1	Q.	HOW ARE THE 2017 EECRF COST CAPS DETERMINED?
2	A.	The method of calculating the 2017 cost caps is described in 16 TAC
3		25.181(f)(7)(E) that states
4 5 6 7 8		For the 2014 program year and thereafter, the residential and commercial cost caps shall be calculated to be the prior period's cost caps increased by a rate equal to the most recently available calendar year's percentage change in the South urban consumer price index (CPI), as determined by the Federal Bureau of Labor Statistics.
9		The most recently available calendar year's percentage change in the South urban
10		consumer price index is calendar year 2015. The percentage change for calendar year
11		2015 is negative. Since 16 TAC § 25.181(f)(7)(E) allows for an increase and did not
12		specifically address a decrease, TNC has evaluated the cap based on the 2016 per
13		kWh residential cap of \$.001265 and commercial cap of \$.000791. The 2017 cost
14		cap calculation is included in Schedule G.
15	Q.	HOW DO THE PROPOSED FACTORS FOR RESIDENTIAL AND
16		COMMERCIAL COMPARE TO THE 2017 COST CAPS?
17	A.	TNC's revised residential factor including the base rate energy efficiency amount and
18		excluding municipal EECRF proceeding expenses and EM&V costs is \$.000829 per
19		kWh, which does not exceed the residential maximum price of \$0.001265 per kWh
20		based on the 2016 cap as explained above. The maximum commercial rate per kWh
21		for 2016 is \$0.000791 per kWh as explained above. The updated commercial class
22		factor, including the base rate amounts but without the municipal EECRF proceeding
23		expenses and EM&V cost, is \$0.000535 per kWh, which does not exceed the cap for
24		the commercial class. Schedule G details the 2017 cost cap comparison.

16

PUC DOCKET NO.45928

DIRECT TESTIMONY JENNIFER L. JACKSON

Q. HOW ARE ENERGY EFFICIENCY COSTS EXPRESSLY INCLUDED IN BASE RATES TREATED IN DETERMINING WHETHER EECRF FACTORS EXCEED THE AMOUNTS PRESCRIBED IN 16 TAC § 25.181(f)(7)?

4 A. TNC continues to recover an amount of energy efficiency costs expressly identified in 5 its base rates so the sum of the base rate recovery of energy efficiency costs (including the base rate adjustment) and the EECRF shall not exceed the amounts 6 7 prescribed in 16 TAC § 25.181(f)(7). In Docket No. 39361, the EECRF class base rate per kWh amounts were identified. The base rate adjustment amount on a per 8 9 kWh basis also has been determined based on 2015 actual data. The combination of 10 the proposed 2017 EECRF factors, excluding municipal EECRF proceeding expenses 11 and the expressly identified base rate amounts do not exceed the levels identified in 12 16 TAC § 25.181(f)(7) as shown in detail in Schedule G.

Q. HOW HAS TNC TREATED THE MUNICIPAL RATE CASE EXPENSES AND
EM&V COST WHEN DETERMINING WHETHER THE PROPOSED EECRF
FACTORS EXCEED THE LIMITATIONS DETAILED IN 16 TAC § 25.181(f)(7)?

16 TNC has not included the municipal EECRF proceeding expenses from Docket No. A. 17 44718 or any statewide EM&V contractor's costs in its determination of the EECRF 18 factor limitations based on 16 TAC § 25.181(f)(7), which states that the municipal 19 EECRF proceeding expenses and the statewide EM&V contractor costs shall not 20 count against the utility's cost caps. TNC has included in Schedule E the total 21 EECRF factor calculation including the municipal EECRF proceeding expenses and 22 the EM&V cost and in Schedule G a separate calculation of the limitation on EECRF 23 factors without the municipal EECRF proceeding expenses and the statewide EM&V

DIRECT TESTIMONY JENNIFER L. JACKSON

1		contractor cost. The EECRF factors calculated without the municipal EECRF
2		proceeding expenses and the statewide EM&V contractor cost are slightly lower than
3		the total EECRF factors. TNC is requesting recovery of the municipal EECRF
4		proceeding expenses through the total proposed EECRF factor as shown on adjusted
5		Rider EECRF, Schedule F in this filing.
6	Q.	HAS TNC INCLUDED A CALCULATION OF THE 2015 CAP BASED ON
7	3	ACTUAL PROGRAM COSTS AND ACTUAL 2015 BILLING UNITS?
8	A.	Yes, TNC has included a 2015 cap calculation based on actual 2015 program costs
9		and billing units as part of Schedule G.
10	Q.	DID TNC EXCEED THE 2015 CAPS BASED ON ACTUAL DATA?
11	A.	No. TNC did not exceed the 2015 caps for either EECRF class.
12	Q.	HOW WERE THE 2015 CAPS CALCULATED?
13	A.	The 2015 caps were calculated by removing the statewide EM&V contractor's costs
14		and the municipal EECRF case expenses paid in 2014 from the total 2014 Energy
15		Efficiency actual costs, and dividing that total amount by the actual class 2014
16		EECRF billing units less any customer ID notice kWh. This calculation yields the
17		following results for the classes:

TNC Class	2015 Cost Cap	2015 Cap
	Based on Actuals	-
Residential	\$0.000839	\$0.001244
Commercial	\$0.000489	\$0.000778

1 Q. ARE SOME CUSTOMERS EXCLUDED FROM EECRF CHARGES?

A. Yes, in addition to transmission customers taking service at 69 kV, distribution
industrial customers meeting the definition and fulfilling requirements as outlined in
16 TAC § 25.181(c)(30) and (w) (ID Notice Customers) are excluded from EECRF
charges. Also, the lighting class has not been assigned or allocated any 2017 costs.

6 Q. ARE THE ID NOTICE CUSTOMERS ALSO EXCLUDED FROM ENERGY 7 EFFICIENCY BASE RATE COSTS?

8 A. Yes. TNC agreed in Docket No. 44718 to credit the ID Notice Customers for base
9 rate energy efficiency costs. TNC will credit ID Notice Customers for base rate
10 energy efficiency costs through a separate energy efficiency base rate credit factor
11 based on that agreement.

12 Q. HOW WAS THE BASE RATE CREDIT FACTOR CALCULATED?

13 The base rate energy efficiency credit factor was calculated by first identifying the A. 14 commercial rate class associated with each ID Notice Customer and the 15 corresponding energy and demand billing units for each ID Notice Customer within 16 each class. The rate class billing units were determined by summing all ID Notice 17 Customer billing units identified in each rate class. Then, the appropriate base rate 18 billing unit (kWh or kW depending on rate class) was multiplied by the class base 19 rate energy efficiency factor shown on Schedule I to arrive at a total base rate energy 20 efficiency amount associated with the ID Notice Customers in each rate class. The 21 total base rate energy efficiency amount was then divided by the ID Notice Customer 22 kWh associated with each class to determine a per kWh credit to be applied to each 23 ID Notice Customer in program year 2017 through Rider EECRF. The total base rate

energy efficiency amount by class and the class credit factor is shown below and can
 also be found in the ID Notice workpaper. The credit factors will also be included on
 the EECRF Rate Schedule.

		Rate Class	Base Rate Unit	Base Rate Schedule I	Unit	Total Base Rate EE	ID Notice Class kWh	kWh Credit
		Sec <= 10 kW	4,870,263	0.000256	per kWh	\$1,246.79	4,870,263	(\$0.000256)
		Sec > 10 kW	160,407.94	0.067725	per kW	\$10,863.63	34,860,859	(\$0.000312)
		Primary IDR	427,647.16	0.076100	per kW	\$32,543.95	192,765,637	(\$0.000169)
		Total				\$44,654.37	232,496,759	
4	Q.	HAVE YOU	PROVIDE	D THE R	EVISED	TARIFF R	EFLECTING	UPDATED
5		EECRF FAC	FORS AND	CREDITS	APPLICA	ABLE TO E	LIGIBLE CUS	TOMERS?
6	А.	Yes. The pro	posed Rider	EECRF she	own in Sc	hedule F inc	ludes the chan	ges from the
7		current tariff.	TNC reque	ests that the	Commiss	sion approve	an adjusted R	ider EECRF
8		containing the	e proposed E	ECRF class	s kWh fac	tors to be ef	fective March	1, 2017.
9								
10				<u>IV. CO</u>	NCLUSIC	<u>DN</u>		
11	Q.	PLEASE SUN	MMARIZE	YOUR TES	TIMONY			
12	A.	TNC is requ	esting reco	very of \$1	,780,055	through its	adjusted EE	CRF, which
13		amount inclue	des projecte	d 2017 ene	rgy effici	ency progra	m costs of \$1	,790,454, no
14		EM&V costs	, the return	of the over	r-recovery	of \$200,1	14 in 2015 pro	ogram costs,
15		recovery of	municipal E	ECRF pro	ceeding e	expenses fro	om Docket No	o. 44718 of
16		\$3,517, and r	ecovery of	the 2015 ea	arned per	formance bo	onus of \$186,1	97. TNC's
17		base rates inc	lude energy	efficiency of	costs and	those costs a	ind adjusted re	venues have

18 been treated in accordance with 16 TAC § 25.181(f)(2).

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DIRECT TESTIMONY JENNIFER L. JACKSON

1		The class assignment of the estimated 2017 program costs is based on the
2		direct assignment to the EECRF rate classes eligible for specific programs where
3		possible. Where more than one EECRF rate class is eligible to participate in a
4		specific 2017 program, the allocation of that program cost is based on a weighted
5		4CP demand allocator, adjusted based on the most recent projection of EECRF rate
6		class kWh, less the identification notice customer kWh. The class assignment of the
7		2015 actual program costs is based on direct assignment to the participating EECRF
8		rate classes. The municipal EECRF proceeding expenses have been assigned to the
9		classes based on the 2017 program costs assigned to the classes. Recovery of the
10		2017 EECRF revenue requirement is based on projected 2017 kWh sales for all
11		EECRF classes eligible for the EECRF.
12	Q.	WHAT RELIEF IS TNC REQUESTING IN THIS PROCEEDING?
13	A.	TNC is requesting that Rider EECRF contained in Schedule F be approved effective
14		March 1, 2017.
15	Q.	HAS TNC CALCULATED THE EECRF FACTORS IN A MANNER
16		CONSISTENT WITH 16 TAC § 25.181?
17	A.	Yes.
18	Q.	DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?
19	A.	Yes, it does.

Schedule A

2017 Projected Energy Efficiency Costs

	Incentives	Administrative	Research and Development	Total Projected Energy Efficiency Costs
Commercial				
Commercial Solutions MTP	\$363,660	\$54,340		\$418,000
Commercial SOP	\$308,850	\$46,150		\$355,000
Load Management SOP	\$87,000	\$13,000		\$100,000
Open MTP	\$419,340	\$62,660		\$482,000
SCORE/CitySmart MTP	\$160,080	\$23,920		\$184.000
SMART Source SM Solar PV MTP	\$82,650	\$12,350		\$95.000
Residential				
Earth Networks Residential DR Pilot	\$20,010	\$2,990		\$23.000
Efficiency Connection Pilot MTP	\$150,510	\$22,490		\$173.000
Residential SOP	\$535,050	\$79,950		\$615,000
SMART Source SM Solar PV MTP	\$102,660	\$15,340		\$118.000
Hard-to-Reach				4
Hard-to-Reach SOP	\$163,560	\$24,440		\$188.000
Targeted Low-Income Energy Efficiency Program	\$283,620	\$42,380		\$326,000
Research and Development (R&D)				
R&D			\$200,000	\$200,000
Total Projected Energy Efficiency Costs	\$2,676,990	\$400,010	\$200,000	\$3,277,000

Schedule A

2017 Projected Energy Efficiency Costs

	Res	Sec < 10	Sec > 10	Primary	Total
Commercial			·	<u>`</u>	
Commercial Solutions MTP		\$18,506	\$260,771	\$138,724	\$418,000
Commercial SOP		\$15,717	\$221,468	\$117,815	\$355,000
Load Management SOP			\$65,275	\$34,725	\$100,000
SCORE/CitySmart MTP		\$8,146	\$114,789	\$61,065	\$184,000
SMART SourceSM Solar PV MTP		\$4,206	\$59,266	\$31,528	\$95,000
Open MTP		\$31,939	\$450,061		\$482,000
Residential					
Efficiency Connection Pilot MTP	\$173,000				\$173,000
Earth Networks Residential DR Pilot	\$23,000				\$23,000
Residential SOP	\$615,000				\$615,000
SMART SourceSM Solar PV MTP	\$118,000				\$118,000
Hard-to-Reach					
Hard-to-Reach SOP	\$188,000				\$188,000
Targeted Low-Income Energy Efficiency Program	\$326,000				\$326,000
Research and Development (R&D)					
R&D Programs	\$89,552	\$4,890	\$68,903	\$36,655	\$200,000
Total Energy Efficiency Program Revenue Requirement	\$1,532,552	\$83,404	\$1,240,533	\$420,511	\$3,277,000

Schedule B

2015 Actual Energy Efficiency Expenditures

	Incentives	Administrative	Research &	Evaluation, Measurement	Total Eunde
			Development	& Verification	Funded
Commercial				di Formoution	Expended
Commercial Solutions MTP	\$410,105	\$33,414			\$443.520
Commercial SOP	\$218,532	\$22,469			\$241.001
Load Management SOP	\$31,894	\$3,168			\$35.063
Open MTP	\$461,040	\$45,242			\$506.281
SCORE/CitySmart MTP	\$185,876	\$16,487			\$202.363
SMART Source SM Solar PV MTP	\$60,481	\$4,834			\$65.315
Residential					+ + + + + + + + + + + + + + + + + + + +
Efficiency Connection Pilot MTP	\$62,048	\$10,235		· · · · · · · · · · · · · · · · · · ·	\$72.282
Residential SOP	\$445,516	\$61,554			\$507.070
SMART Source SM Solar PV MTP	\$100,884	\$8,063			\$108.947
Hard-to-Reach					
Hard-to-Reach SOP	\$160,189	\$15,785			\$175,974
Targeted Low-Income Energy Efficiency Prog.	\$256,021	\$27,073			\$283,094
Research and Development					
Research and Development			\$86,353		\$86.353
Total Program Costs	\$2,392,585	\$248,324	\$86,353		\$2,727,262
Evaluation, Measurement, & Verification (EM&	V)				
PY 2014 Statewide EM&V Contractor				\$39,211	\$39.211
					ź
Total Energy Efficiency Costs, including EM&V	\$2,392,585	\$248,324	\$86,353	\$39,211	\$2,766,474

Schedule B

2015 Actual Energy Efficiency Expenditures

	Res	Sec < 10	Sec > 10	Drimony	Total
Commercial Programs		560 < 10	360 > 10	Prinary	Total
ComSol MTP		¢1 077	ć 410 407	622.226	<u> </u>
ICSOP		//۵٫۲¢	\$418,407	\$23,236	\$443,520
		\$U \$0	\$196,888	\$44,113	\$241,001
		\$0	,\$28,408	\$6,655	\$35,063
		\$12,405	\$493,876	\$0	\$506,281
SCORE/CS MTP		\$4,048	\$72,584	\$125,730	\$202,363
SMART Source Pilot MTP - Comm		\$0	\$65,315	\$0	\$65,315
Total Commercial		\$18,330	\$1,275,478	\$199,733	\$1,493,542
Residential Programs					
A/C Distributor Pilot MTP	\$72,282				\$72.282
RSOP	\$507,070				\$507.070
SMART Source Pilot MTP - Res	\$108,947				\$108.947
Total Residential	\$688,300				\$688 300
Hard-to-Reach Programs	. ,				<i>\$666,366</i>
HTR SOP	\$175,974				¢175 074
TLI EEP	\$283.094				\$292.004
Total HTR	\$459.068				\$265,094
Total Programs	\$1 1/7 367	¢10 220	61 77E 470	¢100 722	\$459,068
i otar ri ograms	<i>Ş</i> 1,147,307	210,330	\$1,275,476	\$133,122	\$2,640,909
Research & Development					
R&D - CCET					
R&D - SMART View IHD					
R&D - Programs	\$50,300	\$441	\$30,787	\$4.824	\$86,353
R&D - EM&V	\$16,793	\$275	\$19,145	\$3.000	\$39,211
Total R&D	\$67,093	\$716	\$49,932	\$7,823	\$125,564
Total	\$1,214,461	\$19,046	\$1,325,410	\$207,556	\$2,766,474

AEP Texas North Company Adjusted Energy Efficiency Cost Recovery Factor Filing

Schedule C Calculation of 2015 Over Recovery Class Factor

2015 Residential Energy Efficiency Expenditures + R&D - Municipal EECRF Expenses 2015 Actual Residential Energy Efficiency Program Revenues + Base	\$1,212,691 \$1,306,156
2015 Residential Over Recovery	(\$93,465)
2015 Commercial Energy Efficiency Expenditures + R&D - Municipal EECRF Expenses	\$1,549,651
2015 Commercial Over Recovery	\$1,656,500 (\$106,649)
2015 Total Energy Efficiency Expenditures + R&D - Municipal EECRF Expenses	\$2,762,342
2015 Actual Total Energy Efficiency Program Revenues	\$2,962,456
2015 Over Recovery	(\$200,114)

Class	2015 Program Costs Over/Under Recovery Allocation	2017 Forecasted Billing KWh Llnit	2015 Over/Under Recovery Factor 11nit
Residential	(\$93,465)	1,926,927,454	(\$0.000049) KWh
Secondary <= 10 kW	(\$70,161)	145,008,064	(\$0.000484) kWh
Secondary > 10 kW	\$127,324	1,917,187,379	\$0.000066 kWh
Primary	(\$167,444)	1,526,767,372	(\$0.000110) kWh
Transmission	\$3,632	101,646,029	\$0.000036 kWh
Lighting	\$0	44,514,292	\$0.000000 kWh
Total	(\$200,114)	5,662,050,590	

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Schedule D

2015 Goal Achievement and Performance Bonus Calculation

TNC achieved 4,542 kW in demand savings and 12,289,721 kWh in energy savings by January 1, 2016. The total present value of the avoided cost associated with these demand reductions and energy savings is \$8,397,346. TNC's total program cost for the 2015 program year was \$2,763,640. The resulting net benefits are \$5,633,705. TNC's demand reduction goal (DRG) was 4,260 kW and its energy savings goal was 7,464,000 kWh. TNC achieved 107% of its DRG and 165% of its energy savings goal, qualifying it for a performance bonus as calculated under 16 TAC § 25.181(h).

TNC's calculated bonus is \$186,197, which is less than the maximum bonus allowed. The maximum bonus allowed is 563,371, which is 10% of its total net benefits (16 TAC § 25.181 (h)(3)).

	kW (Demand)	kWh (Energy)
2015 Goals	4,260	7,464,000
2015 Savings		
Reported/Verified Total	4,542	12,289,271
Reported/Verified HTR	316	
2015 Program Costs	\$2,763	3,640
2015 Performance Bonus	\$186	,197

Performance Bonus Calculation

107%	Percentage of Demand Reduction Goal Met (Reported kW/Goal kW)
165%	Percentage of Energy Reduction Goal Met (Reported kWh/Goal kWh)
TRUE	Met Requirements for Performance Bonus?
\$8,397,346	Total Avoided Cost [Reported kW * PV (Avoided Capacity Cost)] + [Reported kWh * PV (Avoided Energy Cost)]
\$2,763,640	Total Program Costs
\$5,633,705	Net Benefits (Total Avoided Cost – Total Expenses)

Bonus Calculation

\$186,197	Calculated Bonus [(Achieved Demand Reduction/Demand Goal - 100%) / 2] * Net Benefits
\$563,371	Maximum Bonus Allowed (10% of Net Benefits)
\$186,197	Bonus (Minimum of Calculated Bonus and Bonus Limit)

Adjusted Energy Efficiency Cost Recovery Factor Filing AEP Texas North Company

Schedule E Calculation of Requested EECRF by Customer Class

TNC		
2017 Program Costs Above Base Rates	\$1,790,454	100.58%
EM&V	0\$	0.00%
2015 (Over)/Under Recovery	(\$200.114)	-11.24%
Calculated Performance Bonus for 2015	\$186,197	10.46%
Municipal EECRF Proceeding Expenses	\$3,517	0.20%
Adjusted EECR Revenue Requirement	\$1,780,055	100.00%

	Adjusted EECR Revenue	2017 Forecasted	2017 EECR	
Class	Requirement	Billing kWh Unit	Factor Unit	
Residential	\$876,042	1,926,927,454	\$0.000455 kWh	-
Secondary <= 10 kW	(\$21,818)	145,008,064	(\$0.000150) kWh	
Secondary > 10 kW	\$937,250	1,917,187,379	\$0.000489 kWh	
Primary	(\$5,446)	1,526,767,372	(\$0.000004) kWh	
Transmission	(\$5,973)	101,646,029	(\$0.000059) kWh	
Lighting	\$0	44,514,292	\$0.000000 kWh	
Total	\$1,780,055	5,662,050,590		

PUC Docket No. 45928 Schedule E

Т

6.1.1.6.6 Rider EECRF – Energy Efficiency Cost Recovery Factors

AVAILABILITY

Rider EECRF recovers the cost of energy efficiency programs not already included in base distribution service rates and is applicable to the kWh sales of Retail Customers taking retail electric delivery service from the Company.

APPLICABILITY

The Rider EECRF is applicable to the current month's billed kWh of each Retail Customer taking electric delivery service from the Company.

MONTHLY RATE

Rate Schedule	Factor	
Residential Service	\$0.000455 per kWh	Ι
Secondary Service Less than or Equal to 10 kW	(\$0.000150) per kWh	R
Secondary Service Greater than 10 kW	\$0.000489 per kWh	R
Primary Service	(\$0.00004) per kWh	Ι
Transmission Service	(\$0.000059) per kWh	I·
ID Notice Customer Base Rate Credit For distribution industrial customers meetin requirements in 16 TAC§25.181(c)(30) and (w) base rate energy efficiency credit will apply.	g the definition and fulfilling the (ID Notice Customers) the following	N N N N
Secondary Service Less Than or Equal to 10 kW Secondary Service Greater Than 10 kW Primary	(\$0.000256) per kWh (\$0.000312) per kWh (\$0.000169) per kWh	N N N
NOTION		

NOTICE

This Rate Schedule is subject to the Company's Tariff and Applicable Legal Authorities.

AEP Texas North Company Adjusted Energy Efficiency Cost Recovery Factor Filing

Schedule G Cap Calculation

2017 Program Costs Above Base Rates (no EM&V cost) \$1,790,454 10078 2015 (Over)/Under Recovery (\$200,114) -1126 Calculated Performance Bonus for 2015 \$186,197 10.48 Adjusted EECR Revenue Requirement (no EM&V cost) \$1,76,537 10.40			
Calculated Performance Bonus for 2015 3186, 197 10 48 Adjusted EECR Revenue Requirement (no EM&V cost) 31 776, 537 10000	2017 Program Costs Above Base Rates (no EM&V cost) 2015 (Over)/Under Recovery	\$1,790,454 (\$300,114)	100 78%
Adjusted EECR Revenue Requirement (no EM&V cost) 81 776 537 100 no	Calculated Performance Bonus for 2015	\$186,197	10 48%
Adjusted EECR Revenue Requirement (no EM&V cost) 81 776 537 700 00			
	Adjusted EECR Revenue Requirement (no EM&V cost)	\$1,776,537	100 00%

				TNC		
						2017
				Bas	se Rate per Final	Proposed
	Kevenue		2017 Proposed	Ord	ter in Docket No	EECR
i	Requirement (no	2017 Forecasted	EECR Factor		39361 Including	Factor (no
Class	EM&V cost)	Billing kWh Unit	(no EM&V) Unit	Class Reve	enue Adjustment	EM&V)
Kesidential	\$874,397	1,926,927,454	\$0 000454 kWh	Residential	\$0 000375	\$0 000454
Secondary <= 10 kW	(\$21 908)	145,008,064	(\$0 000151) kWh	Non-Residential	\$0 000282	\$0 000253
Secondary > 10 kW	\$935,918	1,917,187,379	\$0 000488 kWh			
Primary	(\$5 898)	1,526,767,372	(\$0 000004) kWh	Calculation of Non-Residentia	al per kWh Rate	
Transmission	(\$5,973)	101,646,029	(\$0 000059) kWh	2017 Rev Req 2017 kWh	\$908,113 3.588,962,815	
Lighting	\$0	44,514,292	\$0 000000 kWh	Combined per kWh	\$0 000253	
				Base Rev Red	\$683.762	
l otal (no EM&V cost)	\$1,776,537	5,662,050,590		Base kWh	2,833,233,419	
				Combined per kWh	\$0 000241	

2017 Total Base + EECRF (no EM&V) 2016 CAP 2017 Cap * \$0 000829 \$0 001265 \$0 001265 *

South Urban CP1 -0 18%

\$0 000535 \$0 000791 \$0 000791

148,747 3,630,763,779 \$0 000041

Adjustment to Comm 2015 Comm kWh per kWh adjustment

\$0 000535

Total 2017 per kWh

2015 Cap Analysis						
		2013 Performance	2013 (O)(1 (no	2015 Actual Billing MMb	2016 Cont Con	2015 Cap As
TNC	Actual 2015 Program Costs**	Bonus	EM&V)	(less ID Notice)	ZOTO COST CEP Based on Actuals	
Residential	\$1,195,898	\$399.420	(\$59 881)	1 830 771 272		
Non-Residential	\$1,527,233	\$489,257	(\$282.544)	3 545 300 452	\$0,000,00 \$0,000,00	\$0 001244
Total	\$2,723,131	\$888,677	(\$342 425)	5,376,071,724		
*the 2017 cap has i	not been adjusted from the prior ye	ear because the CPI was	negative in 2015			
**less TetraTech El	M&V costs & muni expenses					

Schedule G

PUC Docket No. 45928

Adjusted Energy Efficiency Cost Recovery Factor Filing

Schedule H Texas North Company Projected 2017 Retail kWh Sales

Retail kWh Sales 5,894,547,348

	2015 Historical	Percent of	Customer ID	2017 Forecasted	
Rate Classes	Billing Units	Total kWh	Notice kWh	Billing Unit	Unit
Residential	1.830.771.272	32,69%		1 926 927 454	k/Wh
Secondary <= 10 kW					
	142,333,204	2.54%	4,8/0,263	145,008,064	k N
Secondary > 10 kW	1,854,638,496	33.12%	34,860,859	1 917 187 379	kWh
Drimona					
	1,633,726,079	29.17%	192,765,637	1,526,767,372	kVh
Transmission	96,573,760	1.72%		101.646.029	kWh
Lighting	42,292,971	0.76%		44 514 292	k Wh
Total	5,600,401,782	100.00%	232,496,759	5,662,050,590	
		-	D Notice kWh	232,496,759	
		-	otal 2017 kWh	5,894,547,349	

PUC Docket No. 45928 Schedule H

Sponsored by: Jennifer L. Jackson

AEP Texas North Company Adjusted Energy Efficiency Cost Recovery Factor Filing

> Schedule I Energy Efficiency Program Costs Included in Base Rates

Docket No 33310 Final Order

Weighted Allocator 46.834% 2.915% 6.030% 31.055% 12.462% 0.704% 0.000%	
Distribution Function Allocator Wout Trans 5 594% 5 994% 30,869% 0 699% 0 0000% 0 0000% 9 401%	
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2015 EE Base Revenue - 16 TAC § 25.181 \$644.431 \$36.454 \$33.788 \$433.788 \$33.788 \$33.788 \$434.431 \$56.454 \$12.663\$\$12.663\$\$12.	
2015 Billing Unit 1,830,771,272 1,42,339,204 1,42,399,204 1,42,399,204 1,42,397,725 166,404 80 3,423,725 20 166,404 80 549,662,70 42,292,971	
Docket No 33310 EE Rate per Billing Unte \$0 000352 \$0 007725 \$0 077100 \$0 0000000 \$0 0000000 \$0 00000000 \$0 00000000	
Base Distribution Billing Unit KWh KWh KW KW KW KW KW KW	
Docket No. 33310 Billing Data 1,713,078,230 146,926,027 982,774 6,058,441 2,081,550 142,816 443,710 57,913,901	
T otal Energy Efficiency Costs Efficiency Costs Expressly Included In Base Rates \$502,913 \$502,913 \$507,536 \$77,536 \$77,536 \$99,035 \$99,035 \$99,036 \$77,54 \$9,046 \$7,754 \$1,024,430 \$1,294,430	
Customer I Service Function 77 215% 14 628% 0 440% 0 107% 0 107% 0 107%	
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Distribution - FERC Account 907 \$502,129 \$577,527 \$17,527 \$17,527 \$17,527 \$160,223 \$9,045 \$1,293,415 \$1,293,415	
Class Residential Secondary = 10 kW Secondary > 10 kW IDR Secondary > 10 kW Non-IDR Primary Non-IDR Triansmission Lighting	

Sponsored by Jennifer L Jackson

Schedule J

Energy Efficiency Service Providers Who Received More Than 5% of the Total Incentive Funds for 2015

A list of the energy service providers, those receiving more than 5% of the total incentive funds for 2015 and the associated contracts are provided.

The information provided in Schedule J is voluminous. The information is also CONFIDENTIAL, under the terms of the Protective Order. The Confidential information is available for review at the Austin offices of American Electric Power Company (AEP), 400 West 15th Street, Suite 1520, Austin, Texas, 78701, (512) 481-4562, during normal business hours, by parties to this case who have agreed to be bound by the Protective Order.

Schedule K - Affiliate Costs TNC Affiliate Costs - 2015

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 89 See Direct Testimonies of Robert Cavazos, Pam Osterloh and Brian Frantz 48,426 See Direct Testimonies of Robert Cavazos, Pam Osterloh and Brian Frantz 55 See Direct Testimonies of Robert Cavazos, Pam Osterloh and Brian Frantz 446 See Direct Testimonies of Robert Cavazos, Pam Osterloh and Brian Frantz 49,017 	122 See Direct Testimonies of Robert Cavazos, Pam Osterloh and Bran Frantz 10,245 See Direct Testimonies of Robert Cavazos, Pam Osterloh and Brian Frantz 4877 See Direct Testimonies of Robert Cavazos, Pam Osterloh and Brian Frantz 15,245	7,672 See Direct Testimonies of Robert Cavazos, Parn Osterioh and Brian Frantz 7,672	71,934
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Schedule L Bidding and Engagement Process

AEP Texas North Company (TNC) uses several procedural paths through which it contracts with energy efficiency service providers (EESPs) for the purpose of implementing energy efficiency and demand response (EE/DR) programs to achieve TNC's goals. The procedures and processes TNC uses differs according to the program type, as shown in more detail below.

Standard Offer Program (SOP) Process

TNC posts its program manuals, including specific application procedures and timelines on its web site (aeptexas.com/save). In accordance with the published schedule, EESPs may submit their project applications and all supplemental documentation required for participation in the program.

As part of the application process, EESPs describe the project measures to be installed, including applicable measurement and verification methods (M&V). As required, the M&V plan may include approved deemed savings values, or the appropriate International Performance Measurement and Verification Protocol (IPMVP) to be utilized.

TNC reviews each Project Application on a first-come, first-served basis. TNC awards contracts based upon each EESP's timely and complete submission of qualifications, history and appropriate reference information, and potential ability to help meet program goals. TNC may reject any Project Application for failure to meet the required procedures or deadlines. TNC may request clarification of, or additional information about, any item submitted as part of the Project Application.

TNC notifies each EESP of its application status according to program procedures and, if approved as a Project Sponsor, the available incentive budget. For any programs that require a Project Sponsor security deposit, the security deposit must be provided to TNC within the published timeline.

For residential projects, TNC and Project Sponsors enter into a standard offer agreement contract at which time the Project Sponsors may begin to solicit and engage residential customers to implement eligible EE measures.

EESPs or qualified commercial customers identify and submit applications for the installation of EE measures at commercial customer sites. TNC reviews the applications as described above. TNC and approved Project Sponsors enter into a standard offer agreement contract for the implementation of the EE measures or projects at commercial customer sites.

Schedule L Bidding and Engagement Process

Market Transformation Program (MTP) Process

TNC may implement an MTP as a full program or as a limited MTP pilot. Programs may be selected based on a concept presented by an EESP or from observation of successful programs already implemented at another utility. For programs proposed by an EESP that TNC deems viable, TNC may contract with the initiating EESP to implement the program on a limited pilot basis for a period typically no longer than three years.

When a pilot program has been deemed successful by TNC and a baseline study has been completed, TNC implements a competitive solicitation process. A Request for Proposals (RFP) is developed and sent electronically to all EESPs who have contacted TNC and expressed an interest in implementing such programs in the Texas market.

Interested EESPs submit program proposals according to the published requirements and schedule. TNC forms an internal proposal evaluation and scoring team, and all proposals are individually evaluated according to standard scoring criteria. References submitted by EESPs are contacted and interviewed. Scoring and reference results are consolidated and the EESP proposal with the highest score is selected for further negotiation as the program implementer.

Retail Electric Provider Engagement Process

AEP Texas Competitive Retail Relations department hosts an annual communications workshop for all Texas REPs. Detailed EE program information is disseminated to the REPs in attendance, along with an opportunity for the REPs to ask questions about participating in existing programs and also to provide suggestions of program ideas.

REPs are encouraged to submit a program template for a new program to TNC, either alone or through an EESP. For programs proposed by an REP that TNC deems viable, TNC may contract with the initiating REP to implement the program on a limited pilot basis for a period typically no longer than three years.

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SCHEDULE M

Residential & Commercial EULs

Sector	TRM Measure	Energy Efficiency Measure	EUL (years)	TRM Version
Custom	NA	Custom	NA	NA
Residential	2.1.1	Res Compact Fluorescent Lamps	77	2.1
Residential	2.2.1	Res Duct Efficiency Improvement	18.0	21
Residential	2 2 2 2	Res Central AC	19 0	2.1
Residential	223	Res Ground Source Heat Pump	20.0	21
Residential	224	Res Central Heat Pump	16.0	21
Residential	225	Res Window Air Conditioner	110	2.1
Residential	231	Res Ceiling Insulation	110	2.1
Residential	233	Res Wall Insulation	25.0	21
Residential	2.3.4	Res Floor Insulation	25.0	21
Residential	235	Res Energy Star Windows	25.0	21
Residential	2.3.6	Res Solar Screens	10.0	21
Residential	241	Res Faucet Aerators	10.0	21
Residential	242	Res Low-Flow Showerheads	10.0	2.1
Residential	2.4.3	Res Water Heater Pipe Insulation	13 0	2.1
Residential	244	Res Water Heater Tank Insulation	70	21
Residential	245	Res Water Heater Installation-Electric Tankless and Fuel Substitution	20 0	21
Residential	246	Res Heat Pump Water Heater	13.0	21
Residential	2.4.7	Res Water Heater Replacement-Solar Water Heating	15 0	21
Residential	252	Res Energy Star Clothes Washer	10.0	21
Residential	253	Res Energy Star Dishwashers	14.0	21
Residential	254	Res Energy Star Refrigerators	17.0	21
Residential	261	Res New Homes	23.0	21
Residential	271	Res Solar Photovoltaic (PV)	30.0	21
Residential	281	Res Direct Load Control of Outdoor Compressor Units	10	21
Residential	2.8.2	Res Direct Load Control of Swimming Pool Pump Motors	10	21
Residential	2.9.1	Res Refrigerator/Freezer Recycling	80	21
Commercial	211	Comm Lamps and Fixtures Halogen Lamps	15	21
Commercial	211	Comm Lamps and Fixtures High Intensity Discharge Lamps	15.5	2.1
Commercial	211	Comm Lamps and Fixtures Integrated-ballast CCFL Lamps	4.5	2.1
Commercial	211	Comm Lamps and Fixtures Integrated-ballast CFL Lamps	25	21
Commercial	211	Commilicamps and Fixtures Integral LED Lamps	90	21
Commercial	211	Commil Lamps and Fixtures Light Emitting Diode	15.0	2.1
Commercial	211	Comm Lamps and Fixtures T8 and T51 inear Elugrescents	15.0	2.1
Commercial	211	Comm Lamps and Fixtures LEDs or T8 and T5 Linear Fluorescents replacing T12s with magnetic ballasts	85	21
Commercial	212	Comm Lighting Controls Occupancy Sensor	10.0	21
Commercial	2.1.2	Comm Lighting Controls. Photocell (Daylighting Control)	10.0	21
Commercial	2.1.2	Comm Lighting Controls Timeclock	10.0	21
Commercial	2 2.1	Comm Split System/Single Packaged Heat Pumps and Air Conditioners	15.0	2.1
Commercial	222	Comm HVAC Chillers. Screw / Scroll / Reciprocating Chillers	20.0	21
Commercial	2.2.2	Comm HVAC Chillers Centrifugal Chillers	25.0	2.1
Commercial	223	Comm Packaged Terminal Air Conditioners, Heat Pumps	15.0	2.1
Commercial	2 2.3	Comm Room Air Conditioners	110	2.1
Commercial	2.2.4	Comm HVAC VFD on AHU Supply Fans	15.0	21
Commercial	2.3.1	Comm Energy Star Roofs	15.0	21
Commercial	232	Comm Vindow Film	10 0	2.1
Commercial	241	Comm High Efficiency Complication Ovens	12.0	21
Commercial	2.42	Comm Energy Star Commercial Disburghers	12.0	21
Commercial	243	Comm Hot Food Holding Cabinets	110	21
Commercial	245	Comm Energy Star Electric Fryers	12 0	21
Commercial	2.46	Comm Pre-Rinse Spray Valves	50	21
Commercial	2.4.7	Comm Energy Star Electric Steam Cookers	12.0	2.1
Commercial	251	Comm Door Heater Controls	12 0	2.1
Commercial	252	Comm ECM Evaporator Fan Motor	15 0	21
Commercial	2.53	Comm Electronic Defrost Controls	10.0	21
Commercial	2.5.4	Comm Evaporator Fan Controls	16.0	21
Commercial	2.5.5	Comm Night Covers for Open Refrigerated Display Cases	50	2.1
Commercial	200	Comm Strip Curtains for Walk in Definented Stores	12.0	21
Commercial	258	Comm Zero Energy Doors for Refingerated Storage	40	21
Commercial	2.50	Comm Vending Machine Controls	12.0	21
Commercial	262	Comm Lodoing Gluest Room Occupancy Sensor Controls	50	21
Commercial	263	Comm Pump-Off Controller	16.0	2.1
Commercial	271	Comm Salar Diptovaltaic (D)/)	10.0	21
Commonwel		Comm Lond Cuttaliment	30.0	2.1
Johnnercial	20.1		10	21

Schedule N

2017 Projected Energy Efficiency Goals and Objectives

Average Peak Demand at Meter (MW)	Goal Metric: 0.4% Peak Demand (MW)	Peak Demand Goal (MW) ¹	Energy Goal (MWh) ²	Projected Demand Reduction (MW) ³	Projected Energy Savings (MWh) ³
998	3.99	4.26	7,464	5.77	13,244

1 16 TAC § 25.181(e)(1)(E) - A utility's demand reduction goal in megawatts for any year shall not be less than the previous year's goal.

2 TNC's Energy Savings Goal, calculated according to PUC Rules, is based on a 20% Capacity Factor.

3 Please refer to Section D of Ms. Fahrlender's testimony for an explanation of how the Projected Demand Reduction and Energy Savings Objectives were determined.

Schedule O

2017 Projected Energy Efficiency Program Savings

Customer Class and Program	Demand Reduction Target (MW)	Energy Savings Target (MWh)
Commercial		
Commercial Solutions MTP	0.32	2,000
Commercial SOP	0.60	3,825
Load Management SOP	2.18	8
Open MTP	0.38	1,344
SCORE/CitySmart MTP	0.16	1,000
SMART Source SM Solar PV MTP	0.08	160
Residential		
Earth Networks Residential DR Pilot	0.50	1
Efficiency Connection Pilot MTP	0.12	659
Residential SOP	1.01	3,152
SMART Source SM Solar PV MTP	0.08	151
Hard-to-Reach		
Hard-to-Reach SOP	0.23	738
Targetd Low-Income Energy Efficiency Program	0.10	206
Total Annual Projected Savings	5.77	13,244

TNC SCHEDULE P

2015 Energy Efficiency Programs' Cost - Net Benefit Ratio

Sponsored by: Robert Cavazos and Rhonda R. Fahrlender

AEP Texas North Company Adjusted Energy Efficiency Cost Recovery Factor Filing

PUC Docket No. 45928 Schedule Q

Schedule Q System and Line Losses

TNC kWh sales forecast for 2017 is based on energy delivered at the meter so it was not necessary to adjust the EECRF factors for system and line losses.

Schedule R

2017 Energy Efficiency Programs

Program	Customer Class	Description
Commercial Solutions MTP	Commercial	Provides energy efficiency and demand reduction solutions for commercial customers identified as having a need for energy efficiency improvements and needing support from an outside source Facilitates the identification of demand and energy savings opportunities, operating characteristics, long-
		range energy efficiency planning and overall measure and program acceptance by the targeted customers Incentives are paid to customers served by TNC for eligible measures installed in new or retrofit applications, which provide verifiable demand and energy savings
Commercial SOP	Commercial	Provides incentives for the installation of a wide range of measures that reduce customer energy costs and reduce peak demand and/or save energy in non-residential facilities. Customer sites may include hotels, schools, manufacturing facilities, restaurants, and larger grocery stores. These customers have installed such eligible measures as lighting, new or replacement chiller systems, high efficiency pumping systems, and other similar technologies. Incentives are paid to project sponsors based on of deemed savings or on verified peak demand and/or energy savings using the International Performance.
Earth Networks Residential DR Pilot	Residential	Designed to use the WeatherBug Home technology to deliver an Integrated Demand Side Management aggregation program that will bring residential energy efficiency and demand response capacity to TNC
Efficiency Connection Pilot MTP	Residential	Targets residential customers by partnering with REPs who will promote energy efficiency to their customers Under this program, REPs will initially offer customers LED lamps at a discounted price via an online marketplace.
Hard-to-Reach SOP	Hard-to-Reach	Targets a specific subset of residential customers as defined by 16 TAC § 25 181(c)(27) as customer with a total household income that is less than 200% of the federal poverty guidelines. The program provides incentives for the installation of a wide range of measures that reduce residential customer energy costs and peak demand. It is designed to cost-effectively provide energy efficiency improvements to individual households at no or very low cost. Eligible measures include replacement air conditioners, wall and ceiling insulation and air distribution duct improvements in existing homes Incentives are paid to EESPs for eligible measures on the basis of deemed savings
Load Management SOP	Commercial	Targets commercial customers that have a minimum demand of 500 kW or more. Incentives are paid to project sponsors that can identify and interrupt electric load on short notice. These payments are based on the delivery of metered demand reduction.
Open MTP	Commercial	Targets small commercial customers (peak demands not exceeding 100 kW in the previous 12 consecutive billings months) with limited ability to implement energy efficiency measures or to actively seek the help of a professional EESP Available incentives are paid directly to the contractor, thereby reducing a portion of the project cost for the customer Additional incentives may offset up to 100% of project costs for customers with a peak demand less than or equal to 10 kW
Residential SOP	Residential	Provides incentives for the installation of a wide range of measures that reduce residential customer energy costs and cost-effectively reduce peak demand. It is also designed to encourage private sector delivery of energy efficient products and services. Eligible measures include replacement air conditioners, wall and ceiling insulation and air distribution duct improvements. Incentives are paid to EESPs for eligible measures installed in retrofit applications on the basis of deemed savings.
SCORE/CitySmart MTP	Commercial	Provides energy efficiency and demand reduction solutions for cities and public schools SCORE/CitySmart will facilitate the identification of demand and energy savings opportunities, operating characteristics, long-range energy efficiency planning and overall measure and program acceptance by the targeted cities and schools Incentive are paid to cities and public school partners served by TNC for certain measures installed in new or retrofit applications, which provide verifiable demand and energy savings
SMART Source SM Solar PV MTP	Commercial & Residential	Provides incentives for residential and commercial customers that install solar electric (photovoltaic) systems interconnected on the customer's side of the electric service meter
Targeted Low-Income Energy Efficiency Program	Low-Income Residential	Designed to cost-effectively reduce the energy consumption and energy costs of TNC's low-income customers The program provides eligible residential customers with appropriate weatherization measures and basic on-site energy education. This program enhances and supplements the federally funded Weatherization Assistance Program.

AEP Texas North Company

2016 Energy Efficiency Plan and Report

16 Tex. Admin. Code §§ 25.181 and 25.183

Amended May 27, 2016

Project No. 45675



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Introduction

AEP Texas North Company (TNC or Company) presents this Energy Efficiency Plan and Report (EEPR) to comply with Public Utility Commission of Texas (PUCT or Commission) 16 Tex. Admin. Code §§ 25.181 and 25.183 (TAC) (EE Rule), which implement Public Utility Regulatory Act (PURA) § 39.905. As mandated by this section of PURA, the EE Rule requires that each investor-owned electric transmission and distribution utility (TDU) achieve the following demand reduction goals through market-based standard offer programs (SOPs) and targeted market transformation programs (MTPs). 16 TAC § 25.181(e)(1) provides in pertinent part as follows:

- (e)(1) An electric utility shall administer a portfolio of energy efficiency programs to acquire, at a minimum, the following:
 - (B) Beginning with the 2013 program year, until the trigger described in subparagraph
 (C) of this paragraph is reached, the utility shall acquire a 30% reduction of its annual growth in demand of residential and commercial customers.
 - (C) If the demand reduction goal to be acquired by a utility under subparagraph (B) of this paragraph is equivalent to at least four-tenths of 1% of its summer weatheradjusted peak demand for the combined residential and commercial customers for the previous program year, the utility shall meet the energy efficiency goal described in subparagraph (D) of this paragraph for each subsequent program year.
 - (D) Once the trigger described in subparagraph (C) of this paragraph is reached, the utility shall acquire four-tenths of 1% of its summer weather-adjusted peak demand for the combined residential and commercial customers for the previous program year.
 - (E) Except as adjusted in accordance with subsection (w) of this section, a utility's demand reduction goal in any year shall not be lower than its goal for the prior year, unless the commission establishes a goal for a utility pursuant to paragraph (2) of this subsection.

The EE Rule includes specific requirements related to the implementation of SOPs and MTPs that control the manner in which TDUs must administer their portfolio of energy efficiency programs in order to achieve their mandated annual demand reduction goals. TNC's plan enables it to meet its statutory goals through implementation of energy efficiency programs in a manner that complies with PURA § 39.905 and the EE Rule. This EEPR covers the periods of time as required in the EE Rule. The following section describes the information that is contained in each of the subsequent sections and appendices.

EEPR Organization

This EEPR consists of an Executive Summary, fourteen sections, a list of acronyms, and four appendices.

• Executive Summary summarizes TNC's plans for achieving its goals and projected energy efficiency savings for program years 2016 and 2017 and highlights TNC's achievements for Program Year 2015.

Energy Efficiency Plan

- Section I describes TNC's program portfolio. It details how each program will be implemented, presents related informational and outreach activities, and provides an introduction to any programs not included in TNC's 2015 EEPR.
- Section II explains TNC's targeted customer classes, describes the estimated size of each class and the method of determining those class sizes.
- Section III presents TNC's energy and demand goals and projected savings for the prescribed planning period detailed by program for each customer class.
- Section IV describes TNC's proposed energy efficiency budgets for the prescribed planning period detailed by program for each customer class.

Energy Efficiency Report

- Section V documents TNC's demand reduction goal for each of the previous five years (2011-2015) based on its weather-adjusted peak demand and actual savings achieved for those years.
- Section VI compares TNC's projected energy and demand savings to its reported and verified savings by program for calendar years 2014 and 2015.
- Section VII details TNC's incentive and administration expenditures for each of the previous five years (2011-2015) detailed by program for each customer class.
- Section VIII compares TNC's actual 2015 expenditures with its 2015 budget by program for each customer class. It identifies funds committed but not expended and funds remaining and not committed. It also explains any cost differences of more than 10% from TNC's overall program budget and from each program budget.
- Section IX describes the results from TNC's MTPs.
- Section X describes Research and Development activities.
- Section XI documents TNC's 2016 Energy Efficiency Cost Recovery Factor (EECRF).
- Section XII documents TNC's 2015 EECRF Summary.
- Section XIII documents TNC's Underserved Counties.
- Section XIV describes TNC's Performance Bonus calculation for Program Year 2015.

Acronyms

• A list of abbreviations for common terms used within this document.

Appendices

- Appendix A Reported and verified demand and energy reductions by county for each program.
- Appendix B Program Templates for any new or significantly modified programs and programs not included in TNC's previous EEPR.
- Appendix C Existing energy efficiency contracts and obligations.
- Appendix D Data, explanations, or documents supporting other sections of the EEPR.

Executive Summary – Energy Efficiency Plan (Plan)

TNC plans to achieve its 2016 mandated demand and energy goals of 4,260 kW and 7,464,000 kWh as shown in Table 1 below through residential and non-residential SOPs and MTPs. TNC will utilize a budget of \$2,987,851 to accomplish these goals.

Table 1: Summary of Goals, Projected Savings (at the Meter),¹ and Budgets

Calendar Year	Average Peak Demand at Meter (MW)	Goal Metric: 0.4% Peak Demand (MW)	Peak Demand Goal (MW)*	Energy Goal (MWh)	Projected Demand Reduction (MW)	Projected Energy Savings (MWh)	Projected Budget (000's)**
2016	1,002	4.01	4.26	7,464	5.17	11,192	\$2,988
2017	998	3.99	4.26	7,464	5.77	13,244	\$3,277

*16 TAC § 25.181(e)(1)(E) - Beginning in 2009 a utility's demand reduction goal in megawatts for any year shall not be less than the previous year's goal.

**The 2016 Projected Budget includes costs associated with Evaluation, Measurement and Verification activities.

Executive Summary – Energy Efficiency Report (Report)

TNC achieved demand and energy reductions of 4,542 kW and 12,289,271 kWh, respectively, in 2015. The total energy efficiency cost for achieving these savings was \$2,770,773. TNC's achievement exceeded the 2015 mandated energy efficiency goals of 4,260 kW and 7,464,000 kWh, thus allowing TNC to earn a Performance Bonus.

A broad portfolio of residential and non-residential SOPs and MTPs was used to accomplish these savings.

Average Growth in Demand figures are from Table 4; Projected Savings from Table 5; Projected Budget from Table 6.

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ENERGY EFFICIENCY PLAN

I. 2016 Programs

A. 2016 Program Portfolio

TNC has implemented a variety of programs in 2016 to enable it to meet its goals in a manner that complies with PURA § 39.905 and the EE Rule. These programs target broad market segments and specific market sub-segments with significant opportunities for cost-effective energy savings.

Table 2 summarizes TNC's programs and targeted customer class markets for Program Year 2016. The programs listed in Table 2 are described in further detail in Subsections B and C. TNC maintains a web site containing information on participation and forms required for project submission at <u>www.AEPTexas.com</u>. This site is the primary method of communication used to provide program updates and information to Retail Electric Providers (REPs), potential Energy Efficiency Service Providers (EESPs), and other interested parties.

Implementation Process

MTPs are implemented by a third-party implementer. These implementers design, market and execute the applicable MTP. Based on the specific MTP, the implementer may perform outreach activities to recruit local contractors and provide participating contractors specialized education, training/certification and tools as necessary. Implementers validate proposed measures/projects, perform quality assurance/quality control, and verify and report savings derived from the program.

SOPs are managed in-house with project sponsors providing eligible program measures. Project sponsors are typically EESPs; however, for commercial projects a TNC end-use customer may serve as its own project sponsor. Eligible project sponsors can submit an application(s) for project(s) meeting the minimum SOP requirements.

TNC monitors projects being submitted so as to not accept duplicate enrollments.

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Outreach Activities

- Promote internet web sites with program information including project eligibility, end-use measures, incentives, procedures, application forms, and in some cases a list of participating project sponsors and the available program budget;
- Utilize mass e-mail notifications to inform and update potential project sponsors on TNC energy efficiency program opportunities;
- Conduct workshops as necessary to explain program elements such as responsibilities of the project participants, program requirements, incentive information and the application and reporting process;
- Conduct specific project sponsor/contractor training sessions as necessary based on the energy efficiency programs being implemented;
- Participate in local, regional, state-wide, and industry-related outreach activities as may be necessary; and
- Facilitate earned media opportunities, spotlighting successful projects and/or interesting stories as applicable.

Program	Target Market	Application	Link to Program Manual
Commercial Solutions MTP	Commercial	Retrofit & New	http://eeprograms.net/aep/texasnorth/aep-texas-north-commercial-solutions-
		Construction	program/
Commercial SOP	Commercial	Retrofit & New	
	Commercial	Construction	https://www.aeptexas.com/save/business/programs/TNCPrograms.aspx
Earth Networks Residential DR Pilot MTP	Residential	Retrofit	No website available
Efficiency Connection Pilot MTP	Residential	Retrofit	No website available
Hard-to-Reach SOP	Residential	Detrefit	
	Hard-to-Reach	Ketrom	https://www.aeptexas.com/save/residential/programs/TNCPrograms aspx
Load Management SOP	Commercial	Retrofit	https://www.aeptexas.com/save/business/programs/TNCPrograms.aspx
Open MTP	Commercial	Retrofit	http://eeprograms.net/aep/texasnorth/aep-texas-north-open/
Residential SOP	Residential	Retrofit	https://www.aeptexas.com/save/residential/programs/TNCPrograms.aspx
SCORE/CitySmart MTP	Commercial	Retrofit & New	http://eeprograms.net/aep/texasporth/aep-texas-porth-score-program/
		Construction	http://eeprograms.net/aep/texasnorth/aep-texas-north-citysmart-program/
SMART Source SM Solar PV MTP	Commercial	Retrofit & New	
	Residential	Construction	http://www.txreincentives.com/apv/
Targeted Low-Income Energy Efficiency	Low-Income	Detro Ct	
Program	Residential	Retront	No Website Available

Table 2: 2016 Energy Efficiency Program Portfolio

B. Existing Programs

Commercial Solutions Market Transformation Program (CS MTP)

The CS MTP targets commercial customers (other than governmental and educational entities) that do not have the in-house expertise to: 1) identify, evaluate, and undertake energy efficiency improvements; 2) properly evaluate energy efficiency proposals from vendors; and/or 3) understand how to leverage their energy savings to finance projects. Incentives are paid to customers served by TNC for eligible energy efficiency measures installed in new or retrofit applications that result in verifiable demand and energy savings.

Commercial Standard Offer Program (CSOP)

The CSOP targets commercial customers of all sizes. Variable incentives are available to project sponsors based upon deemed and/or verified demand and energy savings for eligible measures installed in new or retrofit applications.

Efficiency Connection Pilot MTP (EffCon)

The Efficiency Connection Pilot MTP is a partnership with REPs to help promote energy efficiency to TNC residential customers by offering discounted LED lamps via an online marketplace. A third-party implementer facilitates customer/REP participation and aids in the selection and management of an online retailer/vendor for the program website and order fulfillment.

Hard-to-Reach Standard Offer Program (HTR SOP)

The HTR SOP targets residential customers with total annual household incomes at or below 200% of current federal poverty guidelines. Incentives are paid to project sponsors for eligible measures installed in retrofit applications that result in verifiable demand and energy savings. Program incentives are higher for work performed in historically underserved counties and for identified underserved measures to encourage activity. Project comprehensiveness is encouraged and customer education materials regarding energy conservation behavior are distributed by project sponsors.

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Load Management Standard Offer Program (LM SOP)

The LM SOP targets commercial customers with a peak electric demand of 500 kW or more. Incentive payments are based upon measured and verified peak demand reduction of curtailed loads during the summer peak period. Load management events are dispatched by TNC, using a one-hour-ahead notice for load reduction periods of one to four hours duration.

Open Market Transformation Program (Open MTP)

The Open MTP targets traditionally underserved small commercial customers who may not employ knowledgeable personnel with a focus on energy efficiency, who are limited in the ability to implement energy efficiency measures, and/or who typically do not actively seek the help of a professional EESP. Small commercial customers with a peak demand not exceeding 100 kW in the previous 12 consecutive billing months may qualify to participate in the program. Available incentives are paid directly to the contractor, thereby reducing a portion of the project cost for the customer.

The program is intended to overcome market barriers for participating contractors by providing technical support and incentives to implement energy efficiency upgrades and produce demand and energy savings.

The program implementer works with TNC to conduct outreach and planning activities for the Open MTP in the following manner:

- Identifies and recruits contractors who provide services to customers served by TNC to develop a network of participating contractors who will deliver the program directly to customers;
- Develops a recruitment packet with outreach information and enrollment materials, that participating contractors can use when marketing the program to customers; and
- Conducts training as necessary to explain elements of the program, such as responsibilities of the participants, project requirements, incentive information, and the application and reporting process.

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Residential Standard Offer Program (RSOP)

The RSOP targets residential customers in existing homes. Incentives are paid to project sponsors for eligible measures installed in retrofit applications that result in verified demand and energy savings. Program incentives are higher for work performed in historically underserved counties to encourage activity. Project comprehensiveness is encouraged.

SCORE/CitySmart Market Transformation Program (SCORE/CS MTP)

The SCORE/CS MTP provides energy efficiency and demand reduction solutions for public and private educational entities grades K-12 as well as colleges and universities. In addition to educational facilities, SCORE/CS MTP provides these same solutions to local, state, county and federal government customers. This program is designed to help educate and assist these customers in lowering their energy use by facilitating the integration of energy efficiency into their short- and long-term planning, budgeting, and operational practices. Incentives are paid to participating customers for eligible energy efficiency measures that are installed in new or retrofit applications that result in verifiable demand and energy savings.

SMART SourceSM Solar PV Market Transformation Program (PV MTP)

The PV MTP offers incentives to customers for the installation of solar photovoltaic (PV) systems interconnected on the customer's side of the meter. The incentives help offset the initial costs of installing solar PV systems, and encourage service providers to seek more installation opportunities. In addition to demand and energy savings achieved from the installations, the PV MTP aims to transform the solar PV market by increasing the number of qualified companies offering installation services in the TNC service area, and decreasing the average installed cost of PV systems, thereby creating greater market economies of scale.

Targeted Low-Income Energy Efficiency Program (TLIP)

The TLIP is designed to cost-effectively reduce the energy consumption and energy costs for lowincome residential customers in TNC's service territory. Weatherization service providers install eligible weatherization and energy efficiency measures in qualified households that meet the Department of Energy (DOE) income-eligibility guidelines of at or below 200% of the current federal poverty guidelines. A Savings-to-Investment Ratio of 1.0 or higher is required at each serviced dwelling unit.

C. New Programs for 2016

Earth Networks Residential Thermostat Demand Response (DR) Pilot Program

Earth Networks (EN) will use the WeatherBug Home (WBH) technology to deliver an Integrated Demand Side Management (IDMS) aggregation program that will bring residential energy efficiency and demand response capacity to TNC.

D. Discontinued Programs

TNC has no discontinued programs for 2016.

E. Existing DSM Contracts or Obligations

TNC has no existing DSM contracts or obligations.

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II. Customer Classes

TNC's energy efficiency programs target its Residential and Commercial customer classes. TNC's energy efficiency programs also target customer sub-classes, such as Residential Hard-to-Reach and Low-Income, Schools, Small Businesses, and Local Governments.

The annual projected savings targets are allocated among these customer classes and sub-classes by examining historical program results and by evaluating economic trends, in compliance with 16 TAC § 25.181(e)(3).

Table 3 summarizes the number of customers in each customer class and the Residential Hard-to-Reach sub-class at TNC. The numbers listed are the actual number of active electric service accounts by class that TNC served for the month of January 2016. These numbers were used to determine goal and budget allocations for each customer class and program. It should be noted however, that the actual distribution of the annual goal and budget required to achieve the goal must remain flexible based upon the conditions of the marketplace, the potential interest of a customer class, and the overriding objective of meeting TNC's mandated demand and energy reduction goals in total. TNC offers a varied portfolio of SOPs and MTPs such that all eligible customer classes have access to energy efficiency alternatives.

Customer Class	Number of Customers
Commercial	36,762
Residential	154,519
Hard-to-Reach ²	57,481*

 Table 3: Summary of Customer Classes

* Hard-to-Reach customer count is a sub-set of the Residential total.

² According to the U.S. Census Bureau's 2014 Current Population Survey, 37.2% of Texas families fall below 200% of the poverty threshold. Applying that percentage to TNC's residential customer base of 154,519, the number of Hard-to-Reach customers is estimated at TNC's residential customer base of 57,481.

III. Energy Efficiency Goals and Projected Savings

TNC's 2016 annual demand and energy reduction goals to be achieved are 4.26 MW and 7,464 MWh, respectively. These goals have been calculated as prescribed by the EE Rule.

The 2016 goal was calculated by applying four-tenths of 1% (0.004) of its summer weatheradjusted peak demand for the combined residential and commercial customers to the five year average (2010-2014) peak demand at the meter of 1,002 MW. This resulted in a calculated goal of 4.01 MW.

TNC's 2017 demand goal is calculated by applying four-tenths of 1% (0.004) of its summer weather-adjusted peak demand for the combined residential and commercial customers to the five year average (2011-2015) peak demand at the meter of 998 MW. This results in a calculated goal of 3.99 MW.

As stated in 16 TAC § 25.181(e)(1)(E), except as adjusted in accordance with subsection (w), a utility's demand reduction goal shall not be lower than the previous year's goal which was 4.26 kW, with a corresponding 7,464 MWh goal. TNC's goal for 2016 and 2017 will be 4.26 kW and 7,464 MWh.

Table 4 presents historical annual growth in demand data for the previous five years that was used to calculate TNC's goals. Table 5 presents the projected demand and energy savings for Program Years 2016 and 2017 by program, for each customer class with fully-deployed program budgets.

Table 4: Annual Growth in Demand and Energy Consumption

	Toul	Pea System	k Demand (MW) @ Source Residential d	e k Cammercia		Eacry	v Consumpti System	on (MWh) Resida Comi	@ Meter ntial & nercial	Energy Eff	ciency Goal (akulations
	Actual	Weather	Actual	Weather	Opt-Out	Peak Demand	Actual	Weather		Weather	Peak Demaud at Meter	5 year Average B	Goal Metric: 0.4%
Calendar Year				Aujusten		at Source		Adjusted		Adjusted	line	Demand at Meter	Peak Demand
											- TUNNESS		at Meter
2011	1,203	1,130	1,194	1,118	-9.5	1,109	5,304	4,963	5,178	4,837	981	NA	NA
2012	1,172	1,114	1,168	1,107	-95	1,098	5,145	5,055	5,016	4,926	972	NA	NA
2013	1,147	1,145	1,142	1,140	-96	1,130	5,221	5,131	5,084	4,994	1,000	NA	NA
2014	1,086	1,164	1,084	1,161	-91	1,152	5,600	5,526	5,459	5,385	1,020	NA	NA
2015	1,193	1,177	1,179	1,163	-157	1,147	5,779	5,741	5,532	5,495	1,015	993	3 97
2016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1,002	4 01
2017	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	866	3 99
*	Line losses a	tre derived fro	om the loss	factors dete	' ai benimu	TNIC: CIVIL	4 === = = +						

une losses are derived from the loss factors determined in TNC's most recent line loss study.

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Table 5: Projected Demand and Energy Savings by Program for Each Customer Class for2016 and 2017 (at the Meter)

2016.	Proj	Projected Savings		
Customer Class and Program	kW	kWh		
Commercial		анны _{й т} ай Шаланан — Харса, то стору с <u>у 19</u> 20 г. т. _{стор} су		
Commercial Solutions MTP	323	2,000,000		
Commercial SOP	391	2,476,965		
Load Management SOP	2,014	7,222		
Open MTP	380	1,344,000		
SCORE/CitySmart MTP	161	1,000,000		
SMART Source SM Solar PV MTP	83	160,000		
Residential				
Earth Networks Residential DR Pilot Program	500	500		
Efficiency Connection Pilot MTP	123	659,221		
Residential SOP	795	2,471,851		
SMART Source SM Solar PV MTP	79	151,481		
Hard-to-Reach				
Hard-to-Reach SOP	231	733,841		
Targeted Low-Income Energy Efficiency Program	88	186,989		
Total Annual Projected Savings	5,168	11,192,070		

Table 5: Projected Demand and Energy Savings by Program for Each Customer Class for2016 and 2017 (at the Meter)(Continued)

	Proj	ected Savings
Customer Class and Program	kW	kWh
Commercial		
Commercial Solutions MTP	323	2,000,000
Commercial SOP	604	3,825,053
Load Management SOP	2,175	7,797
Open MTP	380	1,344,000
SCORE/CitySmart MTP	161	1,000,000
SMART Source SM Solar PV MTP	83	160,000
Residential		
Earth Networks Residential DR Pilot Program	500	500
Efficiency Connection Pilot MTP	123	659,221
Residential SOP	1,013	3,151,889
SMART Source SM Solar PV MTP	79	151,481
Hard-to-Reach		
Hard-to-Reach SOP	232	737,634
Targeted Low-Income Energy Efficiency Program	98	206,241
Total Annual Projected Savings	5,771	13,243,816

IV. Program Budgets

Table 6 presents total proposed budget allocations required to meet TNC's projected demand and energy savings to be achieved for the Program Years 2016 and 2017. The budget allocations are defined by the overall projected demand and energy savings, the avoided costs of capacity and energy specified in the EE Rule, allocation of demand goals, and the incentive levels by customer class. Table 6 budget allocations are detailed by customer class, program, and the following budget categories: incentives, administration, research and development (R&D), and evaluation, measurement and verification (EM&V).

2016	Incentives	Admin	R&D	EM&V	Total Budget
Commercial					and the second second second second
Commercial Solutions MTP	\$363,462	\$54,311			\$417,773
Commercial SOP	\$200,000	\$29,885			\$229,885
Load Management SOP	\$80,578	\$12,041			\$92,619
Open MTP	\$419,241	\$62,645			\$481,886
SCORE/CitySmart MTP	\$160,000	\$23,908			\$183 908
SMART Source SM Solar PV MTP	\$82,620	\$12,346			\$94,966
Residential					
Earth Networks Residential DR Pilot	\$20,000	\$2,989			\$22,989
Efficiency Connection Pilot MTP	\$150,000	\$22,414			\$172,414
Residential SOP	\$419,610	\$62,700			\$482.310
SMART Source SM Solar PV MTP	\$102,000	\$15,241			\$117,241
Hard-to-Reach					
Hard-to-Reach SOP	\$162,719	\$24,314			\$187.033
Targeted Low-Income Energy Efficiency Program	\$257,145	\$38,424			\$295,569
Research and Development					
R&D	NAP	NAP	\$177,011		\$177,011
Evaluation, Measurement & Verification (EM&V)					
EM&V	NAP	NAP	NAP	\$32,247	\$32,247
Total Budget	\$2,417,375	\$361,218	\$177,011	\$32,247	\$2,987,851

Table 6: Projected Annual Budget by Program for Each Customer Class for 2016 and 2017

2017	Incentives	Admin	R&D	201 - 1.0	Total Budget
Commercial				<u>K </u>	
Commercial Solutions MTP	\$363,660	\$54,340			\$418,000
Commercial SOP	\$308,850	\$46,150			\$355,000
Load Management SOP	\$87,000	\$13,000			\$100,000
Open MTP	\$419,340	\$62,660			\$482,000
SCORE/CitySmart MTP	\$160,080	\$23,920			\$184,000
SMART Source SM Solar PV MTP	\$82,650	\$12,350			\$95,000
Residential					
Earth Networks Residential DR Pilot	\$20,010	\$2,990			\$23,000
Efficiency Connection Pilot MTP	\$150,510	\$22,490			\$173,000
Residential SOP	\$535,050	\$79,950			\$615,000
SMART Source SM Solar PV MTP	\$102,660	\$15,340			\$118,000
Hard-to-Reach	- A.u				
Hard-to-Reach SOP	\$163,560	\$24,440			\$188.000
Targeted Low-Income Energy Efficiency Program	\$283,620	\$42,380			\$326,000
Research and Development					
R&D			\$200,000		\$200,000
Total Budget	\$2,676,990	\$400,010	\$200,000		\$3,277,000

Table 6: Projected Annual Budget by Program for Each Customer Class for 2016 and 2017

ENERGY EFFICIENCY REPORT

V. Historical Demand and Energy Goals and Savings Achieved for the Previous Five Years

Table 7 contains TNC's demand and energy reduction goals and actual savings achieved for the previous five years (2011-2015) calculated in accordance with the EE Rule.

Calendar Year	Actual Weather Adjusted Demand Goal (MW)	Actual Weather Adjusted Energy Goal (MWh)	Savings Achieved (MW)	Savings Achieved (MWh)
2015	4.26	7,464	4.54	12,289
2014	4.26	7,464	8.15	11,867
2013	4.26	7,464	6.93	9,087
2012	4.26	7,464	6.02	7,353
2011	(1.82)	(3,194)	4.18	8,801

Table 7: Historical Demand and Energy Goals* and Savings Achieved (at the Meter)

* Actual Weather Adjusted MW and MWh Goals as reported in TNC's EEPRs filed in years 2011-2015.

VI. Projected, Reported and Verified Demand and Energy Savings

	Projecto	ed Savings	Reporte	d and Verified avings
Customer Class and Program	kW .	kWh .	kW	kWh
Commercial				Construction of the second sec
Commercial Solutions MTP	323	2,000,000	389	2,717,077
Commercial SOP	740	2,920,000	427	2,704,863
Load Management SOP	2,751	19,282	1,744	6,252
Open MTP	357	1,344,000	392	1,680,387
SCORE/CitySmart MTP	161	1,000,000	258	1,300,469
SMART Source SM Solar PV MTP	61	117,000	101	194,416
Residential				
Efficiency Connection Pilot MTP	105	525,131	5	22,397
Residential SOP	800	2,451,000	844	2,624,877
SMART Source SM Solar PV MTP	71	137,143	67	129,664
Hard-to-Reach				
Hard-to-Reach SOP	224	589,828	228	722,719
Targeted Low-Income Energy Efficiency Program	122	268,166	88	186,149
Total Annual Savings	5,715	11,371,550	4,542	12,289,271

Table 8: Projected versus Reported and Verified Savings for 2015 and 2014 (at the Meter)

≝ [№] я 2014 у [№] к	Proje	cted Savings	Reported a	and Verified Savings
Customer Class and Program	kŴ	kWh *	kW	kWh
Commercial				
Commercial Solutions MTP	340	1,500,000	429	2,148,768
Commercial SOP	760	3,009,000	656	2,928,946
Irrigation Load Management MTP	800	38,400	454	3,636
Load Management SOP	2,751	19,282	4,654	31,961
Open MTP	340	1,344,000	341	1,517,443
SCORE/CitySmart MTP	340	1,500,000	316	1,024,498
SMART Source SM Solar PV MTP	62	120,000	28	53,992
Residential				
A/C Distributor Pilot MTP	102	251,201	86	307,653
Residential SOP	870	1,899,000	791	2,684,792
SMART Source SM Solar PV MTP	62	120,000	61	118,296
Hard-to-Reach				
Hard-to-Reach SOP	240	418,000	224	788,742
Targeted Low-Income Energy Efficiency Program	60	97,000	110	258,479
Total Annual Savings	6,727	10,315,883	8,150	11,867,206

Table 8: Projected versus Reported and Verified Savings for 2015 and 2014 (at the Meter)(Continued)

VII. Historical Program Expenditures

This section documents TNC's incentive and administration expenditures for the previous five years (2011-2015) detailed by program for each customer class.

Table 7. IIISIUI ICa	11 1 USI allI	THEFTUNE	anu Aum	Inistrative	Expenditu	res tor 201	I through	2015 (000	(S.)	
	201	5	20	14	20	13	201	2	201	
	Incent.	Admin	Incent.	Admin	Incent.	Admin	Incent.	Admin	Incent.	Admin
Commercial										
AEP Texas CARE\$ Energy Efficiency for Not-for-Profit										
Agencies SOP	NAP	NAP	NAP	NAP	NAP	NAP	\$52.12	\$14.36	\$82.61	\$17.55
Commercial Solutions MTP	\$410.11	\$33.41	\$296.58	\$31.42	\$177.64	\$20.69	\$231.71	\$29.01	\$210.21	\$20.02
Commercial SOP	\$218.53	\$22.47	\$196.10	\$35.58	\$132.02	\$29.32	\$64.17	\$18 KK	\$158.07	LL 903
Irrigation Load Management MTP	NAP	NAP	\$ 50.00	\$ 6.59	\$140.00	\$18.25	NAP	UAP NAP	dvN	NAD
Load Management SOP	\$ 31.89	\$ 3.17	\$ 41.50	\$ 8.64	\$ 96.30	\$18.30	850.00	11 27	640.03	100 IV
Load Management SOP - Expanded	NAP	NAP	NAP	NAP	NAP	NAP	\$14.46	\$3.18	d V N	DAD
Open MTP	\$461.04	\$45.24	\$421.18	\$48.23	\$374.73	\$50.56	NAP	NAP	dvn	dvn
SCORE/CitySmart MTP	\$185.88	\$16.49	\$216.14	\$23.49	\$230.35	\$26.39	\$184.17	\$74.48	277673	TC 013
SMART Source SM Solar PV MTP	\$ 60.48	\$ 4.83	\$ 44.29	\$ 4.32	\$ 67.74	\$ 8.90	\$79.44	\$10.76	\$96.41	\$8.02

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(Table continued on next page)

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Table 9: Historical Program Incentive and Administrative Expenditures for 2011 through 2015 (000's) (Continued)

	201	S	20	14	20	13	201	2	20	=
	Incent.	Admin	Incent.	Admin	Incent.	Admin	Incent.	Admin	Incent	Admin
Residential										
A/C Distributor Pilot MTP	NAP	NAP	¢130.78	07163	6123 EQ					
Efficiency Connection Pilot MTP	\$ 62.05	\$ 10.23	dvn	0.120 NAD	4C.CCIC	87.776	S41.01	\$9.38	NAP	NAP
			TUNT		INAL	NAF	NAP	NAP	NAP	NAP
Residential SOP	\$445.52	\$61.55	\$414.45	\$57.48	\$364.19	\$62.57	\$362.40	\$50 73	6210 25	843.30
SMART Source SM Solar PV MTP	\$100.88	\$ 8.06	\$102.04	90.0.3	5 K 8 73	¢ 0 03			CC:0100	07.040
Hard-to-Reach					C/-00 0	CU-C 0	9100./U	\$13.45	\$122.04	\$10.11
Hard-to-Reach SOP	¢1/010									
Tarrated Low Income Energy	61.0016	6/.01 €	\$100.00	\$23.69	\$177.12	\$32.97	\$213.45	\$36.82	\$239.01	\$32.63
Efficiency Program	\$256.02	\$ 27.07	\$248.23	\$32.82	\$251.37	\$37.13	6100.30	540 J3	100 F	
Research and Development						21.24	67.27.0	C7.040	3190.4/	10.400
(R&D)	NAP	\$ 86.35	NAP	\$122.51	NAP	\$86.56	NAP	\$108.66	NAD	\$106 00
Evaluation, Measurement & Verification (EM&V)	NAP	\$ 43.51	NAP	653.87	AVN				ILIN	01.00.70
Tofal Exnandituras				70.000	NAL	+C.00¢	NAF	AP	NAP	NAP
	\$2,392.59	\$378.19	\$2,330.39	\$480.24	\$2,213.78	\$491.29	\$1,593.01	\$379.99	\$1.692.83	\$327.32

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AEP Texas North Company