack machine controls
	ENERGY STAR® ice maker
	LED retrofit with integrated controls
	lighting occupancy sensors control of HVAC
	night covers for open refrigerated display cases
	outdoor lighting controls
	strip curtain for walk-in coolers and freezers
MEDIUM	MEDIUM
heat pump water heater rebates	advanced power strips
residential / small commercial stocking practices program	combination oven
On-line purchase program	commercial solid and glass door refrigerators & freezers
high efficiency clothes washer rebates	commercial steam cooker
add refrigerator removal	Energy Star® electric convection oven
heat pump water heater rebates	Energy Star® griddle
	guest room energy management
	strip curtain for walk-in coolers and freezers
LOW	LOW
advanced power strips	advanced energy information systems
early replacement of clothes washers	controls for central domestic hot water
heat pump clothes dryer rebates	heat recovery grease trap filter
rebates for whole-house fans	high efficiency transformer high frequency battery chargers networked home automation ozone laundry pump off controls small building energy management system

CLEAResult®

Midstream Commercial Food Service Market Feasibility Report to Southwestern Public Service Company

December 21, 2018

SUBMITTED TO:

Southwestern Public Service Company
d/b/a Xcel Energy
1800 Larimer Street, 15th Floor
Denver, CO 80202
Julie Herman
Julie.E.Herman@xcelenergy.com
303.294.2630

SUBMITTED BY:

CLEAResult
100 Southwest Main St. #1500
Portland, OR 97204
michael.budds@clearesult.com
503.752.1819

EXECUTIVE SUMMARY

CLEAResult completed a foodservice market characterization of Southwestern Public Service Company service territory to estimate achievable energy savings and calculate Utility Cost Test results of measures identified in the "Analysis of Southwest Public Service Company's Energy Efficiency Programs – Portfolio Optimization Study" prepared by Seventhwave. Concurrently, CLEAResult conducted interviews with food service equipment distributors serving Southwestern Public Service Company territory to better understand their business including sales of energy efficient equipment. The market characterization and resulting recommendations focused on food service measures delivered via a midstream channel where distributors are incentivized to reduce the price and thus the incremental cost between standard and efficient food service equipment.

CLEAResult summarized the findings of the Distributor Outreach and Market Characterization Assessment including a recommended approach for establishing a midstream commercial food service program in Southwestern Public Service Company territory.

Significant results of this assessment include:

- In Southwest Public Service Company territory, it is not uncommon for customers to place orders online from out of state vendors possibly limiting the potential success for local distributors participating in a commercial midstream food service program.
- Estimated savings illustrate an increase in savings, administrative costs and incentive costs relative to the Seventhwave report. This is driven by the differing program design which utilizes additional staff and an IT component to facilitate distributor participation.
- UCT cost test results are mixed as some measures have a benefit cost (B/C) ratio below 1. CLEAResult estimates higher non-incentive costs of $115,000 relative to the Seventhwave report where non administrative costs are $35,000. This difference is in part driven by initial IT setup. To implement a midstream program effectively, CLEAResult also recommends a full time staff member dedicated to the territory which also explains the larger administrative costs between the two program approaches.
- Further investigation is required to determine what percentage of the market is comprised of used sales

CLEAResult recommends the following should Southwestern Public Service Company desire to test a midstream commercial food service pilot in their territory:

- Utilize the Michaels Energy savings methodology relative to the Sevethwave approach as it aligns with Energy Star Qualified Product Lists and allows for adjustment of several critical variables that impact savings calculations
- If the identified risks, estimated savings, and UCT results are acceptable, dedicate a full time staff person to conduct distributor outreach to facilitate participation
- Add additional measures to those listed in the Seventhwave report to increase sales/savings and help distributors realize more incentive dollars.
- Consider implementing the program in conjunction with the existing New Mexico Gas midstream food service program to facilitate launch and reduce costs

DISTRIBUTOR OUTREACH FINDINGS

CLEAResult interviewed the following food service distributors serving Southwestern Public Service Company territory to discuss the food service market and various program design elements relative to their experience and needs.

Distributor	Primary Location
Caldarellas Restaurant Supply	El Paso, TX
Economy Restaurant Supply	El Paso, TX
J & R Restaurant Equipment	Albuquerque, NM
McComas	Albuquerque, NM
National Restaurant Supply	El Paso, TX and Albuquerque, NM
Standard Restaurant Supply	Albuquerque, NM

The food service distributors interviewed primarily sold new equipment with limited stock available on hand for immediate purchase. When asked about stocking ENERGY STAR equipment, distributors indicated that customers typically place an order for their equipment through their distributor instead of purchasing equipment stocked in house. The distributors varied in size and business model with some having a national presence and bidding on large projects in varied geographies while others relied solely on counter sales from walk in customers. McComas and Standard Restaurant Supply have account managers dedicated to the territory but do not staff employees in the area. Standard Restaurant Supply intends to establish a full-time staff member in the near future.

Distributors typically join buying groups to obtain better prices on the purchase of equipment from manufacturers. Buying groups usually provide access to several different brands that make commercial kitchen equipment and supplies. Appendix 1 – Sample Manufacturers and Buying Groups Serving New Mexico provides an example of buying groups and their associated manufacturers that serve New Mexico and the Southwest Public Service Company territory.

When asked about specific measures or incentive structure, distributors indicated that they order based on specific projects or requests. Because the products available are varied, distributors did not provide guidance on appropriate incentives for an entire product category. Distributors did not provide specific recommendations on additional measures to include in a midstream commercial food service program but CLEAResult recommends adding more measures than previously cited by Seventhwave to increase distributor interest in participation. The more measures available to distributors, the more incentive they have to participate in the program and establish a presence in the territory. Additional measures for consideration are listed in Table 1 and 2 below.

New and used equipment dealers are separated in this territory and further investigation is warranted to determine the exact percentage of the market comprised of used sales. The percentage of used sales will factor into the sales potential of a midstream commercial food service program. In addition, CLEAResult interviewed the current manager of the New Mexico Gas Commercial Food Service Program and he indicated that in rural areas of the state it is not uncommon for customers to place orders online from out of state vendors. This suggests that any market savings potential must recognize the risk that some percentage of sales are sourced from out of state distributors that may not be participating in the program pending who Southwestern Public Service Company allows to take part in the program.

MARKET CHARACTERIZATION ASSESSMENT

METHODOLOGY

CLEAResult utilized a GIS shape file covering the entire Southwest Public Service Company territory and segmented businesses by NAICS code. The GIS data are used to estimate the number of buildings with commercial kitchens/food service equipment in the service territory. NAICS descriptions help determine building types with kitchens. For example, commercial kitchens / equipment will always be found in building types such as Full-service Restaurants, Limited-service Restaurants, and Caterers; however, other building types will also have small scale commercial kitchen or some portions of commercial kitchen equipment. Examples of these other building types include Supermarkets and Other Grocery (except Convenience) Stores, Hotels, Elementary and Secondary Schools.

Once building counts are established, CLEAResult uses Department of Energy's 2015 Appliance Report to estimate volume of individual measure/equipment in the market. Saturation percentages, ownership quantities and fuel breakout percentages provided in the report are used to determine total volume of each type of equipment in the market (See Appendix 2 – Definitions for explanations of these terms). Other variables are established using the following steps:

1. Program volume is estimated using equipment volume (determined using GIS and DOEs 2015 Appliance Report) and program participation rates (based on past program experience)
2. Estimated savings are based on the following sources:
    - Savings provided by Seventhwave report were used for ENERGY STAR reach-in refrigerators and freezers, ENERGY STAR ice machines and ENERGY STAR Convection Ovens.
    - Savings for current downstream program measures and additional measure recommendations were based on internal research, Technical Resource Manual (TRM) methodologies and assumptions for commercial kitchen equipment across multiple states. Typically values would be taken out of the local state TRM; however, none of these measures were included in the 2016 New Mexico TRM.
3. Incentive values are based on the following sources:
    - Incentives provided by Seventhwave report were used for ENERGY STAR reach-in refrigerators and freezers, ENERGY STAR ice machines and ENERGY STAR Convection Ovens.
    - Incentives from the current downstream program were used for ENERGY STAR Dishwashers (under counter and door-type) and ENERGY STAR Hot Food Holding Cabinets.
    - Incentives for additional measure recommendations are based on incentive structures from other comparable programs scaled to keep Incentive $/kWh similar to the ratio from Seventhwave recommended measures.
4. The benefit / cost calculation is specific to Xcel NM and is based off the methodology and values used in "Analysis of Southwest Public Service Company's Energy Efficiency Programs – Portfolio Optimization Study" prepared by Seventhwave including:
    - Two separate Net-to-Gross Ratio values (1 and 0.8)
    - PV per kWh and PV per kW are based on NPVs for program year 2018 in the Seventhwave calculations. It was assumed these values would not change drastically for a 2019 program year

FINDINGS

CLEAResult estimated savings potential based on two different market penetration rates, 2.5% and 3.5%. The lower 2.5% penetration rate depicts a more likely outcome given the uncertainty around the percentage of used equipment sales and the percentage of online sales in the Southwest Public Service

Company territory. The inclusion of a 3.5% penetration rate illustrates a best case scenario where the used equipment and online sales risks present no significant impact to program performance.

The measures listed are divided into three categories. Measures derived from "Analysis of Southwest Public Service Company's Energy Efficiency Programs – Portfolio Optimization Study" prepared by Seventhwave, current downstream food service measures, and measures recommended for consideration by CLEAResult are identified in the Measure Source column.

TABLE 1 - ESTIMATED MIDSTREAM PROGRAM PERFORMANCE AT 2.5% PENETRATION RATE

2019 PY 1 Forecast (2.5% Penetration Rate)				
Measure Type	**Measure Source**	**Units**	**kWh**	**Incentives**
ENERGY STAR Commercial Solid Door Refrigerator	Seventhwave	18	11,556	$810
ENERGY STAR Commercial Solid Door Freezers	Seventhwave	10	20,366	$700
ENERGY STAR Commercial Glass Door Refrigerator	Seventhwave	19	18,772	$855
ENERGY STAR Commercial Glass Door Freezers	Seventhwave	10	38,001	$650
Energy Efficient Ice Machines - Electric	Seventhwave	37	32,422	$4,850
ENERGY STAR Convection Oven - Electric	Seventhwave	7	15,400	$1,190
ENERGY STAR Dishwasher - Commercial Under counter	Downstream	8	16,543	$1,400
ENERGY STAR Dishwasher - Commercial Door-type	Downstream	7	55,578	$1,372
ENERGY STAR Hot Holding Cabinets - Electric	Downstream	18	65,072	$7,200
ENERGY STAR Steam Cookers - Electric	Proposed	2	26,254	$2,000
ENERGY STAR Fryer - Electric	Proposed	15	43,970	$2,250
ENERGY STAR Griddle - Electric	Proposed	14	26,745	$2,800
Combination Oven - Electric	Proposed	1	6,372	$500
Total		**166**	**377,052**	**$26,577**
*Assumes full year performance excluding a ramp up period				

TABLE 2 - ESTIMATED MIDSTREAM PROGRAM PERFORMANCE AT 3.5% PENETRATION RATE

2019 PY 1 Forecast (3.5% Penetration Rate)				
Measure Type	**Measure Source**	**Units**	**kWh**	**Incentives**
ENERGY STAR Commercial Solid Door Refrigerator	Seventhwave	26	16,692	$1,170
ENERGY STAR Commercial Solid Door Freezers	Seventhwave	14	29,484	$1,000
ENERGY STAR Commercial Glass Door Refrigerator	Seventhwave	27	26,676	$1,215
ENERGY STAR Commercial Glass Door Freezers	Seventhwave	13	49,829	$850
Energy Efficient Ice Machines - Electric	Seventhwave	51	44,816	$6,700
ENERGY STAR Convection Oven - Electric	Seventhwave	10	22,000	$1,700
ENERGY STAR Dishwasher - Commercial Under counter	Downstream	12	24,808	$2,100
ENERGY STAR Dishwasher - Commercial Door-type	Downstream	10	91,443	$1,960
ENERGY STAR Hot Holding Cabinets - Electric	Downstream	25	87,452	$10,000
ENERGY STAR Steam Cookers - Electric	Proposed	3	42,535	$3,000
ENERGY STAR Fryer - Electric	Proposed	22	64,687	$6,600
ENERGY STAR Griddle - Electric	Proposed	19	36,297	$3,800
Combination Oven - Electric	Proposed	1	6,372	$500
Total		**233**	**543,091**	**$ 40,595**
*Assumes full year performance excluding a ramp up period				

Both the 2.5% and 3.5% penetration rates represent an increase in savings relative to the downstream projection listed in "Analysis of Southwest Public Service Company's Energy Efficiency Programs – Portfolio Optimization Study" prepared by Seventhwave. There is also an estimated increase in administrative and incentive costs associated with this implementation approach.

TABLE 3 - UTILITY COST TEST RESULTS AT 2.5% PENETRATION RATE

Utility Cost Test (2.5% Penetration Rate)		
Measure Type	**B/C Ratio (1 Net-to-Gross Ratio)**	**B/C Ratio (0.8 Net-to-Gross Ratio)**
ENERGY STAR Commercial Solid Door Refrigerator	1.18	0.94
ENERGY STAR Commercial Solid Door Freezers	1.30	1.04
ENERGY STAR Commercial Glass Door Refrigerator	1.26	1.01
ENERGY STAR Commercial Glass Door Freezers	1.37	1.10
Energy Efficient Ice Machines - Electric	1.00	0.80
ENERGY STAR Convection Oven - Electric	1.35	1.08
ENERGY STAR Dishwasher - Commercial Undercounter	0.96	0.77
ENERGY STAR Dishwasher - Commercial Door-type	1.51	1.21
ENERGY STAR Hot Holding Cabinets - Electric	1.10	1.97
ENERGY STAR Steam Cookers - Electric	1.28	1.03
ENERGY STAR Fryer - Electric	1.37	1.10
ENERGY STAR Griddle - Electric	1.19	0.96
Combination Oven - Electric	0.95	0.76
All Combined Measures	**1.24**	**1.20**
Yellow Cells Represent B/C < 1		

TABLE 4 - UTILITY COST TEST RESULTS AT 3.5% PENETRATION RATE

Utility Cost Test (3.5% Penetration Rate)		
Measure Type	**B/C Ratio (1 Net-to-Gross Ratio)**	**B/C Ratio (0.8 Net-to-Gross Ratio)**
ENERGY STAR Commercial Solid Door Refrigerator	1.57	1.25
ENERGY STAR Commercial Solid Door Freezers	1.80	1.44
ENERGY STAR Commercial Glass Door Refrigerator	1.72	1.37
ENERGY STAR Commercial Glass Door Freezers	1.93	1.54
Energy Efficient Ice Machines - Electric	1.26	1.01
ENERGY STAR Convection Oven - Electric	1.79	1.43
ENERGY STAR Dishwasher - Commercial Undercounter	1.27	1.01
ENERGY STAR Dishwasher - Commercial Door-type	2.14	1.71
ENERGY STAR Hot Holding Cabinets - Electric	1.40	2.51
ENERGY STAR Steam Cookers - Electric	1.73	1.39
ENERGY STAR Fryer - Electric	1.55	1.24
ENERGY STAR Griddle - Electric	1.55	1.24
Combination Oven - Electric	1.25	1.00
All Combined Measures	**1.63**	**1.56**

The UCT Cost Test Results illustrate a distinct difference between the 2.5% and 3.5% penetration rates with respect to the .8 net to gross ratio. At a 2.5% penetration rate, eight of the thirteen measures exceed a B/C ratio of 1 at the .8 net to gross ratio. However, all of the measures combined have a B/C ratio

greater than 1. One driving factor of this result is that CLEAResult estimates higher non-incentive costs of $115,000 relative to the Seventhwave report where non administrative costs are $35,000. The higher cost is in part due to a first year IT cost of approximately $25,000 that would not occur in subsequent years. To implement a midstream program effectively, CLEAResult also recommends a full time staff member dedicated to the territory which likely further explains the larger administrative costs between the two program approaches.

RECOMMENDATIONS

Findings from the distributor outreach effort and market characterization assessment provide key insights regarding the feasibility of implementing a commercial midstream food service program in Southwest Public Service Company territory. The following recommendations are informed by those results and careful consideration of the parameters required to successfully implement this type of program.

SAVINGS METHODOLOGY

CLEAResult reviewed savings calculations from both Seventhwave and Michaels Energy to propose the best methodology for either a downstream and midstream food service program. CLEAResult recommends using Michaels Energy methodology in both program delivery designs as it adheres to the Energy Star Qualified Product Lists (QPLs) for all three measures: Commercial Freezers/Refrigerators, Ice Machines and Convection Ovens.

There are significant differences in deemed energy savings examples between Seventhwave and Michaels Energy because they are using different assumptions. Many of these measures, especially Commercial Freezers/Refrigerators, are very sensitive regarding the size of unit assumed in fully deemed savings. For example, the Commercial Freezer/Refrigerator measure has several constants built into the algorithm that can remain fixed. However, there are four values (not including model number) that can be pulled directly from the QPL to calculate model-specific savings. Equipment Type, Equipment Configuration, Door Type and Volume Range can all be pulled per model from the QPL with just the Equipment Model number. Because these values significantly impact savings, we recommend using QPL values for all variables in Michaels Energy algorithms. For a midstream program, CLEAResult's Program Partner Central (PPC) is able to effectively use Energy Star QPLs with these energy savings algorithms to capture actual unit characteristics like size and type ensuring accuracy and mitigating EM&V issues.

MIDSTREAM COMMERCIAL FOOD SERVICE FEASIBILITY

Southwest Public Service Company territory is relatively rural and served by distributors in larger urban areas of El Paso, TX and Albuquerque, NM. Given the lack of population density and relatively small concentration of food service equipment customers there is an increased likelihood of out of state online sales. In addition, the percentage of used equipment sales in the market requires further investigation. The combination of these two factors presents an element of risk in launching a commercial midstream food service program in the territory. CLEAResult also typically sees a 25% decrease in estimated annual savings in the first program year due to ramp up of a new program and distributor onboarding which is not depicted in the savings estimates provided in this report.

CLEAResult recommends a full time staff member to provide distributor outreach in the territory to generate program participation and facilitate distributor understanding of program policies and protocols. CLEAResult also suggests adding additional measures than those listed in the Seventhwave report to generate as much distributor interest in the program through greater opportunity to increase sales and

realize incentive dollars. In addition, a basic distributor facing IT portal would provide more streamlined participation for distributors by reducing manual processes and reducing their administrative burden.

A final consideration for Southwest Public Service Company in launching a commercial midstream food service program is exploring the possibility of implementing the program in conjunction with the existing New Mexico Gas Food Service Program. By partnering with an adjacent utility, Southwest Public Service Company can take advantage of existing program infrastructure and established participants. In addition, CLEAResult estimates a reduced administrative cost of approximately 30% which should positively impact the cost effectiveness of the program.

Appendix 1 – Sample Manufacturers and Buying Groups Serving New Mexico

Manufacturer	Buying Group
3M	SW FS Equip. Marketing
Accurex	Accurex
Adande	Courtney Marketing
Advance Tabco	Professional Reps
Advantage Supply	The Redstone Group
Airdyne Refrig.	Power Rep Marketing Group
Akula	Hill Associates
Alegacy	Courtney Marketing
Alpine	SW FS Equip. Marketing
Alto-Shaam	Iginte Foodservice Solutions
Amana	Professional Reps
American Panel	Total Source
American Range	Professional Reps
Amerikooler	SW FS Equip. Marketing
Amisco Contact	Hill Associates
Andersen Company	TRC Marketing Inc
Anderson	Professional Reps
Angelo Po	Desert Peak
Ansul	Accurex
Antunes	The Redstone Group
APW Wyott	Iginte Foodservice Solutions
ARC Cardinal	Desert Peak
Arnets	Johnson Pike
Artic	Johnson Pike
Artic Air	Iginte Foodservice Solutions
ASDI	Johnson Pike
Atlas Metal	Courtney Marketing
Bakers Pride	Iginte Foodservice Solutions
Bally	Professional Reps
Bar Maid	Johnson Pike
Beech Ovens	Elevation Reps
Berkel	Total Source

Manufacturer	Buying Group
Berner International	Power Rep Marketing Group
Beverage-Air	Beverage-Air Corp
Beverage-Air	Professional Reps
bfm seating	Hill Associates
Blendtec	Professional Reps
Blodgett	Elevation Reps
Bloomfield	Tom Redditt Sales Agency
Bon Chef	Desert Peak
Bradley	Iginte Foodservice Solutions
Browne Foodservice	Power Rep Marketing Group
BSI	Desert Peak
Bundy	Barringer Marketing
Bunn	Bunn
Cal-Mil	Desert Peak
Cambro	Elevation Reps
Carlisle	The Redstone Group
Carpigiani	Professional Reps
Carroll and Leer	Marjon & Associates
Carter-Hoffmann	Elevation Reps
Casarovea	Hill Associates
CDN Commercial	Tom Redditt Sales Agency
Champion	Professional Reps
Channel	Johnson Pike
Chef Specialties	Hill Associates
Chef's Choice	SW FS Equip. Marketing
Chicago Metalic	Barringer Marketing
Chilewich	Hill Associates
Chill-Rite	Iginte Foodservice Solutions
Citrus America	Professional Reps
Cleveland	The Redstone Group
CMA	Johnson Pike
Cold Vault	Professional Reps

Manufacturer	Buying Group
ColdZone	Iginte Foodservice Solutions
Comark	TRC Marketing Inc
Commercial Seating	Marjon & Associates
Component	Professional Reps
Connect-It	Power Rep Marketing Group
Continental	Iginte Foodservice Solutions
Continental Commercial	TRC Marketing Inc
Convotherm	The Redstone Group
CookTek	Elevation Reps
Cooler Concepts	Iginte Foodservice Solutions
Cooper Atkins	The Redstone Group
Corby Hall	TRC Marketing Inc
Co-Rect	Desert Peak
Craster	Hill Associates
Crestware	SW FS Equip. Marketing
Crown Verity	The Redstone Group
Curtis	The Redstone Group
Custom S/S	Amercian Stainless
Custom S/S	Custom Equip. Fabrication
Degrenne	Hill Associates
Delfield	The Redstone Group
Desmon	Elevation Reps
Dexter	Elevation Reps
Dickies	SW FS Equip. Marketing
Dispense-Rite	Professional Reps
Diversified Ceramics	TRC Marketing Inc
Dormont	Total Source
Dough Xpress	Iginte Foodservice Solutions
Doyon Nu-Vu	Elevation Reps
DPM Hospitalty	Desert Peak
Duke	Iginte Foodservice Solutions
Dutchess	Barringer Marketing

Manufacturer	Buying Group
Dynamic	Barringer Marketing
Dynamic	SW FS Equip. Marketing
Eagle	Total Source
EarthStone Ovens	The Redstone Group
Eco-burner	Tom Redditt Sales Agency
Edlund	The Redstone Group
Electrolux	Professional Reps
Elite	TRC Marketing Inc
Elkay	Tom Redditt Sales Agency
emu	Professional Reps
Encore	TRC Marketing Inc
English Mfg.	Iginte Foodservice Solutions
Enviro-pure	Tom Redditt Sales Agency
Equipex	Iginte Foodservice Solutions
Everpure	Southern Ice
evo	Desert Peak
F.O.H.	TRC Marketing Inc
Fagor Refrigeration	National Restaurant Corp.
Federal	The Redstone Group
Fermod	Courtney Marketing
FEW	Professional Reps
Filter Corp	The Redstone Group
Fisher	Total Source
Flat	Johnson Pike
Focus	Desert Peak
Follett	Courtney Marketing
Forbes Industries	Power Rep Marketing Group
Franke	Desert Peak
Frymaster	The Redstone Group
G.E.T.	Tom Redditt Sales Agency
Garland	The Redstone Group
Gasser	Hill Associates

Manufacturer	Buying Group
Gaylord	The Redstone Group
Gemini	Courtney Marketing
Giles	Desert Peak
GlasTender	Elevation Reps
Globe	Elevation Reps
Gojo	TRC Marketing Inc
Govino	TRC Marketing Inc
Grindmaster Cecilware	Elevation Reps
Grosfillex	Desert Peak
Halton	Elevation Reps
Hamilton Beach	Elevation Reps
Happy Mat	Tom Redditt Sales Agency
Hatco	Hatco
Hatco	Johnson Pike
Henkelman Inc.	Power Rep Marketing Group
Henkelman Vacuum	Professional Reps
Hestan	Desert Peak
Hobart	Hobart
Hollowick	Desert Peak
Holman	Barringer Marketing
Holsag Seating	Hill Associates
Hospitality Glass Brands	TRC Marketing Inc
Hubbell	Iginte Foodservice Solutions
IMC/Teddy	Iginte Foodservice Solutions
Imperial Brown	Iginte Foodservice Solutions
Imperial Com. Cooking Equipment	Tom Redditt Sales Agency
InSinkErator	The Redstone Group
Irinox	Professional Reps
iSi	TRC Marketing Inc
iti	Desert Peak
ITW	Courtney Marketing
Jackson	Elevation Reps

Manufacturer	Buying Group
Jade	Elevation Reps
Jasper Chair	The Redstone Group
John Boos	Desert Peak
Johnson Rose	Desert Peak
Kason	The Redstone Group
Kolpak	The Redstone Group
KoolAir	Southern Ice
Krowne	The Redstone Group
Lacrosse	Professional Reps
Lakeside	Iginte Foodservice Solutions
Lang	Elevation Reps
LaRosa Mfg.	Marjon & Associates
Leer	Barringer Marketing
Legacy Company	SW FS Equip. Marketing
Lincoln	The Redstone Group
Lodge	Tom Redditt Sales Agency
MagiKitch'n	Johnson Pike
Manitowoc	Southern Ice
Market Forge	Elevation Reps
Mars	Iginte Foodservice Solutions
Marsal Pizza Ovens	Elevation Reps
Marshal & Sons	Johnson Pike
Master Disposal	Courtney Marketing
Master-Bilt	Tom Redditt Sales Agency
Matfer	Desert Peak
Maua Forni	Desert Peak
mavea	Courtney Marketing
Maywood	Barringer Marketing
meiko	Desert Peak
Merco	The Redstone Group
Merrychef	The Redstone Group
Metro	The Redstone Group

Manufacturer	Buying Group
Middleby	Johnson Pike
Moffat	Professional Reps
Montague	Professional Reps
Moyer Diebel	Tom Redditt Sales Agency
MultiTeria	SW FS Equip. Marketing
Mundial	Tom Redditt Sales Agency
Neico	Power Rep Marketing Group
Nemco	Desert Peak
Newage Industrial	The Redstone Group
Newco	Barringer Marketing
Nexel	Johnson Pike
Niuline	Professional Reps
Norlake	Elevation Reps
Oak Street	The Redstone Group
Orion	Hill Associates
Oscartek	Desert Peak
Ovention	Professional Reps
Paderno	Hill Associates
Palmer Snyder	Tom Redditt Sales Agency
Panasonic	Johnson Pike
Parade Plastics	Marjon & Associates
Perlick	Total Source
Piper	Professional Reps
Pitco	Elevation Reps
Plantation Prestige	The Redstone Group
Power-Soak	Desert Peak
Pratica Technicook	Courtney Marketing
Proc-X	Courtney Marketing
Proluxe	Professional Reps
Protacool	Total Source
psfurniture	Tom Redditt Sales Agency
Purell	TRC Marketing Inc

Manufacturer	Buying Group
Radius	Hill Associates
RAK Tableware	The Redstone Group
Rancilio	Professional Reps
Rational	Courtney Marketing
Red Goat Disposers	Courtney Marketing
Resfab	Professional Reps
Revent Ovens	Marjon & Associates
Revol	Hill Associates
RMI	Power Rep Marketing Group
Rosenthal	Hill Associates
Royal Industries	Iginte Foodservice Solutions
S/S Fabrication	Custom Equipment Fabrication
S/S Fabrication	Custom Equipment Fabrication
Salvajor	Total Source
Sambonet	Hill Associates
Sammic	Courtney Marketing
San Jamar	The Redstone Group
SaniServe	Marjon & Associates
Scotsman	Professional Reps
Seco Select	Marjon & Associates
Shat-r-shield	SW FS Equip. Marketing
SirMan	Marjon & Associates
Smith Barnett	Johnson Pike
SMT (Spray Master Tech)	Iginte Foodservice Solutions
Solaris	Tom Redditt Sales Agency
Somat	Courtney Marketing
Somerset	Johnson Pike
Southbend	Elevation Reps
Sparke	Tom Redditt Sales Agency
SPG	Iginte Foodservice Solutions
Spring Air	Iginte Foodservice Solutions
Spring USA	Johnson Pike

Manufacturer	Buying Group
Star	Elevation Reps
Stero	Courtney Marketing
Strahl	Hill Associates
Streivor Air System	SW FS Equip. Marketing
Structural Concepts	Iginte Foodservice Solutions
T&S Brass	Tom Redditt Sales Agency
TableTopics	The Redstone Group
Tafco	Courtney Marketing
Taylor	Johnson Pike
Thermo-Kool	Desert Peak
Thunder Group	Professional Reps
Toastmaster	Elevation Reps
Tournus Equipment	Hill Associates
TragenFlex	Courtney Marketing
Tucs Equipment	Marjon & Associates
Turbo Air	SW FS Equip. Marketing
Turbo Chef	Elevation Reps
Tuxton	Tom Redditt Sales Agency
Ultrafryer System	Iginte Foodservice Solutions
United Brands	Tom Redditt Sales Agency
Univex	Iginte Foodservice Solutions
Update	Desert Peak
Utility Refrigeration	Power Rep Marketing Group

Manufacturer	Buying Group
Valpro Mfg.	Marjon & Associates
Venus	Hill Associates
Verimixer	Elevation Reps
Vertex	Hill Associates
Viamotif	Hill Associates
Victorinox	Power Rep Marketing Group
Victory	Professional Reps
Vitamix	The Redstone Group
Vollrath	Tom Redditt Sales Agency
Vulcan	Total Source
Walco	Elevation Reps
Walsh&Simmons	The Redstone Group
Waring	Tom Redditt Sales Agency
Wells	Elevation Reps
Whip-it	Tom Redditt Sales Agency
Winholt	Barringer Marketing
Winholt	SW FS Equip. Marketing
Winston Industries	Desert Peak
Wolf	Total Source
WoodStone	Iginte Foodservice Solutions
Wunder-Bar	SW FS Equip. Marketing
Yanco China	Marjon & Associates
Zeroll	SW FS Equip. Marketing

Appendix 2 – Definitions

1. **Saturation Percentage** - percentage of commercial kitchens with any given type of commercial kitchen equipment
2. **Ownership Quantities** - Average quantities of each type of commercial kitchen equipment in a commercial kitchen
3. **Fuel Breakout** - percentage of equipment that will be gas or electric
    - Some equipment will always be electric, such as ice machines or reach-in refrigerators, but other equipment with be either gas or electric, such as fryers.

CLEAResult®

February 2019

Irrigation Market Feasibility Report to Southwestern Public Service Company

February 22, 2019

SUBMITTED TO:

Southwestern Public Service Company
d/b/a Xcel Energy
1800 Larimer Street, 15th Floor
Denver, CO 80202
Julie Herman
Julie.E.Herman@xcelenergy.com
303.294.2630

SUBMITTED BY:

CLEAResult
180 Grand Ave. Suite 850
Oakland CA 94612
Laura Freiburg-Slate
laura.freiburg-slate@clearesult.com
650-712-2017

Table of Contents

EXECUTIVE SUMMARY

CLEAResult completed an irrigation market potential study of Southwestern Public Service Company service territory to estimate achievable energy savings of measures identified in the "Analysis of Southwest Public Service Company's Energy Efficiency Programs – Portfolio Optimization Study" prepared by Seventhwave. CLEAResult conducted interviews with an identified sampling of Southwestern Public Service Company irrigation customers, irrigation equipment distributors and local governing associations serving Southwestern Public Service Company territory to better understand their business including water well dynamics, program concerns, and sales of energy efficient equipment. The market potential study and resulting recommendations focused on irrigation measures delivered directly to the customer to reduce the price and thus the incremental cost between standard and efficient irrigation equipment.

The summary of the findings of the study and a recommended approach for establishing an irrigation service program in Southwestern Public Service Company territory are detailed in this report.

Significant results of this assessment include:

- In Southwest Public Service Company territory, there are approximately 50,000 acres of potential irrigation customers for energy efficiency in the agricultural industry.
- The agriculture industry is looking to improve efficiency and simplify operations through the adoption of Variable Frequency Drives (VFDs) and computerized controls.
- The irrigation/agriculture industry represents a multi-generational customer base that is invested in the community well-being with both customers and distributors interested in improving energy efficiency and water conservation.
- Multiple government agencies provide financing for energy efficiency and conservation projects including USDA, NMHA and PVACD.
- Participation in the current incentive program has been limited due to the perceived complexity of the custom program.
- The average irrigation customer could save approximately 300,000 kWh's annually with the implementation of 3 targeted measures (Well Pump VFD, Booster Pump VFD, and High Efficiency Pump Upgrades)[1]
- UCT cost test results are low as all three scenarios have a benefit cost (B/C) ratio below 1.
- Estimated savings illustrate an increase in savings, administrative costs and incentive costs relative to the Seventhwave report. This is driven by the differing program design.

CLEAResult recommends the following should Southwestern Public Service Company desire to implement an irrigation program in their territory:

- If the estimated savings and UCT results are acceptable, dedicate a full-time staff person to conduct customer and distributor outreach to facilitate participation.
- Add additional measures to the prescriptive program to drive customer participation and align to industry needs.
- To mitigate existing barriers to participation, consider simplifying program offering and increasing customer data access and awareness.

[1] Savings are calculated assuming the measures are implemented as standalone measures

CUSTOMER OUTREACH FINDINGS

CLEAResult interviewed eight customers representing approximately 35% of the total irrigation market by acres serviced in the Southwestern Public Service Company territory, to discuss the irrigation market and various program design elements relative to their experience and needs. Table 1 below lists the size of the customers that were included in the outreach.

Table 1 - Customers

Customer Designation	Approximate Size (Acres)
A	2,800
B	5,700
C	500
D	3,000
E	550
F	1,300
G	3,500
H	1,300
Total of 8 Customers	**18,650 acres**

Customers were selected through Xcel Salesforce research identifying highest usage agriculture customers. CLEAResult also worked with Xcel community managers, distributor references and other CLEAResult data gathering tools to identify additional customers to participate in the interviews. In preparation for on-site visits with customer, the CLEAResult engineering team prepared survey questionnaires to utilize during customer meeting in order to gather pertinent information needed to assess potential savings. CLEAResult met individually with customers and recorded details including: number of wells, well depth, irrigation system details, pump and motor system and testing information, pump and motor maintenance activities, crop specifics, energy efficiency knowledge and experience with incentive programs. The customers surveyed represent approximately 18,650 acres, primarily growing small grain crops (alfalfa, corn, barley, oats, wheat), cotton and pecans.

All farms and dairies that were surveyed were owned and run by 2nd and 3rd generation family members. The shift in generational leadership has led to changes in opinion on the best practices for operation of their irrigation system. The younger generation of farmers are more open to adopting new technology and mindful of energy efficiency. This shift allows for wider adoption of energy efficiency technologies if determined to be financially feasible. Participation in an energy efficiency program would facilitate this adoption by improving customer payback for evaluated project opportunities.

Southwestern Public Service Company provides electric service to approximately 60% of the wells surveyed with Co-ops servicing the other 40% of wells. Most agriculture is irrigated through artesian and shallow wells with motors ranging in size from 25hp to 200hp with supporting booster pumps ranging from 15hp to 50hp. Based on the customer surveys it was identified that approximately 80% of the irrigation is done through pivot, roughly 10% through side roll and remaining 10% through flood or sprinkler systems

and manual controls. Local water authorities require flow meters on every well to manage acre feet limitations. Most of the irrigation equipment is 20-40 years old with motors and pumps requiring significant routine maintenance to remain operational.

The majority of farms surveyed had at least one VFD installed on either an Southwestern Public Service Company or Co-op well pump with most considering them to be an asset but too cost prohibitive to adopt further. Several customers noted their experience with difficulty in the custom process - as it either created an extensive delay in purchasing equipment or the monitoring and evaluation process was too significant of an to participate in the program.

DISTRIBUTOR OUTREACH FINDINGS

CLEAResult interviewed the following distributors serving in the Southwestern Public Service Company territory to discuss the irrigation market and various program design elements relative to their experience and needs. Table 2 below list the distributors that were included in our outreach.

Table 2 - Distributors

Distributor	Primary Location
Coats Pump and Supply	Dexter, NM
Greenfield Electric	Dexter, NM
Waide Irrigation	Dexter, NM
Pecos Valley Pump	Artesia, NM
J&G Electric	Roswell, NM

The irrigation distributors interviewed primarily sold new equipment with some stock available on hand for immediate purchase. The distributors varied in size and business model with some specializing in the agriculture industry and some specializing in general electrical. All have local ownership and local sales and support staff.

Vendors are encouraging customers to include VFDs on all new installations emphasizing simplicity, remote operation capabilities, and reduction in impacts due to power quality issues. However, adoption has been limited and inefficient alternatives such as manual throttling are continually implemented. Vendors have not focused on the energy efficiency benefits and availability of utility incentives due to the perceived complexity of the custom process required for the multiple stage and permanent magnetic motors common in the industry as most customers have stated “it’s not worth the hassle.” Vendors agreed that adding more prescriptive incentive options would assist in the adoption of more energy efficient technologies in the industry.

Based on our conversations with vendors, they would have the available resources to support increased sales related to energy efficiency such as VFDs if an incentive program were to generate additional customer interest.

ASSOCIATION OUTREACH FINDINGS

CLEAResult interviewed the following association representatives servicing the Southwestern Public Service Company territory to discuss the irrigation market and various program design elements relative to their experience and needs. Table 3 below list the associations that were included in our outreach.

Table 3 - Associations

Association	Primary Location
Pecos Valley Artesian Conservancy District	Roswell, NM
USDA	SE New Mexico
New Mexico Housing Authority	Santa Fe, NM (w/local representation)

The association representatives interviewed primarily provide oversight of water rights, usage and financing for conservation and energy efficiency projects. Representatives indicated although energy efficiency was considered in overall project payback, applying for incentives was limited due to the perceived complexity in the custom application process.

MARKET CHARACTERIZATION ASSESSMENT

METHODOLOGY

CLEAResult gathered typical pump size and well count from sample customers along with other operating parameters in order to estimate potential energy savings. Utilizing this data along with existing workpapers accepted by other utilities, an average savings profile per HP was developed. CLEAResult is providing the Utility Cost Test in 3 scenarios. Annual participation rates for each scenario are described as follows.

- Scenario 1 – reflects traditional program performance over 3 years
- Scenario 2 – reflects anticipated customer participation based on unique market segment and customer feedback
- Scenario 3 – reflects increased participation over 3 years

The variables included in the Utility Cost Test were established using the following steps:

1. Total customer count is conservatively estimated at 20 based on the aggregated report as provided by Southwestern Public Service Company “All Irrigation Rate Customer using over 5,000 average kWh per month”
2. Estimated savings are based on the following sources:
    - Pump Upgrade savings based on similar utility workpapers. Please note that savings are estimates only and will need to be evaluated for the Southwest Public Service Company territory.
    - Well Pump VFD savings based on similar utility workpapers. Please note that savings are estimates only and will need to be evaluated for the Southwest Public Service Company territory.
    - Booster Pump VFD savings based on similar utility workpapers. Please note that savings are estimates only and will need to be evaluated for the Southwest Public Service Company territory.
3. Incentive values are based on the following sources:
    - Current prescriptive incentive for VFDs in the Southwest Public Service Company territory.
    - Comparison of VFD incentives for other comparable utility programs.
    - Subsidized incentive rates for pump testing in other comparable utility programs.

- Incentives for additional measure recommendations are based on the current incentive structures the Southwest Public Service Company territory.

4. The benefit / cost calculation is specific to Southwestern Public Service Company NM and was prepared using two separate Net-to-Gross Ratio values (1 and 0.8)

FINDINGS

CLEAResult estimated savings potential based on three different market participation scenarios over 3 years. The first scenario gives estimates based on estimated historical program participation rates. The second scenario depicts a more likely outcome given the unique customer segment along with customer, vendor, and association feedback. The inclusion of the third scenario illustrates a high penetration scenario, where adoption is quickly accepted and implemented across the territory. Tables 4 through 6 below depict the anticipated savings for each measure for each of the three scenarios over a 3-year period.

Table 4 - Estimated Program Performance for Scenario 1

Scenario 1				
Measure	**Measure Life (Years)**	**Energy Savings (kWh/Yr.)**	**Demand Savings (kW)**	**Incentive Costs**
Year 1 - Pump Upgrades-typical custom	8.7	129,437	38.99	$ 97,469
Year 1 - Well Pump VFDs	10	115,399	94.05	$ 77,813
Year 1 - Booster Pump VFDs	10	44,551	22.18	$ 19,656
Year 2 - Pump Upgrades-typical custom	8.7	258,874	77.98	$ 194,938
Year 2 - Well Pump VFDs	10	230,797	188.10	$ 155,625
Year 2 - Booster Pump VFDs	10	89,102	44.35	$ 39,313
Year 3 - Pump Upgrades-typical custom	8.7	388,311	116.96	$ 292,406
Year 3 - Well Pump VFDs	10	346,196	282.15	$ 233,438
Year 3 - Booster Pump VFDs	10	133,653	66.53	$ 58,969
Scenario 1	**Participation %**	**Total Annual Energy Saved (kWh)**	**Total Annual Capacity Saved (kW)**	**Incentive Costs**
Irrigation - Year 1	5%	289,387	155	$ 194,938
Irrigation - Year 2	10%	578,773	310	$ 389,875
Irrigation - Year 3	15%	868,160	466	$ 584,813
Total	**30%**	**1,736,320**	**931**	**$1,169,625**

Table 5 - Estimated Program Performance for Scenario 2

Scenario 2				
Measure	**Measure Life (Years)**	**Energy Savings (kWh/Yr.)**	**Demand Savings (kW)**	**Incentive Costs**
Year 1 - Pump Upgrades-typical custom	8.7	129,437	38.99	$97,469
Year 1 - Well Pump VFDs	10	115,399	94.05	$77,813
Year 1 - Booster Pump VFDs	10	44,551	22.18	$19,656
Year 2 - Pump Upgrades-typical custom	8.7	517,749	155.95	$389,875
Year 2 - Well Pump VFDs	10	461,594	376.20	$311,250
Year 2 - Booster Pump VFDs	10	178,204	88.70	$78,625
Year 3 - Pump Upgrades-typical custom	8.7	647,186	194.94	$487,344
Year 3 - Well Pump VFDs	10	576,993	470.25	$389,063
Year 3 - Booster Pump VFDs	10	222,754	110.88	$98,281
Scenario 2	**Participation %**	**Total Annual Energy Saved (kWh)**	**Total Annual Capacity Saved (kW)**	**Incentive Costs**
Irrigation - Year 1	5%	289,387	155	$194,938
Irrigation - Year 2	20%	1,157,547	621	$779,750
Irrigation - Year 3	25%	1,446,933	776	$974,688
Total	**50%**	**2,893,867**	**1,552**	**$1,949,375**

Table 6 - Estimated Program Performance for Scenario 3

Scenario 3				
Measure	**Measure Life (Years)**	**Energy Savings (kWh/Yr.)**	**Demand Savings (kW)**	**Incentive Costs**
Year 1 - Pump Upgrades-typical custom	8.7	258,874	77.98	$194,938
Year 1 - Well Pump VFDs	10	230,797	188.10	$155,625
Year 1 - Booster Pump VFDs	10	89,102	44.35	$39,313
Year 2 - Pump Upgrades-typical custom	8.7	517,749	155.95	$389,875
Year 2 - Well Pump VFDs	10	461,594	376.20	$311,250
Year 2 - Booster Pump VFDs	10	178,204	88.70	$78,625
Year 3 - Pump Upgrades-typical custom	8.7	1,553,246	467.85	$1,169,625
Year 3 - Well Pump VFDs	10	1,384,783	1,128.59	$933,750

Year 3 - Booster Pump VFDs	10	534,611	266.11	$235,875

Scenario 3	Participation %	Total Annual Energy Saved (kWh)	Total Annual Capacity Saved (kW)	Incentive Costs
Irrigation - Year 1	10%	578,773	310	$389,875
Irrigation - Year 2	20%	1,157,547	621	$779,750
Irrigation - Year 3	30%	3,472,640	1,863	$2,339,250
Total	**60%**	**5,208,960**	**2,794**	**$3,508,875**

All three scenarios represent an increase in savings relative to the projection listed in "Analysis of Southwest Public Service Company's Energy Efficiency Programs – Portfolio Optimization Study" prepared by Seventhwave. There is also an estimated increase in administrative and incentive costs associated with this implementation approach. The total cost breakdown of the program overs 3 years is detailed in Table 7 below.

Table 7 - Program Cost Breakdown

Cost Breakdown	
Labor	Total Rate
Program Specialist	$16,575.00
Senior Commercial Field Specialist	$108,732.00
Energy Engineer II	$12,800.00
Energy Engineer III	$16,100.00
Program Manager	$8,463.00
Engineering Manager	$16,744.00
Market Outreach Specialist	$3,060.00
Travel Expenses	$24,000.00
EM&V	$2,000.00
Total	$208,474.00

Table 8 – Utility Cost Test Results for Scenario 1

Scenario 1		
Measure	**B/C Ratio (NTG = 1)**	**B/C Ratio (NTG = 0.8)**
Year 1 - Pump Upgrades-typical custom	0.31	0.25
Year 1 - Well Pump VFDs	0.72	0.58

Year 1 - Booster Pump VFDs	0.63	0.50
Year 1 Total	**0.52**	**0.41**
Year 2 - Pump Upgrades-typical custom	0.41	0.33
Year 2 - Well Pump VFDs	0.98	0.78
Year 2 - Booster Pump VFDs	0.91	0.73
Year 2 Total	**0.70**	**0.56**
Year 3 - Pump Upgrades-typical custom	0.46	0.37
Year 3 - Well Pump VFDs	1.11	0.88
Year 3 - Booster Pump VFDs	1.07	0.86
Year 3 Total	**0.79**	**0.63**
Program Total	**0.70**	**0.56**

Table 9 - Utility Cost Test Results for Scenario 2

Scenario 2		
Measure	**B/C Ratio (NTG = 1)**	**B/C Ratio (NTG = 0.8)**
Year 1 - Pump Upgrades-typical custom	0.31	0.25
Year 1 - Well Pump VFDs	0.72	0.58
Year 1 - Booster Pump VFDs	0.63	0.50
Year 1 Total	**0.52**	**0.41**
Year 2 - Pump Upgrades-typical custom	0.49	0.39
Year 2 - Well Pump VFDs	1.18	0.95
Year 2 - Booster Pump VFDs	1.17	0.94
Year 2 Total	**0.84**	**0.68**
Year 3 - Pump Upgrades-typical custom	0.51	0.41
Year 3 - Well Pump VFDs	1.24	0.99
Year 3 - Booster Pump VFDs	1.25	1.00
Year 3 Total	**0.88**	**0.71**
Program Total	**0.81**	**0.65**

Table 10 - Utility Cost Test Results for Scenario 3

Scenario 3

Measure	B/C Ratio (NTG = 1)	B/C Ratio (NTG = 0.8)
Year 1 - Pump Upgrades-typical custom	0.41	0.33
Year 1 - Well Pump VFDs	0.98	0.78
Year 1 - Booster Pump VFDs	0.91	0.73
Year 1 Total	**0.70**	**0.56**
Year 2 - Pump Upgrades-typical custom	0.49	0.39
Year 2 - Well Pump VFDs	1.18	0.95
Year 2 - Booster Pump VFDs	1.17	0.94
Year 2 Total	**0.84**	**0.68**
Year 3 - Pump Upgrades-typical custom	0.57	0.45
Year 3 - Well Pump VFDs	1.38	1.10
Year 3 - Booster Pump VFDs	1.46	1.17
Year 3 Total	**0.98**	**0.79**
Program Total	**0.91**	**0.73**

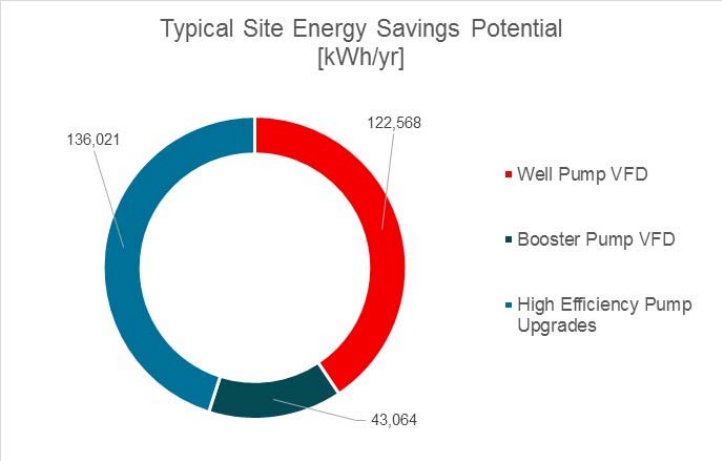
The UCT Cost Test Results illustrate a distinct difference between the three scenarios and emphasize that high market participation rates are essential to the program being cost effective. One driving factor of this result is that CLEAResult estimates higher non-incentive costs of $ $208,474 relative to the Seventhwave report where non-administrative costs are $12,000. The higher cost is in part due to the program being administered as a stand-alone program along with engineering cost in the beginning of the program to complete Technical Assumptions to move pump upgrades from a custom incentive to a prescriptive measure. To implement a program in the rural irrigation market effectively, CLEAResult also recommends a team that constitutes a full-time staff member dedicated to the territory which likely further explains the larger administrative costs between the two program approaches.

RECOMMENDATIONS

Findings from the market outreach effort and market potential study provide key insights regarding the feasibility of implementing an irrigation service program in Southwest Public Service Company territory. The following recommendations are guided by the results of our outreach efforts and market characterization.

Figure 1 below depicts the estimated savings a typical irrigation customer could realize with the implementation of three of the recommended measures. The savings were estimated assuming that each measure would be implemented as a standalone measure.

Figure 1 - Energy Savings Potential by Measure



AGRICULTURE AND IRRIGATION FEASIBILITY

Agriculture and irrigation play a significant role in the identity of the Southwest Public Service Company territory. Customers and distributors are significantly tied to the on-going conservation of both energy and water in the territory and are enthusiastic to adopt new technologies when economically feasible and non-disruptive to business.

Our recommendations are as follows:

- CLEAResult recommends a team to provide customer and distributor outreach in the territory to generate program participation and facilitate understanding of program policies and protocols. As most customers are rural, individualized engagement will be most effective.
- CLEAResult suggests running a pilot program on multi-stage and permanent magnet motors and create or add these offerings to the existing prescriptive incentive programs to reduce complexity and increase participation.
- With the aging of the irrigation systems and the corrosive nature of the water, CLEAResult suggests incentivizing testing of the well system (pump, motor, piping, etc.) to identify the least efficient systems through subsidized incentives that are paid directly to the pump testing vendor. Offering incentives directly to the vendor naturally drives the participation as vendors directly encourage customer to complete pump testing on a regular basis. Incentives for pump upgrades would be dependent on completion of pump test prior to and after retrofit. Examples of potential upgrades include:
    - Replacing pump bowl assembly/impeller
    - Adjusting bowl and impeller
    - Trimming the existing impeller
- CLEAResult suggests incentivizing computerized and GPS controlled systems to increase the impact of VFDs.
- CLEAResult suggests adding the following measures to a prescriptive program to accelerate the adoption of the technologies:
    - Well Pump VFD
    - Booster Pump VFD
    - Subsidized Pump Testing
- Due to the low calculated UCT results, CLEAResult recommends either implementing the first year of the program as a pilot study, or adding the irrigation measures to an existing program such as “Special Projects”

During conversations with customers while completing the surveys, it was also noted that there is potential for energy efficiency measures specific to the dairy industry. It is recommended that additional measures applicable to dairies be explored in more details but based on our expertise in the dairy industry, our high-level recommendations include the measures listed in Table 10 below.

Table 11 - Potential Measures for Dairy Customers

Measure #	Additional Dairy Specific Measures
1	High Efficiency Ventilation Fans and VFDs in Dairy Barns
2	Refrigeration Floating Head Controller Installations
3	Refrigeration scroll compressor replacements for bulk (milk cooling) tanks
4	Dairy Barn Lighting Upgrades from existing metal halides/fluorescents lighting to high efficiency LEDs
5	Dairy Vacuum Pumps/ Variable-speed drives (VSDs)

A final consideration for Southwest Public Service Company in launching an irrigation service program is exploring the possibility of implementing the program in conjunction with the local water conservation districts. By collaborating with other organizations, Southwest Public Service Company can take advantage of existing program infrastructure and established participants.

Appendix 1 – Data Analysis

Table 12 - Measure Potential Matrix

Irrigation Energy Savings Potential								
	A	B	C	D	E	F	G	H
Pump Testing Qualification	Low	Low	Med	Med	Med	Med	Med	Med
High Efficiency Pump Upgrades	Med	Med	High	High	High	High	High	High
Booster Pump VFD	Low	Low	Med	Med	Med	Med	Low	Med
Well Pump VFD	Low	Low	High	Med	Med	High	High	High
Reduction in pressure at the sprinkler head (low pressure irrigation system)	Low	Low	Low	Low	Low	Low	Low	Low
Low Pressure Sprinkler Nozzles	Low	Low	Low	Low	Low	Low	Low	Low
Weather based controllers	Med	Med	Med	Med	Med	Med	Med	Med
BRO - Sprinkler Maintenance Measures for Center Pivot	Low	Low	Low	Low	Low	Low	Low	Low

Table 13 - Site Details

Irrigation Site Details								
	A	B	C	D	E	F	G	H
Total acres under irrigation, acres	2,800	5,700	500	3,000	550	1,300	3,500	1,300
Average Well Pump horsepower (potential VFD)	40	70	50	60	40	40	75	40
Number of Well Pumps (estimated) with no VFDs	8	10	5	10	3	26	40	18
Total Well Pumps Horsepower, HP	320	700	250	600	120	1,040	3,000	720
Average Booster Pump horsepower (potential VFD)	20	20	20	20	30	20	20	20
Number of Booster Pumps (estimated) with no VFDs	4	20	5	15	4	10	10	6
Total Booster Pumps Horsepower, HP	80	400	100	300	120	200	200	120

Table 14 - Measure Savings Estimates (A-C)

	Energy Efficiency Measure Savings Estimates (A-C)			
		A	B	C
Well Pump VFD	Typical operating hours of Well Pumps at the survey region, hrs./yr.	1,140	1,140	1,140
	Total Well Pump VFD Estimated Energy Savings, kWh/yr.	44,092	96,452	34,447
	Well Pump VFD energy savings per acre, kWh/yr./acre	16	17	69
Booster Pump VFD	Total Booster Pump VFD Estimated Energy Savings, kWh/yr.	18,132	90,660	22,665
	Booster Pump VFD energy savings per acre, kWh/yr./acre	6	16	45
Total Pump VFD	Total Pump VFD Estimated Energy Savings, kWh/yr.	62,224	187,112	57,112
	Total Pump VFD energy savings per acre, kWh/yr./acre	22	33	114
High Efficiency Pump Upgrades	High Efficiency Pump Upgrades, kWh/yr.	49,353	135,721	43,184
	High Efficiency Pump Upgrades, kWh/yr./acre	18	24	86
Low Pressure Irrigation System	Low Pressure Irrigation System, kWh/yr.	Existing sites already have low pressure therefore measure not recommended for program		
	Low Pressure Irrigation System, kWh/yr./hp			
Pump Testing Qualification	Reduction factor for survey region operating profile - Well Pumps	Measure recommended as the qualification criteria to claim savings for High Efficiency Pump Upgrades; incentives can be provided for doing pump testing		
	Pump Testing to improve pump efficiency by 10%, kWh/yr.			
	Pump Testing to improve pump efficiency by 10%, kWh/yr./acre			
BRO and Maintenance	Low Pressure Sprinkler Nozzles, kW/yr./nozzle	Existing sites already have low pressure therefore measure not recommended for program		
	Low Pressure Sprinkler Nozzles, kWh/yr./nozzle			
	BRO - Sprinkler Maintenance Measures for Center Pivot, kW/yr./customer			
	BRO - Sprinkler Maintenance Measures for Center Pivot, kWh/yr./customer			
	BRO - Sprinkler Maintenance Measures for Center Pivot, kWh/yr./acre			

Table 15 - Measure Savings Estimates (D-F)

	Energy Efficiency Measure Savings Estimates (D-F)			
		D	E	F
Well Pump VFD	Typical operating hours of Well Pumps at the survey region, hrs./yr.	1,836	1,140	1,140
	Total Well Pump VFD Estimated Energy Savings, kWh/yr.	133,147	16,535	143,300
	Well Pump VFD energy savings per acre, kWh/yr./acre	44	30	110
Booster Pump VFD	Total Booster Pump VFD Estimated Energy Savings, kWh/yr.	67,995	27,198	45,330
	Booster Pump VFD energy savings per acre, kWh/yr./acre	23	49	35
Total Pump VFD	Total Pump VFD Estimated Energy Savings, kWh/yr.	201,142	43,733	188,630
	Total Pump VFD energy savings per acre, kWh/yr./acre	67	80	145
High Efficiency Pump Upgrades	High Efficiency Pump Upgrades, kWh/yr.	178,840	29,612	152,994
	High Efficiency Pump Upgrades, kWh/yr./acre	60	54	118
Low Pressure Irrigation System	Low Pressure Irrigation System, kWh/yr.	Existing sites already have low pressure therefore measure not recommended for program		
	Low Pressure Irrigation System, kWh/yr./hp			
Pump Testing Qualification	Reduction factor for survey region operating profile - Well Pumps	Measure recommended as the qualification criteria to claim savings for High Efficiency Pump Upgrades; incentives can be provided for doing pump testing		
	Pump Testing to improve pump efficiency by 10%, kWh/yr.			
	Pump Testing to improve pump efficiency by 10%, kWh/yr./acre			
BRO and Maintenance	Low Pressure Sprinkler Nozzles, kW/yr./nozzle	Existing sites already have low pressure therefore measure not recommended for program		
	Low Pressure Sprinkler Nozzles, kWh/yr./nozzle			
	BRO - Sprinkler Maintenance Measures for Center Pivot, kW/yr./customer			
	BRO - Sprinkler Maintenance Measures for Center Pivot, kWh/yr./customer			
	BRO - Sprinkler Maintenance Measures for Center Pivot, kWh/yr./acre			

Table 16 - Measure Savings Estimates (G-H)

	Energy Efficiency Measure Savings Estimates (G-H)		
		G	H
Well Pump VFD	Typical operating hours of Well Pumps at the survey region, hrs./yr.	1,140	1,140
	Total Well Pump VFD Estimated Energy Savings, kWh/yr.	413,364	99,207
	Well Pump VFD energy savings per acre, kWh/yr./acre	118	76
Booster Pump VFD	Total Booster Pump VFD Estimated Energy Savings, kWh/yr.	45,330	27,198
	Booster Pump VFD energy savings per acre, kWh/yr./acre	13	21
Total Pump VFD	Total Pump VFD Estimated Energy Savings, kWh/yr.	458,694	126,405
	Total Pump VFD energy savings per acre, kWh/yr./acre	131	97
High Efficiency Pump Upgrades	High Efficiency Pump Upgrades, kWh/yr.	394,824	103,641
	High Efficiency Pump Upgrades, kWh/yr./acre	113	80
Low Pressure Irrigation System	Low Pressure Irrigation System, kWh/yr.	Existing sites already have low pressure therefore measure not recommended for program.	
	Low Pressure Irrigation System, kWh/yr./hp		
Pump Testing Qualification	Reduction factor for survey region operating profile - Well Pumps	Measure recommended as the qualification criteria to claim savings for High Efficiency Pump Upgrades; incentives can be provided for doing pump testing	
	Pump Testing to improve pump efficiency by 10%, kWh/yr.		
	Pump Testing to improve pump efficiency by 10%, kWh/yr./acre		
BRO and Maintenance	Low Pressure Sprinkler Nozzles, kW/yr./nozzle	Existing sites already have low pressure therefore measure not recommended for program.	
	Low Pressure Sprinkler Nozzles, kWh/yr./nozzle		
	BRO - Sprinkler Maintenance Measures for Center Pivot, kW/yr./customer		
	BRO - Sprinkler Maintenance Measures for Center Pivot, kWh/yr./customer		
	BRO - Sprinkler Maintenance Measures for Center Pivot, kWh/yr./acre		

CLEAResult®

March 2019

This report serves as an addition to the report that was submitted to Southwestern Public Service Company on February 22, 2019 titled "Irrigation Market Feasibility Report to Southwestern Public Service Company".

CLEAResult is proposing two potential option for a cost-effective energy efficiency program for Irrigation customers. Both options are presented only for Scenario 2 and have the pump test and associated pump upgrades measure removed. The first option, Option 1, reduces the incentive level from the previously proposed $100 /hp for all measures and reduced program costs that reflect a "marketing only" approach to the program. The second option, Option 2, maintains the incentive at the $100 /hp level but suggests pursuing the market within Business Comprehensive program rather than a stand-alone program. Both proposed options offer an average B/C ratio of 1.00 over 3 years at a NTG of 0.8.

OPTION 1

Table 1 - Estimated Program Performance for Scenario 2 Option 1

Scenario 2					
Measure	**Measure Life (Years)**	**Unit Quantity (HP)**	**Energy Savings (kWh/Yr.)**	**Demand Savings (kW)**	**Incentive Costs**
Year 1 - Well Pump VFDs	10	778	115,399	94.05	$58,359
Year 1 - Booster Pump VFDs	10	197	44,551	22.18	$14,742
Year 2 - Well Pump VFDs	10	3,113	461,594	376.20	$233,438
Year 2 - Booster Pump VFDs	10	786	178,204	88.70	$58,969
Year 3 - Well Pump VFDs	10	3,891	576,993	470.25	$291,797
Year 3 - Booster Pump VFDs	10	983	222,754	110.88	$73,711
Scenario 2		**Participation %**	**Total Annual Energy Saved (kWh)**	**Total Annual Capacity Saved (kW)**	**Incentive Costs**
Irrigation - Year 1		5%	159,950	116	$73,102
Irrigation - Year 2		20%	639,798	465	$292,406
Irrigation - Year 3		25%	799,748	581	$365,508
Total		**50%**	**1,599,495**	**1,162**	**$731,016**

Table 2 - Utility Cost Test Results for Scenario 2 Option 1

Scenario 2		
Measure	**B/C Ratio (NTG = 1)**	**B/C Ratio (NTG = 0.8)**
Year 1 - Well Pump VFDs	0.69	0.55
Year 1 - Booster Pump VFDs	0.56	0.45
Year 1 Total	**0.66**	**0.52**
Year 2 - Well Pump VFDs	1.35	1.08
Year 2 - Booster Pump VFDs	1.28	1.02
Year 2 Total	**1.34**	**1.07**
Year 3 - Well Pump VFDs	1.45	1.16
Year 3 - Booster Pump VFDs	1.39	1.12
Year 3 Total	**1.43**	**1.15**
Program Total	**1.25**	**1.00**

Table 3 - Program Cost Breakdown for Option 1

Cost Breakdown				
Staff	**Staff Rate ($/Hr)**	**Hours**	**Total Cost ($)**	**Role Detail**
Support Staff	$80.00	80	$6,400	SalesForce updates / Customer outreach
Field Staff	$125.00	990	$123,750	Field Staff
Engineering 2	$122.00	20	$2,440	Assessments / New Measures
Engineering 3	$153.00	20	$3,060	Assessments / New Measures
Program Manager	$131.00	40	$5,240	Support Team / Client Updates
Marketing	$84.00	40	$3,360	Marketing Collateral
Labor Total		**1,190**	**$144,250**	
Expenses			**$8,000**	
EM&V			**$2,000**	
Total Program Costs			**$154,250**	

COMMENTS

CLEAResult has minimized the program costs by reducing much of the engineering costs. This option will utilize the internal engineering staff at Southwestern Public Service Company when required to complete projects. The viability of the program is also dependent on the proposed measures being available as part of the prescriptive program. While reducing incentive levels makes the potential program cost effective when averaged over 3 years, there is risk that the incentive levels will not drive participation rates as high. In order to keep incentive levels at the same rate, CLEAResult suggest Option 2 as a viable solution.

OPTION 2

Table 4 - Estimated Program Performance for Scenario 2 Option 2

Scenario 2					
Measure	**Measure Life (Years)**	**Unit Quantity (HP)**	**Energy Savings (kWh/Yr.)**	**Demand Savings (kW)**	**Incentive Costs**
Year 1 - Well Pump VFDs	10	778	115,399	94.05	$77,813
Year 1 - Booster Pump VFDs	10	197	44,551	22.18	$19,656
Year 2 - Well Pump VFDs	10	3,113	461,594	376.20	$311,250
Year 2 - Booster Pump VFDs	10	786	178,204	88.70	$78,625
Year 3 - Well Pump VFDs	10	3,891	576,993	470.25	$389,063
Year 3 - Booster Pump VFDs	10	983	222,754	110.88	$98,281
Scenario 2		**Participation %**	**Total Annual Energy Saved (kWh)**	**Total Annual Capacity Saved (kW)**	**Incentive Costs**
Irrigation - Year 1		5%	159,950	116	$97,469
Irrigation - Year 2		20%	639,798	465	$389,875
Irrigation - Year 3		25%	799,748	581	$487,344
Total		**50%**	**1,599,495**	**1,162**	**$974,688**

Table 5 - Utility Cost Test Results for Scenario 2 Option 2

Scenario 2		
Measure	**B/C Ratio (NTG = 1)**	**B/C Ratio (NTG = 0.8)**
Year 1 - Well Pump VFDs	0.89	0.71
Year 1 - Booster Pump VFDs	0.80	0.64

Year 1 Total	**0.87**	**0.69**
Year 2 - Well Pump VFDs	1.28	1.02
Year 2 - Booster Pump VFDs	1.31	1.05
Year 2 Total	**1.28**	**1.03**
Year 3 - Well Pump VFDs	1.32	1.05
Year 3 - Booster Pump VFDs	1.37	1.09
Year 3 Total	**1.33**	**1.06**
Program Total	**1.24**	**1.00**

Table 6 - Program Cost Breakdown for Option 2

Cost Breakdown				
Staff	**Staff Rate ($/Hr)**	**Hours**	**Total Cost ($)**	**Role Detail**
Support Staff	$80.00	0	$6,400	Will be covered in Bus Comp
Field Staff	$125.00	515	$123,750	10 hours a week
Engineering 2	$122.00	0	$2,440	Xcel will handle TA
Engineering 3	$153.00	0	$3,060	Xcel will handle TA
Program Manager	$131.00	0	$5,240	Will be covered in Bus Comp
Marketing	$84.00	40	$3,360	Marketing Collateral
Labor Total		**555**	**$67,735**	
Expenses			**$5,000**	
EM&V			**$2,000**	
Total Program Costs			**$74,735**	

Table 7 - Business Comp Breakdown for Option 2

Option 2	kWh	Implementation $ (noted for Cost Ef)	Bus Comp at-risk	Total
Year 1	159,950	$74,735	$11,196	$85,931
Year 2	639,798	$74,735	$44,785	$119,520
Year 3	799,748	$74,735	$55,982	$130,717

CLEAResult®

March 2019

COMMENTS

To maintain cost effective portfolio and still have the ability to serve rural irrigation customers and achieve energy savings, CLEAResult proposes utilizing the Business Comprehensive program. While this option is to drive program awareness CLEAResult will coordinate with the Business Solutions Center and Key Account Managers to promote with existing customer relationships. The team will also promote to irrigation customers and trades through professional organizations.

Southwestern Public Service Company

New Mexico 2018 Program Year Incentive Mechanism

	2018 Mechanism Formula	
Base Incentive		
Commission-approved Estimated Budget	$9,836,846	
2018 Incentive Level	6.80%	
Base Incentive		**$668,905**
Minimum Achievement Threshold		
2018 Cumulative Savings Threshold (Net Customer GWh)	287	
Verified 2018 Cumulative Energy Savings (Net Customer GWh)	302	
Minimum Achievement Reached?		**Yes**
Minimum 2018 New Mexico Incentive		**$668,905**
Low-Income Adjustment		
Low-Income Spend Requirement		
Approved Estimated Budget	$9,836,846	
Statutory Low-Income Spend Level	5.00%	
Low-Income Spend Requirement	$491,842	
Low-Income Spending Shortfall		
Low-Income 2018 Spend	$1,991,654	
Low-Income Spending Shortfall	$0	
Low-Income Spending Shortfall Penalty		
Low-Income Spending Shortfall	$0	
Proposed 2018 Incentive Level	6.80%	
Punitive Measure	2	
Low-Income Adjustment		**$0**
Adjusted Incentive		**$668,905**
Sliding Scale Adjustment		
Escalating Incentive Factor		
2018 Linear Savings Requirement (Net Customer GWh)	29.444	
Verified 2018 Annual Energy Savings (Net Customer GWh)	42.841	
Escalation Minimum Reached?		**Yes**
Minimum Achievement Exceeded by at least 1 GWh, but less than 2 GWh?	No	
Incentive Value	6.90%	
Bonus Incentive		**$0**
Minimum Achievement Exceeded by at least 2 GWh, but less than 3 GWh?	No	
Incentive Value	7.00%	
Bonus Incentive		**$0**
Minimum Achievement Exceeded by at least 3 GWh?	Yes	
Incentive Value	7.11%	
Bonus Incentive		**$30,494.321**
Total 2018 Incentive		**$699,399**

Southwestern Public Service Company

Proposed Incentive Mechanism

Max Set Point (GWh @ Cust)	Performance Increment/GWh	Triennial Budget Forecasts (SPS will base actual mechanism on spend)		
42	0.075%	$ 9,511,304	$ 10,404,002	$ 10,404,002

Evaluated Annual Savings (GWh @ Cust)	Proposed Performance Incentive	2020	2021	2022
31	5.89%	$ 559,740	$ 612,276	$ 612,276
32	5.96%	566,874	620,079	620,079
33	6.04%	574,007	627,882	627,882
34	6.11%	581,141	635,685	635,685
35	6.19%	588,274	643,488	643,488
36	6.26%	595,408	651,291	651,291
37	6.34%	602,541	659,094	659,094
38	6.41%	609,675	666,897	666,897
39	6.49%	616,808	674,700	674,700
40	6.56%	623,942	682,503	682,503
41	6.64%	631,075	690,306	690,306
42	6.71%	638,208	698,109	698,109
43	6.71%	638,208	698,109	698,109
44	6.71%	638,208	698,109	698,109
45	6.71%	638,208	698,109	698,109
46	6.71%	$ 638,208	$ 698,109	$ 698,109