GSHP				2015 ELECTRIC				
2015 Net Present Cost Benefit Summary Analysis For All Participants					Input Summary and Totals			
			Rate	Modified	Program Inputs per Customer kW			
	Participant	Utility	Impact	TRC	Lifetime (Weighted on Generator kWh)	A		
	Test	Test	Test	Test	Annual Hours	В		
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Gross Customer kW	С		
Benefits					Generator Peak Coincidence Factor	D		
					Gross Load Factor at Customer	E		
Avoided Revenue Requirements					Net-to-Gross (Energy)	F		
Generation Capacity	N/A	\$1,658	\$1,658	\$1,658	Net-to-Gross (Demand)	G		
Distribution Capacity	N/A	\$0	\$0	\$0	Transmission Loss Factor (Energy)	Н		
Marginal Energy	N/A	\$1,740	\$1,740	\$1,740	Transmission Loss Factor (Demand)	I		
Avoided Emissions (CO2)	N/A	N/A	N/A	\$0	Installation Rate (Energy)	J		
Subtotal				\$3,398	Installation Rate (Demand)	K		
Non-Energy Benefits Adder (10%)				\$340	MTRC Net Benefit (Cost)	L		
Subtotal	N/A	\$3,398	\$3,398	\$3,738	MTRC Non-Energy Benefit Adder	M		
0. 7. 7					Net coincident kW Saved at Generator	$(G \times C \times K) \times D / (1-I)$		
Other Benefits	64.053	27/4	37/4	27/4	Gross Annual kWh Saved at Customer	(BxExC)		
Bill Reduction - Electric Incentives	\$1,853	N/A	N/A	N/A	Net Annual kWh Saved at Customer	$(F \times (B \times E \times C \times J))$		
Incremental Capital Savings	\$2,024 \$0	N/A N/A	N/A N/A	\$2,024 \$0	Net Annual kWh Saved at Generator	(Fx(BxExCxJ))/(1-H)		
Incremental O&M Savings	\$0 \$0	N/A	N/A	\$0 \$0	Program Summary per Participant			
Subtotal	\$3,877	N/A	N/A	\$2,024	Gross kW Saved at Customer	p		
Subtotal	\$3,077	IN/A	IN/A	\$2,024				
Tatal Barragus	62.033	62 200	#2.200	#F 7/0	Net coincident kW Saved at Generator	$(G \times P \times K) \times D / (1 - I)$		
Total Benefits	\$3,877	\$3,398	\$3,398	\$5,762	Gross Annual kWh Saved at Customer	(B x E x P)		
Costs					Net Annual kWh Saved at Customer	(Fx(BxExPxJ))		
					Net Annual kWh Saved at Generator	(Fx(BxExPxJ))/(1-H)		
Utility Project Costs								
Program Planning & Design	N/A	\$0	\$0	\$0	Program Summary All Participants			
Administration & Program Deliv	N/A	\$0	\$0	\$0	Total Participants	Q		
Advertising/Promotion/Custom	N/A	\$0	\$0	\$0	Total Budget	R		
Participant Rebates and Incentiv	N/A	\$2,024	\$2,024	\$2,024	Gross kW Saved at Customer	$(Q \times P)$		
Equipment & Installation	N/A	\$ 0	\$ 0	\$0 20	Net coincident kW Saved at Generator	$((G \times P \times K) \times D / (1-I)) \times Q$		
Measurement and Verification Subtotal	N/A N/A	\$0 \$2,024	\$0 \$2,024	\$0 \$2,024	Gross Annual kWh Saved at Customer Gross Installed Annual kWh Saved at Custo	(BxExP)xQ		
Subtotal	IN/A	\$2,024	\$2,024	\$2,024	Net Annual kWh Saved at Customer	(Fx(BxExPxJ))xQ		
Utility Revenue Reduction					Net Annual kWh Saved at Gustonier Net Annual kWh Saved at Generator	$\frac{(\operatorname{Fx}(\operatorname{B} \times \operatorname{E} \times \operatorname{F} \times \operatorname{J})) \times \operatorname{Q}}{((\operatorname{Fx}(\operatorname{B} \times \operatorname{E} \times \operatorname{P} \times \operatorname{J})))/(1-\operatorname{H})) \times \operatorname{Q}}$		
Revenue Reduction - Electric	N/A	N/A	\$1,853	N/A	TRC Net Benefits with Adder	$(Q \times P \times L)$		
Subtotal Subtotal	N/A	N/A	\$1,853	N/A	TRC Net Benefits without Adder	$(Q \times P \times (L - M))$		
Participant Costs	e=	37/1	37//	07.100	Utility Program Cost per kWh Lifetime			
Incremental Capital Costs	\$7,132	N/A	N/A	\$7,132	Utility Program Cost per kW at Gen			
Incremental O&M Costs	\$0	N/A	N/A	\$0				
Subtotal	\$7,132	N/A	N/A	\$7,132				
Total Costs	\$7,132	\$2,024	\$3,877	\$9,156				
Net Benefit (Cost)	(\$3,255)	\$1,373	(\$480)	(\$3,394)				
Benefit/Cost Ratio	0.54	1.68	0.88	0.63				

GOAL

20 years 8760 1 kW 44.24% 13.26% 100.0% 6.510% 6.510% 100.0% -\$1,289 \$129

0.4732 kW 1,162 kWh

1,162 kWh

1,243 kWh

0.66 kW

0.31 kW

765 kWh

765 kWh

818 kWh

4 **\$2,024** 3 kW

 $1 \, \mathrm{kW}$

3,059 kWh

3,059 kWh

3,059 kWh

3,272 kWh

(\$3,394)

(\$3,734) \$0.0309 \$1,624

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

GSHP					2016 ELF	ECTRI
2016 Net Present Cost Benefit Summary	Input Summary and Totals					
			Rate	Modified	Program Inputs per Customer kW	
	Participant	Utility	Impact	TRC	Lifetime (Weighted on Generator kWh)	A
	Test	Test	Test	Test	Annual Hours	В
	(\$Total)	(\$Total)	(\$Total)	(\$Total)	Gross Customer kW	C
Benefits					Generator Peak Coincidence Factor	D
					Gross Load Factor at Customer	E
Avoided Revenue Requirements					Net-to-Gross (Energy)	F
Generation Capacity	N/A	\$1,696	\$1,696	\$1,696	Net-to-Gross (Demand)	G
Transmission & Distribution	N/A	\$0	\$0	\$0	Transmission Loss Factor (Energy)	Н
Marginal Energy	N/A	\$1,821	\$1,821	\$1,821	Transmission Loss Factor (Demand)	I
Avoided Emissions (CO2)	N/A	N/A	N/A	\$0	Installation Rate (Energy)	J
Subtotal				\$3,517	Installation Rate (Demand)	K
Non-Energy Benefits Adder (10%)				\$352	MTRC Net Benefit (Cost)	L
Subtotal	N/A	\$3,517	\$3,517	\$3,869	MTRC Non-Energy Benefit Adder	N
					Net coincident kW Saved at Generator	(
Other Benefits					Gross Annual kWh Saved at Customer	(
Bill Reduction - Electric	\$1,904	N/A	N/A	N/A	Net Annual kWh Saved at Customer	(
Incentives	\$2,024	N/A	N/A	\$2,024	Net Annual kWh Saved at Generator	(
Incremental Capital Savings	\$0	N/A	N/A	\$ 0	D 0 D 1	
Incremental O&M Savings	\$0	N/A	N/A	\$0	Program Summary per Participant	
Subtotal	\$3,928	N/A	N/A	\$2,024	Gross kW Saved at Customer	P
					Net coincident kW Saved at Generator	(
Total Benefits	\$3,928	\$3,517	\$3,517	\$5,894	Gross Annual kWh Saved at Customer	(
Costs					Net Annual kWh Saved at Customer	(
					Net Annual kWh Saved at Generator	(
Utility Project Costs						
Program Planning & Design	N/A	\$0	\$0	\$0	Program Summary All Participants	
Administration & Program Delix	N/A	\$0	\$0	\$0	Total Participants	Ç
Advertising/Promotion/Custom	N/A	\$0	\$0	\$0	Total Budget	R
Participant Rebates and Incentive	N/A	\$2,024	\$2,024	\$2,024	Gross kW Saved at Customer	(
Equipment & Installation	N/A	\$0	\$0	\$0	Net coincident kW Saved at Generator	(
Measurement and Verification	N/A	\$0	\$0	\$0	Gross Annual kWh Saved at Customer	(
Subtotal	N/A	\$2,024	\$2,024	\$2,024	Gross Installed Annual kWh Saved at Cu	istome (
					Net Annual kWh Saved at Customer	(
Utility Revenue Reduction	37/1	37/4	24.004	37/4	Net Annual kWh Saved at Generator	(
Revenue Reduction - Electric Subtotal	N/A N/A	N/A N/A	\$1,904 \$1,904	N/A N/A	TRC Net Benefits with Adder	(
Subtotal	N/A	N/A	\$1,904	N/A	TRC Net Benefits without Adder	(
Participant Costs					Utility Program Cost per kWh Lifetime	
Incremental Capital Costs	\$7,132	N/A	N/A	\$7,132	Utility Program Cost per kW at Gen	
Incremental O&M Costs	\$0	N/A	N/A	\$0		
Subtotal	\$7,132	N/A	N/A	\$7,132		
Total Costs	\$7,132	\$2,024	\$3,928	\$9,156		
Net Benefit (Cost)	(\$3,204)	\$1,493	(\$411)	(\$3,263)		
			("/	(-) /		

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

2016 ELEC	CTRIC	GOAL	
nput Summary and Totals			
Program Inputs per Customer kW			
Lifetime (Weighted on Generator kWh)	A	20 year	
Annual Hours	В	876	
Gross Customer kW	C	1 kV	
Generator Peak Coincidence Factor	D	44.24	
Gross Load Factor at Customer	E	13.26	
Net-to-Gross (Energy)	F	100.0	
Net-to-Gross (Demand)	G	100.0	
Transmission Loss Factor (Energy)	Н	6.510	
Transmission Loss Factor (Demand)	I	6.510	
Installation Rate (Energy)	Ţ	100.0	
Installation Rate (Demand)	K	100.0	
MTRC Net Benefit (Cost)	L	-\$1,2	
MTRC Non-Energy Benefit Adder	M	\$1:	
Net coincident kW Saved at Generator	(GxCxK)xD/(1-I)	0.4732 k	
Gross Annual kWh Saved at Customer	(BxExC)	1,162 kW	
Net Annual kWh Saved at Customer	(Fx(BxExCxJ))	1,162 kW	
Net Annual kWh Saved at Generator	(Fx(BxExCxJ))/(1-H)	1,243 kW	
Program Summary per Participant Gross kW Saved at Customer	p	0.66 k	
Net coincident kW Saved at Generator	(G x P x K) x D / (1 - I)	0.31 k	
Gross Annual kWh Saved at Customer	(B x E x P)	765 kV	
Net Annual kWh Saved at Customer	(Fx(BxExPxJ))	765 kV	
Net Annual kWh Saved at Generator	(Fx(BxExPxJ))/(1-H)	818 kV	
	7,7,7		
Program Summary All Participants			
Total Participants	Q		
Total Budget	R	\$2,02	
Gross kW Saved at Customer	(Q x P)	3 k	
Net coincident kW Saved at Generator	((GxPxK)xD/(1-I))xQ	1 k	
Gross Annual kWh Saved at Customer	(B x E x P) x Q	3,059 kV	
Gross Installed Annual kWh Saved at Custome (B x E x P x J) x Q			
Net Annual kWh Saved at Customer	(F x (B x E x P x J)) x Q	3,059 kV	
Net Annual kWh Saved at Generator	((F x (B x E x P x J)) / (1-H)) x Q	3,272 kV	
TRC Net Benefits with Adder	(Q x P x L)	(\$3,26	
TRC Net Benefits without Adder	(QxPx(L-M))	(\$3,61	
Utility Program Cost per kWh Lifetime		\$0.030	

\$1,624