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NO_x Emissions Reduction From Continuous Commissioning® Measures for the Dallas-Fort Worth International Airport

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NOx EMISSIONS REDUCTION FROM CONTINUOUS COMMISSIONING® MEASURES FOR THE DALLAS-FORT WORTH INTERNATIONAL AIRPORT

Energy Systems Laboratory (ESL) engineers began implementation of Continuous Commissioning® (CC®) [1] measures at the DFW Airport Administration Building in May 2007. The implementation was substantially completed by August 2007. Since then, the ESL has been monitoring the building performance and fine-tuning the CC® measures. The cumulative electricity, gas and chilled water savings total $89,834 for the time period between the months of June 2007 through August 2008 (See Figure 1). This represents a 22.8% cost reduction compared with the weather normalized baselines.

For Terminal D, energy consumption baselines for the time period from October 2006 to September 2007 were developed using the daily chilled water and hot water usage and the monthly electricity bills. These weather-dependent models were used to predict what the energy usage would be had the CC® process not occurred. The differences between the predicted consumption model and the actual measured consumption are the energy savings. The cumulative electricity, gas and chilled water savings total $521,619 for the time period of October 2007 through August 2008.[2]

Summary of NOx Emissions Reductions

The start of the project on the DFW International Airport proceeded at several different times, one on May 2007 and the other on October 2007. In order to normalize the emissions reduction in a particular period, the total emissions were estimated on an annual basis. Total annual emissions reductions from the application of the CC® measures account for 4.22 tons NOx/yr, with a daily average of 42.5 lb NOx/day in the Ozone Season Period (OSD)[3].

Table 1. Annual and OSD Emissions Reductions for the DFW International Airport due to CC® Measures.

	Annual Emissions Reduction			Ozone Day Season (on Daily basis)		
ADMIN and TERMINAL D BUILDINGS	Savings	Total NOx Reductions (lbs)	Total NOx Reductions (Tons)	Savings	Total NOx Reductions (lbs/day)	Total NOx Reductions (Tons/day)
TOT EQ ELECTRICITY (MWh) (Electricity and Chilled water)	**4,761**	**7,278.7**	**3.6393**	**24.2**	**36.7**	**0.0184**
HOT WATER (MCF)	**8,358**	**1,170.2**	**0.5851**	**41.0**	**5.7**	**0.0029**
Total		**8,448.9**	**4.2244**		**42.5**	**0.0212**

NOTES: 1) Assuming 7% for T&D losses and a Discount factor of 25%. Corresponding factors to integrated savings presented to the TCEQ.
2) A factor of 0.140 lb of NOx/MCF of Natural Gas (Controlled - Low NOx burners 140 A).

[1] *Continuous Commissioning®* and *CC®* are Registered Trademarks of the Texas Engineering Experiment Station. Contact the Energy Systems Laboratory, Texas A&M University, College Station, TX 77843-3581.

[2] Energy savings for each of these buildings can be fund in the corresponding reports for the Administration Building and Terminal D of the DFW International Airport.

[3] OSD includes the period from July through September and correspond to the peak day emission reduction.

Methodology
The methodology used to determine the annual emissions reduction is based on the weather-normalized estimation of the energy savings for the whole year and for the ozone season period. Once the savings are estimated, the corresponding energy savings are inserted into the 1999/2007 version of eGRID[4] for Texas. Tables 2 and 3 present the distribution of the emissions reduction by PCA (Power Control Area) for the annual and ozone season periods, respectively. Measured energy savings (and the estimate of savings) first were increased by 7% to account for the average distribution and transmission losses of the electrical lines before the electricity reached the airport. Secondly, those savings were *discounted* by 25% as recommended by the TCEQ to account for the uncertainty in all the measurements and procedures.

Discount Factors
The persistence of savings is very important to accurately determine future-year savings. It is also important to the TCEQ, since the agency is accountable to the EPA for emissions credits from voluntary control measures that do not occur as projected in 2007.

The ESL has experience with monitoring and verifying energy efficiency projects in over 70 million square feet of facilities since 1989. Based on this and information from the International Performance Measurement and Verification Protocol (IPMVP) developed by the U.S. Department of Energy (DOE) [http://www.ipmvp.org/] and a national study by U.S. DOE personnel, the ESL estimates that large energy retrofit projects, which are monitored monthly and fully commissioned after the retrofits, perform at 75% of the original engineering estimates.[5]

Summary of Savings
The Dallas-Fort Worth International airport is located within the TXU Electric PCA. Its annual estimated equivalent electricity savings for the last 12 months were 4,971 MWh (44% coming from the saved chilled water). This included a discount factor of 25 %, an applied degradation factor of 0%, and 7% from Transmissions and Distribution (T&D) losses.[6,7] The total annual estimated gas savings corresponded to 8,358 MCF.

The peak daily total electricity savings, corresponding to the ozone season period, are estimated by the average of the available data of the months of July, August and September, and the corresponding factors. Therefore, the combined peak daily electricity savings are 24.2 MWh/day. The peak daily gas savings, estimated in a similar way as above gives a daily average gas savings of 41 MCF/day.

[4] eGRID, ver. 2, is the EPA's emissions and generation resource integrated database. This publicly available database can be found at www.epa.gov/airmarkets/egrid/
[5] Claridge, D.E. et al. (1996) **"**Implementation of Continuous Commissioning in the Texas LoanSTAR Program," *ACEEE Summer Study on Energy Efficiency in Buildings*; and Kats, G.H. et al. (1996) "Energy Efficiency as a Commodity," *ACEEE Summer Study on Energy Efficiency in Buildings.*
[6] Shearman, J.M. (1994) "Emerging Responses: How Utilities are Coping in the New Environment," *IEEE Power Engineering Review*, p. 13, November, and the file at http://ist-socrates.berkeley.edu/~kammen/er100/lec16.pdf.
[7] Anderson, Steve. Interview by author. Telephone conversation. Texas A&M University, College Station, TX, 19 August 2004.

The NOx reductions from gas savings occur wholly within the Dallas-Fort Worth area, the point of combustion, and comprise (assuming a controlled –Low NOx burner's boilers):

- Annual savings: (0.140 lb-NOx/MCF) x (8,358 MCF/Yr)
  =1,170.2lbs-NOx/yr or 0.585 Tons-NOx/yr;
- Peak-day savings are: (0.140 lb-NOx/MCF) x (41 MCF/Yr)
  =5.7 lbs-NOx/day or 0.0029 Tons-NOx/day

The annual total electricity and peak daily total electricity savings were entered into the eGrid spreadsheet for the TXU Electric PCA. Table 4 shows the corresponding eGrid columns for the calculation and output for annual electricity savings and Table 5 presents the eGrid results for the ozone season period.

Table 2. Annual NOx Emissions Reductions Calculations by Power Control Areas Based on Total Electricity Savings from the Application of Continuous Commissioning® Measures on DFW International Airport using the eGRID Database.

Area	County	American Electric Power - West (ERCOT) /PCA	NOx Reductions (lbs)	Austin Energy/PCA	NOx Reductions (lbs)	Brownsville Public Utils Board/PCA	NOx Reductions (lbs/year)	Lower Colorado River Auhotrity /PCA	NOx Reductions (lbs)	Reliant Energy HL&P/PCA	NOx Reductions (lbs)	San Antonio Public Service Bd/PCA	NOx Reductions (lbs)	South Texas Electric Coop INC/PCA	NOx Reductions (lbs)	Texas Municipal Power Pool/PCA	NOx Reductions (lbs)	Texas-New Mexico Power Co/PCA	NOx Reductions (lbs)	TXU Electric/PCA	NOx Reductions (lbs)	Total Nox Reductions (lbs)	Total Nox Reductions (Tons)
Houston-Galveston Area	Brazoria	0.00883113	0	0.010890729	0	0.006522185	0	0.003944232	0	0.0654443	0	0.014877	0	0.006262	0	0.0048171	0	0.121275	0	0.00816387	38.86884486	38.86884486	0.019434422
	Chambers	0.02176222	0	0.026955801	0	0.016072371	0	0.009076193	0	0.1649402	0	0.037472	0	0.015056	0	0.0095532	0	0.011519	0	0.01581859	75.31359548	75.31359548	0.037656798
	Fort Bend	0.07043123	0	0.087239726	0	0.052016606	0	0.029374182	0	0.5338124	0	0.121275	0	0.048726	0	0.030918	0	0.037279	0	0.05119528	243.7448434	243.7448434	0.121872422
	Galveston	0.03385674	0	0.041710519	0	0.025004711	0	0.015351589	0	0.2495874	0	0.056747	0	0.024143	0	0.0192972	0	0.567751	0	0.03283689	156.3390689	156.3390689	0.078169534
	Harris	0.06826733	0	0.084559408	0	0.050418468	0	0.028471701	0	0.5174117	0	0.117549	0	0.047229	0	0.0299681	0	0.036133	0	0.04962237	236.2561234	236.2561234	0.118128062
	Liberty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Montgomery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Waller	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beaumont/ Port Arthur Area	Hardin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Jefferson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Orange	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dallas/ Fort Worth Area	Collin	0.00203914	0	0.003716345	0	0.001505992	0	0.005950953	0	0.0024815	0	0.000717	0	0.019166	0	0.0766809	0	0.000864	0	0.0040002	19.04527192	19.04527192	0.009522636
	Dallas	0.00453947	0	0.004683963	0	0.003352602	0	0.00774211	0	0.0020856	0	0.000681	0	0.007503	0	0.026717	0	0.007525	0	0.04037045	192.2069908	192.2069908	0.096103495
	Denton	0.00047388	0	0.000872802	0	0.000349982	0	0.001396994	0	0.0005854	0	0.000169	0	0.004544	0	0.0181872	0	0.000187	0	0.00084941	4.044087624	4.044087624	0.002022044
	Tarrant	0.01216249	0	0.012266309	0	0.008982543	0	0.020308652	0	0.0053165	0	0.001753	0	0.017326	0	0.0602168	0	0.020603	0	0.11064724	526.8004292	526.8004292	0.263400215
	Ellis	0.00327981	0	0.003307809	0	0.002422289	0	0.005476558	0	0.0014337	0	0.000473	0	0.004672	0	0.0162384	0	0.005556	0	0.02983782	142.0602891	142.0602891	0.071030145
	Johnson	0.00028606	0	0.000526868	0	0.000211267	0	0.000843297	0	0.0003534	0	0.000102	0	0.002743	0	0.0109787	0	0.000113	0	0.00051274	2.441218971	2.441218971	0.001220609
	Kaufman	0.00632545	0	0.006379446	0	0.004671629	0	0.010562096	0	0.002765	0	0.000911	0	0.009011	0	0.0313175	0	0.010715	0	0.05754527	273.9776531	273.9776531	0.136988827
	Parker	0.00021749	0	0.000400576	0	0.000160626	0	0.000641157	0	0.0002687	0	7.75E-05	0	0.002085	0	0.0083471	0	8.56E-05	0	0.00038984	1.856052117	1.856052117	0.000928026
	Rockwall	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Henderson	0.00081989	0	0.000826893	0	0.000605529	0	0.001369042	0	0.0003584	0	0.000118	0	0.001168	0	0.0040593	0	0.001389	0	0.00745892	35.51254053	35.51254053	0.01775627
	Hood	0.01252711	0	0.012634039	0	0.009251829	0	0.020917482	0	0.0054759	0	0.001805	0	0.017846	0	0.062022	0	0.021221	0	0.11396431	542.5933028	542.5933028	0.271296651
	Hunt	0.00618756	0	0.006240374	0	0.004569788	0	0.010331844	0	0.0027047	0	0.000892	0	0.008815	0	0.0306347	0	0.010482	0	0.05629078	268.0049709	268.0049709	0.134002485
El Paso Area	El Paso	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Antonio Area	Bexar	0.03341375	0	0.051775843	0	0.024677545	0	0.090663423	0	0.0011418	0	1.143572	0	0.046874	0	0.0046695	0	0.00052	0	0.00250387	11.92110427	11.92110427	0.005960552
	Comal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Guadalupe	0.00200047	0	0.076378745	0	0.001477434	0	0.133848731	0	0.0012371	0	0.003555	0	0.001062	0	0.0018557	0	0.000402	0	0.00183516	8.737367859	8.737367859	0.004368684
	Wilson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Austin Area	Bastrop	0.00450233	0	0.171901148	0	0.003325174	0	0.301245466	0	0.0027843	0	0.008001	0	0.00239	0	0.0041765	0	0.000904	0	0.0041303	19.66467996	19.66467996	0.00983234
	Caldwell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hays	0.0024586	0	0.093870431	0	0.001815785	0	0.164501762	0	0.0015205	0	0.004369	0	0.001305	0	0.0022807	0	0.000494	0	0.00225544	10.73833427	10.73833427	0.005369167
	Travis	0.00051001	0	0.299602906	0	0.000376663	0	0.033939476	0	0.0003347	0	0.000906	0	0.000271	0	0.0004717	0	0.000103	0	0.00046734	2.225023329	2.225023329	0.001112512
	Williamson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North East Texas Area	Gregg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Harrison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rusk	0.00068596	0	0.00069182	0	0.000506616	0	0.001145408	0	0.0002999	0	9.88E-05	0	0.000977	0	0.0033962	0	0.001162	0	0.00624051	29.71155607	29.71155607	0.014855778
	Smith	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upshur	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corpus Christi Area	Nueces	0.22756873	0	0.004556851	0	0.168069652	0	0.007612767	0	0.0016809	0	0.001627	0	0.046792	0	0.0072464	0	0.001609	0	0.00828339	39.43791097	39.43791097	0.019718955
	San Patricio	0.05031335	0	0.001007478	0	0.037158653	0	0.001683113	0	0.0003716	0	0.00036	0	0.010345	0	0.0016021	0	0.000356	0	0.00183138	8.719359063	8.719359063	0.00435968
Victoria Area	Victoria	0.02183674	0	0.002215582	0	0.016127403	0	0.003612695	0	0.0011996	0	0.000555	0	0.525456	0	0.0324127	0	0.000477	0	0.00225485	10.73551891	10.73551891	0.005367759
Other ERCOT counties	Andrews	2.4742E-05	0	2.49533E-05	0	1.82731E-05	0	4.13138E-05	0	1.082E-05	0	3.57E-06	0	3.52E-05	0	0.0001225	0	4.19E-05	0	0.00022509	1.071666842	1.071666842	0.000535833
	Angelina	0.00031082	0	0.000313473	0	0.000229554	0	0.000519	0	0.0001359	0	4.48E-05	0	0.000443	0	0.0015389	0	0.000527	0	0.00282766	13.46270672	13.46270672	0.006731353
	Bosque	0.00059539	0	0.001096604	0	0.000439723	0	0.001755208	0	0.0007356	0	0.000212	0	0.005709	0	0.0228507	0	0.000234	0	0.00106721	5.081064845	5.081064845	0.002540532
	Brazos	0.00193973	0	0.003572622	0	0.001432574	0	0.005718288	0	0.0023964	0	0.000692	0	0.018599	0	0.0744451	0	0.000764	0	0.00347685	16.5535871	16.5535871	0.008276794
	Calhoun	0.08269981	0	0.001655986	0	0.061077496	0	0.002766524	0	0.0006108	0	0.000591	0	0.017004	0	0.0026334	0	0.000585	0	0.00301023	14.33196771	14.33196771	0.007165984
	Cameron	0.04837175	0	0.000968599	0	0.297964476	0	0.001618161	0	0.0003573	0	0.000346	0	0.009946	0	0.0015403	0	0.000342	0	0.00176071	8.382876903	8.382876903	0.004191438
	Cherokee	0.0035039	0	0.003533808	0	0.002587786	0	0.00585073	0	0.0015316	0	0.000505	0	0.004992	0	0.0173479	0	0.005936	0	0.03187642	151.7662167	151.7662167	0.075883108
	Coke	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Coleman	0.00129879	0	2.6007E-05	0	0.000959212	0	4.34478E-05	0	9.593E-06	0	9.28E-06	0	0.000267	0	4.136E-05	0	9.19E-06	0	4.7275E-05	0.225081193	0.225081193	0.000112541
	Crockett	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ector	0.00353575	0	0.003565928	0	0.002611307	0	0.005903911	0	0.0015456	0	0.000509	0	0.005037	0	0.0175056	0	0.00599	0	0.03216616	153.1456977	153.1456977	0.076572849
	Fannin	0.00705631	0	0.007116546	0	0.005211403	0	0.011782473	0	0.0030845	0	0.001017	0	0.010052	0	0.034936	0	0.011954	0	0.06419422	305.6338713	305.6338713	0.152816936
	Fayette	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Freestone	0.00367718	0	0.003708565	0	0.00271576	0	0.006140067	0	0.0016074	0	0.00053	0	0.005238	0	0.0182058	0	0.006229	0	0.03345281	159.2715256	159.2715256	0.079635763
	Frio	0.00858833	0	0.000871383	0	0.006342868	0	0.001420864	0	0.0004718	0	0.000218	0	0.206661	0	0.0127478	0	0.000188	0	0.00088683	4.222253291	4.222253291	0.002111127
	Grimes	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hardeman	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Haskell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hidalgo	0.18852746	0	0.003775086	0	0.139235931	0	0.006306735	0	0.0013925	0	0.001348	0	0.038764	0	0.0060032	0	0.001333	0	0.00686231	32.67201527	32.67201527	0.016336008
	Howard	0.00055511	0	0.000559851	0	0.000409976	0	0.000926915	0	0.0002427	0	8E-05	0	0.000791	0	0.0027484	0	0.00094	0	0.00505009	24.0439035	24.0439035	0.012021952
	Jack	0.00212145	0	0.002139557	0	0.001566784	0	0.003542346	0	0.0009273	0	0.000306	0	0.003022	0	0.0105033	0	0.003594	0	0.0192997	91.8874186	91.8874186	0.045943709
	Jones	0.04071872	0	0.000815354	0	0.030072592	0	0.001362147	0	0.0003008	0	0.000291	0	0.008372	0	0.0012966	0	0.000288	0	0.00148214	7.056599297	7.056599297	0.0035283
	Lamar	0.00095084	0	0.000958954	0	0.000702236	0	0.001587687	0	0.0004156	0	0.000137	0	0.001355	0	0.0047076	0	0.001611	0	0.00865017	41.18413987	41.18413987	0.02059207
	Limestone	0.00071976	0	0.000891528	0	0.000531572	0	0.000300183	0	0.0054552	0	0.001239	0	0.000498	0	0.000316	0	0.000381	0	0.00052318	2.49089779	2.49089779	0.001245449
	Llano	0.00123817	0	0.047274044	0	0.000914447	0	0.082844655	0	0.0007657	0	0.0022	0	0.000657	0	0.0011486	0	0.000249	0	0.00113586	5.407927441	5.407927441	0.002703964
	McLennan	0.02453432	0	0.024743738	0	0.018119687	0	0.040966843	0	0.0107245	0	0.003535	0	0.034951	0	0.1214699	0	0.041562	0	0.22319886	1062.667792	1062.667792	0.531333896
	Milam	0.0022454	0	0.002264571	0	0.001658332	0	0.003749326	0	0.0009815	0	0.000324	0	0.003199	0	0.011117	0	0.003804	0	0.02042738	97.25640452	97.25640452	0.048628202
	Mitchell	0.01494317	0	0.015070721	0	0.011036196	0	0.024951762	0	0.006532	0	0.002153	0	0.021288	0	0.073984	0	0.025314	0	0.1359442	647.2413294	647.2413294	0.323620665
	Nolan	0.00056465	0	0.000569473	0	0.000417022	0	0.000942846	0	0.0002468	0	8.14E-05	0	0.000804	0	0.0027956	0	0.000957	0	0.00513689	24.45714293	24.45714293	0.012228571
	Palo Pinto	0.003207	0	0.005906709	0	0.002368511	0	0.009454195	0	0.003962	0	0.001144	0	0.03075	0	0.1230821	0	0.001263	0	0.00574838	27.3684779	27.3684779	0.013684239
	Pecos	4.0968E-05	0	4.13174E-05	0	3.02565E-05	0	6.84069E-05	0	1.791E-05	0	5.9E-06	0	5.84E-05	0	0.0002028	0	6.94E-05	0	0.0003727	1.774454632	1.774454632	0.000887227
	Presidio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Robertson	0.00073771	0	0.000835096	0	0.00054483	0	0.000735917	0	0.0031497	0	0.000731	0	0.000761	0	0.0018663	0	0.191633	0	0.00339774	16.1769021	16.1769021	0.008088451
	Taylor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Titus	0.00569644	0	0.005745061	0	0.004207073	0	0.009511781	0	0.00249	0	0.000821	0	0.008115	0	0.0282032	0	0.00965	0	0.05182285	246.7327891	246.7327891	0.123366395
	Tom Green	0.00148245	0	2.96846E-05	0	0.001094854	0	4.95918E-05	0	1.095E-05	0	1.06E-05	0	0.000305	0	4.72E-05	0	1.05E-05	0	5.396E-05	0.256909876	0.256909876	0.000128455
	Upton	3.1166E-05	0	3.14322E-05	0	2.30176E-05	0	5.20405E-05	0	1.362E-05	0	4.49E-06	0	4.44E-05	0	0.0001543	0	5.28E-05	0	0.00028353	1.349914853	1.349914853	0.000674957
	Ward	0.01855953	0	0.01871795	0	0.013707039	0	0.030990277	0	0.0081128	0	0.002674	0	0.02644	0	0.0918886	0	0.03144	0	0.16884373	803.8786278	803.8786278	0.401939314
	Webb	0.02001433	0	0.000400768	0	0.014781473	0	0.000669531	0	0.0001478	0	0.000143	0	0.004115	0	0.0006373	0	0.000142	0	0.00072851	3.468504903	3.468504903	0.001734252
	Wharton	0.00014434	0	0.000178787	0	0.000106601	0	6.01986E-05	0	0.001094	0	0.000249	0	9.99E-05	0	6.336E-05	0	7.64E-05	0	0.00010492	0.499523507	0.499523507	0.000249762
	Wichita	0.00020763	0	0.000209406	0	0.000153346	0	0.000346701	0	9.076E-05	0	2.99E-05	0	0.000296	0	0.001028	0	0.000352	0	0.00188893	8.99332647	8.99332647	0.004496663
	Wilbarger	0.02861682	0	0.000573025	0	0.021134796	0	0.000957307	0	0.0002114	0	0.000205	0	0.005884	0	0.0009112	0	0.000202	0	0.00104164	4.95932602	4.95932602	0.002479663
	Wise	0.00284449	0	0.002882008	0	0.002100781	0	0.00476997	0	0.0012561	0	0.000413	0	0.004182	0	0.0146143	0	0.004798	0	0.02576141	122.6521584	122.6521584	0.061326079
	Young	0.00623586	0	0.006289085	0	0.004605458	0	0.010412491	0	0.0027258	0	0.000899	0	0.008883	0	0.0308739	0	0.010564	0	0.05673017	270.0969258	270.0969258	0.135048463
	Total	**1.12183722**	**0**	**1.172570094**	**0**	**1.090766584**	**0**	**1.189130767**	**0**	**1.62936**	**0**	**1.542363**	**0**	**1.359386**	**0**	**1.2316428**	**0**	**1.221806**	**0**	**1.52878695**	**7278.678066**	**7278.678066**	**3.639339033**
Energy Savings by PCA (MWh)		0		0		0		0		0		0		0		0		0		4761.08072			

Table 3. Peak-Day NOx Emissions Reductions Calculations by Power Control Areas Based on Total Electricity Savings from the Application of Continuous Commissioning® Measures on DFW International Airport using the eGRID Database.

Area	County	American Electric Power - West (ERCOT) /PCA	NOx Reductions (lbs)	Austin Energy/PCA	NOx Reductions (lbs)	Brownsville Public Utils Board/PCA	NOx Reductions (lbs/year)	Lower Colorado River Auhotrity /PCA	NOx Reductions (lbs)	Reliant Energy HL&P/PCA	NOx Reductions (lbs)	San Antonio Public Service Bd/PCA	NOx Reductions (lbs)	South Texas Electric Coop INC/PCA	NOx Reductions (lbs)	Texas Municipal Power Pool/PCA	NOx Reductions (lbs)	Texas-New Mexico Power Co/PCA	NOx Reductions (lbs)	TXU Electric/ PCA	NOx Reductions (lbs)	Total Nox Reductions (lbs)	Total Nox Reductions (Tons)
Houston-Galveston Area	Brazoria	0.00957217	0	0.011806715	0	0.007069474	0	0.004263638	0	0.0710018	0	0.01614	0	0.006781	0	0.0051797	0	0.126288	0	0.008772	0.212184094	0.212184094	0.000106092
	Chambers	0.0218814	0	0.027103415	0	0.016160386	0	0.009725896	0	0.1658435	0	0.037677	0	0.015138	0	0.0096055	0	0.011582	0	0.015905	0.384742989	0.384742989	0.000192371
	Fort Bend	0.05569551	0	0.068987309	0	0.041139619	0	0.023228475	0	0.4221274	0	0.095902	0	0.038531	0	0.0244493	0	0.029479	0	0.040484	0.979300337	0.979300337	0.00048965
	Galveston	0.02755599	0	0.033893644	0	0.020351324	0	0.012791501	0	0.2014466	0	0.045813	0	0.019824	0	0.0167751	0	0.594657	0	0.028709	0.694474036	0.694474036	0.000347237
	Harris	0.07736057	0	0.09582276	0	0.057134232	0	0.032264145	0	0.5863312	0	0.133207	0	0.05352	0	0.0339599	0	0.040946	0	0.056232	1.360239485	1.360239485	0.00068012
	Liberty	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Montgomery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Waller	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beaumont/ Port Arthur Area	Hardin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Jefferson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Orange	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dallas/ Fort Worth Area	Collin	0.00176365	0	0.003151138	0	0.001302533	0	0.005050143	0	0.0020858	0	0.000604	0	0.015958	0	0.0637888	0	0.000846	0	0.004013	0.097078426	0.097078426	4.85392E-05
	Dallas	0.00504555	0	0.005305276	0	0.003726366	0	0.008757286	0	0.0024131	0	0.000782	0	0.00931	0	0.033672	0	0.008209	0	0.044002	1.064401139	1.064401139	0.000532201
	Denton	0.00063576	0	0.001170951	0	0.000469535	0	0.001874207	0	0.0007854	0	0.000227	0	0.006096	0	0.0243999	0	0.00025	0	0.00114	0.02756571	0.02756571	1.37829E-05
	Tarrant	0.01557224	0	0.015705165	0	0.011500796	0	0.026002176	0	0.006807	0	0.002244	0	0.022184	0	0.0770985	0	0.02638	0	0.141667	3.426890902	3.426890902	0.001713445
	Ellis	0.00350282	0	0.003532723	0	0.002586991	0	0.005848935	0	0.0015312	0	0.000505	0	0.00499	0	0.0173426	0	0.005934	0	0.031867	0.770845549	0.770845549	0.000385423
	Johnson	0.00033718	0	0.000621017	0	0.00024902	0	0.000993991	0	0.0004166	0	0.00012	0	0.003233	0	0.0129406	0	0.000133	0	0.000604	0.014619555	0.014619555	7.30978E-06
	Kaufman	0.00649275	0	0.006548174	0	0.004795187	0	0.01084145	0	0.0028381	0	0.000936	0	0.009249	0	0.0321458	0	0.010999	0	0.059067	1.428821412	1.428821412	0.000714411
	Parker	0.00047595	0	0.000876616	0	0.000351511	0	0.0014031	0	0.000589	0	0.00017	0	0.004564	0	0.0182667	0	0.000187	0	0.000853	0.0206367	0.0206367	1.03184E-05
	Rockw all	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Henderson	0.00095027	0	0.000958382	0	0.000701818	0	0.001586741	0	0.0004154	0	0.000137	0	0.001354	0	0.0047048	0	0.00161	0	0.008645	0.209120495	0.209120495	0.00010456
	Hood	0.01232788	0	0.012433111	0	0.00910469	0	0.020584816	0	0.0053888	0	0.001776	0	0.017562	0	0.0610356	0	0.020884	0	0.112152	2.712923623	2.712923623	0.001356462
	Hunt	0.00635121	0	0.006405424	0	0.004690653	0	0.010605108	0	0.0027763	0	0.000915	0	0.009048	0	0.031445	0	0.010759	0	0.05778	1.397673265	1.397673265	0.000698837
El Paso Area	El Paso	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Antonio Area	Bexar	0.03112811	0	0.048234164	0	0.0229895	0	0.084461674	0	0.0010637	0	1.065347	0	0.043667	0	0.0043501	0	0.000484	0	0.002333	0.056424747	0.056424747	2.82124E-05
	Comal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Guadalupe	0.00200761	0	0.076651484	0	0.00148271	0	0.134326688	0	0.0012416	0	0.003567	0	0.001066	0	0.0018623	0	0.000403	0	0.001842	0.044550669	0.044550669	2.22753E-05
	Wilson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Austin Area	Bastrop	0.00446951	0	0.170648096	0	0.003300936	0	0.299049574	0	0.002764	0	0.007942	0	0.002372	0	0.0041461	0	0.000898	0	0.0041	0.099182513	0.099182513	4.95913E-05
	Caldw ell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hays	0.00246935	0	0.094281013	0	0.001823727	0	0.165221279	0	0.0015271	0	0.004388	0	0.001311	0	0.0022907	0	0.000496	0	0.002265	0.054797141	0.054797141	2.73986E-05
	Travis	0.00050761	0	0.298194277	0	0.000374892	0	0.033779905	0	0.0003331	0	0.000902	0	0.00027	0	0.0004695	0	0.000103	0	0.000465	0.011251577	0.011251577	5.62579E-06
	Williamson	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
North East Texas Area	Gregg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Harrison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rusk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Smith	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upshur	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Corpus Christi Area	Nueces	0.22352453	0	0.00447587	0	0.165082827	0	0.007477478	0	0.001651	0	0.001598	0	0.04596	0	0.0071176	0	0.001581	0	0.008136	0.196812218	0.196812218	9.84061E-05
	San Patricio	0.05533089	0	0.001107949	0	0.040864326	0	0.001850962	0	0.0004087	0	0.000396	0	0.011377	0	0.0017619	0	0.000391	0	0.002014	0.048718566	0.048718566	2.43593E-05
Victoria Area	Victoria	0.02060475	0	0.002090584	0	0.015217528	0	0.003408874	0	0.0011319	0	0.000524	0	0.495811	0	0.0305841	0	0.00045	0	0.002128	0.051466931	0.051466931	2.57335E-05
Other ERCOT counties	Andrew s	2.5653E-05	0	2.58716E-05	0	1.89456E-05	0	4.28342E-05	0	1.121E-05	0	3.7E-06	0	3.65E-05	0	0.000127	0	4.35E-05	0	0.000233	0.005645229	0.005645229	2.82261E-06
	Angelina	0.00032149	0	0.000324234	0	0.000237435	0	0.000536817	0	0.0001405	0	4.63E-05	0	0.000458	0	0.0015917	0	0.000545	0	0.002925	0.070748428	0.070748428	3.53742E-05
	Bosque	0.00093945	0	0.001730301	0	0.000693828	0	0.002769496	0	0.0011606	0	0.000335	0	0.009008	0	0.0360555	0	0.00037	0	0.001684	0.040733561	0.040733561	2.03668E-05
	Brazos	0.00191393	0	0.003525105	0	0.00141352	0	0.005642234	0	0.0023645	0	0.000682	0	0.018351	0	0.073455	0	0.000754	0	0.003431	0.082985591	0.082985591	4.14928E-05
	Calhoun	0.0885225	0	0.001772635	0	0.065379841	0	0.0029614	0	0.0006539	0	0.000633	0	0.018202	0	0.0028189	0	0.003222	0	0.077946033	0.077946033	3.8973E-05	
	Cameron	0.05467229	0	0.001094762	0	0.285623104	0	0.001828931	0	0.0004038	0	0.000391	0	0.011242	0	0.0017409	0	0.000387	0	0.00199	0.048138674	0.048138674	2.40693E-05
	Cherokee	0.003513	0	0.003542982	0	0.002594504	0	0.005865919	0	0.0015356	0	0.000506	0	0.005005	0	0.0173929	0	0.005951	0	0.031959	0.773083934	0.773083934	0.000386542
	Coke	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Coleman	0.0013551	0	2.71346E-05	0	0.001000801	0	4.53316E-05	0	1.001E-05	0	9.69E-06	0	0.000279	0	4.315E-05	0	9.58E-06	0	4.93E-05	0.001193158	0.001193158	5.96579E-07
	Crockett	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Ector	0.00362926	0	0.003660242	0	0.002680373	0	0.006060061	0	0.0015864	0	0.000523	0	0.00517	0	0.0179686	0	0.006148	0	0.033017	0.798670437	0.798670437	0.000399335
	Fannin	0.00762852	0	0.007693632	0	0.005633999	0	0.012737922	0	0.0033346	0	0.001099	0	0.010867	0	0.0377689	0	0.012923	0	0.0694	1.678762159	1.678762159	0.000839381
	Fayette	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Freestone	0.00377443	0	0.003806652	0	0.002787588	0	0.006302464	0	0.0016499	0	0.000544	0	0.005377	0	0.0186873	0	0.006394	0	0.034338	0.830617254	0.830617254	0.000415309
	Frio	0.01476384	0	0.001497957	0	0.010903753	0	0.022442547	0	0.0008111	0	0.000375	0	0.355262	0	0.0219143	0	0.000322	0	0.001525	0.036877389	0.036877389	1.84387E-05
	Grimes	0.00055442	0	0.001021149	0	0.000409467	0	0.001634436	0	0.0006849	0	0.000198	0	0.005316	0	0.0212784	0	0.000218	0	0.000994	0.024039181	0.024039181	1.20196E-05
	Hardeman	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Haskell	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Hidalgo	0.239737	0	0.004800509	0	0.177056459	0	0.008019827	0	0.0017708	0	0.001714	0	0.049294	0	0.0076338	0	0.001695	0	0.008726	0.211087216	0.211087216	0.000105544
	Howard	0.00058508	0	0.000590075	0	0.000432108	0	0.000976955	0	0.0002558	0	8.43E-05	0	0.000833	0	0.0028967	0	0.000991	0	0.005323	0.128755264	0.128755264	6.43776E-05
	Jack	0.00217756	0	0.002196145	0	0.001608224	0	0.003636037	0	0.0009519	0	0.000314	0	0.003102	0	0.0107811	0	0.003689	0	0.01981	0.479202262	0.479202262	0.000239601
	Jones	0.04250012	0	0.000851025	0	0.031388236	0	0.00142174	0	0.0003139	0	0.000304	0	0.006739	0	0.0013533	0	0.000301	0	0.001547	0.037421145	0.037421145	1.87106E-05
	Lamar	0.00107998	0	0.001089199	0	0.000797614	0	0.001803227	0	0.0004721	0	0.000156	0	0.015399	0	0.005347	0	0.000183	0	0.009825	0.237664874	0.237664874	0.000118832
	Limestone	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Llano	0.00124346	0	0.047475864	0	0.000918351	0	0.083198331	0	0.000769	0	0.00221	0	0.00066	0	0.0011535	0	0.00025	0	0.001141	0.027593484	0.027593484	1.37967E-05
	McLennan	0.02303137	0	0.023227961	0	0.017009692	0	0.038457253	0	0.0100675	0	0.003319	0	0.03281	0	0.1140288	0	0.039015	0	0.209526	5.068376191	5.068376191	0.002534188
	Milam	0.00166249	0	0.001660598	0	0.001220439	0	0.002759294	0	0.0007223	0	0.000238	0	0.002354	0	0.0081815	0	0.002799	0	0.015033	0.363654102	0.363654102	0.000181827
	Mitchell	0.01696145	0	0.017106233	0	0.012526789	0	0.028321847	0	0.0074142	0	0.002444	0	0.024163	0	0.0839765	0	0.028733	0	0.154305	3.732606027	3.732606027	0.001866303
	Nolan	0.00060327	0	0.000608422	0	0.000445544	0	0.001007331	0	0.0002637	0	8.69E-05	0	0.000859	0	0.0029868	0	0.001022	0	0.005488	0.132758675	0.132758675	6.63793E-05
	Palo Pinto	0.00307488	0	0.00566337	0	0.002270935	0	0.00906471	0	0.0037988	0	0.001096	0	0.029483	0	0.1180115	0	0.001211	0	0.005512	0.133323143	0.133323143	6.66616E-05
	Pecos	4.2262E-05	0	4.26225E-05	0	3.12122E-05	0	7.05678E-05	0	1.847E-05	0	6.09E-06	0	6.02E-05	0	0.0002092	0	7.16E-05	0	0.000384	0.009300299	0.009300299	4.65015E-06
	Presidio	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Robertson	0.00035926	0	0.000406685	0	0.000265328	0	0.000358385	0	0.0015339	0	0.000356	0	0.000371	0	0.0009089	0	0.093323	0	0.001655	0.040026019	0.040026019	2.0013E-05
	Taylor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Titus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tom Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Upton	3.2238E-05	0	3.25131E-05	0	2.38092E-05	0	5.38302E-05	0	1.409E-05	0	4.65E-06	0	4.59E-05	0	0.0001596	0	5.46E-05	0	0.000293	0.007094414	0.007094414	3.54721E-06
	Ward	0.01980763	0	0.0199767	0	0.014628815	0	0.033074321	0	0.0086584	0	0.002854	0	0.028218	0	0.098068	0	0.033554	0	0.180198	4.358946305	4.358946305	0.002179473
	Webb	0.01418009	0	0.000283942	0	0.010472596	0	0.000474356	0	0.0001047	0	0.000101	0	0.002916	0	0.0009415	0	0.0001	0	0.000516	0.012485459	0.012485459	6.24273E-06
	Wharton	0.00015439	0	0.000191235	0	0.000114024	0	6.43902E-05	0	0.0011702	0	0.000266	0	0.000107	0	6.777E-05	0	8.17E-05	0	0.000112	0.002714656	0.002714656	1.3573E-06
	Wichita	0.00021984	0	0.000221719	0	0.000162364	0	0.000367089	0	9.61E-05	0	3.17E-05	0	0.000313	0	0.0010884	0	0.002	0	0.048379528	0.048379528	2.41898E-05	
	Wilbarger	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Wise	0.00291847	0	0.002955932	0	0.002155421	0	0.004892446	0	0.0012878	0	0.000424	0	0.004281	0	0.0149528	0	0.004924	0	0.026441	0.639589336	0.639589336	0.000319795
	Young	0.00549666	0	0.005543579	0	0.004059529	0	0.009178198	0	0.0024027	0	0.000792	0	0.00783	0	0.0272141	0	0.009311	0	0.050005	1.209617296	1.209617296	0.000604809
	Total	**1.14303735**	**0**	**1.154658244**	**0**	**1.089429227**	**0**	**1.180868675**	**0**	**1.5393506**	**0**	**1.443965**	**0**	**1.481727**	**0**	**1.2697054**	**0**	**1.151969**	**0**	**1.517783**	**36.7147588**	**36.7147588**	**0.018357378**
Energy Savings by PCA (MWh)		0		0		0		0		0		0		0		0		0		24.18973			

Table 4. Annual NOx Emissions Reductions for DFW International Airport using the eGRID Database.

Area	TXU Electric/PCA	NOx Reductions (lbs)	Total Nox Reductions (Tons)
Houston-Galveston Area	0.00816387	38.86884486	0.019434422
	0.01581859	75.31359548	0.037656798
	0.05119528	243.7448434	0.121872422
	0.03283689	156.3390689	0.078169534
	0.04962237	236.2561234	0.118128062
	0	0	0
	0	0	0
	0	0	0
Beaumont/ Port Arthur Area	0	0	0
	0	0	0
	0	0	0
Dallas/ Fort Worth Area	0.0040002	19.04527192	0.009522636
	0.04037045	192.2069908	0.096103495
	0.00084941	4.044087624	0.002022044
	0.11064724	526.8004292	0.263400215
	0.02983782	142.0602891	0.071030145
	0.00051274	2.441218971	0.001220609
	0.05754527	273.9776531	0.136988827
	0.00038984	1.856052117	0.000928026
	0	0	0
	0.00745892	35.51254053	0.01775627
	0.11396431	542.5933028	0.271296651
	0.05629078	268.0049709	0.134002485
El Paso Area	0	0	0
San Antonio Area	0.00250387	11.92110427	0.005960552
	0	0	0
	0.00183516	8.737367859	0.004368684
	0	0	0
Austin Area	0.0041303	19.66467996	0.00983234
	0	0	0
	0.00225544	10.73833427	0.005369167
	0.00046734	2.225023329	0.001112512
	0	0	0
North East Texas Area	0	0	0
	0	0	0
	0.00624051	29.71155607	0.014855778
	0	0	0
	0	0	0
Corpus Christi Area	0.00828339	39.43791097	0.019718955
	0.00183138	8.719359063	0.00435968
Victoria Area	0.00225485	10.73551891	0.005367759
Other ERCOT counties	0.00022509	1.071666842	0.000535833
	0.00282766	13.46270672	0.006731353
	0.00106721	5.081064845	0.002540532
	0.00347685	16.5535871	0.008276794
	0.00301023	14.33196771	0.00716984
	0.00176071	8.382876903	0.004191438
	0.03187642	151.7662167	0.075883108
	0	0	0
	4.7275E-05	0.225081193	0.000112541
	0	0	0
	0.03216616	153.1456977	0.076572849
	0.06419422	305.6338713	0.152816936
	0	0	0
	0.03345281	159.2715256	0.079635763
	0.00088683	4.222253291	0.002111127
	0	0	0
	0	0	0
	0	0	0
	0.00686231	32.67201527	0.016336008
	0.00505009	24.0439035	0.012021952
	0.0192997	91.8874186	0.045943709
	0.00148214	7.056599297	0.0035283
	0.00865017	41.18413987	0.02059207
	0.00052318	2.49089779	0.001245449
	0.00113586	5.407927441	0.002703964
	0.22319886	1062.667792	0.531333896
	0.02042738	97.25640452	0.048628202
	0.1359442	647.2413294	0.323620665
	0.00513689	24.45714293	0.012228571
	0.00574838	27.3684779	0.013684239
	0.0003727	1.774454632	0.000887227
	0	0	0
	0	0	0
	0.00339774	16.1769021	0.008088451
	0	0	0
	0.05182285	246.7327891	0.123366395
	5.396E-05	0.256909876	0.000128455
	0.00028353	1.349914853	0.000674957
	0.16884373	803.8786278	0.401939314
	0.00072851	3.468504903	0.001734252
	0.00010492	0.499523507	0.000249762
	0.00188893	8.99332647	0.004496663
	0.00104164	4.95932602	0.002479663
	0.02576141	122.6521584	0.061326079
	0.05673017	270.0969258	0.135048463
	1.52878695	**7278.678066**	**3.639339033**
Energy Savings by PCA (MWh)	4761.08072		

Table 5. Peak-Day NOx Emissions Reductions for DFW International Airport using the eGRID Database.

Area	TXU Electric/ PCA	NOx Reductions (lbs)	Total Nox Reductions (Tons)
Houston-Galveston Area	0.008772	0.212184094	0.000106092
	0.015905	0.384742989	0.000192371
	0.040484	0.979300337	0.00048965
	0.028709	0.694474036	0.000347237
	0.056232	1.360239485	0.00068012
	0	0	0
	0	0	0
	0	0	0
Beaumont/ Port Arthur Area	0	0	0
	0	0	0
	0	0	0
Dallas/ Fort Worth Area	0.004013	0.097078426	4.85392E-05
	0.044002	1.064401139	0.000532201
	0.00114	0.02756571	1.37829E-05
	0.141667	3.426890902	0.001713445
	0.031867	0.770845549	0.000385423
	0.000604	0.014619555	7.30978E-06
	0.059067	1.428821412	0.000714411
	0.000853	0.0206367	1.03184E-05
	0	0	0
	0.008645	0.209120495	0.00010456
	0.112152	2.712923623	0.001356462
	0.05778	1.397673265	0.000698837
El Paso Area	0	0	0
San Antonio Area	0.002333	0.056424747	2.82124E-05
	0	0	0
	0.001842	0.044550669	2.22753E-05
	0	0	0
Austin Area	0.0041	0.099182513	4.95913E-05
	0	0	0
	0.002265	0.054797141	2.73986E-05
	0.000465	0.011251577	5.62579E-06
	0	0	0
North East Texas Area	0	0	0
	0	0	0
	0	0	0
	0	0	0
	0	0	0
Corpus Christi Area	0.008136	0.196812218	9.84061E-05
	0.002014	0.048718566	2.43593E-05
Victoria Area	0.002128	0.051466931	2.57335E-05
Other ERCOT counties	0.000233	0.005645229	2.82261E-06
	0.002925	0.070748428	3.53742E-05
	0.001684	0.040733561	2.03668E-05
	0.003431	0.082985591	4.14928E-05
	0.003222	0.077946033	3.8973E-05
	0.00199	0.048138674	2.40693E-05
	0.031959	0.773083934	0.000386542
	0	0	0
	4.93E-05	0.001193158	5.96579E-07
	0	0	0
	0.033017	0.798670437	0.000399335
	0.0694	1.678762159	0.000839381
	0	0	0
	0.034338	0.830617254	0.000415309
	0.001525	0.036877389	1.84387E-05
	0.000994	0.024039181	1.20196E-05
	0	0	0
	0	0	0
	0.008726	0.211087216	0.000105544
	0.005323	0.128755264	6.43776E-05
	0.01981	0.479202262	0.000239601
	0.001547	0.037421145	1.87106E-05
	0.009825	0.237664874	0.000118832
	0	0	0
	0.001141	0.027593484	1.37967E-05
	0.209526	5.068376191	0.002534188
	0.015033	0.363654102	0.000181827
	0.154305	3.732606027	0.001866303
	0.005488	0.132758675	6.63793E-05
	0.005512	0.133323143	6.66616E-05
	0.000384	0.009300299	4.65015E-06
	0	0	0
	0	0	0
	0.001655	0.040026019	2.0013E-05
	0	0	0
	0	0	0
	0	0	0
	0.000293	0.007094414	3.54721E-06
	0.180198	4.358946305	0.002179473
	0.000516	0.012485459	6.24273E-06
	0.000112	0.002714656	1.35733E-06
	0.002	0.048379528	2.41898E-05
	0	0	0
	0.026441	0.639589336	0.000319795
	0.050005	1.209617296	0.000604809
	1.517783	**36.7147588**	**0.018357379**
Energy Savings by PCA (MWh)	24.18973		