Greater Than 1 aMW Analysis Project

Pacific Power 2015 Report

Prepared by CLEAResult for:
Energy Trust of Oregon
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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 Pacific Power sites that used more than 1 aMW (>1aMW) in 2015. This percentage was compared to Energy Trust's historical spending percentages from 2004-2007 to determine if spending on this group of customers has changed since the inception of SB 838.

PROJECT RESULTS

Key Findings

- Overall 1149 revenue decreased by $134,766 in 2015 while >1 aMW incentives decreased by over $1.4 million
- Total kWh savings for Pacific Power decreased by close to 65 million kWh while savings at >1 aMW sites decreased by over 11 million during the same period
- The cumulative post-838 share of 1149 revenue spent on incentives at >1aMW sites is 20%, still below the pre-838 baseline of 27%

In 2015, total spending on >1aMW users was 15% of SB 1149 revenue. This represents a decrease from 2014 spending as shown in Table 1 below. The percentage of total savings from >1aMW customers increased by 5% in 2015. The average savings and total project spending per site decreased in 2015, although the total savings decreased for all Pacific Power projects overall. Average savings per >1aMW customer site went from 1,021,071 kWh per site to 767,194 kWh, while total incentives per site decreased from $93,215 in 2014 to $64,655 in 2015 for about the same number of 1aMW customers(48 sites in 2014, 49 sites in 2015).

Table 1: Comparison of analysis and results 2013 -2015

Pacific Power	2013	2014	2015	Change in Overall Percentage
% 1149 revenue to >1aMW customers	15%	22%	15%	-7%
Cumulative average % 1149 revenue to >1aMW customers since 2008*	20%	21%	20%	-1%
% Total kWh savings from >1aMW customers	35%	26%	31%	5%

*Historical baseline average is 27%

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 2004-2007 and 2008-2015.

Table 2: Summary of spending and kWh savings for >1aMW customers 2004-2007 (pre-838)

Pre-838 Results					
Pacific Power	2004	2005	2006	2007	2004-2007 (average)
Energy Efficiency 1149 Revenue	$13,346,771	$13,584,551	$14,614,927	$15,514,799	**$14,265,262**
Incentives to >1aMW Sites	$8,109,843	$3,401,328	$2,194,056	$1,867,641	**$3,893,217**
>1aMW Incentives as a Percent of 1149 Revenue	61%	25%	15%	12%	**27%**
Number of >1aMW Sites Receiving Incentives	38	42	27	34	**35**
Savings from >1aMW Sites (kWh)	64,086,521	36,711,900	14,947,636	27,311,042	**35,764,275**
Total Savings (kwh)	135,919,794	104,841,801	101,439,945	113,245,845	**113,861,846**
Percent of Total Savings from >1aMW Sites	47%	35%	15%	24%	**31%**

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

Pacific Power	2008	2009	2010	2011	2012	2013	2014	2015	2008-2015 (average)
Energy Efficiency 1149 Revenue	$16,068,161	$16,391,296	$16,254,154	$18,772,015	$19,637,424	$20,069,559	$21,298,942	$21,164,176	**$18,706,966**
Incentives to >1aMW Sites	$2,527,165	$2,435,060	$5,595,740	$4,223,682	$3,993,951	$2,953,604	$4,618,310	$3,168,073	**$3,689,448**
>1aMW Incentives as a Percent of 1149 Revenue	16%	15%	34%	23%	20%	15%	22%	15%	**20%**
Cumulative Average	16%	15%	22%	22%	22%	20%	21%	20%	**20%**
Number of >1aMW Sites Receiving Incentives	39	46	54	51	50	53	48	49	**49**
Savings from >1aMW Sites (kWh)	28,944,611	20,615,419	73,365,871	43,075,265	60,102,118	68,146,982	49,011,387	37,592,519	**47,606,772**
Total Savings (kwh)	114,454,241	91,026,119	175,567,589	163,873,693	180,707,979	194,374,912	186,775,439	120,813,231	**153,449,150**
Percent of Total Savings from >1aMW Sites	25%	23%	42%	26%	33%	35%	26%	31%	**31%**
Potential additional incentives to >1aMW customers (Uncertain Sites)	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	***n/a***

Chart 1 shows the annual cumulative average of 1149 spending from 2004-2007 and 2008-2015. The horizontal line indicates total cumulative average from 2004-2007, which is the historical baseline and threshold for spending in the post-SB 838 period. While annual 1149 spending on >1aMW customers has fluctuated since 2008, the cumulative average has shifted only slightly from 22% to 20% from 2010 to 2015. The cumulative average of the post-838 period has not exceeded the 27% threshold and is not likely to reach that level without a considerable increase in >1aMW spending relative to recent trends. If current revenue levels remained consistent, it would require an increase of over 100 percent from the current annual >1aMW incentive spending average for over seven years for the cumulative average to reach the 27% threshold.

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

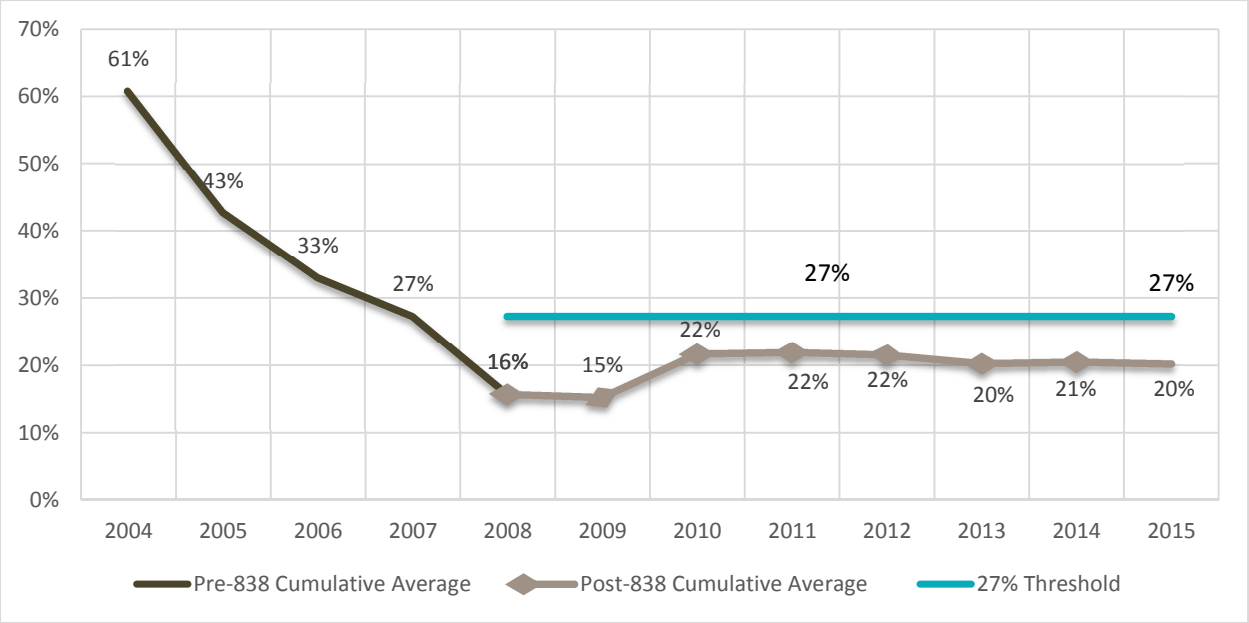


Table 4 below shows Pacific Power spending on >1aMW customers by program by year beginning in 2004. Programs include Production Efficiency, Existing Buildings, and New Building Efficiency projects.

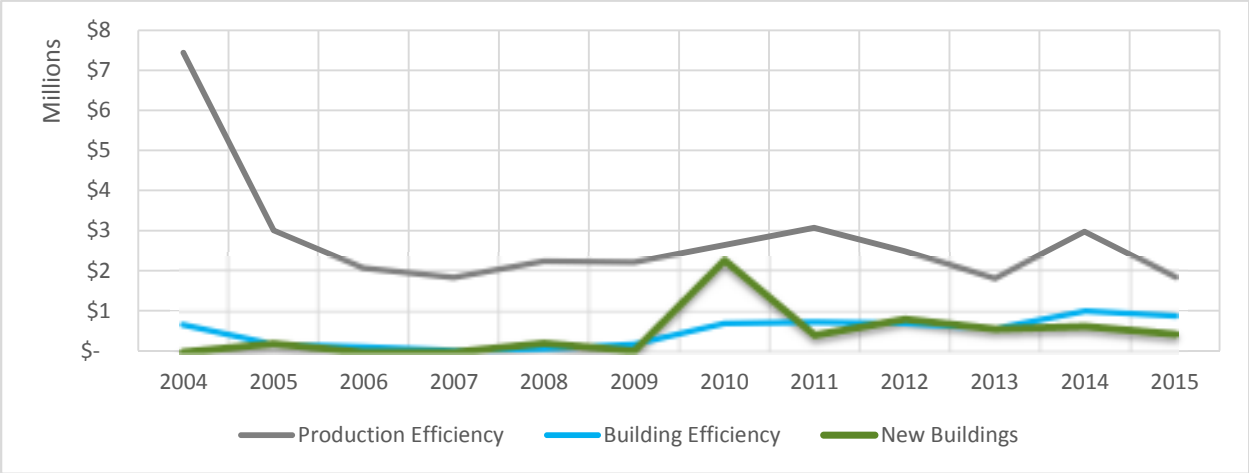
Table 4: Summary of incentive spending & savings by program by year on >1aMW customers 2004-2015 pre & post-838

Pacific Power	Production Efficiency		Existing Buildings		New Buildings		Total	
	$	kWh	$	kWh	$	kWh	$	kWh
Pre-838 Results								
2004	$7,437,150	59,431,460	$672,694	4,655,061	$0	0	$8,109,843	64,086,521
2005	$3,001,897	32,462,637	$191,317	1,471,116	$208,114	2,778,147	$3,401,328	36,711,900
2006	$2,064,894	12,915,875	$129,162	1,954,899	$0	76,862	$2,194,056	14,947,636
2007	$1,829,793	26,303,769	$37,848	1,007,273	$0	0	$1,867,641	27,311,042
Post-838 Results								
2008	$2,228,208	26,993,981	$81,581	558,736	$217,375	1,391,894	$2,527,165	28,944,611
2009	$2,205,999	19,304,368	$196,508	1,172,455	$32,553	138,596	$2,435,060	20,615,419
2010	$2,637,471	43,403,777	$701,914	3,988,196	$2,256,356	25,973,898	$5,595,740	73,365,871
2011	$3,068,225	36,323,836	$739,033	4,439,079	$416,424	2,312,350	$4,223,682	43,075,265
2012	$2,484,773	33,870,298	$704,960	2,905,115	$804,219	23,326,705	$3,993,951	60,102,118
2013	$1,803,408	21,747,738	$579,008	2,628,407	$571,188	43,770,837	$2,953,604	68,146,982
2014	$2,974,893	33,411,070	$1,009,363	10,392,722	$634,054	5,207,595	$4,618,310	49,011,387
2015	$1,839,594	22,287,566	$889,313	3,725,733	$439,167	11,579,220	$3,168,073	37,592,519

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

Incentives and savings decreased for all sectors including Production Efficiency, New Buildings, and Existing Building this year, with Production Efficiency constituting the majority of savings and spending.

Chart 2: Pacific Power >1aMW incentives by program 2004-2015, pre & post-838



METHODOLOGY

To calculate the incentive spending and percentages, a list of Pacific Power >1aMW customers was compared to Energy Trust incentive program data, which includes incentives paid to all commercial and industrial Pacific Power 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 Pacific Power >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." Pacific Power uses two different methodologies for self-direct and non-self-direct customers:

- **Self-direct:** All meters at a site are included based on the 1149 definition of a site
- **Non-self-direct:** Usage is analyzed at the meter level with no aggregation at any higher level

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 >1 aMW 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 >1 aMW 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 >1 aMW user list is constructed and the way the Energy Trust incentive program data reports the location of a project:

Large Industrial

- The >1 aMW 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 >1 aMW 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 >1 aMW 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 >1 aMW 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 >1 aMW 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 >1 aMW user list does not provide a complete list of addresses for the site

College Campuses

- The >1 aMW 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 >1 aMW user list does not provide every address