

**ERCOT IMPACT ANALYSIS OF THE INTERVAL
DATA RECORDER REQUIREMENTS**

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INTRODUCTION

Currently ERCOT Protocols, Section 18.6, "Mandatory Installation and Use of Interval Data Recorders" specify the requirements for installing and using IDRs for settlement purposes. In addition, the section requires ERCOT to perform an impact analysis of the IDR requirement; the implied purpose of the analysis is to evaluate modifications to the installation and use requirements as established at market open. This report details the methods, results and conclusions of this analysis.

The analysis addressed three scenarios:

- (1) The current requirement specifies that once an IDR is installed at a premise, it must remain there and be used for settlement purposes. The first scenario consisted of analyzing the impact of establishing a demand threshold below which IDRs could voluntarily be removed.
- (2) The current requirement specifies that an IDR shall be installed at a premise and used for settlement purposes when the premise peak demand is greater than 1000 kW (the second highest demand in a consecutive 12-month period is greater than 1000 kW). The second scenario considered lowering the threshold for required installation.
- (3) The third scenario essentially combined the first two and considered lowering the required installation threshold and allowing voluntary removal of IDRs below that threshold.

The analytical process addressed the following criteria:

1. Quantifying the impact to the market as a consequence of either increasing or decreasing profiling error by increasing or decreasing the number of premises and amount of load settled on profiles or with IDRs.
2. Quantifying the premise level impacts associated with the changes to profiling error considering both the settlement impacts and TDSP charges specific to IDR metering.
3. Quantifying the societal economic impact of the changes to profiling error by calculating the deadweight loss associated with alternative IDR thresholds (deadweight loss quantifies the cost to society of economic inefficiency associated with charging customers inaccurate prices).
4. Assessing the system reliability benefits made available by providing more accurate price signals (resulting from the use of IDRs), reducing the requirement for generation capacity reserves and as a restraint on market power.

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The primary conclusion of this analysis is that a significant amount of error in settlement cost could be eliminated by lowering the IDR installation threshold. Lowering the installation threshold to 450 kW would cost approximately \$575,000 on an annual basis and would eliminate an estimated \$5.3 million dollars of Cross Customer Error per year.

Another important conclusion of the analysis is that allowing optional removal of IDRs for premises with peak demands below 1000 kW could introduce as much as \$4.3 million of Cross Customer Error into settlement. Since the removal would be optional, however, the likelihood of requests to remove all 3,752 IDRs is very remote.

A more likely result associated with allowing optional IDR removal would be for customers realizing TDSP tariff benefits to request removal. With this consideration in mind, more realistic estimates would be to receive requests for 2,261 IDR removals, which would introduce \$1.9 million of Cross Customer Error into settlement.

With respect to modifying the IDR threshold for installation or to allowing optional removal, the error costs as a percent of Total Settlement Cost would be quite small, less than 2%; thus the economic impact of any such changes would be small.

Several benefits, in addition to the settlement accuracy benefits discussed above, would be available to the market in association with retaining existing IDRs and lowering the installation threshold to add more. These benefits, which are discussed but are not quantified, include UFE reduction, demand response benefits, improvement or maintenance of reliability, reduction in generation capacity reserves, and restraint on market power.

Recommendations

Based on the limitations of the supporting IDR data and to allow a gradual change in the market impact associated with installing IDRs and reading and processing the interval data, our recommendation is to initially set the IDR threshold at 700 kW. At this level, about 964 IDRs would be need to be installed at a cost of \$162,000 per year, and the Cross Customer Error reduction resulting from this would be about \$2 million per year.

Optional removal of IDRs should be allowed at or below the 200 kW level. Currently, 802 premises could be impacted by implementing this policy, but it is

likely that no more than 364, who would see TDSP tariff charge reductions, would opt for removal. TDSP tariff charges for these premises would be reduced by about \$635 per premise, annual IDR costs of \$168 per premise would be avoided and only \$208 of Cross Customer Error per premise would be introduced into the settlement process.

Further analysis recommendations:

1. Extend the mandatory installation analysis to a lower level (at least to 200 kW).
2. Repeat the analysis taking into consideration the impact on UFE by modifying the IDR installation and removal thresholds, and incorporating the impact of UFE allocation on the calculation of settlement cost errors.
3. Consider the impact of mandatory TOU metering and application of the profile chunking methodology as both an alternative and a supplement to IDR metering. As part of this effort, incorporate the TOU Dead Weight Loss analysis to assess the societal benefit of IDR and TOU metering. An example conclusion of this analysis might be to require TOU metering between 100 kW and 500 kW, and IDR metering above 500 kW.
4. Repeat the analysis when ERCOT load research data is available to more accurately assess where the IDR threshold should be set.

METHODOLOGY

The evaluation year for this analysis spanned May 1, 2002 through April 30, 2003 inclusive. Currently just fewer than 3,800 ESI IDs exist in ERCOT systems that had a peak demand of 1,000 kW or less during the analysis time frame. ERCOT extracted IDR data for the analysis time frame for each ESI ID with an IDR and a peak demand not exceeding 1,000 kW during the same time frame.

Profiling Error and Impacts to Settlement Costs

The first analysis quantified the profiling error (kWh) that would be introduced into the settlement process as a result of settling an ESI ID on a profile instead of with actual interval data. For purposes of this analysis, the term “Profiling Error” refers to the energy differential that exists between the actual energy used and the energy allocated by the profile in any particular 15-minute interval. Several different measures were utilized to quantify the impact to the market of this profiling error, including Net Profiling Error Cost, Cross Customer Error, and Total Profiling Error Cost.

Once the interval data was compiled the first step in the analysis included calculating a load factor and assigning each ESI ID a profile type of BUSHILF (business high load factor), BUSMEDLF (business medium load factor), or BUSLOLF (business low load factor). The purpose for calculating the load factor was to determine which profile type would be used for settlement if the IDR meter were removed from the premise. The load factor calculation paralleled the Usage Month algorithm used to make assignments for Annual Validation.¹

The second step consisted of applying the ERCOT Data Aggregation² process to simulated meter readings based on monthly aggregation of the interval data for each ESI ID and applying the usage to the appropriate profiles. The energy was summed over the month for each ESI ID and a scaling factor was calculated by dividing the total monthly usage by the total monthly usage of the appropriate profile. This scaling factor was then multiplied by every interval of the profile usage amount to scale the usage under the profile.

Settlement Costs

The third step consisted of computing Settlement Cost for each ESI ID based on its actual interval usage data and the corresponding market clearing price for energy; this cost was calculated as a basis for comparison of other calculated costs in the analysis. This actual settlement cost for the premise as an IDR was found by:

¹ Reference the ERCOT Decision Tree at <http://www.ercot.com/participants/loadprofiling.htm>.

² Reference ERCOT Protocols section 11 “Data Acquisition and Aggregation.”

$$SE = \sum_{i=1} (E_{i_{actual}} \times MCPE_i)$$

where SE = Settlement Cost for an ESI ID (\$),
 $E_{i_{actual}}$ = Actual energy (kWh) for a 15-minute interval, and
 $MCPE_i$ = Market Clearing Price of Energy for a 15-minute interval.

Fourthly, several measures of profiling error were determined.

Profiling Error

The Net Profiling Error was calculated by taking the difference of the actual interval energy and the profiled energy. Thus the profiling error has a negative value where the profile overestimates the true usage and a positive value where the profile underestimates the true usage. The Profiling Error for an ESI ID was found by:

$$PE = \sum_{i=1} E_{i_{actual}} - E_{i_{profiled}}$$

where PE = Profiling Error (kWh) for an ESI ID,
 $E_{i_{actual}}$ = Actual Energy (kWh) for a 15-minute interval, and
 $E_{i_{profiled}}$ = Profiled Energy (kWh) for a 15-minute interval.

Net Profiling Error Cost

The Profiling Error was used to calculate the Net Profiling Error Cost. In this calculation the positive profiling errors and negative profiling errors from interval to interval cancel each other. Therefore this value, at the ESI ID level, indicates whether, at the end of the year, settling the premise with a profile would allocate higher or lower costs than would be allocated with IDR settlement. The Net Profiling Error Cost for an ESI ID was calculated by:

$$NPEC = \sum_{i=1} (PE_i \times MCPE_i)$$

where $NPEC$ = Net Profiling Error Cost (\$) for an ESI ID,
 PE_i = Profiling Error (kWh) for a particular 15-minute interval i , and
 $MCPE_i$ = Market Clearing Price of Energy (\$) for a particular 15-minute interval i .

The Net Error is the percentage of the Net Profiling Error Cost to the Settlement Cost and is found by:

$$NetError = \frac{NPEC}{SE}$$

where NPEC = the Net Profiling Error Cost (\$), and SE = the Settlement Cost (\$).

Total Profiling Error

The Total Profiling Error for an ESI ID represents the total amount of Profiling Error due to misallocation of energy by the profiles. The absolute value of the Profiling Error for each interval was calculated and summed over the year for the ESI ID as shown below:

$$TPE = \sum_{i=1} |E_{i\text{ actual}} - E_{i\text{ profiled}}|$$

where TPE = the Total Profiling Error (kWh),
 $E_{i\text{ actual}}$ = Actual Energy (kWh) for an ESI ID for a 15-minute interval, and
 $E_{i\text{ profiled}}$ = Profiled Energy (kWh) for a 15-minute interval for an ESI ID.

The Total Profiling Error Cost for an ESI ID is:

$$TPEC = \sum_{i=1} (TPE_i \times MCPE_i)$$

where $TPEC$ = Total Profiling Error Cost (\$),
 TPE_i = Total Profiling Error in a 15-minute interval, and
 $MCPE_i$ = Market Clearing Price of Energy in a 15-minute interval.

Cross Customer Error

The next measure of error considered targets Profiling Error at the premise level. We have referred to this as Cross Customer Error (CCE); for an ESI ID, CCE was calculated by:

$$CCE = \left| \sum_{i=1} (PE_i \times MCPE_i) \right|$$

where CCE = Cross Customer Error (\$) for an ESI ID,
 PE_i = Profiling Error for a 15-minute interval, and
 $MCPE_i$ = Market Clearing Price of Energy for a 15-minute interval.

At the ESI ID level, Cross Customer Error is the absolute value of the Net Profiling Error. Thus CCE accumulated over a group of ESI IDs, since it is always positive, is a measure of the total amount of settlement cost being incorrectly allocated to premises within the group.

The Cross Customer Error % is:

$$CCE\% = \frac{CCE}{SE}$$

where *CCE%* is the Cross Customer Error Percent (%),
CCE = the Cross Customer Error (\$), and
SE = Settlement Cost (\$).

Table 1, shown below, illustrates the calculations discussed above for three sample ESI IDs.

Table 1. Example Profile Error Calculations

Interval		0:15	0:30	0:45	1:00	1:15	1:30	1:45	...	23:00	23:15	23:30	23:45	24:00	TOTAL	Absolute Value of TOTAL
Profile kWh		10.31	10.20	10.10	10.00	9.88	9.78	9.71	...	11.99	11.66	11.28	10.91	10.54		
MCPE (\$/MWh)		17.10	17.10	4.00	3.70	5.60	5.70	5.70	...	29.68	34.40	33.50	27.00	18.50		
IDR A	Interval kWh	7.25	7.5	7	7.5	7.25	7	7.25	...	7.25	7.5	7.75	7.25	7.5	3,507	
	Profiled kWh	20.42	20.20	20.00	19.80	19.57	19.37	19.23	...	23.75	23.09	22.34	21.61	20.87		
	Profile Error (kWh)	-13.17	-12.70	-13.00	-12.30	-12.32	-12.37	-11.98	...	-16.50	-15.59	-14.59	-14.36	-13.37		
	Absolute Error (kWh)	13.17	12.70	13.00	12.30	12.32	12.37	11.98	...	16.50	15.59	14.59	14.36	13.37		
	Profiling Error Cost (\$)	0.225	0.217	0.052	0.046	0.069	0.070	0.068	...	0.490	0.536	0.489	0.388	0.247	44.553	
	Cross Customer Error (\$)	-0.225	-0.217	-0.052	-0.046	-0.069	-0.070	-0.068	...	-0.490	-0.536	-0.489	-0.388	-0.247	14.763	14.763
IDR B	Interval kWh	14.25	15.25	14.50	15.25	13.75	14.00	14.25	...	36.75	37.00	37.00	37.00	36.00	3,583	
	Profiled kWh	23.82	23.56	23.33	23.10	22.82	22.59	22.43	...	27.70	26.93	26.06	25.20	24.35		
	Profile Error (kWh)	-9.57	-8.31	-8.83	-7.85	-9.07	-8.59	-8.18	...	9.05	10.07	10.94	11.80	11.65		
	Absolute Error (kWh)	9.57	8.31	8.83	7.85	9.07	8.59	8.18	...	9.05	10.07	10.94	11.80	11.65		
	Profiling Error Cost (\$)	0.164	0.142	0.035	0.029	0.051	0.049	0.047	...	0.269	0.346	0.367	0.319	0.216	37.720	
	Cross Customer Error (\$)	-0.164	-0.142	-0.035	-0.029	-0.051	-0.049	-0.047	...	0.269	0.346	0.367	0.319	0.216	-0.156	0.156
IDR C	Interval kWh	9.825	9.35	9.125	9.325	9.6	10.225	10.05	...	10.9	10.1	9.85	9.9	10.3	1,157	
	Profiled kWh	20.50	20.28	20.08	19.88	19.64	19.44	19.30	...	23.84	23.18	22.43	21.69	20.95		
	Profile Error (kWh)	-10.67	-10.93	-10.96	-10.56	-10.04	-9.22	-9.25	...	-12.94	-13.08	-12.58	-11.79	-10.65		
	Absolute Error (kWh)	10.67	10.93	10.96	10.56	10.04	9.22	9.25	...	12.94	13.08	12.58	11.79	10.65		
	Profiling Error Cost (\$)	0.183	0.187	0.044	0.039	0.056	0.053	0.053	...	0.384	0.450	0.421	0.318	0.197	43.273	
	Cross Customer Error (\$)	-0.183	-0.187	-0.044	-0.039	-0.056	-0.053	-0.053	...	-0.384	-0.450	-0.421	-0.318	-0.197	-43.273	43.273

Profile Class/Demand Level Totals	
Total kWh	8246
Total Profiling Error Cost (\$)	126
Total Cross Customer Error (\$)	58

Dead Weight Loss

Dead Weight Loss (DWL) quantifies the societal cost of economic inefficiency associated with charging customers inaccurate prices as would tend to occur when premises are settled on profiles rather than with actual IDR data. When the unit price faced by the customer is higher or lower than the true cost of providing electricity to the customer, the result is economic inefficiency. The economic cost of price not being equal to the true cost of supply is known as “Deadweight Loss.”

There are two approaches with which to quantify incorrect price signals. The first method considers that the average price per kWh over the year is off due to using load profiles rather than each customer’s interval data. This effect is known as “flat pricing” DWL. This theory assumes that the total annual consumption level customers choose is higher or lower than it would be if they were responsible for the true cost to supply them. The second method considers the varying cost of energy due to time of day fluctuations. This theory assumes that customers would consume differently during on- and off-peak times if they were faced with time-varying prices. This effect is known as “TOU” DWL.

ERCOT performed the deadweight loss calculations based on flat pricing, using a modified formula for monthly energy weighted load profiled annual price. It should be noted that studies have shown the effect of TOU DWL is larger (by 5 to 20 times) than the effect of flat pricing DWL because the difference between on- and off-peak prices tends to be much greater than the difference in annual price based on a load profile versus individual load shape. Appendix A provides more detail about computing DWL associated with flat pricing and on-/off-peak pricing.

First the load weighted average price of the profile was calculated using:

$$U_{pm} = \frac{\sum_{i=1} MCPE_i \times kWh_i}{\sum_{i=1} kWh_i}$$

where U_{pm} = load weighted average price for month m and profile p,
 $MCPE_i$ = market clearing price of energy for interval i, and
 kWh_i = kWh in interval i.

Next the load profiled annual price for ESI ID j in profile p was calculated by:

$$U_{pj} = \sum_{i=1}^{12} \frac{E_{jm} U_{pm}}{E_j}$$

where U_{pj} = the load profiled annual price for ESI ID j,
 E_{jm} = the energy (kWh) for ESI ID j in month m,

U_{pm} = load weighted average price for month m, and
 E_j = the total energy (kWh) for ESI ID j.

Deadweight loss is calculated using:

$$DWL_{flat} = 1/2eE_jU_{pj} \left(\frac{U_j - U_{pj}}{U_{pj}} \right)^2$$

where e = elasticity of electricity demand with respect to the commodity price.

For purposes of this analysis, an elasticity of 0.122 was used. See Appendix B for details on the assumptions and calculations associated with this value.

Estimates for Non-IDR Premises

The above statistics were computed directly for premises currently being settled with IDRs. For premises with NIDR metering, estimates of each were needed to evaluate the impact of installing IDRs. The ideal estimation method for these NIDR premises would be to pull data from concurrent representative load research samples and develop the corresponding statistics using domains analysis. As a result of the lack of such data, we opted to use existing IDR data as a proxy sample; conclusions with respect to the NIDR population, thus should be taken as indicative and applied with caution.

For all ESI IDs in ERCOT systems with annual peak demand greater than 450 kW, monthly usage records were extracted covering the analysis period, May 1, 2002 through April 30, 2003. For each ESI ID an ADUSE value was computed as outlined in the ERCOT Decision Tree for each day and summed to obtain an estimate of annual kWh. The resulting annual kWh was categorized by profile type and demand level and summed accordingly. Each of the statistics used to estimate the impact of IDR installation, Settlement Cost, Net Profiling Error, Dead Weight Loss, Cross Customer Error, and Total Profiling Error were then developed by applying the IDR ratios to annual kWh to the NIDR annual kWh.

Estimates for IDR Costs

For purposes of estimating the annualized incremental cost of IDR metering the following assumptions were made:

IDR Purchase/Installation	\$1000
Annual Reading Cost	\$72
Amortization Period	15 years
Interest Rate	5.0%
Annualized IDR Cost	\$168

Current TDSP tariff charges for these vary considerably across jurisdictions; the costs being used in this analysis are based on current competitive industry quotes, and are believed to be more accurate reflections of true costs associated with IDR metering.

RESULTS

Impact of Establishing a Demand Threshold Below Which IDRs Could Voluntarily Be Removed

Tables 2 - 21 summarize the findings of analysis performed on all IDR data available for premises with a peak demand less than 1,000 kW during the analysis window. The first sets of tables quantify the impact of the various types of profiling error for all the premises. Given that the option of removing IDRs would be voluntary, the errors reported represent a worst case scenario. Later tables address the impact of selected subsets of IDRs being removed, so the intention with this analysis was to establish an upper bound which could be introduced for consideration.

Total Profiling Error

Table 2 shows the Total Profiling Error by demand level across all ESI IDs and Profile Types, and Table 3 shows the same results tabulated on a cumulative basis by demand level. The results indicate that, for the 3,752 premises, approximately \$50 million dollars of Total Profiling Error would be introduced into the settlement process. This equates to approximately \$13,000 of error per premise and about 22% of total settlement cost for this group.

The errors reported are large both in magnitude and percentage, but must be kept in perspective. Clearly this error currently is zero since IDRs are in use for settlement purposes for all of these premises. Since the Total Profiling Error is the sum of the absolute value of all the interval errors for all the premises, one must consider the impact of this error. This impact at the system level is seen in tables 4 and 5, and at the premise level is seen in Tables 6 and 7.

Table 2. Total Profiling Error Summary – All IDRs 0 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total Error %	Total Profiling Error Cost (\$) Per IDR
0 - 50	189	12,339,740	\$482,781	4,040,935	\$144,739	30.0%	\$766
50 - 100	198	40,439,449	\$1,482,753	12,577,154	\$447,279	30.2%	\$2,259
100 - 150	231	89,201,969	\$3,210,288	24,222,147	\$868,580	27.1%	\$3,760
150 - 200	202	111,101,851	\$3,976,499	29,899,895	\$1,058,755	26.6%	\$5,241
200 - 250	237	173,698,124	\$6,180,964	49,651,670	\$1,760,528	28.5%	\$7,428
250 - 300	197	180,050,027	\$6,389,880	44,926,704	\$1,597,050	25.0%	\$8,107
300 - 350	226	255,414,624	\$9,011,827	57,923,157	\$2,044,958	22.7%	\$9,048
350 - 400	214	284,864,012	\$10,100,562	69,011,363	\$2,425,347	24.0%	\$11,333
400 - 450	228	379,574,327	\$13,410,662	70,426,180	\$2,489,212	18.6%	\$10,918
450 - 500	218	414,422,254	\$14,587,235	86,515,450	\$3,014,552	20.7%	\$13,828
500 - 550	243	524,682,032	\$18,510,503	116,308,507	\$4,071,814	22.0%	\$16,756
550 - 600	247	582,488,044	\$20,403,832	123,709,538	\$4,325,717	21.2%	\$17,513
600 - 650	276	752,469,249	\$26,296,407	163,285,673	\$5,681,676	21.6%	\$20,586
650 - 700	249	697,722,807	\$24,511,941	151,256,577	\$5,225,655	21.3%	\$20,987
700 - 750	199	600,833,144	\$21,122,922	122,802,646	\$4,288,634	20.3%	\$21,551
750 - 800	172	559,917,753	\$19,707,178	123,764,381	\$4,363,409	22.1%	\$25,369
800 - 850	105	328,976,820	\$11,706,855	77,686,106	\$2,713,763	23.2%	\$25,845
850 - 900	61	217,715,831	\$7,726,144	46,139,220	\$1,630,738	21.1%	\$26,733
900 - 950	30	91,750,471	\$3,445,999	23,157,301	\$850,600	24.7%	\$28,353
950 - 1000	30	80,444,841	\$2,845,555	20,902,752	\$725,486	25.5%	\$24,183
TOTAL	3,752	6,378,107,370	\$225,110,786	1,418,207,355	\$49,728,491	22.1%	\$13,254

Table 3. Cumulative Total Profiling Error Summary – All IDRs 0 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total Error %	Total Profiling Error Cost (\$) Per IDR
0 - 50	189	12,339,740	\$482,781	4,040,935	\$144,739	30.0%	\$766
50 - 100	387	52,779,189	\$1,965,534	16,618,089	\$592,018	30.1%	\$1,530
100 - 150	618	141,981,157	\$5,175,822	40,840,236	\$1,460,598	28.2%	\$2,363
150 - 200	820	253,083,008	\$9,152,321	70,740,131	\$2,519,352	27.5%	\$3,072
200 - 250	1,057	426,781,132	\$15,333,286	120,391,801	\$4,279,880	27.9%	\$4,049
250 - 300	1,254	606,831,160	\$21,723,165	165,318,505	\$5,876,930	27.1%	\$4,687
300 - 350	1,480	862,245,784	\$30,734,992	223,241,662	\$7,921,888	25.8%	\$5,353
350 - 400	1,694	1,147,109,796	\$40,835,554	292,253,025	\$10,347,235	25.3%	\$6,108
400 - 450	1,922	1,526,684,123	\$54,246,216	362,679,205	\$12,836,447	23.7%	\$6,679
450 - 500	2,140	1,941,106,377	\$68,833,450	449,194,655	\$15,850,999	23.0%	\$7,407
500 - 550	2,383	2,465,788,409	\$87,343,954	565,503,162	\$19,922,813	22.8%	\$8,360
550 - 600	2,630	3,048,276,452	\$107,747,785	689,212,700	\$24,248,530	22.5%	\$9,220
600 - 650	2,906	3,800,745,701	\$134,044,192	852,498,373	\$29,930,207	22.3%	\$10,299
650 - 700	3,155	4,498,468,509	\$158,556,133	1,003,754,950	\$35,155,862	22.2%	\$11,143
700 - 750	3,354	5,099,301,653	\$179,679,055	1,126,557,596	\$39,444,496	22.0%	\$11,760
750 - 800	3,526	5,659,219,406	\$199,386,234	1,250,321,977	\$43,807,905	22.0%	\$12,424
800 - 850	3,631	5,988,196,226	\$211,093,088	1,328,008,082	\$46,521,667	22.0%	\$12,812
850 - 900	3,692	6,205,912,057	\$218,819,232	1,374,147,302	\$48,152,405	22.0%	\$13,042
900 - 950	3,722	6,297,662,528	\$222,265,232	1,397,304,603	\$49,003,006	22.0%	\$13,166
950 - 1000	3,752	6,378,107,370	\$225,110,786	1,418,207,355	\$49,728,491	22.1%	\$13,254

Net Profiling Error

Tables 4 and 5 below show the Net Profiling Error for these premises by demand level and cumulatively over demand level. Since Net Profiling Error allows cancellation of profiling error to occur across customers, profile types and demand levels, the cumulative error at the system level can and does become very small, \$13,000 total or \$4 per premise. A trend that becomes apparent, however, when looking at this level, is that low demand level premises tend to have their costs over-estimated while higher demand level premises tend to have their costs under-estimated. While the net for the entire group ends up being only \$4, within demand levels the net ranges from -\$333 to \$980 per premise.

Figure 1 illustrates the distribution of Net Profiling Error at the premise level which varies over a \$21,000 range from -\$13,540 to \$7423. In fact, just over 70% of the premises have Net Profiling Error Costs less than -\$200 or greater than \$200, the approximate annualized cost of IDR metering. Figure 2 shows how the Net Profiling Error Cost in total is distributed across the range of error levels; in the case of this distribution, about 96% of the cost is distributed among premises having Net Profiling Error greater than \$200.

Table 4. Net Profiling Error Summary – All IDRs 0 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
0 - 50	189	12,339,740	\$482,781	-\$8,549	-1.8%	-\$45
50 - 100	198	40,439,449	\$1,482,753	-\$22,713	-1.5%	-\$115
100 - 150	231	89,201,969	\$3,210,288	-\$30,938	-1.0%	-\$134
150 - 200	202	111,101,851	\$3,976,499	-\$12,181	-0.3%	-\$60
200 - 250	237	173,698,124	\$6,180,964	-\$36,731	-0.6%	-\$155
250 - 300	197	180,050,027	\$6,389,880	-\$28,554	-0.4%	-\$145
300 - 350	226	255,414,624	\$9,011,827	-\$39,304	-0.4%	-\$174
350 - 400	214	284,864,012	\$10,100,562	-\$71,180	-0.7%	-\$333
400 - 450	228	379,574,327	\$13,410,662	-\$45,925	-0.3%	-\$201
450 - 500	218	414,422,254	\$14,587,235	-\$39,272	-0.3%	-\$180
500 - 550	243	524,682,032	\$18,510,503	\$1,050	0.0%	\$4
550 - 600	247	582,488,044	\$20,403,832	-\$389	0.0%	-\$2
600 - 650	276	752,469,249	\$26,296,407	\$82,967	0.3%	\$301
650 - 700	249	697,722,807	\$24,511,941	\$86,314	0.4%	\$347
700 - 750	199	600,833,144	\$21,122,922	\$14,029	0.1%	\$70
750 - 800	172	559,917,753	\$19,707,178	\$42,996	0.2%	\$250
800 - 850	105	328,976,820	\$11,706,855	\$103,760	0.9%	\$988
850 - 900	61	217,715,831	\$7,726,144	\$29,288	0.4%	\$480
900 - 950	30	91,750,471	\$3,445,999	-\$2,067	-0.1%	-\$69
950 - 1000	30	80,444,841	\$2,845,555	-\$9,165	-0.3%	-\$306
Total	3,752	6,378,107,370	\$225,110,786	\$13,435	0.0%	\$4

Table 5. Cumulative Net Profiling Error Summary – All IDRs 0 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost (\$) Per IDR
0 - 50	189	12,339,740	\$482,781	-\$8,549	-1.8%	-\$45
50 - 100	387	52,779,189	\$1,965,534	-\$31,262	-1.6%	-\$81
100 - 150	618	141,981,157	\$5,175,822	-\$62,200	-1.2%	-\$101
150 - 200	820	253,083,008	\$9,152,321	-\$74,381	-0.8%	-\$91
200 - 250	1,057	426,781,132	\$15,333,286	-\$111,112	-0.7%	-\$105
250 - 300	1,254	606,831,160	\$21,723,165	-\$139,665	-0.6%	-\$111
300 - 350	1,480	862,245,784	\$30,734,992	-\$178,969	-0.6%	-\$121
350 - 400	1,694	1,147,109,796	\$40,835,554	-\$250,149	-0.6%	-\$148
400 - 450	1,922	1,526,684,123	\$54,246,216	-\$296,075	-0.5%	-\$154
450 - 500	2,140	1,941,106,377	\$68,833,450	-\$335,347	-0.5%	-\$157
500 - 550	2,383	2,465,788,409	\$87,343,954	-\$334,297	-0.4%	-\$140
550 - 600	2,630	3,048,276,452	\$107,747,785	-\$334,686	-0.3%	-\$127
600 - 650	2,906	3,800,745,701	\$134,044,192	-\$251,718	-0.2%	-\$87
650 - 700	3,155	4,498,468,509	\$158,556,133	-\$165,404	-0.1%	-\$52
700 - 750	3,354	5,099,301,653	\$179,679,055	-\$151,375	-0.1%	-\$45
750 - 800	3,526	5,659,219,406	\$199,386,234	-\$108,379	-0.1%	-\$31
800 - 850	3,631	5,988,196,226	\$211,093,088	-\$4,619	0.0%	-\$1
850 - 900	3,692	6,205,912,057	\$218,819,232	\$24,668	0.0%	\$7
900 - 950	3,722	6,297,662,528	\$222,265,232	\$22,601	0.0%	\$6
950 - 1000	3,752	6,378,107,370	\$225,110,786	\$13,435	0.0%	\$4

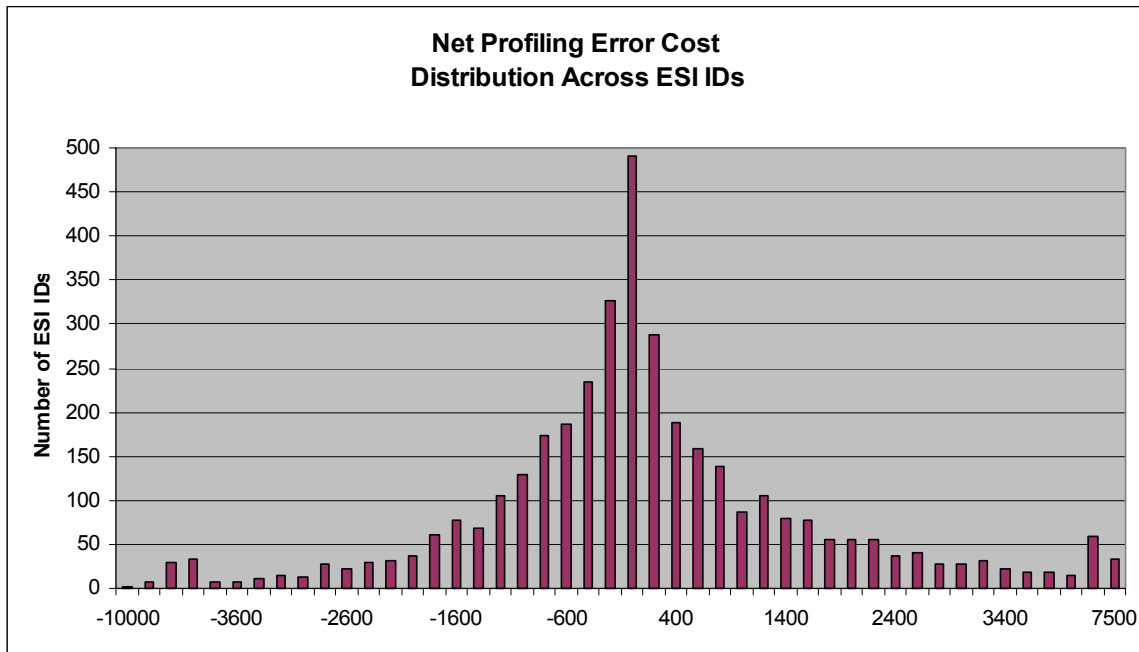


Figure 1. Distribution of Net Profiling Error Summary – All IDRs 0 kW to 1,000 kW

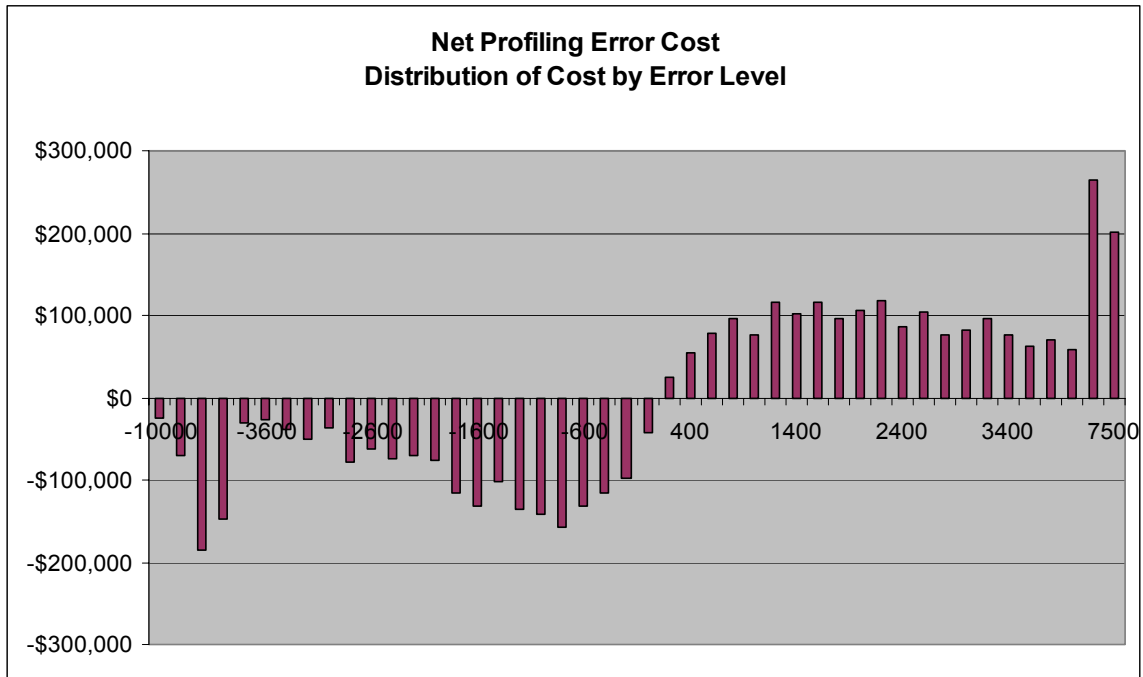


Figure 2. Distribution of Net Profiling Error Summary – All IDRs 0 kW to 1,000 kW

Cross Customer Error

Table 6 shows the Cross Customer Error for the same group of premises and Table 7 shows the results cumulatively. Cross Customer Error is the net of profiling error within a premise over the analysis year, and thus allows over-estimation of load / cost in one interval to be off-set by under-estimation in another interval. By allowing this within premise cancellation, it can be seen that about 90% of the Total Profiling Error is error within individual premises. The Cross Customer Error, thus is a measure of the amount of settlement error that would be introduced by IDR removal and which is between premises. As the Tables show, this error is still fairly substantial, about \$4 million in aggregate, about 2% of total settlement cost and around \$1100 per premise.

Table 6. Cross Customer Error Summary – All IDRs 0 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR
0 - 50	189	12,339,740	\$482,781	\$14,415	3.0%	\$76
50 - 100	198	40,439,449	\$1,482,753	\$40,740	2.7%	\$206
100 - 150	231	89,201,969	\$3,210,288	\$78,762	2.5%	\$341
150 - 200	202	111,101,851	\$3,976,499	\$103,745	2.6%	\$514
200 - 250	237	173,698,124	\$6,180,964	\$165,438	2.7%	\$698
250 - 300	197	180,050,027	\$6,389,880	\$137,737	2.2%	\$699
300 - 350	226	255,414,624	\$9,011,827	\$180,677	2.0%	\$799
350 - 400	214	284,864,012	\$10,100,562	\$198,513	2.0%	\$928
400 - 450	228	379,574,327	\$13,410,662	\$233,476	1.7%	\$1,024
450 - 500	218	414,422,254	\$14,587,235	\$270,499	1.9%	\$1,241
500 - 550	243	524,682,032	\$18,510,503	\$329,736	1.8%	\$1,357
550 - 600	247	582,488,044	\$20,403,832	\$372,215	1.8%	\$1,507
600 - 650	276	752,469,249	\$26,296,407	\$481,650	1.8%	\$1,745
650 - 700	249	697,722,807	\$24,511,941	\$454,046	1.9%	\$1,823
700 - 750	199	600,833,144	\$21,122,922	\$390,314	1.8%	\$1,961
750 - 800	172	559,917,753	\$19,707,178	\$368,111	1.9%	\$2,140
800 - 850	105	328,976,820	\$11,706,855	\$217,127	1.9%	\$2,068
850 - 900	61	217,715,831	\$7,726,144	\$142,737	1.8%	\$2,340
900 - 950	30	91,750,471	\$3,445,999	\$74,317	2.2%	\$2,477
950 - 1000	30	80,444,841	\$2,845,555	\$48,635	1.7%	\$1,621
TOTAL	3,752	6,378,107,370	\$225,110,786	\$4,302,891	1.9%	\$1,147

Table 7. Cumulative Cross Customer Error Summary – All IDRs 0 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR
0 - 50	189	12,339,740	\$482,781	\$14,415	3.0%	\$76
50 - 100	387	52,779,189	\$1,965,534	\$55,155	2.8%	\$143
100 - 150	618	141,981,157	\$5,175,822	\$133,917	2.6%	\$217
150 - 200	820	253,083,008	\$9,152,321	\$237,662	2.6%	\$290
200 - 250	1,057	426,781,132	\$15,333,286	\$403,100	2.6%	\$381
250 - 300	1,254	606,831,160	\$21,723,165	\$540,837	2.5%	\$431
300 - 350	1,480	862,245,784	\$30,734,992	\$721,515	2.3%	\$488
350 - 400	1,694	1,147,109,796	\$40,835,554	\$920,028	2.3%	\$543
400 - 450	1,922	1,526,684,123	\$54,246,216	\$1,153,504	2.1%	\$600
450 - 500	2,140	1,941,106,377	\$68,833,450	\$1,424,003	2.1%	\$665
500 - 550	2,383	2,465,788,409	\$87,343,954	\$1,753,739	2.0%	\$736
550 - 600	2,630	3,048,276,452	\$107,747,785	\$2,125,954	2.0%	\$808
600 - 650	2,906	3,800,745,701	\$134,044,192	\$2,607,603	1.9%	\$897
650 - 700	3,155	4,498,468,509	\$158,556,133	\$3,061,649	1.9%	\$970
700 - 750	3,354	5,099,301,653	\$179,679,055	\$3,451,964	1.9%	\$1,029
750 - 800	3,526	5,659,219,406	\$199,386,234	\$3,820,074	1.9%	\$1,083
800 - 850	3,631	5,988,196,226	\$211,093,088	\$4,037,202	1.9%	\$1,112
850 - 900	3,692	6,205,912,057	\$218,819,232	\$4,179,939	1.9%	\$1,132
900 - 950	3,722	6,297,662,528	\$222,265,232	\$4,254,256	1.9%	\$1,143
950 - 1000	3,752	6,378,107,370	\$225,110,786	\$4,302,891	1.9%	\$1,147

Dead Weight Loss

Tables 8 and 9, shown below, summarize the Dead Weight Loss for these premises at the demand level and cumulatively over demand levels. Since the elasticity assumed for these premises is quite low and since the premise level change in annual settlement cost between being profiled and settled with IDR data on a percentage basis is quite low, the resulting dead weight loss is quite low. For this analysis the dead weight loss being computed is that attributed to annual consumption level and does not address TOU related dead weight loss. Even given the likelihood that the TOU component could be significantly larger, it seems likely that there is a minimal societal economic benefit to retaining IDRs at these premises. Stated another way, it is likely there would only be a minimal societal penalty associated with removing the IDRs. Given the low annualized cost of IDR metering, however, a reasonable conclusion also would be that society should be ambivalent with respect both to installing and removing IDRs on these and similar premises.

Table 8. Dead Weight Loss Summary – All IDRs 0 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Dead Weight Loss (\$)	Dead Weight Loss Per MWH	Dead Weight Loss Per IDR
0 - 50	189	12,339,740	\$482,781	\$2,142	\$0.004436	\$11.33
50 - 100	198	40,439,449	\$1,482,753	\$1,172	\$0.000790	\$5.92
100 - 150	231	89,201,969	\$3,210,288	\$329	\$0.000102	\$1.42
150 - 200	202	111,101,851	\$3,976,499	\$1,252	\$0.000315	\$6.20
200 - 250	237	173,698,124	\$6,180,964	\$826	\$0.000134	\$3.49
250 - 300	197	180,050,027	\$6,389,880	\$1,053	\$0.000165	\$5.35
300 - 350	226	255,414,624	\$9,011,827	\$749	\$0.000083	\$3.31
350 - 400	214	284,864,012	\$10,100,562	\$505	\$0.000050	\$2.36
400 - 450	228	379,574,327	\$13,410,662	\$1,975	\$0.000147	\$8.66
450 - 500	218	414,422,254	\$14,587,235	\$741	\$0.000051	\$3.40
500 - 550	243	524,682,032	\$18,510,503	\$1,694	\$0.000092	\$6.97
550 - 600	247	582,488,044	\$20,403,832	\$1,468	\$0.000072	\$5.94
600 - 650	276	752,469,249	\$26,296,407	\$1,138	\$0.000043	\$4.12
650 - 700	249	697,722,807	\$24,511,941	\$1,308	\$0.000053	\$5.25
700 - 750	199	600,833,144	\$21,122,922	\$1,206	\$0.000057	\$6.06
750 - 800	172	559,917,753	\$19,707,178	\$824	\$0.000042	\$4.79
800 - 850	105	328,976,820	\$11,706,855	\$466	\$0.000040	\$4.44
850 - 900	61	217,715,831	\$7,726,144	\$284	\$0.000037	\$4.66
900 - 950	30	91,750,471	\$3,445,999	\$971	\$0.000282	\$32.35
950 - 1000	30	80,444,841	\$2,845,555	\$96	\$0.000034	\$3.19
TOTAL	3,752	6,378,107,370	\$225,110,786	\$20,199	\$0.000090	\$5.38

Table 9. Cumulative Dead Weight Loss Summary – All IDRs 0 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Dead Weight Loss (\$)	Dead Weight Loss Per MWH	Dead Weight Loss per IDR
0 - 50	189	12,339,740	\$482,781	\$2,142	\$0.004436	\$11.33
50 - 100	387	52,779,189	\$1,965,534	\$3,314	\$0.001686	\$8.56
100 - 150	618	141,981,157	\$5,175,822	\$3,643	\$0.000704	\$5.89
150 - 200	820	253,083,008	\$9,152,321	\$4,895	\$0.000535	\$5.97
200 - 250	1,057	426,781,132	\$15,333,286	\$5,721	\$0.000373	\$5.41
250 - 300	1,254	606,831,160	\$21,723,165	\$6,774	\$0.000312	\$5.40
300 - 350	1,480	862,245,784	\$30,734,992	\$7,523	\$0.000245	\$5.08
350 - 400	1,694	1,147,109,796	\$40,835,554	\$8,029	\$0.000197	\$4.74
400 - 450	1,922	1,526,684,123	\$54,246,216	\$10,004	\$0.000184	\$5.20
450 - 500	2,140	1,941,106,377	\$68,833,450	\$10,745	\$0.000156	\$5.02
500 - 550	2,383	2,465,788,409	\$87,343,954	\$12,440	\$0.000142	\$5.22
550 - 600	2,630	3,048,276,452	\$107,747,785	\$13,908	\$0.000129	\$5.29
600 - 650	2,906	3,800,745,701	\$134,044,192	\$15,045	\$0.000112	\$5.18
650 - 700	3,155	4,498,468,509	\$158,556,133	\$16,353	\$0.000103	\$5.18
700 - 750	3,354	5,099,301,653	\$179,679,055	\$17,559	\$0.000098	\$5.24
750 - 800	3,526	5,659,219,406	\$199,386,234	\$18,383	\$0.000092	\$5.21
800 - 850	3,631	5,988,196,226	\$211,093,088	\$18,849	\$0.000089	\$5.19
850 - 900	3,692	6,205,912,057	\$218,819,232	\$19,133	\$0.000087	\$5.18
900 - 950	3,722	6,297,662,528	\$222,265,232	\$20,104	\$0.000090	\$5.40
950 - 1000	3,752	6,378,107,370	\$225,110,786	\$20,199	\$0.000090	\$5.38

Retailer Impacts Associated with Voluntary IDR Removal

As stated, the previous results summarized analysis on all premises with peak demands less than 1000 kW to establish an upper limit on the impact. Since the scenario being considered assumes optional IDR removal, the impacts ultimately will vary based on the specific premises that opt for removal.

As shown above, removing IDRs from some premises would result in a positive Net Profiling Error Cost (meaning the settlement costs are under-estimated) and for other premises the result would be a negative Net Profiling Error. Consequently competitive retailers serving premises at which IDRs are removed would experience either lower or higher settlement costs depending on the characteristics of the premises they serve where IDRs are removed.

In the case of a CR deriving a settlement benefit because of IDR removal, however, it must be kept in mind, since the settlement in the ERCOT market is a zero-sum game, that those costs do not disappear, but are shifted to other CRs through UFE allocation. Conversely, if a CR faces higher settlement costs as a result of IDR removal, that CR ends up subsidizing his competitors through the UFE allocation.

Table 10, shown below, summarizes the aggregate impact of IDR removal for premises that result in lower settlement costs (positive Net Profiling Error Cost) for the CR. A total of 1,623 (43% of the total number) premises representing

48% of the total settlement cost fall in this category. On a per premise basis the settlement cost reduction generally increases with demand level and ranges from \$65 to \$2500; the overall average per premise is \$1300. Net Profiling Error as a percent of total settlement cost is fairly uniform across demand levels and averages 2%. The sum of the Net Profiling error, that is the maximum total of subsidies to CRs serving these premises, would be \$2.2 million.

Table 10. Net Profiling Error Summary – All IDRs 0 kW to 1,000 kW with Lower Settlement Costs

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
0 - 50	45	3,404,392	\$124,192	\$2,933	2.4%	\$65
50 - 100	55	10,650,408	\$391,536	\$9,013	2.3%	\$164
100 - 150	80	30,925,001	\$1,108,737	\$23,912	2.2%	\$299
150 - 200	95	49,701,776	\$1,765,802	\$45,782	2.6%	\$482
200 - 250	93	65,843,737	\$2,322,143	\$64,354	2.8%	\$692
250 - 300	81	74,895,038	\$2,646,421	\$54,592	2.1%	\$674
300 - 350	85	98,985,733	\$3,505,636	\$70,687	2.0%	\$832
350 - 400	74	100,140,664	\$3,570,698	\$63,667	1.8%	\$860
400 - 450	85	144,782,057	\$5,154,741	\$93,775	1.8%	\$1,103
450 - 500	88	174,783,307	\$6,139,153	\$115,613	1.9%	\$1,314
500 - 550	122	272,839,730	\$9,626,118	\$165,393	1.7%	\$1,356
550 - 600	115	263,780,650	\$9,243,923	\$185,913	2.0%	\$1,617
600 - 650	150	384,303,133	\$13,445,351	\$282,309	2.1%	\$1,882
650 - 700	139	392,951,939	\$13,737,354	\$270,180	2.0%	\$1,944
700 - 750	96	283,658,781	\$9,953,329	\$202,172	2.0%	\$2,106
750 - 800	90	278,446,460	\$9,847,183	\$205,553	2.1%	\$2,284
800 - 850	66	214,552,631	\$7,641,758	\$160,444	2.1%	\$2,431
850 - 900	35	113,396,613	\$4,045,540	\$86,012	2.1%	\$2,457
900 - 950	16	51,575,675	\$1,894,554	\$36,125	1.9%	\$2,258
950 - 1000	13	35,982,700	\$1,293,446	\$19,735	1.5%	\$1,518
Total	1,623	3,045,600,425	\$107,457,614	\$2,158,163	2.0%	\$1,330

Tables 11 – 13 break down the impact by profile type and show comparable per premise settlement reductions for BUSHILF and BUSMEDLF premises of about \$1500; for BUSLOLF the settlement reduction is significantly lower at \$624 per premise. Net Profiling Error as a percent of total settlement cost does vary somewhat among the profile types, averaging 1.5% for BUSHILF, 2.4% for BUSMEDLF and 2.6% for BUSLOLF.

Table 11. Net Profiling Error Summary – BUSHILF IDRs 0 kW to 1,000 kW with Lower Settlement Costs

Profile Type	Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
BUSHILF	0 - 50	7	974,223	\$32,746	\$465	1.42%	\$66
	50 - 100	6	2,086,597	\$73,736	\$164	0.22%	\$27
	100 - 150	24	13,695,368	\$464,485	\$7,837	1.69%	\$327
	150 - 200	17	14,380,345	\$491,496	\$6,086	1.24%	\$358
	200 - 250	15	16,821,596	\$563,439	\$11,703	2.08%	\$780
	250 - 300	25	33,512,212	\$1,145,392	\$15,371	1.34%	\$615
	300 - 350	27	43,867,943	\$1,522,734	\$20,280	1.33%	\$751
	350 - 400	23	43,101,809	\$1,488,009	\$17,957	1.21%	\$781
	400 - 450	35	86,433,191	\$2,992,910	\$32,661	1.09%	\$933
	450 - 500	36	92,413,886	\$3,176,785	\$39,235	1.24%	\$1,090
	500 - 550	45	130,059,115	\$4,502,085	\$54,031	1.20%	\$1,201
	550 - 600	42	122,896,153	\$4,211,836	\$65,080	1.55%	\$1,550
	600 - 650	58	188,800,516	\$6,435,544	\$115,633	1.80%	\$1,994
	650 - 700	63	220,468,630	\$7,542,801	\$134,626	1.78%	\$2,137
	700 - 750	44	158,848,815	\$5,471,679	\$88,987	1.63%	\$2,022
	750 - 800	36	142,164,991	\$4,891,954	\$80,067	1.64%	\$2,224
	800 - 850	24	103,314,372	\$3,573,809	\$59,856	1.67%	\$2,494
850 - 900	10	45,137,698	\$1,568,167	\$21,663	1.38%	\$2,166	
900 - 950	3	15,247,550	\$538,132	\$3,910	0.73%	\$1,303	
950 - 1000	3	12,818,475	\$462,128	\$8,893	1.92%	\$2,964	
	Total	543	1,487,043,485	\$51,149,867	\$784,505	1.53%	\$1,445

Table 12. Net Profiling Error Summary – BUSMEDLF IDRs 0 kW to 1,000 kW with Lower Settlement Costs

Profile Type	Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
BUSMEDLF	0 - 50	25	2,205,086	\$82,795	\$2,195	2.65%	\$88
	150 - 200	52	27,371,492	\$984,180	\$32,344	3.29%	\$622
	200 - 250	53	38,736,855	\$1,374,151	\$39,930	2.91%	\$753
	250 - 300	36	32,362,866	\$1,162,905	\$28,387	2.44%	\$789
	300 - 350	39	45,179,740	\$1,616,298	\$35,986	2.23%	\$923
	350 - 400	37	48,229,339	\$1,744,005	\$32,090	1.84%	\$867
	400 - 450	32	44,316,846	\$1,630,752	\$39,312	2.41%	\$1,228
	450 - 500	41	73,189,390	\$2,616,784	\$68,366	2.61%	\$1,667
	500 - 550	70	134,594,709	\$4,818,648	\$103,619	2.15%	\$1,480
	550 - 600	63	129,743,888	\$4,623,809	\$114,521	2.48%	\$1,818
	600 - 650	78	181,686,647	\$6,491,899	\$153,632	2.37%	\$1,970
	650 - 700	62	154,288,097	\$5,522,606	\$119,878	2.17%	\$1,934
	700 - 750	44	115,970,695	\$4,159,110	\$105,011	2.52%	\$2,387
	750 - 800	48	126,557,465	\$4,585,816	\$123,409	2.69%	\$2,571
	800 - 850	35	100,882,627	\$3,678,626	\$94,234	2.56%	\$2,692
	850 - 900	21	62,680,999	\$2,273,791	\$61,323	2.70%	\$2,920
	900 - 950	10	30,324,471	\$1,131,101	\$28,603	2.53%	\$2,860
950 - 1000	6	19,610,638	\$707,334	\$7,916	1.12%	\$1,319	
	Total	815	1,386,912,611	\$49,907,149	\$1,208,185	2.42%	\$1,482

Table 13. Net Profiling Error Summary – BUSLOLF IDRs 0 kW to 1,000 kW with Lower Settlement Costs

Profile Type	Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
BUSLOLF	0 - 50	13	225,083	\$8,652	\$273	3.16%	\$21
	50 - 100	18	1,818,610	\$68,970	\$1,883	2.73%	\$105
	100 - 150	24	4,994,073	\$190,543	\$5,611	2.94%	\$234
	150 - 200	26	7,949,940	\$290,125	\$7,352	2.53%	\$283
	300 - 350	19	9,938,050	\$366,603	\$14,421	3.93%	\$759
	350 - 400	14	8,809,516	\$338,684	\$13,619	4.02%	\$973
	400 - 450	18	14,032,019	\$531,079	\$21,803	4.11%	\$1,211
	450 - 500	11	9,180,031	\$345,585	\$8,013	2.32%	\$728
	500 - 550	7	8,185,905	\$305,385	\$7,744	2.54%	\$1,106
	550 - 600	10	11,140,610	\$408,278	\$6,313	1.55%	\$631
	600 - 650	14	13,815,969	\$517,908	\$13,044	2.52%	\$932
	650 - 700	14	18,195,212	\$671,946	\$15,676	2.33%	\$1,120
	700 - 750	8	8,839,271	\$322,540	\$8,173	2.53%	\$1,022
	750 - 800	6	9,724,004	\$369,413	\$2,077	0.56%	\$346
	800 - 850	7	10,355,633	\$389,323	\$6,353	1.63%	\$908
	850 - 900	4	5,577,916	\$203,582	\$3,026	1.49%	\$757
	900 - 950	3	6,003,655	\$225,320	\$3,613	1.60%	\$1,204
950 - 1000	4	3,553,587	\$123,984	\$2,926	2.36%	\$731	
	Total	265	171,644,329	\$6,400,597	\$165,473	2.59%	\$624

Table 14, shown below, summarizes the aggregate impact of IDR removal for premises that result in higher settlement costs (negative Net Profiling Error Cost) for the CR. A total of 2,129 (57% of the total) number of premises representing 52% of the total settlement cost fall in this category. On a per premise basis the settlement cost increase generally increases in absolute value terms (becomes more negative) with demand level and ranges from -\$80 to -\$2700; the overall average per premise is -\$1007. The percent of Net Profiling Error tends to decrease in absolute terms as demand level increases ranging from -3.2% to 1.4% and averages -1.8% across all premises. The sum of the Net Profiling error, that is the maximum total of the penalties to CRs serving these premises would \$2.1 million.

Table 14. Net Profiling Error Summary – All IDRs 0 kW to 1,000 kW with Higher Settlement Costs

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
0 - 50	144	8,935,348	\$358,588	-\$11,482	-3.2%	-\$80
50 - 100	143	29,789,041	\$1,091,217	-\$31,726	-2.9%	-\$222
100 - 150	151	58,276,968	\$2,101,551	-\$54,850	-2.6%	-\$363
150 - 200	107	61,400,075	\$2,210,698	-\$57,963	-2.6%	-\$542
200 - 250	144	107,854,387	\$3,858,821	-\$101,084	-2.6%	-\$702
250 - 300	116	105,154,989	\$3,743,459	-\$83,145	-2.2%	-\$717
300 - 350	141	156,428,892	\$5,506,191	-\$109,991	-2.0%	-\$780
350 - 400	140	184,723,349	\$6,529,864	-\$134,847	-2.1%	-\$963
400 - 450	143	234,792,270	\$8,255,920	-\$139,701	-1.7%	-\$977
450 - 500	130	239,638,947	\$8,448,081	-\$154,885	-1.8%	-\$1,191
500 - 550	121	251,842,301	\$8,884,385	-\$164,343	-1.8%	-\$1,358
550 - 600	132	318,707,394	\$11,159,909	-\$186,302	-1.7%	-\$1,411
600 - 650	126	368,166,116	\$12,851,055	-\$199,341	-1.6%	-\$1,582
650 - 700	110	304,770,868	\$10,774,587	-\$183,866	-1.7%	-\$1,672
700 - 750	103	317,174,363	\$11,169,593	-\$188,143	-1.7%	-\$1,827
750 - 800	82	281,471,293	\$9,859,996	-\$162,557	-1.6%	-\$1,982
800 - 850	39	114,424,189	\$4,065,097	-\$56,684	-1.4%	-\$1,453
850 - 900	26	104,319,218	\$3,680,604	-\$56,725	-1.5%	-\$2,182
900 - 950	14	40,174,796	\$1,551,446	-\$38,192	-2.5%	-\$2,728
950 - 1000	17	44,462,142	\$1,552,109	-\$28,900	-1.9%	-\$1,700
Total	2,129	3,332,506,945	\$117,653,173	(\$2,144,728)	-1.8%	-\$1,007

Tables 15 – 17 break down the impact by profile type and show fairly comparable per premise settlement increases for all three profile types of about \$1000. The percent of Net Profiling Error does vary somewhat among the profile types, averaging -1.1% for BUSHILF, -2.4% for BUSMEDLF and -3.7% for BUSLOLF.

Table 15. Net Profiling Error Summary – BUSHILF IDRs 0 kW to 1,000 kW with Higher Settlement Costs

Profile Type	Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
BUSHILF	0 - 50	33	3,510,456	\$120,496	-\$2,290	-1.90%	-\$69
	50 - 100	26	10,160,006	\$354,812	-\$6,128	-1.73%	-\$236
	100 - 150	32	22,315,156	\$780,731	-\$12,559	-1.61%	-\$392
	150 - 200	25	24,442,989	\$852,428	-\$10,526	-1.23%	-\$421
	200 - 250	33	43,341,609	\$1,504,260	-\$18,910	-1.26%	-\$573
	250 - 300	31	51,572,089	\$1,780,381	-\$20,064	-1.13%	-\$647
	300 - 350	52	94,779,110	\$3,262,449	-\$36,552	-1.12%	-\$703
	350 - 400	43	95,093,648	\$3,304,782	-\$39,149	-1.18%	-\$910
	400 - 450	58	146,307,205	\$5,031,569	-\$48,429	-0.96%	-\$835
	450 - 500	49	140,578,776	\$4,863,243	-\$59,325	-1.22%	-\$1,211
	500 - 550	44	140,706,855	\$4,865,826	-\$54,030	-1.11%	-\$1,228
	550 - 600	67	224,784,885	\$7,691,346	-\$78,235	-1.02%	-\$1,168
	600 - 650	65	250,644,265	\$8,636,916	-\$75,951	-0.88%	-\$1,168
	650 - 700	47	188,536,738	\$6,521,289	-\$58,476	-0.90%	-\$1,244
	700 - 750	49	215,501,722	\$7,412,717	-\$75,830	-1.02%	-\$1,548
	750 - 800	42	196,500,998	\$6,785,115	-\$91,487	-1.35%	-\$2,178
	800 - 850	16	70,255,470	\$2,435,749	-\$24,851	-1.02%	-\$1,553
850 - 900	14	72,927,861	\$2,556,916	-\$27,089	-1.06%	-\$1,935	
900 - 950	4	18,857,552	\$649,289	-\$14,084	-2.17%	-\$3,521	
950 - 1000	5	24,205,631	\$832,543	-\$6,377	-0.77%	-\$1,275	
	Total	735	2,035,023,023	\$70,242,858	(\$760,341)	-1.08%	(\$1,034)

Table 16. Net Profiling Error Summary – BUSMEDLF IDRs 0 kW to 1,000 kW with Higher Settlement Costs

Profile Type	Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
BUSMEDLF	0 - 50	43	2,982,342	\$145,258	-\$4,000	-2.75%	-\$93
	150 - 200	40	23,869,782	\$882,534	-\$29,055	-3.29%	-\$726
	200 - 250	58	42,339,027	\$1,533,789	-\$47,276	-3.08%	-\$815
	250 - 300	29	24,952,581	\$916,138	-\$24,574	-2.68%	-\$847
	300 - 350	20	20,990,201	\$766,016	-\$18,158	-2.37%	-\$908
	350 - 400	36	46,330,403	\$1,636,951	-\$42,995	-2.63%	-\$1,194
	400 - 450	35	48,008,892	\$1,726,120	-\$42,004	-2.43%	-\$1,200
	450 - 500	34	56,560,029	\$2,033,817	-\$46,197	-2.27%	-\$1,359
	500 - 550	39	71,828,134	\$2,558,398	-\$47,912	-1.87%	-\$1,229
	550 - 600	25	47,300,222	\$1,736,182	-\$37,288	-2.15%	-\$1,492
	600 - 650	33	78,234,248	\$2,768,055	-\$49,580	-1.79%	-\$1,502
	650 - 700	33	76,453,720	\$2,779,249	-\$76,372	-2.75%	-\$2,314
	700 - 750	24	60,758,406	\$2,242,948	-\$59,077	-2.63%	-\$2,462
	750 - 800	20	52,585,116	\$1,877,596	-\$42,602	-2.27%	-\$2,130
	800 - 850	12	33,002,393	\$1,211,840	-\$21,521	-1.78%	-\$1,793
	850 - 900	9	25,102,112	\$896,356	-\$18,898	-2.11%	-\$2,100
	900 - 950	8	17,021,283	\$738,124	-\$22,336	-3.03%	-\$2,792
950 - 1000	3	8,193,825	\$294,477	-\$7,590	-2.58%	-\$2,530	
	Total	607	770,131,574	\$27,993,298	(\$667,189)	-2.38%	(\$1,099)

Table 17. Net Profiling Error Summary – BUSLOLF IDRs 0 kW to 1,000 kW with Higher Settlement Costs

Profile Type	Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
BUSLOLF	0 - 50	68	2,442,550	\$92,835	-\$5,192	-5.59%	-\$76
	50 - 100	70	9,236,218	\$336,827	-\$16,830	-5.00%	-\$240
	100 - 150	60	12,735,770	\$470,950	-\$21,307	-4.52%	-\$355
	150 - 200	42	13,087,304	\$475,736	-\$18,382	-3.86%	-\$438
	300 - 350	69	40,659,582	\$1,477,725	-\$55,280	-3.74%	-\$801
	350 - 400	61	43,299,298	\$1,588,131	-\$52,703	-3.32%	-\$864
	400 - 450	50	40,476,174	\$1,498,231	-\$49,268	-3.29%	-\$985
	450 - 500	47	42,500,142	\$1,551,022	-\$49,363	-3.18%	-\$1,050
	500 - 550	38	39,307,312	\$1,460,161	-\$62,402	-4.27%	-\$1,642
	550 - 600	40	46,622,286	\$1,732,381	-\$70,778	-4.09%	-\$1,769
	600 - 650	28	39,287,603	\$1,446,084	-\$73,810	-5.10%	-\$2,636
	650 - 700	30	39,780,410	\$1,474,049	-\$49,018	-3.33%	-\$1,634
	700 - 750	30	40,914,236	\$1,513,928	-\$53,236	-3.52%	-\$1,775
	750 - 800	20	32,385,179	\$1,197,285	-\$28,469	-2.38%	-\$1,423
	800 - 850	11	11,166,326	\$417,508	-\$10,312	-2.47%	-\$937
	850 - 900	3	6,289,244	\$227,332	-\$10,738	-4.72%	-\$3,579
	900 - 950	2	4,295,961	\$164,032	-\$1,773	-1.08%	-\$886
950 - 1000	9	12,062,686	\$425,089	-\$14,932	-3.51%	-\$1,659	
	Total	787	527,352,348	\$19,417,017	(\$717,198)	-3.69%	(\$911)

Premise Impacts Associated with Voluntary IDR Removal

As shown above there is potential impact to the CR in terms of settlement cost associated with IDR removal; consequently, CRs could realize some benefit in terms of lower settlement costs by carefully targeting premises for removal. To the extent competitive forces are effective in the market, such cost reductions would tend to be both sought by and passed down to the customer level.

In addition, customers currently are likely to be exposed and tend to react to TDSP related charges associated with IDR metering. In fact, these TDSP charges are likely to be more visible to the customer and thus carry a higher weight in terms of deciding whether to retain or request removal of an IDR. For purposes of this analysis TDSP tariff³ metering service charges and transmission service charges were computed for each current IDR premise with a peak demand less than 1000 kW based on the TDSP providing the service. Tariff charges were computed based on the premise having both IDR and NIDR metering, and the differences in charges were compared. Premises were

³ Tariff information obtained from the PUCT website <http://www.puc.state.tx.us/electric/rates/index.cfm> section “Transmission and Distribution Rates for Investor Owned Utilities”. ERCOT only considered metering charges and transmission system charges. For the purposes of this analysis ERCOT did not consider charges associated with service at transmission voltage or with secondary service less than 10 kW.

grouped into two categories: (1) those that would experience increased monthly charges (over the course of a year) by removing the IDR meter and (2) premises that would experience decreased charges (over the course of a year) by removing their IDR meter.

The results of this comparison are shown in Tables 18 and 19 below. A total of 2,261 (61% of the total) premises would incur lower TDSP tariff charges by removing their IDR meters. The average annual reductions across demand levels would range from \$580 to \$2500 and would average \$1600 across all these benefiting premises. If all of these premises were to have their IDRs removed, the total reduction in TDSP tariff charges would be \$3.6 million.

A total of 1,464 (39% of the total) premises would incur higher TDSP tariff charges by removing their IDR meters. The average annual increases across demand levels would range from \$110 to \$3500 and would average \$1373 across all such premises.

Table 18. IDR versus Non-IDR Meter Charges for Premises where Monthly Tariff Charges Would Decrease by Removing IDR Meter

Demand Level (kW)	Counts	Total kWh	Non-IDR (NCP) Total Cost (\$/yr)	Avg. NCP Cost Per IDR (\$)	IDR (4CP) Total Cost (\$/yr)	Avg. 4CP Cost Per IDR (\$)	Savings (\$)	% of Total IDRS (<1000 kW)
0 - 50	76	6,198,619	38,256	503	92,090	1,212	708	40.6
50 - 100	84	19,904,282	78,451	934	135,360	1,611	677	42.6
100 - 150	111	50,703,481	165,154	1,488	229,518	2,068	580	48.5
150 - 200	93	62,503,000	193,740	2,083	249,753	2,686	602	46.5
200 - 250	124	111,149,036	332,336	2,680	423,700	3,417	737	53.2
250 - 300	106	116,865,751	335,463	3,165	424,587	4,006	841	54.4
300 - 350	125	181,702,080	480,137	3,841	602,026	4,816	975	56.1
350 - 400	112	193,924,139	494,103	4,412	626,454	5,593	1,182	52.8
400 - 450	138	275,836,328	670,071	4,856	881,141	6,385	1,529	61.9
450 - 500	144	320,252,016	790,996	5,493	1,047,141	7,272	1,779	66.4
500 - 550	166	408,245,372	1,018,177	6,134	1,335,669	8,046	1,913	69.5
550 - 600	183	493,440,648	1,215,482	6,642	1,586,677	8,670	2,028	74.4
600 - 650	220	652,844,673	1,622,025	7,373	2,083,830	9,472	2,099	79.1
650 - 700	180	564,666,738	1,384,544	7,692	1,817,742	10,099	2,407	72.0
700 - 750	136	463,146,238	1,115,694	8,204	1,428,136	10,501	2,297	68.3
750 - 800	118	420,100,462	1,049,724	8,896	1,313,949	11,135	2,239	69.0
800 - 850	77	276,861,413	692,909	8,999	886,375	11,511	2,513	74.0
850 - 900	36	133,148,008	332,504	9,236	403,378	11,205	1,969	58.1
900 - 950	16	62,956,435	159,397	9,962	192,821	12,051	2,089	55.2
950 - 1000	16	49,912,428	130,980	8,186	158,131	9,883	1,697	51.6
Total	2,261	4,864,361,147	12,300,142	5,440	15,918,478	7,040	1,600	60.7

Table 19. IDR versus Non-IDR Meter Charges for Premises where Monthly Tariff Charges Would Increase by Removing IDR Meter

Demand Level (kW)	Counts	Total kWh	Non-IDR (NCP) Total Cost (\$)	Avg. NCP Cost (\$) Per IDR	IDR (4CP) Total Cost (\$)	Avg. 4CP Cost (\$) Per IDR	Increased Cost (\$)	% of Total IDRs (< 1000 kW)
0 - 50	111	6,195,062	58,312	525	46,129	416	110	56.3
50 - 100	113	20,463,497	107,935	955	76,381	676	279	57.4
100 - 150	118	37,941,651	177,548	1,505	117,762	998	507	51.5
150 - 200	107	48,592,374	218,780	2,045	148,085	1,384	661	53.0
200 - 250	109	60,898,754	277,526	2,546	181,549	1,666	881	46.6
250 - 300	89	59,925,170	274,848	3,088	180,360	2,027	1,062	45.6
300 - 350	98	69,158,940	346,171	3,532	225,787	2,304	1,228	43.8
350 - 400	100	89,319,706	416,144	4,161	264,091	2,641	1,521	47.2
400 - 450	85	96,477,782	405,082	4,766	275,184	3,237	1,528	38.1
450 - 500	73	90,016,074	407,388	5,581	266,727	3,654	1,927	33.6
500 - 550	73	108,645,340	442,681	6,064	293,848	4,025	2,039	30.5
550 - 600	63	86,394,964	401,605	6,375	246,493	3,913	2,462	25.6
600 - 650	58	100,375,177	437,003	7,535	303,099	5,226	2,309	20.9
650 - 700	70	135,159,069	547,338	7,819	384,705	5,496	2,323	28.0
700 - 750	63	138,993,175	577,558	9,168	421,923	6,697	2,470	31.7
750 - 800	53	135,484,011	498,672	9,409	376,554	7,105	2,304	31.0
800 - 850	27	48,844,295	214,913	7,960	137,386	5,088	2,871	26.0
850 - 900	26	81,226,120	272,332	10,474	222,448	8,556	1,919	41.9
900 - 950	13	29,152,316	112,057	8,620	65,850	5,065	3,554	44.8
950 - 1000	15	30,554,694	130,953	8,730	79,982	5,332	3,398	48.4
Total	1,464	1,473,818,172	6,324,845	4,320	4,314,343	2,947	1,373	39.2

Tables 20a and 20b focus on premises which would incur lower tariff charges; Table 20a summarizes the impact associated with IDR removal for premises that would end up with lower settlement costs and Table 20b summarizes the results for those with higher settlement costs. Premises are split virtually the same in terms of numbers between those with lower and higher settlement costs. If all premises with lower settlement costs were to have their IDR metering removed, the total Net Profiling Error cost would be \$1.2 million, or about \$1000 per premise. If all premises with higher settlement costs were to have their IDR metering removed, the total Net Profiling Error cost would be -\$0.7 million, or about -\$650 per premise.

Taking both groups together, a total of about \$1.9 million dollars would be moved back and forth among CRs in the form of subsidies and penalties. Table 21 combines the Cross Customer Error for the two different groups.

Table 20a. Profiling Error Summary – IDRs with Lower Tariff Charges and Lower Settlement Costs

Demand Level (kW)	Counts	Net Profiling Error Cost (\$)	Net Profiling Error Cost Per IDR (\$)	Total Profiling Error Cost (\$)	Total Profiling Error Cost Per IDR (\$)	Total Profiling Error (kWh)
0 - 50	27	1,408	52	9,701	359	181,121
50 - 100	24	4,209	175	28,513	1,188	526,762
100 - 150	41	8,503	207	64,688	1,578	1,248,304
150 - 200	38	19,094	502	101,929	2,682	1,868,952
200 - 250	54	26,601	493	210,055	3,890	3,975,271
250 - 300	46	30,892	672	184,959	4,021	3,412,724
300 - 350	49	37,254	760	236,625	4,829	4,504,952
350 - 400	45	31,292	695	263,493	5,855	5,137,422
400 - 450	51	43,014	843	287,996	5,647	5,462,846
450 - 500	71	63,610	896	527,113	7,424	10,398,291
500 - 550	99	99,403	1,004	875,343	8,842	16,991,797
550 - 600	101	103,022	1,020	948,342	9,390	18,726,259
600 - 650	121	157,968	1,306	1,377,805	11,387	27,143,173
650 - 700	112	133,077	1,188	1,150,332	10,271	22,960,681
700 - 750	83	122,935	1,481	944,969	11,385	18,300,456
750 - 800	68	132,578	1,950	974,727	14,334	18,921,435
800 - 850	51	89,734	1,759	677,641	13,287	13,284,645
850 - 900	28	58,961	2,106	383,862	13,709	7,168,434
900 - 950	10	27,216	2,722	173,139	17,314	3,227,341
950 - 1000	11	18,305	1,664	149,353	13,578	2,828,163
Total	1,130	1,209,076	1,070	9,570,585	8,470	186,269,029

Table 20b. Profiling Error Summary – IDRs with Lower Tariff Charges and Higher Settlement Costs.

Demand Level (kW)	Counts	Net Profiling Error Cost (\$)	Net Profiling Error Cost Per IDR (\$)	Total Profiling Error Cost (\$)	Total Profiling Error Cost Per IDR (\$)	Total Profiling Error (kWh)
0 - 50	49	(2,392)	(49)	13,328	272	260,261
50 - 100	60	(7,619)	(127)	49,655	828	978,441
100 - 150	70	(15,353)	(219)	108,540	1,551	2,137,881
150 - 200	55	(17,032)	(310)	116,709	2,122	2,278,390
200 - 250	70	(32,251)	(461)	194,346	2,776	3,689,045
250 - 300	60	(28,779)	(480)	178,538	2,976	3,471,098
300 - 350	76	(40,145)	(528)	273,551	3,599	5,289,470
350 - 400	67	(38,083)	(568)	255,754	3,817	4,972,019
400 - 450	87	(50,831)	(584)	359,017	4,127	7,033,304
450 - 500	73	(53,300)	(730)	308,848	4,231	5,954,333
500 - 550	67	(45,170)	(674)	334,929	4,999	6,657,384
550 - 600	82	(79,002)	(963)	484,490	5,908	9,233,831
600 - 650	99	(94,459)	(954)	625,648	6,320	12,204,367
650 - 700	68	(69,166)	(1,017)	481,435	7,080	9,239,116
700 - 750	53	(58,428)	(1,102)	365,687	6,900	7,067,605
750 - 800	50	(54,810)	(1,096)	391,472	7,829	7,721,846
800 - 850	26	(24,375)	(937)	221,940	8,536	4,289,389
850 - 900	8	(11,300)	(1,412)	75,717	9,465	1,468,705
900 - 950	6	(6,476)	(1,079)	67,959	11,327	1,323,227
950 - 1000	5	(6,039)	(1,208)	26,858	5,372	499,999
Totals	1,131	(735,009)	(650)	4,934,423	4,363	95,769,714

Table 21. Cumulative Cross Customer Error Summary – IDRs with lower Tariff Charges

Demand Level (kW)	Counts	Cross Customer Error for Higher Settlement Cost IDRs (\$)	Cross Customer Error for Lower Settlement Cost IDRs (\$)	Total Cross Customer Error (\$)	Cross Customer Error (\$) Per IDR
0 - 50	76	2,392	1,408	3,800	50
50 - 100	160	10,011	5,616	15,627	98
100 - 150	271	25,364	14,119	39,483	146
150 - 200	364	42,395	33,213	75,609	208
200 - 250	488	74,646	59,815	134,461	276
250 - 300	594	103,425	90,707	194,132	327
300 - 350	719	143,569	127,961	271,530	378
350 - 400	831	181,653	159,252	340,905	410
400 - 450	969	232,484	202,266	434,750	449
450 - 500	1,113	285,784	265,876	551,660	496
500 - 550	1,279	330,954	365,279	696,233	544
550 - 600	1,462	409,957	468,301	878,258	601
600 - 650	1,682	504,416	626,269	1,130,685	672
650 - 700	1,862	573,581	759,346	1,332,928	716
700 - 750	1,998	632,010	882,281	1,514,291	758
750 - 800	2,116	686,820	1,014,860	1,701,680	804
800 - 850	2,193	711,195	1,104,593	1,815,788	828
850 - 900	2,229	722,494	1,163,555	1,886,049	846
900 - 950	2,245	728,970	1,190,771	1,919,741	855
950 - 1000	2,261	735,009	1,209,076	1,944,085	860

Complete tables for the Impact of Establishing a Demand Threshold Below Which IDRs Could Voluntarily Be Removed analysis can be found in Appendix C.

Mandatory IDR Installation Threshold

The previous section reviewed the impact of removing IDRs from premises where they are currently installed. This section shifts to a review of the impact of installing IDRs at premises currently settled on NIDR meters. The estimation process for the comparative statistics is described in the Methodology section. The results shown below should be taken as useful indications of the impact of lowering the IDR installation threshold and not as conclusive results.

The tables shown below summarize the estimates developed across all ESI IDs with NIDR metering and with annual peak demands between 450 – 1000 kW; the results are also shown cumulatively over demand levels in descending order to facilitate analyzing the impact for various installation thresholds.

Total Profiling Error

Table 22 shows the Total Profiling Error by demand level for the selected ESI IDs with NIDR metering; Table 23 shows the results for Total Profiling Error cumulatively. As is shown, 3,419 premises were identified, which account for \$271 million of Total Settlement Cost. The estimated Total Profiling Error for these premises is about \$64 million; this equates to approximately \$18,700 of error per premise and about 24% of Total Settlement Cost for this group.

As with the IDR removal analysis, these errors are large both in magnitude and percentage, but must also be kept in perspective. Clearly this error would go to zero if IDRs were installed at all the premises and used for settlement purposes. Since the Total Profiling Error is the sum of the absolute value of all the interval errors for all the premises, one must consider the impact of this error. This impact at the premise level is seen in Tables 24 and 25 and at the system level in Tables 28 and 29.

Table 22. Total Profiling Error Summary - All NIDRs 450 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total Error %	Total Profiling Error Cost (\$) Per IDR
950 - 1000	99	304,375,543	\$10,808,737	74,826,100	2,625,456	24.3%	\$26,520
900 - 950	92	303,914,495	\$11,421,284	74,369,743	2,734,668	23.9%	\$29,725
850 - 900	163	538,679,317	\$19,155,009	121,632,130	4,300,509	22.5%	\$26,383
800 - 850	169	488,596,933	\$17,483,399	127,592,978	4,458,978	25.5%	\$26,384
750 - 800	191	522,586,671	\$18,506,240	129,719,264	4,582,090	24.8%	\$23,990
700 - 750	250	623,744,794	\$22,131,461	150,334,574	5,261,815	23.8%	\$21,047
650 - 700	325	779,108,612	\$27,570,568	194,716,289	6,749,966	24.5%	\$20,769
600 - 650	398	898,694,404	\$31,523,251	214,751,893	7,486,787	23.8%	\$18,811
550 - 600	482	1,003,696,955	\$35,352,151	238,357,084	8,333,383	23.6%	\$17,289
500 - 550	531	1,009,007,161	\$35,639,998	230,964,705	8,085,454	22.7%	\$15,227
450 - 500	719	1,184,989,112	\$41,849,924	268,062,282	9,332,401	22.3%	\$12,980
Total	3,419	7,657,393,997	\$271,442,023	\$1,825,327,042	\$63,951,506	23.6%	\$18,705

Table 23. Cumulative Total Profiling Error Summary - All NIDRs 450 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total Error %	Total Profiling Error Cost (\$) Per IDR
950 - 1000	99	304,375,543	\$10,808,737	74,826,100	2,625,456	24.3%	\$26,520
900 - 950	191	608,290,038	\$22,230,022	149,195,843	5,360,123	24.1%	\$28,063
850 - 900	354	1,146,969,355	\$41,385,031	270,827,974	9,660,632	23.3%	\$27,290
800 - 850	523	1,635,566,288	\$58,868,430	398,420,952	14,119,611	24.0%	\$26,997
750 - 800	714	2,158,152,959	\$77,374,670	528,140,215	18,701,701	24.2%	\$26,193
700 - 750	964	2,781,897,753	\$99,506,131	678,474,790	23,963,516	24.1%	\$24,858
650 - 700	1,289	3,561,006,365	\$127,076,699	873,191,078	30,713,482	24.2%	\$23,827
600 - 650	1,687	4,459,700,769	\$158,599,950	1,087,942,971	38,200,268	24.1%	\$22,644
550 - 600	2,169	5,463,397,724	\$193,952,100	1,326,300,055	46,533,651	24.0%	\$21,454
500 - 550	2,700	6,472,404,885	\$229,592,099	1,557,264,760	54,619,106	23.8%	\$20,229
450 - 500	3,419	7,657,393,997	\$271,442,023	1,825,327,042	63,951,506	23.6%	\$18,705

Cross Customer Error

Table 24 shows the Cross Customer Error for the same group of premises and Table 25 shows the results cumulatively over demand levels. Cross Customer Error is the net of profiling error within a premise over the analysis year, and thus allows over-estimation of load / cost in one interval to be off-set by under-estimation in another interval. By allowing this within premise cancellation, it can be seen that about 90% of the Total Profiling Error is error within individual premises. Cross Customer Error, thus, is a measure of the amount of settlement error that would be eliminated by IDR installation on these premises which is between premises. As the Tables show, this error is still fairly substantial, about \$5.3 million in aggregate, about 2% of total settlement cost and around \$1500 per premise. The Cross Customer Error is closely correlated with demand level and ranges from the high \$2000 per premise at the upper demand levels and drops off to about \$1000 at the 450 – 500 kW level.

On a cumulative basis, the Cross Customer Error is consistently and significantly higher than the annualized cost of IDR metering, even down to the 450 kW level.

Table 24. Total Cross Customer Error Summary - All NIDRs 450 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR
950 - 1000	99	304,375,543	\$10,808,737	\$167,847.13	1.55%	\$1,695
900 - 950	92	303,914,495	\$11,421,284	\$252,477.30	2.21%	\$2,744
850 - 900	163	538,679,317	\$19,155,009	\$370,842.74	1.94%	\$2,275
800 - 850	169	488,596,933	\$17,483,399	\$337,626.10	1.93%	\$1,998
750 - 800	191	522,586,671	\$18,506,240	\$369,981.80	2.00%	\$1,937
700 - 750	250	623,744,794	\$22,131,461	\$460,442.27	2.08%	\$1,842
650 - 700	325	779,108,612	\$27,570,568	\$554,941.37	2.01%	\$1,708
600 - 650	398	898,694,404	\$31,523,251	\$614,221.19	1.95%	\$1,543
550 - 600	482	1,003,696,955	\$35,352,151	\$695,351.31	1.97%	\$1,443
500 - 550	531	1,009,007,161	\$35,639,998	\$647,265.34	1.82%	\$1,219
450 - 500	719	1,184,989,112	\$41,849,924	\$821,343.57	1.96%	\$1,142
Total	3,419	7,657,393,997	\$271,442,023	\$5,292,340.13	1.95%	\$1,548

Table 25. Cumulative Total Cross Customer Error Summary - All NIDRs 450 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR
950 - 1000	99	304,375,543	\$10,808,737	\$167,847.13	1.55%	\$1,695
900 - 950	191	608,290,038	\$22,230,022	\$420,324.43	1.89%	\$2,201
850 - 900	354	1,146,969,355	\$41,385,031	\$791,167.17	1.91%	\$2,235
800 - 850	523	1,635,566,288	\$58,868,430	\$1,128,793.27	1.92%	\$2,158
750 - 800	714	2,158,152,959	\$77,374,670	\$1,498,775.07	1.94%	\$2,099
700 - 750	964	2,781,897,753	\$99,506,131	\$1,959,217.34	1.97%	\$2,032
650 - 700	1,289	3,561,006,365	\$127,076,699	\$2,514,158.72	1.98%	\$1,950
600 - 650	1,687	4,459,700,769	\$158,599,950	\$3,128,379.91	1.97%	\$1,854
550 - 600	2,169	5,463,397,724	\$193,952,100	\$3,823,731.21	1.97%	\$1,763
500 - 550	2,700	6,472,404,885	\$229,592,099	\$4,470,996.55	1.95%	\$1,656
450 - 500	3,419	7,657,393,997	\$271,442,023	\$5,292,340.13	1.95%	\$1,548

Dead Weight Loss

Tables 26 and 27, shown below, summarize the Dead Weight Loss for these premises at the demand level and cumulatively over demand levels. As with the IDR removal analysis, since the elasticity assumed for these premises is quite low and since the premise level change in annual settlement cost between being profiled and settled with IDR data on a percentage basis is quite low, the resulting dead weight loss is quite low. For this analysis the dead weight loss being computed is that attributed to annual consumption level and does not address TOU related dead weight loss. Even given the likelihood that the TOU component could be significantly larger, it seems likely that there is a minimal societal economic benefit to installing IDRs at these premises. Given the low annualized cost of IDR metering, however, a reasonable conclusion also would be that society should be ambivalent with respect both to installing or not installing IDRs on these premises.

Table 26. Total Dead Weight Loss Summary - All NIDRs 450 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR
950 - 1000	99	304,375,543	\$10,808,737	\$281.01	0.09%	\$3
900 - 950	92	303,914,495	\$11,421,284	\$3,428.91	1.13%	\$37
850 - 900	163	538,679,317	\$19,155,009	\$768.30	0.14%	\$5
800 - 850	169	488,596,933	\$17,483,399	\$757.93	0.16%	\$4
750 - 800	191	522,586,671	\$18,506,240	\$854.82	0.16%	\$4
700 - 750	250	623,744,794	\$22,131,461	\$1,477.16	0.24%	\$6
650 - 700	325	779,108,612	\$27,570,568	\$1,758.05	0.23%	\$5
600 - 650	398	898,694,404	\$31,523,251	\$1,539.51	0.17%	\$4
550 - 600	482	1,003,696,955	\$35,352,151	\$3,000.48	0.30%	\$6
500 - 550	531	1,009,007,161	\$35,639,998	\$3,443.24	0.34%	\$6
450 - 500	719	1,184,989,112	\$41,849,924	\$2,314.21	0.20%	\$3
Total	3,419	7,657,393,997	\$271,442,023	\$19,623.61	0.26%	\$6

Table 27. Cumulative Total Dead Weight Loss Summary - All NIDRs 450 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss Per IDR
950 - 1000	99	304,375,543	\$10,808,737	\$281.01	0.09%	\$3
900 - 950	191	608,290,038	\$22,230,022	\$3,709.91	0.61%	\$19
850 - 900	354	1,146,969,355	\$41,385,031	\$4,478.21	0.39%	\$13
800 - 850	523	1,635,566,288	\$58,868,430	\$5,236.14	0.32%	\$10
750 - 800	714	2,158,152,959	\$77,374,670	\$6,090.96	0.28%	\$9
700 - 750	964	2,781,897,753	\$99,506,131	\$7,568.12	0.27%	\$8
650 - 700	1,289	3,561,006,365	\$127,076,699	\$9,326.17	0.26%	\$7
600 - 650	1,687	4,459,700,769	\$158,599,950	\$10,865.68	0.24%	\$6
550 - 600	2,169	5,463,397,724	\$193,952,100	\$13,866.15	0.25%	\$6
500 - 550	2,700	6,472,404,885	\$229,592,099	\$17,309.40	0.27%	\$6
450 - 500	3,419	7,657,393,997	\$271,442,023	\$19,623.61	0.26%	\$6

Net Profiling Error

Tables 28 and 29 below show the Net Profiling Error for these premises by demand level and cumulatively over demand level. Since Net Profiling Error allows cancellation of profiling error to occur across customers, profile types and demand levels, the cumulative error at the system level can and does become quite small, \$434,000 total or \$127 per premise and much less than 1% of Settlement cost. A trend that becomes somewhat apparent, however, when looking at this level, is that the Net Profiling Error Cost is generally positive indicating that these premises tend to have their costs under-estimated. While the net for the entire group ends up being only \$127, within demand levels the net ranges from -\$123 to \$940 per premise.

Table 28. Total Net Profiling Error Summary - All NIDRs 450 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
950 - 1000	99	304,375,543	\$10,808,737	-\$11,185.55	-0.10%	-\$113
900 - 950	92	303,914,495	\$11,421,284	-\$9,344.78	-0.08%	-\$102
850 - 900	163	538,679,317	\$19,155,009	\$81,188.25	0.42%	\$498
800 - 850	169	488,596,933	\$17,483,399	\$158,844.60	0.91%	\$940
750 - 800	191	522,586,671	\$18,506,240	\$65,073.57	0.35%	\$341
700 - 750	250	623,744,794	\$22,131,461	\$35,735.72	0.16%	\$143
650 - 700	325	779,108,612	\$27,570,568	\$74,370.23	0.27%	\$229
600 - 650	398	898,694,404	\$31,523,251	\$94,501.44	0.30%	\$237
550 - 600	482	1,003,696,955	\$35,352,151	\$24,122.80	0.07%	\$50
500 - 550	531	1,009,007,161	\$35,639,998	\$8,921.12	0.03%	\$17
450 - 500	719	1,184,989,112	\$41,849,924	-\$88,382.27	-0.21%	-\$123
Total	3,419	7,657,393,997	\$271,442,023	\$433,845.11	0.16%	\$127

Table 29. Cumulative Total Net Profiling Error Summary - All NIDRs 450 kW to 1,000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
950 - 1000	99	304,375,543	\$10,808,737	-\$11,185.55	-0.10%	-\$113
900 - 950	191	608,290,038	\$22,230,022	-\$20,530.34	-0.09%	-\$107
850 - 900	354	1,146,969,355	\$41,385,031	\$60,657.91	0.15%	\$171
800 - 850	523	1,635,566,288	\$58,868,430	\$219,502.51	0.37%	\$420
750 - 800	714	2,158,152,959	\$77,374,670	\$284,576.08	0.37%	\$399
700 - 750	964	2,781,897,753	\$99,506,131	\$320,311.80	0.32%	\$332
650 - 700	1,289	3,561,006,365	\$127,076,699	\$394,682.03	0.31%	\$306
600 - 650	1,687	4,459,700,769	\$158,599,950	\$489,183.47	0.31%	\$290
550 - 600	2,169	5,463,397,724	\$193,952,100	\$513,306.27	0.26%	\$237
500 - 550	2,700	6,472,404,885	\$229,592,099	\$522,227.38	0.23%	\$193
450 - 500	3,419	7,657,393,997	\$271,442,023	\$433,845.11	0.16%	\$127

Complete tables for the Mandatory IDR Installation Threshold analysis can be found in Appendix D.

Combination Mandatory Installation and Optional Removal

This section presents the results of the two previous sections combined to reflect the impact of establishing a threshold above which IDR installation would be mandatory and below which removal would be available on a voluntary basis. To quantify the combined impact, errors introduced from IDR removal are added to the errors that would be eliminated by IDR installation at the profile type and demand level. The estimation process for the comparative statistics is described in the Methodology section. Keep in mind that the two previous caveats still apply; (1) the option of removing IDRs would be voluntary and therefore the errors reported represent a worst case scenario, and (2) the results shown below should be regarded as indications of the impact of lowering the IDR installation threshold and not as conclusive results.

The tables shown below summarize the estimates developed by demand level for the combination of all ESI IDs with IDRs with annual peak demands under 1000 kW and ESI IDs with NIDR metering and with annual peak demands between 450 – 1000 kW (essentially all ESI IDs between 450 kW and 1000 kW); the results are also shown cumulatively over demand levels in descending order to facilitate analyzing the impact for various installation thresholds.

Total Profiling Error

Table 30 shows the Total Profiling Error by demand level. Table 31 shows the results for Total Profiling Error cumulatively. As is shown, 5,249 premises were identified, which account for \$442 million of Total Settlement Cost. The estimated Total Profiling Error for these premises is about \$100 million; this equates to approximately \$19,200 of error per premise and about 23% of Total Settlement Cost for this group.

As with the IDR removal analysis, these errors are large both in magnitude and percentage, but must also be kept in perspective. Clearly this error would go to zero if IDRs were installed at all the premises and used for settlement purposes. Since the Total Profiling Error is the sum of the absolute value of all the interval errors for all the premises, one must consider the impact of this error. This impact at the premise level is seen in Tables 32 and 33 and at the system level in Tables 36 and 37.

Table 30. Total Profiling Error Summary - All IDRs 0 kW to 1000 kW Plus NIDRs 450 kW to 1000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total Error %	Total Profiling Error Cost (\$) Per IDR
950 - 1000	129	384,820,385	\$13,654,292	95,728,852	3,350,941	24.5%	\$25,976
900 - 950	122	395,664,966	\$14,867,284	97,527,044	3,585,268	24.1%	\$29,387
850 - 900	224	756,395,148	\$26,881,153	167,771,351	5,931,247	22.1%	\$26,479
800 - 850	274	817,573,753	\$29,190,254	205,279,084	7,172,741	24.6%	\$26,178
750 - 800	363	1,082,504,424	\$38,213,418	253,483,644	8,945,499	23.4%	\$24,643
700 - 750	449	1,224,577,939	\$43,254,383	273,137,220	9,550,449	22.1%	\$21,270
650 - 700	574	1,476,831,419	\$52,082,509	345,972,866	11,975,621	23.0%	\$20,863
600 - 650	674	1,651,163,653	\$57,819,657	378,037,565	13,168,463	22.8%	\$19,538
550 - 600	729	1,586,184,999	\$55,755,982	362,066,622	12,659,100	22.7%	\$17,365
500 - 550	774	1,533,689,192	\$54,150,501	347,273,212	12,157,268	22.5%	\$15,707
450 - 500	937	1,599,411,366	\$56,437,159	354,577,732	12,346,953	21.9%	\$13,177
Total	5,249	12,508,817,244	\$442,306,593	\$2,880,855,192	\$100,843,551	22.8%	\$19,212

Table 31. Cumulative Total Profiling Error Summary - All IDRs 0 kW to 1000 kW Plus NIDRs 450 kW to 1000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total Error %	Total Profiling Error Cost (\$) Per IDR
950 - 1000	129	384,820,385	\$13,654,292	95,728,852	3,350,941	24.5%	\$25,976
900 - 950	122	395,664,966	\$14,867,284	97,527,044	3,585,268	24.1%	\$29,387
850 - 900	224	756,395,148	\$26,881,153	167,771,351	5,931,247	22.1%	\$26,479
800 - 850	274	817,573,753	\$29,190,254	205,279,084	7,172,741	24.6%	\$26,178
750 - 800	363	1,082,504,424	\$38,213,418	253,483,644	8,945,499	23.4%	\$24,643
700 - 750	449	1,224,577,939	\$43,254,383	273,137,220	9,550,449	22.1%	\$21,270
650 - 700	574	1,476,831,419	\$52,082,509	345,972,866	11,975,621	23.0%	\$20,863
600 - 650	674	1,651,163,653	\$57,819,657	378,037,565	13,168,463	22.8%	\$19,538
550 - 600	729	1,586,184,999	\$55,755,982	362,066,622	12,659,100	22.7%	\$17,365
500 - 550	774	1,533,689,192	\$54,150,501	347,273,212	12,157,268	22.5%	\$15,707
450 - 500	937	1,599,411,366	\$56,437,159	354,577,732	12,346,953	21.9%	\$13,177
Total	5,249	12,508,817,244	\$442,306,593	\$2,880,855,192	\$100,843,551	22.8%	\$19,212

Cross Customer Error

Table 32 shows the Cross Customer Error for the same group of premises and Table 33 shows the results cumulatively. Cross Customer Error is the net of profiling error within a premise over the analysis year, and thus allows over-estimation of load / cost in one interval to be off-set by under-estimation in another interval. By allowing this within premise cancellation, it can be seen that about 90% of the Total Profiling Error is error within individual premises. The Cross Customer Error, thus is a measure of the amount of settlement error that would be eliminated by IDR installation on these premises which is between

premises on an annual basis. As the Tables show, this error is still fairly substantial, about \$8.4 million in aggregate, about 2% of total settlement cost and around \$1600 per premise. The Cross Customer Error is closely correlated with demand level and ranges from the high \$2600 per premise at the upper demand levels and drops off to about \$1100 at the 450 – 500 kW level.

On a cumulative basis, the Cross Customer Error is consistently and significantly higher than the annualized cost of IDR metering, even down to the 450 kW level.

Table 32. Cross Customer Error Summary – All IDRs 0 kW to 1000 kW Plus NIDRs 450 kW to 1000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR
950 - 1000	129	384,820,385	\$13,654,292	\$216,481.96	1.59%	\$1,678
900 - 950	122	395,664,966	\$14,867,284	\$326,794.62	2.20%	\$2,679
850 - 900	224	756,395,148	\$26,881,153	\$513,579.81	1.91%	\$2,293
800 - 850	274	817,573,753	\$29,190,254	\$554,753.47	1.90%	\$2,025
750 - 800	363	1,082,504,424	\$38,213,418	\$738,092.50	1.93%	\$2,033
700 - 750	449	1,224,577,939	\$43,254,383	\$850,756.39	1.97%	\$1,895
650 - 700	574	1,476,831,419	\$52,082,509	\$1,008,987.36	1.94%	\$1,758
600 - 650	674	1,651,163,653	\$57,819,657	\$1,095,870.89	1.90%	\$1,626
550 - 600	729	1,586,184,999	\$55,755,982	\$1,067,566.13	1.91%	\$1,464
500 - 550	774	1,533,689,192	\$54,150,501	\$977,001.71	1.80%	\$1,262
450 - 500	937	1,599,411,366	\$56,437,159	\$1,091,842.25	1.93%	\$1,165
Total	5,249	12,508,817,244	\$442,306,593	\$8,441,727.10	1.91%	\$1,608

Table 33. Cumulative Cross Customer Error Summary – All IDRs 0 kW to 1000 kW Plus NIDRs 450 kW to 1000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR
950 - 1000	129	384,820,385	\$13,654,292	\$216,481.96	1.59%	\$1,678
900 - 950	251	780,485,350	\$28,521,576	\$543,276.59	1.90%	\$2,164
850 - 900	475	1,536,880,498	\$55,402,729	\$1,056,856.39	1.91%	\$2,225
800 - 850	749	2,354,454,251	\$84,592,983	\$1,611,609.87	1.91%	\$2,152
750 - 800	1,112	3,436,958,675	\$122,806,401	\$2,349,702.37	1.91%	\$2,113
700 - 750	1,561	4,661,536,614	\$166,060,784	\$3,200,458.76	1.93%	\$2,050
650 - 700	2,135	6,138,368,034	\$218,143,294	\$4,209,446.12	1.93%	\$1,972
600 - 650	2,809	7,789,531,686	\$275,962,951	\$5,305,317.01	1.92%	\$1,889
550 - 600	3,538	9,375,716,685	\$331,718,933	\$6,372,883.14	1.92%	\$1,801
500 - 550	4,312	10,909,405,878	\$385,869,435	\$7,349,884.85	1.90%	\$1,705
450 - 500	5,249	12,508,817,244	\$442,306,593	\$8,441,727.10	1.91%	\$1,608

Dead Weight Loss

Tables 34 and 35 shown below summarize the Dead Weight Loss for these premises at the demand level and cumulatively over demand levels. As with the previous two analyses, since the elasticity assumed for these premises is quite low and since the premise level change in annual settlement cost between being profiled and settled with IDR data on a percentage basis is quite low, the resulting dead weight loss is quite low. For this analysis the dead weight loss being computed is that attributed to annual consumption level and does not address TOU related dead weight loss. Even given the likelihood that the TOU component could be significantly larger, it seems likely that there is a minimal societal economic benefit to installing IDRs at these premises. Given the low annualized cost of IDR metering, however, a reasonable conclusion also would be that society should be ambivalent with respect both to installing or not installing IDRs on these premises.

Table 34. Total Dead Weight Loss Summary - All IDRs 0 kW to 1000 kW Plus NIDRs 450 kW to 1000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWh	Dead Weight Loss per IDR
950 - 1000	129	384,820,385	\$13,654,292	\$377	\$0.0000276	\$2.92
900 - 950	122	395,664,966	\$14,867,284	\$4,399	\$0.0002959	\$36.06
850 - 900	224	756,395,148	\$26,881,153	\$1,053	\$0.0000392	\$4.70
800 - 850	274	817,573,753	\$29,190,254	\$1,224	\$0.0000419	\$4.47
750 - 800	363	1,082,504,424	\$38,213,418	\$1,679	\$0.0000439	\$4.63
700 - 750	449	1,224,577,939	\$43,254,383	\$2,683	\$0.0000620	\$5.97
650 - 700	574	1,476,831,419	\$52,082,509	\$3,066	\$0.0000589	\$5.34
600 - 650	674	1,651,163,653	\$57,819,657	\$2,677	\$0.0000463	\$3.97
550 - 600	729	1,586,184,999	\$55,755,982	\$4,468	\$0.0000801	\$6.13
500 - 550	774	1,533,689,192	\$54,150,501	\$5,138	\$0.0000949	\$6.64
450 - 500	937	1,599,411,366	\$56,437,159	\$3,056	\$0.0000541	\$3.26
Total	5,249	12,508,817,244	\$442,306,593	\$29,819	\$0.0023839	\$5.68

Table 35. Cumulative Total Dead Weight Loss Summary - All IDRs 0 kW to 1000 kW Plus NIDRs 450 kW to 1000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR
950 - 1000	129	384,820,385	\$13,654,292	\$377	\$0.0000276	\$2.92
900 - 950	251	780,485,350	\$28,521,576	\$4,776	\$0.0001675	\$19.03
850 - 900	475	1,536,880,498	\$55,402,729	\$5,829	\$0.0001052	\$12.27
800 - 850	749	2,354,454,251	\$84,592,983	\$7,053	\$0.0000834	\$9.42
750 - 800	1,112	3,436,958,675	\$122,806,401	\$8,732	\$0.0000711	\$7.85
700 - 750	1,561	4,661,536,614	\$166,060,784	\$11,415	\$0.0000687	\$7.31
650 - 700	2,135	6,138,368,034	\$218,143,294	\$14,480	\$0.0000664	\$6.78
600 - 650	2,809	7,789,531,686	\$275,962,951	\$17,158	\$0.0000622	\$6.11
550 - 600	3,538	9,375,716,685	\$331,718,933	\$21,626	\$0.0000652	\$6.11
500 - 550	4,312	10,909,405,878	\$385,869,435	\$26,764	\$0.0000694	\$6.21
450 - 500	5,249	12,508,817,244	\$442,306,593	\$29,819	\$0.0000674	\$5.68

Net Profiling Error

Tables 36 and 37 below show the Net Profiling Error for these premises by demand level and cumulatively over demand level. Since Net Profiling Error allows cancellation of profiling error to occur across customers, profile types and demand levels, the cumulative error at the system level can and does become quite small, \$743,000 total or \$142 per premise and much less than 1% of Settlement cost. A trend that becomes somewhat apparent, however, when looking at this level, is that the Net Profiling Error Cost is generally positive indicating that these premises tend to have their costs under-estimated. While the net for the entire group ends up being only \$142, within demand levels the net ranges from -\$158 to \$958 per premise.

Table 36. Net Profiling Error Summary - All IDRs 0 kW to 1000 kW Plus NIDRs 450 kW to 1000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
950 - 1000	129	384,820,385	\$13,654,292	-\$20,351	-0.15%	-\$158
900 - 950	122	395,664,966	\$14,867,284	-\$11,412	-0.08%	-\$94
850 - 900	224	756,395,148	\$26,881,153	\$110,476	0.41%	\$493
800 - 850	274	817,573,753	\$29,190,254	\$262,605	0.90%	\$958
750 - 800	363	1,082,504,424	\$38,213,418	\$108,069	0.28%	\$298
700 - 750	449	1,224,577,939	\$43,254,383	\$49,765	0.12%	\$111
650 - 700	574	1,476,831,419	\$52,082,509	\$160,684	0.31%	\$280
600 - 650	674	1,651,163,653	\$57,819,657	\$177,469	0.31%	\$263
550 - 600	729	1,586,184,999	\$55,755,982	\$23,734	0.04%	\$33
500 - 550	774	1,533,689,192	\$54,150,501	\$9,971	0.02%	\$13
450 - 500	937	1,599,411,366	\$56,437,159	-\$127,654	-0.23%	-\$136
Total	5,249	12,508,817,244	\$442,306,593	\$743,355	0.17%	\$142

Table 37. Cumulative Net Profiling Error Summary - All IDRs Plus NIDRs 450 kW to 1000 kW

Demand Level (kW)	Counts	Total kWh	Settlement Cost (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error Cost Per IDR (\$)
950 - 1000	129	384,820,385	\$13,654,292	-\$20,351	-0.15%	-\$158
900 - 950	251	780,485,350	\$28,521,576	-\$31,763	-0.11%	-\$127
850 - 900	475	1,536,880,498	\$55,402,729	\$78,713	0.14%	\$166
800 - 850	749	2,354,454,251	\$84,592,983	\$341,317	0.40%	\$456
750 - 800	1,112	3,436,958,675	\$122,806,401	\$449,387	0.37%	\$404
700 - 750	1,561	4,661,536,614	\$166,060,784	\$499,151	0.30%	\$320
650 - 700	2,135	6,138,368,034	\$218,143,294	\$659,836	0.30%	\$309
600 - 650	2,809	7,789,531,686	\$275,962,951	\$837,305	0.30%	\$298
550 - 600	3,538	9,375,716,685	\$331,718,933	\$861,039	0.26%	\$243
500 - 550	4,312	10,909,405,878	\$385,869,435	\$871,010	0.23%	\$202
450 - 500	5,249	12,508,817,244	\$442,306,593	\$743,355	0.17%	\$142

Complete tables for the Combination Mandatory Installation and Optional Removal analysis can be found in Appendix E.

BENEFITS OF INTERVAL DATA RECORDERS⁴

This section provides an overview of potential benefits of interval data recorders (IDRs). The discussion is not intended to be definitive, nor to provide quantitative estimates of the value of increasing the number of ESIIDs with IDRs. Rather, the intent is to identify the issues that can be considered, from the perspectives of end-use customers, TDSPs, CRs, ERCOT itself, and society as a whole.

Most of the available literature identifies benefits to customers, utilities, and society. In the ERCOT market, the “utility” role is split between TDSPs and CRs. ERCOT itself also plays some of this role.

Many of the benefits of IDRs depend on customers’ paying a price for electricity that varies by time interval (e.g., by hour or quarter-hour). These benefits do not derive simply from the fact that the cost of electricity varies by time interval, but are contingent on customers paying a price for electricity that varies by time interval. Furthermore, some of the benefits of IDRs depend on customers changing the quantity of electricity they demand in response to the price signals they receive. Specifically, customers respond to an increase in price by decreasing the quantity of electricity they demand.

The following table summarizes various benefits of interval data recorders. Where estimates of the magnitude of the benefit are available from the literature, these are also indicated. However, further work would be needed to translate these indicative values into specific estimates of the value to the ERCOT market. Each of these benefits is described in brief below.

⁴ Provided by Kema-Xenergy, Inc.

Summary of IDR Benefits

Benefit Category	Benefit	To Whom Benefits Accrue	Estimated Value
Reduce cost of economic inefficiency (deadweight loss)	Increased economic efficiency (Avoided deadweight loss)	Society	Case-specific
Reduce unaccounted-for-energy (UFE)	Avoided UFE costs	Society	1.5 cents/kWh (Absolute UFE costs) (unpublished analysis by ERCOT LPWG)
Improve/maintain reliability	Value to the customer of maintaining load	Customer	\$2,600 - \$22,000 per MWh (2002 US \$) [Cooke (2003)]
	Avoided electricity rationing costs	ISO/TDSP/REP/ Customer	No generic cost estimates available in literature
	Avoided costs of restoring power	ISO/TDSP/ Customer	\$20 million annually in crew dispatch costs for medium-sized utility dealing with Sustained Outages. [Bishop, McCarthy & Rose (1998)]
	Avoided damage to utility and/or ISO reputation as reliable service provider	TDSP/REP/ISO	No generic cost estimates available in literature.
	Avoided payments resulting from reliability-related lawsuits	TDSP/ISO/REP/ Other potentially liable parties	No generic cost estimates available in literature. However, Ohio utility FirstEnergy's stock value dropped 2% the day following the release of report on August 2003 power outage that implicated the utility.
	Avoided/reduced Performance-Based Ratemaking (PBR) reliability penalties	TDSP	Potential financial penalties of \$2 - \$36 million per year per utility (for those utilities with financial penalties for PBR violations) [KEMA-XENERGY (2001)]
Reduce cost of maintaining reliability	Replacement of generation capacity reserves with less expensive demand-side resources	Retail Electricity Providers/ Customer	No generic cost estimates available in literature.
Restrain market power	Reduced market power by facilitating customer response to price	Society	No generic cost estimates available in literature.

Reduced Societal Cost of Economic Inefficiency (Deadweight Loss)

If a customer pays a price for electricity that varies by time period and has an IDR, then the customer has the necessary price signals to determine the quantity of electricity they will demand. This is the benefit captured by the deadweight loss analysis.

Reduced UFE

Another benefit of IDRs is a more accurate accounting of load by time period. This will reduce the contribution of inaccuracies in settled load to unaccounted-for-energy (UFE) each time period. UFE is system load minus settled load and allocated losses by time period.

Demand Response Benefits

Other benefits of IDRs depend on customers responding to an increase in price by decreasing the quantity of electricity they demand. Three benefits that fall into this category are:

- improvement or maintenance of reliability,
- reduction in required generation capacity reserves, and
- restraint of market power.

Each of these benefits is discussed briefly in turn.

Improvement or maintenance of reliability

If the quantity of electricity demanded is lower than it would otherwise be, reliability is improved or maintained by reducing the likelihood of a power outage. The value of improved or maintained reliability, then, is the value of reducing the number of power outages.

The costs of a power outage include:

- the cost to customers,
- the cost of allocating the scarce supply of electricity when a power outage occurs,
- the cost of restoring power,
- the damage to the utility's and independent system operator's reputations as reliable service providers,
- payments resulting from lawsuits related to the power outage, and
- performance-based ratemaking (PBR) reliability penalties.

Cost to customers

The cost to customers of a power outage has been estimated to be between \$2,600 and \$22,000 per MWh (Cooke 2003). Allan and Srbac (2001) provide a list of costs that may be included in such an estimate:

- Direct economic costs
 - lost production
 - idle resources
 - restart costs
 - spoilage
 - equipment damage
 - health & safety costs

- utility interruption costs
- Direct social costs
 - loss of transport
 - loss of leisure
 - lack of heating/cooling
 - personal injury
- Indirect losses
 - civil disobedience
 - evacuation for safety
- Short term/ long term
 - future mitigation decision
 - extra protection/ standby
 - relocation costs

Customer outage costs may be offset by payments from conventional insurance policies, special outage insurance offered by some utilities, and rewards from successful lawsuits. Backup generators and other power quality measures can also mitigate customer outage costs.

Primen (2002) found the cost of a power outage is strongly correlated to the size of the business establishment. The average cost of a one-hour outage increases steadily as a function of the establishment's annual kWh consumption. The study also found the outages costs for a one-hour outage are about four times that for a three minute outage.

The costs identified by Allan and Srbac (2001) are the actual costs of a power outage to customers. In addition, EIA (1995) points out another cost to customers of a power outage is the “lost surplus” cost. This hypothetical cost represents the excess above the price of electricity that consumers were willing to pay for the electricity not supplied during an outage. For example, if a consumer was willing to pay 10 cents/kWh for electricity that was not supplied, but the price of electricity not supplied was only 6 cents/kWh, then the lost surplus cost is 4 cents/kWh. Lost surplus costs are difficult to estimate because they cannot be measured directly and, therefore, are seldom included in the calculation of customer power outage costs.

The cost to customers of a power outage is often given as a range because it depends on many factors including:

- the activities/mix customers affected by the curtailment, which depends on what day and what time of the outage occurs;
- whether or not there was advanced warning;
- weather conditions;
- time of year; and
- duration of the outage.

Common methods for estimating the cost to customers of a power outage include:

- indirect analytical methods using associated indices or variables (e.g., dividing gross domestic product by total energy consumed);
- customer surveys including those using contingency valuation methods; and
- detailed studies of costs incurred by customers during power outages.

Customer surveys often produce contradictory results. For example, residential customers give much lower values when asked how much they are willing to pay for more reliability than when asked how much they are willing to accept to be compensated for less reliability. Also, a survey of commercial/industrial customers in England found very high estimates of the value of avoiding a power outage even though very few of the respondents had purchased backup generators.

Cost of rationing

We did not find in the literature any estimates of the cost of allocating the scarce supply of electricity when a power outage occurs. This cost is borne by the ISO/TDSPs/REPs/investors and/or end-use customers depending on the extent to which it is recoverable in rates at different levels.

Cost of restoring power

The annual cost of restoring power has been estimated to be in the neighborhood of \$20 million (Bishop, McCarthy, and Rose 1998). This estimate is based on:

- 10,000 sustained outages per year,
- each sustained outage requires 4 hours of crew time, and
- the cost for a crew and repair truck is \$500/hr.⁵

The cost of restoring power is generally recoverable through rates unless the utility is found to be grossly negligent. Therefore, this cost is typically borne by customers.

Damage to the ISO/utility's reputation as a reliable service provider

The cost of the damage to the ISO or utility's reputation as a reliable service provider is difficult to quantify. This cost may include elements such as:

- cost of increased regulatory scrutiny,
- reduced investment appeal (measured by the reduction in utility stock value and bond ratings),
- value of customers lost to competitive suppliers, and
- additional utility public relations and marketing expenditures designed to restore regulator, investor, and customer confidence.

⁵ The minimum length of time for an outage to qualify as a "sustained outage" varies from utility to utility. For example, NSTAR Electric defines it as an outage longer than one minute, PG&E defines it as any outage longer than two minutes, and Detroit Edison defines it as outages that "usually last more than five minutes." Bishop, McCarthy, and Rose (1998) did not define the term in their analysis.

For example, the value of FirstEnergy's stock dropped 2.1 percent the day after the U.S./Canada Power System Outage Task Force issued its initial report on the August 2003 power outage, which assigned significant culpability to the utility. (This is the only estimate of the cost of the damage to the utility's reputation as a reliable service provider we found in the literature.)

Payments resulting from lawsuits related to power outages

Reductions in both a utility's stock value and bond rating may reflect investor assessment of utility's potential liability. The cost of payments resulting from lawsuits related to power outages is unlikely to be recoverable in utility rates and, therefore, is likely to be borne by the utility/investors. It is unclear how any costs of lawsuits against ERCOT would ultimately be borne.

PBR reliability penalties

Some utilities with PBR mechanisms must pay a predefined monetary penalty when the frequency or duration of outages exceed certain predetermined threshold levels (PBR reliability penalty). A 2001 KEMA-XENERGY study of utilities with PBR mechanisms found the maximum potential annual penalty for reliability violations ranged from \$2 million (Narragansett Electric) to as much as \$36 million (Southern California Edison). Although these figures are only potential penalties, utilities have been required to pay PBR reliability penalties. For example, in September 2003, Massachusetts Electric was assessed a \$5.9 million PBR reliability penalty. Even if TDSPs do not currently have PBR structures, this could become an issue in the future.

Reduction in required generation capacity reserves

IDRs facilitate participation in demand-response programs. With greater participation in demand-response programs, more demand-side resources are available to replace potentially more expensive generation capacity reserves.

Restraint on market power

The ability of suppliers to set price above marginal cost is referred to as market power and results in the wrong quantity of electricity supplied/consumed. Market power may be restrained if customers, facilitated by IDRs, respond to an increase in price by decreasing the quantity of electricity they demand. If the quantity of electricity that suppliers sell is affected by the price they charge, they may choose to charge a lower price.

Reference List

Besser, Janet Gail. 2000. "The Value of Load Response in Competitive Markets: The Importance of Efficient Electricity Price Signals." Hartford, Connecticut (October).

Billington, Roy. 2002. "Economic Cost of Non-Supply." Power System Research Group, University of Saskatchewan, Canada.

- Bishop, Martin T.; Christopher A. McCarthy; and Virgil G. Rose. 1998. "Distribution Reliability Improvement Cost Justification." Cooper Power Systems, Systems Engineering Reference Bulletin SE 9801 (November).
- Brennan, Timothy. 2002. "Market Failures in Real-Time Metering: A Theoretical Look." Resources for the Future, Discussion Paper 02-53 (October).
- Cooke, J. Alexander. 2003. "The resource adequacy requirement in FERC's standard market design: Help for competition or a return to command and control?" *Yale Journal on Regulation* (Summer).
- Cramton, Peter; and Jeffrey Lien. 2000. "Value of Lost Load." University of Maryland (February).
- Cummings, Fran. 2000. Memorandum to John Chamberlin, Henry Yoshimura, and Christopher Dyson of XENERGY Inc. Summary of Price Responsive Load in the Northeast: 16 October 2000 ISO Meeting at Hartford, Connecticut (November).
- de Nooij, Michiel; Carlijn Bijvoet; and Carl Koopmans. "The Demand for Supply Security." SEO, Amsterdam Economics, University of Amsterdam.
- Energy Information Administration. 1995. "Performance Issues for a Changing Electric Power Industry" in *Appendix B, The Economics of Electric Power Reliability* (January).
- Energy Research Institute, Chulalongkorn University. 2001. "The Future Value of Lost Load and its Applications" in *Electricity Outage Cost Study*.
<http://www.eppo.go.th/power/ERI-study-E/ERI-ExeSummary-E.html>.
- Felder, Frank. 2001. "An Island of Technicality in a Sea of Discretion: A Critique of Existing Electric Power Systems Reliability Analysis and Policy." *Electricity Journal* (10 January).
- Goldman, Charles A.; Michael Kintner-Meyer; and Grayson Heffner. 2002. "Do 'Enabling Technologies' Affect Customer Performance in Price-Responsive Load Programs?" Ernest Orlando Lawrence Berkeley National Laboratory: Berkeley, California (August).
- Hirst, Eric. 2003. "Long-Term Resource Adequacy: The Role Of Demand Resources." (January).
- Lee, Russell. 2002. "Ideas on a Framework and Methods for Estimating the Benefits of Government-Sponsored Energy R&D." Oak Ridge National Laboratory: Oak Ridge, Tennessee (27 February).

- Moeltner, Klaus; and David F. Layton. 2002. "A Censored Random Coefficients Model for Pooled Survey Data With Application to the Estimation of Power Outage Costs" in *Review of Economics & Statistics* (August): 552-561.
- Moran, Alan. "Application for Authorization: Value of Lost Load." Institute of Public Affairs's submission to the ACCC Review of the Electricity Price Cap. [New Zealand?].
- National Electricity Code Administrator Limited. 2002. "Reliability Panel: Review of the value of lost load." Consultation paper (December).
- National Electricity Code Administrator Limited. 2003. "Reliability Panel: Review of the value of lost load" (June).
- Pacificorp and ABB Consulting. 2003. "Engineering Tools Move into Cyberspace." http://tdworld.com/ar/power_engineering_tools_move/index.htm. (1 March).
- Primen. 2002. "Power Quality Problems and Renewable Energy Solutions" submitted to Massachusetts Renewable Energy Trust (September).
- Sedano, Richard P. 2001. "Dimensions of Reliability: A Paper on Electric System Reliability For Elected Officials." National Council on Competition and the Electric Industry, The Electric Industry Restructuring Series (October).
- Stephenson, W.M.; and D.J. Barney. 1988. "Economics of energy reliability." Pacific Gas & Electric Company. Potentials (San Francisco, California) 7 (May): 26-27.
- Strbac, Goran; and Ron Allan. 2001?. "Customer Worth of Supply and Application to Future Regulation of Distribution Systems." Manchester Centre for Electrical Energy, UMIST.
- Sullivan, Michael; and Michael Sheehan. 2000. "Observed Changes in Residential and Commercial Customer Interruption Costs in the Pacific Northwest Between 1989 and 1999." IEEE.
- XENERGY, Inc. 2001. *Performance-Based Ratemaking: Companion Study*. XENERGY, Inc.: Burlington, Massachusetts (January).

APPENDICES

APPENDIX A

CALCULATING THE COST OF ECONOMIC INEFFICIENCY DUE TO LACK OF INTERVAL METERS

Overview

When the unit price faced by the customer is higher or lower than the true cost of providing electricity to the customer, the result is economic inefficiency. In this situation, it is theoretically possible to make everyone better off. The economic cost of price not being equal to the true cost of supply is known as the “Deadweight Loss.” This is a cost borne by society as a whole, which benefits no one. In principle, if prices were all moved to the true costs of supply, the negative effects of the price shifts for certain parties (customers previously underpaying or suppliers previously receiving overpayments) could be compensated by those who benefit from this change, and the elimination of deadweight loss would result in additional resources that could be employed to everyone’s benefit.

We consider two components of price signal errors, and associated societal cost of inefficiency.

1. The annual average unit cost of energy based on the load profile is different from each ESIID’s true annual average cost per unit consumed. This price signal error results in over-or under-consumption over the course of the year.
2. Customers without interval metering face prices that are not differentiated by time of day, whereas supply costs do vary by time. This price signal error results in over-consumption during periods of high market prices, and under-consumption during periods of low market prices, even for a fixed total consumption level.

(Some customers do have time-of-use (TOU) metering, though they do not have interval demand recorders (IDR). In principle, even these customers could have more finely differentiated prices. The economic inefficiency due to lack of more time-specific pricing for TOU ESIIDs is less than that for nonTOU ESIIDs, but still exists.)

Cost to the Economy of Wrong Price Signals on Average for the Year

For any commodity, the deadweight loss due to assigning each customer the load-profiled annual price $U_{L,pj}$ instead of assigning each customer its own true cost of supply U_j depends on the differences between the load profiled prices and the customers’ true cost of supply, as well as on the customers’ consumption and the elasticity of demand with respect to price. This deadweight loss can be calculated separately for each load profile p and demand level k . (Equation A).

$$(A) \quad DWL_{FLATkp} = \frac{1}{2} e_{Akp} E_{pk} \sum_{j \in kp} E_j U_{pj} \left(\frac{U_j - U_{pj}}{U_{pj}} \right)^2 / E_{pk}$$

where

e_{Akp} = elasticity of annual consumption with respect to price, for ESIIDs in demand level k , profile p

E_j = annual energy consumption for ESIID j

E_{pk} = total annual energy consumption of ESIIDs j in demand level k , profile p

U_j = load weighted annual price using true interval data for ESIID j

U_{pj} = load weighted annual price for ESIID j using load profile p

DWL_{FLATkp} = Deadweight loss (\$/year) due to load profiling error in the annual unit price of energy, for ESIIDs in demand level k , load profile p .

The deadweight loss can also be expressed in terms of cost per unit of energy consumption (Equation B). This formulation provides a useful basis for comparison with other costs.

$$(B) \quad DWLU_{FLATkp} = \frac{1}{2} e_{kp} \sum_j \frac{E_j}{E_{pk}} U_{pj} \left(\frac{U_j - U_{pj}}{U_{pj}} \right)^2 / E_{pk}$$

where

$DWLU_{FLATkp}$ = Unit deadweight loss (\$/MWh) due to load profiling error in the annual price cost of energy, for ESIIDs in demand level k , load profile p .

The unit deadweight loss given by Equation B is the societal cost of the economic efficiency due to inappropriate price signals on average over the year. The price response in this calculation is assumed to affect the total amount of electricity consumed, but not the pattern of that consumption over the year.

Modified Formula Using Monthly Adjusted Load Weighted Prices

If we use the monthly energy weighted load profiled annual price, this price varies across ESIIDs j within the same load profile p , according to the distribution of monthly energy E_{jm} over the year. That is, the load profiled annual price for ESIID j in profile p is given by

$$(C) \quad U_{pj} = \sum_{m=1}^{12} E_{jm} U_{pm} / E_j$$

where

U_{pm} is the profile load-weighted price for month m .

In this case, the DWL formula becomes

$$(D) \quad DWL_{FLATkp} = \frac{1}{2} e_{kp} \sum_j \frac{E_j}{E_{pk}} U_{pj} \left(\frac{U_j - U_{pj}}{U_{pj}} \right)^2$$

$$= \frac{1}{2} e_{kp} E_{pk} \sum_{j \neq kp} E_j U_{pj} \left(\frac{U_j - U_p}{U_p} \right)^2 / E_{pk}$$

or on a per-energy-unit basis

$$(E) \quad DWLU_{FLATkp} = \frac{1}{2} e_{kp} \sum_{j \neq kp} E_j U_{pj} \left(\frac{U_j - U_p}{U_p} \right)^2 / E_{pk}$$

Cost to the Economy of Lack of Time-Differentiated Priced Signals

An additional source of economic inefficiency and deadweight loss results from not offering customers time-dependent price signals. Even if the flat unit price charged is correct on average over the year, there are times when this flat price is higher than the true cost of supply and times when it is lower. If consumers saw this price difference, rather than always facing the same flat price, they would tend to shift some load from higher to lower cost periods. That is, they would cross-substitute consumption during low cost periods for consumption during high cost periods.

Benefits of time-dependent pricing include load shifting and associated effects on capacity requirements, network congestion, transmission and distribution investments, reserve margins, and load factors. If markets are functioning well, so that market prices are a meaningful reflection of all the components of supply costs, the load shifting benefits for generation capacity, congestion, transmission and distribution sizing, reserves, and load factors should in principle be reflected in the hourly market prices of the commodity. This view is somewhat of a simplification, inasmuch as some of these benefits will be seen in the markets for ancillary services, not simply in the wholesale energy market. However, wholesale energy prices do substantially reflect these other costs as well.

Thus, the cost of economic inefficiency due to lack of time-dependent pricing can be quantified in terms of a similar deadweight loss analysis. In this case, the deadweight loss depends on the difference between the wholesale cost of energy in each interval and the flat annual average cost. In principle, deadweight loss could be calculated for each quarter-hour interval in terms of the difference between the true interval price and the assigned flat price. Such an analysis would need to consider the interval elasticities of the demand response, as well as the potential for load shifting between intervals rather than simple increases and decreases in overall consumption level. Apart from the complexity of the analysis, it would be essentially impossible to obtain meaning cross-period elasticities on a quarter-hourly interval basis.

Instead, we consider the primary benefit of time-dependent pricing, namely differentiating on- and off-peak consumption. The deadweight loss related to giving customers flat prices instead of separate on- and off-peak prices captures the economic value of load shifting. If the interval market prices appropriately incorporate transmission, capacity, and congestion costs, the corresponding

deadweight loss calculation appropriately captures the economic benefit related to these factors.

To first order, the deadweight loss due to lack of TOU pricing can be calculated by treating on- and off-peak consumption as two separate commodities, and applying the deadweight loss formula above (Equation F).

$$(F) \quad DWLU_{TOUpk} = 1/2 e_{xpk} U_{pk} [f_{pkon} r_{pkon}^2 + f_{pkoff} r_{pkoff}^2]$$

where

$DWLU_{TOUpk}$ = unit deadweight loss (\$/MWh) due to lack of TOU price signals, for demand level k , profile p

e_{xpk} = cross-price elasticity of on-/off-peak consumption for demand level k , profile p

U_{pk} = load weighted average annual price for ESIIDs in demand level k , profile p

U_{pkon} = load weighted average price during on-peak periods only

U_{pkoff} = load weighted average price during off-peak periods only

f_{pkon} = fraction of energy during on peak periods only

f_{pkoff} = fraction of energy during off peak periods only
 $= 1 - f_{pkon}$

r_{pkon} = relative difference between on-peak and annual average price
 $= (U_{pkon} - U_{pk})/U_{pk}$

r_{pkoff} = relative difference between off-peak and annual average price
 $= (U_{pkoff} - U_{pk})/U_{pk}$

In principle, we could consider separate average on-peak, off-peak, and annual prices for each ESIID j . As a simplification, we use the prices for the demand-profile bin kp as a whole.

This unit deadweight loss applies only to ESIIDs that are not already on TOU profiles.

Overall Economic Costs

The two components of deadweight loss can be combined to give a total deadweight loss related to lack of interval metering. Lowering the interval metering threshold eliminates this source of economic cost from the group of ESIIDs that would move from nonIDR to IDR as a result of the lowered threshold. Conversely, increasing the threshold would increase this societal cost.

This societal benefit or cost related to the change in economic efficiency of the retail electric market can then be compared with the associated increase or decrease in metering costs. While rules vary among TDSPs as to how these metering costs are paid for, the economic efficiency analysis does not depend on how these costs are assigned. If metering is viewed as a means to provide appropriate price signals, the question is whether the value to the economy of

improving those price signals outweighs the cost to the economy of installing additional metering.

It must be recognized that advanced metering can provide benefits beyond improved price signals. These benefits include the potential for automated meter reading, as well as two-way communications. A more complete analysis would consider the value of these additional benefits.

APPENDIX B

PRICE ELASTICITY ASSUMPTIONS FOR DEAD WEIGHT LOSS CALCULATIONS

King (2003) reported bundled price elasticities as shown in the following table.

Bundled price elasticities

Customer Type	Own-price Elasticity		Elasticity of Substitution
	Short Run	Long Run	
All	0.175	0.407	0.150
Commercial	0.129	0.250	0.072
Industrial	0.068	0.157	0.053
Residential	0.260	0.605	0.145

For ERCOT's analysis, we are unable to identify ESI IDs by customer type, commercial or business; as a result, an average non-residential elasticity is computed by averaging the commercial and industrial long run elasticities reported above. Thus the resulting bundled price elasticity is estimated to be 0.204.

As indicated, the elasticities reported above are based on analysis of response to bundled prices; the non-TDSP component, which is the only component subject to ERCOT settlement, was assumed to represent 60% of the bundled price. Thus the elasticity estimate used for the Dead Weight Loss calculation, was $0.60 \times 0.204 = 0.122$.

APPENDIX C

**TABLES FOR THE IMPACT OF ESTABLISHING A DEMAND THRESHOLD BELOW WHICH
IDRS COULD VOLUNTARILY BE REMOVED ANALYSIS**

IDR Winners + Losers - Summary by Profile Type
All IDRs 0 kW to 1,000 kW

Profile Type	Demand Level (kW)	Counts	Total kWh	SETTLEMENT COST (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWh	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost (\$) Per IDR
BUSHILF	0 - 50	40	4,484,879	\$153,241	\$-1,826	-1.2%	\$-46	\$5	\$0.001136	\$0.13	\$2,755	1.8%	\$69	734,308	\$24,680	16.1%	\$617
	50 - 100	32	12,246,603	\$428,547	\$-5,964	-1.4%	\$-186	\$10	\$0.000821	\$0.31	\$6,291	1.6%	\$197	1,954,282	\$67,501	15.8%	\$2,109
	100 - 150	56	36,010,523	\$1,245,216	\$-4,722	-0.4%	\$-84	\$42	\$0.001172	\$0.75	\$20,396	1.5%	\$364	5,644,404	\$195,810	15.7%	\$3,497
	150 - 200	42	38,823,334	\$1,343,924	\$-4,440	-0.3%	\$-106	\$23	\$0.000600	\$0.55	\$16,812	1.2%	\$396	5,320,525	\$182,588	13.6%	\$4,347
	200 - 250	48	60,163,205	\$2,067,699	\$-7,207	-0.3%	\$-150	\$65	\$0.001084	\$1.36	\$30,913	1.5%	\$658	6,177,456	\$206,621	13.9%	\$5,971
	250 - 300	56	85,084,301	\$2,925,773	\$-4,693	-0.2%	\$-84	\$43	\$0.000503	\$0.76	\$35,435	1.2%	\$633	10,381,131	\$357,428	12.2%	\$6,303
	300 - 350	79	138,647,053	\$4,785,183	\$-16,272	-0.3%	\$-206	\$181	\$0.001306	\$2.27	\$56,833	1.2%	\$719	17,637,835	\$611,764	12.8%	\$7,744
	350 - 400	66	138,195,456	\$4,792,791	\$-21,191	-0.4%	\$-321	\$62	\$0.000450	\$0.94	\$57,106	1.2%	\$865	14,917,424	\$524,024	10.9%	\$7,940
	400 - 450	93	232,740,396	\$8,024,480	\$-15,788	-0.2%	\$-170	\$84	\$0.000590	\$0.90	\$81,090	1.0%	\$872	21,534,916	\$756,457	10.8%	\$8,134
	450 - 500	85	232,992,662	\$8,040,028	\$-20,090	-0.2%	\$-236	\$208	\$0.000891	\$2.44	\$98,560	1.2%	\$1,160	23,278,662	\$811,616	10.1%	\$9,548
	500 - 550	89	270,765,971	\$9,367,911	\$1	0.0%	\$0	\$1	\$0.000611	\$1.58	\$108,061	1.2%	\$1,214	29,627,599	\$1,032,179	11.0%	\$11,598
	550 - 600	109	347,681,038	\$11,903,182	\$-13,155	-0.1%	\$-121	\$237	\$0.000683	\$2.18	\$143,315	1.2%	\$1,315	38,222,024	\$1,335,070	11.2%	\$12,248
	600 - 650	123	439,444,781	\$15,072,480	\$39,692	0.3%	\$323	\$281	\$0.000939	\$2.26	\$191,584	1.3%	\$1,558	46,768,306	\$1,590,653	10.6%	\$12,963
	650 - 700	110	409,005,368	\$14,064,091	\$76,151	0.5%	\$692	\$271	\$0.000708	\$2.78	\$193,102	1.2%	\$1,755	49,305,330	\$1,673,227	11.9%	\$15,211
	700 - 750	93	374,350,537	\$12,884,396	\$13,572	0.1%	\$141	\$375	\$0.001002	\$4.03	\$164,818	1.3%	\$1,772	43,320,804	\$1,493,673	11.6%	\$16,061
	750 - 800	78	338,665,989	\$11,677,069	\$-11,420	-0.1%	\$-146	\$330	\$0.000975	\$4.23	\$171,555	1.5%	\$2,199	44,814,757	\$1,563,105	13.4%	\$20,040
	800 - 850	40	173,569,842	\$6,009,558	\$35,006	0.6%	\$375	\$121	\$0.000899	\$3.03	\$84,707	1.4%	\$2,118	21,906,398	\$760,144	12.6%	\$19,004
	850 - 900	24	118,065,560	\$4,125,083	\$-5,408	-0.1%	\$-226	\$60	\$0.000475	\$2.34	\$48,752	1.2%	\$2,031	13,494,107	\$469,994	11.4%	\$19,583
	900 - 950	7	34,105,102	\$1,187,421	\$-10,174	-0.9%	\$-1,453	\$47	\$0.001376	\$1.93	\$17,993	1.5%	\$2,570	4,757,367	\$172,878	14.6%	\$24,697
	950 - 1000	8	37,024,106	\$1,294,671	\$2,515	0.2%	\$314	\$18	\$0.000495	\$2.29	\$15,270	1.3%	\$1,909	3,769,909	\$136,556	10.6%	\$17,069
TOTAL	1278	3,522,066,507	\$121,992,725	\$24,164	0.0%	\$19	\$2,645	\$0.000781	\$2.07	\$1,544,846	1.2%	\$1,209	405,461,546	\$14,052,166	11.6%	\$10,995	

BUSMEDLF	0 - 50	68	5,187,428	\$228,053	\$-1,805	-0.8%	\$-27	\$2,106	\$0.005984	\$30.97	\$6,195	2.7%	\$91	1,693,207	\$61,465	27.0%	\$904
	50 - 100	78	17,138,018	\$648,409	\$-1,802	-0.3%	\$-23	\$1,071	\$0.062482	\$13.71	\$15,733	2.4%	\$202	4,848,333	\$172,811	26.7%	\$2,216
	100 - 150	91	35,461,603	\$1,303,579	\$-10,520	-0.8%	\$-116	\$1,172	\$0.048488	\$1.89	\$31,448	2.4%	\$346	9,841,201	\$351,418	27.0%	\$3,862
	150 - 200	92	51,241,273	\$1,866,715	\$3,289	0.2%	\$36	\$1,141	\$0.022266	\$1.40	\$61,399	3.3%	\$667	14,524,183	\$518,886	27.8%	\$5,640
	200 - 250	111	61,075,862	\$2,037,940	\$-7,346	-0.3%	\$-66	\$320	\$0.003959	\$2.89	\$87,205	3.0%	\$786	24,993,621	\$976,692	30.1%	\$7,898
	250 - 300	65	57,315,448	\$2,079,024	\$3,813	0.2%	\$59	\$357	\$0.002222	\$5.49	\$52,960	2.5%	\$815	17,287,620	\$621,978	29.9%	\$9,569
	300 - 350	59	66,169,941	\$2,382,315	\$17,827	0.7%	\$302	\$194	\$0.002935	\$7.23	\$54,144	2.3%	\$918	19,155,112	\$672,034	28.2%	\$11,390
	350 - 400	73	94,559,742	\$3,380,956	\$-10,905	-0.3%	\$-149	\$186	\$0.001970	\$2.55	\$75,085	2.2%	\$1,029	28,666,715	\$988,213	29.2%	\$13,537
	400 - 450	67	92,325,736	\$3,350,873	\$-2,692	-0.1%	\$-40	\$1,634	\$0.017963	\$24.38	\$81,315	2.4%	\$1,214	26,515,265	\$921,827	27.5%	\$13,759
	450 - 500	75	129,749,418	\$4,650,000	\$22,168	0.5%	\$298	\$358	\$0.002762	\$4.78	\$114,563	2.5%	\$1,528	38,459,398	\$1,320,960	28.6%	\$17,725
	500 - 550	109	206,422,843	\$7,377,047	\$55,707	0.8%	\$511	\$1,187	\$0.005749	\$10.89	\$151,531	2.1%	\$1,390	63,375,279	\$2,209,117	29.9%	\$20,267
	550 - 600	88	177,044,110	\$6,359,991	\$77,232	1.2%	\$878	\$911	\$0.005147	\$10.35	\$151,809	2.4%	\$1,725	58,669,598	\$2,042,555	32.1%	\$23,211
	600 - 650	111	259,920,895	\$9,259,954	\$104,051	1.1%	\$937	\$433	\$0.001864	\$3.90	\$203,212	2.2%	\$1,831	88,126,078	\$3,070,009	33.2%	\$27,658
	650 - 700	96	230,741,818	\$8,301,855	\$43,605	0.5%	\$458	\$782	\$0.003900	\$8.23	\$166,250	2.4%	\$2,066	74,901,492	\$2,588,715	31.2%	\$22,250
	700 - 750	68	176,729,101	\$6,402,058	\$45,934	0.7%	\$519	\$676	\$0.002934	\$7.93	\$164,087	2.6%	\$2,413	55,985,695	\$1,963,852	30.7%	\$28,880
	750 - 800	68	179,142,581	\$6,463,412	\$80,808	1.3%	\$1,188	\$414	\$0.002310	\$6.09	\$166,011	2.7%	\$2,441	60,454,755	\$2,147,389	33.2%	\$31,579
	800 - 850	47	133,885,019	\$4,890,486	\$72,713	1.5%	\$1,547	\$298	\$0.002228	\$6.35	\$115,755	2.4%	\$2,463	43,400,968	\$1,516,149	31.0%	\$32,237
	850 - 900	30	87,783,112	\$3,170,147	\$42,626	1.3%	\$1,414	\$178	\$0.002025	\$5.93	\$70,499	2.5%	\$2,674	26,698,621	\$954,048	30.1%	\$31,802
	900 - 950	18	47,345,754	\$1,869,225	\$6,267	0.3%	\$348	\$916	\$0.019344	\$50.88	\$50,938	2.7%	\$2,830	14,198,928	\$524,983	28.1%	\$29,166
	950 - 1000	9	27,804,463	\$1,001,811	\$326	0.0%	\$36	\$22	\$0.000794	\$2.45	\$15,507	1.5%	\$1,723	6,648,155	\$305,465	30.5%	\$33,941
TOTAL	1422	2,157,044,186	\$77,900,447	\$540,996	0.7%	\$380	\$13,198	\$0.006119	\$9.28	\$1,875,373	2.4%	\$1,319	680,344,111	\$23,835,963	30.6%	\$16,762	

BUSLOLF	0 - 50	81	2,661,632	\$101,487	\$-4,919	-4.8%	\$-61	\$31	\$0.011472	\$0.38	\$5,465	5.4%	\$87	1,613,400	\$58,564	57.0%	\$723
	50 - 100	88	11,054,828	\$465,797	\$-14,947	-3.7%	\$-170	\$91	\$0.006251	\$1.04	\$18,713	4.6%	\$213	5,779,539	\$206,967	51.0%	\$2,352
	100 - 150	84	17,729,843	\$661,493	\$-15,696	-2.4%	\$-187	\$115	\$0.006478	\$1.37	\$26,918	4.1%	\$320	8,736,542	\$321,353	48.6%	\$3,826
	150 - 200	68	21,037,244	\$765,861	\$-11,030	-1.4%	\$-162	\$88	\$0.004178	\$1.09	\$25,734	3.5%	\$378	10,055,188	\$357,281	46.7%	\$5,254
	200 - 250	78	32,459,337	\$1,205,325	\$-22,178	-1.8%	\$-284	\$441	\$0.013580	\$5.65	\$47,620	4.0%	\$611	16,486,593	\$597,215	49.5%	\$7,657
	250 - 300	76	37,650,279	\$1,385,064	\$-27,073	-2.0%	\$-354	\$493	\$0.007350	\$8.60	\$69,342	3.6%	\$849	20,937,965	\$767,644	44.6%	\$9,127
	300 - 350	88	50,597,631	\$1,844,329	\$-40,859	-2.2%	\$-464	\$374	\$0.007389	\$4.25	\$69,701	3.8%	\$792	21,130,210	\$761,160	41.3%	\$8,650
	350 - 400	75	52,108,814	\$1,928,815	\$-39,083	-2.0%	\$-521	\$257	\$0.004930	\$3.42	\$66,322	3.4%	\$884	25,427,224	\$913,110	47.4%	\$12,175
	400 - 450	68	54,508,193	\$2,029,310	\$-27,465	-1.4%	\$-404	\$258	\$0.004733	\$3.79	\$71,071	3.5%	\$1,045	22,375,998	\$810,929	40.0%	\$11,925
	450 - 500	58	51,680,173	\$1,896,697	\$-41,350	-2.2%	\$-513	\$176	\$0.003996	\$3.03	\$57,376	3.0%	\$689	24,777,402	\$973,576	46.1%	\$15,062
	500 - 550	45	47,493,217	\$1,765,546	\$-54,658	-3.1%	\$-715	\$350	\$0.007362	\$7.77	\$70,145	4.0%	\$1,559	23,305,629	\$830,519	47.0%	\$18,456
	550 - 600	50	57,762,896	\$2,140,659	\$-64,466	-3.0%	\$-819	\$319	\$0.005225	\$6.38	\$77,091	3.6%	\$1,542	26,817,916	\$948,093	44.3%	\$18,962
	600 - 650	42	53,103,573	\$1,963,992	\$-60,766	-3.1%	\$-747	\$425	\$0.007996	\$10.11	\$88,953	4.4%	\$2,068	28,391,289	\$1,014,814	51.7%	\$24,162
	650 - 700	44	57,975,622	\$2,145,956	\$-33,342	-1.6%	\$-459	\$227	\$0.003916	\$5.16	\$64,694	3.0%	\$1,470	27,049,755	\$983,713	44.9%	\$21,903
	700 - 750	38	49,753,507	\$1,836,468	\$-45,062	-2.5%	\$-512	\$312	\$0.006270	\$8.21	\$61,409	3.9%	\$1,616	23,496,147	\$831,109	45.3%	\$21,871
	750 - 800	26	42,109,183	\$1,566,697	\$-2												

I DR Winners + Losers - Cumulative Summary by Profile Type

All IDRs 0 kW to 1,000 kW

Profile Type	Demand Level (kW)	Counts	Total kWh	SETTLEMENT COST (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWh	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost (\$) Per IDR
BUSHILF	0 - 50	40	4,484,679	\$153,241	\$-1,826	-1.2%	-\$46	\$5	\$0.001136	\$0.13	\$2,755	1.8%	\$69	734,308	\$24,680	16.1%	\$617
	50 - 100	72	16,731,282	\$581,789	\$-7,789	-1.3%	-\$108	\$15	\$0.000906	\$0.21	\$9,047	1.6%	\$126	2,688,590	\$92,181	15.8%	\$1,280
	100 - 150	128	52,741,805	\$1,827,005	\$-12,511	-0.7%	-\$98	\$57	\$0.001088	\$0.45	\$29,442	1.6%	\$230	8,332,994	\$287,990	15.8%	\$2,250
	150 - 200	170	91,955,140	\$3,170,929	\$-16,951	-0.5%	-\$100	\$61	\$0.000881	\$0.47	\$46,054	1.5%	\$271	13,653,519	\$470,578	14.8%	\$2,788
	200 - 250	218	151,728,345	\$5,258,628	\$-24,157	-0.5%	-\$111	\$146	\$0.000961	\$0.67	\$76,607	1.5%	\$352	21,834,975	\$757,199	14.5%	\$3,473
	250 - 300	274	236,812,646	\$8,164,402	\$-28,850	-0.6%	-\$105	\$189	\$0.000797	\$0.49	\$112,102	1.4%	\$409	32,206,106	\$1,114,627	13.7%	\$4,068
	300 - 350	353	375,459,698	\$12,940,585	\$-45,123	-0.3%	-\$128	\$370	\$0.000985	\$1.03	\$188,935	1.3%	\$479	49,843,940	\$1,726,392	13.3%	\$4,891
	350 - 400	419	513,655,154	\$17,742,376	\$-66,314	-0.4%	-\$158	\$432	\$0.000841	\$1.05	\$226,041	1.3%	\$539	64,761,364	\$2,250,415	12.7%	\$5,371
	400 - 450	512	746,395,551	\$25,766,855	\$-82,092	-0.3%	-\$160	\$516	\$0.000757	\$1.01	\$307,130	1.2%	\$600	85,296,291	\$3,005,872	11.5%	\$5,873
	450 - 500	597	979,388,213	\$33,806,883	\$-102,173	-0.3%	-\$171	\$723	\$0.000738	\$1.21	\$405,691	1.2%	\$680	109,574,943	\$3,818,468	11.3%	\$6,396
	500 - 550	686	1,250,154,184	\$43,174,794	\$-102,171	-0.2%	-\$149	\$881	\$0.000705	\$1.28	\$513,751	1.2%	\$749	139,202,542	\$4,850,667	11.2%	\$7,071
	550 - 600	795	1,587,835,222	\$55,077,976	\$-115,327	-0.2%	-\$145	\$1,119	\$0.000700	\$1.41	\$657,066	1.2%	\$826	174,424,966	\$6,185,736	11.2%	\$7,781
	600 - 650	918	2,037,280,033	\$70,150,437	\$-75,644	-0.1%	-\$82	\$1,399	\$0.000687	\$1.52	\$948,651	1.2%	\$924	224,192,872	\$7,762,589	11.1%	\$8,478
	650 - 700	1028	2,446,285,371	\$84,214,527	\$506	0.0%	\$0	\$1,698	\$0.000694	\$1.65	\$1,041,753	1.2%	\$1,013	273,498,202	\$9,455,816	11.2%	\$9,198
	700 - 750	1121	2,820,635,908	\$97,098,923	\$13,663	0.0%	\$12	\$2,073	\$0.000735	\$1.85	\$1,206,570	1.2%	\$1,076	316,819,006	\$10,949,489	11.3%	\$9,768
	750 - 800	1199	3,159,301,897	\$108,775,992	\$2,243	0.0%	\$2	\$2,403	\$0.000761	\$2.00	\$1,378,125	1.3%	\$1,149	361,633,763	\$12,512,594	11.8%	\$10,436
	800 - 850	1239	3,352,871,739	\$114,785,550	\$37,249	0.0%	\$3	\$2,524	\$0.000757	\$2.04	\$1,462,832	1.3%	\$1,161	383,440,161	\$13,272,736	11.6%	\$10,712
850 - 900	1263	3,450,937,299	\$118,910,833	\$31,823	0.0%	\$25	\$2,580	\$0.000748	\$2.04	\$1,511,583	1.3%	\$1,197	396,934,269	\$13,742,732	11.6%	\$10,881	
900 - 950	1270	3,485,042,401	\$120,098,055	\$21,649	0.0%	\$17	\$2,627	\$0.000754	\$2.07	\$1,529,576	1.3%	\$1,204	401,691,636	\$13,915,610	11.6%	\$10,957	
950 - 1000	1278	3,522,066,507	\$121,392,725	\$24,164	0.0%	\$19	\$2,645	\$0.000751	\$2.07	\$1,544,846	1.3%	\$1,209	405,461,546	\$14,052,166	11.6%	\$10,995	

BUSMEDLF	0 - 50	68	5,187,428	\$228,053	\$-1,805	-0.8%	-\$27	\$2,106	\$0.005994	\$30.97	\$0,195	2.7%	\$91	1,693,207	\$61,465	27.0%	\$904
	50 - 100	146	22,325,446	\$876,461	\$-3,607	-0.4%	-\$25	\$3,177	\$0.012298	\$12.93	\$2,931	2.5%	\$150	6,541,540	\$234,276	26.7%	\$1,605
	100 - 150	237	57,787,049	\$2,180,040	\$-14,127	-0.6%	-\$60	\$3,349	\$0.057951	\$14.13	\$53,379	2.4%	\$225	16,382,742	\$585,694	26.9%	\$2,471
	150 - 200	329	109,028,322	\$4,046,755	\$-10,838	-0.3%	-\$33	\$4,490	\$0.041179	\$13.65	\$114,778	2.8%	\$349	30,909,924	\$1,104,590	27.3%	\$3,357
	200 - 250	440	190,104,204	\$6,554,695	\$-18,184	-0.3%	-\$41	\$4,810	\$0.023302	\$10.93	\$201,964	2.9%	\$459	55,905,545	\$1,961,271	28.5%	\$4,503
	250 - 300	505	247,419,651	\$9,033,737	\$-14,371	-0.2%	-\$28	\$5,167	\$0.020882	\$10.23	\$254,944	2.8%	\$505	73,188,165	\$2,603,249	28.8%	\$5,155
	300 - 350	564	313,589,592	\$11,416,052	\$3,456	0.0%	\$6	\$5,361	\$0.017095	\$9.51	\$309,088	2.7%	\$548	92,343,278	\$3,275,283	28.7%	\$5,807
	350 - 400	637	408,149,334	\$14,797,008	\$-7,449	-0.1%	-\$12	\$5,547	\$0.013591	\$8.71	\$384,173	2.6%	\$603	121,009,992	\$4,263,495	28.8%	\$6,693
	400 - 450	704	500,475,072	\$18,153,880	\$-10,141	-0.1%	-\$14	\$6,048	\$0.014348	\$10.20	\$465,488	2.6%	\$661	147,525,258	\$5,185,322	28.6%	\$7,366
	450 - 500	779	630,224,490	\$22,804,481	\$12,027	0.1%	\$15	\$7,539	\$0.011983	\$9.68	\$518,622	2.5%	\$745	185,894,944	\$6,514,662	28.6%	\$8,363
	500 - 550	888	836,647,333	\$30,181,527	\$67,734	0.2%	\$76	\$8,726	\$0.010429	\$9.83	\$731,582	2.4%	\$824	249,359,923	\$8,723,799	28.9%	\$9,824
	550 - 600	976	1,013,691,443	\$36,541,518	\$144,966	0.4%	\$279	\$9,637	\$0.009507	\$9.83	\$883,391	2.4%	\$905	308,029,522	\$10,766,353	29.5%	\$11,031
	600 - 650	1087	1,273,512,338	\$45,801,472	\$249,017	0.5%	\$229	\$10,070	\$0.007906	\$9.26	\$1,086,603	2.4%	\$1,000	396,195,500	\$13,836,363	30.2%	\$12,729
	650 - 700	1162	1,504,354,156	\$54,103,327	\$292,922	0.5%	\$247	\$10,852	\$0.007214	\$9.18	\$1,283,853	2.4%	\$1,085	471,057,092	\$16,425,077	30.4%	\$13,896
	700 - 750	1250	1,681,083,257	\$60,505,385	\$338,456	0.6%	\$271	\$11,370	\$0.006764	\$8.94	\$1,446,940	2.4%	\$1,158	527,042,786	\$18,388,929	30.4%	\$14,711
	750 - 800	1318	1,860,225,838	\$66,968,797	\$419,284	0.6%	\$318	\$11,784	\$0.006335	\$8.85	\$1,612,951	2.4%	\$1,224	587,497,541	\$20,536,318	30.7%	\$15,581
	800 - 850	1365	1,994,110,858	\$71,859,263	\$491,977	0.7%	\$360	\$12,082	\$0.006059	\$8.94	\$1,728,707	2.4%	\$1,266	630,898,507	\$22,051,467	30.7%	\$16,155
850 - 900	1395	2,081,893,969	\$76,029,410	\$524,403	0.7%	\$383	\$12,260	\$0.005889	\$8.79	\$1,808,928	2.4%	\$1,297	657,497,928	\$23,005,515	30.7%	\$16,491	
900 - 950	1413	2,129,239,723	\$76,898,636	\$540,670	0.7%	\$383	\$13,176	\$0.006188	\$9.32	\$1,859,866	2.4%	\$1,316	671,695,956	\$23,530,498	30.6%	\$16,653	
950 - 1000	1422	2,157,044,186	\$77,900,447	\$540,996	0.7%	\$380	\$13,198	\$0.006119	\$9.28	\$1,875,373	2.4%	\$1,319	680,344,111	\$23,835,963	30.6%	\$16,762	

BUSLOLF	0 - 50	81	2,687,632	\$101,487	\$-4,919	-4.8%	-\$61	\$31	\$0.011472	\$0.38	\$5,465	5.4%	\$97	1,613,420	\$58,594	57.7%	\$723
	50 - 100	169	13,722,461	\$607,283	\$-19,866	-3.9%	-\$118	\$122	\$0.008877	\$0.72	\$24,178	4.8%	\$143	7,387,859	\$265,561	52.3%	\$1,571
	100 - 150	253	31,452,303	\$1,168,777	\$-35,562	-3.0%	-\$141	\$237	\$0.007525	\$0.94	\$51,096	4.4%	\$202	16,124,500	\$586,914	50.2%	\$2,320
	150 - 200	321	52,489,547	\$1,934,637	\$-46,592	-2.4%	-\$145	\$325	\$0.006183	\$1.01	\$76,830	4.0%	\$239	26,179,688	\$944,194	48.8%	\$2,941
	200 - 250	399	84,948,564	\$3,139,962	\$-68,770	-2.2%	-\$172	\$465	\$0.005910	\$1.12	\$124,450	4.0%	\$312	42,066,281	\$1,541,409	49.1%	\$3,863
	250 - 300	475	122,598,863	\$4,525,027	\$-86,443	-2.1%	-\$203	\$519	\$0.011574	\$2.99	\$173,701	3.9%	\$366	65,924,252	\$2,159,054	47.7%	\$4,545
	300 - 350	563	173,196,494	\$6,369,355	\$-137,303	-2.2%	-\$244	\$1,793	\$0.010351	\$3.18	\$243,492	3.8%	\$432	81,054,444	\$2,920,214	45.8%	\$5,187
	350 - 400	638	225,305,308	\$8,206,170	\$-176,386	-2.1%	-\$276	\$2,050	\$0.009097	\$3.21	\$309,814	3.7%	\$486	106,481,688	\$3,833,324	46.2%	\$6,008
	400 - 450	706	279,813,301	\$10,326,480	\$-203,851	-2.0%	-\$289	\$2,308	\$0.008247	\$3.27	\$380,885	3.7%	\$539	128,857,666	\$4,644,253	45.0%	\$6,578
	450 - 500	764	331,493,674	\$12,222,987	\$-245,201	-2.0%	-\$321	\$2,483	\$0.007491	\$3.25	\$438,260	3.6%	\$574	153,626,988	\$5,517,829	45.1%	\$7,222
	500 - 550	809	378,986,891	\$13,987,632	\$-299,859	-2.1%	-\$371	\$2,833	\$0.007475	\$3.50	\$508,406	3.6%	\$628	176,940,697	\$6,348,348	45.4%	\$7,847
	550 - 600	859	436,749,787	\$16,128,291	\$-364,225	-2.3%	-\$424	\$3,152	\$0.007217	\$3.67	\$585,496	3.6%	\$682	203,758,613	\$7,296,441	45.2%	\$8,494
	600 - 650	901	489,853,360	\$18,092,283	\$-425,091	-2.3%	-\$472	\$3,577	\$0.007301	\$3.97	\$672,350	3.6%	\$746	232,149,901	\$8,311,255	45.9%	\$9,224
	650 - 700	945	547,828,981	\$20,238,279	\$-459,433	-2.3%	-\$485	\$3,804	\$0.006943	\$4.02	\$737,044	3.6%	\$780	259,199,656	\$9,274,968	45.8%	\$9,915
	700 - 750	983	597,582,488	\$22,074,747	\$-503,495	-2.3%	-\$512	\$4,116	\$0.006887	\$4.19	\$798,453	3.6%	\$812	282,695,804	\$10,106,078	45.8%	\$10,281
	750 - 800	1009	639,691,671	\$23,641,444	\$-529,887	-2.4%	-\$525	\$4,196	\$0.006559	\$4.16	\$828,958	3.5%	\$822	301,190,672	\$10,758,993	45.5%	\$10,663
	800 - 850	1027	661,213,630	\$24,448,275	\$-533,946	-2.2%	-\$520	\$4,242	\$0.006416	\$4.13	\$845,663	3.5%	\$823	313,669,413	\$11,197,462	45.8%	\$10,903
850 - 900	1034	673,080,789	\$24,979,189	\$-541,558	-2.2%	-\$524	\$4,293	\$0.006379	\$4.10	\$859,428	3.5%	\$831	319,116,035	\$11,404,158	45.8%	\$11,029	
900 - 950	1039	683,380,404	\$25,268,541	\$-539,718	-2.1%	-\$519	\$4,301	\$0.006293	\$4.14	\$864,814	3.4%	\$832	323,917,011	\$11,556,897	45.7%	\$11,123	
950 - 1000	1052	698,996,677	\$25,817,614	\$-551,724	-2.1%	-\$524	\$4,356	\$0.006232	\$4.14	\$882,671	3.4%	\$839	332,401,699	\$11,840,362	45.9%	\$11,255	

Profile Type	Demand Level (kW)	Counts	Total kWh	SETTLEMENT COST (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWh	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost (\$) Per IDR
COMBINED	0																

IDR Winners - Summary by Profile Type
All IDRs 0 kW to 1,000 kW

Profile Type	Demand Level (kW)	Counts	Total kWh	SETTLEMENT COST (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost (\$) Per IDR
BUSHILF	0 - 50	7	974,223	\$32,746	\$465	1.4%	\$66	\$1	\$0.000760	\$0.11	\$465	1.4%	\$66	140,481	\$4,982	15.2%	\$712
	50 - 100	6	2,086,597	\$73,736	\$164	0.2%	\$27	\$0	\$0.000014	\$0.00	\$164	0.2%	\$27	266,361	\$10,134	13.7%	\$1,689
	100 - 150	24	13,695,368	\$464,485	\$7,837	1.7%	\$327	\$10	\$0.000736	\$0.42	\$7,837	1.7%	\$327	2,308,598	\$97,607	17.1%	\$3,317
	150 - 200	17	14,380,345	\$491,496	\$6,086	1.2%	\$358	\$7	\$0.000478	\$0.40	\$6,086	1.2%	\$358	2,032,794	\$71,755	14.6%	\$4,221
	200 - 250	15	16,821,596	\$563,439	\$11,703	2.1%	\$780	\$21	\$0.001240	\$1.40	\$1,703	2.1%	\$780	3,397,454	\$118,514	21.0%	\$7,901
	250 - 300	25	33,512,212	\$1,145,932	\$15,371	1.3%	\$615	\$21	\$0.000634	\$0.85	\$15,371	1.3%	\$615	4,511,589	\$158,029	13.8%	\$6,221
	300 - 350	27	43,867,943	\$1,522,734	\$20,280	1.3%	\$751	\$29	\$0.000671	\$1.09	\$20,280	1.3%	\$751	7,055,534	\$241,970	15.9%	\$8,962
	350 - 400	23	43,101,809	\$1,488,009	\$17,957	1.2%	\$781	\$20	\$0.000475	\$0.89	\$17,957	1.2%	\$781	5,304,645	\$188,007	12.6%	\$8,174
	400 - 450	35	86,433,191	\$2,992,910	\$32,661	1.1%	\$933	\$43	\$0.000876	\$1.24	\$32,661	1.1%	\$933	8,609,930	\$301,750	28.6%	\$8,621
	450 - 500	36	92,413,886	\$3,176,785	\$39,235	1.2%	\$1,090	\$56	\$0.000603	\$1.55	\$39,235	1.2%	\$1,090	11,374,992	\$392,558	12.4%	\$10,904
	500 - 550	45	130,059,115	\$4,502,085	\$54,031	1.2%	\$1,201	\$102	\$0.002781	\$2.26	\$54,031	1.2%	\$1,201	16,362,493	\$568,231	12.6%	\$12,627
	550 - 600	42	122,896,153	\$4,211,836	\$65,080	1.5%	\$1,550	\$114	\$0.000929	\$2.72	\$65,080	1.5%	\$1,550	16,598,055	\$575,307	13.7%	\$13,998
	600 - 650	58	188,800,516	\$6,355,544	\$115,633	1.8%	\$1,994	\$204	\$0.001074	\$3.51	\$115,633	1.8%	\$1,994	23,309,718	\$951,117	14.8%	\$16,399
	650 - 700	63	220,468,630	\$7,542,901	\$134,626	1.8%	\$2,137	\$187	\$0.001135	\$3.97	\$134,626	1.8%	\$2,137	34,310,798	\$1,141,941	15.1%	\$18,126
	700 - 750	44	158,848,815	\$5,471,679	\$88,987	1.6%	\$2,022	\$281	\$0.001769	\$6.39	\$88,987	1.6%	\$2,022	24,732,141	\$842,096	15.4%	\$19,139
	750 - 800	36	142,164,991	\$4,891,054	\$80,067	1.6%	\$2,224	\$128	\$0.000899	\$3.55	\$80,067	1.6%	\$2,224	23,735,610	\$828,447	16.9%	\$22,957
	800 - 850	24	103,314,372	\$3,573,809	\$59,856	1.7%	\$2,494	\$90	\$0.000876	\$3.77	\$59,856	1.7%	\$2,494	14,810,471	\$511,848	14.3%	\$21,327
	850 - 900	10	45,137,698	\$1,568,167	\$21,663	1.4%	\$2,166	\$29	\$0.000653	\$2.95	\$21,663	1.4%	\$2,166	6,449,320	\$222,718	14.2%	\$22,272
	900 - 950	3	15,247,550	\$538,132	\$3,910	0.7%	\$1,303	\$3	\$0.000214	\$1.09	\$3,910	0.7%	\$1,303	1,907,296	\$67,402	12.5%	\$22,467
	950 - 1000	3	12,818,475	\$462,128	\$8,893	1.9%	\$2,964	\$14	\$0.000758	\$4.61	\$8,893	1.9%	\$2,964	1,877,574	\$69,155	15.4%	\$23,052
TOTAL	543	1,487,043,485	\$51,149,867	\$784,505	1.5%	\$1,445	\$1,424	\$0.000958	\$2.62	\$784,505	1.5%	\$1,445	214,065,848	\$7,343,568	14.0%	\$13,524	

BUSMEDLF	0 - 50	25	2,205,088	\$82,795	\$2,195	2.7%	\$88	\$10	\$0.004681	\$0.41	\$2,195	2.7%	\$88	725,409	\$27,077	32.7%	\$1,083
	50 - 100	31	6,745,201	\$248,830	\$6,967	2.8%	\$225	\$19	\$0.002792	\$0.61	\$6,967	2.8%	\$225	2,054,661	\$74,446	29.9%	\$2,401
	100 - 150	32	12,235,560	\$453,708	\$10,464	2.3%	\$327	\$25	\$0.002051	\$0.46	\$10,464	2.3%	\$327	3,445,027	\$124,607	27.5%	\$3,894
	150 - 200	52	27,371,492	\$984,180	\$32,344	3.3%	\$622	\$109	\$0.003978	\$2.09	\$32,344	3.3%	\$622	8,383,769	\$303,079	30.8%	\$5,828
	200 - 250	53	38,736,855	\$1,374,151	\$39,930	2.9%	\$753	\$105	\$0.002714	\$1.95	\$39,930	2.9%	\$753	12,327,579	\$432,156	31.4%	\$8,154
	250 - 300	36	32,862,866	\$1,162,905	\$28,387	2.4%	\$789	\$57	\$0.001753	\$1.58	\$28,387	2.4%	\$789	10,465,340	\$378,581	32.6%	\$10,516
	300 - 350	39	45,179,740	\$1,616,298	\$35,986	2.2%	\$923	\$102	\$0.002257	\$2.61	\$35,986	2.2%	\$923	13,116,522	\$462,176	28.6%	\$11,851
	350 - 400	37	48,229,339	\$1,744,005	\$32,090	1.8%	\$867	\$54	\$0.001125	\$1.47	\$32,090	1.8%	\$867	16,841,788	\$649,834	31.5%	\$14,860
	400 - 450	32	44,316,846	\$1,630,752	\$39,312	2.4%	\$1,228	\$136	\$0.003628	\$4.29	\$39,312	2.4%	\$1,228	13,424,917	\$479,131	28.4%	\$14,973
	450 - 500	41	73,193,390	\$2,616,784	\$68,266	2.6%	\$1,667	\$168	\$0.002296	\$4.10	\$68,266	2.6%	\$1,667	24,740,449	\$846,764	32.4%	\$20,702
	500 - 550	70	134,594,709	\$4,818,648	\$103,619	2.2%	\$1,480	\$210	\$0.001564	\$3.01	\$103,619	2.2%	\$1,480	43,679,133	\$1,531,276	31.8%	\$21,875
	550 - 600	63	129,743,888	\$4,623,809	\$114,521	2.5%	\$1,818	\$282	\$0.002177	\$4.48	\$114,521	2.5%	\$1,818	44,637,674	\$1,548,849	33.5%	\$24,585
	600 - 650	78	181,686,047	\$6,491,899	\$153,632	2.4%	\$1,970	\$328	\$0.001797	\$4.19	\$153,632	2.4%	\$1,970	65,458,545	\$2,285,568	35.2%	\$29,302
	650 - 700	62	154,288,097	\$5,622,698	\$119,878	2.2%	\$1,934	\$311	\$0.002716	\$5.02	\$119,878	2.2%	\$1,934	50,197,400	\$1,741,887	31.5%	\$28,966
	700 - 750	44	115,970,695	\$4,159,110	\$105,011	2.5%	\$2,387	\$219	\$0.001888	\$4.58	\$105,011	2.5%	\$2,387	36,913,286	\$1,330,332	31.5%	\$29,780
	750 - 800	48	126,557,465	\$4,585,816	\$123,409	2.7%	\$2,571	\$319	\$0.002522	\$6.25	\$123,409	2.7%	\$2,571	44,678,358	\$1,548,849	34.9%	\$33,378
	800 - 850	35	100,882,627	\$3,678,626	\$94,234	2.6%	\$2,692	\$220	\$0.002180	\$6.68	\$94,234	2.6%	\$2,692	33,180,092	\$1,164,731	31.7%	\$33,278
	850 - 900	21	62,680,999	\$2,173,791	\$61,323	2.7%	\$2,920	\$135	\$0.002716	\$1.82	\$61,323	2.7%	\$2,920	20,189,062	\$738,111	32.6%	\$35,148
	900 - 950	10	30,324,471	\$1,131,101	\$28,603	2.5%	\$2,860	\$172	\$0.005662	\$1.72	\$28,603	2.5%	\$2,860	9,948,870	\$367,851	32.5%	\$36,785
	950 - 1000	6	19,610,638	\$707,334	\$7,916	1.1%	\$1,319	\$9	\$0.000434	\$1.47	\$7,916	1.1%	\$1,319	6,200,722	\$224,233	31.7%	\$37,372
TOTAL	815	1,386,912,611	\$49,907,149	\$1,208,185	2.4%	\$1,482	\$4,219	\$0.003042	\$5.18	\$49,907,149	2.4%	\$1,482	459,608,605	\$16,194,845	32.4%	\$19,871	

BUSLOLF	0 - 50	13	225,083	\$8,652	\$273	3.2%	\$21	\$2	\$0.007378	\$0.13	\$273	3.2%	\$21	148,909	\$5,516	63.8%	\$424
	50 - 100	18	1,818,610	\$68,970	\$1,883	2.7%	\$105	\$8	\$0.004183	\$0.42	\$1,883	2.7%	\$105	940,709	\$34,845	50.6%	\$1,536
	100 - 150	24	4,994,073	\$190,543	\$5,611	2.9%	\$234	\$17	\$0.003305	\$0.69	\$5,611	2.9%	\$234	2,044,661	\$79,003	41.5%	\$3,292
	150 - 200	26	7,949,940	\$290,125	\$7,352	2.5%	\$283	\$24	\$0.002997	\$0.92	\$7,352	2.5%	\$283	3,413,189	\$123,166	42.5%	\$4,737
	200 - 250	25	10,285,287	\$384,554	\$12,721	3.3%	\$509	\$66	\$0.002871	\$1.04	\$12,721	3.3%	\$509	4,177,624	\$176,788	46.0%	\$7,072
	250 - 300	20	9,019,960	\$338,124	\$10,834	3.2%	\$542	\$42	\$0.004636	\$1.82	\$10,834	3.2%	\$542	3,919,917	\$149,132	44.1%	\$7,457
	300 - 350	19	9,938,050	\$366,603	\$14,421	3.9%	\$759	\$144	\$0.014497	\$7.58	\$14,421	3.9%	\$759	4,558,218	\$170,010	46.4%	\$8,948
	350 - 400	14	8,809,516	\$338,684	\$13,619	4.0%	\$973	\$58	\$0.003872	\$4.14	\$13,619	4.0%	\$973	4,823,982	\$186,387	55.0%	\$13,313
	400 - 450	18	14,032,019	\$511,079	\$21,803	4.1%	\$1,211	\$101	\$0.007164	\$5.58	\$21,803	4.1%	\$1,211	6,417,302	\$243,205	45.8%	\$13,511
	450 - 500	11	9,180,031	\$345,685	\$8,013	2.3%	\$728	\$24	\$0.002663	\$2.22	\$8,013	2.3%	\$728	4,424,191	\$167,848	48.6%	\$15,241
	500 - 550	7	8,185,905	\$305,385	\$7,744	2.5%	\$34	\$4	\$0.004144	\$4.85	\$7,744	2.5%	\$34	3,605,562	\$130,605	42.8%	\$18,658
	550 - 600	10	11,140,610	\$408,278	\$6,313	1.5%	\$631	\$34	\$0.003010	\$3.35	\$6,313	1.5%	\$631	5,426,023	\$191,676	46.9%	\$19,188
	600 - 650	14	13,815,969	\$517,908	\$13,044	2.5%	\$932	\$34	\$0.002432	\$2.40	\$13,044	2.5%	\$932	7,769,300	\$285,160	55.1%	\$20,369
	650 - 700	14	13,195,212	\$671,946	\$15,076	2.3%	\$1,120	\$65	\$0.003557	\$4.62	\$15,076	2.3%	\$1,120	8,438,604	\$296,901	44.2%	\$21,200
	700 - 750	8	8,839,271	\$322,540	\$8,173	2.5%	\$1,022	\$21	\$0.002418	\$2.67	\$8,173	2.5%	\$1,022	4,968,615	\$175,800	54.5%	\$21,975
	750 - 800	6	9,724,004	\$369,413	\$2,077	0.6%	\$346	\$1	\$0.000888	\$0.14	\$2,077	0.6%	\$346	4,765,735	\$188,183	45.5%	\$28,031
	800 - 850	7	10,355,633	\$389,323	\$6,353	1.6%	\$908										

IDR Winners - Cumulative Summary by Profile Type
All IDRs 0 kW to 1,000 kW

Profile Type	Demand Level (kW)	Counts	Total kWh	SETTLEMENT COST (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost (\$) Per IDR
BUSHILF	0 - 50	7	974,223	\$32,746	\$465	1.4%	\$66	\$1	\$0.000760	\$0.11	\$465	1.4%	\$66	140,481	\$4,882	15.2%	\$712
	50 - 100	13	3,060,820	\$106,481	\$629	0.6%	\$48	\$1	\$0.000251	\$0.06	\$629	0.6%	\$48	406,842	\$15,116	14.2%	\$1,163
	100 - 150	37	16,756,188	\$570,966	\$8,466	1.5%	\$229	\$11	\$0.000647	\$0.26	\$8,466	1.5%	\$229	2,715,440	\$94,723	16.6%	\$2,560
	150 - 200	54	31,136,533	\$1,062,463	\$14,552	1.4%	\$269	\$18	\$0.000569	\$0.33	\$14,552	1.4%	\$269	4,748,234	\$166,479	15.7%	\$3,083
	200 - 250	69	47,958,129	\$1,625,902	\$25,255	1.6%	\$381	\$39	\$0.000908	\$0.56	\$25,255	1.6%	\$381	6,145,688	\$204,993	17.5%	\$4,130
	250 - 300	94	81,470,340	\$2,771,294	\$41,626	1.6%	\$443	\$54	\$0.000736	\$0.64	\$41,626	1.5%	\$443	12,677,287	\$443,022	16.0%	\$4,713
	300 - 350	121	125,338,283	\$4,204,027	\$61,906	1.4%	\$512	\$89	\$0.000714	\$0.74	\$61,906	1.4%	\$512	19,172,821	\$684,991	16.0%	\$5,661
	350 - 400	144	168,440,092	\$5,782,036	\$79,863	1.4%	\$555	\$110	\$0.000652	\$0.76	\$79,863	1.4%	\$555	25,017,466	\$872,999	15.1%	\$6,062
	400 - 450	179	254,873,283	\$8,774,948	\$112,524	1.3%	\$629	\$153	\$0.000616	\$0.86	\$112,524	1.3%	\$629	33,627,396	\$1,174,749	14.4%	\$6,663
	450 - 500	215	347,287,169	\$11,951,731	\$151,759	1.3%	\$706	\$209	\$0.000602	\$0.97	\$151,759	1.3%	\$706	45,002,388	\$1,567,307	13.1%	\$7,290
	500 - 550	260	477,346,285	\$16,453,816	\$205,790	1.3%	\$792	\$311	\$0.000561	\$1.19	\$205,790	1.3%	\$792	61,364,880	\$2,135,537	13.0%	\$8,214
	550 - 600	302	600,242,438	\$20,865,653	\$270,870	1.3%	\$897	\$425	\$0.000708	\$1.41	\$270,870	1.3%	\$897	77,932,936	\$2,710,844	13.1%	\$8,976
	600 - 650	360	789,042,954	\$27,101,197	\$366,503	1.4%	\$1,074	\$628	\$0.000796	\$1.75	\$366,503	1.4%	\$1,074	108,242,654	\$3,661,961	13.5%	\$10,172
	650 - 700	423	1,009,511,584	\$34,643,998	\$521,129	1.5%	\$1,232	\$729	\$0.000870	\$2.08	\$521,129	1.5%	\$1,232	140,553,452	\$4,803,902	13.9%	\$11,357
	700 - 750	467	1,168,360,399	\$40,115,677	\$610,117	1.5%	\$1,306	\$810	\$0.000992	\$2.46	\$610,117	1.5%	\$1,306	165,285,593	\$5,645,998	14.1%	\$12,090
	750 - 800	503	1,310,525,390	\$45,007,631	\$690,184	1.5%	\$1,372	\$1,287	\$0.000982	\$2.58	\$690,184	1.5%	\$1,372	189,021,203	\$6,472,446	14.4%	\$12,868
	800 - 850	527	1,413,839,761	\$48,581,440	\$750,040	1.5%	\$1,423	\$1,378	\$0.000976	\$2.61	\$750,040	1.5%	\$1,423	203,831,975	\$6,984,294	14.4%	\$13,253
	850 - 900	537	1,458,977,460	\$50,149,607	\$771,703	1.5%	\$1,437	\$1,407	\$0.000965	\$2.62	\$771,703	1.5%	\$1,437	210,280,977	\$7,207,011	14.4%	\$13,421
900 - 950	540	1,474,225,010	\$50,687,739	\$775,612	1.5%	\$1,436	\$1,411	\$0.000957	\$2.62	\$775,612	1.5%	\$1,436	212,188,273	\$7,274,414	14.4%	\$13,471	
950 - 1000	543	1,487,043,485	\$51,149,867	\$784,505	1.5%	\$1,445	\$1,424	\$0.000958	\$2.62	\$784,505	1.5%	\$1,445	214,065,848	\$7,343,568	14.4%	\$13,524	

BUSMEDLF	0 - 50	25	2,205,088	\$82,795	\$2,195	2.7%	\$88	\$10	\$0.004681	\$0.41	\$2,195	2.7%	\$88	725,409	\$27,077	32.7%	\$1,083
	50 - 100	56	8,950,287	\$331,625	\$9,162	2.8%	\$164	\$29	\$0.003257	\$0.52	\$9,162	2.8%	\$164	2,780,070	\$101,523	30.6%	\$1,813
	100 - 150	88	21,185,847	\$785,333	\$19,626	2.5%	\$223	\$54	\$0.002561	\$0.62	\$19,626	2.5%	\$223	6,225,997	\$226,130	28.8%	\$2,570
	150 - 200	140	48,557,339	\$1,769,514	\$51,970	2.9%	\$371	\$163	\$0.003390	\$1.17	\$51,970	2.9%	\$371	14,608,866	\$529,209	29.9%	\$3,780
	200 - 250	193	87,294,163	\$3,143,865	\$91,600	2.9%	\$476	\$268	\$0.003073	\$1.39	\$91,600	2.9%	\$476	26,336,446	\$961,365	30.6%	\$4,961
	250 - 300	229	119,657,059	\$4,306,569	\$120,286	2.8%	\$525	\$325	\$0.002716	\$1.42	\$120,286	2.8%	\$525	37,401,785	\$1,339,946	31.1%	\$5,851
	300 - 350	268	164,836,799	\$5,922,867	\$156,272	2.6%	\$583	\$427	\$0.002590	\$1.59	\$156,272	2.6%	\$583	50,180,307	\$1,802,122	30.4%	\$6,724
	350 - 400	305	213,066,139	\$7,666,873	\$188,362	2.5%	\$618	\$481	\$0.002259	\$1.58	\$188,362	2.5%	\$618	66,360,095	\$2,351,955	30.7%	\$7,711
	400 - 450	337	257,382,985	\$9,297,026	\$227,074	2.4%	\$676	\$548	\$0.001778	\$1.847	\$227,074	2.4%	\$676	79,765,012	\$2,831,086	30.4%	\$8,401
	450 - 500	378	339,572,375	\$11,914,409	\$296,039	2.5%	\$783	\$628	\$0.001607	\$2.015	\$296,039	2.5%	\$783	104,526,462	\$3,670,862	30.9%	\$9,735
	500 - 550	448	465,167,084	\$16,733,057	\$399,658	2.4%	\$892	\$726	\$0.0014785	\$4.97	\$399,658	2.4%	\$892	148,204,595	\$5,211,127	31.1%	\$11,632
	550 - 600	511	594,910,972	\$21,356,866	\$514,179	2.4%	\$1,006	\$819	\$0.001416	\$5.49	\$514,179	2.4%	\$1,006	192,842,269	\$6,759,975	31.7%	\$13,229
	600 - 650	589	776,587,919	\$27,948,765	\$667,810	2.4%	\$1,134	\$948	\$0.001360	\$6.41	\$667,810	2.4%	\$1,134	258,300,814	\$9,045,544	32.5%	\$15,257
	650 - 700	651	930,885,716	\$33,371,371	\$787,688	2.4%	\$1,210	\$1,018	\$0.001300	\$7.29	\$787,688	2.4%	\$1,210	308,498,214	\$10,787,431	32.3%	\$16,571
	700 - 750	695	1,046,856,412	\$37,530,481	\$892,698	2.4%	\$1,284	\$1,084	\$0.001241	\$8.48	\$892,698	2.4%	\$1,284	345,411,499	\$12,097,763	32.2%	\$17,407
	750 - 800	743	1,173,413,877	\$42,116,297	\$1,016,108	2.4%	\$1,368	\$1,168	\$0.001240	\$9.02	\$1,016,108	2.4%	\$1,368	390,089,858	\$13,699,919	32.5%	\$18,439
	800 - 850	778	1,274,296,504	\$45,734,923	\$1,110,342	2.4%	\$1,427	\$1,247	\$0.001204	\$10.46	\$1,110,342	2.4%	\$1,427	423,269,590	\$14,864,650	32.5%	\$19,106
	850 - 900	799	1,336,977,503	\$48,998,714	\$1,171,666	2.4%	\$1,466	\$1,296	\$0.001207	\$11.46	\$1,171,666	2.4%	\$1,466	443,559,912	\$15,662,761	32.6%	\$19,528
900 - 950	809	1,367,301,973	\$49,199,816	\$1,200,268	2.4%	\$1,484	\$1,314	\$0.001200	\$12.46	\$1,200,268	2.4%	\$1,484	453,407,883	\$15,970,612	32.5%	\$19,741	
950 - 1000	815	1,386,912,611	\$49,907,149	\$1,208,185	2.4%	\$1,482	\$1,319	\$0.001204	\$12.46	\$1,208,185	2.4%	\$1,482	459,608,605	\$16,194,845	32.4%	\$19,871	

BUSLOLF	0 - 50	13	226,083	\$8,652	\$273	3.2%	\$21	\$2	\$0.007378	\$0.13	\$273	3.2%	\$21	148,909	\$5,516	63.8%	\$424
	50 - 100	31	2,043,692	\$77,622	\$2,156	2.8%	\$70	\$9	\$0.004635	\$0.30	\$2,156	2.8%	\$70	1,089,618	\$40,369	82.0%	\$1,302
	100 - 150	55	7,037,765	\$268,165	\$7,767	2.9%	\$141	\$26	\$0.003662	\$0.47	\$7,767	2.9%	\$141	3,134,279	\$119,363	44.5%	\$2,170
	150 - 200	81	14,967,705	\$558,290	\$15,119	2.7%	\$187	\$50	\$0.003310	\$0.61	\$15,119	2.7%	\$187	6,547,469	\$242,530	43.4%	\$2,994
	200 - 250	106	25,272,962	\$942,844	\$27,840	3.0%	\$263	\$316	\$0.012491	\$2.98	\$27,840	3.0%	\$263	11,265,093	\$419,316	44.5%	\$3,956
	250 - 300	128	34,292,853	\$1,290,968	\$38,674	3.0%	\$307	\$47	\$0.010287	\$3.79	\$38,674	3.0%	\$307	15,185,010	\$568,450	44.0%	\$4,512
	300 - 350	145	44,231,002	\$1,647,571	\$53,095	3.2%	\$366	\$496	\$0.011218	\$3.42	\$53,095	3.2%	\$366	19,743,228	\$738,460	44.8%	\$5,093
	350 - 400	159	53,040,518	\$1,986,255	\$66,714	3.4%	\$420	\$614	\$0.010446	\$3.48	\$66,714	3.4%	\$420	24,567,210	\$924,846	46.6%	\$5,817
	400 - 450	177	67,072,537	\$2,517,334	\$88,517	3.5%	\$500	\$655	\$0.009759	\$3.70	\$88,517	3.5%	\$500	30,984,511	\$1,168,052	46.4%	\$6,599
	450 - 500	188	78,252,568	\$2,862,919	\$99,530	3.4%	\$513	\$679	\$0.009605	\$3.61	\$99,530	3.4%	\$513	35,408,702	\$1,335,700	46.7%	\$7,105
	500 - 550	195	84,438,473	\$3,168,303	\$104,273	3.3%	\$535	\$713	\$0.009444	\$3.66	\$104,273	3.3%	\$535	39,014,265	\$1,466,306	46.3%	\$7,520
	550 - 600	205	95,579,083	\$3,576,581	\$110,586	3.1%	\$539	\$746	\$0.009710	\$3.64	\$110,586	3.1%	\$539	44,441,187	\$1,657,982	46.4%	\$8,088
	600 - 650	219	109,395,052	\$4,094,489	\$123,629	3.0%	\$565	\$780	\$0.009131	\$3.56	\$123,629	3.0%	\$565	52,210,488	\$1,943,142	47.5%	\$8,873
	650 - 700	233	127,590,284	\$4,706,438	\$139,306	2.9%	\$568	\$845	\$0.008621	\$3.63	\$139,306	2.9%	\$568	60,649,092	\$2,239,943	47.0%	\$9,613
	700 - 750	241	136,429,535	\$5,088,975	\$147,479	2.9%	\$612	\$866	\$0.008349	\$3.59	\$147,479	2.9%	\$612	65,617,708	\$2,415,743	47.5%	\$10,024
	750 - 800	247	146,153,539	\$5,458,388	\$149,555	2.7%	\$605	\$867	\$0.008932	\$3.51	\$149,555	2.7%	\$605	70,383,443	\$2,583,926	47.3%	\$10,461
	800 - 850	254	156,509,172	\$5,847,711	\$155,909	2.7%	\$614	\$877	\$0.008602	\$3.45	\$155,909	2.7%	\$614	75,165,316	\$2,753,721	47.1%	\$10,841
	850 - 900	258	162,067,087	\$6,051,293	\$158,935												

IDR Losers - Summary by Profile Type
All IDRs 0 kW to 1,000 kW

Profile Type	Demand Level (kW)	Counts	Total kWh	SETTLEMENT COST (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost (\$) Per IDR
BUSHILF	0 - 50	33	3,510,456	\$120,496	-\$2,290	-1.9%	-\$69	\$4	\$0.001240	\$0.13	\$2,290	1.9%	\$69	593,827	\$19,698	16.3%	\$597
	50 - 100	26	10,160,006	\$354,812	-\$6,128	-1.7%	-\$236	\$10	\$0.00987	\$0.39	\$6,128	1.7%	\$236	1,687,921	\$57,367	16.2%	\$2,206
	100 - 150	32	22,315,156	\$780,731	-\$12,559	-1.6%	-\$392	\$32	\$0.001440	\$1.00	\$12,559	1.6%	\$392	3,335,806	\$116,202	14.9%	\$3,631
	150 - 200	25	24,442,899	\$852,428	-\$10,526	-1.2%	-\$421	\$16	\$0.000672	\$0.66	\$10,526	1.2%	\$421	3,287,730	\$110,833	13.0%	\$4,433
	200 - 250	33	43,341,669	\$1,504,260	-\$18,910	-1.3%	-\$573	\$44	\$0.001019	\$1.34	\$18,910	1.3%	\$573	4,773,892	\$168,107	11.2%	\$5,094
	250 - 300	31	51,572,089	\$1,780,381	-\$20,064	-1.1%	-\$647	\$22	\$0.000418	\$0.70	\$20,064	1.1%	\$647	5,869,542	\$199,399	11.2%	\$6,432
	300 - 350	52	94,779,110	\$3,262,449	-\$36,552	-1.1%	-\$703	\$152	\$0.001600	\$2.92	\$36,552	1.1%	\$703	10,582,301	\$369,795	11.3%	\$7,111
	350 - 400	43	95,953,648	\$3,304,782	-\$39,149	-1.2%	-\$910	\$42	\$0.000349	\$0.97	\$39,149	1.2%	\$910	9,612,779	\$336,016	10.2%	\$7,814
	400 - 450	58	140,307,205	\$5,031,569	-\$48,429	-1.0%	-\$835	\$40	\$0.000222	\$0.70	\$48,429	1.0%	\$835	12,924,988	\$454,707	8.7%	\$7,840
	450 - 500	49	140,578,776	\$4,863,243	-\$59,325	-1.2%	-\$1,211	\$152	\$0.001080	\$3.10	\$59,325	1.2%	\$1,211	11,903,670	\$419,058	8.6%	\$8,552
	500 - 550	44	140,706,855	\$4,865,826	-\$54,030	-1.1%	-\$1,228	\$105	\$0.000401	\$1.28	\$54,030	1.1%	\$1,228	13,265,106	\$463,948	9.5%	\$10,544
	550 - 600	67	224,784,885	\$7,691,346	-\$78,235	-1.0%	-\$1,168	\$123	\$0.000548	\$1.84	\$78,235	1.0%	\$1,168	21,653,969	\$759,762	9.9%	\$11,340
	600 - 650	65	250,644,265	\$8,636,316	-\$75,951	-0.9%	-\$1,168	\$77	\$0.000308	\$1.19	\$75,951	0.9%	\$1,168	18,458,988	\$645,736	7.5%	\$9,934
	650 - 700	47	188,536,738	\$6,521,289	-\$58,476	-0.9%	-\$1,244	\$48	\$0.000255	\$1.02	\$58,476	0.9%	\$1,244	14,994,532	\$531,286	8.1%	\$11,304
	700 - 750	49	215,501,722	\$7,412,717	-\$75,830	-1.0%	-\$1,548	\$94	\$0.000437	\$1.92	\$75,830	1.0%	\$1,548	18,588,663	\$651,577	8.8%	\$13,297
	750 - 800	42	196,500,998	\$6,785,115	-\$91,487	-1.3%	-\$2,178	\$202	\$0.001029	\$4.82	\$91,487	1.3%	\$2,178	21,079,147	\$736,658	10.9%	\$17,539
	800 - 850	16	70,255,470	\$2,435,749	-\$24,851	-1.0%	-\$1,553	\$31	\$0.000439	\$1.93	\$24,851	1.0%	\$1,553	6,985,927	\$248,296	10.2%	\$15,518
	850 - 900	14	72,927,861	\$2,556,916	-\$27,089	-1.1%	-\$1,935	\$27	\$0.000365	\$1.90	\$27,089	1.1%	\$1,935	7,044,805	\$247,276	9.7%	\$17,663
	900 - 950	4	18,857,552	\$649,289	-\$14,084	-2.2%	-\$3,521	\$44	\$0.002316	\$10.92	\$14,084	2.2%	\$3,521	2,850,071	\$105,476	16.2%	\$26,369
	950 - 1000	5	24,205,631	\$832,543	-\$6,377	-0.8%	-\$1,275	\$5	\$0.000186	\$0.90	\$6,377	0.8%	\$1,275	1,892,335	\$67,401	8.1%	\$13,480
	TOTAL	735	2,035,023,023	\$70,242,858	-\$760,341	-1.1%	\$1,221	\$1,221	\$0.000660	\$1.66	\$760,341	1.1%	\$1,034	191,395,698	\$6,708,597	9.6%	\$9,127
BUSMEDLF	0 - 50	43	2,982,342	\$145,258	-\$4,000	-2.8%	-\$93	\$2,096	\$0.702717	\$48.74	\$4,000	2.8%	\$93	967,798	\$34,388	23.7%	\$800
	50 - 100	47	10,392,817	\$399,579	-\$8,769	-2.2%	-\$187	\$1,052	\$0.101222	\$2.28	\$8,769	2.2%	\$187	2,793,672	\$98,365	24.6%	\$2,093
	100 - 150	59	23,226,042	\$849,871	-\$20,984	-2.5%	-\$356	\$147	\$0.006322	\$2.49	\$20,984	2.5%	\$356	6,396,174	\$226,810	26.7%	\$3,844
	150 - 200	40	23,869,782	\$882,534	-\$29,055	-3.3%	-\$726	\$1,032	\$0.043237	\$6.80	\$29,055	3.3%	\$726	6,140,414	\$215,807	24.5%	\$5,395
	200 - 250	59	42,339,027	\$1,533,789	-\$47,276	-3.1%	-\$815	\$215	\$0.003082	\$3.71	\$47,276	3.1%	\$815	12,686,041	\$444,536	29.0%	\$7,684
	250 - 300	29	24,952,581	\$916,138	-\$24,574	-2.7%	-\$847	\$300	\$0.012019	\$4.34	\$24,574	2.7%	\$847	6,822,280	\$243,397	26.6%	\$8,393
	300 - 350	20	20,990,201	\$766,016	-\$18,158	-2.4%	-\$908	\$92	\$0.004393	\$1.60	\$18,158	2.4%	\$908	6,038,590	\$209,858	27.4%	\$10,493
	350 - 400	36	46,330,403	\$1,636,951	-\$42,995	-2.6%	-\$1,194	\$132	\$0.002851	\$3.67	\$42,995	2.6%	\$1,194	12,824,926	\$438,379	26.8%	\$12,177
	400 - 450	35	49,008,892	\$1,726,120	-\$42,094	-2.4%	-\$1,200	\$287	\$0.005569	\$7.64	\$42,094	2.4%	\$1,200	13,090,348	\$442,696	25.9%	\$12,648
	450 - 500	34	56,560,029	\$2,033,817	-\$46,197	-2.3%	-\$1,359	\$190	\$0.003366	\$5.60	\$46,197	2.3%	\$1,359	13,718,937	\$480,595	23.6%	\$14,135
	500 - 550	39	71,828,134	\$2,558,398	-\$47,912	-1.9%	-\$1,229	\$976	\$0.013591	\$25.03	\$47,912	1.9%	\$1,229	19,696,146	\$677,841	26.5%	\$17,381
	550 - 600	25	47,300,222	\$1,736,182	-\$37,288	-2.1%	-\$1,492	\$629	\$0.013294	\$26.15	\$37,288	2.1%	\$1,492	14,031,924	\$493,706	28.4%	\$19,748
	600 - 650	33	78,234,248	\$2,768,055	-\$49,590	-1.8%	-\$1,502	\$106	\$0.003522	\$3.21	\$49,590	1.8%	\$1,502	22,667,533	\$784,411	28.3%	\$23,775
	650 - 700	33	76,453,720	\$2,729,249	-\$76,372	-2.7%	-\$2,314	\$471	\$0.006160	\$14.27	\$76,372	2.7%	\$2,314	24,704,092	\$846,828	30.5%	\$25,661
	700 - 750	24	60,758,406	\$2,242,948	-\$2,462	-0.6%	-\$2,462	\$300	\$0.004931	\$12.50	\$2,462	0.6%	\$2,462	19,072,409	\$653,520	29.1%	\$27,230
	750 - 800	20	52,585,116	\$1,877,596	-\$42,602	-2.3%	-\$2,130	\$95	\$0.001800	\$4.73	\$42,602	2.3%	\$2,130	15,776,397	\$545,232	29.0%	\$27,262
	800 - 850	12	33,022,393	\$1,211,840	-\$21,521	-1.8%	-\$1,793	\$76	\$0.002375	\$1.76	\$21,521	1.8%	\$1,793	10,220,374	\$350,419	28.9%	\$29,202
	850 - 900	9	25,102,112	\$896,356	-\$18,898	-2.1%	-\$2,100	\$43	\$0.001696	\$4.73	\$18,898	2.1%	\$2,100	6,409,458	\$215,936	24.8%	\$23,993
	900 - 950	8	17,021,283	\$738,124	-\$22,336	-3.0%	-\$2,792	\$744	\$0.043719	\$93.02	\$22,336	3.0%	\$2,792	4,250,057	\$157,132	21.3%	\$19,642
	950 - 1000	3	8,193,825	\$294,477	-\$7,590	-2.6%	-\$2,530	\$14	\$0.001656	\$4.52	\$7,590	2.6%	\$2,530	2,447,433	\$81,232	27.8%	\$27,077
	TOTAL	607	770,131,874	\$27,993,298	(\$667,189)	-2.4%	-\$1,099	\$8,979	\$0.011659	\$14.79	\$667,189	2.4%	\$1,099	220,735,506	\$7,641,118	27.2%	\$12,588
BUSLOLF	0 - 50	68	2,442,550	\$92,835	-\$5,192	-5.6%	-\$76	\$29	\$0.011850	\$0.43	\$5,192	5.6%	\$76	1,484,511	\$53,078	57.2%	\$781
	50 - 100	70	9,236,218	\$336,827	-\$16,830	-5.0%	-\$240	\$84	\$0.009052	\$1.19	\$16,830	5.0%	\$240	4,833,830	\$172,122	51.1%	\$2,459
	100 - 150	60	12,735,770	\$470,950	-\$21,307	-4.5%	-\$355	\$98	\$0.007723	\$1.64	\$21,307	4.5%	\$355	6,691,880	\$242,350	51.5%	\$4,039
	150 - 200	42	13,087,304	\$475,736	-\$18,382	-3.9%	-\$438	\$64	\$0.004895	\$1.53	\$18,382	3.9%	\$438	6,641,998	\$234,114	49.2%	\$5,574
	200 - 250	53	22,173,750	\$820,720	-\$34,899	-4.3%	-\$658	\$176	\$0.007810	\$3.76	\$34,899	4.3%	\$658	11,789,970	\$420,427	44.8%	\$7,341
	250 - 300	56	28,630,319	\$1,046,940	-\$38,508	-3.7%	-\$688	\$617	\$0.021556	\$11.02	\$38,508	3.7%	\$688	13,338,036	\$468,512	44.8%	\$8,366
	300 - 350	60	40,659,582	\$1,477,725	-\$55,280	-3.3%	-\$901	\$230	\$0.005651	\$3.73	\$55,280	3.3%	\$901	16,571,992	\$591,150	40.0%	\$8,567
	350 - 400	61	43,299,298	\$1,588,131	-\$52,703	-3.3%	-\$864	\$199	\$0.004985	\$3.26	\$52,703	3.3%	\$864	20,603,242	\$726,724	45.8%	\$11,914
	400 - 450	50	40,476,174	\$1,498,231	-\$49,268	-3.3%	-\$985	\$157	\$0.003890	\$3.15	\$49,268	3.3%	\$985	15,958,697	\$567,723	37.9%	\$11,354
	450 - 500	47	42,500,142	\$1,551,022	-\$49,363	-3.2%	-\$1,050	\$151	\$0.003554	\$3.21	\$49,363	3.2%	\$1,050	20,353,211	\$705,928	45.5%	\$15,020
	500 - 550	38	39,307,312	\$1,460,161	-\$62,402	-3.3%	-\$1,642	\$316	\$0.008032	\$8.31	\$62,402	3.3%	\$1,642	19,700,066	\$699,913	47.9%	\$18,419
	550 - 600	40	46,622,286	\$1,732,381	-\$70,778	-4.1%	-\$1,769	\$286	\$0.006128	\$7.14	\$70,778	4.1%	\$1,769	21,390,993	\$756,417	43.7%	\$18,910
	600 - 650	29	39,297,603	\$1,446,084	-\$73,810	-5.1%	-\$2,636	\$391	\$0.009952	\$13.96	\$73,810	5.1%	\$2,636	20,821,988	\$729,655	50.5%	\$24,425
	650 - 700	30	39,780,410	\$1,474,049	-\$49,018	-3.3%	-\$1,634	\$162	\$0.004081	\$5.41	\$49,018	3.3%	\$1,634	18,611,151	\$666,912	45.2%	\$22,230
	700 - 750	30	40,914,236	\$1,513,928	-\$53,236	-3.5%	-\$1,775	\$291	\$0.007102	\$9.69	\$53,236	3.5%	\$1,775	18,527,532	\$655,310	43.3%	\$21,844
	750 - 800	20	32,385,179	\$1,197,285	-\$28,469	-2.4%	-\$1,423	\$80	\$0.002456	\$3.98	\$28,469	2.4%	\$1,423	13,729,133	\$484,732		

IDR Losers - Cumulative Summary by Profile
All IDRs 0 kW to 1,000 kW

Profile Type	Demand Level (kW)	Counts	Total kWh	SETTLEMENT COST (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost (\$) Per IDR
BUSHILF	0 - 50	33	3,510,456	\$120,496	\$-2,290	-1.9%	-\$69	\$0,001240	\$0.13	\$2,290	\$2,290	1.9%	\$69	\$93,827	\$19,698	16.3%	\$597
	50 - 100	59	13,670,462	\$475,307	\$-8,418	-1.8%	-\$143	\$0,001052	\$0.24	\$8,418	\$8,418	1.8%	\$143	2,281,748	\$77,065	16.2%	\$1,306
	100 - 150	91	35,985,617	\$1,256,038	\$-20,977	-1.7%	-\$231	\$0,001293	\$0.47	\$20,977	\$20,977	1.7%	\$231	5,617,554	\$193,267	15.4%	\$2,124
	150 - 200	116	60,428,607	\$2,108,466	\$-31,502	-1.5%	-\$272	\$0,001042	\$0.54	\$31,502	\$31,502	1.5%	\$272	8,905,285	\$304,100	14.4%	\$2,622
	200 - 250	149	103,770,216	\$3,612,727	\$-50,412	-1.4%	-\$338	\$0,001032	\$0.72	\$50,412	\$50,412	1.4%	\$338	13,679,277	\$472,207	13.1%	\$3,169
	250 - 300	180	155,342,306	\$5,393,108	\$-70,476	-1.3%	-\$392	\$0,000828	\$1.29	\$70,476	\$70,476	1.3%	\$392	19,488,819	\$671,605	12.5%	\$3,731
	300 - 350	232	250,121,415	\$8,655,557	\$-107,029	-1.2%	-\$461	\$0,001121	\$2.80	\$107,029	\$107,029	1.2%	\$461	30,131,120	\$1,041,400	12.0%	\$4,489
	350 - 400	275	345,215,063	\$11,960,340	\$-146,178	-1.2%	-\$532	\$0,000933	\$1.17	\$146,178	\$146,178	1.2%	\$532	39,743,899	\$1,377,417	11.5%	\$5,009
	400 - 450	333	491,522,287	\$16,991,909	\$-194,006	-1.1%	-\$584	\$0,000917	\$1.09	\$194,006	\$194,006	1.1%	\$584	52,688,685	\$1,832,123	10.5%	\$5,920
	450 - 500	382	632,101,044	\$21,855,152	\$-253,932	-1.2%	-\$665	\$0,000814	\$1.35	\$253,932	\$253,932	1.2%	\$665	64,572,555	\$2,251,181	10.3%	\$5,893
	500 - 550	426	772,807,899	\$26,720,978	\$-307,961	-1.2%	-\$723	\$0,000738	\$1.34	\$307,961	\$307,961	1.2%	\$723	77,837,662	\$2,715,130	10.2%	\$6,374
	550 - 600	493	997,592,784	\$34,412,324	\$-386,196	-1.1%	-\$783	\$0,000696	\$1.41	\$386,196	\$386,196	1.1%	\$783	99,491,630	\$3,474,892	10.1%	\$7,048
	600 - 650	558	1,248,237,049	\$43,049,240	\$-462,148	-1.1%	-\$828	\$0,000616	\$1.38	\$462,148	\$462,148	1.1%	\$828	117,650,218	\$4,120,638	9.8%	\$7,385
	650 - 700	605	1,436,773,788	\$49,570,529	\$-520,623	-1.1%	-\$861	\$0,000570	\$1.35	\$520,623	\$520,623	1.1%	\$861	132,944,750	\$4,651,914	9.4%	\$7,689
	700 - 750	654	1,652,275,509	\$56,983,246	\$-596,454	-1.0%	-\$912	\$0,000553	\$9.13	\$596,454	\$596,454	1.0%	\$912	151,533,413	\$5,303,491	9.3%	\$8,109
	750 - 800	696	1,848,776,507	\$63,768,361	\$-697,941	-1.1%	-\$988	\$0,000503	\$1.60	\$697,941	\$697,941	1.1%	\$988	172,612,560	\$6,040,149	9.5%	\$8,678
800 - 850	712	1,919,031,978	\$66,204,110	\$-712,791	-1.1%	-\$1,001	\$0,000597	\$1.61	\$712,791	\$712,791	1.1%	\$1,001	179,606,486	\$6,286,445	9.5%	\$8,832	
850 - 900	726	1,991,989,839	\$68,761,026	\$-739,880	-1.1%	-\$1,019	\$0,000589	\$1.62	\$739,880	\$739,880	1.1%	\$1,019	186,653,292	\$6,535,721	9.5%	\$9,002	
900 - 950	730	2,010,817,391	\$69,410,315	\$-753,964	-1.1%	-\$1,033	\$0,000605	\$1.67	\$753,964	\$753,964	1.1%	\$1,033	189,503,363	\$6,641,197	9.6%	\$9,098	
950 - 1000	735	2,035,023,023	\$70,242,858	\$-760,341	-1.1%	-\$1,034	\$0,000600	\$1.66	\$760,341	\$760,341	1.1%	\$1,034	191,395,698	\$6,708,597	9.6%	\$9,127	

BUSHMEDLF	0 - 50	43	2,982,342	\$145,258	\$-4,000	-2.8%	-\$93	\$2,096	\$0.702717	\$48.74	\$4,000	2.8%	\$93	967,798	\$34,388	23.7%	\$800
	50 - 100	90	13,375,159	\$544,837	\$-12,769	-2.3%	-\$142	\$0,235341	\$3.148	\$12,769	\$12,769	2.3%	\$142	3,761,470	\$132,754	24.4%	\$1,475
	100 - 150	149	36,601,202	\$1,394,707	\$-33,753	-2.4%	-\$227	\$0,090012	\$3.295	\$33,753	\$33,753	2.4%	\$227	10,157,644	\$359,564	25.8%	\$2,413
	150 - 200	189	60,470,983	\$2,277,241	\$-62,808	-2.8%	-\$332	\$0,071548	\$4.327	\$62,808	\$62,808	2.8%	\$332	16,298,058	\$575,371	25.3%	\$3,044
	200 - 250	247	102,610,011	\$3,811,030	\$-110,084	-2.9%	-\$446	\$0,044176	\$16.39	\$110,084	\$110,084	2.9%	\$446	28,984,100	\$1,010,907	28.8%	\$4,129
	250 - 300	276	127,762,592	\$4,727,168	\$-134,658	-2.8%	-\$488	\$0,037896	\$17.54	\$134,658	\$134,658	2.8%	\$488	35,786,380	\$1,263,303	26.7%	\$4,577
	300 - 350	296	148,752,792	\$5,493,184	\$-152,616	-2.8%	-\$516	\$0,033168	\$4.934	\$152,616	\$152,616	2.8%	\$516	41,824,970	\$1,473,161	26.8%	\$4,977
	350 - 400	332	195,083,195	\$7,130,135	\$-195,811	-2.7%	-\$590	\$0,029988	\$5.066	\$195,811	\$195,811	2.7%	\$590	54,649,897	\$1,911,540	26.8%	\$5,758
	400 - 450	367	243,092,087	\$8,856,255	\$-237,615	-2.7%	-\$648	\$0,021939	\$5.333	\$237,615	\$237,615	2.7%	\$648	67,740,245	\$2,354,236	28.6%	\$6,415
	450 - 500	401	296,652,116	\$10,990,072	\$-294,012	-2.6%	-\$708	\$0,019434	\$7.024	\$294,012	\$294,012	2.6%	\$708	81,458,192	\$2,834,911	27.7%	\$7,069
	500 - 550	440	371,480,249	\$13,448,470	\$-331,924	-2.5%	-\$754	\$0,017497	\$6.500	\$331,924	\$331,924	2.5%	\$754	101,155,329	\$3,512,672	26.1%	\$7,983
	550 - 600	465	418,780,472	\$15,184,652	\$-369,213	-2.4%	-\$794	\$0,017023	\$7.129	\$369,213	\$369,213	2.4%	\$794	115,187,253	\$4,006,378	26.4%	\$8,616
	600 - 650	498	497,014,719	\$17,352,707	\$-418,793	-2.3%	-\$841	\$0,014557	\$7.235	\$418,793	\$418,793	2.3%	\$841	137,854,796	\$4,790,819	26.7%	\$9,620
	650 - 700	531	633,488,439	\$20,731,956	\$-495,165	-2.4%	-\$933	\$0,013028	\$7.766	\$495,165	\$495,165	2.4%	\$933	162,658,978	\$5,637,647	27.2%	\$10,617
	700 - 750	555	634,226,845	\$22,974,904	\$-554,242	-2.4%	-\$999	\$0,012622	\$8.005	\$554,242	\$554,242	2.4%	\$999	181,631,287	\$6,291,196	27.4%	\$11,335
	750 - 800	575	686,811,961	\$24,852,500	\$-596,844	-2.4%	-\$1,038	\$0,011794	\$8.100	\$596,844	\$596,844	2.4%	\$1,038	197,407,683	\$6,836,399	27.5%	\$11,889
800 - 850	587	716,814,354	\$26,064,340	\$-618,365	-2.4%	-\$1,053	\$0,011362	\$8.178	\$618,365	\$618,365	2.4%	\$1,053	207,628,558	\$7,186,817	27.6%	\$12,243	
850 - 900	596	744,916,466	\$26,960,696	\$-637,262	-2.4%	-\$1,069	\$0,011036	\$8.221	\$637,262	\$637,262	2.4%	\$1,069	214,058,918	\$7,402,751	27.6%	\$12,588	
900 - 950	604	761,937,749	\$27,698,820	\$-659,598	-2.4%	-\$1,092	\$0,011766	\$8.965	\$659,598	\$659,598	2.4%	\$1,092	218,288,073	\$7,559,886	27.3%	\$12,516	
950 - 1000	607	770,131,574	\$27,993,298	\$-667,189	-2.4%	-\$1,099	\$0,011659	\$8.979	\$667,189	\$667,189	2.4%	\$1,099	220,735,506	\$7,641,118	27.3%	\$12,588	

BUSLOLF	0 - 50	68	2,442,550	\$92,635	\$-5,192	-5.6%	-\$78	\$29	\$0,011650	\$0.43	\$5,192	5.6%	\$78	1,484,511	\$53,078	57.2%	\$761
	50 - 100	138	11,678,788	\$429,862	\$-22,022	-5.1%	-\$160	\$113	\$0,009637	\$0.82	\$22,022	5.1%	\$160	6,298,341	\$225,201	52.4%	\$1,632
	100 - 150	198	24,414,538	\$900,611	\$-43,329	-4.8%	-\$219	\$211	\$0,008638	\$1.07	\$43,329	4.8%	\$219	12,990,221	\$467,550	51.9%	\$2,361
	150 - 200	240	37,501,842	\$1,376,347	\$-61,711	-4.5%	-\$257	\$275	\$0,007332	\$1.15	\$61,711	4.5%	\$257	19,632,219	\$701,665	51.0%	\$2,924
	200 - 250	293	56,675,591	\$2,197,119	\$-96,610	-4.4%	-\$330	\$450	\$0,007535	\$1.53	\$96,610	4.4%	\$330	31,401,189	\$1,122,092	51.1%	\$3,830
	250 - 300	349	82,905,910	\$3,244,059	\$-135,117	-4.3%	-\$387	\$1,087	\$0,010528	\$3.06	\$135,117	4.3%	\$387	45,399,225	\$1,590,604	49.0%	\$4,658
	300 - 350	418	128,965,492	\$4,721,784	\$-190,397	-4.0%	-\$455	\$1,297	\$0,010054	\$3.10	\$190,397	4.0%	\$455	61,311,217	\$2,181,754	46.2%	\$5,220
	350 - 400	479	172,264,790	\$6,309,915	\$-243,100	-3.9%	-\$508	\$1,496	\$0,008882	\$3.12	\$243,100	3.9%	\$508	81,914,459	\$2,908,478	46.1%	\$6,072
	400 - 450	529	212,740,964	\$7,808,146	\$-292,368	-3.7%	-\$553	\$1,653	\$0,007770	\$3.12	\$292,368	3.7%	\$553	97,873,155	\$3,476,201	44.5%	\$6,571
	450 - 500	576	255,241,086	\$9,359,168	\$-341,731	-3.7%	-\$593	\$1,804	\$0,007068	\$3.13	\$341,731	3.7%	\$593	118,226,366	\$4,182,129	44.7%	\$7,281
	500 - 550	614	294,548,418	\$10,819,329	\$-404,132	-3.7%	-\$658	\$2,120	\$0,007197	\$3.15	\$404,132	3.7%	\$658	137,926,432	\$4,882,042	45.1%	\$7,951
	550 - 600	654	341,170,704	\$12,551,710	\$-474,911	-3.8%	-\$726	\$2,405	\$0,007050	\$3.68	\$474,911	3.8%	\$726	159,317,425	\$5,638,459	44.9%	\$8,621
	600 - 650	682	380,458,308	\$13,997,794	\$-548,720	-3.9%	-\$805	\$2,796	\$0,007350	\$4.10	\$548,720	3.9%	\$805	179,939,413	\$6,368,114	45.5%	\$9,337
	650 - 700	712	420,236,717	\$15,471,843	\$-597,738	-3.9%	-\$840	\$3,116	\$0,007041	\$4.16	\$597,738	3.9%	\$840	198,550,564	\$7,035,026	45.5%	\$9,881
	700 - 750	742	461,152,953	\$16,985,771	\$-650,974	-3.8%	-\$877	\$3,249	\$0,007046	\$4.38	\$650,974	3.8%	\$877	217,078,096	\$7,690,335	45.3%	\$10,364
	750 - 800	762	493,538,132	\$18,183,056	\$-679,442	-3.7%	-\$892	\$3,329	\$0,006745	\$4.37	\$679,442	3.7%	\$892	230,807,229	\$8,175,		

APPENDIX D

TABLES FOR THE MANDATORY IDR INSTALLATION THRESHOLD ANALYSIS

Estimated NIDR Settlement Impacts Totals
450 KW to 1000 KW

Profile Type	Demand Level (kW)	Counts	Total kWh	SETTLEMENT COST (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost (\$) Per IDR
BUSHILF	950 - 1000	26	125,911,390	\$4,402,910	\$8,354	0.19%	\$329	\$62	\$0.000499	\$2.40	\$51,930.34	1.18%	\$1,997	12,820,688	464,398	10.5%	\$17,981
	900 - 950	23	117,099,945	\$4,077,014	-\$34,993	-0.86%	-\$1,519	\$161	\$0.0013761	\$7.01	\$61,779.99	1.52%	\$2,696	16,334,432	593,577	14.6%	\$25,808
	850 - 900	55	260,340,458	\$9,096,015	-\$11,995	-0.13%	-\$219	\$124	\$0.0004752	\$2.25	\$57,469.59	1.18%	\$1,955	29,755,181	1,036,360	11.4%	\$18,945
	800 - 850	48	214,217,897	\$7,416,927	\$43,203	0.58%	\$900	\$150	\$0.0006988	\$3.12	\$104,543.94	1.41%	\$2,178	26,913,205	988,161	12.6%	\$19,545
	750 - 800	61	250,079,983	\$8,622,858	-\$8,433	-0.10%	-\$138	\$244	\$0.0009745	\$4.00	\$126,680.44	1.47%	\$2,077	33,092,410	1,154,238	13.4%	\$18,922
	700 - 750	72	277,508,776	\$9,851,297	\$9,753	0.10%	\$135	\$278	\$0.0010019	\$3.98	\$122,180.55	1.26%	\$1,897	33,114,027	1,107,271	11.6%	\$15,379
	650 - 700	93	350,482,226	\$12,051,798	\$65,255	0.54%	\$702	\$356	\$0.0007296	\$2.75	\$165,471.84	1.37%	\$1,779	42,250,403	1,433,611	15.3%	\$15,417
	600 - 650	135	454,389,598	\$15,585,051	\$41,032	0.26%	\$304	\$290	\$0.0006387	\$2.15	\$198,099.94	1.27%	\$1,467	48,358,822	1,651,159	10.6%	\$12,231
	550 - 600	155	494,861,627	\$16,842,048	-\$18,724	-0.11%	-\$121	\$338	\$0.0006829	\$2.18	\$203,982.72	1.20%	\$1,316	54,402,199	1,900,232	11.2%	\$12,200
	500 - 550	166	465,494,316	\$16,797,043	\$2	0.00%	\$9	\$283	\$0.0006837	\$1.71	\$193,757.17	1.15%	\$1,167	53,123,481	1,850,738	11.0%	\$11,149
	450 - 500	217	563,383,522	\$19,441,038	-\$48,579	-0.25%	-\$224	\$502	\$0.0008907	\$2.31	\$238,322.11	1.23%	\$1,098	56,288,531	1,962,513	10.1%	\$9,044
	1051	3,593,769,740	\$13,983,707	\$45,166	0.04%	\$43	\$2,688	\$0.0007479	\$2.56	\$1,574,248.53	1.27%	\$1,498	8405,453,379	\$14,092,458	11.4%	\$13,409	
BUSMEDLF	950 - 1000	54	150,485,283	\$5,422,433	\$1,765	0.03%	\$33	\$119	\$0.0007938	\$2.21	\$83,933.22	1.55%	\$1,554	46,808,268	1,653,370	30.5%	\$30,618
	900 - 950	56	168,201,316	\$6,640,641	\$22,263	0.34%	\$398	\$3,254	\$0.0193438	\$58.10	\$180,964.41	2.73%	\$3,232	50,443,348	1,855,063	28.1%	\$33,305
	850 - 900	84	241,831,469	\$8,733,358	\$16,878	1.34%	\$1,391	\$490	\$0.0020251	\$5.83	\$220,998.85	2.53%	\$2,631	73,275,591	2,628,282	30.1%	\$31,289
	800 - 850	89	228,474,476	\$8,345,569	\$12,085	1.49%	\$1,394	\$509	\$0.0022283	\$5.72	\$197,536.23	2.37%	\$2,220	74,963,649	2,585,599	31.0%	\$39,952
	750 - 800	93	226,659,017	\$8,177,792	\$102,241	1.25%	\$1,099	\$524	\$0.0023100	\$5.63	\$210,044.38	2.57%	\$2,259	76,489,996	2,716,970	33.2%	\$39,215
	700 - 750	136	291,322,198	\$10,563,222	\$75,718	0.72%	\$557	\$655	\$0.0029342	\$6.29	\$270,483.53	2.56%	\$1,989	92,287,436	3,237,235	30.7%	\$33,803
	650 - 700	157	334,735,184	\$12,043,431	\$62,113	0.52%	\$402	\$1,135	\$0.003897	\$7.23	\$294,698.05	2.36%	\$1,813	108,658,954	3,755,426	31.2%	\$33,900
	600 - 650	188	363,770,643	\$12,959,710	\$145,624	1.12%	\$775	\$605	\$0.0016641	\$3.22	\$284,404.01	2.19%	\$1,513	123,336,295	4,296,612	33.2%	\$32,854
	550 - 600	216	393,440,943	\$14,133,657	\$171,632	1.21%	\$795	\$2,025	\$0.0051469	\$9.38	\$337,362.17	2.39%	\$1,562	130,380,062	4,539,121	32.1%	\$31,014
	500 - 550	261	430,349,173	\$15,379,425	\$16,107	0.76%	\$445	\$2,474	\$0.0057486	\$9.48	\$315,910.04	2.05%	\$1,210	132,124,423	4,605,554	29.9%	\$17,646
	450 - 500	329	471,232,779	\$16,890,367	\$60,512	0.48%	\$245	\$1,302	\$0.0027624	\$3.96	\$416,077.65	2.46%	\$1,265	139,679,420	4,828,060	28.6%	\$14,675
	1663	3,300,512,481	\$19,279,805	\$1,019,968	0.86%	\$613	\$13,291	\$0.0040270	\$7.99	\$2,802,412.54	2.35%	\$1,685	\$1,047,548,442	\$36,711,292	30.8%	\$22,075	
BUSLOLF	950 - 1000	19	27,688,870	\$883,344	-\$21,504	-2.18%	-\$1,132	\$89	\$0.0035479	\$5.22	\$91,983.57	3.23%	\$1,583	15,198,144	507,668	51.6%	\$26,720
	900 - 950	13	18,613,233	\$703,629	\$3,325	0.47%	\$256	\$14	\$0.0007576	\$1.08	\$9,792.90	1.38%	\$749	7,891,963	276,027	38.2%	\$21,423
	850 - 900	24	36,507,390	\$1,325,636	-\$23,725	-1.79%	-\$989	\$155	\$0.0042415	\$6.45	\$42,344.39	3.19%	\$1,764	18,601,359	655,487	48.0%	\$26,494
	800 - 850	32	45,904,560	\$1,720,904	-\$8,444	-0.49%	-\$264	\$99	\$0.0021594	\$3.10	\$35,545.93	2.07%	\$1,111	26,816,124	935,218	54.3%	\$29,226
	750 - 800	37	45,847,671	\$1,705,790	-\$29,735	-1.68%	-\$777	\$98	\$0.0019088	\$2.97	\$33,266.98	1.95%	\$969	20,136,858	710,891	41.7%	\$19,213
	700 - 750	42	54,913,820	\$2,026,942	-\$49,736	-2.45%	-\$1,184	\$344	\$0.002702	\$8.20	\$67,778.19	3.34%	\$1,614	25,933,111	917,310	45.3%	\$21,841
	650 - 700	75	93,891,203	\$3,475,428	-\$53,997	-1.55%	-\$720	\$368	\$0.0039162	\$4.90	\$104,771.49	3.01%	\$1,397	43,806,931	1,660,720	44.9%	\$20,810
	600 - 650	75	80,534,163	\$2,978,490	\$92,154	3.09%	\$1,229	\$644	\$0.0079556	\$8.59	\$131,717.25	4.42%	\$1,756	43,056,776	1,539,016	51.7%	\$30,520
	550 - 600	111	115,394,385	\$4,276,447	-\$128,785	-3.01%	-\$1,160	\$638	\$0.0055248	\$5.74	\$154,006.41	3.60%	\$1,387	53,574,823	1,940,029	44.3%	\$17,063
	500 - 550	104	93,163,672	\$3,463,331	-\$107,218	-3.10%	-\$1,031	\$686	\$0.0037619	\$6.59	\$137,598.13	3.97%	\$1,323	45,716,801	1,629,162	47.0%	\$15,665
	450 - 500	173	150,372,811	\$5,518,520	-\$120,316	-2.18%	-\$695	\$511	\$0.0039811	\$2.95	\$166,943.81	3.03%	\$965	72,094,331	2,541,828	46.1%	\$14,953
	706	763,111,777	\$28,178,511	-\$631,288	-2.24%	-\$895	\$3,645	\$0.0047763	\$5.17	\$915,679.05	3.25%	\$1,299	\$372,325,221	\$13,147,756	46.7%	\$18,649	
COMBINED	950 - 1000	99	304,375,543	\$10,808,737	-\$11,186	-0.10%	-\$113	\$281	\$0.0009232	\$2.84	\$167,847.13	1.55%	\$1,695	74,828,100	2,625,456	24.3%	\$26,520
	900 - 950	92	303,914,495	\$11,421,284	-\$9,345	-0.08%	-\$102	\$3,429	\$0.0112825	\$37.27	\$252,477.30	2.21%	\$2,744	74,360,743	2,734,668	23.9%	\$39,725
	850 - 900	163	538,679,317	\$19,155,099	\$81,188	0.42%	\$498	\$768	\$0.0014263	\$4.71	\$370,842.74	1.94%	\$2,275	121,632,130	4,300,599	22.5%	\$26,383
	800 - 850	169	488,596,933	\$17,483,399	\$158,845	0.91%	\$940	\$448	\$0.0195512	\$7.58	\$337,626.10	1.94%	\$1,998	127,552,978	4,458,978	25.5%	\$26,384
	750 - 800	191	522,596,671	\$18,506,240	\$65,074	0.35%	\$341	\$655	\$0.0016387	\$4.48	\$369,981.80	2.00%	\$1,837	129,719,264	4,582,090	24.8%	\$23,990
	700 - 750	250	623,744,794	\$21,131,461	\$39,736	0.16%	\$163	\$1,477	\$0.0023682	\$5.91	\$69,442.27	2.08%	\$1,842	150,334,574	5,281,815	23.8%	\$21,047
	650 - 700	325	779,108,612	\$27,570,568	\$74,370	0.27%	\$229	\$1,758	\$0.0022565	\$5.41	\$554,941.37	2.01%	\$1,708	194,716,289	6,749,966	24.6%	\$20,769
	600 - 650	398	898,694,404	\$31,523,251	\$94,501	0.30%	\$237	\$1,540	\$0.0017131	\$3.87	\$614,221.19	1.95%	\$1,543	214,751,893	7,486,787	23.8%	\$18,811
	550 - 600	462	1,003,696,955	\$35,352,151	\$24,123	0.07%	\$50	\$3,000	\$0.0026994	\$8.23	\$995,951.31	1.97%	\$1,443	239,957,084	8,333,383	23.6%	\$17,289
	500 - 550	531	1,009,007,161	\$35,639,998	\$8,921	0.03%	\$17	\$3,443	\$0.0034125	\$6.48	\$647,265.34	1.82%	\$1,219	230,964,705	8,085,454	22.7%	\$15,227
	450 - 500	719	1,184,989,112	\$41,849,924	-\$88,362	-0.21%	-\$123	\$2,314	\$0.0019529	\$3.22	\$821,343.57	1.96%	\$1,142	268,062,282	9,332,401	22.3%	\$12,980
	3418	7,657,393,987	\$271,442,023	\$433,845	0.16%	\$127	\$18,624	\$0.0026227	\$5.74	\$5,292,348.13	1.95%	\$1,548	\$1,825,327,042	\$63,951,596	22.8%	\$18,785	

Estimated Cumulative NIDR Settlement Impacts Totals
450 KW to 1000 KW

Profile Type	Demand Level (kW)	Counts	Total kWh	SETTLEMENT COST (\$)	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost (\$ Per IDR)
BUSHLF	950 - 1000	26	125,911,390	\$4,402,910	\$8,354	0.19%	\$329	\$62	\$0.000499	\$2.40	\$51,930.34	1.18%	\$1,997	12,820,688	464,398	10.5%	\$17,981
	900 - 950	49	243,011,335	\$8,479,924	-\$26,379	-0.31%	-\$538	-\$223	\$0.0009195	\$4.56	\$113,710.33	1.34%	\$2,321	29,156,120	1,057,975	12.9%	\$21,991
	850 - 900	104	503,351,734	\$17,576,939	-\$36,344	-0.22%	-\$369	-\$347	\$0.000897	\$3.34	\$221,209.83	1.26%	\$2,327	58,910,301	2,094,335	11.9%	\$20,138
	800 - 850	152	717,569,691	\$24,992,666	\$4,859	0.02%	\$497	\$32	\$0.000924	\$3.27	\$325,753.77	1.30%	\$2,143	85,823,506	3,032,496	12.1%	\$19,951
	750 - 800	213	967,649,675	\$33,615,524	-\$3,573	-0.01%	-\$17	\$741	\$0.0007653	\$3.48	\$452,434.21	1.35%	\$2,124	118,915,916	4,186,735	12.5%	\$19,656
	700 - 750	285	1,245,158,451	\$43,168,821	\$6,183	0.01%	\$22	\$1,019	\$0.00081	\$3.57	\$574,614.76	1.33%	\$2,016	151,029,843	5,294,005	12.3%	\$18,575
	650 - 700	378	1,586,640,676	\$55,216,530	\$71,434	0.13%	\$189	\$1,274	\$0.0007986	\$3.37	\$740,096.60	1.34%	\$1,958	193,260,347	6,727,616	12.2%	\$17,798
	600 - 650	513	2,050,030,275	\$70,803,581	\$112,466	0.16%	\$219	\$1,565	\$0.000782	\$3.05	\$938,186.53	1.33%	\$1,829	241,639,169	8,379,575	11.8%	\$16,333
	550 - 600	668	2,544,891,902	\$87,745,627	\$93,742	0.11%	\$140	\$1,903	\$0.0007476	\$2.85	\$1,142,169.25	1.30%	\$1,710	296,041,367	10,279,208	11.7%	\$15,588
	450 - 500	834	3,030,398,218	\$104,542,669	\$93,744	0.09%	\$112	\$2,198	\$0.0007213	\$2.62	\$1,336,926.42	1.29%	\$1,602	349,164,848	12,129,946	11.8%	\$14,544
450 - 500	1051	3,593,769,740	\$123,983,707	\$45,166	0.04%	\$43	\$2,688	\$0.0007479	\$2.56	\$1,574,248.53	1.27%	\$1,498	405,453,379	14,092,458	11.4%	\$13,409	
BUSMEDLF	950 - 1000	54	150,485,283	\$5,422,433	\$1,765	0.03%	\$33	\$119	\$0.0007638	\$2.21	\$83,933.22	1.55%	\$1,554	48,809,268	1,653,370	30.5%	\$30,618
	900 - 950	110	318,696,600	\$12,063,075	\$24,028	0.20%	\$218	\$3,373	\$0.0105841	\$30.66	\$264,897.63	2.20%	\$2,408	97,252,616	3,316,433	29.2%	\$31,986
	850 - 900	194	560,528,068	\$20,796,433	\$140,906	0.68%	\$726	\$3,863	\$0.0068914	\$19.91	\$485,896.48	2.34%	\$2,505	170,528,206	6,146,715	29.6%	\$31,684
	800 - 850	263	789,022,544	\$29,142,022	\$26,991	0.91%	\$936	\$4,372	\$0.0055411	\$15.45	\$893,432.71	2.35%	\$2,415	244,591,855	8,732,314	30.0%	\$30,856
	750 - 800	376	1,015,661,561	\$37,319,793	\$367,232	0.98%	\$977	\$4,896	\$0.0048201	\$13.02	\$893,477.09	2.39%	\$2,376	321,081,851	11,449,284	30.7%	\$30,450
	700 - 750	512	1,306,983,759	\$47,873,016	\$442,950	0.93%	\$865	\$5,750	\$0.0043997	\$11.23	\$1,163,960.62	2.43%	\$2,273	413,369,287	14,696,519	30.7%	\$28,685
	650 - 700	669	1,641,718,943	\$59,916,447	\$550,063	0.84%	\$756	\$6,855	\$0.0041938	\$10.29	\$1,446,658.67	2.42%	\$2,165	522,028,241	18,441,946	30.8%	\$27,566
	600 - 650	857	2,005,489,586	\$72,876,156	\$651,687	0.89%	\$760	\$7,490	\$0.0037349	\$8.74	\$1,733,062.68	2.38%	\$2,022	645,364,536	22,738,558	31.2%	\$26,533
	550 - 600	1073	2,398,930,529	\$87,009,813	\$823,319	0.95%	\$767	\$9,515	\$0.0036665	\$8.87	\$2,070,424.85	2.38%	\$1,930	775,744,598	27,277,679	31.4%	\$25,422
	450 - 500	1334	2,829,279,701	\$102,389,438	\$939,456	0.92%	\$704	\$11,969	\$0.0042376	\$8.99	\$2,386,334.89	2.33%	\$1,789	907,869,021	31,983,233	31.1%	\$23,900
450 - 500	1663	3,300,512,481	\$119,279,805	\$1,019,968	0.86%	\$613	\$13,291	\$0.0040270	\$7.99	\$2,806,412.54	2.35%	\$1,685	1,047,546,442	36,711,292	30.8%	\$22,075	
BUSLOLF	950 - 1000	19	27,986,870	\$983,394	-\$21,504	-2.19%	-\$1,132	\$99	\$0.0035479	\$5.22	\$31,983.57	3.23%	\$1,883	15,196,144	507,568	51.6%	\$26,720
	900 - 950	32	46,662,103	\$1,687,023	-\$18,179	-1.08%	-\$568	\$113	\$0.0024330	\$3.54	\$41,716.46	2.47%	\$1,304	22,788,107	783,715	46.5%	\$24,481
	850 - 900	56	83,089,493	\$3,012,659	-\$41,904	-1.39%	-\$748	\$268	\$0.0032276	\$4.79	\$84,060.86	2.79%	\$1,501	41,389,466	1,419,582	47.1%	\$25,350
	800 - 850	86	128,994,052	\$4,733,563	-\$50,348	-1.06%	-\$572	\$367	\$0.0028475	\$4.17	\$119,606.78	2.53%	\$1,359	68,005,590	2,354,801	49.7%	\$26,759
	750 - 800	125	174,841,723	\$6,439,353	-\$70,063	-1.23%	-\$553	\$455	\$0.0029013	\$3.64	\$152,863.77	2.37%	\$1,223	98,142,448	3,065,981	47.6%	\$24,325
	700 - 750	167	229,755,543	\$8,466,295	-\$128,819	-1.52%	-\$771	\$799	\$0.0034782	\$4.79	\$220,641.96	2.61%	\$1,321	114,075,559	3,862,992	47.0%	\$23,850
	650 - 700	242	323,846,746	\$11,841,723	-\$162,816	-1.53%	-\$765	\$1,167	\$0.0036053	\$4.82	\$325,413.45	2.73%	\$1,345	157,862,490	5,543,720	46.4%	\$22,908
	600 - 650	317	404,180,909	\$14,620,213	-\$274,970	-1.84%	-\$867	\$1,811	\$0.0044801	\$5.71	\$457,130.70	3.06%	\$1,442	200,939,266	7,082,736	47.5%	\$22,343
	550 - 600	428	519,575,294	\$19,196,660	-\$403,755	-2.10%	-\$943	\$2,448	\$0.0047121	\$5.72	\$611,137.11	3.18%	\$1,428	254,514,089	8,976,765	46.8%	\$20,974
	450 - 500	532	612,738,966	\$22,659,991	-\$50,973	-2.25%	-\$960	\$3,134	\$0.0051150	\$6.89	\$748,735.24	3.30%	\$1,407	300,230,890	10,605,927	46.8%	\$19,936
450 - 500	705	763,111,777	\$28,178,511	-\$631,288	-2.24%	-\$895	\$3,945	\$0.0047763	\$5.17	\$915,679.05	3.25%	\$1,299	372,325,221	13,147,756	46.7%	\$18,649	
COMBINED	950 - 1000	99	304,375,543	\$10,808,737	-\$11,186	-0.10%	-\$113	\$281	\$0.0009232	\$2.84	\$167,847.13	1.55%	\$1,695	74,826,100	2,625,456	24.3%	\$26,520
	900 - 950	191	603,290,038	\$22,236,022	-\$20,530	-0.09%	-\$107	\$3,710	\$0.0009889	\$19.42	\$420,324.43	1.89%	\$2,201	140,195,843	5,360,123	24.1%	\$26,063
	850 - 900	354	1,146,969,355	\$41,386,031	\$60,658	0.15%	\$171	\$4,478	\$0.0039044	\$12.65	\$791,167.17	1.91%	\$2,235	270,827,974	9,660,632	23.3%	\$27,290
	800 - 850	523	1,635,566,288	\$58,868,430	\$219,503	0.37%	\$420	\$5,236	\$0.0032014	\$10.01	\$1,128,793.27	1.92%	\$2,158	398,420,952	14,119,611	24.0%	\$26,997
	750 - 800	714	2,158,152,959	\$77,374,670	\$264,576	0.37%	\$399	\$6,091	\$0.0028223	\$8.53	\$1,496,775.07	1.94%	\$2,099	526,140,215	18,701,701	24.2%	\$26,193
	700 - 750	964	2,781,897,793	\$99,608,131	\$320,312	0.32%	\$332	\$7,668	\$0.0027205	\$7.85	\$1,959,217.34	1.97%	\$2,002	676,474,790	23,963,516	24.1%	\$24,868
	650 - 700	1289	3,561,006,365	\$127,076,699	\$394,682	0.31%	\$306	\$9,326	\$0.0026190	\$7.24	\$2,514,158.72	1.98%	\$1,950	873,191,078	30,713,482	24.2%	\$23,827
	600 - 650	1687	4,459,700,789	\$158,599,950	\$486,163	0.31%	\$290	\$10,866	\$0.0024364	\$6.44	\$3,128,379.91	1.97%	\$1,854	1,087,942,971	38,200,266	24.1%	\$22,644
	550 - 600	2169	5,463,997,724	\$193,992,100	\$513,306	0.29%	\$237	\$13,866	\$0.0023980	\$6.39	\$3,923,731.21	1.97%	\$1,763	1,326,930,055	46,533,651	24.0%	\$21,454
	450 - 500	2700	6,472,404,885	\$229,592,099	\$522,227	0.23%	\$193	\$17,309	\$0.0022763	\$6.41	\$4,470,966.55	1.95%	\$1,656	1,567,264,760	54,619,196	23.8%	\$20,229
450 - 500	3419	7,657,393,997	\$271,442,023	\$433,845	0.16%	\$127	\$19,624	\$0.0022627	\$5.74	\$5,292,340.13	1.95%	\$1,548	1,825,327,042	63,951,506	23.6%	\$18,705	

APPENDIX E

TABLES FOR THE COMBINATION MANDATORY INSTALLATION AND OPTIONAL REMOVAL ANALYSIS

IDR Installation Threshold Analysis - Summary by Profile Type
All IDRs + NIDRs 450 kW to 1,000 kW

Profile Type	Demand Level	Counts	Total kWh	SETTLEMENT COST \$	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost per IDR(\$)
BUSHLFL	950 - 1000	34	162,935,497	\$5,697,581	\$11,069	0.2%	\$326	\$81	\$0.000494898	\$2.37	\$87,200	1.2%	\$1,976	\$16,590,598	\$600,953	10.5%	\$17,675
	900 - 950	30	151,205,047	\$5,264,435	-\$45,107	-0.9%	-\$1,504	\$208	\$0.001376136	\$6.94	\$79,773	1.5%	\$2,659	\$21,091,799	\$766,456	14.6%	\$25,549
	850 - 900	79	378,406,018	\$13,221,098	-\$17,391	-0.1%	-\$220	\$180	\$0.000472223	\$2.28	\$156,251	1.2%	\$1,978	\$43,249,289	\$1,506,354	11.4%	\$19,068
	800 - 850	86	387,787,739	\$13,426,484	\$78,209	0.8%	\$909	\$271	\$0.000898225	\$3.08	\$189,251	1.4%	\$2,151	\$48,719,603	\$1,698,305	12.8%	\$19,299
	750 - 800	139	686,745,973	\$20,299,727	-\$19,853	-0.1%	-\$143	\$74	\$0.000744532	\$4.13	\$28,236	1.6%	\$2,146	\$77,807,167	\$2,717,344	13.4%	\$19,549
	700 - 750	165	651,859,313	\$22,435,693	\$22,910	0.1%	\$139	\$653	\$0.001001934	\$3.96	\$286,998	1.3%	\$1,739	\$75,434,831	\$2,600,943	11.6%	\$15,763
	650 - 700	203	759,487,593	\$26,115,800	\$141,405	0.5%	\$697	\$554	\$0.000729563	\$2.73	\$358,574	1.4%	\$1,766	\$91,555,733	\$3,107,038	11.9%	\$15,306
	600 - 650	258	893,834,380	\$33,657,511	\$90,714	0.3%	\$313	\$571	\$0.000630120	\$2.21	\$1,510	1.3%	\$1,510	\$95,127,128	\$3,248,011	10.9%	\$12,589
	550 - 600	264	842,542,665	\$28,845,228	-\$31,880	-0.1%	-\$121	\$575	\$0.000829027	\$2.18	\$92,297	1.2%	\$1,316	\$92,624,222	\$3,235,032	11.2%	\$12,255
	500 - 550	255	756,290,287	\$26,194,954	\$4	0.0%	\$0	\$441	\$0.000583681	\$1.73	\$301,818	1.2%	\$1,184	\$82,751,081	\$2,882,917	11.0%	\$11,306
	450 - 500	302	795,376,184	\$27,461,665	-\$69,669	-0.2%	-\$227	\$709	\$0.000894675	\$2.35	\$336,983	1.2%	\$1,116	\$79,567,193	\$2,774,129	10.1%	\$9,166
	1,817	6,369,440,696	\$219,609,577	\$151,412	0.1%	\$83	\$4,818	\$0.000765340	\$2.65	\$2,811,965	1.3%	\$1,548	\$724,618,644	\$25,377,752	11.4%	\$13,835	

Profile Type	Demand Level	Counts	Total kWh	SETTLEMENT COST \$	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost per IDR(\$)
BUSMEDLF	950 - 1000	63	178,299,746	\$6,424,245	\$2,091	0.0%	\$33	\$142	\$0.000793794	\$2.25	\$99,440	1.5%	\$1,578	\$55,457,423	\$1,958,835	30.5%	\$31,093
	900 - 950	74	215,547,070	\$8,509,857	\$28,530	0.3%	\$386	\$4,170	\$0.019343837	\$56.34	\$231,903	2.7%	\$3,134	\$64,842,237	\$2,390,045	28.1%	\$32,280
	850 - 900	114	329,614,590	\$11,903,905	\$159,304	1.3%	\$1,397	\$667	\$0.002229066	\$5.86	\$301,220	2.5%	\$2,842	\$99,874,111	\$3,602,330	30.1%	\$31,424
	800 - 850	136	362,359,495	\$13,236,035	\$196,798	1.5%	\$1,447	\$807	\$0.002282871	\$5.94	\$313,292	2.4%	\$2,304	\$117,464,615	\$4,100,748	31.0%	\$30,153
	750 - 800	161	405,801,598	\$14,641,204	\$183,049	1.3%	\$1,137	\$937	\$0.002310042	\$5.82	\$376,055	2.6%	\$2,336	\$136,944,751	\$4,864,359	33.2%	\$30,213
	700 - 750	204	468,051,299	\$16,655,280	\$121,652	0.7%	\$596	\$1,373	\$0.002934180	\$6.73	\$454,571	2.6%	\$2,130	\$148,273,131	\$5,201,086	30.7%	\$25,496
	650 - 700	252	565,477,001	\$20,345,286	\$106,618	0.5%	\$423	\$1,917	\$0.003387909	\$7.61	\$480,948	2.4%	\$1,909	\$183,560,446	\$6,344,141	31.2%	\$25,175
	600 - 650	299	623,691,538	\$22,219,663	\$249,675	1.1%	\$835	\$1,038	\$0.001664126	\$3.47	\$487,616	2.2%	\$1,631	\$211,462,373	\$7,366,621	33.2%	\$24,638
	550 - 600	304	570,485,053	\$20,483,648	\$248,864	1.2%	\$819	\$2,336	\$0.005146914	\$9.66	\$489,171	2.4%	\$1,809	\$189,049,661	\$6,581,676	32.1%	\$21,650
	500 - 550	370	636,772,016	\$22,756,672	\$171,844	0.8%	\$464	\$3,661	\$0.005748869	\$9.89	\$1,263	2.1%	\$1,263	\$195,499,702	\$6,816,471	28.9%	\$18,418
	450 - 500	404	600,982,198	\$21,540,967	\$102,680	0.5%	\$254	\$1,660	\$0.002724240	\$4.11	\$530,641	2.5%	\$1,313	\$178,138,807	\$6,175,419	28.6%	\$15,244
	2,381	4,957,081,595	\$179,026,372	\$1,571,105	0.8%	\$660	\$19,309	\$0.003895144	\$8.11	\$4,212,297	2.4%	\$1,769	\$1,680,367,295	\$55,361,933	30.8%	\$23,252	

Profile Type	Demand Level	Counts	Total kWh	SETTLEMENT COST \$	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost per IDR(\$)
BUSLOLF	950 - 1000	32	43,585,142	\$1,532,467	-\$33,511	-2.2%	-\$1,047	\$155	\$0.003547937	\$4.83	\$49,841	3.3%	\$1,558	\$23,680,832	\$791,153	51.6%	\$24,724
	900 - 950	18	28,912,848	\$1,092,982	\$5,165	0.5%	\$287	\$22	\$0.000757635	\$1.22	\$15,119	1.4%	\$840	\$11,792,969	\$428,767	39.2%	\$23,820
	850 - 900	31	48,374,550	\$1,756,550	-\$31,437	-1.8%	-\$1,014	\$205	\$0.004241531	\$6.62	\$56,109	3.2%	\$1,810	\$24,647,951	\$842,563	48.0%	\$27,179
	800 - 850	50	67,426,518	\$2,527,734	-\$12,403	-0.5%	-\$248	\$146	\$0.002159449	\$2.91	\$52,211	2.1%	\$1,044	\$39,094,866	\$1,373,687	54.3%	\$27,474
	750 - 800	63	87,956,854	\$3,272,487	-\$55,127	-1.7%	-\$875	\$168	\$0.001908813	\$2.66	\$63,802	1.9%	\$1,013	\$38,631,726	\$1,363,796	41.7%	\$21,648
	700 - 750	80	104,667,327	\$3,863,410	-\$94,798	-2.5%	-\$1,185	\$656	\$0.002672028	\$8.20	\$129,187	3.3%	\$1,615	\$49,429,258	\$1,748,420	45.3%	\$21,855
	650 - 700	119	151,866,824	\$5,621,423	-\$87,338	-1.6%	-\$734	\$309	\$0.003916187	\$5.00	\$169,465	3.0%	\$1,424	\$70,856,686	\$2,524,442	44.9%	\$21,214
	600 - 650	117	133,631,735	\$4,942,463	-\$162,500	-3.1%	-\$1,209	\$1,059	\$0.007895570	\$9.13	\$218,571	4.4%	\$1,868	\$71,448,056	\$2,553,830	51.7%	\$21,828
	550 - 600	161	173,157,281	\$6,417,106	-\$193,250	-3.0%	-\$1,200	\$957	\$0.005524764	\$5.94	\$231,097	3.6%	\$1,435	\$80,392,730	\$2,842,122	44.3%	\$17,653
	500 - 550	149	140,856,889	\$5,228,876	-\$161,876	-3.1%	-\$1,096	\$1,036	\$0.007361895	\$6.95	\$207,743	4.0%	\$1,394	\$69,022,429	\$2,459,681	47.0%	\$16,508
	450 - 500	231	202,050,984	\$7,415,107	-\$161,666	-2.2%	-\$700	\$666	\$0.003396093	\$2.97	\$234,519	3.0%	\$971	\$96,871,733	\$3,415,405	46.1%	\$14,765
	1,051	1,182,294,953	\$43,670,645	-\$979,162	-2.2%	-\$932	\$5,693	\$0.004815298	\$5.42	\$1,417,465	3.2%	\$1,349	\$575,869,253	\$20,343,865	46.6%	\$19,357	

Profile Type	Demand Level	Counts	Total kWh	SETTLEMENT COST \$	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost per IDR(\$)
COMBINED	950 - 1000	129	384,820,385	\$13,654,292	-\$20,351	-0.1%	-\$158	\$377	\$0.000275966	\$2.92	\$216,482	1.6%	\$1,678	\$95,728,852	\$3,350,941	24.5%	\$25,976
	900 - 950	122	395,664,966	\$14,867,284	-\$11,412	-0.1%	-\$94	\$4,399	\$0.002959118	\$36.06	\$326,795	2.8%	\$2,679	\$97,527,044	\$3,585,268	24.1%	\$29,387
	850 - 900	224	756,395,148	\$26,861,153	\$110,476	0.4%	\$493	\$1,053	\$0.000391544	\$4.70	\$513,590	1.9%	\$2,293	\$167,771,351	\$5,931,247	22.1%	\$26,479
	800 - 850	274	817,573,753	\$29,190,254	\$262,605	0.9%	\$958	\$1,224	\$0.000419333	\$4.47	\$554,753	1.9%	\$2,025	\$205,279,094	\$7,172,741	24.6%	\$26,643
	750 - 800	363	1,082,504,424	\$38,213,418	\$108,069	0.3%	\$298	\$1,679	\$0.000495829	\$4.63	\$638,093	1.9%	\$2,033	\$253,483,644	\$8,945,499	23.4%	\$24,178
	700 - 750	449	1,224,577,939	\$43,254,363	\$49,765	0.1%	\$111	\$2,683	\$0.000620223	\$5.97	\$850,756	2.0%	\$1,895	\$273,137,220	\$9,550,449	22.1%	\$21,270
	650 - 700	574	1,476,831,419	\$52,062,509	\$160,684	0.3%	\$280	\$3,056	\$0.000598661	\$5.34	\$1,008,887	1.9%	\$1,758	\$345,972,866	\$11,976,621	23.0%	\$20,893
	600 - 650	674	1,651,163,653	\$57,819,657	\$177,469	0.3%	\$263	\$2,677	\$0.000463035	\$3.97	\$1,095,871	1.9%	\$1,626	\$378,037,565	\$13,168,463	22.8%	\$19,578
	550 - 600	729	1,586,194,999	\$55,755,982	\$23,734	0.0%	\$33	\$4,468	\$0.000801440	\$6.13	\$1,067,566	1.9%	\$1,464	\$362,066,622	\$12,669,100	22.7%	\$17,365
	500 - 550	774	1,533,689,192	\$54,150,601	\$9,971	0.0%	\$13	\$3,138	\$0.000949877	\$6.64	\$977,002	1.8%	\$1,262	\$347,273,212	\$12,157,268	22.5%	\$15,707
	450 - 500	937	1,599,411,366	\$56,437,159	-\$127,654	-0.2%	-\$136	\$3,056	\$0.000541433	\$3.26	\$1,091,842	1.9%	\$1,165	\$354,577,732	\$12,346,953	21.9%	\$13,177
	5,249	12,508,817,244	\$42,306,593	\$743,355	-0.2%	\$142	\$29,819	\$0.002383852	\$5.68	\$6,441,727	1.9%	\$1,608	\$2,880,855,192	\$100,843,551	22.8%	\$19,212	

IDR Installation Threshold Analysis - Summary by Profile Type
All IDRs + NIDRs 450 kW to 1,000 kW - Cumulative

Profile Type	Demand Level	Counts	Total kWh	SETTLEMENT COST \$	Net Profiling Error Cost (\$)	Net Error %	Net Profiling Error cost per IDR (\$)	Dead Weight Loss (\$)	Dead Weight Loss per MWH	Dead Weight Loss per IDR	Cross Customer Error (\$)	Cross Customer Error %	Cross Customer Error (\$) Per IDR	Total Profiling Error (kWh)	Total Profiling Error Cost (\$)	Total ERROR %	Total Profiling Error Cost per IDR(\$)	
BUSHLFL	950 - 1000	34	162,935,497	\$5,697,581	\$11,069	0.2%	\$326	\$81	\$0.00049089	\$2.37	\$97,200	1.2%	\$1,976	\$16,990,988	\$600,953	10.5%	\$17,875	
	900 - 950	64	314,140,544	\$10,962,016	-\$34,038	-0.3%	-\$532	\$289	\$0.00091064	\$4.51	\$146,574	1.3%	\$2,296	\$37,682,397	\$1,367,409	12.5%	\$21,966	
	850 - 900	143	692,546,562	\$24,183,114	-\$51,429	-0.2%	-\$360	\$469	\$0.00076560	\$3.28	\$303,225	1.3%	\$2,120	\$80,931,685	\$2,873,763	11.9%	\$20,096	
	800 - 850	231	1,080,334,301	\$37,609,599	\$26,780	0.1%	\$116	\$740	\$0.00084546	\$3.20	\$462,475	1.3%	\$2,132	\$129,691,289	\$4,572,068	12.2%	\$19,793	
	750 - 800	370	1,660,080,274	\$57,809,328	\$6,927	0.0%	\$19	\$1,313	\$0.00078835	\$3.65	\$700,710	1.4%	\$2,037	\$207,588,456	\$7,289,412	12.6%	\$19,701	
	700 - 750	535	2,320,939,587	\$80,345,019	\$29,838	0.0%	\$56	\$1,966	\$0.00084747	\$3.68	\$1,077,708	1.3%	\$2,014	\$282,993,287	\$9,890,355	12.3%	\$18,487	
	650 - 700	738	3,080,427,180	\$106,460,818	\$171,243	0.2%	\$232	\$2,521	\$0.00081822	\$3.42	\$1,436,282	1.3%	\$1,946	\$374,549,020	\$12,997,393	12.2%	\$17,612	
	600 - 650	966	3,974,261,560	\$131,118,330	\$251,937	0.2%	\$263	\$3,091	\$0.00077981	\$3.10	\$1,325,967	1.3%	\$1,833	\$469,676,148	\$16,245,405	11.8%	\$16,311	
	550 - 600	1,260	4,816,804,225	\$165,963,558	\$220,077	0.1%	\$175	\$3,667	\$0.000761252	\$2.91	\$2,173,264	1.3%	\$1,725	\$562,300,371	\$19,480,707	11.7%	\$15,461	
	500 - 550	1,515	5,573,064,512	\$192,128,512	\$220,080	0.1%	\$145	\$4,108	\$0.00073156	\$2.71	\$2,475,082	1.3%	\$1,634	\$645,051,451	\$22,963,624	11.6%	\$14,761	
450 - 500	1,817	6,369,440,696	\$219,609,377	\$151,412	0.1%	\$83	\$4,818	\$0.000765949	\$2.65	\$2,811,965	1.3%	\$1,546	\$724,618,644	\$25,137,752	11.4%	\$13,635		
BUSMEDLF	950 - 1000	63	178,299,746	\$6,424,245	\$2,091	0.0%	\$33	\$142	\$0.000793794	\$2.25	\$99,440	1.5%	\$1,578	\$55,457,423	\$1,958,835	30.5%	\$31,093	
	900 - 950	137	393,846,816	\$14,834,111	\$30,620	0.2%	\$224	\$4,311	\$0.010949883	\$31.47	\$331,343	2.2%	\$2,419	\$120,099,699	\$4,348,881	29.1%	\$31,744	
	850 - 900	251	723,461,396	\$26,637,616	\$189,924	0.7%	\$757	\$4,979	\$0.000891554	\$19.83	\$632,963	2.4%	\$2,520	\$219,973,810	\$7,931,211	29.6%	\$31,596	
	800 - 850	387	1,085,820,892	\$40,073,651	\$386,723	1.0%	\$999	\$5,786	\$0.005328663	\$14.95	\$945,854	2.4%	\$2,444	\$337,438,425	\$12,031,959	30.0%	\$31,060	
	750 - 800	548	1,491,622,490	\$54,714,855	\$569,772	1.0%	\$1,040	\$6,723	\$0.004507436	\$12.27	\$1,321,910	2.4%	\$2,412	\$474,383,176	\$16,896,319	30.9%	\$30,833	
	700 - 750	752	1,959,673,789	\$71,570,136	\$691,424	1.0%	\$919	\$8,097	\$0.004131677	\$10.77	\$1,756,481	2.5%	\$2,336	\$622,656,305	\$22,097,405	30.8%	\$29,385	
	650 - 700	1,004	2,525,150,791	\$92,015,422	\$798,042	0.9%	\$795	\$10,014	\$0.003965222	\$9.97	\$2,237,429	2.4%	\$2,229	\$906,216,752	\$28,441,546	30.9%	\$28,328	
	600 - 650	1,303	3,148,842,328	\$114,235,085	\$1,047,717	0.9%	\$804	\$11,051	\$0.003509885	\$8.48	\$2,725,045	2.4%	\$2,091	\$1,017,879,125	\$35,808,167	31.3%	\$27,481	
	550 - 600	1,607	3,719,527,381	\$154,728,733	\$1,266,581	1.0%	\$807	\$13,988	\$0.003769089	\$8.70	\$3,214,216	2.4%	\$2,000	\$1,206,728,786	\$42,389,843	31.5%	\$26,378	
	500 - 550	1,977	4,356,099,397	\$167,486,405	\$1,468,425	0.9%	\$743	\$17,648	\$0.004051418	\$8.93	\$3,881,657	2.3%	\$1,862	\$1,402,228,488	\$49,204,514	31.2%	\$24,888	
450 - 500	2,381	4,957,081,595	\$179,026,372	\$1,571,105	0.9%	\$660	\$19,309	\$0.003895144	\$8.11	\$4,212,297	2.4%	\$1,769	\$1,580,367,295	\$55,361,933	30.9%	\$23,252		
BUSLOFL	950 - 1000	32	43,585,142	\$1,532,467	-\$33,511	-2.2%	-\$1,047	\$155	\$0.003547937	\$4.83	\$49,841	3.3%	\$1,558	\$23,680,832	\$791,153	51.6%	\$24,724	
	900 - 950	50	72,497,990	\$2,625,449	-\$28,345	-1.1%	-\$567	\$177	\$0.00243139	\$3.53	\$64,960	2.5%	\$1,299	\$35,473,800	\$1,219,920	46.5%	\$24,398	
	850 - 900	81	120,872,540	\$4,381,998	-\$59,782	-1.4%	-\$738	\$382	\$0.00158078	\$4.71	\$121,069	2.8%	\$1,495	\$60,121,751	\$2,062,483	47.1%	\$25,463	
	800 - 850	131	189,290,058	\$6,903,733	-\$72,185	-1.0%	-\$551	\$527	\$0.00280407	\$4.03	\$173,280	2.5%	\$1,323	\$99,216,817	\$3,436,170	49.7%	\$26,230	
	750 - 800	194	276,255,912	\$10,182,220	-\$127,312	-1.3%	-\$656	\$695	\$0.002516568	\$3.58	\$237,082	2.9%	\$1,222	\$137,848,343	\$4,799,966	47.1%	\$24,742	
	700 - 750	274	380,923,238	\$14,045,630	-\$222,110	-1.6%	-\$811	\$1,352	\$0.003547980	\$4.93	\$366,270	2.6%	\$1,337	\$187,277,602	\$6,546,385	46.6%	\$23,889	
	650 - 700	393	532,790,063	\$19,667,053	-\$309,449	-1.6%	-\$787	\$1,946	\$0.00362934	\$4.95	\$555,735	2.7%	\$1,363	\$258,134,288	\$9,072,827	46.1%	\$23,086	
	600 - 650	510	696,427,738	\$24,805,538	-\$465,369	-1.9%	-\$907	\$3,015	\$0.004237565	\$5.91	\$754,306	3.1%	\$1,479	\$320,582,362	\$11,628,657	47.2%	\$22,797	
	550 - 600	671	938,585,079	\$31,026,642	-\$655,620	-2.1%	-\$977	\$3,971	\$0.004730206	\$5.92	\$985,403	3.2%	\$1,469	\$409,975,091	\$14,488,779	46.6%	\$21,563	
	500 - 550	820	980,241,969	\$36,255,519	-\$817,496	-2.3%	-\$997	\$5,007	\$0.005107832	\$6.11	\$1,193,146	3.3%	\$1,455	\$478,997,520	\$16,828,460	46.7%	\$20,644	
450 - 500	1,051	1,162,294,953	\$43,670,645	-\$979,162	-2.2%	-\$932	\$5,693	\$0.004815298	\$5.42	\$1,417,465	3.2%	\$1,349	\$575,969,253	\$20,343,665	46.6%	\$19,357		
COMBINED	950 - 1000	129	384,820,385	\$13,654,292	-\$20,351	-0.1%	-\$158	\$377	\$0.00027596	\$2.92	\$216,482	1.6%	\$1,678	\$95,728,852	\$3,350,941	24.3%	\$25,976	
	900 - 950	251	780,485,350	\$28,521,576	-\$31,763	-0.1%	-\$127	\$4,776	\$0.000167463	\$19.03	\$543,277	1.9%	\$2,164	\$193,255,896	\$6,936,209	24.3%	\$27,634	
	850 - 900	475	1,536,890,498	\$55,402,729	\$78,713	0.1%	\$166	\$5,329	\$0.00105208	\$12.27	\$1,056,295	1.9%	\$2,225	\$361,027,247	\$12,867,456	23.2%	\$27,069	
	800 - 850	749	2,354,454,251	\$84,592,963	\$341,317	0.4%	\$456	\$7,053	\$0.00083374	\$9.42	\$1,611,610	1.9%	\$2,152	\$696,306,530	\$20,040,197	23.7%	\$26,756	
	750 - 800	1,112	3,436,958,675	\$122,806,401	\$449,387	0.4%	\$404	\$8,732	\$0.00071103	\$7.85	\$2,349,702	1.9%	\$2,113	\$819,789,975	\$28,985,696	23.6%	\$26,066	
	700 - 750	1,561	4,661,536,814	\$166,060,784	\$499,151	0.3%	\$320	\$11,415	\$0.00068738	\$7.31	\$3,200,499	1.9%	\$2,050	\$1,062,927,195	\$36,536,145	23.2%	\$24,667	
	650 - 700	2,135	6,136,363,034	\$218,143,294	\$659,836	0.3%	\$309	\$14,460	\$0.00069380	\$6.76	\$4,209,446	1.9%	\$1,972	\$1,438,900,060	\$50,511,796	23.2%	\$23,666	
	600 - 650	2,809	7,789,531,686	\$275,962,951	\$837,305	0.3%	\$298	\$17,158	\$0.00062174	\$6.11	\$5,305,317	1.9%	\$1,889	\$1,816,937,626	\$63,860,229	23.1%	\$22,670	
	550 - 600	3,538	9,375,716,885	\$331,718,933	\$861,039	0.3%	\$243	\$21,626	\$0.00068193	\$6.11	\$6,372,883	1.9%	\$1,801	\$2,179,004,248	\$76,339,329	23.0%	\$21,577	
	500 - 550	4,312	10,909,405,878	\$385,869,435	\$971,010	0.2%	\$202	\$26,764	\$0.00069059	\$6.21	\$7,349,885	1.9%	\$1,705	\$2,526,277,460	\$88,486,598	22.9%	\$20,523	
	450 - 500	5,249	12,508,817,244	\$442,306,593	\$743,355	0.2%	\$142	\$29,819	\$0.00067417	\$5.68	\$8,441,727	1.9%	\$1,608	\$2,880,855,192	\$100,843,551	22.8%	\$19,212	
			22,320	59,876,975,300	\$2,125,039,971	\$5,288,998	0.2%	\$237	\$148,028	\$0.00247199	\$6.63	\$40,657,644	1.9%	\$1,822	\$13,971,010,081	\$490,588,119	23.1%	\$21,980