Greater Than 1 aMW Analysis Project

Portland General Electric (PGE) 2015 Report

Prepared by CLEAResult for:
Energy Trust of Oregon
05.09.2016

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PROJECT OVERVIEW

The purpose of this project is to determine the percentage of SB 1149 funds that Energy Trust spent on sites that used more than 1 aMW (>1aMW) in 2015. This percentage was compared to Energy Trust's historical spending percentages from 2005-2007 to determine if spending on this group of customers has changed since the inception of SB 838.

PROJECT RESULTS

Key Findings

- Overall 1149 revenue ($28 million) in 2015 was close to 2014, though >1aMW incentives decreased by over $600,00 million
- Total kWh savings in 2015 decreased by over 150 million kWh while savings at >1aMW sites decreased by almost 33 million kWh during the same period
- The cumulative post-838 share of 1149 revenue spent on incentives at >1aMW sites saw a slight decreased from 18.3% to 18.2% due to the drop in overall spending, still below the pre-838 baseline of 18.4%

In 2015, total incentive spending on >1aMW users was 17% of SB 1149 revenue a decrease of 3% since 2014 and 8% from 2013. Average spending and savings per site decreased from about $100,000 and 1.3 million kWh to just over $86,000 and just under 695,000 kWh. Table 1 also shows the average percentage of SB 1149 revenue spending on >1aMW customers since 2008, and the percentage of total savings from >1aMW customers.

Table 1: Comparison of analysis and results 2013 -2015

PGE >1aMW Customer Activity	2013	2014	2015	Change in Overall Percentage
% 1149 revenue to >1aMW customers	25%	20%	17%	-3%
Cumulative average % 1149 revenue to >1aMW customers since 2008	18.1%	18.3%	18.2%	0.1%
% Total kWh savings from >1aMW customers	31%	23%	24%	1%

*Historical baseline average is 18.4%

Tables 2 & 3 below show SB 1149 spending, incentives spent on >1aMW customers, the percentage of total SB 1149 revenue spent on the >1aMW sites, total kWh savings from projects at >1aMW sites, and the number of sites receiving incentives for 2005-2007 and 2008-2014.

Table 2: Summary of spending and kWh savings for >1aMW customers 2005-2007 (pre-838)

Pre-838 Results				
Energy Efficiency 1149 Revenue	2005	2006	2007	2005-2007 (average)
Energy Efficiency 1149 Revenue	$21,065,813	$22,720,384	$25,673,961	**$23,153,386**
Incentives to >1aMW Sites	$9,742,145	$1,282,158	$1,762,765	**$4,262,356**
>1aMW Incentives as a Percent of 1149 Revenue	46%	6%	7%	**18.4%**
Number of >1aMW Sites Receiving Incentives	39	30	27	**32**
Savings from >1aMW Sites (kWh)	126,503,077	14,056,604	68,431,766	**69,663,816**
Total Savings (kwh)	213,903,461	121,192,910	139,322,053	**158,139,475**
Percent of Total Savings from >1aMW Sites	59%	12%	49%	**44%**

Table 3: Summary of spending and kWh savings for >1aMW customers 2008-2015 (post-838)

Post-838 Results									
PGE	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2008-2015(average)**
Energy Efficiency 1149 Revenue	$26,890,837	$26,669,621	$27,065,764	$28,510,770	$28,119,658	$26,484,405	$28,741,721	$28,723,137	**$27,650,739**
Incentives to >1aMW Sites	$2,421,817	$2,778,741	$4,189,900	$5,950,881	$7,508,724	$6,705,824	$5,621,248	$5,004,680	**$5,022,727**
>1aMW Sites Incentives as a Percent of 1149 Revenue	9%	10%	15%	21%	27%	25%	20%	17%	**18.2%**
Cumulative Average	9%	10%	12%	14%	17%	18.1%	18.3%	18.2%	**18.2%**
Number of >1aMW Sites Receiving Incentives	41	48	49	54	56	56	55	57	**52**
Savings from >1aMW Sites (kWh)	21,022,885	26,348,517	49,949,458	46,516,463	62,520,010	95,229,586	73,813,874	40,267,774	**51,958,571**
Total Savings (kwh)	145,935,756	150,705,221	219,884,055	244,453,313	282,316,497	311,992,892	321,470,265	170,374,245	**230,891,531**
Percent of Total Savings from 838-Exempt Sites	14%	17%	23%	19%	22%	31%	23%	24%	**23%**
Potential additional incentives to >1aMW sites (Sensitivity Analysis)	*n/a*	*n/a*	*n/a*	*$39,727*	*$0*	*$0*	*$0*	*$0*	***n/a***

Chart 1 shows the cumulative average of 1149 spending from 2005-2007 and 2008-2014. The horizontal line indicates the cumulative average from 2005-2007, which is the historical baseline and threshold for spending in the post-SB 838 period. Annual 1149 spending on >1aMW sites and the cumulative average increased from 2008 through 2012, but decreased slightly in 2013 and 2014. The cumulative average of the post-838 period (18.2%) is still just below the historical threshold of 18.4%. If current revenue levels remained consistent, it would take an increase in >1amW customer spending of close to $800,000 in 2016 for the cumulative average to pass the historical threshold.

Chart 1: Cumulative average of SB 1149 revenue spending on >1aMW customer incentives 2004-2015, pre & post-838

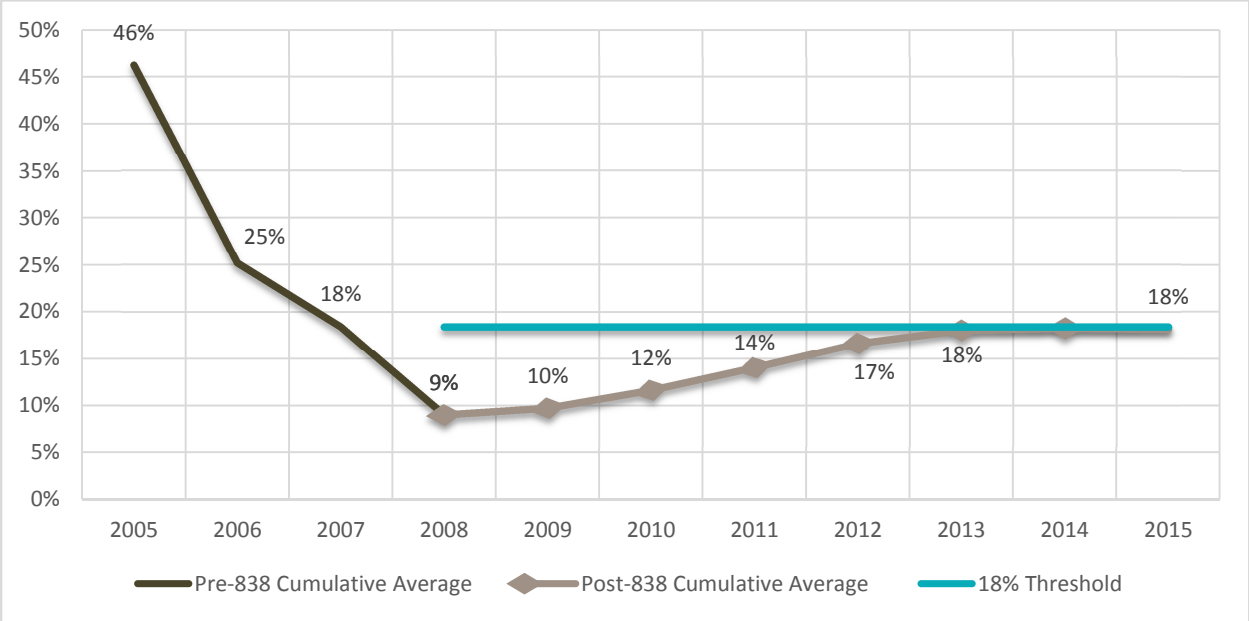


Table 4 below shows PGE spending on >1aMW customers by program by year beginning in 2005. Programs include Production Efficiency (PE), Existing Buildings (BE), and New Building Efficiency (NBE) projects.

Table 4: Summary of incentive spending & savings by program by year on >1aMW customers 2005-2014, pre & post-838

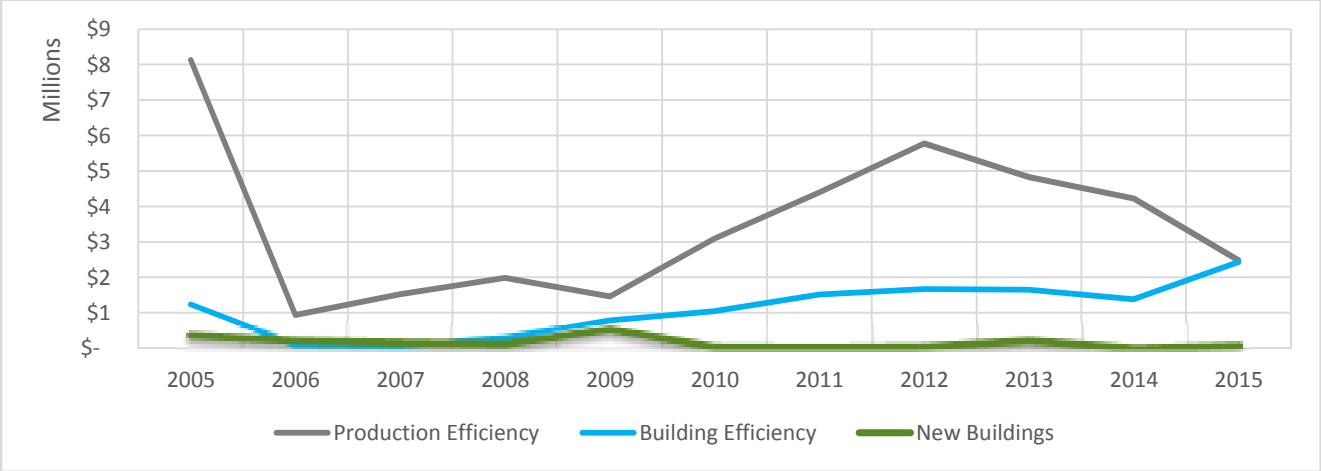
PGE	Production Efficiency		Existing Buildings		New Building		Total	
	$	kWh	$	kWh	$	kWh	$	kWh
Pre-838 Results								
2005	$8,134,413	N/A	$1,236,725	N/A	$371,008	N/A	$9,742,145	126,503,077
2006	$942,023	N/A	$111,121	N/A	$229,014	N/A	$1,282,158	14,056,604
2007	$1,520,782	N/A	$73,324	N/A	$168,659	N/A	$1,762,765	68,431,766
Post-838 Results								
2008	$1,989,391	N/A	$294,243	N/A	$138,184	N/A	$2,421,817	21,022,885
2009	$1,466,194	N/A	$781,466	N/A	$531,081	N/A	$2,778,741	26,348,517
2010	$3,097,231	43,322,367	$1,042,144	6,495,907	$50,525	131,184	$4,189,900	49,949,458
2011	$4,397,749	39,347,943	$1,513,314	6,703,335	$39,818	465,185	$5,950,881	46,516,463
2012	$5,774,602	51,916,828	$1,673,182	10,428,884	$60,940	174,338	$7,508,724	62,520,050
2013	$4,824,179	81,668,283	$1,654,099	11,204,217	$227,546	2,357,086	$6,705,824	95,229,586
2014	$4,219,172	66,948,131	$1,384,860	6,765,869	$17,216	99,874	$5,621,248	73,813,874
2015	$2,485,462	28,953,430	$2,425,927	11,013,332	$93,291	301,012	$5,004,680	40,267,774

Chart 2 below shows spending by program by year in graphical form. Each program category demonstrates unique year to year incentive spending patterns:

- Existing Buildings program spending showed a sizable increase since 2014
- New Buildings program spending increased from 2014
- Production Efficiency program spending and savings decreased from 2014 to the lowest levels since 2009

The total incentives for Production Efficiency projects were close to the spending levels of Existing Building projects for >1aMW sites, which was a marked change from previous years.. Overall savings were again down this year with fewer large scale single projects for >1aMW customers.

Chart 2: PGE >1aMW incentives by program 2005-2015, pre & post-838



METHODOLOGY

To calculate the incentive spending and percentages, a list of PGE >1aMW customers was compared to Energy Trust incentive program data, which includes incentives paid to all commercial and industrial PGE customers. Due to differences in the way that each data set is coded, address was the primary identifying characteristic to match >1aMW customers with incentive recipients.

There were several challenges to using address as the primary identifying characteristic. These challenges included:

- Some sites include multiple addresses
- A few addresses have multiple sites
- Some addresses have multiple customer names (typically, multiple divisions or business lines at one address)
- Multiple addresses exist for the same physical location (ie, one data set uses an address on a particular street, and the other uses an address on the cross street or a parallel street)
- Discrepancies in spelling or entry of addresses between data sets
- Generic locations are listed on the PGE >1aMW customer list instead of addresses; for example, "Warehouse" instead of "123 Main Street"
- For large industrial sites, the >1aMW customer list may contain an address for an adjacent office building and does not include every building address within the site

CLEAResult used newer software in addition to past methods to match project addresses to 1aMW sites:

- Both site and project addresses were normalized using Alteryx address normalization functionality
- Direct matches where street addresses matched exactly were considered matches
- Matching of 4-digit zip code extensions(usually indicate the same block)
- Utilized ArcGIS mapping tools to identify site and project locations
- GIS mapping software was used to determine closest adjacent projects to 1aMW sites by distance
- Sites with the closest projects in proximity and no direct address match were given the first priority for analysis and review
- Projects with highest kWh savings were given higher priority and additional scrutiny
- Projects and site addresses that matched with different company names were researched and included if proof existed that both were of the same company(often due to company mergers or using corporate names)

ASSUMPTIONS

The primary premise of this analysis is the site definition. The OR SB 1149 definition of a site is: "'Site' means a single contiguous area of land containing buildings or other structures that are separated by not more than 1,000 feet, or buildings and related structures that are interconnected by facilities owned by a single retail electricity consumer and that are served through a single electric meter."

The site definition used to identify incentives paid to >1aMW user sites cannot be strictly applied to individual meters at large sites because neither CLEAResult nor Energy Trust has granular level data on the meters at a given site. Therefore, CLEAResult assumes that >1aMW user sites with generic addresses, such as "South of A Street," or multiple close addresses, match Energy Trust incentive program data when the address is a close match. These instances occur most frequently for the three site types outlined below with a set of assumptions are used to overcome uncertainty in each case.

There are three main business types that compose the majority of the >1aMW list: large industrial, hospitals, and college campuses. Each of these business types are typically physically constructed in a campus-like manner with many buildings clustered together that are owned by a single entity. Assumptions must be made when selecting one of these businesses as a match due to subtle differences between the way the >1aMW user list is constructed and the way the Energy Trust incentive program data reports the location of a project:

Large Industrial

- The >1aMW user list typically reports a single address for the site
  - The reported address is typically adjacent to the actual industrial site
  - This address may be a central office that handles billing for all structures
- The Energy Trust incentive project list reports each individual building address within a site
  - The addresses reported on this list don't always align with the >1aMW user list address
- An assumption is made that all addresses on the Energy Trust incentive project list are part of a single site if the >1aMW user list contains an address that is adjacent or within close proximity to all other addresses
  - If a single office reports for several different industrial sites these sites must be relatively close to be considered a match

Hospitals

- The >1aMW user list handles hospital sites by reporting some sites with a single address and other sites with multiple addresses within a campus
  - Single address entries are typically within the hospital campus but not part of the main structures
    - This address may be a central office that handles billing, similar to large industrial
  - Sites with multiple addresses often times do not include every potential address within the site
- The Energy Trust incentive project list reports each individual building address within a site
  - A single health care company often times owns several different sites within a city where each site is relatively close together
  - Each hospital campus is clearly finite and separate from any other site regardless of whether the proximity to other sites is near or far
- An assumption is made for single address entries that all addresses on the Energy Trust incentive project list are part of a single site if they are within the finite campus where the >1aMW user address is located
- An assumption is made for multiple address entries that all addresses within the associated campus are part of a single site even if the >1aMW user list does not provide a complete list of addresses for the site

College Campuses

- The >1aMW user list always gives multiple addresses for a single site
  - Every potential address within a single college campus is not given
- The Energy Trust incentive project list reports each individual building address within a site
- An assumption is made that all addresses on the Energy Trust incentive project list for a college campus are part of a single site even if the >1aMW user list does not provide every address