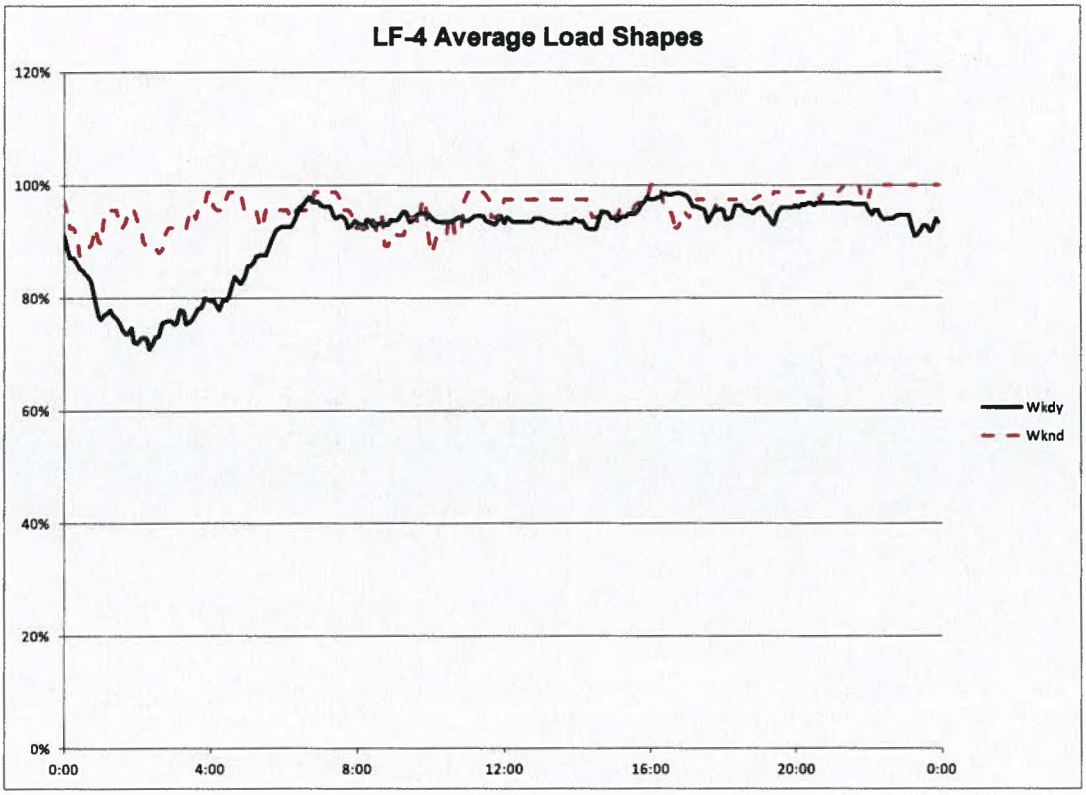
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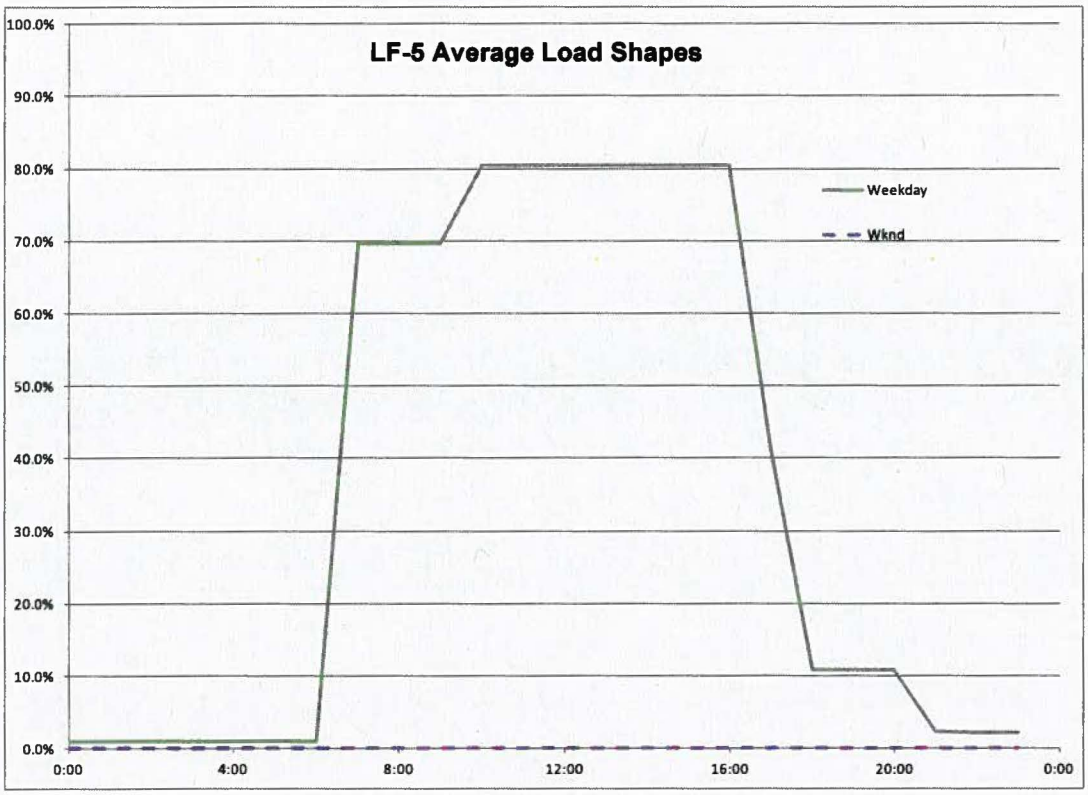
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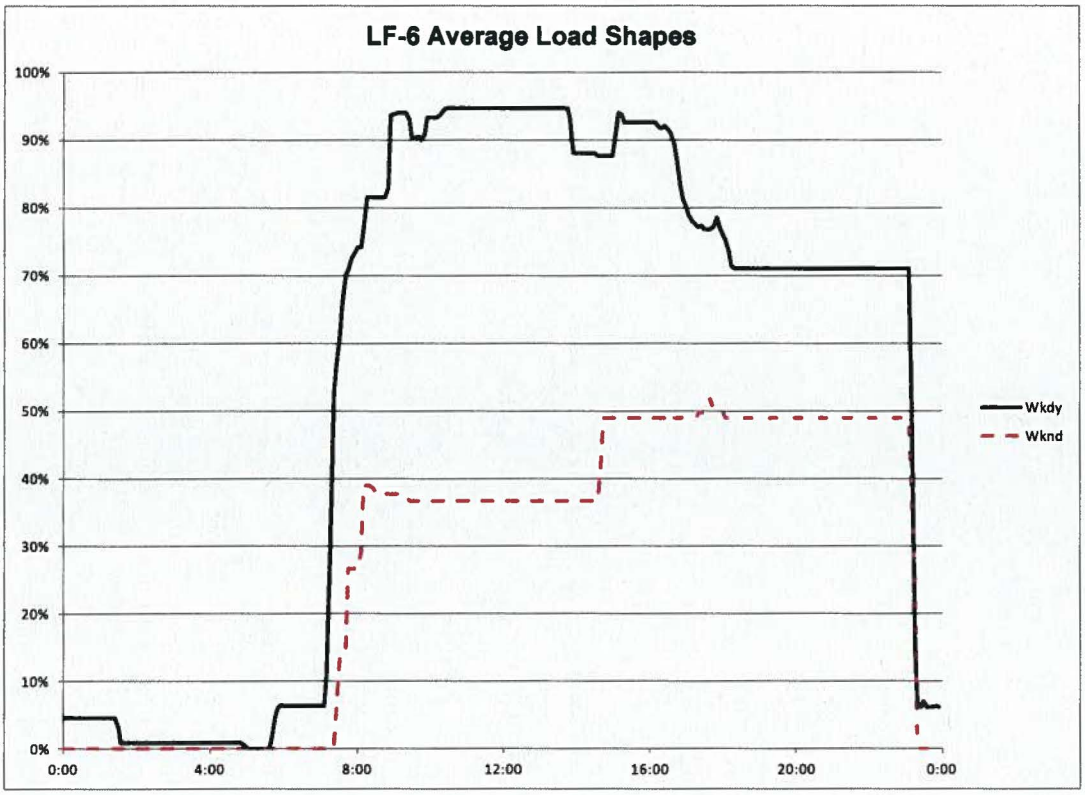
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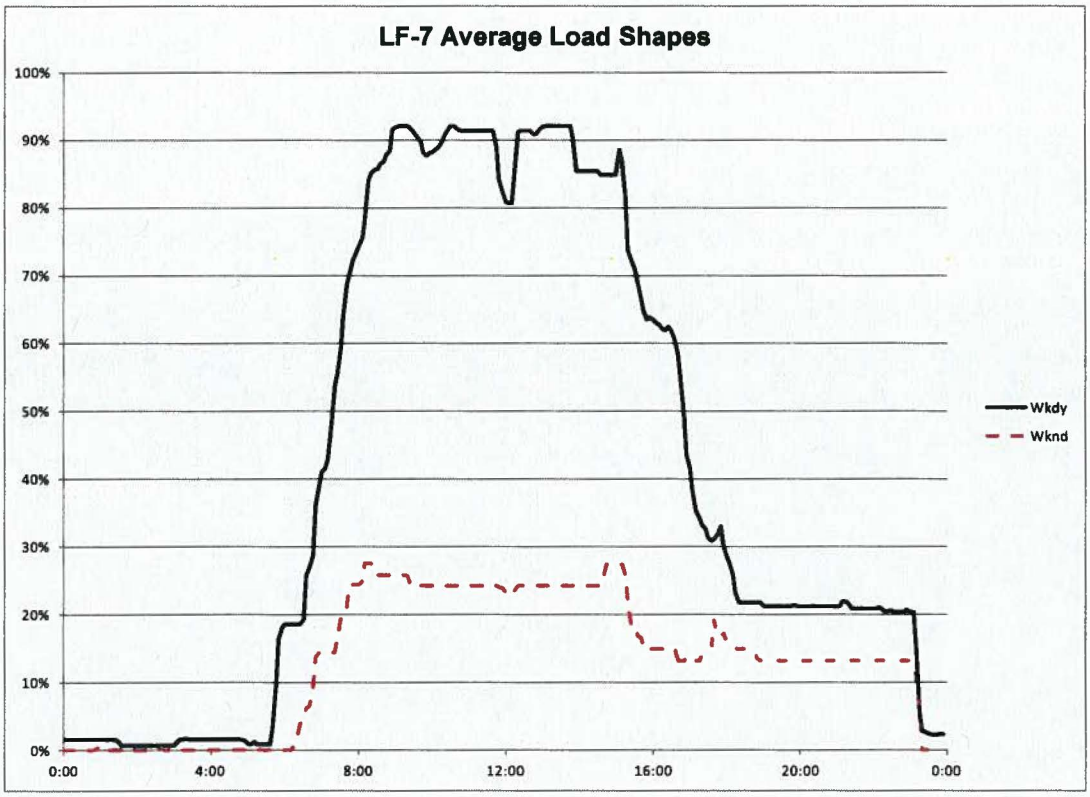
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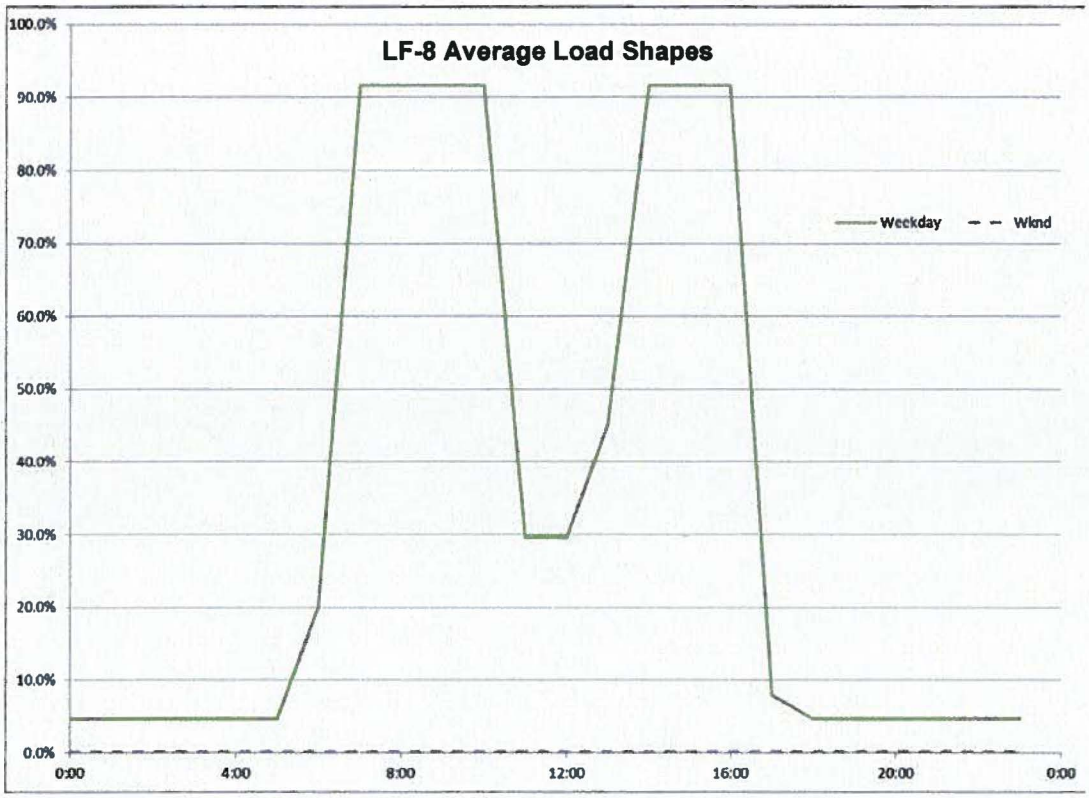
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Weekday
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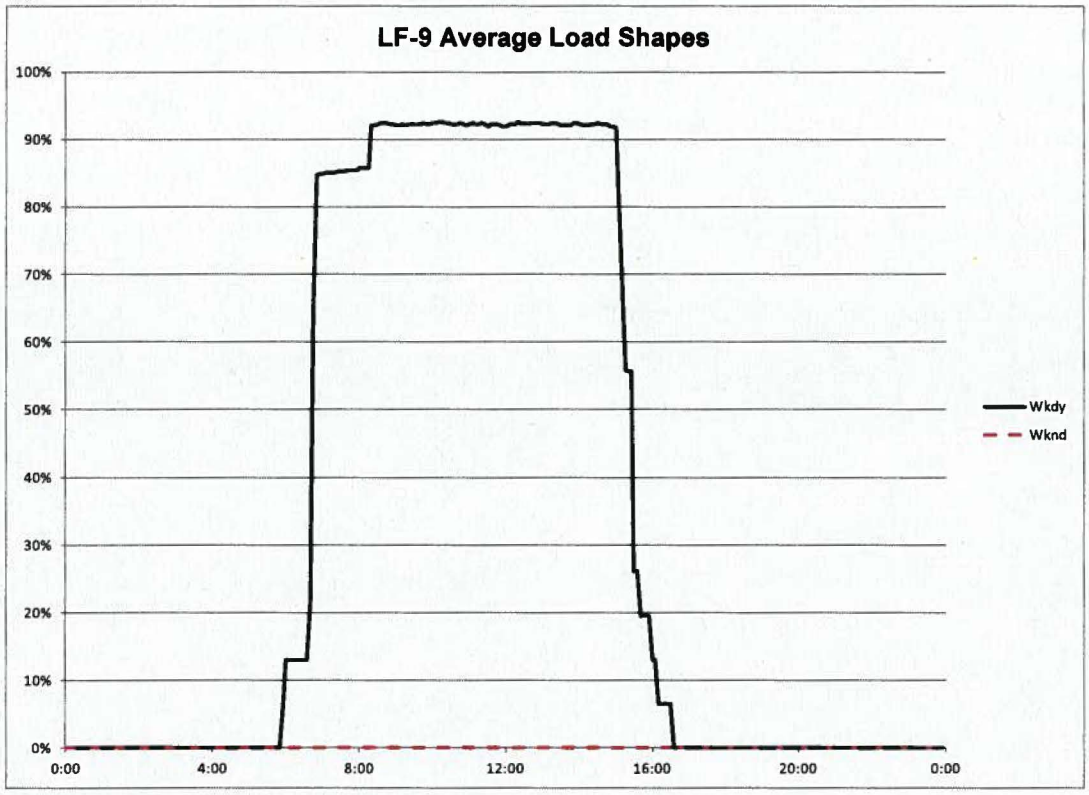
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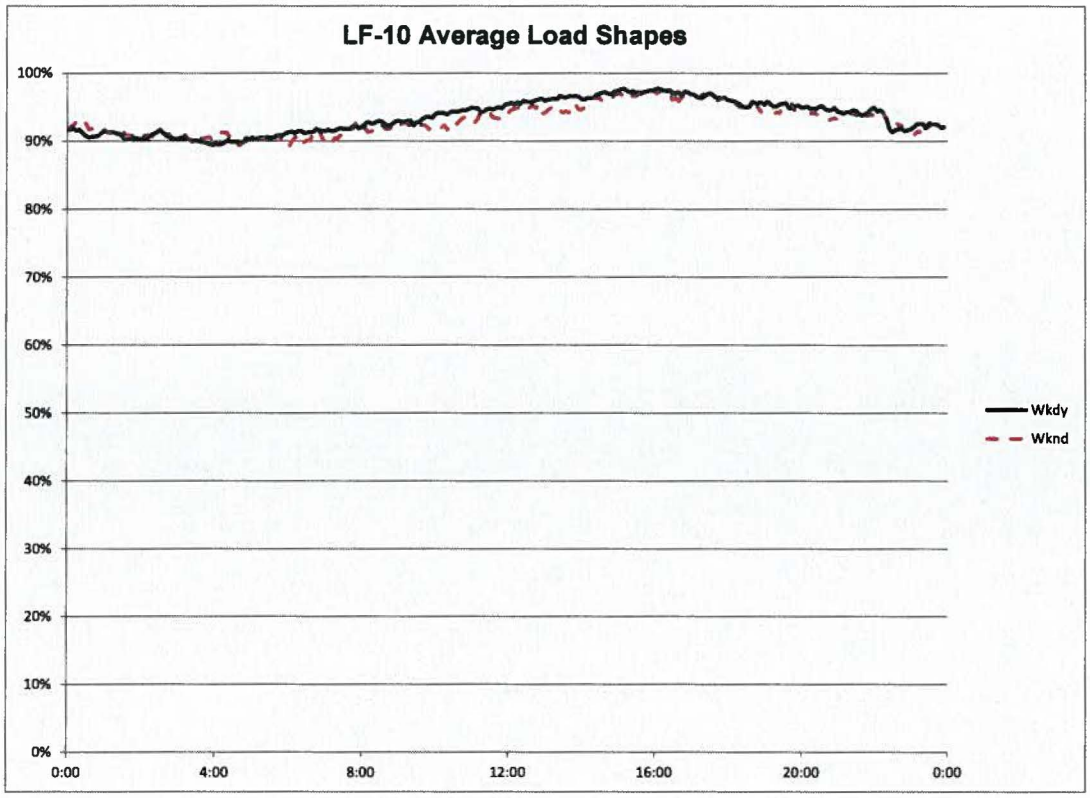
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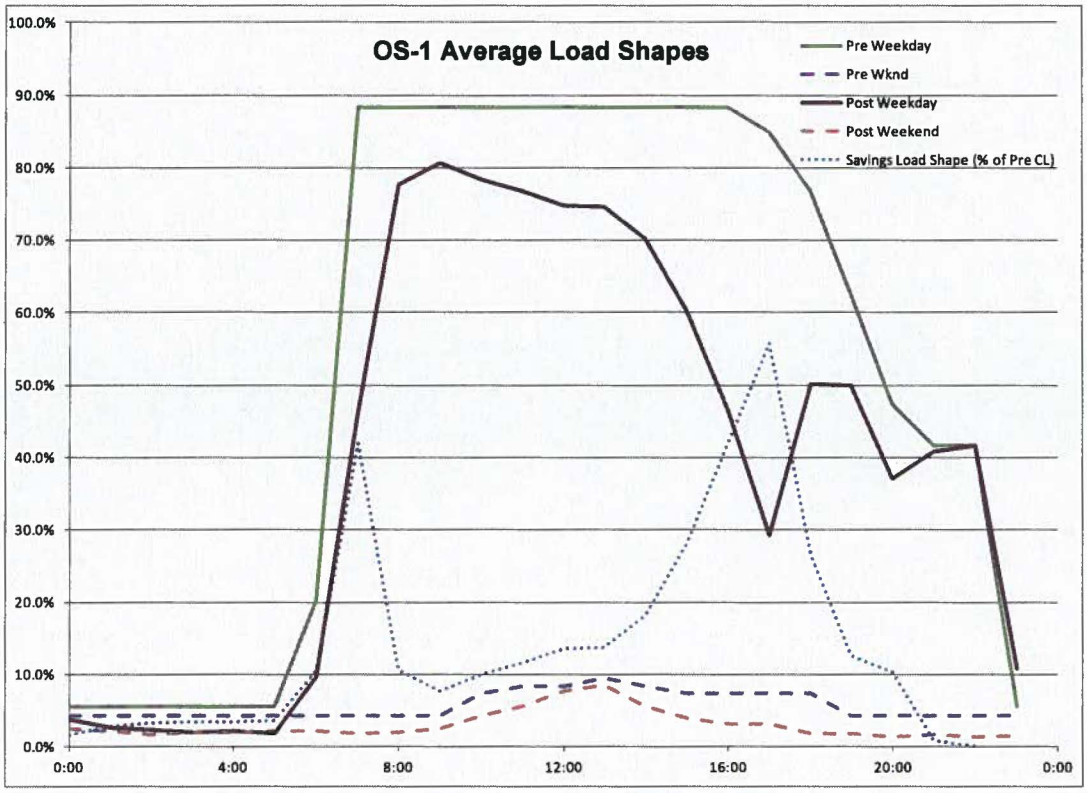
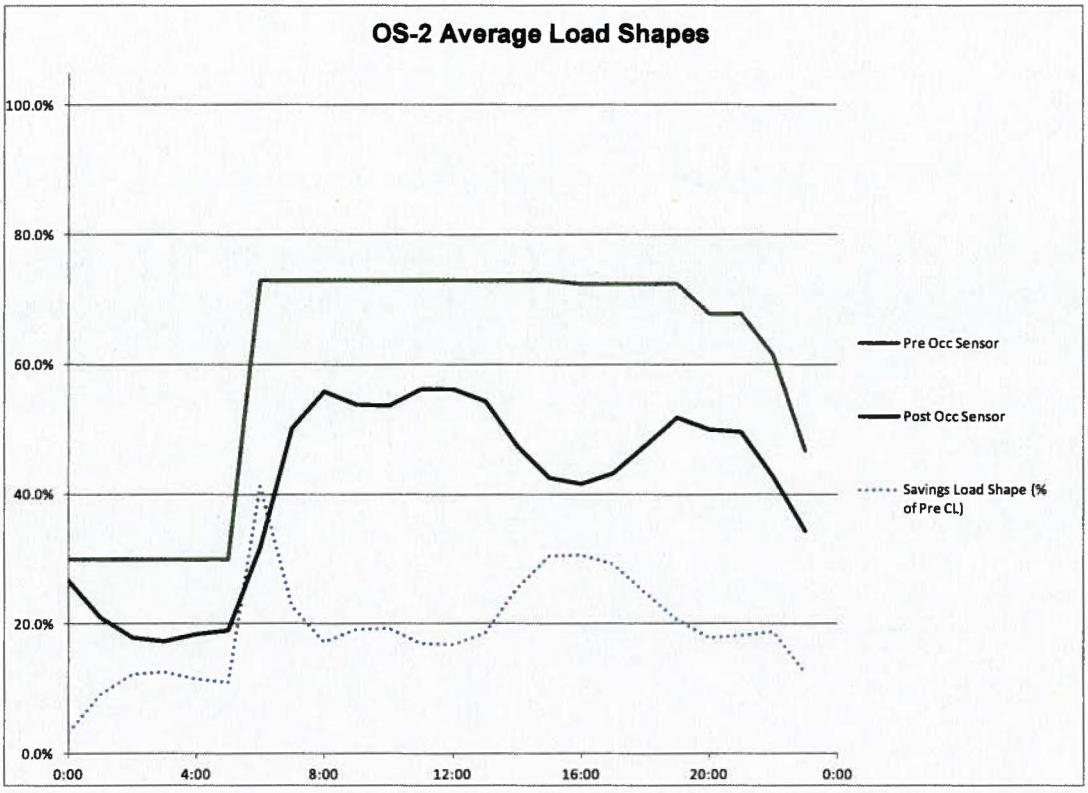
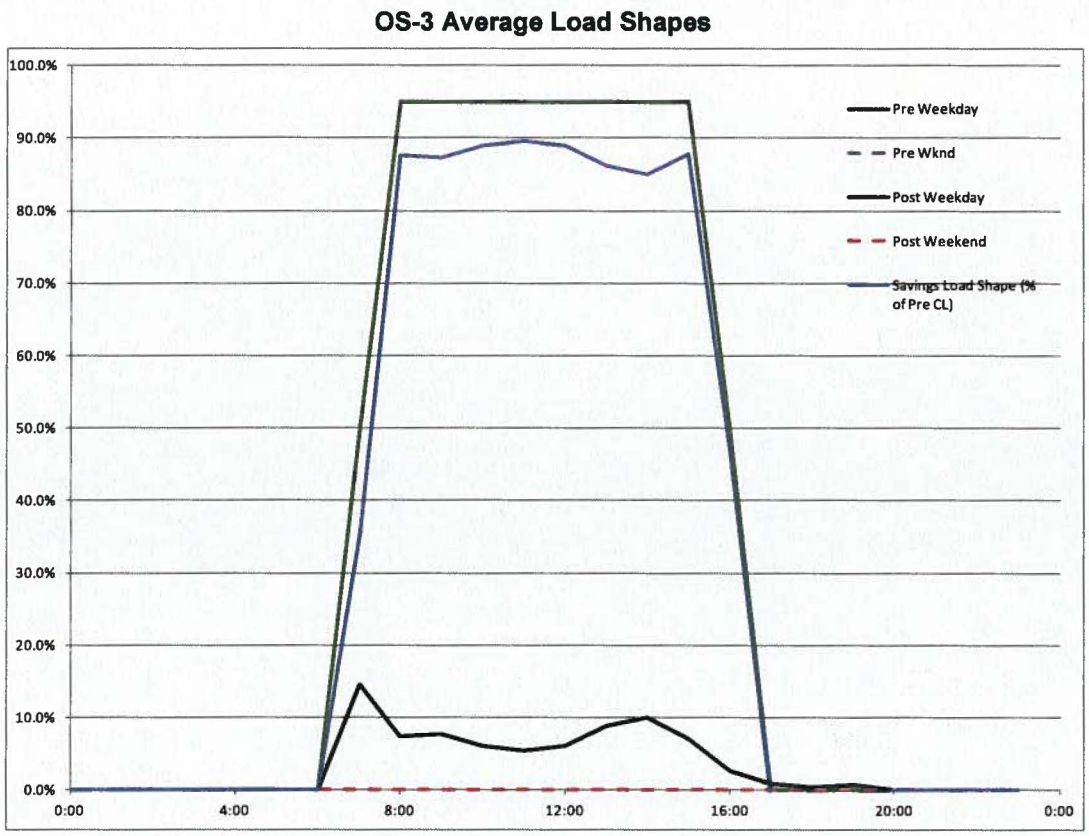
Occupancy Sensor Sites



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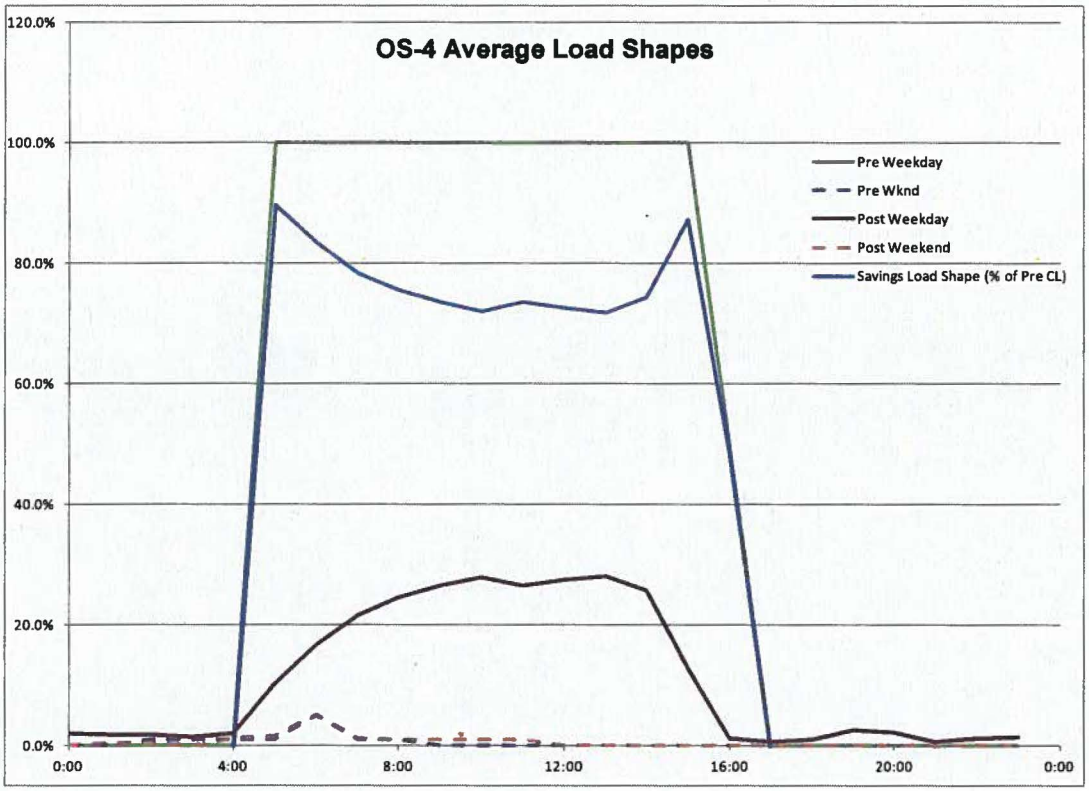
Pre Weekday
Pre Wknd
Post Weekday
Post Weekend
Savings Load Shape (% of Pre CL)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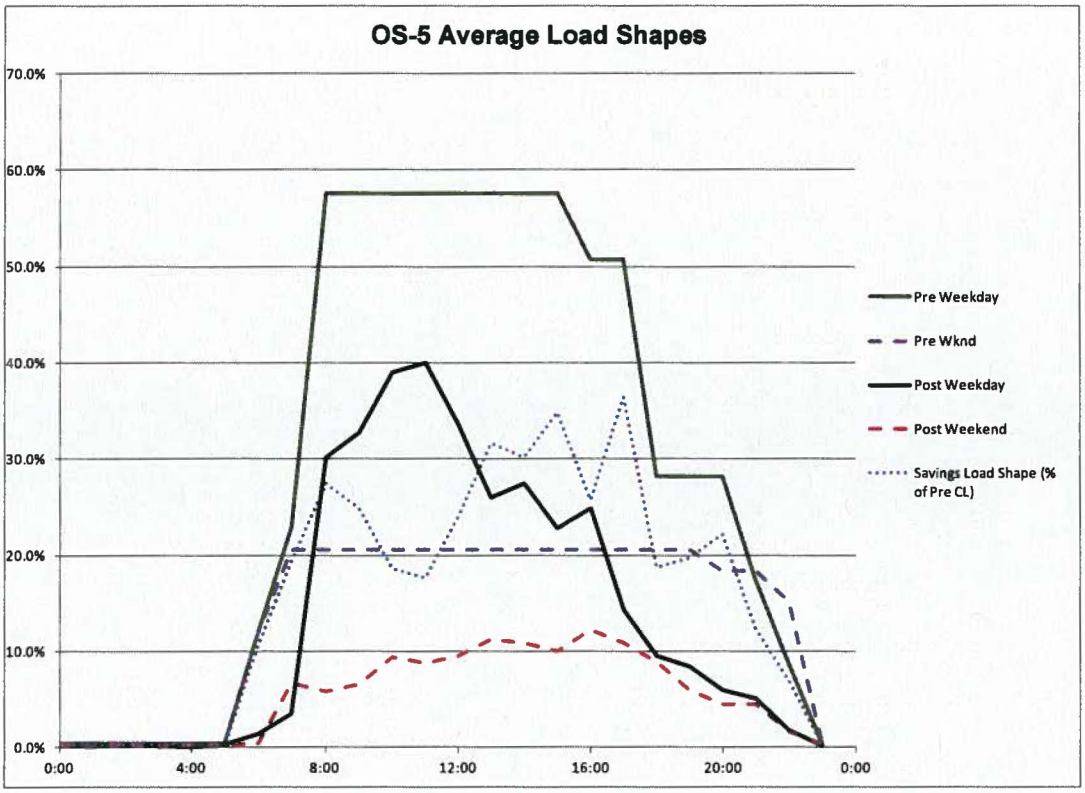
Pre Weekday
Pre Wknd
Post Weekday
Post Weekend
Savings Load Shape (% of Pre CL)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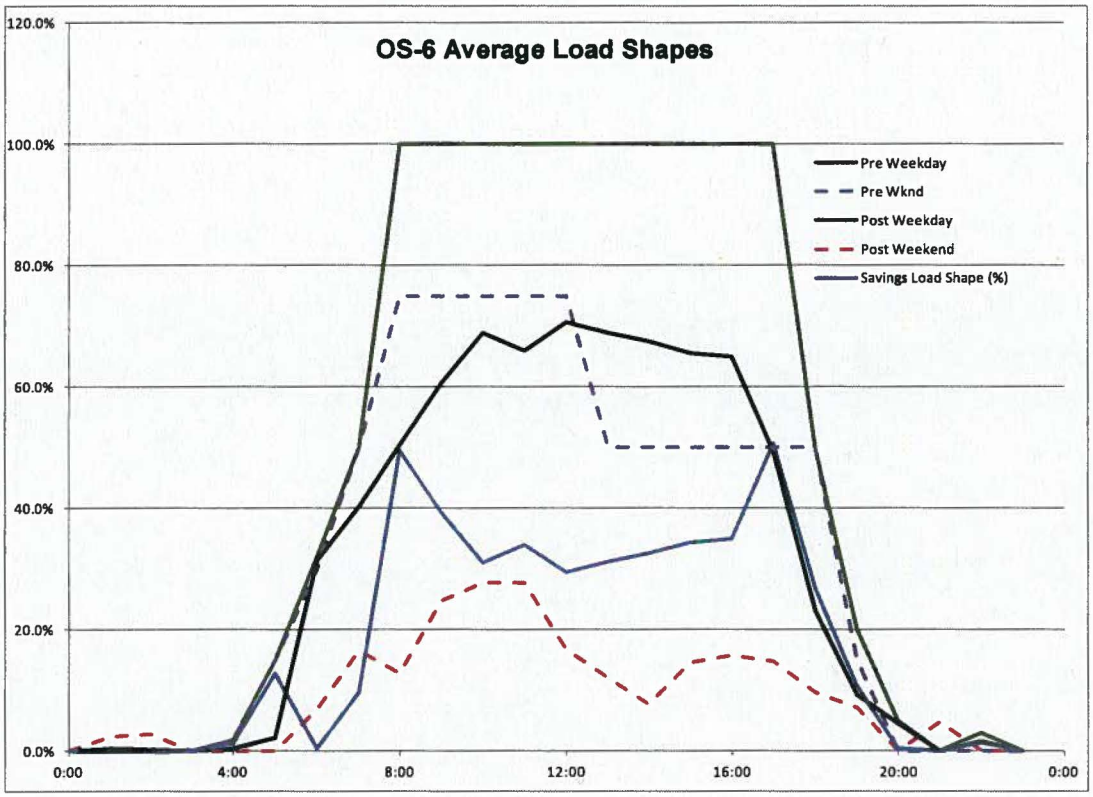
Pre Weekday
Pre Wknd
Post Weekday
Post Weekend
Savings Load Shape (% of Pre CL)


OS-6 Average Load Shapes
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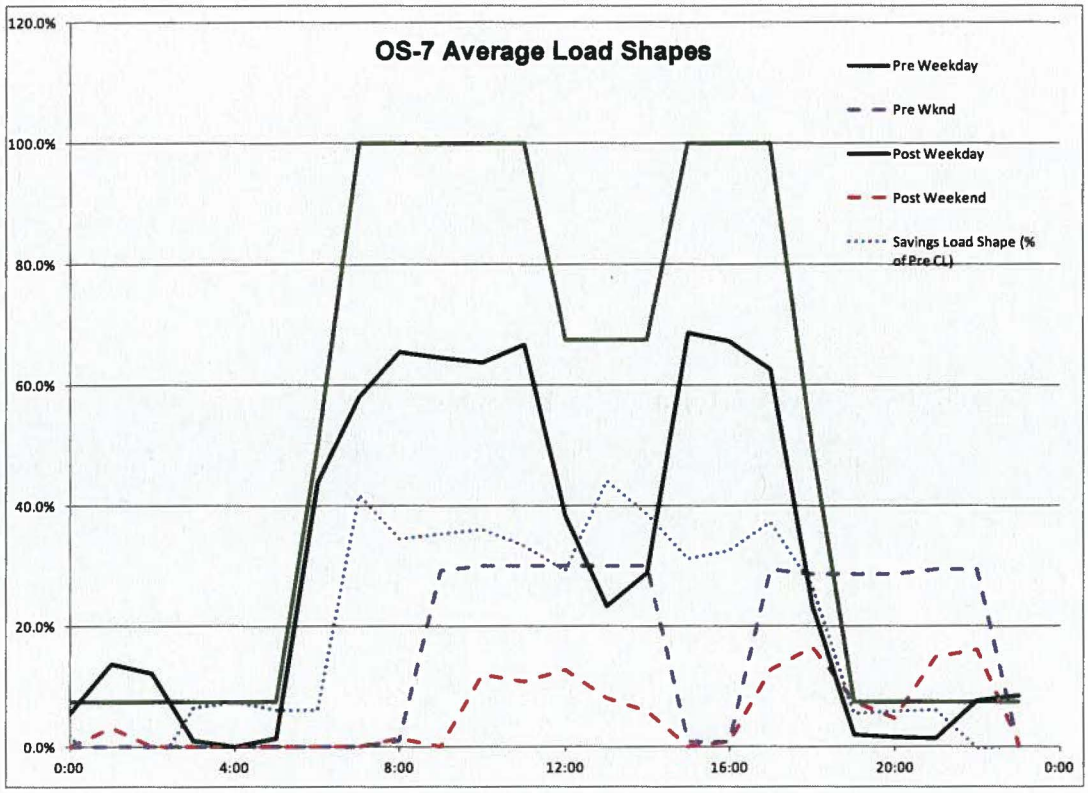
Pre Weekday
Pre Wknd
Post Weekday
Post Weekend
Savings Load Shape (%)


OS-7 Average Load Shapes
Pre Weekday
Pre Wknd
Post Weekday
Post Weekend
Savings Load Shape (% of Pre CL)
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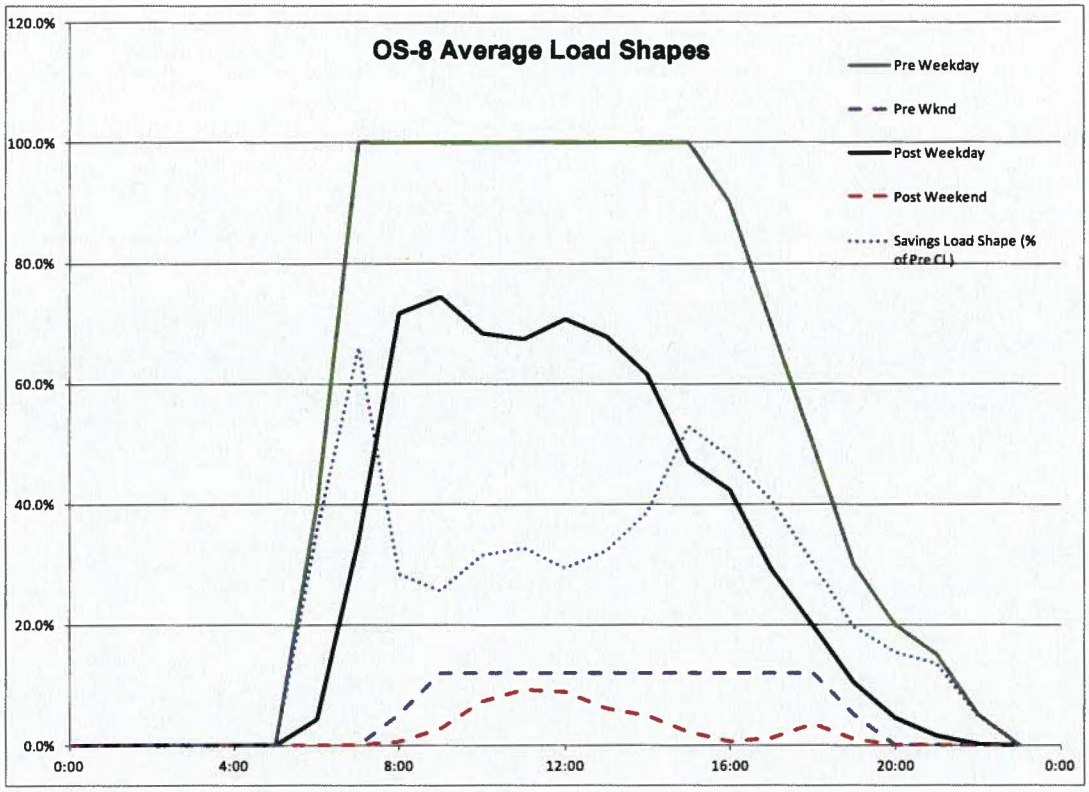
OS-8 Average Load Shapes
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Pre Wknd
Post Weekday
Post Weekend
Savings Load Shape (% of Pre CL)
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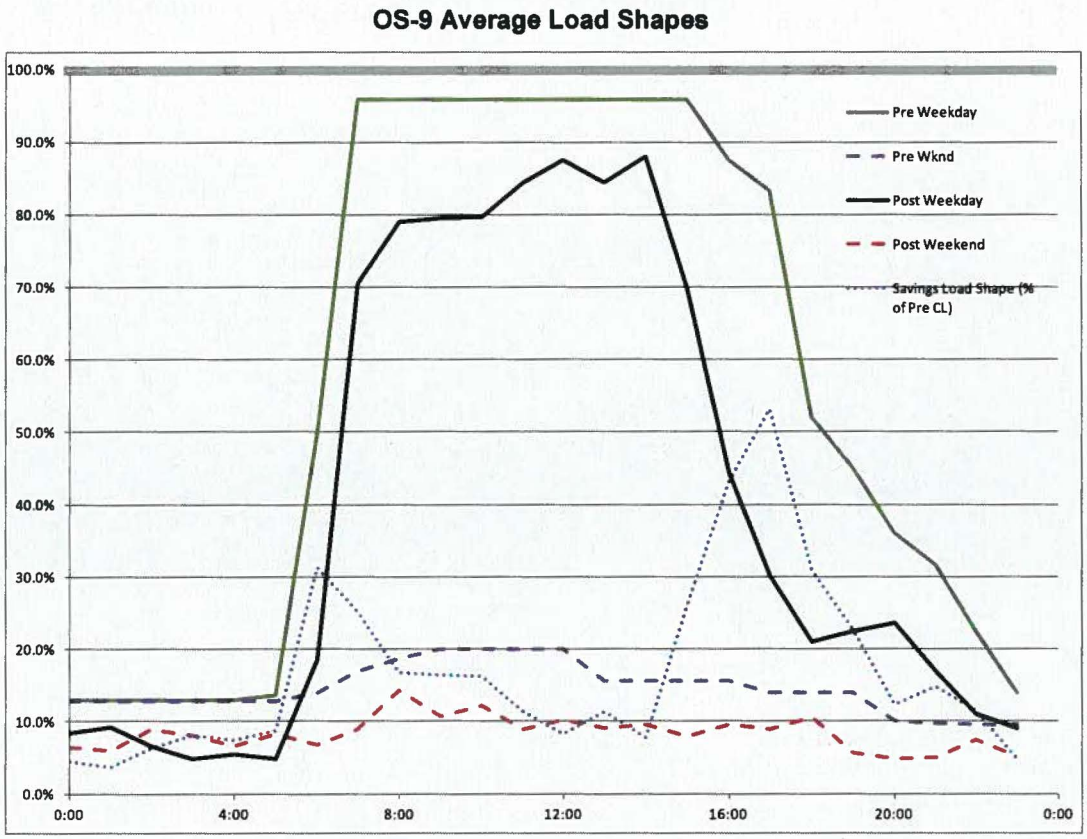
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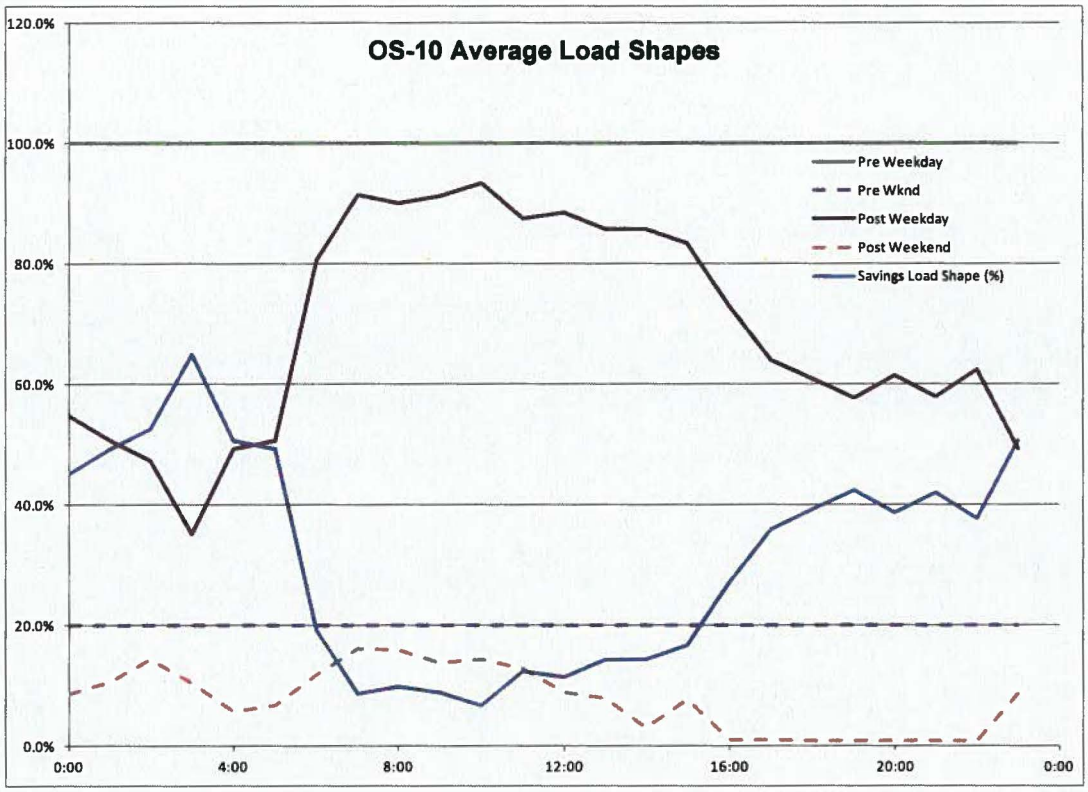
Pre Weekday
Pre Wknd
Post Weekday
Post Weekend
Savings Load Shape (% of Pre CL)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Pre Weekday
Pre Wknd
Post Weekday
Post Weekend
Savings Load Shape (%)

Appendix B: Results of HVAC Interactive Effects Simulations

	System	Cincinnati, OH	
		WHFe	WHFd
Assembly	AC / gas heat with economizer	0.130	0.246
	AC / gas heat no economizer	0.154	0.246
	AC / electric heat with economizer	-0.338	0.242
	AC / electric heat no economizer	-0.315	0.242
	Heat pump with economizer	-0.018	0.243
	Heat pump no economizer	0.005	0.243
	Electric heat only	-0.485	0.000
Big Box	AC / gas heat with economizer	0.076	0.268
	AC / gas heat no economizer	0.126	0.268
	AC / electric heat with economizer	-0.277	0.227
	AC / electric heat no economizer	-0.228	0.228
	Heat pump with economizer	-0.075	0.228
	Heat pump no economizer	-0.026	0.228
	Electric heat only	-0.371	0.000
Fast Food	AC / gas heat with economizer	0.083	0.262
	AC / gas heat no economizer	0.104	0.262
	AC / electric heat with economizer	-0.593	0.258
	AC / electric heat no economizer	-0.573	0.258
	Heat pump with economizer	-0.167	0.259
	Heat pump no economizer	-0.146	0.259
	Electric heat only	-0.721	0.000
FS Restaurant	AC / gas heat with economizer	0.098	0.372
	AC / gas heat no economizer	0.120	0.372
	AC / electric heat with economizer	-0.657	0.365
	AC / electric heat no economizer	-0.635	0.365
	Heat pump with economizer	0.100	0.365
	Heat pump no economizer	0.122	0.365
	Electric heat only	-0.794	0.000
Grocery	AC / gas heat with economizer	0.000	0.485
	AC / gas heat no economizer	0.125	0.485
	AC / electric heat with economizer	0.000	0.374
	AC / electric heat no economizer	-0.301	0.374
	Heat pump with economizer	0.000	0.374

	System	Cincinnati, OH	
		WHFe	WHFd
	Heat pump no economizer	0.044	0.374
	Electric heat only	0.000	0.000
Hospital	AC / gas heat with economizer	0.058	0.083
	AC / gas heat no economizer	0.066	0.083
	AC / electric heat with economizer	0.053	0.083
	AC / electric heat no economizer	0.061	0.083
	Heat pump with economizer	0.056	0.083
	Heat pump no economizer	0.064	0.083
	Electric heat only	-0.001	0.000
Light Industrial	AC / gas heat with economizer	0.080	0.213
	AC / gas heat no economizer	0.063	0.213
	AC / electric heat with economizer	-0.368	0.221
	AC / electric heat no economizer	-0.384	0.221
	Heat pump with economizer	-0.076	0.221
	Heat pump no economizer	-0.092	0.221
	Electric heat only	-0.474	0.000
Motel	AC / gas heat with economizer	0.000	0.000
	AC / gas heat no economizer	0.837	0.055
	AC / electric heat with economizer	0.000	0.000
	AC / electric heat no economizer	0.617	0.055
	Heat pump with economizer	0.000	0.000
	Heat pump no economizer	0.563	0.055
	Electric heat only	0.000	0.000
Nursing Home	AC / gas heat with economizer	0.143	-0.009
	AC / gas heat no economizer	0.148	-0.009
	AC / electric heat with economizer	0.107	-0.009
	AC / electric heat no economizer	0.112	-0.009
	Heat pump with economizer	0.122	-0.012
	Heat pump no economizer	0.127	-0.012
	Electric heat only	-0.042	0.000
Primary School	AC / gas heat with economizer	0.072	0.263
	AC / gas heat no economizer	0.032	0.263
	AC / electric heat with economizer	-0.808	0.266
	AC / electric heat no economizer	-0.847	0.266
	Heat pump with economizer	-0.256	0.266
	Heat pump no economizer	-0.296	0.266

	System	Cincinnati, OH	
		WHFe	WHFd
	Electric heat only	-0.856	0.000
Small Office	AC / gas heat with economizer	0.126	0.199
	AC / gas heat no economizer	0.080	0.184
	AC / electric heat with economizer	-0.192	0.190
	AC / electric heat no economizer	-0.238	0.190
	Heat pump with economizer	0.023	0.190
	Heat pump no economizer	-0.023	0.190
	Electric heat only	-0.338	0.000
Warehouse	AC / gas heat with economizer	0.085	0.317
	AC / gas heat no economizer	0.081	0.317
	AC / electric heat with economizer	-0.316	0.318
	AC / electric heat no economizer	-0.320	0.318
	Heat pump with economizer	0.011	0.318
	Heat pump no economizer	0.007	0.318
	Electric heat only	-0.403	0.000

Appendix C: DSMore Table

Per Measure Impacts Summary for Non-Residential Smart $aver Prescriptive

Impacts ⇨ / Technology ⇩	Product code	State	EM&V gross savings (kWh/unit)	EM&V gross kW (customer peak/unit)	EM&V gross kW (coincident peak/unit)	Unit of measure	Combined spillover less freeridership adjustment	EM&V net savings (kWh/unit)	EM&V net kW (customer peak/unit)	EM&V net kW (coincident peak/unit)	EM&V load shape (yes/no)	EUL (whole number)
HPT8 4ft 2 lamp, T12 to HPT8		OH and KY	191.6	0.041	0.033	Fixture	31.8%	130.7	0.028	0.023	No	12
HPT8 4ft 2 lamp, T8 to HPT8		OH and KY	72.4	0.015	0.012	Fixture	31.8%	49.4	0.010	0.008	No	12
Low Watt T8 lamps, 4ft		OH and KY	35.0	0.007	0.006	Lamp	31.8%	23.9	0.005	0.004	No	12
LW HPT8 4ft 2 lamp, replace T8		OH and KY	86.0	0.018	0.015	Fixture	31.8%	58.7	0.012	0.010	No	12
LW HPT8 4ft 4 lamp, replace T8		OH and KY	154.8	0.033	0.027	Fixture	31.8%	105.6	0.023	0.018	No	12
LW HP T-8 4ft 1L replace T-8 4ft 1L		OH and KY	60.2	0.013	0.01	Fixture	31.8%	41.1	0.009	0.007	No	12
LW HP T-8 4ft 2L replace T-8 4ft 2L		OH and KY	86.0	0.018	0.015	Fixture	31.8%	58.7	0.012	0.010	No	12
LW HP T-8 4ft 4L replace T-8 4ft 4L		OH and KY	154.8	0.033	0.027	Fixture	31.8%	105.6	0.023	0.018	No	12
T8 2ft 2 lamp		OH and KY	206.3	0.044	0.036	Fixture	31.8%	140.7	0.030	0.025	No	12
T8 4ft 2 lamp		OH and KY	111.8	0.024	0.019	Fixture	31.8%	76.2	0.016	0.013	No	12
T8 4ft 4 lamp		OH and KY	275.1	0.059	0.047	Fixture	31.8%	187.6	0.040	0.032	No	12
T8 8ft 2 lamp		OH and KY	120.4	0.026	0.021	Fixture	31.8%	82.1	0.018	0.014	No	12
Occupancy Sensors under 500 W		OH and KY	273.5	0.079	0.123	Sensor	31.8%	186.5	0.054	0.084	No	10
Occupancy Sensors over 500 W		OH and KY	684.8	0.193	0.302	Sensor	31.8%	467.0	0.132	0.206	No	10
VFD HVAC Fan		OH and KY	1,011.7	0.162	0.07	hp	31.8%	690.0	0.110	0.048	No	15
VFD HVAC Pump		OH and KY	1,558.0	0.266	0.207	hp	31.8%	1,062.6	0.181	0.141	No	15
VFD Process Pump 1-50 HP		OH and KY	270.6	0.043	0.033	hp	31.8%	184.5	0.029	0.023	No	15
Program wide												

Note 1. Each row contains per unit savings and different technologies have different units, therefore the "Program Wide" row is left blank.

Note 2. Results from the linear fluorescent evaluation may be extended to other linear fluorescent fixture types not specifically studied in the sampled buildings.

Appendix D: Required Savings Table

The required table showing measure-level participation counts and savings for each program is below.

Measure	Participation Count	Verified Per unit kWh impact	Verified Per unit kW impact	Gross Verified kWh Savings	Gross Verified kW Savings
HPT8 4ft 2 lamp, T12 to HPT8	4,878	191.6	0.033	934,625	161.0
HPT8 4ft 2 lamp, T8 to HPT8	2,705	72.4	0.012	195,842	32.5
Low Watt T8 lamps, 4ft	174,488	35.0	0.006	6,107,080	1,046.9
LW HPT8 4ft 2 lamp, replace T8	7,237	86.0	0.015	622,382	108.6
LW HPT8 4ft 4 lamp, replace T8	4,267	154.8	0.027	660,532	115.2
LW HP T-8 4ft 1L replace T-8 4ft 1L	1,032	60.2	0.010	62,126	10.3
LW HP T-8 4ft 2L replace T-8 4ft 2L	26,249	86.0	0.015	2,257,414	393.7
LW HP T-8 4ft 4L replace T-8 4ft 4L	6,768	154.8	0.027	1,047,686	182.7
T8 2ft 2 lamp	2,161	206.3	0.036	445,814	77.8
T8 4ft 2 lamp	24,674	111.8	0.019	2,758,553	468.8
T8 4ft 4 lamp	21,648	275.1	0.047	5,955,365	1,017.5
T8 8ft 2 lamp	3,553	120.4	0.021	427,781	74.6
Occupancy Sensors under 500 W	28,904	273.5	0.123	7,905,244	3,555.2
Occupancy Sensors over 500 W	10,968	684.8	0.302	7,510,886	3,312.3
VFD HVAC Fan	602	1,011.7	0.070	609,043	42.1
VFD HVAC Pump	54	1,558.0	0.207	84,132	11.2
VFD Process Pump 1-50 HP	9	270.6	0.033	2,435	0.3

Final Report

Impact Evaluation of the My Home Energy Report (MyHER) Program in Kentucky

Prepared for
Duke Energy
139 East Fourth Street
Cincinnati, OH 45201

February 12, 2014

Submitted by
Nick Hall and Johna Roth

Integral Analytics
Michael Ozog and May Wu

TecMarket Works
165 West Netherwood Road
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Oregon, WI 53575
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TECMARKET Works

TABLE OF CONTENTS

Executive Summary

Key Findings and Recommendations

The key findings and recommendations identified through this evaluation are presented below.

Significant Impact Evaluation Findings: Billing Analysis

A billing analysis was conducted to estimate the net energy savings from the program. The billing analysis relies upon a statistical analysis of actual customer-billed electricity consumption of customers receiving the MyHER mailings, compared to the change in savings over that same period for a matched comparison group to estimate the impact for the MyHER program.

The estimated impacts are presented in the "Energy Savings" section of the report, and a summary of the results is shown below:

	Annual Savings, 95% Confidence Interval		
	Lower Bound	Estimate	Upper Bound
Per Participant kWh Savings	168	204	240
Per Participant coincident kW savings	0.0496	0.0602	0.0708

The non-coincident kW impact is 0.0666 kW.

Introduction and Purpose of Study

Summary Overview

This document presents the impact evaluation report for Duke Energy's My Home Energy Report (MyHER) Program as it was administered in Kentucky. The evaluation was conducted by TecMarket Works and its subcontractor, Integral Analytics, Inc.

Summary of the Evaluation

The impact findings presented in this report were calculated using a best practice fixed effects energy impact analysis model, in which monthly participant and non-participant billing data is weather normalized and compared across pre and post participation periods and adjusted for the effects of a randomly selected control group and time-insensitive effects. This approach provides net program-induced savings achieved by the program's interventions.

Evaluation Objectives

This report's objectives include a presentation of the MyHER program's estimated energy impacts since August of 2012.

Description and Purpose of Program

The My Home Energy Report (MyHER) Program is an energy efficiency program currently operating in Kentucky. The purpose of the program is to provide Duke Energy residential customers with customized home energy reports that compare their home's electric energy usage with similar homes in order to encourage behavior driven energy savings through the principles of social norming. Up to 12 reports are sent each year.

The program targets more than 44,000 residential customers residing in individually metered single-family residences in Duke Energy's Kentucky service territory. Rather than requiring people to sign up for the efficiency program, customers are automatically enrolled into the program to begin receiving personalized reports comparing their monthly and annual energy usage with a group of homes of similar size, age, type of heating fuel and geography.

Duke Energy works with a third party program vendor that uses proprietary methods, to analyze the customer's energy use and compare it to a peer group. The customer's monthly and annual energy usage is then graphed in comparison to the usage of an average home and an efficient home within the peer group. The reports present specifically targeted tips to save energy and offers to participate in Duke Energy's other energy programs. These targeted suggestions are based specifically on the customer's energy consumption patterns and home characteristics.

Program Enrollment, Eligibility, and Participation

Opt-Out Enrollment

Unlike other energy efficiency programs offered by Duke Energy, this program is designed to use opt-out enrollment, so that eligible customers automatically receive a welcome letter and begin receiving reports without the need to formally sign up. With a growing number of utilities

offering comparable behavior change reports, opt-out enrollment is considered an industry norm for programs of this type.

Opt-out enrollment offers advantages to customers and to Duke Energy. First, it enables a greater number of customers to benefit from a better understanding of their homes' energy use and the most effective ways that they can save energy. Second, it diminishes program costs by reducing the need for program marketing, since opt-in enrollment necessarily requires making customers aware of the benefits of the program prior to signing them up. Third, as the reports directly state: "When customers reduce their energy needs, it reduces the costs to provide energy and the need to build more power plants, which lowers bills for you, your community, and Duke Energy."

The opt-out enrollment method is considered appropriate because the reports contain useful information specific to each customer. For this reason, the reports are deemed to be informational communications about customer accounts rather than solicitations. Customers always retain the ability to opt-out at any time with a phone call or email using the contact details listed on every report. However, as of May 31, 2013, the Kentucky opt-out rate is extremely low at less than 0.01%, or 63 people on a base of approximately 44,000 participants.

Eligibility

To be eligible for the program, customers must live in a single family home with a single electric meter. Customers must also have 13 months of consecutive billing data at the present address. Full program eligibility requirements are as follows:

- Active customer on a residential rate plan in Kentucky
- 13 months of consecutive usage history
- Individual electric meter
- Single family home
- Non-apartment
- Non-business
- No percent of income plan
- Home address equals a billing address or post office box in same state as the service address
- Has not opted out of the program
- Not part of the control group (opt-in is possible)

Duke Energy customers are considered to be MyHER program participants when they have:

- Met the program's eligibility requirements
- Received at least one MyHER Report
- Not opted out of the program

Participation

The MyHER program sends a paper report by mail to approximately 44,000 participating households in Kentucky. Participation numbers vary due to opt-outs and changes in customer eligibility status. Customer participation is validated monthly by Duke Energy using detailed

reports from the program vendor. The table below shows official program participation numbers by month between program inception and May 31, 2013.

Table 1. Program Participation by Month

Month	# of Participants*
Sep 2012	41,760
Oct 2012	42,477
Nov 2012*	43,076
Dec 2012*	43,076
Jan 2013	44,112
Feb 2013	44,563
Mar 2013*	44,466
Apr 2013*	44,466
May 2013	44,372

**In months when no new reports are sent, participation numbers are considered the same as in the preceding month since customers are considered to remain in the treatment group until the next treatment report is mailed.*

Methodology

The billing analysis used consumption data from MyHER recipients in Kentucky (58,881 customers) that participated between August of 2012 and October of 2013. A linear panel model was used to determine program impacts, where the dependent variable was daily electricity consumption from January of 2010 to October of 2013.

In order to determine the kW savings, the project used a Calibrated Load-Shape Differences Approach (CLSD). This approach is based on the results of the billing analysis (kWh saved) to establish the total and per participant amount of energy savings achieved by the program. The specific steps associated with this approach are as follows:

1. Conduct a billing analysis to identify program energy (kWh) savings achieved.
2. Use the utility-specific DSMore load shapes to calculate a kW coincident reduction factor for demand savings such that the total kW savings curve equals the annual savings estimate from the billing analysis.

This approach provides a reliable estimate of the per household and program-wide peak kW reduction for the least cost.

Data Collection Methods, Sample Sizes, and Sampling Methodology

The billing analysis used consumption data from all complete data provided for the MyHER recipients in Kentucky (58,881 customers) that received the MyHER between August of 2012 and October of 2013. There were a total of 58,881 usable accounts after processing[1], of which 48,882 were report recipients, and 9,998 were control group members.

Number of Completes and Sample Disposition for Each Data Collection Effort

N/A (all participants included, sampling was not used)

Expected and Achieved Precision

All savings estimates from the billing analysis were statistically significant at the 95% confidence level.

Description of Measures and Selection of Methods by Measure(s) or Market(s)

This behavioral program does not include any energy efficient measures. The MyHER program consists of regular mailings to a targeted list of customers as described above.

Threats to validity, sources of bias and how those were addressed

The model used in the billing analysis was designed specifically to avoid the potential of omitted variable bias by including monthly variables that capture any non-program effects that affect energy usage, such as number of people in the home, as well as other Duke Energy offers.

[1] Useable accounts are those accounts which have billing data for both a portion of the pre- and post-participation period, as well as monthly kWh greater than 0 and less than 10,000 kWh.

Energy Savings

The goal of this billing analysis is to evaluate the energy impacts from MyHER since August 2012. The estimated MyHER savings obtained from the billing data analysis are presented below.

Table 2. Estimated MyHER Impacts

	Annual Savings, 95% Confidence Interval		
	Lower Bound	Estimate	Upper Bound
Per Participant kWh Savings since 08/2012	168	204	240

This table shows that the MyHER program produced statistically significant savings for participants in Kentucky.

Note that the billing data analysis includes variables to capture and explicitly control for the effect of participation in other Duke Energy programs after participation in MyHER.

For this analysis, data are available both across households (i.e., cross-sectional) and over time (i.e., time-series covering both pre- and post-treatment periods). With this type of data, known as "panel" data, it becomes possible to control, simultaneously, for differences across households as well as differences within each household over time. This is accomplished through the use of a "fixed-effects" panel model specification. The fixed-effect refers to the inclusion of a customer-specific intercept terms. This term captures all time-invariant characteristics that affect the level of energy use, whether observed or not. The other variables in the model are time-variant variables that change over time, such as weather and program treatment.

The fixed effects model can be viewed as a type of differencing model in which all characteristics of the home, which (1) are independent of time and (2) determine the level of energy consumption, are captured within the customer-specific constant terms. In other words, differences in customer characteristics that cause variation in the level of energy consumption, such as building size and structure, are captured by constant terms representing each unique household.

Algebraically, the fixed-effect panel data model is described as follows:

$$y_{it} = \alpha_i + \beta x_{it} + \varphi P_{it} + \theta T + \delta DP_{it} + \varepsilon_{it}$$

where:

y_{it} = energy consumption for home i during month t
α_i = constant term for site i (the fixed-effect)
T = indicator variables for each time period in the analysis
P = indicator for the treatment for the program in question
DP = indicators for other utility-sponsored programs
$\beta,\varphi,\theta,\delta$ = vectors of estimated coefficients
x = vector of non-program variables that represent factors causing changes in energy consumption for home i during month t (i.e., weather)
ε = error term for home i during month t.

With this specification, the only required factors are those that vary month to month for each customer which will affect energy use. These are effectively weather conditions and program participation. Other non-measurable time-variant factors (such as economic conditions and season loads) are captured through the use of monthly indicator variables.

Moreover this analysis involves both a treatment group and a control group. Treatment group includes customers who received the MyHER reports whereas control group includes customers who did not receive any MyHER report and was kept separately to provide comparison to the treatment group.

The effects of the MyHER program are captured by including a variable which is equal to one for all months after the household participated in the program. In order to account for differences in billing days, the usage was normalized by days in the billing cycle. The estimated electric model for the MyHER program is presented in Table 3.

Table 3. Estimated Savings Model for KY MyHER – dependent variable is daily kWh usage (savings are negative)

Independent Variable	Coefficient (daily kWh Savings)	t-value
MyHER Impact since Aug. 2012	-0.56	-11.2
Sample Size	2,403,857 observations (58,881 homes)	
R-Squared	68%	

The complete estimate model, showing the weather and time factors, is presented in "Appendix A: Estimated Statistical Model". Based on these kWh savings and the load curves in DSMore, the implied coincident kW savings is 0.0602 kW/participant.

Appendix A: Estimated Statistical Model

Number of Observations Used 2403857

Dependent Variable: kwhd

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	58942	1106533393	18773	84.22	<.0001
Error	2.34E6	522673247	223		
Corrected Total	2.4E6	1629206640			

R-Square	Coeff Var	Root MSE	kwhd Mean
0.679185	37.61459	14.92972	39.69130

Source	DF	Type I SS	Mean Square	F Value	Pr > F
account_id	58880	935868962.0	15894.5	71.31	<.0001
monthID	46	168029816.8	3652822.1	16388.0	<.0001
avg_temp	1	95249.2	95249.2	427.32	<.0001
avg_humi	1	1988757.5	1988757.5	8922.33	<.0001
avg_wins	1	353409.8	353409.8	1585.53	<.0001
CFL_promo	1	9186.9	9186.9	41.22	<.0001
Free_CF	1	3076.5	3076.5	13.80	0.0002
HEHC	1	13229.5	13229.5	59.35	<.0001
K12	1	13369.0	13369.0	59.98	<.0001
LowInc_Weath	1	9044.1	9044.1	40.58	<.0001
PER_OHEC	1	11182.1	11182.1	50.17	<.0001
CFL_special	1	1663.5	1663.5	7.46	0.0063
SmSvr_HVAC	1	101472.7	101472.7	455.25	<.0001
HVAC_tuneup	1	1978.0	1978.0	8.87	0.0029
Appl_Recycle	1	3008.3	3008.3	13.50	0.0002
Furnace_Replace	1	636.2	636.2	2.85	0.0911
Refrige_Replace	1	1372.8	1372.8	6.16	0.0131
part	1	27978.1	27978.1	125.52	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
monthID	46	2567.046	55.805	0.25	1.0000
avg_temp	1	210658.234	210658.234	945.09	<.0001
avg_humi	1	1506730.446	1506730.446	6759.77	<.0001
avg_wins	1	353876.298	353876.298	1587.63	<.0001
CFL_promo	1	7300.009	7300.009	32.75	<.0001
Free_CF	1	1986.369	1986.369	8.91	0.0028
HEHC	1	11554.863	11554.863	51.84	<.0001
K12	1	13270.694	13270.694	59.54	<.0001
LowInc_Weath	1	4744.798	4744.798	21.29	<.0001
PER_OHEC	1	10725.922	10725.922	48.12	<.0001

Source	DF	Type III SS	Mean Square	F Value	Pr > F
CFL_special	1	1635.181	1635.181	7.34	0.0068
SmSvr_HVAC	1	102832.009	102832.009	461.34	<.0001
HVAC_tuneup	1	1999.013	1999.013	8.97	0.0027
Appl_Recycle	1	3095.487	3095.487	13.89	0.0002
Furnace_Replace	1	363.205	363.205	1.63	0.2018
Refrige_Replace	1	1388.566	1388.566	6.23	0.0126
part	1	27978.057	27978.057	125.52	<.0001

Parameter		Estimate	Standard Error	t Value	Pr > |t|	95% Confidence Limits	
monthID	201001	5.91520143	20292.88214	0.00	0.9998	-39767.42346	39779.253868
monthID	201002	4.28734215	20292.88214	0.00	0.9998	-39769.05132	39777.626008
monthID	201003	-1.74499648	20292.88214	-0.00	0.9999	-39775.08366	39771.593670
monthID	201004	-8.12771489	20292.88214	-0.00	0.9997	-39781.46638	39765.210951
monthID	201005	-10.72333205	20292.88214	-0.00	0.9996	-39784.06200	39762.615334
monthID	201006	1.99221757	20292.88214	0.00	0.9999	-39771.34645	39775.330884
monthID	201007	12.29632653	20292.88214	0.00	0.9995	-39761.04234	39785.634993
monthID	201008	17.30706050	20292.88214	0.00	0.9993	-39756.03161	39790.645727
monthID	201009	9.47358500	20292.88214	0.00	0.9996	-39763.86508	39782.812251
monthID	201010	-4.18371071	20292.88214	-0.00	0.9998	-39777.52238	39769.154955
monthID	201011	-8.36595206	20292.88214	-0.00	0.9997	-39781.70462	39764.972714
monthID	201012	-0.45182774	20292.88214	-0.00	1.0000	-39773.79049	39772.886838
monthID	201101	6.30816984	20292.88214	0.00	0.9998	-39767.03050	39779.646836
monthID	201102	5.04665104	20292.88214	0.00	0.9998	-39768.29202	39778.385317
monthID	201103	-1.44733465	20292.88214	-0.00	0.9999	-39774.78600	39771.891331
monthID	201104	-4.75380100	20292.88214	-0.00	0.9998	-39778.09247	39768.584865
monthID	201105	-10.55375675	20292.88214	-0.00	0.9996	-39783.89242	39762.784909
monthID	201106	1.31203635	20292.88214	0.00	0.9999	-39772.02663	39774.650702
monthID	201107	10.51002036	20292.88214	0.00	0.9996	-39762.82865	39783.848686
monthID	201108	18.09461863	20292.88214	0.00	0.9993	-39755.24405	39791.433285
monthID	201109	3.00521577	20292.88214	0.00	0.9999	-39770.33345	39776.343882
monthID	201110	-11.95849867	20292.88214	-0.00	0.9995	-39785.29716	39761.380167
monthID	201111	-9.37745118	20292.88214	-0.00	0.9996	-39782.71612	39763.961215
monthID	201112	-4.84258879	20292.88214	-0.00	0.9998	-39778.18125	39768.496077
monthID	201201	2.51626921	20292.88214	0.00	0.9999	-39770.82240	39775.854935
monthID	201202	0.42134262	20292.88214	0.00	1.0000	-39772.91732	39773.760009
monthID	201203	-1.88856205	20292.88214	-0.00	0.9999	-39775.22723	39771.450104
monthID	201204	-9.10286652	20292.88214	-0.00	0.9996	-39782.44153	39764.235799
monthID	201205	-7.64389231	20292.88214	-0.00	0.9997	-39780.98256	39765.694773
monthID	201206	1.43314377	20292.88214	0.00	0.9999	-39771.90552	39774.771810
monthID	201207	19.30477189	20292.88214	0.00	0.9992	-39754.03389	39792.643438
monthID	201208	15.35533076	20292.88214	0.00	0.9994	-39757.98334	39788.693997
monthID	201209	4.12896113	20292.88214	0.00	0.9998	-39769.20970	39777.467627
monthID	201210	-11.21330366	20292.88214	-0.00	0.9996	-39784.55197	39762.125362
monthID	201211	-7.19525403	20292.88214	-0.00	0.9997	-39780.53392	39766.143412

Parameter		Estimate	Standard Error	t Value	Pr > |t|	95% Confidence Limits	
monthID	201212	-5.61775164	20292.88214	-0.00	0.9998	-39778.95642	39767.720914
monthID	201301	1.50639192	20292.88214	0.00	0.9999	-39771.83227	39774.845058
monthID	201302	4.00726655	20292.88214	0.00	0.9998	-39769.33140	39777.345933
monthID	201303	1.23405346	20292.88214	0.00	1.0000	-39772.10461	39774.572720
monthID	201304	-2.98414295	20292.88214	-0.00	0.9999	-39776.32281	39770.354523
monthID	201305	-10.02513659	20292.88214	-0.00	0.9996	-39783.36380	39763.313529
monthID	201306	-2.53621546	20292.88214	-0.00	0.9999	-39775.87488	39770.802450
monthID	201307	4.34456604	20292.88214	0.00	0.9998	-39768.99410	39777.683232
monthID	201308	2.71986474	20292.88214	0.00	0.9999	-39770.61880	39776.058531
monthID	201309	4.60188921	20292.88214	0.00	0.9998	-39768.73678	39777.940555
monthID	201310	-0.75063533	20292.88223	-0.00	1.0000	-39774.08949	39772.588215
avg_temp		-0.10567786	0.00344	-30.74	<.0001	-0.11241530	-0.09894042
avg_humi		0.32430836	0.00394	82.22	<.0001	0.31657728	0.33203945
avg_wins		-0.76472881	0.01919	-39.85	<.0001	-0.80234560	-0.72711203
CFL_promo		-0.52916507	0.09247	-5.72	<.0001	-0.71039481	-0.34793533
Free_CF		-0.14786895	0.04953	-2.99	0.0028	-0.24495279	-0.05078510
HEHC		-1.18206282	0.16418	-7.20	<.0001	-1.50384216	-0.86028349
K12		1.78149135	0.23088	7.72	<.0001	1.32897228	2.23401042
LowInc_Weath		-1.47315668	0.31929	-4.61	<.0001	-2.09896319	-0.84735018
PER_OHEC		-0.36124147	0.05208	-6.94	<.0001	-0.46330727	-0.25917566
CFL_special		-2.45141994	0.90508	-2.71	0.0068	-4.22534289	-0.67749698
SmSvr_HVAC		-4.31326668	0.20081	-21.48	<.0001	-4.70685494	-3.91967841
HVAC_tuneup		8.00340023	2.67250	2.99	0.0027	2.76538484	13.24141563
Appl_Recycle		6.57257183	1.76369	3.73	0.0002	3.11579900	10.02934466
Furnace_Replace		-1.01733606	0.79697	-1.28	0.2018	-2.57936256	0.54469044
Refrige_Replace		-1.41371390	0.56641	-2.50	0.0126	-2.52385523	-0.30357257
part		-0.55951623	0.04994	-11.20	<.0001	-0.65739847	-0.46163399

Appendix B: Number of Total Participants / Control Members by Month

monthID	Number of Participants in Control	Number of Participants in Test
201208	9985	10
201209	9961	39713
201210	9882	42268
201211	9799	42229
201212	9714	42783
201301	9654	43384
201302	9607	43930
201303	9557	44315
201304	9481	44863
201305	9421	44512
201306	9353	45042
201307	9281	45181
201308	9199	45223
201309	5274	25374
201310	8	52

Appendix C: DSMore Table

Per Measure Impacts Summary for MyHER Kentucky Duke Energy Customers

Technology ⇩ / Impacts ⇨	Product code	State	EM&V gross savings (kWh/unit)	EM&V gross kW (coincident peak/unit)	EM&V gross kW (non-coincident peak/unit)	Unit of measure	Combined spillover less freeridership adjustment	EM&V net savings (kWh/unit)	EM&V net kW (coincident peak/unit)	EM&V net kW (non-coincident peak/unit)	EM&V load shape (yes/no)	EUL (whole number)
MyHER		Kentucky	204.0	0.0666	0.0602	home	0.00%	204.0	0.0666	0.0602	no	1
Program wide			**204.0**	**0.0666**	**0.0602**		**0.00%**	**204.0**	**0.0666**	**0.0602**		**1**

Notes:
1. Technology names should match the DSMore naming convention.
2. Energy impacts are average per installed unit for each DSMore technology and unit description (measure/ton/sq.ft., etc.)
3. Any analysis using a control group (such as billing analysis with a control group) does not need a freeridership adjustment (it is already in the analysis via the control group adjustment)
4. EM&V load shape: "no" if using standard DSMore load shape for technology units, "yes" if an evaluation-provided load shape should be used for DSMore.