



**Q4-2014 COLORADO
DSM ROUNDTABLE**

February 11, 2015

- 1:00 – 1:10 p.m. Welcome and DSM Regulatory Updates
- 1:10 – 2:10 p.m. DSM Programs: Q4-2014
 - » Business Update
 - » Residential and Low-Income
- 2:10 – 2:45 p.m. Pilot Updates: Q4-2014
 - » *Special Presentation:* Final Results – EV Charging Station Pilot
- 2:45 – 3:00 p.m. -- *Networking Break* --
- 3:00 – 3:20 p.m. Product Development: Q4-2014
 - » Stakeholder Idea Submissions
- 3:20 – 3:40 p.m. *Special Presentation:*
PD Express & Custom-to-Prescriptive Pipeline
- 3:40 – 4:00 p.m. *Special Presentation:*
2014 Comprehensive Evaluations Summary



**DSM REGULATORY UPDATES
Q4-2014**

- 2014 DSM Plan continuing
- 2015/16 DSM Plan Procedural Schedule:
 - Application and Direct Testimony Filed – Oct. 30
 - Supplemental Direct Testimony Filed – Feb. 6
 - Answer Testimony Due – Feb. 13
 - Rebuttal Testimony / Cross-Answer Testimony Due – Mar. 13
 - Stipulations / Settlement / Motions / Corrections Due – Mar. 16
 - Hearing – Mar. 30-31
 - Statements of Position – April 14
 - Statutory Decision Deadline – July 8

- Lighting Efficiency
 - *Posted:* Nov. 26, 2014
 - *Implemented:* Dec. 29, 2014
- ENERGY STAR New Homes
 - *Posted:* Dec. 1, 2014
 - *Implemented (with changes):* Jan. 29, 2015
- Energy Feedback Residential
 - *Posted:* Dec. 3, 2014
 - *Implemented:* Jan. 5, 2015
- Ground-Source Heat Pumps
 - *Posted:* Dec. 23, 2014

UPCOMING DSM FILINGS / MEETINGS



- **April 1, 2015**
2014 DSM Annual Status Report
- **May 6, 2015:**
Q1-2015 DSM Roundtable Meeting





DSM ACHIEVEMENTS Q4-2014

BILL CONRAD
Manager, Energy Efficiency Marketing

Q4-2014 ACHIEVEMENT HIGHLIGHTS



Electric Portfolio

- 394.7 Net Gen GWh (102% of Target)
- 81 MW (94% of Target)
- \$76M Spend (87% of filed budget)

Business Programs

- Data Center Eff. – 171% of Target
- Computer Eff. – 178% of Target
- Process Efficiency – 117% of Target

Residential Programs

- ENERGY STAR New Homes – 129% of Target
- Home Lighting – 161% of Target
- Residential A/C – 123% of Target

Gas Portfolio

- 606,787 Net Dth (97% of Target)
- \$12.5M Spend (102% of filed budget)

Business Programs

- Custom Efficiency – 282% of Target
- EMS – 299% of Target
- New Construction – 171% of Target

Residential Programs

- EE Showerheads – 208% of Target
- HPwES – 180% of Target
- Heating Systems – 114% of Target

Business Trade Events

- 2014 Plan Build Thrive Event Series for Business Development
- Haynes Mechanical Lunch & Learn
- WestEx Restaurant Trade Show – Sysco Foods 2014
- Denver City Energy Project Trainings
- Colorado Counties, Inc. (CCI) Annual Winter Conference
- IECC 2015 Energy Codes Forum
- 2015 Colorado Business Economic Outlook Forum
- Small Business Development Center World Economic Outlook Forum
- SimClub Energy Modeling Trade Meeting

Residential Trade Events

- Q4 transitioned to new “ResCalendar” hosted by CGBG
- cgbgonline.org/scholarships
- Calendar of Events For Contractors
- NATE test reimbursement scholarships continue



DSM BUSINESS PROGRAM Q4 HIGHLIGHTS

JENNIFER ELLING
Team Lead, DSM Marketing

- **Energy Analysis 2014**

- Nearly 100% increase in participation from 2013 to 2014 (86 electric participants in 2013, 165 in 2014)
- 2014 increase - result of March/April email campaigns, June/July bill onsert campaigns, and September/October direct mail campaigns
- Program identified more than 6 GWhs of prescriptive energy conservation opportunities in 2014 (mostly Lighting, Cooling, Motors & Drives ECOs)

- **Energy Analysis 2015**

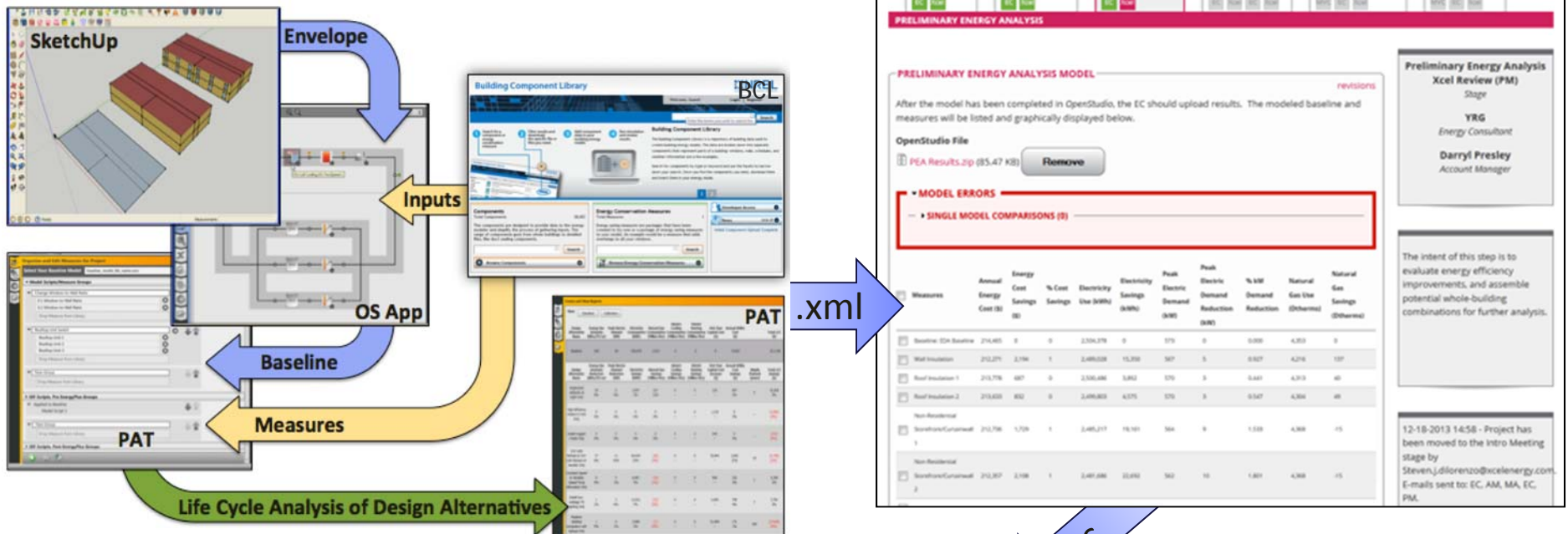
- “Ring in the New Year with savings” campaign
- First 100 customers to submit an Energy Analysis application in 2015 are eligible to receive a \$100 onsite energy audit
- Energy audit report includes identified ECOs with associated payback, savings, costs, and available Xcel Energy rebates



Energy Design Assistance – Process Improvements

- **Improve customer satisfaction** – use one modeling platform (OpenStudio) to allow more energy modeling consultants
 - Outcome - Now 8 consultants versus 2. More projects
- **Reduce costs** – create on-line, automated project tracker EnergyDesignAssistance Project Tracker (EDAPT)
 - Outcome - Saving about \$500,000 in admin costs
- **Align goals** – move to pay for performance for energy consultants
 - Outcome – energy consultants more incentivized to help customer maximize energy savings, cost effectively

OPENSTUDIO-EDAPT INTEGRATION



Huron St Residential

1 APPLICATION 2 INTRO MEETING 3 PRELIMINARY ENERGY ANALYSIS 4 FINAL ENERGY ANALYSIS 5 CONSTRUCTION DOCUMENT REVIEW 6 MEASUREMENT & VERIFICATION

PRELIMINARY ENERGY ANALYSIS

PRELIMINARY ENERGY ANALYSIS MODEL

After the model has been completed in OpenStudio, the EC should upload results. The modeled baseline and measures will be listed and graphically displayed below.

OpenStudio File
PEA_Results.zip (85.47 KB)

MODEL ERRORS

— SINGLE MODEL COMPARISONS (3)

Measures	Annual Energy Cost (\$)	Energy Cost Savings (\$)	% Cost Savings	Electricity Use (kWh)	Electricity Savings (kWh)	Peak Electric Demand (kW)	Peak Electric Demand Reduction (kW)	% kW Demand Reduction	Natural Gas Use (therms)	Natural Gas Savings (therms)
Baseline: EDA Baseline	214,465	0	0	2,504,378	0	575	0	0.00	4,353	0
Wall Insulation	212,071	2,394	1	2,495,028	15,350	567	8	0.67	4,216	137
Roof Insulation-1	213,776	687	0	2,500,486	3,942	576	3	0.44	4,313	40
Roof Insulation-2	213,659	802	0	2,499,853	4,525	576	3	0.547	4,304	49
Non-Residential	212,758	1,707	1	2,492,217	19,161	564	9	1.59	4,360	15
Scenario/Commitment	212,807	2,158	1	2,491,086	22,892	562	10	1.80	4,368	15

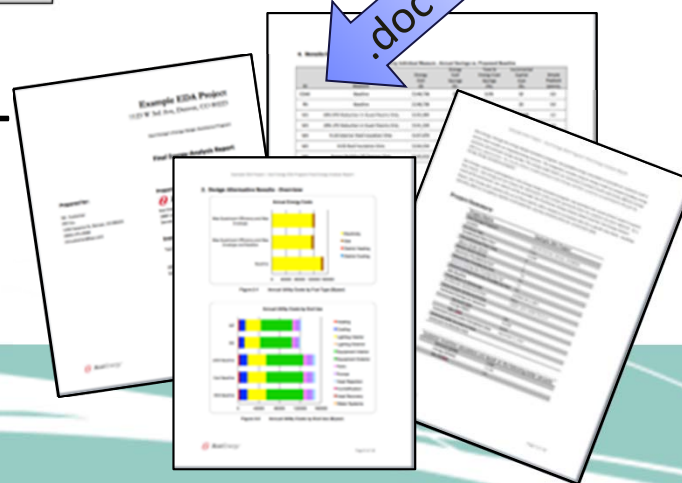
Preliminary Energy Analysis
Xcel Review (PM) Stage
YRG Energy Consultant
Darryl Presley Account Manager

The intent of this step is to evaluate energy efficiency improvements, and assemble potential whole-building combinations for further analysis.

12-18-2013 14:58 - Project has been moved to the Intro Meeting stage by Steven.j.florenzo@xcelenergy.com. E-mails sent to: EC, AM, MA, EC, PM.

Parametric Analysis Tool results and QA/QC checks are uploaded to EDAPT

Upload format is open to allow use of other tools

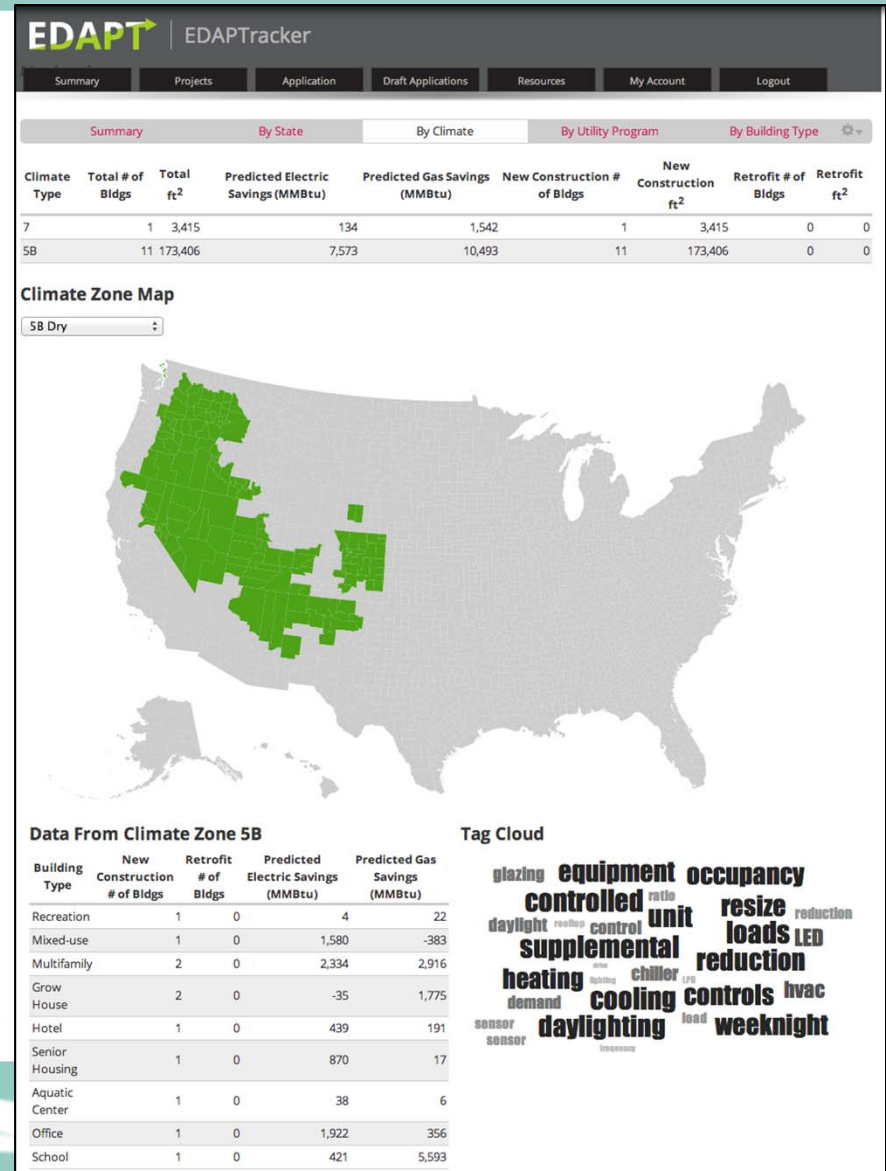


EDAPT automatically documents project data & OpenStudio output

XCEL ENERGY & NATIONAL EXPANSION OF EDAPT



- Working to expand EDAPT to other Xcel Energy commercial whole building programs (1st up - Recommissioning program)
- DOE and NREL - Currently transitioning EDAPT to other utilities (Austin, CPS, and Duke Energy)
- In discussions with Energy Trust of Oregon, National Grid, NYSERDA, and CPUC



Lighting Efficiency - Midstream

- Colorado Business LED Instant Rebate launched on 1/15/2015
- 50 plus participating Distributors (enrolled in the program)
- Distributor finder: <http://businessledinstantrebate.com/Locator/Distributors>

Qualifying Lamp Category	Rebate Amount
LED Interior Lamp - PAR38	\$15
LED Interior Lamp - PAR30	\$11
LED Interior Lamp - PAR20	\$9
LED Interior Lamp - PAR16	\$6
LED Interior Lamp - BR40	\$8
LED Interior Lamp - BR30	\$8
LED Interior Lamp - R20	\$9
LED Interior Lamp - MR16	\$5
LED Interior Lamp - GU10	\$5
LED Interior Lamp - A19	\$5
LED Interior Screw In Fixture Retrofit	\$12





DSM RESIDENTIAL & LOW-INCOME PROGRAM Q4 HIGHLIGHTS

DAVID HUESER
Team Lead, DSM Marketing

2014 RESIDENTIAL/L.I. MODIFICATIONS 2015 PROPOSALS



2014 snapshot of product modifications completed, 2015 initiatives planned

Residential/Low Income Program	Measures added	Measures eliminated	Next Steps
Heating System Rebates	EC Motors added 5/1/14 NATE Gas Heating Trade Partner Certification	92% and 94% AFUE Furnaces (95% new min)	ECM Electric-Only + Non-XE Gas Utility partnerships Residential boilers, retire rebates in 2015
High Efficiency Air Conditioning	Western Cooling Control (WCC) Device		17 SEER, up to \$1,150 14.5 SEER, retire in 2015 WCC trade training
School Education Kits	1 LED Lamp, Showerhead, Aerators		
Energy Efficient Showerheads	Aerators added to Kits		
Water Heater Rebate		.62 and .65 Energy Factor (.67 new minimum)	
Energy Feedback	Expansion to 400K homes		

RESIDENTIAL HOME LIGHTING



107% of 2014 budget expenditures in 2014, 161% of kWh target, primarily driven by CFLs, including multipack sales.

- CFLs accounted for 83% of total kWh, 58% of rebates in 2014. However, CFL kWh achievement declined 10% vs. 2013
- LED proportion of total kWh 17% in 2014; compares to 4% in 2013
- LED proportion of total rebates 42% in 2014, 15% in 2013
- LED unit prices appear to be leveling off per recent WECC pricing scan
- Sales of certain specialty CFLs are tapering off and some manufacturers are discontinuing models
- Manufacturers and retailers more prominently displaying LED lamps, promoting benefits



Feit 23W Mini
Twist, 100W
replacement,
6-packs
Costco



CREE 9.5W
60-watt
replacement,
Home Depot

RESIDENTIAL EVAPORATIVE COOLING



2014 participation decreased over the previous year

97% of 2014 budget expenditures in 2014, 76% of kWh target

- Contingency plan including 30% customer rebate bonus implemented August 1 – November 30 to help drive more units
- Increased trade incentive accompanied customer bonus
- Increased marketing efforts did not make up for slower unit sales
- Program bright spots in 2014
 - Western Slope sales, partnerships
 - Higher proportion of premium units
 - Trade partner training well received



Photo:
Champion

COMPARISON OF ENERGY-SAVINGS MEASURES IN SINGLE FAMILY HOMES



	Home Energy Squad	Low Income Single Family Weatherization
Target residence	Residential, Single Family	Low Income, Single Family
Direct Install measures	CFLs Showerheads Aerators Thermostat install or setback Water Heater blanket Water Heater setback	CFLs Showerheads Aerators LEDs in 2016, when cost-effective
A la carte measures - Available for purchase during visit	LEDs TV/peripherals timer Second Thermostat Second Weather-stripped door	
Weatherization	Weather-stripped door	Wall/Attic/Crawl Space Insulation Air Sealing Weather-Stripping Storm Windows
Appliances		Refrigerator Replacement Furnace, EC Motor Water Heater

LOW INCOME MULTIFAMILY WEATHERIZATION



- Both Electric (153%) and Gas (158%) achievement exceeded in 2014
- Shifted expenses from other Low Income programs (especially Low Income Kits, where cost savings were realized) to over-spend in order to achieve higher goals
- Comprehensive Product evaluation in 2014
 - Outreach beyond metro area
 - Clear role definitions
- Expanded Energy Outreach Co. partnership with Single Family weatherization
- Expanded measure parameters in 2015



Low Income Multifamily Wx Product Implementer

COMPARISON OF ENERGY-SAVINGS MEASURES IN MULTIFAMILY BUILDINGS



	Multifamily Buildings Pilot	Low Income Multifamily Weatherization
Target residence	Residential, Multifamily	Low Income, Multifamily
Direct Install measures	CFLs LEDs Showerheads Aerators LED Exit Signs Water Heater blankets	Common, bundled measures: CFLs Showerheads Aerators
Whole building	Larger, capital-intensive projects: pre-approval for custom, prescriptive, and whole-building measures similar to Energy Efficient Buildings – more efficient than Code Building.	Common, bundled measures, custom and prescriptive: Boilers, DHW, pipe insulation, controls Lighting: fluorescent, LED Cooling Wall/Attic/Crawl Space Insulation Weather-Stripping Windows

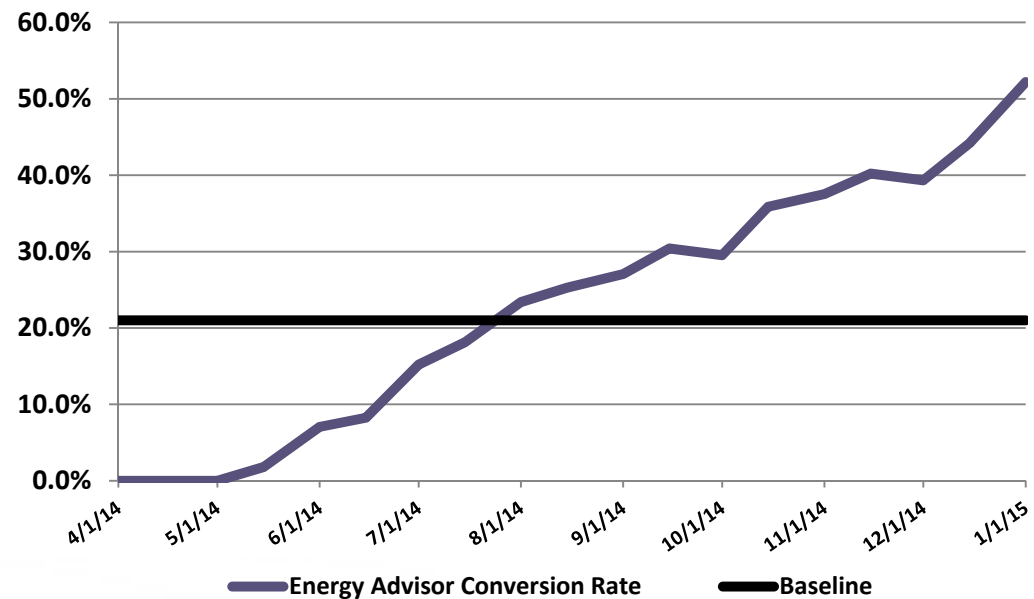
RESIDENTIAL HOME PERFORMANCE WITH ENERGY STAR



- Gas savings at 180% of filed goal; deeper savings per household
- Electric savings goal met – 127%
 - Increased HVAC participation vs. 2013
 - Energy Advisor conversion activities yielding good results

- Primary Gas measures
 - Ceiling/Attic Insulation
 - Air Sealing
 - Wall Insulation
- Primary Electric measures
 - Lighting/CFLs
 - Thermostats

Post Audit Consulting Conversion Rate Trend



ENERGY STAR NEW HOMES



- Achieved full subscription September 18, 2014
 - All submitted homes received a rebate
- 3,295 total homes successfully completed program
 - 97,733 Dths savings (103% of YE target)
 - 2,186,473 kWh savings (129% of YE target)
- 2015 enrollments opened December 11
- Posted 60-Day Notice December 1
 - Goal was to implement Plan (program) changes in order to keep program open all year
 - Comments received by stakeholders
 - Notice, including modifications resulting from stakeholder comments, implemented January 29



Photo: Richmond American Homes, Arvada, CO



DSM PILOT UPDATES Q4 HIGHLIGHTS

Kerry Klemm
Manager, Product Development

1. Small scale
2. Short term
3. Allows us to...
 - Test logistics
 - Prove value
 - Reveal flaws

...before spending a significant amount of time, energy and/or money on a large-scale program

Testing one two three



PILOTS AND STATUS



PILOT	STATUS	
Energy Feedback	To Program in 2015	
Business Energy Feedback	In Progress	
Building Optimization	Filed	
Small Business Smart Thermostat	Filed	
Multifamily	Launch Q2 2015	
Residential Smart Thermostat	Launch March 2015	
Electric Vehicle Charging Station	Complete Finalizing Report	
Community Energy Efficiency Planning	Complete Finalizing Report	

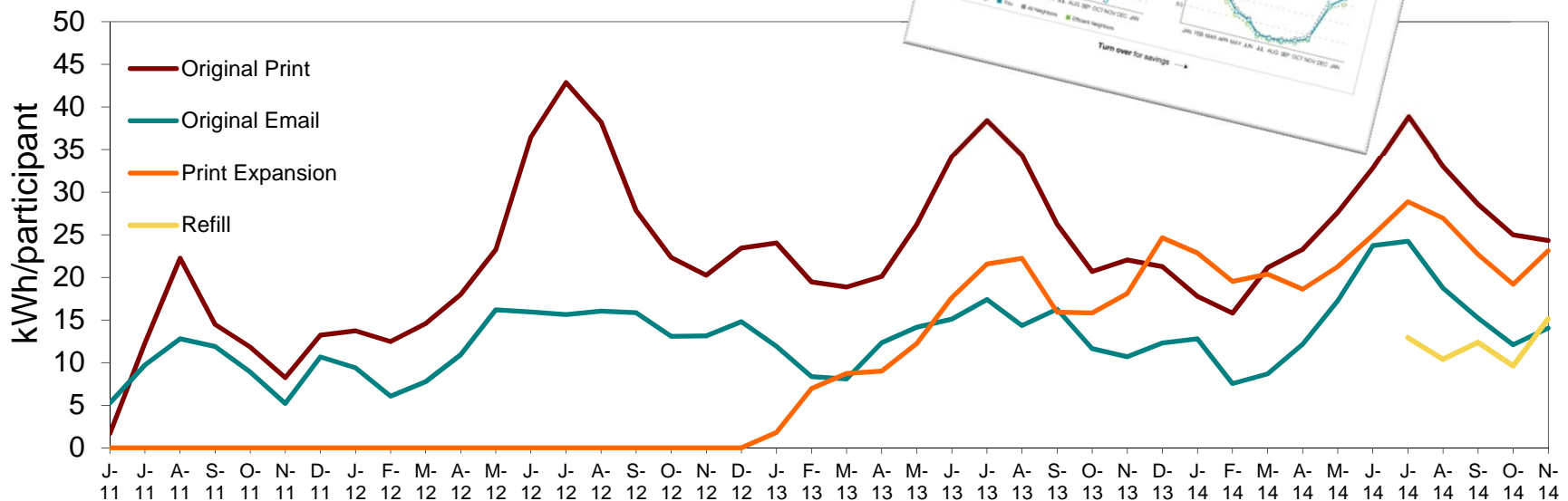


ENERGY FEEDBACK PILOTS

DSM PILOT UPDATES ENERGY FEEDBACK - RESIDENTIAL



- Added 400,000 new participants in Jan 2015
- 2014: 27.8 Net Gen GWh and 91,789 Dth
 - 50% more electricity savings and 29% more gas savings than in 2013



DSM PILOT UPDATES MY ENERGY



- Three My Energy emails delivered to around 300,000 customers
- No savings measurement yet
- Third-party evaluation taking place in Q1 2015



Understand Your Energy Use Better



Enjoy comfort and energy savings this holiday season

Since heating will become a big part of your budget, add insulation to save energy while making your home more comfortable. And as the daylight gets shorter, brighten up your home with energy-efficient bulbs. It's easy when you start with **My Energy**. Take your pick:

See how you compare ...

First, see how much energy you use. Then build a plan, set a goal and track progress:

- View your biggest energy expense
- Look at your historical use
- Compare your energy use with neighbors

[Explore my usage >>](#)

Take these steps now ...

Learn about energy-saving solutions to help you save energy all over your home:

- Switch to CFL and LED lighting
- Turn off electronics with a power strip
- Tune up your furnace

[More ways to save >>](#)

P.S. Remember, **My Energy** is a free service within My Account designed to help you use smart energy-saving solutions in your home. If you haven't tried it, [tell us about your home](#) today.



DSM PILOT UPDATES MY ENERGY



7%
Of
Colorado
Customers

	MN	CO	NMx	TX	MI	SD	ND	WI
Unique Visitors	95,293	114,749	4,841	11,289	467	6,375	9,929	18,540
Average Time On Site	2:59	2:51	2:38	2:49	3:52	2:56	2:56	3:16
Green Button Downloads	3,586	4,279	8	67	3	16	56	7,962
Web Audits*	14,900 16%	15,776 14%	753 16%	1,777 16%	64 14%	1,109 17%	1,731 17%	3,259 18%
Commitments*	1,250 1.3%	1,092 1.0%	50 1.0%	123 1.1%	5 1.1%	99 1.6%	113 1.1%	248 1.3%

Note: Results shown are between November 2013 and December 2014. *Percentages based on unique visitors. Green Button Downloads based on total downloads

DSM PILOT UPDATES ENERGY FEEDBACK - BUSINESS



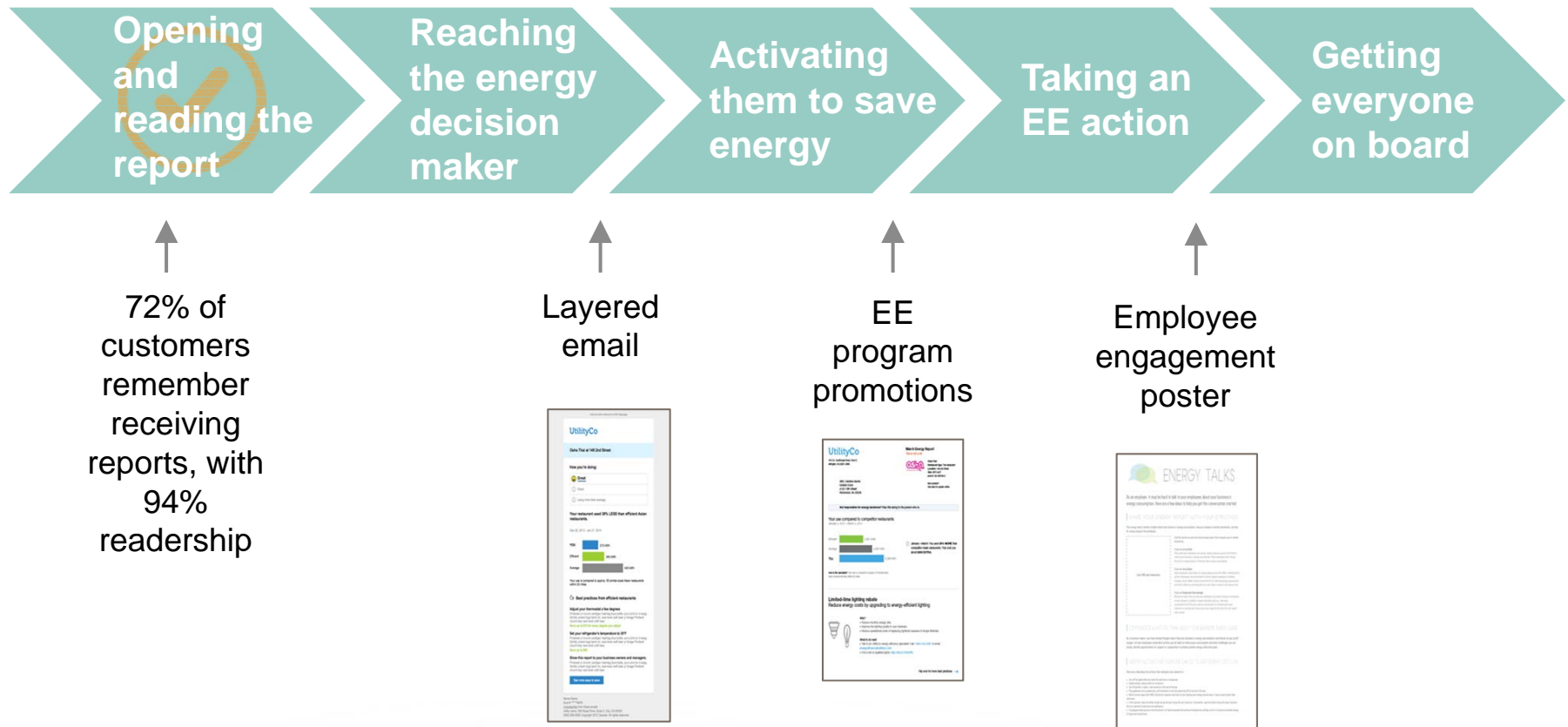
- Started in July
- Four reports in 2014
- 10,000 small businesses
- First savings measurement Nov 2014
 - 1.53 Net Gen GWh
 - No Dth measurement yet
- Third-party evaluation Q1 2015



DSM PILOT UPDATES ENERGY FEEDBACK - BUSINESS



Adding outreach in 2015





COMMUNITY ENERGY EFFICIENCY PLANNING PILOT WRAP-UP

DSM PILOT UPDATES COMMUNITY ENERGY EFFICIENCY PLANNING



- Held community meeting to present evaluation results on 12/10/14
- Pilot is now complete – implementation activities continue
- Final Evaluation Report Q1 2015
- Best practices incorporated into Partners In Energy



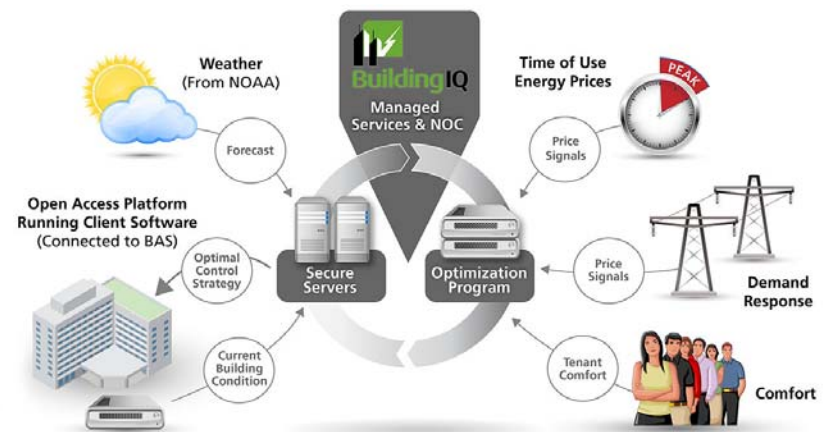


**BUILDING OPTIMIZATION
(NEW FOR 2015 PLAN)**

WHAT DO WE WANT TO LEARN?

- 1 What level of demand response does this technology deliver (kW/sf)?
- 2 Can this demand response be reliably and repeatedly deployed?
- 3 Can this resource be used for short notice events (< 10 minutes)?
- 4 What level of energy savings can be attributed to optimization software?
- 5 Is the value of energy savings sufficient for customers to subscribe to the software?

- ✓ **Filed in CO 2015/2016 Plan**
- ✓ **2- year pilot, 10 bldgs.**
- ✓ **Budget: \$ 464,163**



UPDATES

- Met with BuildingIQ
- Query to E Source and additional research to find similar vendors
- Still on track to be ready for the summer control season



WHAT DO WE WANT TO LEARN?

- 1 What level of DR does this technology deliver (kw/ton); a) when using a cycling strategy for cooling? b) when enabling pre-cooling and temperature set-up strategy?
- 2 Will customers consistently participate in DR events a) without an incentive beyond the value of the smart thermostat? b) with a pay-for-performance compensation structure?
- 3 Are small business customers interested in this type of program?
- 4 Can a direct install deployment method be cost-effectively administered?
- 5 Could smart thermostats be effectively delivered within SB Lighting's direct install approach?

- ✓ **Filed in CO 2015/2016 Plan**
- ✓ **2- year pilot, 100 bldgs.**
- ✓ **Budget: \$ 561,976**
- ✓ **Tie in with Residential Smart T-stat DR pilot**





MULTIFAMILY PILOT

WHAT DO WE WANT TO LEARN?

- 1 How can we best engage multifamily building owners/property managers?
- 2 What motivates building owners/property managers to pursue energy efficiency projects?
- 3 What is a reasonable savings range to be expected for existing multifamily buildings?
- 4 Does starting with an energy assessment and direct-install package lead to larger capital projects?
- 5 Do energy efficiency projects have any effect on occupancy rates, rental rates and/or overall building value?



- ✓ **60-Day Notice filed Aug 2014**
- ✓ **2-year pilot**
- ✓ **Budget \$613,850**
- ✓ **Energy Assessment → Direct-Install → Traditional Energy Efficiency Improvements**

UPDATES

- Anticipated launch Q2 2015
- Back-office process and procurement efforts underway
- February request for information (RFI) for implementation support services
- Late February request for proposal (RFP)





RESIDENTIAL SMART THERMOSTAT

WHAT DO WE WANT TO LEARN?

- 1 What level of energy savings can be attributed to smart thermostats?
- 2 Will a \$50 rebate encourage customers to purchase and install a smart thermostat?
- 3 Can we create a cost-effective DSM product using the resulting deemed energy savings values?
- 4 Will a pay-for-performance format encourage participation in demand response events?
- 5 What incentive levels will optimize participation and demand savings during control events?
- 6 Are customers interested in a BYOD demand response program model?



- ✓ **60-Day Notice filed Aug 2014**
- ✓ **2-year pilot**
- ✓ **Budget \$1,158,500**
- ✓ **\$50 rebate**
- ✓ **\$25 DR incentive**
- ✓ **\$2.50 or \$5 bill credit**

RESIDENTIAL SMART THERMOSTAT



CONTRACTS



MARKETING
PLAN



OPERATIONS

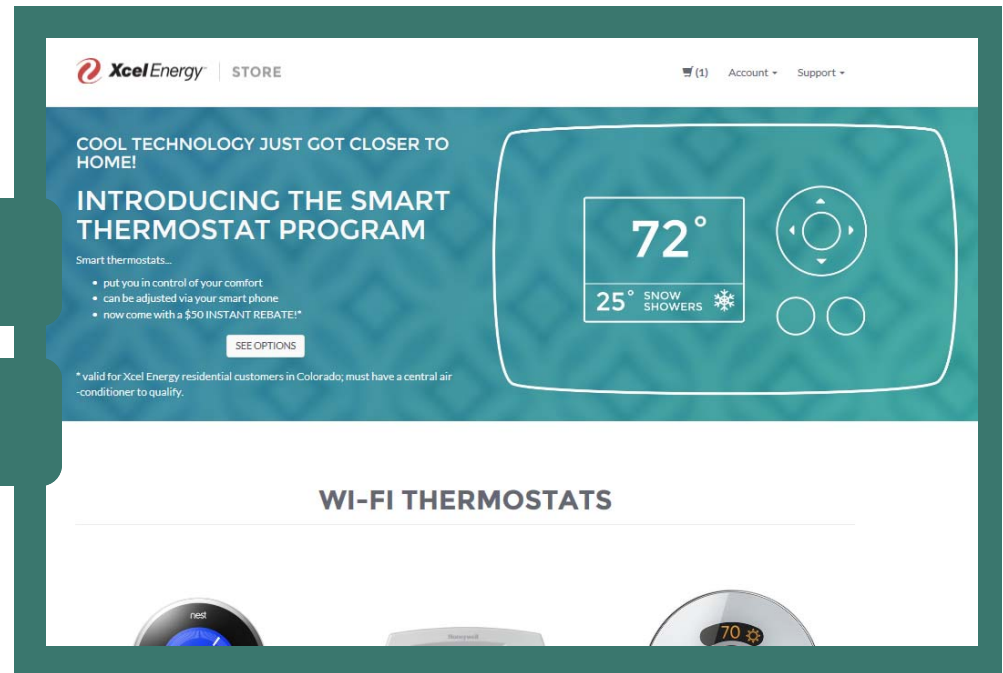


CUSTOMER
EXPERIENCE

ANTICIPATED LAUNCH: EARLY Q2 2015

1 EASE

2 OPPORTUNITY



The screenshot shows a webpage for Xcel Energy's smart thermostat program. At the top, there is a navigation bar with the Xcel Energy logo, the word "STORE", a shopping cart icon with "(1)", and links for "Account" and "Support". The main content area has a teal background with a pattern of small white dots. The headline reads "COOL TECHNOLOGY JUST GOT CLOSER TO HOME!" followed by "INTRODUCING THE SMART THERMOSTAT PROGRAM". Below this, it says "Smart thermostats..." and lists three bullet points: "put you in control of your comfort", "can be adjusted via your smart phone", and "now come with a \$50 INSTANT REBATE!*". A "SEE OPTIONS" button is located below the list. To the right of the text is a large, stylized illustration of a smart thermostat displaying "72°" and "25° SNOW SHOWERS" with a snowflake icon. Below the main content area, there is a section titled "WI-FI THERMOSTATS" with a horizontal line. At the bottom of the screenshot, three different smart thermostat models are partially visible.

CO RESIDENTIAL SMART THERMOSTAT



JAN

FEB

MAR

CONTRACTS

- MANUFACTURER
- DEMAND RESPONSE
- M&V

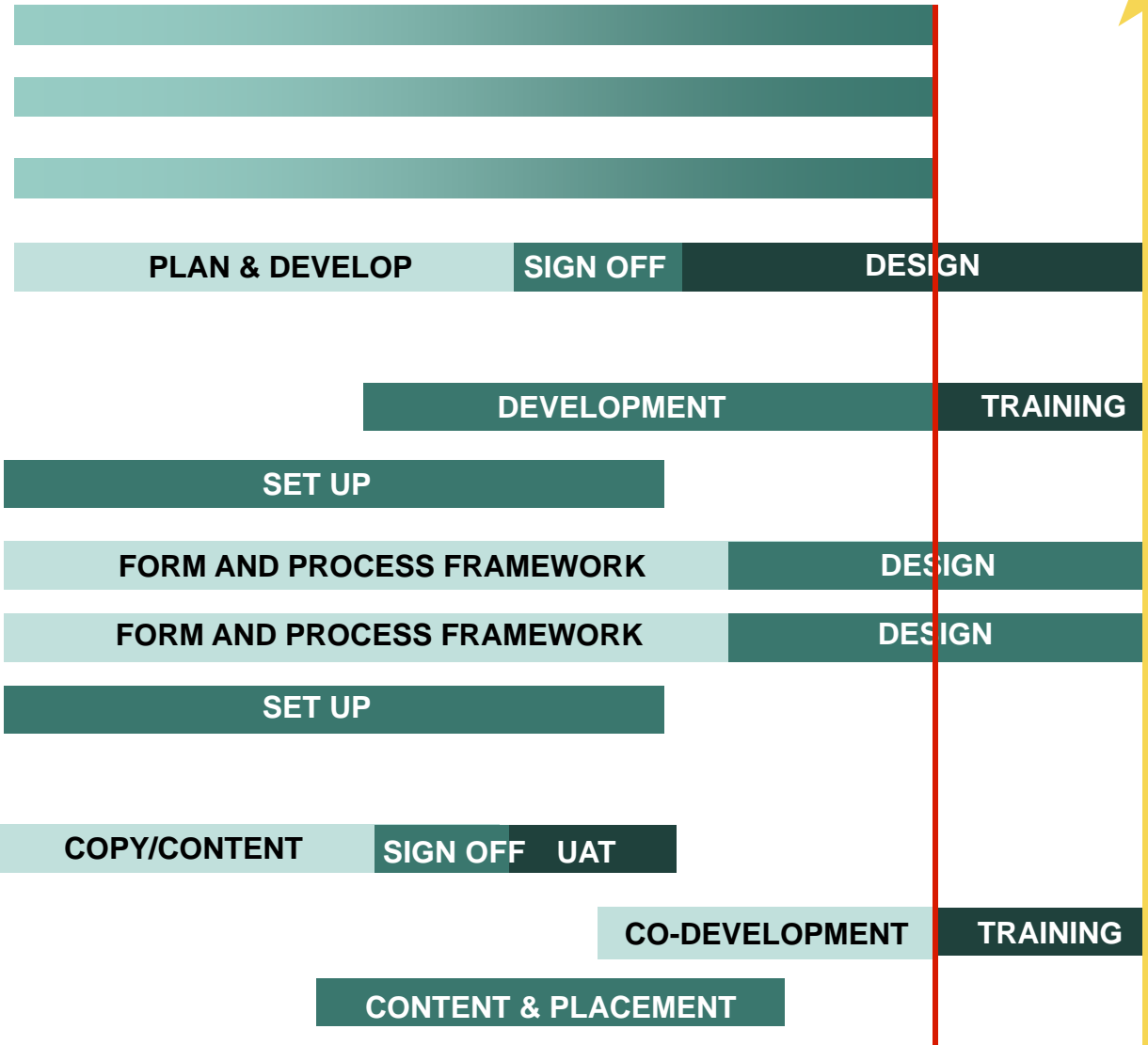
MARKETING

OPERATIONS

- CUSTOMER CARE
- BILLING
- REBATE
- LOAD MANAGEMENT
- CRM

STOREFRONT

- SITE DEVELOPMENT
- CUSTOMER CARE
- PR/MEDIA/SOCIAL





ELECTRIC VEHICLE CHARGING STATION PILOT FINAL RESULTS

Eric Van Orden
Product Developer, Marketing

REPOWERING TRANSPORTATION



NREL National Renewable Energy Laboratory
Innovation for Our Energy Future

Field Testing Plug-in Hybrid Electric Vehicles with Charge Control Technology in the Xcel Energy Territory

T. Markel, K. Bennion and W. Kramer
National Renewable Energy Laboratory

J. Bryan and J. Giedd
Xcel Energy

and Emissions
ted with Plug-in
lectric Vehicle
in the Xcel Energy
Service Territory



CONNECT
A blog powered by Xcel Energy

Home xcelenergy.com



ELECTRIC VEHICLE CHOICES



New nameplates
added each year...



HONDA



Mercedes-Benz



2010
2 Models Available

2011
4 Models Available

2012
12 Models Available

2013
16 Models Available

2014
22 Models Available

2015
26+ Models Anticipated

ELECTRIC VEHICLE CHARGING STATION



WHAT DID WE WANT TO LEARN?

- 1 When are customers charging?
- 2 What is the EV load profile?
- 3 How much do EV's contribute to System peak load?
- 4 How are the charging stations being used?
- 5 What is the load factor for EV's?

- ✓ **CO 2012/2013 DSM Plan**
- ✓ **2- year pilot, 20 participants**
- ✓ **Budget: \$ 69,871**



ELECTRIC VEHICLE CHARGING STATION



PHASE I



- ✓ Completed 2014 load control events (9 events)
- ✓ Increased control period to 6 hours
- ✓ One customer opted-out for 2014

PHASE II



- ✓ Completed 2014 load control events (10 events)
- ✓ Increased control period to 6 hours
- ✓ One customer moved, so was not included for 2014

PHASE III



- Partnering with GM OnStar
- Waiting for signature of Agreement from OnStar

CANCELLED

ELECTRIC VEHICLE CHARGING STATION



Average kW Demand per vehicle

	PILOT peak time	PILOT peak (kW)	SYSTEM peak time	PILOT kW at Sys Peak
Oct	10/1 11 PM	1.34	10/15 8 PM	0.06
Nov	11/9 4 AM	1.31	11/21 6 PM	0.18
Dec	12/12 2 AM	1.32	12/5 6 PM	0.55
Jan	1/17 7 PM	1.16	1/5 7 PM	0.08
Feb	2/11 8 AM	1.32	2/5 7 PM	0.42
Mar	3/5 6 PM	1.28	3/1 7 PM	0.55
Apr	4/17 12 AM	1.43	4/13 9 PM	0.12
May	5/1 11 PM	1.57	5/28 6 PM	0.28
Jun	6/29 8 PM	1.24	6/30 5 PM	0.32
Jul	7/17 8 PM	1.31	7/7 5 PM	0.24
Aug	8/16 12 AM	1.25	8/13 5 PM	0.27
Sep	9/6 11 AM	1.22	9/3 5 PM	0.25

Wide variety of times

Different peak days
5 pm – 9 pm

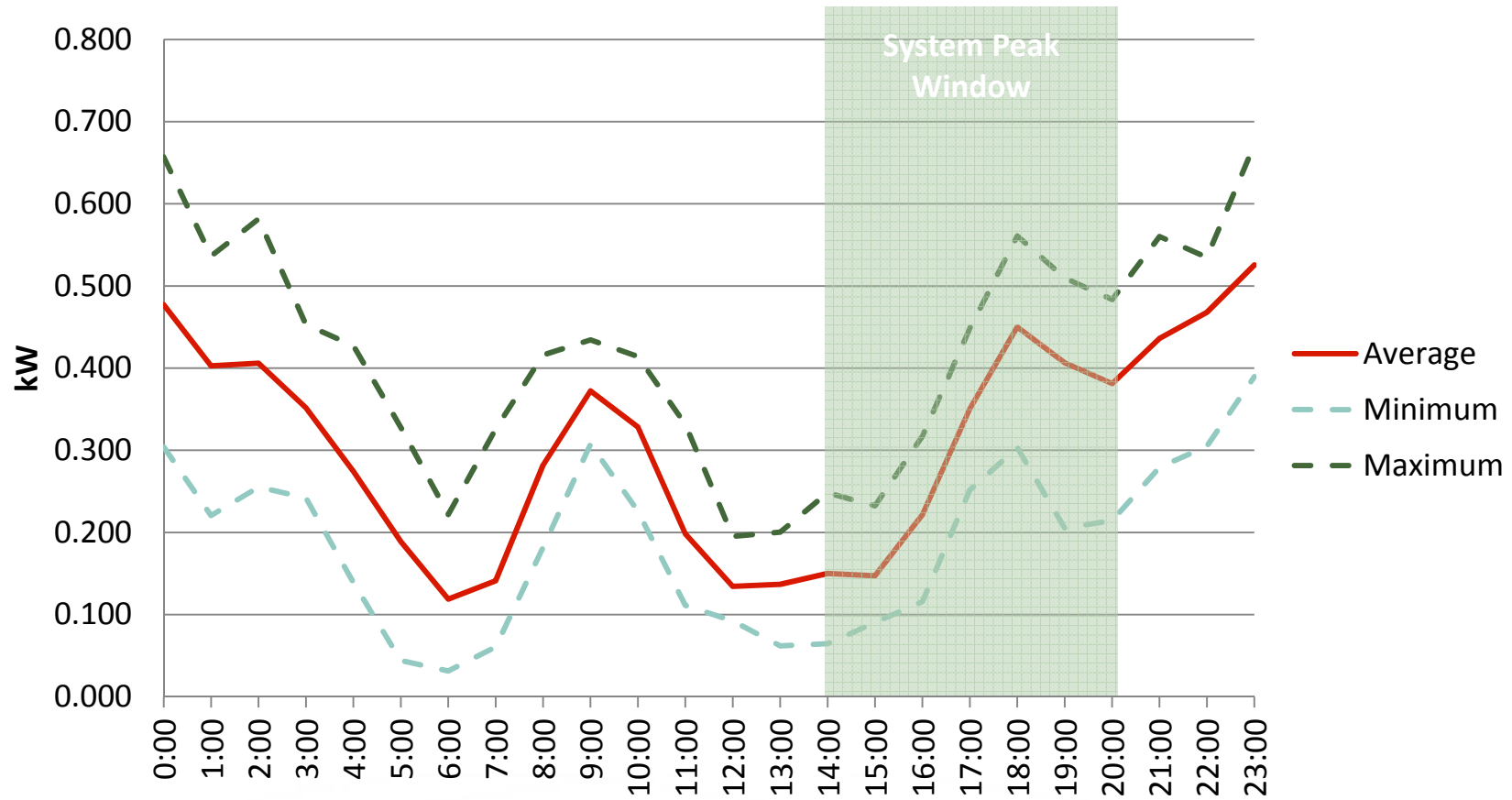
CONCLUSIONS

- EV charging peak does not coincide with Xcel Energy system peak
- Non-coincident peak load factor = 19.5%
- The average demand (kW) savings per vehicle on a System peak day is around 0.28 kW

ELECTRIC VEHICLE CHARGING STATION PILOT



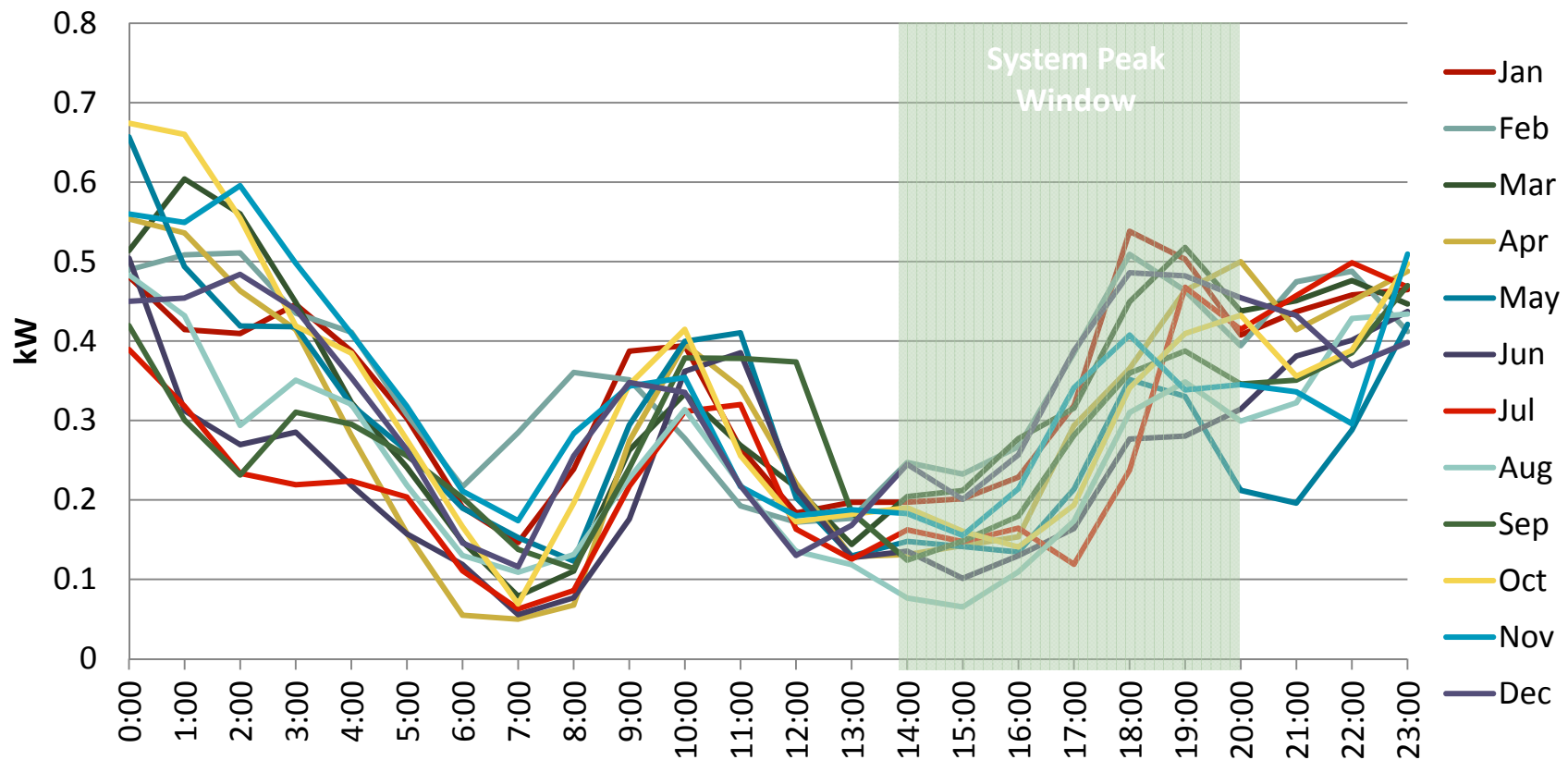
EV Charging Load Profiles – Average of all pilot participants



ELECTRIC VEHICLE CHARGING STATION



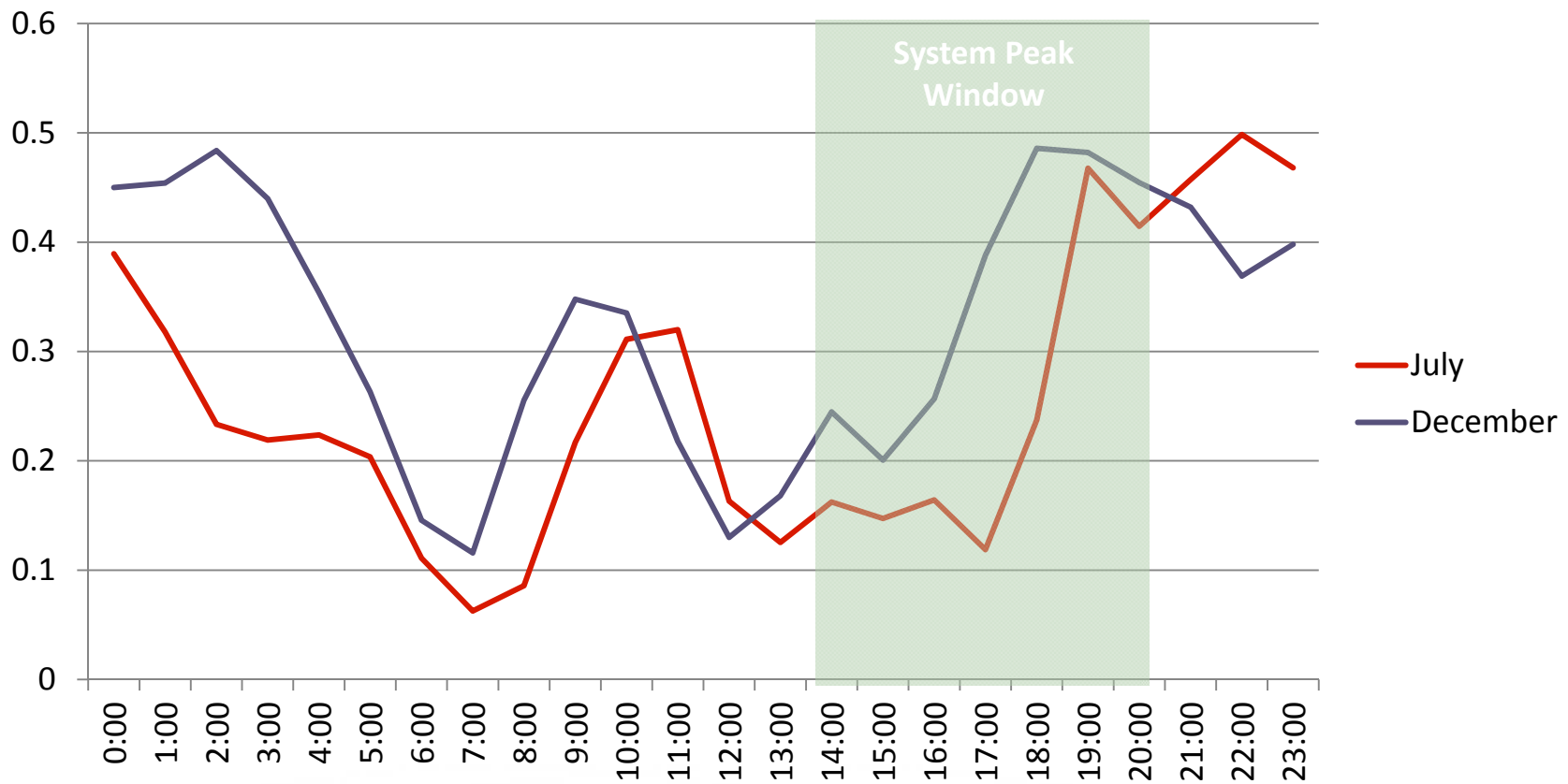
Average EV Charging profile on System peak day each month



ELECTRIC VEHICLE CHARGING STATION



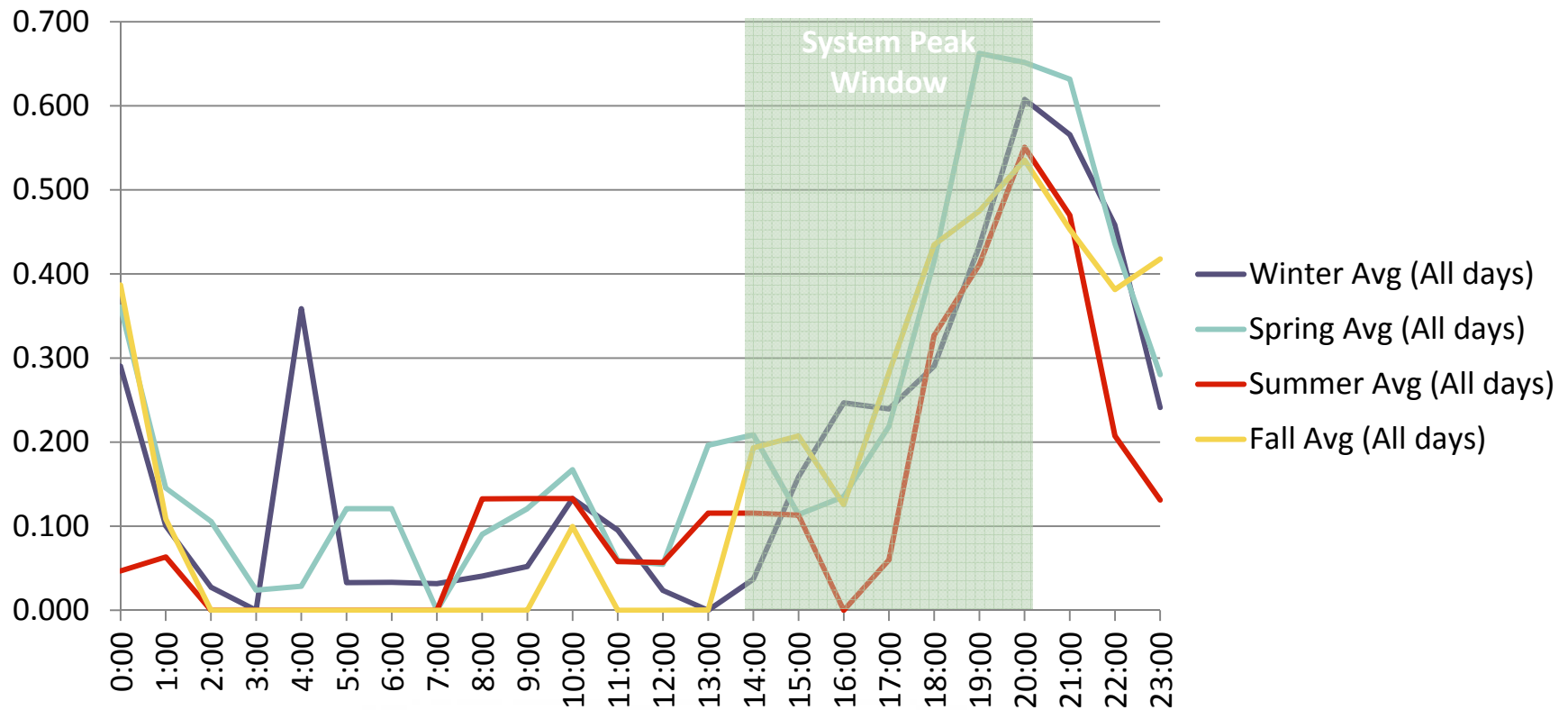
Average EV Charging profile on System peak Day: July vs. December



ELECTRIC VEHICLE CHARGING STATION



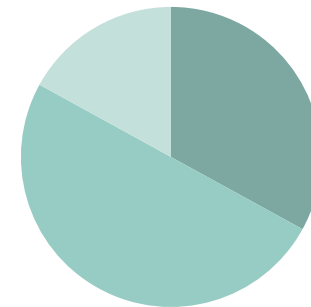
Individual Station Example



PILOT PARTICIPANT SURVEY

- Half own; half lease
- Most do not have access to EV charging at work
- 2/3 mildly inconvenienced by the control events
- 12 control events per season was reasonable
- Right amount of communication
- 2/3 thought \$100 incentive was enough
- Overall happy with the pilot

Expected Length of Ownership



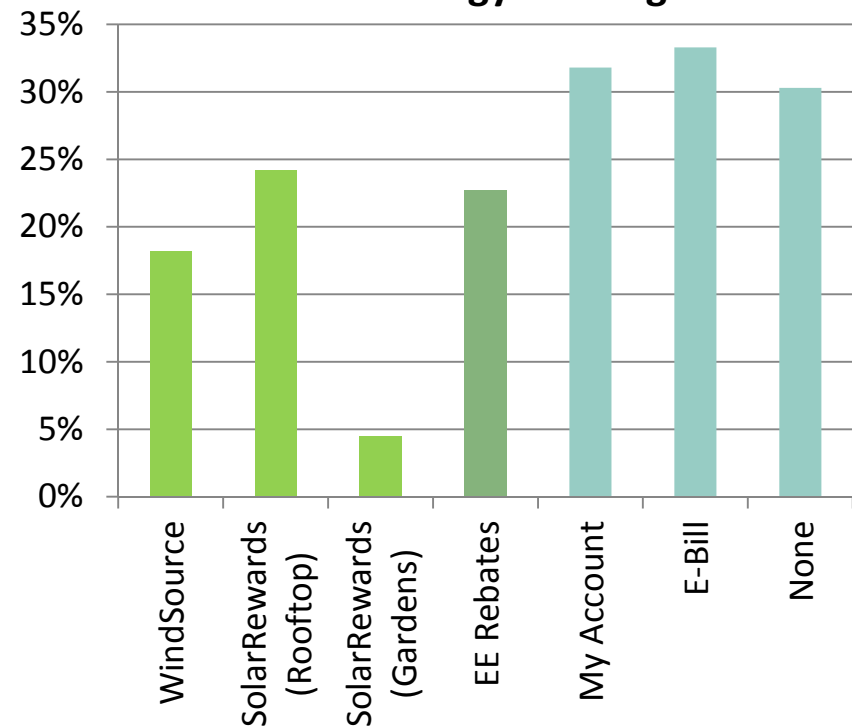
■ <1 year ■ 1-3 years ■ >3 years

EV OWNERS' SURVEY

Objective: Gauge interest in participating in future utility pilots.

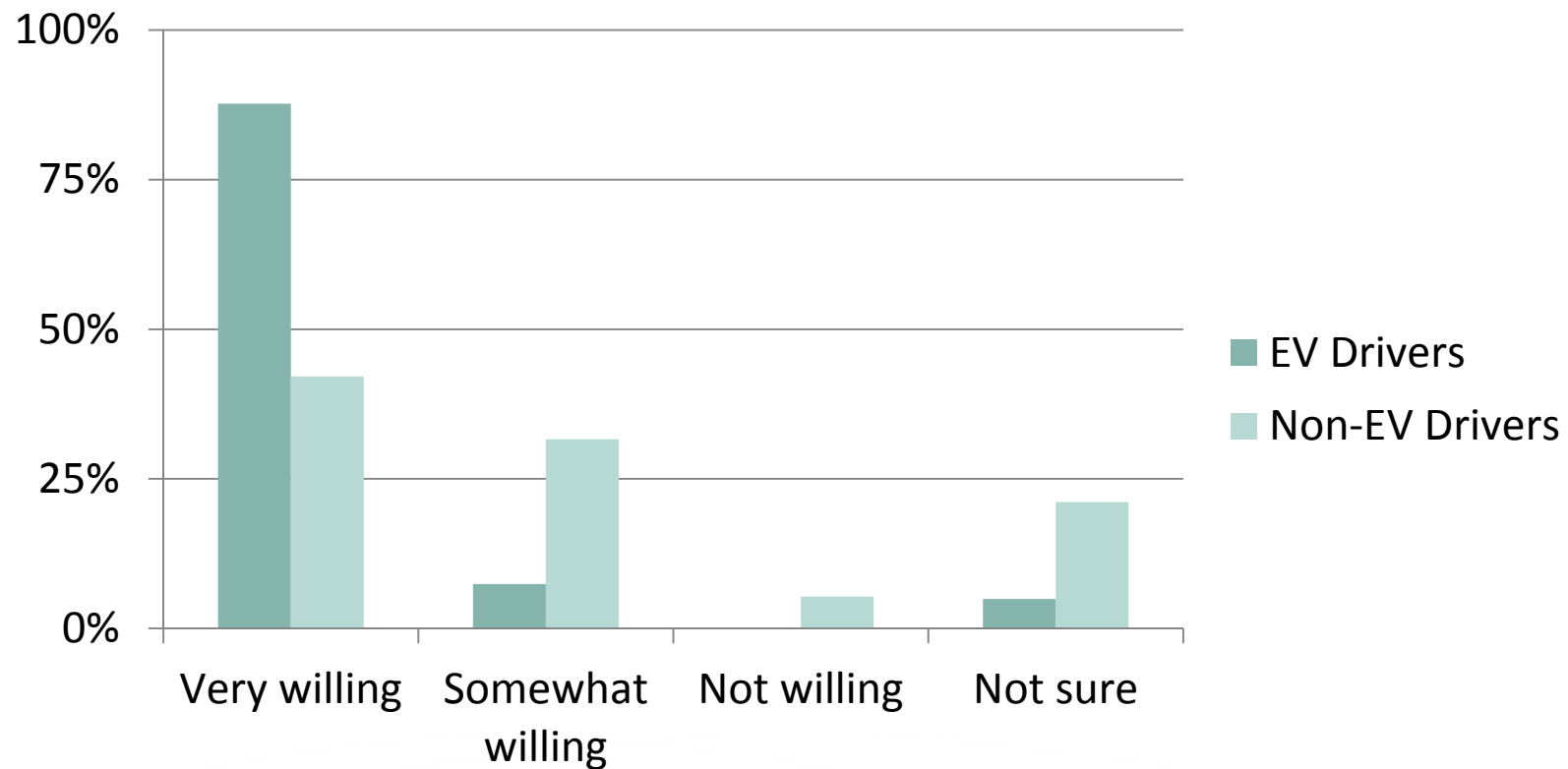
- Most EV drivers (56.1%) use Level II charging at home.
- ~75% of charging takes place in homes; ~15% at work
- High percentage participate in renewables

Participation in other Xcel Energy offerings



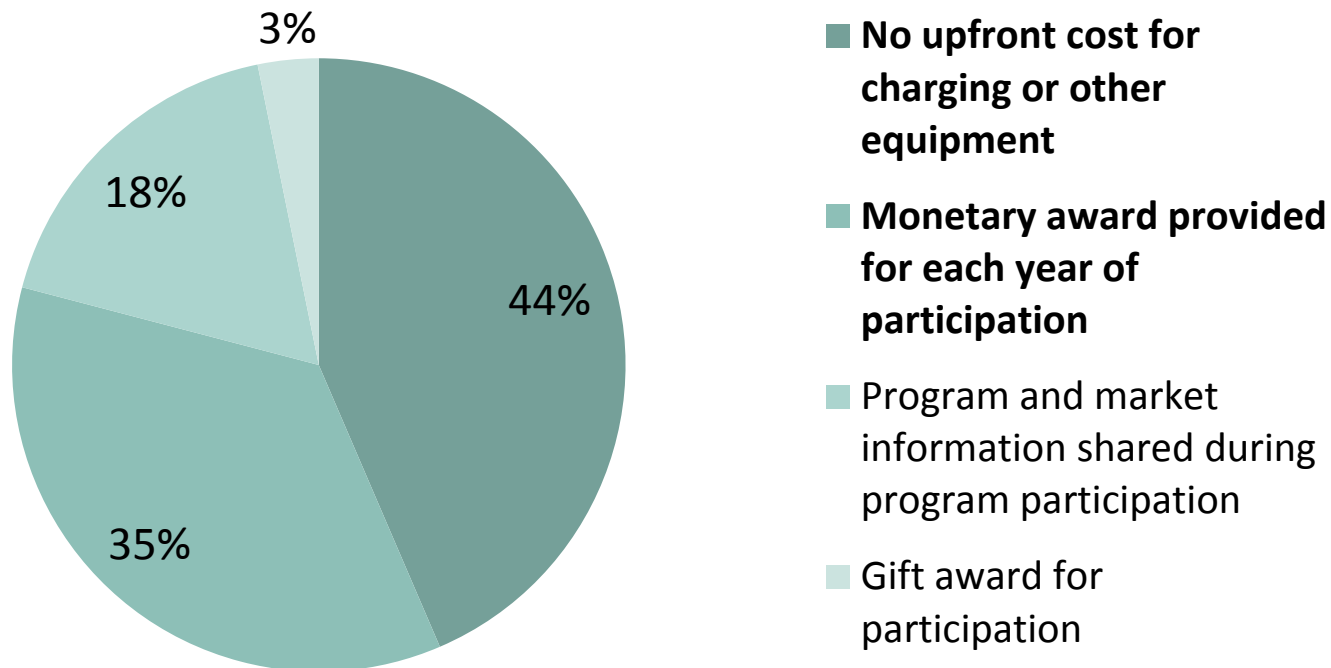
EV OWNERS' SURVEY

- Willingness to participate in future EV-related pilots



EV OWNERS' SURVEY

- Greatest motivation to participate in future EV pilots/programs:



What does this all mean?

- Controlling EV charging does work
- DR has minimal impact to customers
- Lower charging peaks in summer vs. winter
- Customers asking for EV rate

Where are we headed next?

- Still an evolving industry
- Ongoing exploration & development

- Networking Break -





DSM PRODUCT DEVELOPMENT Q4 HIGHLIGHTS

PAT GOGGIN
Team Lead, Product Development

DSM PRODUCT DEVELOPMENT 2014 RECAP



- What we said we'd develop at the 2014 Q1 Roundtable

Products	GWh
LED Troffers	2.5 GWh
Midstream LED Lighting	3.0 GWh
Large C&I Data Analytics (EMIS)	6.0 GWh
Holistic Multifamily	4.5 GWh
Smart Thermostats	2.5 GWh
SME Direct Install	3.9 GWh
LED Area lighting	2.0 GWh
Upstream Strategy & DOE RTU Challenge	0.0 GWh
PE for SMB	6.0 GWh
Convenience Store Comprehensive Offering	4.4 GWh
Advanced Lighting Design	2.5 GWh
Whole House Revamp	1.0 GWh
Total	38.3 GWh

- Early projections of savings may change during development
- Not all concepts will progress into filed products

DSM PRODUCT DEVELOPMENT 2014 PD EXPRESS POTENTIAL



- 2014 Recap: What we said might go PD Express at the 2014 Q1 Roundtable

PD Express Products

Western Cooling Control Device

LED high bay lighting

Energy recovery ventilators

Home Energy Squad

LED area lighting

EC plug fans in data centers

~~Mini-split ductless AC (not cost-effective)~~

DEPACC for refrigeration

Commercial refrigerator/freezer rebates

Rooftop unit controls

Air source heat pump to replace electric resistance heat

- Not all concepts will progress into filed products

DSM PRODUCT DEVELOPMENT 2014 PRODUCTS DEVELOPED



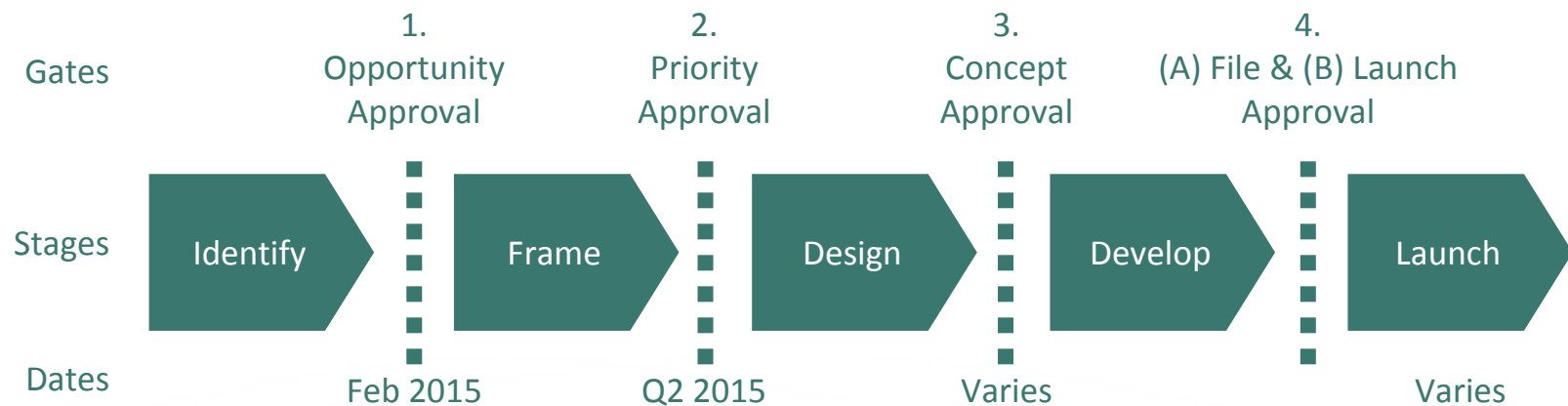
Products	GWh	Participants
LED Troffers	2.5 GWh	258
Large C&I Data Analytics (EMIS)	4.7 GWh	4
Western Cooling Control Device	0.0 GWh	7
Smart Thermostats	0.7 GWh	5,000
Multifamily	0.6 GWh	751
SME Direct Install	2.3 GWh	130
PE for SMB	2.2 GWh	4
Midstream bus lighting (incremental)	13.0 GWh	1,305
Energy Feedback Expansion	22.9 GWh	500,000
Company owned LED Street Lighting	12.8 GWh	23,635
LED Area lighting	5.6 GWh	103
Evaluated and Rejected or on hold	GWh	Participants
Residential Custom	Not cost effective	
	Included in Commercial Refrigeration Product	
Convenience stores	Not cost effective	
Energy Recovery Ventilator (ERV)	Not cost effective	
Whole House Revamp	Test HES first	
Ground Source Heat Pumps	Not cost effective	
PD Express	GWh	Participants
Home Energy Squad	2.8 GWh	1,600
VSD Air Compressor HP Reduction	0.1 GWh	6
EC Plug Fans	2.0 GWh	15
Advanced Lighting Design turned into Integrated Lighting Sensors	0.2 GWh	64
Totals	75.4 GWh	532,883



DSM PRODUCT DEVELOPMENT 2015 PROCESS



- Looking toward the future
 - Kicking off the phase of idea selection
 - Start in February
 - Finalize in Q2
 - A lot of research, assessment and validation in between
 - New products for 2017-2018 Biennial
 - Now is the best time to submit ideas



DSM PRODUCT DEVELOPMENT CONCEPT SCORING CRITERIA



Concept Selection Criteria	Attributes	Weight												
Estimated size of opportunity (electric)	<table border="1"> <thead> <tr> <th>GWh</th> <th>SCORE</th> </tr> </thead> <tbody> <tr> <td><5</td> <td>1</td> </tr> <tr> <td>5 to 10</td> <td>2</td> </tr> <tr> <td>10 to 15</td> <td>3</td> </tr> <tr> <td>15 to 25</td> <td>4</td> </tr> <tr> <td>25+</td> <td>5</td> </tr> </tbody> </table>	GWh	SCORE	<5	1	5 to 10	2	10 to 15	3	15 to 25	4	25+	5	25%
GWh	SCORE													
<5	1													
5 to 10	2													
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Estimated size of opportunity (gas)	<table border="1"> <thead> <tr> <th>Dth</th> <th>SCORE</th> </tr> </thead> <tbody> <tr> <td><25,000</td> <td>1</td> </tr> <tr> <td>25,000 to 50,000</td> <td>2</td> </tr> <tr> <td>50,000 to 75,000</td> <td>3</td> </tr> <tr> <td>75,000 to 100,000</td> <td>4</td> </tr> <tr> <td>100,000+</td> <td>5</td> </tr> </tbody> </table>	Dth	SCORE	<25,000	1	25,000 to 50,000	2	50,000 to 75,000	3	75,000 to 100,000	4	100,000+	5	10%
Dth	SCORE													
<25,000	1													
25,000 to 50,000	2													
50,000 to 75,000	3													
75,000 to 100,000	4													
100,000+	5													
Strategic Fit	Increase portfolio KPIs and cost effectiveness	20%												
Product Advantage	Appeal in the marketplace	15%												
Feasibility	Cost & ease of development / approval	15%												
Customer Choice	Significant new customer choice? Underserved market?	15%												





DSM STAKEHOLDER IDEA SUBMISSIONS

PAT GOGGIN
Team Lead, Product Development

- 1. LED Bulbs for Low-Income Program**
via Colorado Energy Office
- 2. Energy Efficient Stove Tops**
via Pioneering Technologies

Program ideas can be submitted on Xcel Energy's DSM website at:

http://www.xcelenergy.com/Company/Rates_&_Regulations/Regulatory_Filings/Colorado_Demand-Side_Management

1. LED BULBS FOR LOW-INCOME



Received Nov. 18, 2014

- **Description:**
 - Include LED bulb replacement in the low-income DSM program.
- **Evaluation Result:**
 - We used the submitter's assumptions to determine the energy savings and an estimated cost effectiveness.
 - Estimated Energy Savings:
 - 9 kW
 - 0.082 GWh
 - *Close to cost effective – need prices to decline some more.*
 - *Potential PD Express*

2. ENERGY EFFICIENT STOVE TOPS



- Received Dec. 11, 2014
- Description:
 - A device that controls the temperature of the electric coils to below 662 F. It helps prevent cooking fires and reduces the amount of energy used when cooking.
- Evaluation Result:
 - We used the submitter's assumptions to determine the energy savings and an estimated cost effectiveness.
 - Estimated Energy Savings based on 1,000 participants:
 - 74 - 342 kW dependent on coincidence factor
 - 0.199 GWh
 - Early assessment shows potential to be cost effective.
 - There are a number of assumptions that need to be determined or validated such as coincidence factor.
 - We will include it in our Stage 1 and 2 processes for prioritization.



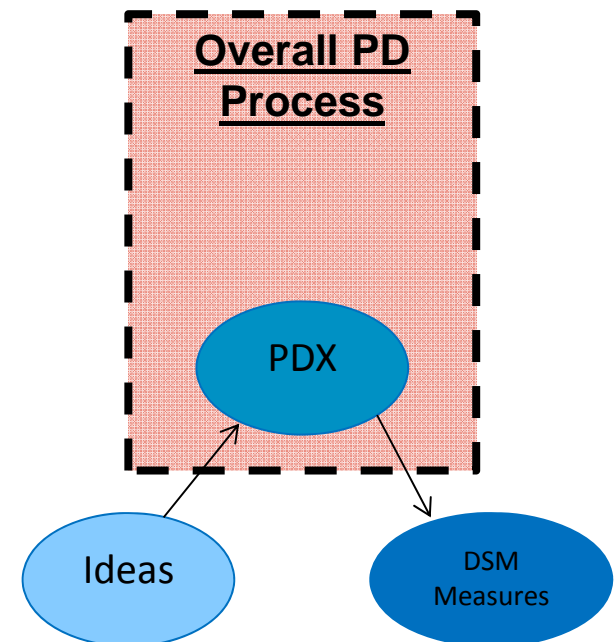
PD-XPRESS & THE CUSTOM PROJECT ARCHIVE

Adam White, P.E.
Senior Energy Efficiency Engineer

WHAT IS PD-XPRESS?



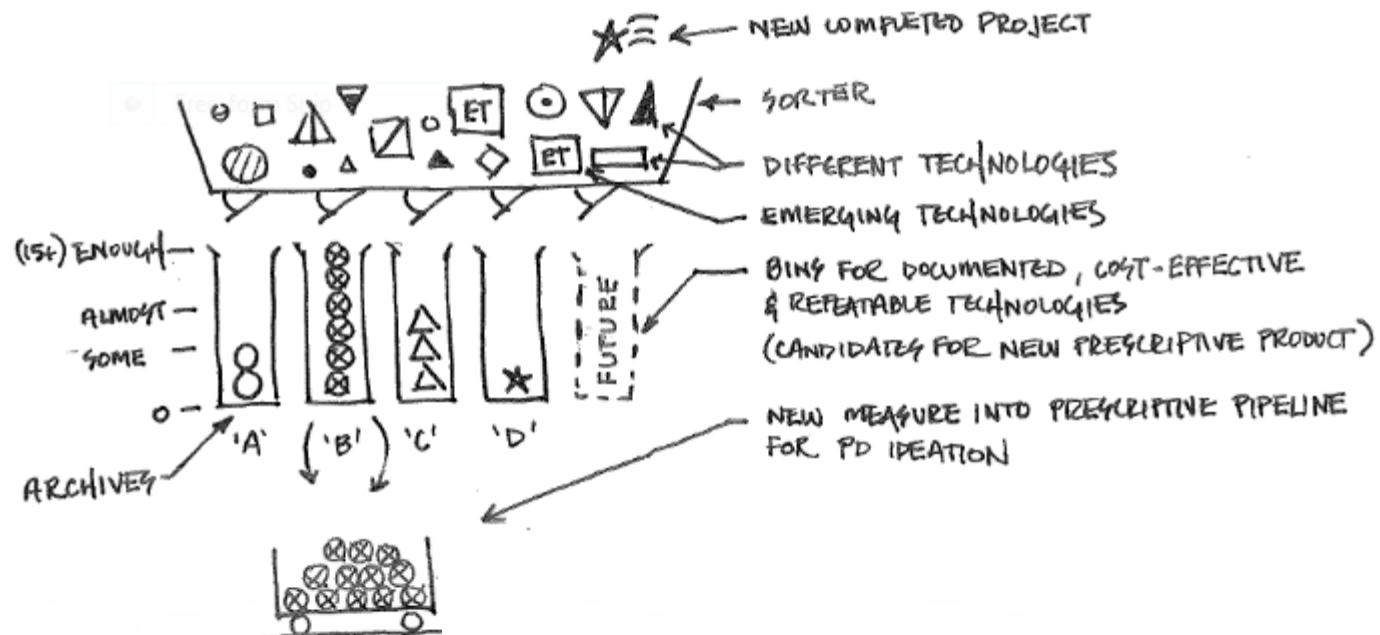
- Alternative path for smaller, simpler, straightforward projects to become new prescriptive products.
- Goals:
 - Streamline the approval process for new prescriptive measures
 - Make easier for customers & vendors to participate in our programs
 - Make as many prescriptive measures as possible
- Initiated in the 2nd Quarter of 2014



- As of August 2014, Managed by a 3-person team consisting of Product Portfolio Managers and Energy Efficiency Engineers
- Custom Project Archive
 - A formalized process that documents all new custom project characteristics, ultimately benefiting our customers.
 - Creates real-time pipeline for PDXpress
 - The archive went live 1/1/15

CUSTOM PROJECT ARCHIVE

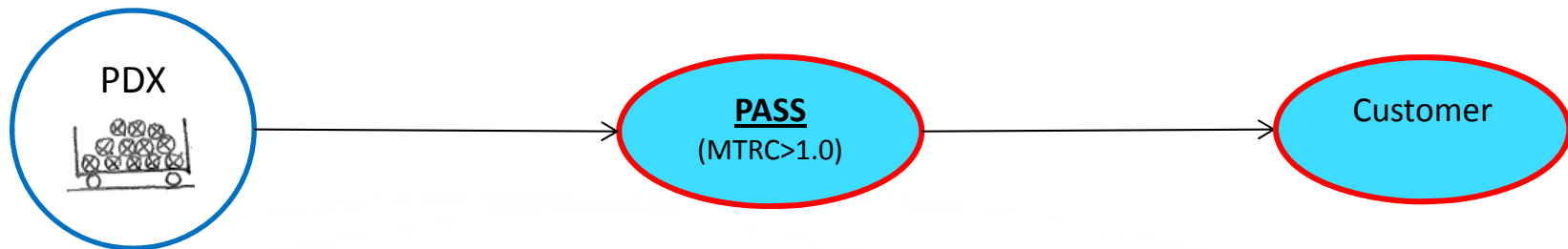
- As 2000+ custom projects are analyzed each year, results are collected
- Counts reveal new technology-adoption trends of our customers
- Once we get enough repeatable and cost-effective projects, project characteristics will emerge



SUCCESS THUS FAR...



Program	Product	Measure	State	Projected Completion Date
Commercial	Data Centers	EC Plug Fans	CO	In CO 2015/16 Filing
Commercial	Lighting Efficiency	Integrated Sensors	CO	In CO 2015/16 Filing
Commercial	Compressed Air	downsize of compressor.	CO	In CO 2015/16 Filing
Commercial	Computer Efficiency	High-efficiency Servers	MN	February 2015
Residential	Low Income Multi-Family	Attic Insulation & Air Sealing	MN	February 2015
Residential	Low Income Multi-Family	Furnace	MN	February 2015
Residential	Low Income Multi-Family	Programmable Thermostats	MN	February 2015
Residential	Low Income Multi-Family	Boiler	MN	February 2015
Residential	Low Income Multi-Family	Water Heater	MN	February 2015
Residential	Low Income Multi-Family	Faucet Aerators	MN	February 2015
Residential	Low Income Multi-Family	Showerheads	MN	February 2015
Residential	Low Income Multi-Family	Water heater blankets	MN	February 2015
Residential	Low Income Multi-Family	External door weather stripping	MN	February 2015
Commercial	Lighting Efficiency	LED highbays	MN / CO / NM	March 2015
Commercial	Lighting Efficiency	LED tubes	MN / CO / NM	March 2015
Residential/Low Income	Residential/Low Income	Furnace ECM Rebate	NM	Begin: February 2015
Low Income	Kits/Single Family	LED bulbs	CO	On Hold
Residential	Home Performance	LED bulbs	CO	On Hold
Commercial	Lighting Efficiency	Integrated Sensors	NM	March 2015
Commercial	Lighting Efficiency	LED Troffers	NM	March 2015



GOALS FOR 2015



- Move equivalent of 600 custom projects from 2014 (roughly 30%) into new prescriptive measures
- Complete the average PDX process within 4-8 Weeks

- Customer
 - Portfolio strategies that are continuously aligned with current consumer demands
 - Increased Customer Choice in prescriptive measure offerings
 - Expected Ripple Effects:
 - Increase in customer participation
 - Generation of additional product input from trade partners

- Portfolio
 - Insight for managing measure mix and adoption rates
 - Reduced Engineering Time and Bottle-necks
 - Increased Energy Savings



2014 COMPREHENSIVE EVALUATIONS SUMMARY

BRUCE NIELSON
Market Research

- Use of Third Party Independent Evaluators
- Evaluation Objectives
 - Measure customer and trade partner satisfaction
 - Investigate whether program component upgrades or updates might better meet customer needs
 - Investigate additional research topics important to a program's progress through its planning cycle life
 - Offer defensible plans to ascertain an assessment of the Net-to-Gross (NTG) ratio for impact studies including its component parts (free ridership and spillover values)
 - Deliver data-supported, actionable and realistic recommendations for improvements to program operations

- Internal interviews
 - Management, program managers, engineers, channel managers, engineers, rebate processors, customer care
 - Identify current strengths and challenges of the programs
- Trade partner interviews
 - Uncover opportunities to improve coordination, education and communications
 - Assess program influence on trade partner practices
- Peer utility benchmark interviews
 - Similar offerings to identify best practices
 - Gather corroborative information for program attribution (NTG)
- Participant interviews
 - Identify satisfaction with the program, opportunities to improve
 - Assessment of program influence (NTG)
- Non participant interviews
 - Gauge program awareness
 - Identify barriers to program participation

1. LOW INCOME MULTI FAMILY EFFICIENCY EVALUATION



- Process only evaluation
- Key Findings
 - Effective partnership with Energy Outreach Colorado (EOC) allows participating customers and trade allies to easily engage in the program
 - The program encourages participants to take additional efficiency actions
- Recommendations
 - Investigate split incentives affecting landlords in rural and mountain areas to expand market opportunities
 - Continue to enhance communications with EOC and trade allies explaining roles, rules, protocols, benefits and bidding decision making

2. ENERGY MANAGEMENT SYSTEMS EVALUATION



- Process only evaluation
- Key Findings
 - Program is operating effectively and well positioned to promote implementation of EMS
 - Program successfully engages trade allies that play integral roles in customer recruitment and project implementation
 - Segregated trade markets limit integrating lighting and HVAC controls
- Recommendations
 - Encourage integration of trade partner solutions for lighting and HVAC controls
 - Continue ongoing education efforts to EMS contractors
 - Where cost effective, proceed with plans for an EMIS offering to address growing demand in CO informational systems market
 - Continue to monitor the program's cost-effective delivery as a stand alone program vs. integrated delivery

3. ENERGY EFFICIENCY FINANCING EVALUATION



- Process only evaluation, impact portion of evaluation planned for 2016
- Key Findings
 - Satisfaction among customers using the program is high
 - Staff has effectively recruited allies, provided training and designed a strong marketing toolkit to target residential & business customers
 - Program participation in financing programs ramp up slowly during initial years of implementation
- Recommendations
 - Consider ways to increase contact and relationships between lenders and trade allies
 - Consider combining efficiency with solar incentives as a whole package of improvements
 - Adjusted goals are recommended to account for slow ramping up of financing programs

- Evaluations Planned for 2015
 - Process and Impact Evaluation for CO Home Lighting
 - Upstream rebates for purchasing through partnerships with participating retailers & manufacturers
 - Discounted bulbs include CFLs and LEDs including 3-way, dimmable, floods & globes
 - Process and Impact Evaluation for CO Business Lighting Efficiency
 - Prescriptive and custom rebates for wide range of projects & applications
 - Rebate categories include retrofits, de-lamping, new construction, custom applications and lighting redesign studies
 - Lighting Product Market Assessment
 - Understand ordering and stocking of residential and business lighting technologies, specifically the handling of remaining stock of inefficient bulbs
 - Possibly include efficient lighting saturation, recording lighting stock practices and identifying potential for efficient lighting technologies

THANK YOU

