Innovative Austin Energy WiFi Thermostat Program Evaluation

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ABSTRACT

For more than 10 years, Austin Energy's demand response (DR) legacy program has maintained grid reliability through direct installation of free, one-way, radio-controlled thermostats that has enabled Austin Energy to reduce the air conditioning of participating customers during system peak periods. However, recent M&V studies have revealed a decline in program impacts over time, largely due to customers changing out their program-provided thermostats to newer technologies without informing the company. With an aggressive demand response goal looming, Austin Energy considered new business case options, which resulted in a new initiative where customers can receive an incentive to purchase and enroll two-way communicating thermostats through qualified WiFi thermostat vendors, allowing the company to monitor and control the enrolled thermostats during peak periods.

This paper describes the new program and assesses whether a WiFi thermostat vendor-driven program is more effective than the legacy DR program. To inform this assessment, the authors conducted an impact analysis to precisely estimate the per-customer and program impacts, and then compared the results of the new program by participating vendor and to the legacy program approach. The results show the new program produces greater savings and better customer feedback for all vendors. The authors also show how this research provides a strong foundation for making decisions on whether and how to continue and expand the DR program.

Introduction and Program Description

Austin Energy's Power Partner Thermostat Program (Power Partner Program), curtails air conditioner (A/C) operation using a load control command, activated when system load levels are critical, typically on the hottest summer days. The legacy program began in 2002, when Austin Energy (AE) provided and installed communicating thermostats at no cost to participating residential and small commercial customers and controlled them using a one-way radio signal and an adaptive algorithm programmed into each thermostat to reduce A/C runtime by 30 percent of anticipated operation.

To confirm the operational effectiveness of the program, AE has conducted annual measurement and verification (M&V) studies since the summer of 2006. In recent years, AE had become concerned that the program could not maintain its target load reductions and participation levels, since it lacked the remote two-way communication needed to verify participation (and dropouts) in real time. Thus, in 2012, AE moved the program into maintenance-only mode and stopped installing new thermostats while they re-evaluated its business case.

This resulted in AE developing a new version of the Power Partner Program, designed to incorporate two-way communicating thermostats from (potentially) multiple vendors that would provide better verification, more choices for customers, more flexibility, better and more A/C operational data, and another option to recruit customers. Starting in the summer of 2013, AE launched a retooled program that included new WiFi thermostat technology choices and a new method of enrollment. The program requires customers to:

- Be an Austin Energy residential single-family customer (multifamily and commercial accounts do not qualify).
- Have a wireless network with Internet access at the thermostat's location.
- Have a standard A/C system (split system, package unit, or heat pump).
- Have A/C equipment no larger than 10 tons and in good mechanical condition.
- Have or acquire an AE-approved, internet-connected (WiFi) communicating thermostat from one of the vendors listed on the program web site, previously qualified by AE.

In effect, the AE Power Partner Program is a "BYOT", or "Bring your own thermostat" option. Once the prospective participant registers their WiFi thermostat with the vendor, they complete an online enrolment process for the AE program. Once AE verifies customer eligibility and approves the thermostat's enrollment, the City of Austin pays the customer an $85 rebate.

AE informs participants that it will adjust thermostat settings or cycle off their air conditioner during curtailment events that typically last two hours, and occur between 3:30 and 7:00 pm for a maximum of 15 weekdays between June and September. Events are not initiated on weekends and holidays. Customers can "opt out" of the event if they follow the instructions provided on the thermostat web account.

AE enters into a Participating Vendor Agreement with each vendor to allow their customers to enroll in the program. This agreement is renewable each year, and is contingent upon the vendor meeting specific requirements, which include sufficient functionality and web tools (utility portal) to enable utility control for scheduling curtailments, data on enrollment and communications, and performance statistics to facilitate Measurement and Verification (M&V). Performance data was requested, but not required for the initial year of the program. Customer access for most vendors includes both a web portal access and smart phone applications, facilitating customer access and control.

This paper presents the methods, results, conclusions, and recommendations from the 2013 M&V assessment.

M&V Methodology

The evaluation by the authors primarily employed modeling of the cooling weather-sensitive usage per hour to determine the difference between baseline energy use and energy use during curtailed hours, controlling for weather and other factors. The evaluation determined customer cooling usage via two methods:

- Analysis of automated meter infrastructure (AMI) interval data on the participating customer's whole house load, available for all program participants, from which cooling weather-sensitive usage was modeled; and
- Analysis of interval runtime data collected via the WiFi thermostats from the A/C systems for those sites with that data available, used to supplement and confirm the AMI analysis.

AE's past experience in M&V for the program was valuable in deciding upon a methodology for the new program evaluation. AMI data had been successfully used in past AE studies to model cooling usage and curtailment impacts. Runtime data collected on a sample of sites using data loggers has also been used. Each has its pros and cons.

AMI interval data enables impact analysis of all sites without the knowledge or active participation of the residents. However, whole-house load data includes cooling load as well as all other household appliances and end uses, although cooling would be expected to be the dominant load on a hot day, and represent virtually all of the short-term weather-sensitive load for the house.

Loggers require access to the sites, introducing possible biases, such as self-selection bias and increased participant awareness of being studied, both of which can affect the accuracy of the results. The logger data provides A/C-specific runtime data, which is considered more accurate than whole house AMI data. However, an estimate of maximum A/C kW draw is needed to estimate energy impacts, converting runtime (minutes on per hour) to kW.

Since this was the first year of the program in its current form, the evaluation team made a significant effort to assess different methodologies to determine impacts and identify factors affecting those impacts. Unlike the impact analyses done for the legacy program curtailments in previous years, which were confined to a single control strategy (30% cycling), varying only by temperature conditions, this study introduced and analyzed these additional variables:

- Different control strategies, including pre-cooling, as well as several different cycling strategies and temperature setbacks
- Three WiFi vendors, each with its own utility portal and one or more models of communicating thermostats

Given the potential differences in thermostat technology, customer interfaces, customer characteristics, control strategies, and thermostat pricing, the evaluators analyzed examined how those variable factors affected impacts.

Data Collection and Preparation

The Data gathered to support the M&V analysis included the following categories:

- <u>Automated Meter Infrastructure (AMI) Data</u> - As with prior AE evaluations of the Power Partner Program, the availability of whole-house AMI monitoring data on all participants enabled evaluators to develop a model that could describe the relationship between weather and load for each hour of the curtailment event, as well as one hour before and two hours after the event. The analysis of pre-curtailment hours identified how well the curtailed and non-curtailed days matched up and measured the effect of any pre-cooling. The post-curtailment analysis identified the recovery of the cooling after curtailment, which could take several hours. Due to the need to set up the AMI capability on the selected participants, sufficient AMI data was only available starting July 1, 2013. Curtailments prior to that date were not analyzed.
- <u>Runtime Data</u> - In some cases, interval runtime data was available from the WiFi system vendor to enable a more "pure" analysis of only the cooling loads. This includes the number of minutes per quarter hour that the compressor is operating (e.g. from 1 minute to 15 minutes). Estimated or actual compressor size (in kW), collected individually or averaged from prior studies, could then be applied to convert compressor runtime to kW loading. Although the Vendor Participation Agreement required vendors to provide runtime data, this was voluntary for the first year to allow vendors time to develop and implement that capability and two of the vendors did provide some runtime.
- <u>Weather Data</u> - Weather was represented by information from Camp Mabry weather station.

- Participant Characteristics – Data on participants included billing history (summer usage), and home size

Data Preparation and Quality Control Procedures were applied to both AMI and runtime data. Austin Energy has a standard process for data extraction and quality control for AMI data extracts, which was followed. For runtime data, which was obtained from two of the three vendors, each vendor's utility portal enabled these data extracts:

a. Inventory of installed and active units by timestamp (so "population" for each event/date could be identified)
b. Interval data - Bulk data extract capability was envisioned and included in the Vendor agreements. EnergyHub was able to provide this runtime data. Ecobee also provided some runtime data.

Once data was extracted, AE staff processed it, as follows:

a. Validation, Editing & Estimation (VEE) - Data was checked to make sure it was reasonable. Comparison to whole house load was one option, as was checking weather model outliers.
b. Convert to engineering units - runtime only provides "minutes on" or percent of interval on (duty cycle), so associated unit max load draw individually or averages by group are needed to convert to kW units. Austin currently uses 3.1 kW per thermostat as max A/C condenser load draw for single family homes, based on past field checks. Nameplate A/C data collected during installation can be used, but max load draw is typically 12-18% less than nameplate, depending on temperature. An updated field check study using spot metering on at least a sample would improve the max load draw vs. nameplate estimate and is planned once the number of sites increases.
c. Override data and timestamps are used to calculate cumulative participation values. Models will only calculate net load impacts. Adding back overrides would be used to assess potential (gross impacts), as well as determine what factors affect overrides (e.g. temperature, control strategy, length of control, vendor, day of week, time of day).

Analysis of Curtailment Events

The program used different utility portals for each vendor, tested out different types of curtailments, and also tested a Demand Response Management System to control some events. In general, curtailments occurred from 3:45 – 5:45 pm on hot summer days that peaked at over 100 degrees. Curtailment interventions included both temperature setback and cycling strategies. The curtailment schedules for each WiFi vendor are listed in Tables 1-3 below.

Ecobee thermostats (Table 1) were curtailed using both cycling strategies (varying from 35% to 50%) and temperature setback (4 degrees).

EnergyHub thermostats (Table 2) were curtailed using only a 4 degree temperature setback strategy. A pre-cooling option intended to moderate the recovery energy after the curtailment ended and to increase first hour impacts, was used for 30 minutes prior to the targeted curtailment period for all but a few of the events following the July 1st monitoring period. A 15-minute random delay was also utilized.

Nest thermostats (Table 3) operate differently from typical communicating thermostats. The unit itself "learns" from the customer's pattern of setback and occupancy during the first few weeks of operation and so the temperature setback curtailments scheduled are likely affected by the "learned" behavior already expected to have shifted the setback patterns of the unit.

Table 1. Curtailment Days – Ecobee Units

Event Time	Random Delay	Absolute Temp	Relative Temp	Duty Cycle
Jun 20, 2013 15:45 to 17:45	15m	85	4	F
Jun 21, 2013 15:45 to 17:45	15m	F	F	35%
Jun 27, 2013 15:45 to 17:45	15m	F	F	35%
Jun 28, 2013 15:45 to 17:45	15m	F	F	35%
Jul 10, 2013 15:45 to 17:45	15m	F	F	50%
Jul 11, 2013 15:45 to 17:45	15m	F	F	45%
Jul 12, 2013 15:45 to 17:45	15m	F	F	45%
Jul 25, 2013 16:00 to 18:00	15m	F	4	F
Jul 31, 2013 15:45 to 17:45	15m	F	4	F
Aug 1, 2013 15:45 to 17:45	15m	F	4	F
Aug 6, 2013 15:45 to 17:45	15m	F	4	F
Aug 7, 2013 15:45 to 17:45	15m	F	4	F
Sept 4, 2013 15:45 to 17:45	15m	F	4	F

Table 2. Curtailment Days – EnergyHub Units

Event Time	Random Delay	SetPoint Ceiling	Relative Temp	Precooling	Thermostats Targeted
Jun 20, 2013 15:45 to 17:45	Yes	85	4°	None	80
Jun 21, 2013 15:45 to 17:45	Yes	85	4°	2° for 30m	81
Jun 27, 2013 15:45 to 17:45	Yes	85	4°	None	81
Jun 28, 2013 15:45 to 17:45	Yes	85	4°	None	91
Jul 10, 2013 15:45 to 17:45	Yes	85	4°	None	112
Jul 11, 2013 15:45 to 17:45	Yes	85	4°	None	112
Jul 12, 2013 15:45 to 17:45	Yes	85	4°	None	112
Jul 25, 2013 16:00 to 18:00	Yes	85	4°	2° for 30m	91
Jul 31, 2013 15:45 to 17:45	Yes	85	4°	2° for 30m	91
Aug 1, 2013 15:45 to 17:45	Yes	85	4°	2° for 30m	119
Aug 6, 2013 15:45 to 17:45	Yes	85	4°	2° for 30m	84*
Aug 7, 2013 15:45 to 17:45	Yes	85	4°	2° for 30m	121
Sept 3, 2013 15:45 to 17:45	Yes	85	4°	2° for 30m	90*
Sept 4, 2013 15:45 to 17:45	Yes	85	4°	2° for 30m	90*

* Thermostats with indoor temperatures exceeding specified limits

Table 3. Curtailment Days – Nest Units

Event Time	Total Thermostats	Confirmed	%
Jun 27, 2013 15:45 to 17:45	2077	2008	97
Jun 28, 2013 15:45 to 17:45	2091	2024	97
Jul 11, 2013 15:45 to 17:45	2354	2274	97
Jul 12, 2013 15:45 to 17:45	2392	2307	96
Jul 24, 2013 16:00 to 18:00	2590	2472	95
Jul 25, 2013 16:00 to 18:00	2589	2495	96
Jul 31, 2013 15:45 to 17:45	2757	2656	96
Aug 1, 2013 15:45 to 17:45	2757	2656	96
Aug 2, 2013 15:45 to 17:45	2757	2657	96
Aug 7, 2013 15:45 to 17:45	2889	2790	97
Sept 3, 2013 16:00 to 18:00	3266	3136	96
Sept 4, 2013 15:45 to 17:45	3359	3187	95

The % column represents the percent of units confirmed to have responded to the control signals

Several alternate analysis methods were used for the process of computing estimates for impacts. Separate models were developed for each WiFi thermostat -- Ecobee, EnergyHub, and Nest.

Since runtime was not available for all vendor systems, AMI-based modeling was used as the primary evaluation method for the three participant vendors, supplemented by runtime-based modeling for those units with the available data. The evaluators used whole-house AMI interval data regression analysis to develop baselines and weather coefficients using non-curtailed days. This method has some limitations when there is not enough non-curtailed days under hot day weather conditions.

Regression models for one hour before and two hours after typical 3:45 to 5:45 pm (applicable to 4-6pm peak) curtailment periods on non-curtailed days were used to account for pre-curtailment (including pre-cooling, where used), curtailments, and post-curtailment (recovery energy). Comparison of actual curtailed days to modeled baselines with curtailed day weather parameters was then used. Regression analysis on the AMI interval data indicated the following regression model quality issues:

- Over 70% correlation (R2) for the hour ending 4:45 pm (hour 1 of curtailment), but declining each hour to under 50% correlation by 2nd hour of post-curtailment, likely due to occupancy-related variability in whole-house data (residents arriving home from work, dinner, lights, TV, cooking, etc.) The declining correlation pattern was present for all three vendor groups.
- Outliers identified for all models showed some possible differences in Monday and Friday, vs. Tuesday-Thursday results, likely justifying study of separate models or regression variables by day type, given sufficient data
- Large homes (mansions) showed significantly different loads than the model predicted (outliers). Though analyzing these populations was not performed, future research is justified in using size stratification or exclusion of the largest homes
- The presence of swimming pools particularly correlated to weather and affected the AMI regression results.

- Expected outliers caused by rain or other weather conditions could not be studied since there were no rainy days during curtailment days over 95°F.

Whole-House AMI Baseline Model - The equations used to derive the parameter estimates for the base case day are presented below. Only non-holiday and non-curtailment weekdays where the maximum dry bulb temperature exceeded 95°F were used to define the baseline model.

Equation 1. Formula for the Regression of Whole House Metered Data for Evaluation of Curtailment Impacts:

kWhuse (each hour) = [Intercept + BasekWh * kWh hour prior + CoefkWh (MaxkWh15 (DBmax – Tbp)) 2 + MinDBT (DBmin – Tbp)] for each hour

where:

- MaxkWh15 = Maximum summer 15 minute kWh use from metered data converted to an hourly peak
- DBmax = the maximum dry-bulb temperature (°F) for the day
- DBmin = the minimum dry-bulb temperature (°F) for the day
- Tbp = Balance point temperature (°F) from billing analysis – if billing analysis is insufficient; an average value from the successful regression strata or population is used.
- kWh hour prior = Metered kWh per hour prior to initiating curtailment or in cases of pre-cooling, two hours prior to curtailment
- kWhuse = Metered energy use for each hour of curtailment
- CoefkWh = Coefficient from regression of Equation 1 to estimate the effect of maximum daily temperature on DR
- BasekWh = Coefficient from regression of Equation 1 to estimate the effect of pre-curtailment energy use on DR
- MinDBT = Coefficient from regression of Equation 1 to estimate the effect of minimum daily temperature on DR
- Intercept = A constant term from regression of Equation 1 and can be interpreted as the baseload for the house

Regression parameter results and corresponding correlations (measured by R-Squared) for the equation are presented in Tables 4 (for Pre-Cool hours/scenarios), and Table 5 (during/after curtailment). As shown in the tables, the strength of correlation, measured by R-Squared, and significance of the equation, measured by P-value, deteriorates later into the evening. Likely causes of the reduction in model performance are the changes in lighting, plug loads and other activity as people return to home after a curtailment session that would end around 6 pm.

Deviation between actual interval loads and the baseline model on curtailment days determined the impacts.

Table 4 – Parameter Estimates from AMI Meter Use Regression for Pre-Cool Strategy

Vendor	Strategy	Parameter	Parameter Estimates
			Pre Curtailment Hour
EnergyHub	4° Setback w/2° Precool	Intercept	0.3052
		BasekWh	0.8660
		CoefkWh	1.54E-05
		R-Squared	0.6983
Nest	4° Setback w/2° Precool	Intercept	0.5990
		BasekWh	0.7996
		CoefkWh	1.14E-04
		R-Squared	0.7266

Table 5 – Parameter Estimates from AMI Regression during/after Curtailments

Vendor	Strategy	Parameter	Parameter Estimates			
			Hour 1 (Curtailment)	Hour 2 (Curtailment)	Hour 3 (Post Curtailment)	Hour 4 (Post Curtailment)
Ecobee	4° Setback	Intercept	0.3981	0.2817	0.2817	0.6648
		BasekWh	0.8590	0.4904	0.4904	0.3021
		CoefkWh	6.72E-05	2.64E-04	2.64E-04	3.38E-04
		MinDBT	-0.0163	1.3124	-0.0334	-0.0590
		R-Squared	0.7508	0.6052	0.5011	0.4361
EnergyHub	4° Setback w/2° Precool	Intercept	0.8754	0.7246	2.2685	2.4980
		BasekWh	0.7794	0.0000	0.5586	0.5008
		CoefkWh	2.23E-05	3.86E-05	0.0000	0.0000
		MinDBT	0.0100	-0.0173	-0.0082	-0.0127
		R-Squared	0.5131	0.4038	0.2646	0.2220
Nest	4° Setback w/2° Precool	Intercept	0.9828	1.4473	1.4473	1.4271
		BasekWh	0.7152	0.4845	0.4845	0.3953
		CoefkWh	1.34E-04	2.36E-04	2.36E-04	2.31E-04
		MinDBT	-0.0446	-0.0584	-0.0584	-0.0469
		R-Squared	0.6003	0.5446	0.5177	0.4677

Use of indicator/dummy variable (as used in the past) to model curtailment hours was limited due to the varying types of curtailments used, so different impact estimates were required for each curtailment strategy (temperature setback and cycling), or "degree" of curtailment (e.g. number of degrees or cycling percentage used. Grouping similar curtailments within vendor was tested using dummy variables, as follows:

- EnergyHub - 2 scenarios: with/without pre-cooling, each with 4 degree setback
- Ecobee - 2 scenarios: 4 degree setback and several cycling levels (could use 1 minus duty cycle percentage)
- Nest - Only one scenario, based on temperature setback

This method did not produce results as robust as for the baseline deviation.

As shown in Table 6, the summary of mean impacts for all curtailment days demonstrated that the cycling strategy with Ecobee proved ineffective. The pre-cool option appears to create greater impacts than going to a straight curtailment for EnergyHub, but the no pre-cool curtailment was not performed on days over 102°F, unlike the pre-cool strategy which occurred during higher ambient temperatures. The table also shows that none of the homes recover from the curtailment period until after the second hour from the end of the DR session as the A/C unit is still using more energy than during the baseline period. This could be a combination of units that are under or just properly sized working to reduce the indoor temperature combined with thermal capacity effects of the home and furnishings.

Table 6 - Summary of Impact Results (Average per-unit kW Response for all days)

Vendor	Strategy	Pre Curtail Hour	Hour 1 (Curtailment)	Hour 2 (Curtailment)	Hour 3 (Post)	Hour 4 (Post)
Ecobee	4° Setback		0.83	0.75	-0.18	-0.06
	Cycling 50%		0.34	-0.09	-1.08	-0.89
EnergyHub	4° Setback		1.44	1.10	-0.57	-0.44
	4° Setback w/2° Precool	-0.13	1.62	0.99	-0.66	-0.53
Nest	4° Setback w/2° Precool	-0.38	1.25	1.10	-0.30	-0.17

The results indicate that Hour 2 curtailment impacts are reduced from the Hour 1 impacts as some units have met their new setpoints, and would be expected to be maintained should the curtailment be extended beyond 2 hours. Hours 3 and 4 (post-curtailment) indicate higher usage as the homes recover and are reset to their former setpoints.

Altogether, the 2013 program participants provided approximately 10 – 23 kW (Econbee), 144 - 235 kW (EnergyHub) and 2,918 – 3,316 kW (Nest) of peak load reduction, as indicated in Table 7. Negative "impacts" in the "pre-cool" scenario and the post-curtailment hours reflect increased usage due to pre-cooling or recovery of the units to the setpoint temperature levels.

Table 7 - Summary Impact Evaluation Results (Total kW - Average Curtailment day)

Vendor	Strategy	Unit Count	Pre Curtail Hour	Hour 1 (Curtail)	Hour 2 (Curtail)	Hour 3 (Post)	Hour 4 (Post)
Ecobee	4° Setback	28		23	21	-5	-2
	Cycling 50%	28		10	-3	-30	-25
EnergyHub	4° Setback	145		209	160	-83	-64
	4° Setback w/2° Precool	145	-19	235	144	-96	-77
Nest	4° Setback w/2° Precool	2653	-1,008	3,316	2,918	-796	-451

Runtime Data Results

Employing EnergyHub vendor runtime data, Figure 1 displays a histogram of A/C runtime during the non-event days during the first typical curtailment hour for days where the dry bulb temperature was at or above 100°F. The figure shows that nearly 20 percent of the A/C units are not operating, possibly due to residents not being at home. Homes where the A/C units were running at capacity (these thermostats represent 20 percent of the population) demonstrate that the recovery of indoor conditions would likely be extended beyond two hours after the DR session, given their being able to only match (at best) their cooling requirements.

Fig. 1 – Runtime Distribution for EnergyHub Customers, weekdays 3:45 – 4:45 PM on Non-Curtailment Days at/exceeding 100º

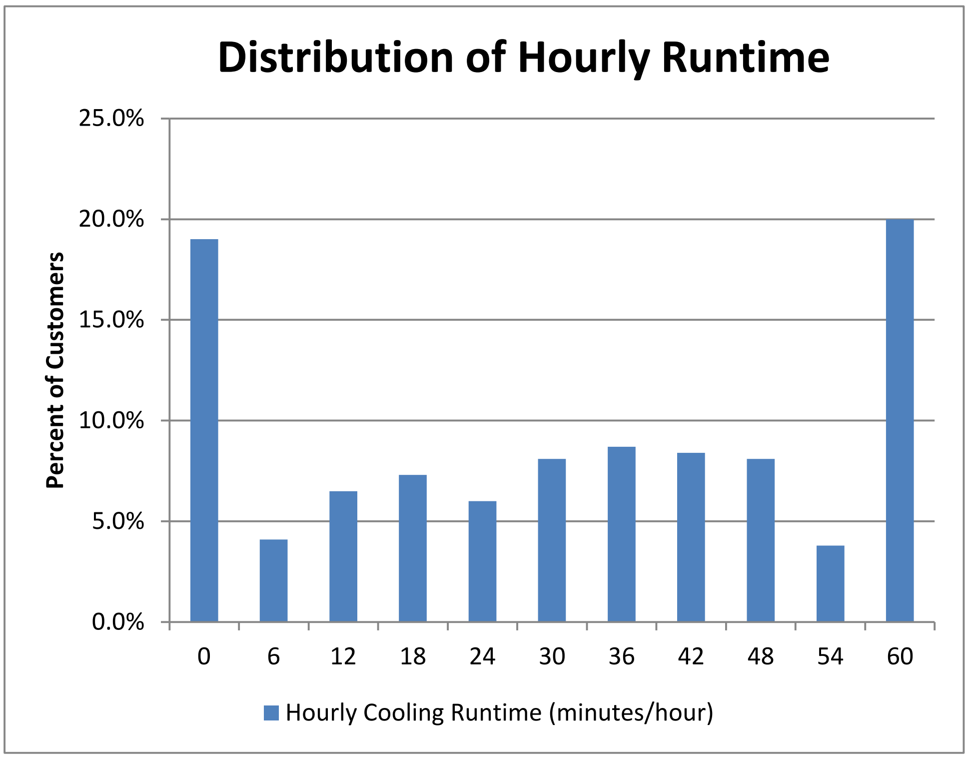
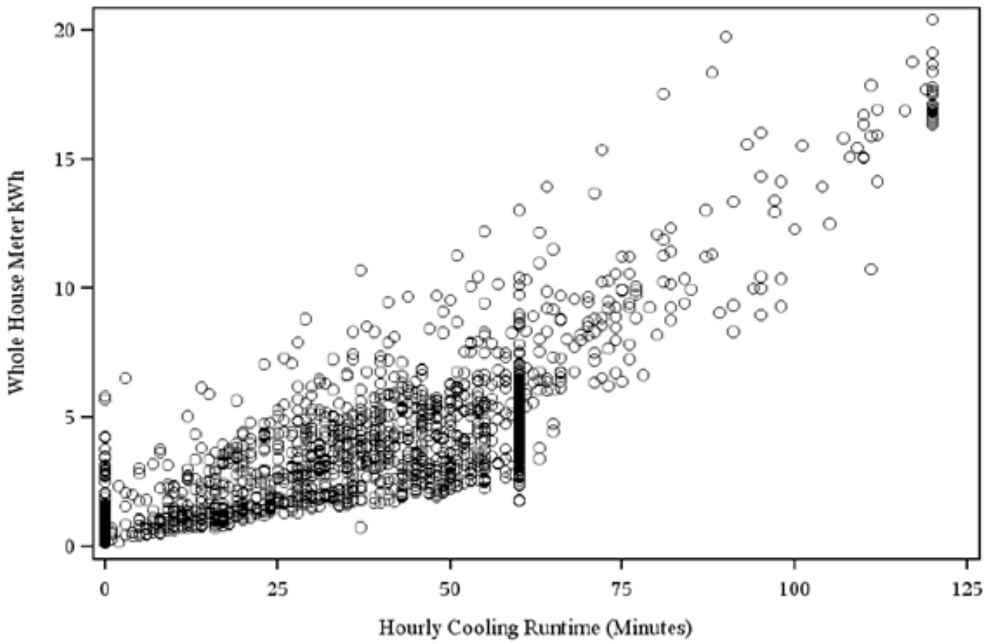


Figure 2 illustrates the correlation between the A/C runtime and the whole house load from AMI data. As would be expected, there are concentrations at 0 runtime, 60 minutes runtime and 120 minutes runtime (homes with 2 A/C units).

Fig. 2 – Weekday A/C Runtime vs. Whole House Meter weekdays 3:45 – 4:45 PM on Non-Curtailment Days at/exceeding 100º



Conclusions and Recommendations

Program Continuation - With the impact analysis showing that mean impacts from the new WiFi vendor-driven program exceed 1kW per thermostat, and with the enhanced installation and operational feedback from the thermostats, the new Power Partner Program is more effective than AE's DR legacy program. Thus, AE should not be concerned over the loss of customer impacts from participants who cross over from the legacy to the WiFi program. In addition, AE should experience improved cost-effectiveness since they no longer must provide for thermostat and installation costs up-front, only an incentive of $85 for enrollment, plus small annual fees for the vendors and potentially additional retention incentives.

Participant Tracking – Given the past history with the Legacy program, where program thermostats were removed without Austin Energy's knowledge, the real-time two-way communications with the thermostat units will enable AE to track the presence and communications status of each participant. Even with that feature, a tracking system should be put into place to identify participants who change residences, leave the service territory or drop out of the program. This information can be used to forecast future participation rates and spot trends that could adversely, or constructively, affect program goals. Program participants that move can be identified, and the new occupants encouraged to continue program participation, especially where the program thermostat remains.

Participating Vendor Data – While the AMI-based impact analysis was sufficient to quantify the impacts with reasonable accuracy and runtime data analysis was consistent with those results, more complete runtime data would have been preferred to provide additional accuracy. Working with WiFi vendors to obtain customer data points from their thermostats is essential to maintaining effective and continual evaluation of program impacts, a key design feature of this program. As indicated in the Vendor Participation Agreement, all vendors should be required to provide compressor runtime data and indoor temperature in 15 minute intervals, as well as identify customer actions (e.g. opt-outs/overrides) with a time stamp, in order to facilitate AE M&V and help identify program performance, deficiencies and trends. Use of this data will be essential to verification for ERCOT related DR activities, should AE elect to participate, enabling a faster and more reliable verification capability than depending solely on use of the AMI system data.