Energy Trust of Oregon
Industry and Agriculture Sector 2015-2019 Strategic Plan

EnergyTrust of Oregon

I. Sector Level Summary

A. Sector/ Program Structure

Energy Trust's Industry and Agriculture Sector provides electric and gas energy efficiency solutions for all sizes and types of eligible industrial and agricultural businesses through the Production Efficiency program. The program provides a comprehensive set of services and incentives to help these energy intensive businesses achieve cost-effective savings on an ongoing basis. The program is designed and managed in-house, by **Industry and Ag Sector staff** and is delivered to market through the support of a large number of contractors and other market actors:

- Six teams of **Program Delivery Contractors (PDCs)** with deep technical and program expertise make it easy for customers and trade allies to participate and deliver savings to the Program.
- **Allied Technical Assistance Contractors (ATACs)** provide analysis for custom projects to support customer and program investment decisions.
- **Strategic Energy Management (SEM) Coaches** provide training and technical support to help businesses reduce and manage their energy intensity.
- **Trade Allies** and other vendors act as an additional sales force for the program, speeding the implementation of more standard measures such as lighting, small compressed air and irrigation.

B. Current Market Conditions

In 2013 Oregon's total manufacturing output was $65.4 billion, accounting for 29.8 percent of state GDP and making Oregon the nation's 2nd most industrial state as a percent of GDP. This is up four percentage points from 2009 demonstrating continued manufacturing growth - in 2001 manufacturing accounted for only 16.1% of state GDP.[1] Manufacturing makes up 10.45% of Oregon nonfarm employment, ranked 15th in the nation.[2] Agriculture accounted for 2.3 percent of state GDP in 2013 ($5.1 billion) up 0.6 percentage points from 2009. Oregon is ranked #13 in agricultural output as share of state GDP.[3]

[1] http://www.bea.gov/iTable/iTable.cfm?reqid=99&step=1#reqid=99&step=1&isuri=1

[2] http://www.nam.org/Data-and-Reports/State-Manufacturing-Data/2014-State-Manufacturing-Data/2014-State-Manufacturing-Data-Table/

[3] http://www.bea.gov/iTable/iTable.cfm?reqid=99&step=1#reqid=99&step=1&isuri=1

C. Sector Plan Highlights

- Continue to implement and continuously improve current, effective Custom, Streamlined and SEM offerings.
- Provide more technical services and other support to increase savings from small-medium industries.
- Redesign and implement an SEM offering for industrial sites that have previously participated in the program's first year SEM offering, and recruit new SEM participants.
- Working with other organizations, provide information and help to deploy emerging technologies. More commonly in industry, this involves more unusual/ rarely deployed applications of existing technology, such as smart manufacturing controls and energy information systems, CHP, Performance+ lighting design.
- Continuously improve internal processes and systems including data and use of information to support program activities, technical management of all tracks.

D. Key Challenges

- Large customer limitations or exclusions for electric and gas efficiency.
- Adaptively managing program costs and tactics to increase and appropriately scale cost-effective delivery and services to small-medium industrial customers.

E. Sector Vision and Leadership Statements

To provide long-term vision, guidance, and consistency to the Industry and Agriculture Sector, the following principles have been established in accordance with the organization's 2015-2019 strategic plan.

Sector Vision
Industrial and Agricultural businesses in Oregon invest in efficiency and manage their energy use, improving profitability, productivity and sustainability.

Leadership position
Energy Trust remains a national leader in innovative program design and strategy for industrial and agricultural energy efficiency. The Production Efficiency program implements these approaches to consistently deliver significant, cost-effective energy savings to Oregon ratepayers; is known and valued by our customers and stakeholders as a responsive and responsible program administrator; is a trusted resource for technical expertise, training and project funding to help companies improve their energy efficiency.

F. Key Measures of Success for 2015 - 2019

- Meet or exceed annual savings, customer satisfaction and cost-effectiveness goals
- Expand participation by and increase savings from Small-Medium industrial and agricultural businesses in both rural and urban counties

- Greatly increase the number of sites participating in SEM offerings (add 100+) and increase historic average annual SEM savings by at least 50%.
- Increase gas project volume and annual gas savings across all tracks.

II. Sector Savings Trends and Resource Potential

A. Sources of Savings

The **Custom track** allows for a comprehensive approach to gas and electric process efficiency projects, retrofits, operations & maintenance (O&M). Custom PDC industrial efficiency engineers act as long-term energy efficiency "account managers" for industrial customers. PDCs provide turnkey support to participants in their assigned geographic territories, helping them identify specific efficiency opportunities and facilitating their ongoing participation in Energy Trust programs. They achieve savings goals through developing and delivering Custom projects, which represent more than half of Production Efficiency program savings.

The Custom track has provided a delivery channel for very diverse projects and custom analysis has overcome the wide variation in industrial applications which limits the applicability of prescriptive approaches for this sector. Allied Technical Assistance Contractors (ATACs) with specific expertise in the targeted system are contracted to perform detailed technical studies, which are based on both a detailed understanding of the measure and data driven analysis of the operating conditions that the measure will be running in. Custom studies follow technical and communication guidelines designed to inform and propel investment decision-making and project implementation at the site. These studies also provide the technical basis for the program's incentive offer and post-installation verification of savings.

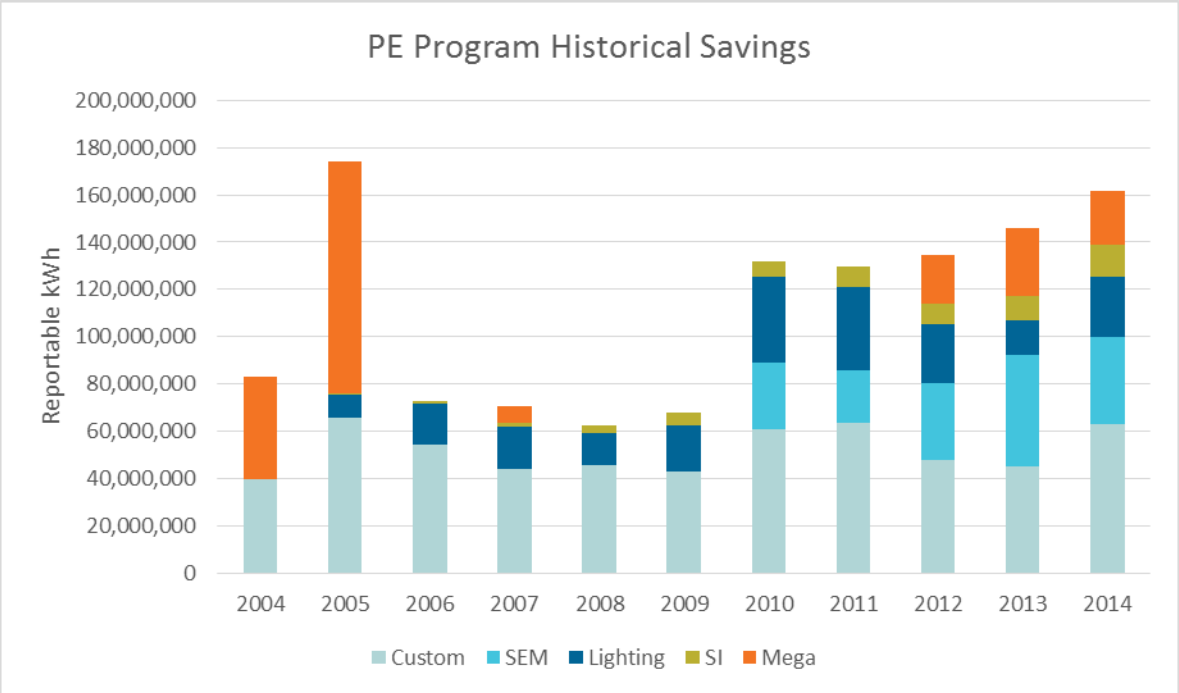
On occasion, the Energy Trust Board will approve a particularly large Custom project with incentives in excess of the $500,000 project cap. Since these projects are characterized by higher than average savings, lower than average ratepayer costs and longer than average development timelines, these custom "megaprojects" are considered in their own category in the Figures below. A single **megaproject** completed in three phases in 2012, 2013 and 2014, providing over 70 million kWh over the three-year period and contributing more than 10% each year to the program's annual electric savings accomplishments.

Strategic Energy Management (SEM) provides training, tools and technical support to enable customers to save energy by establishing or improving energy management practices in the workplace. SEM offerings aim to secure and deepen customer commitment to energy management, and improve their capability to drive persistent, measureable improvements in the energy intensity of their operations. While SEM contributes to an increase in capital efficiency projects, which come through the custom

and streamlined tracks, direct energy savings attributed to SEM come from reductions in energy waste through improved O&M practices and other behavioral changes during the SEM engagement. First piloted in 2009-2010, more than 120 industries have participated in SEM offerings, and these savings have been a major contributor to doubling savings the past 5 years.

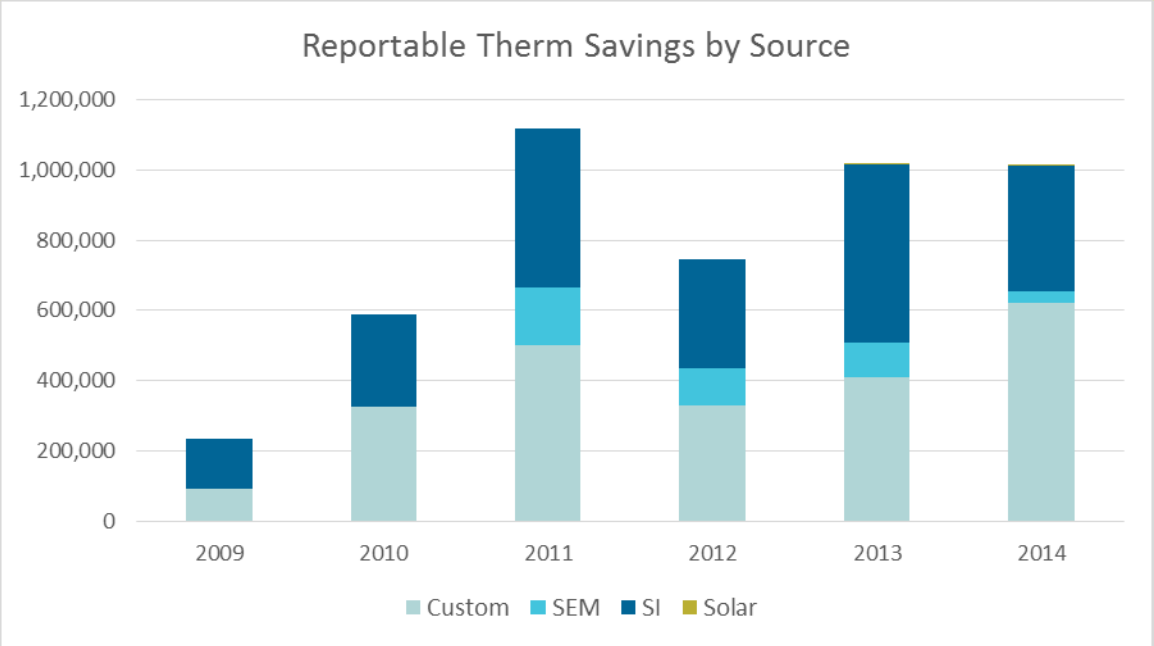
The **Streamlined tracks** focus on simpler, more common equipment measures, delivered by Energy Trust Trade Allies. Developed by the program in 2007 to provide a cost-effective way to serve small industries and farms, these incentives are used by all sizes of industries for more standardized projects. The streamlined tracks are delivered by specialized PDCs, who focus on trade ally outreach and training, project verification and delivery of savings from streamlined measures, and new measure and tool development. The Trade Ally delivery channel leverages long-term vendor relationships as a primary influence on customer decision-making. Streamlined measures include prescriptive rebates and calculated savings analysis tools developed for mass deployment, rather than relying on custom technical studies to determine savings and incentives for each project.

- The **Lighting** Trade Ally Network delivers all types of lighting projects at industrial sites.
- The Streamlined Industrial and Agricultural Initiative (**SI**) delivers savings from irrigation measures, small compressed air, VFDs and other prescriptive and calculated measures.

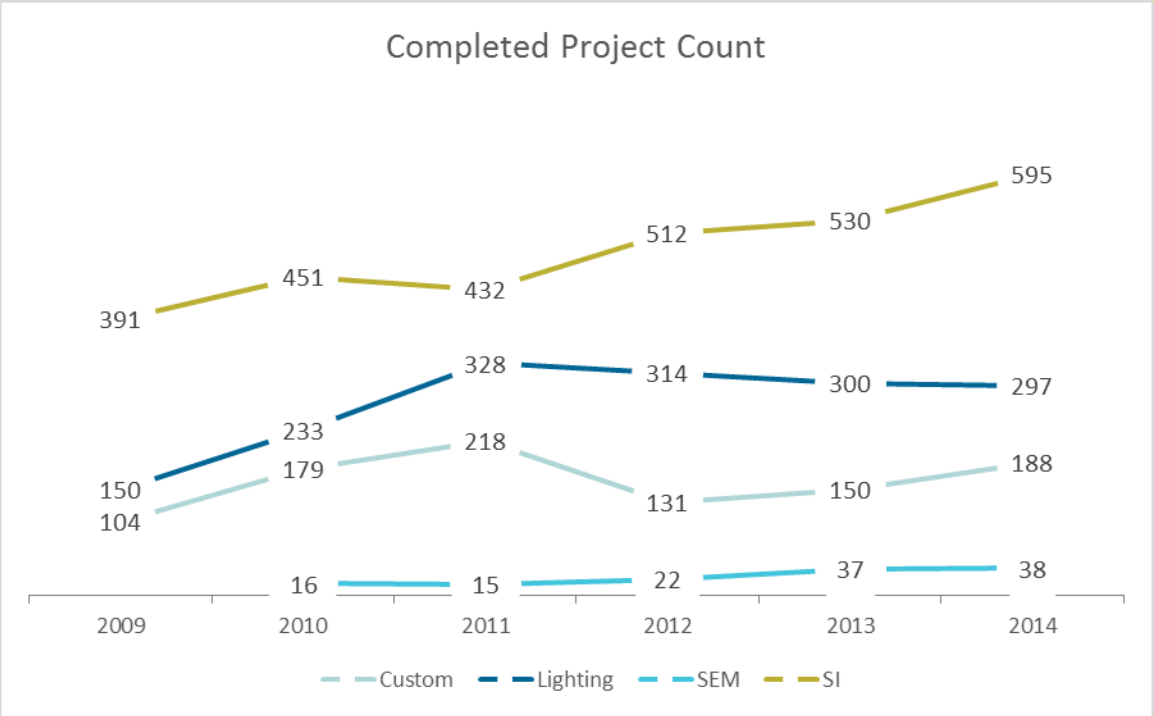


Gas Incentives and services were offered to eligible Industrial customers for the first time in 2009. Eligible industrial gas customers are those who purchase their gas commodity from Northwest Natural Gas or Cascade Natural Gas. Large gas users who pay the local utility for distribution of the gas but who buy the commodity from a third party (ie, Transport customers) are ineligible for Energy Trust programs.

The program achieved significant and highly cost-effective gas savings over the next five years through the existing tracks, delivery channels and customer relationships used for electric efficiency. But these savings by track and overall have been up and down year to year, as they have come from a low number of projects, typically less than 50, with the top 5-10 biggest projects representing almost all of the savings. Given this “lumpiness,” it has been difficult to set and sometimes to meet annual gas goals during this period, as a single large project delaying until the following year can swing the outcome.



Overall, the program volume has almost doubled over the past 5 years, mostly due to targeting irrigators, nurseries and small-medium industries through the Streamlined tracks. In 2014, the Industry & Ag sector completed over a thousand projects, and we expect this volume to continue to grow based on current program plans and trends.

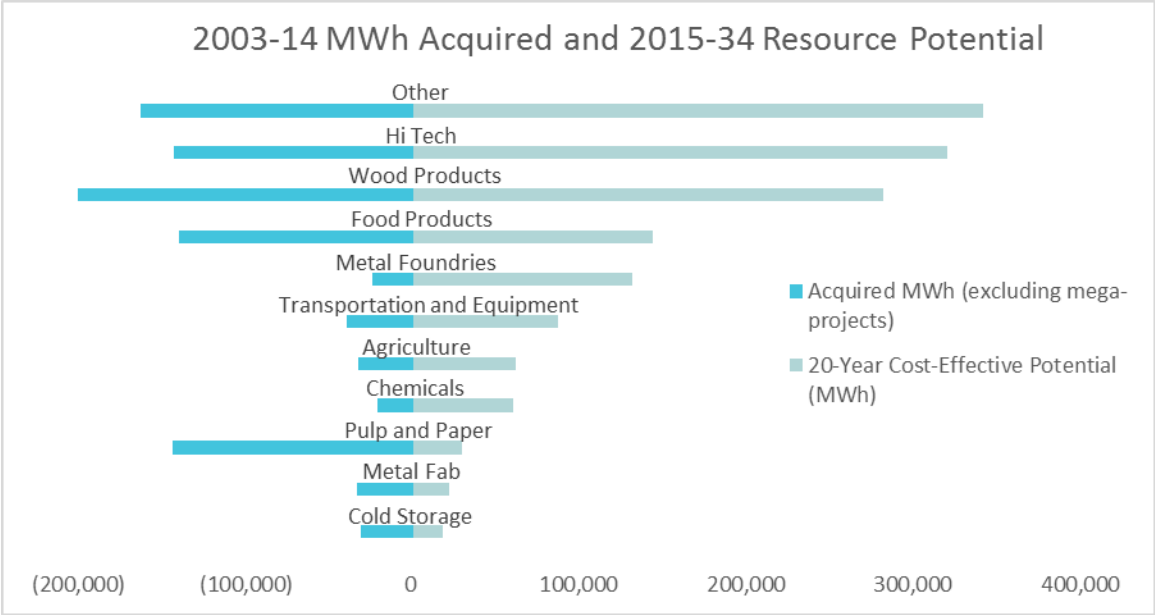


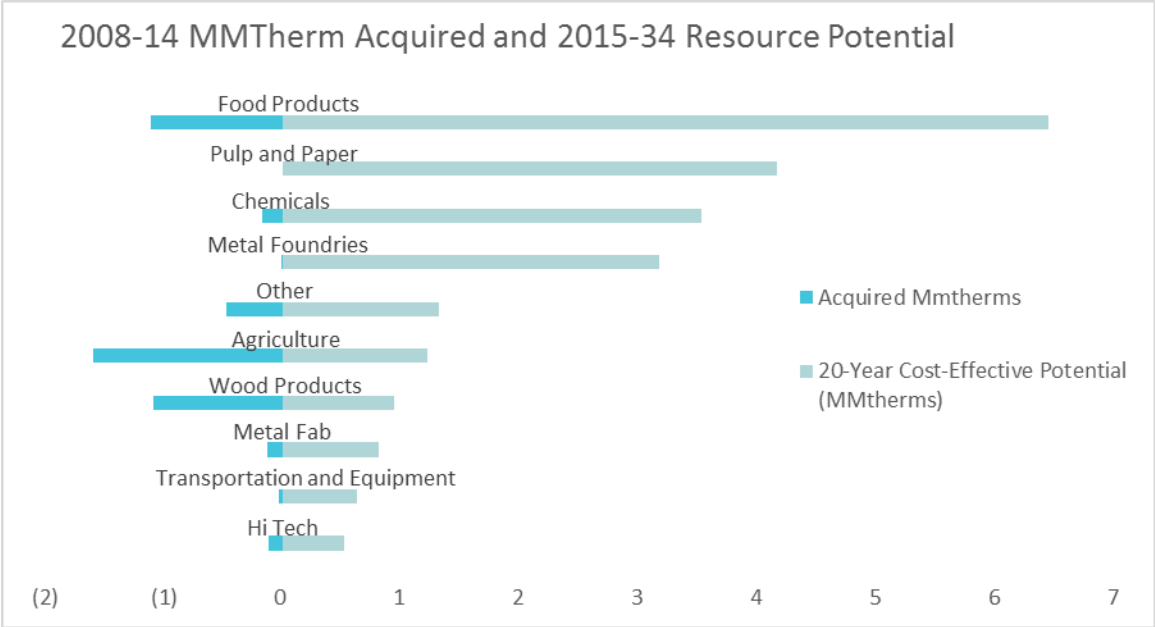
C. Market Opportunity

Electric efficiency programs have been working with industries in Oregon for more than 30 years, including Energy Trust for over 10 years, and it is true that many of the lowest hanging fruit opportunities have been picked, especially by many of the larger customers. Despite this, there is still significant cost-effective industrial efficiency resource potential to meet 2015-2019 goals and beyond. There is no particular market that has reached the end of its potential, and even participants who have been doing efficiency projects for years have found more and better ways to save energy. The pace of change and growth in manufacturing create opportunities for incremental improvements or creates new inefficiencies, either of which provide a steady stream of new opportunities to save energy.

Industrial gas programs are much newer. Since this is a less mature offering in the program and gas EE programs have not been offered to these sites historically, there is a lot of potential remaining. Reviewing the chart may be surprising, as many industries that use a lot of gas don't appear, or have very little potential. It is important to note that the resource potential does not include those on Transport rates. The efficiency potential

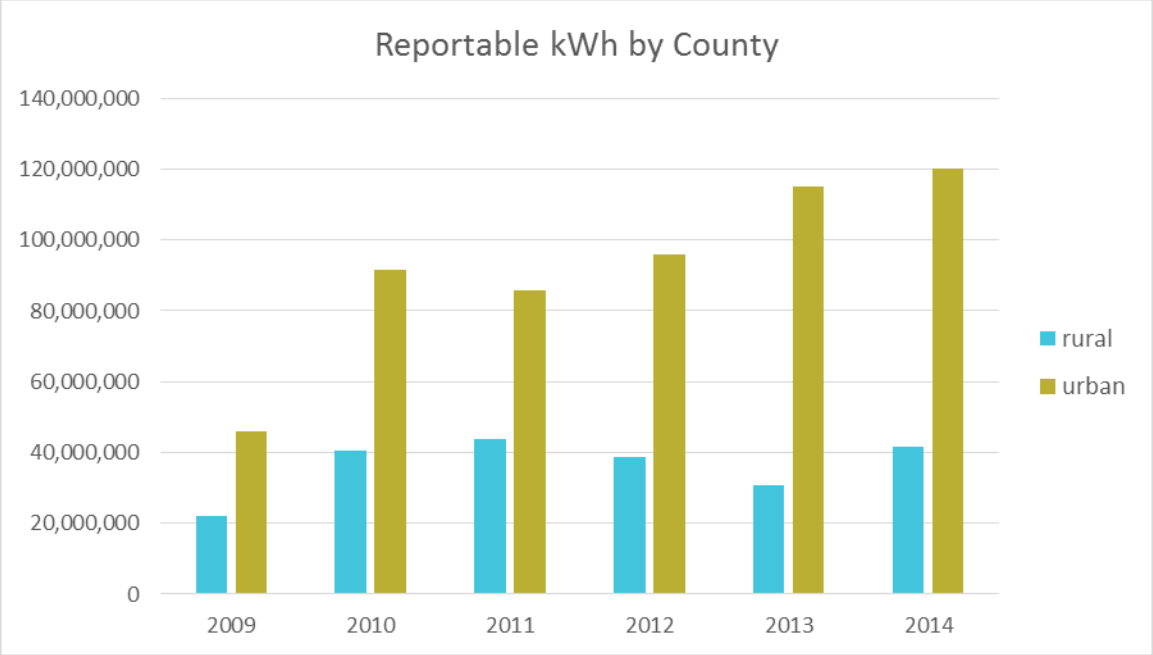
of these ineligible sites is likely much greater than that of the eligible sites in this sector, which is addressed in the Barriers section of this plan.





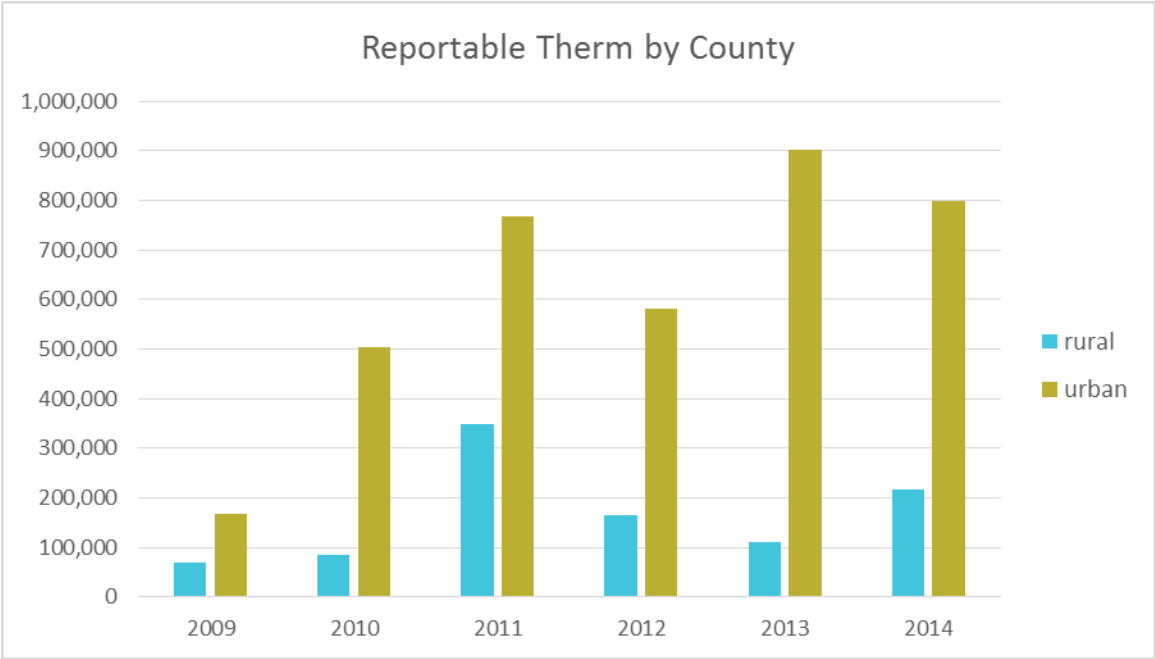
Oregon manufacturing was affected disproportionately by the great recession. Wood products suffered the greatest employment losses of any industry and has struggled to bounce back. Food manufacturing, on the other hand, did not see recessionary employment losses and has exhibited sustained growth.[4] The disproportionate recovery among manufacturing industries is reflected in urban and rural employment recovery – the Portland area is at roughly 110 percent of 2009 employment while non-metro Oregon remains at roughly the same level.[5]

Because of this, reaching rising annual goals in the more rural utility territories, Pacific Power and Cascade Natural Gas, has been more challenging over the past 5 years, with some successes, some near misses and some real misses. But industries and farms do proliferate in both rural and urban areas of the state, and the program has had boots on the ground serving them in Southern and Central Oregon for many years. More recent changes to PDC territories in 2013 resulted in siting a program representative in Eastern Oregon and ensuring that a team was assigned to reach industries on the Coast. Trade Allies were recruited and cultivated throughout the state. Through the sustained efforts of all of them, the program was able to maintain the level of savings from rural industries over the past 5 years. But the charts of savings by rural and urban counties below show that the doubling of program savings that occurred from 2009 – 2014 happened primarily in non-rural areas.



[4] http://www.oregon.gov/DAS/OEA/docs/economic/oregon.pdf

[5] https://www.qualityinfo.org/-/urban-and-rural-economic-recoveries



III. Industry & Ag Sector Strategies 2015-2019

A. Areas of Focus and linkage to Energy Trust 2015-2019 Strategic Plan

Energy Trust's 2015-2019 Strategic Plan calls out 4 cross-cutting energy efficiency strategies. These are addressed through the following sector areas of focus.

1. Continuously improve program designs to provide excellent customer service and support customers with energy solutions

As a mature, successful program, Production Efficiency will be most effective in the next 5 years by maintaining and building on current strategies and strengths. Prior Energy Trust organizational-wide directions such as the focus on customer experience and making it easy to participate have guided a set of program offerings that are working very well. Therefore, the sector's primary efforts over the next 5 years will be to continue to do what we do as well as possible: effectively support Custom and Streamlined projects with repeat and new participants and facilitate adoption of SEM practices at highly motivated sites.

This will be good news to the many contractors, vendors and industries currently involved in the program, who prefer stability in the program's structure and design. But continuing to stay relevant and effective at our mission to save energy for another 5 years requires adjusting to changes in the market or policies and responding to internal and external feedback about the program, such as 3rd party evaluations or direct input from customers or stakeholders. The program also has to be willing to implement limited time or limited eligibility interventions such as incentive bonuses or special offers as

needed to reach annual goals, or to get the attention or commitment of hard-to-reach customers. To balance these needs for change and stability, Staff will need to use consistent program design, communications, change management, and continuous improvement practices that help minimize risk and negative long-term savings impacts that can be a side effect of either stasis or change.

There will be a specific focus on bringing industrial gas efficiency efforts to the next level of performance. We will diagnose and address delivery, information and technical challenges in all 3 tracks of the program to achieve more and more consistent annual gas savings.

2. Broaden participation by serving people and businesses we have not yet reached

Almost all eligible large industries are already participants, so this strategy relates to reaching more small-medium industrial and agricultural customers. Focusing future program development effort on small-medium industries also provides a proactive hedge against the future effects of large customer funding limitations. Accomplishing this relies on outreach and marketing strategies that drive Streamlined projects through Trade Allies. To grow savings further from these smaller industries, we are deploying best practices learned from serving larger industries, including the importance of a Custom PDC to make participation easy, SEM and the use of studies and other custom technical services to aid energy investment decision making.

3. Manage the total cost of efficiency to maximize cost-effective conservation potential

In other sectors, measure costs and measure cost-effectiveness can be a major challenge, such as with solar installations and residential gas efficiency measures, and this was the primary problem being addressed in the 3rd Energy Trust strategy. But the Industry & Ag sector has not had measure or program cost effectiveness challenges historically, because the businesses served by the program would not invest in a project they didn't find cost-effective. So, industrial customer and program interests are naturally aligned on what makes a good investment in energy efficiency, and measure costs or soft costs are not a primary barrier to industrial EE.

The way this strategy does manifest in the sector is directly related to the strategy above of broadening participation. Resource acquisition from smaller industries has historically cost the program almost twice what savings from large industries cost. But while savings from small industry are more expensive, they are still cost-effective, and are included in the resource potential. Given that these customers pay all public purpose and supplemental electric efficiency funds and that they are usually eligible for gas incentives, there is every reason to go after these savings now. As we do, we will need

to adaptively manage program costs and tactics to appropriately scale cost-effective delivery to these customers. This is addressed further in the Barriers and Challenges section of the plan.

4. Replenish the mid-term and long-term energy conservation resource available by investing in new technology product development strategies and innovations

Emerging technologies for energy efficiency in the industrial sector are not usually products but are new or unusual applications of existing technologies or practices. A few areas of sector focus include:

- Redesigning and implementing an SEM offering for industrial sites that have previously participated in the program's first-year SEM introduction. Ongoing recruitment of new SEM participants.

- Partnering with NEEA, regional utilities, Industry associations, NGOs, Federal agencies and national labs, increase awareness and acceptance of new and emerging technologies, applications and practices. Support demonstration and deployment of emerging industrial EE solutions including smart manufacturing controls and energy information systems, CHP, Performance+ lighting design.

B. Expected sources of savings: market segments

One change in response to lessons learned over the past 5 years has been a shift away from assigning Custom PDC territories by end-use market. In 2010, in addition to PDCs with geographic territories, the program had Custom PDCs assigned to medium-large wastewater, food processing, pulp and paper and high tech manufacturing sites across Energy Trust territory. Surprisingly, we did not find that this structure led to increased savings or reduced costs in the target markets, and the complexity of communicating the hybrid PDC structure was a barrier to getting new sites engaged. In 2013, new solely geographic territories were designed to reinforce the program's new direction for Custom PDCs to effectively serve all types and sizes of industries in their assigned territories.

Agriculture and in particular Irrigation measures will continue to be delivered primarily through the Streamlined tracks. Farmers are deeply connected to their irrigation vendors, and recruiting these market actors as Trade Allies has proved to be a winning strategy for customer satisfaction and achieving cost-effective irrigation savings.

Despite the simplicity and effectiveness of what the program offers to irrigators, there is significant additional complexity in serving this market due to policy issues around water and utilities. There is an ongoing need for the program to coordinate with a high number of local and national government, nonprofit and private stakeholders focused on the agricultural sector. In particular, the Klamath basin is currently engaged in a set of very

complex multi-stakeholder issues related to water and energy that are expected to continue indefinitely.

While Oregon's industrial base is highly diversified, two industrial sectors are expected to have major growth over the next 5 years: high tech manufacturing and indoor agriculture.

- High tech manufacturing represents the fastest growing industrial load in the state, most of it is resident in a small number of very large sites in PGE territory. This situation puts savings from the sector at risk, long term, due to limitations in funding for these customers, and this issue is explored further in the Challenges section of this plan. Reversing a trend of low savings from high tech customers prior to 2010, Production Efficiency has since had significant success reaching them. While these sites are not easy to influence or serve, it appears that the current program design, especially custom offerings, meets the needs of this sector.
- Indoor agriculture may be an opportunity arising out of the legalization of recreational marijuana in Oregon in 2014. If they choose indoor production instead of growing outdoors, lighting, ventilation, pumping and other systems are expected to be fairly energy intensive for these otherwise small footprint grow operations. While much remains unknown about the type of grow and marijuana product processing operations that will develop over the next 5 years, Energy Trust is preparing to influence these new ratepayers to be more energy efficient. The main challenge will be timing: to avoid the lost opportunity, the program will need to reach the industry actors before they build out inefficiently. The stigma still associated with this new industry could create other barriers to our ability to reach them in time. Ongoing organizational clarity about the eligibility of these ratepayers could mitigate these barriers.

C. Key Activities

1. Energy Trust will utilize PDCs as long-term energy efficiency "account managers" and technical consultants for all types and sizes of industrial customers. Custom PDCs are the most direct channel for the program's outreach and customer service activities. The Custom track allows a ready channel for any type of project to be considered, even in unusual applications or using emerging technologies – if energy savings and costs can be adequately quantified through energy engineering and the project can be verified after installation, then the custom track can accommodate.

    a. Energy Trust will continue to plan, develop and fine-tune compelling offerings for PDCs to bring to market. Energy Trust will increase the effectiveness of these efforts and promote consistency of customer experience by providing coordinated go-to-market strategies. Energy

Trust will develop customer recognition tools, newsletters and marketing collateral; identify and transfer best practices between PDC teams and provide strategic guidance for PDC annual action plans.

b. Develop tools that reduce PDC effort and cost associated with providing custom engineering services at smaller industrial sites, beginning with a tablet-based scoping tool for site walks-throughs.

c. Clarify and tune custom technical analysis processes and requirements including detailed ATAC studies, enhanced scoping reports, verifications.

d. Provide formal ATAC on-boarding and regular updates on program guidelines and requirements to improve quality of technical work, reduce rework.

2. Bring industrial SEM to scale in Energy Trust territory. Gain 5 – 10% energy intensity savings from low cost actions/ measures at industrial sites. These efforts also provide a basis for increasing customer commitment to energy efficiency, deepening relationships and increasing the number of capital projects done in future years at participating sites. Actions planned include:

   a. Diversifying and increasing SEM participation: Core SEM curriculum and tools in development now leverage lessons learned in six years of implementation to optimize and standardize design and delivery of first year SEM offering, broaden customer sizes, types and regions that can be served.

   b. Long-Term SEM Engagements: Develop an enhanced SEM offering for current SEM practitioners so that Energy Trust can more effectively support the many customers willing to engage in longer, more continuous SEM offerings. Allows for the capture of savings currently being “missed,” greater value-add to customers, and potentially improved persistence of SEM elements and/or savings.

   c. Integrating Information Technology: IT has the potential to both enhance the customer’s SEM experience and drive more savings if designed and managed properly. Explore the intersection of smart manufacturing and SEM.

3. Continue to increase savings from the Streamlined tracks by developing prescriptive and calculated measures whenever possible to simultaneously help reduce delivery effort and speed project timelines. Additional actions planned include:

    a. Achieve greater geographic diversity of both electric and gas savings by improving outreach efforts to trade allies across the state. At the end of the five-year cycle the Program hopes to have many trade ally options for common energy efficiency technologies in all regions of the state.

    b. Use geographic information systems to improve market intelligence and better roll out outreach, marketing and other implementation efforts.

    c. Greatly improve trade ally interest in the Compressed Air Leak Reduction offering and explore expanding to other O&M services that might be viable through a trade ally direct install model.

    d. Expect to see steady growth in refrigeration related streamlined measures, particularly fast acting doors and refrigeration controls, as they become a major source of savings along with compressed air and irrigation projects.

    e. Lighting trade allies become well-versed in lighting design and make the comprehensive retrofit more of a standard practice for lighting projects. This includes more consistent use of controls on all projects, Performance + or otherwise. There is good cross-over with Commercial sector and NEEA work in this area. We all share common goals and NEEA's top tier trade ally training will help move us in this direction.

    f. Continue to develop the capabilities of trade allies around properly utilizing the many streamlined industrial calculator tools, improving their chances of successfully selling an efficiency project and continuing to shift program delivery effort to the market.

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4. Improve awareness of the benefits of efficiency and services available for small-medium industrial customers. Invest in technical and market research and provide marketing and outreach to 1 – 2 new targeted sectors per year. This strategy offers an excellent opportunity to collaborate with utility partners such as through 838-funded utility marketing efforts and to use peer-to-peer influence among like industries, potentially by leveraging professional associations and other market actors that serve specific industries.

5. To maintain program quality and increase savings, we will engage in continuous improvement of internal processes within all Program staff's areas of responsibility. Sector staff will demonstrate the same commitment to process efficiency that we are asking of our customers to reduce wasted time and effort, increase throughput and decrease complexity. Keeping current program practices and procedures optimized allows for greater innovation including increasingly customized technical services without overtaxing staff and contractors or reducing the program's ability to deliver on goals. Utilizing standardized procedures and practices even when testing innovative new offerings also improves those pilots and addresses the risks of innovation by reducing the number of variables being tested. Many of the currently planned improvements make use of changes to Energy Trust data systems that are almost complete.

    a. Harnessing IT Technology and Data: Delivery contractors and administrators can improve depth and quality of outreach, customer engagement, and project and program administration through harnessing Energy Trust's new IT tools and improved databases, which can result in more projects, more savings and improved reporting.

    b. Improve Sharing of Customer Information: work to build more integrated infrastructure and processes so staff and delivery contractors can more easily share and collaborate around customer information

    c. Streamline Project Workflows: bring staff, IT, delivery contractors and consultants together to develop new processes and tools around existing IT systems and Energy Trust databases to reduce duplicative work and ease project/program management

    d. Customer Empowerment: continued innovative build out of customer-focused systems that empower customers to connect and utilize their own information more readily and easily.

    e. Medium- to Small- Customers and Rural: use of metrics to monitor, track and provide feedback on performance in these areas by delivery contractors

6. Energy Trust works with a wide range of other organizations with similar or complementary goals. The Sector will continue to leverage the actions of these existing and emerging market players. They support emerging technologies, perform valuable research and provide industrial and agricultural outreach, technical assistance and public recognition. The influence of these organizations

helps to decrease barriers to industrial efficiency projects. Collaborators include our local utilities, NEEA, BPA, ODOE, Northwest Food Processors Association, the High Performance Enterprise Consortium (HPEC), and national and federal actors such as CEE, ACEEE, US DOE, and US EPA.

D. Areas of Innovation, New Directions

As described in previous sections of this plan, the biggest changes are expected to come from our own evolving program design:

1. SEM is changing the way we work with customers and building customer capacity, the knowledge and commitment to manage their own energy use. Long term, SEM has the potential to be game-changing for customers and for the program, to enable entirely new approaches to program design and customer engagement. The development of Continuous SEM over the next few years may create a significant new source of savings for the program. With their increased sophistication, these businesses will take on EE proactively and become the best candidates for more complex energy opportunities, such as demand management and demand response, onsite renewables and CHP, going after federal or state grants for large, ambitious projects or managing GHG emissions.

2. The pressure of expanding services to smaller industries while maintaining program cost-effectiveness will drive innovations in delivery for these customers that if applied elsewhere could reduce effort and save costs across the entire program.

E. Key Challenges and Barriers

<u>Barrier: Large customer funding limitations & ineligibility for EE programs</u>

Due to successful advocacy by large user groups Industrial Customers of Northwest Utilities (ICNU) and Northwest Industrial Gas Users (NWIGU) to keep their members from paying into efficiency funds, many of the companies with the best opportunities for cost-effective efficiency are either limited or prevented from participating.

For gas efficiency, there continues to be a blanket exclusion for Transport customers. The effect of this Transport exclusion is that the majority of gas used in Oregon industry is not eligible for efficiency funding, although these large gas users represent the best candidates for efficiency both technically and economically. Due to the relatively low price of natural gas and business priorities, and based on our direct experience serving these sites for electric efficiency, there is no indication that gas efficiency is being addressed at Transport sites absent a program. There have been no discussions or

other indicators that state policy makers, regulators or energy policy stakeholders have an appetite for addressing this large, excluded portion of Oregon's end use gas market.

For electric efficiency, the exclusion of > 1 aMW sites from 838 supplemental efficiency funding creates a limitation around 1149 public purpose funding available to serve these sites. After analysis of 2014, and following on many years of growing savings from all sizes of customers, Energy Trust is within less than one percentage point of that limit in spending on large customers in PGE territory. We are preparing to make changes in programs to drive annual spending on these down significantly from recent annual averages. But these changes will inevitably be accompanied by reductions in the low-cost savings the program could acquire from these sites and could jeopardize the ability of Energy Trust to meet IRP targets. The PUC has opened a docket on this issue and regulators, policy makers and stakeholders are engaged in considering the impacts of 838 funding limitations and determining the path forward. The outcomes of this docket or potential legislation will have a tremendous effect on the strategies of both business sectors over the next 5 years, depending on whether something changes or there is a decision to proceed under the current limitations and methodology.

Challenge: Large customers may change eligibility status year to year

Administering the program in accordance with the limits on eligibility described above is made much more complex because a site's eligibility may change year to year. Gas customers on higher volume rates have the ability to choose buying their gas commodity from the utility or the market at least once per year, changing their eligibility status. For electric, determination of 838 exclusion is made based on site electric loads the previous year. At some sites, reducing or adding a shift or other business changes can change their loads enough to change their status the following year.

Except for the very largest electric customers, this fluidity in eligibility means that there are no large customers or transport customers, only customers that are large or transport in a given year. This creates additional challenges to administering incentives in accordance with limitations in eligibility, as well as additional complexity to the organization's analysis and reporting on it year-to-year and overall. Fortunately, improvements in data sharing between Energy Trust and the utilities have laid the groundwork for more accurate determination of a site's eligibility status, but there is still work needed to ensure that this information is regularly, accurately updated and communicated to all business programs.

Challenge/ Opportunity: Unknown effects of climate change and new carbon regulation

How climate change will affect Oregon industries and farms is still impossible to predict, but it seems likely that over the next 5 years there will be impacts associated both with

the effect of new carbon emissions regulations on regulated industries and energy prices and with the indirect effects of climate change on water, population and ecosystems.

For the first, addressing the changes brought about by carbon regulation, the program will seek to provide information to help eligible, regulated customers prepare and reduce carbon emissions through efficiency. This may be the topic that pushes the exclusion of Transport gas customers into policy makers' awareness, as the end users who will be subject to federal carbon regulation in Oregon will be very large gas users, who are highly likely to be Transport customers and ineligible for programs.

Carbon emissions associated with electricity will be regulated at the utility, where they are produced as a side effect of fossil-fueled generation. The effect on the market could be electric rate increases, which would drive greater efficiency adoption by end users trying to keep costs down. In addition, the EPA's draft clean power plan encourages increasing efficiency to meet state targets for carbon emission reductions. Overall, these scenarios are more of an opportunity than a challenge for greater efficiency.

The effects of climate change are expected to have a major impact on natural resources and where people and businesses are located. California and Southern Oregon's record-breaking drought is already having a major effect on farmers and food processors, who are considering changing products, crops, feedstock or processes to adjust. Simultaneously, scientists studying climate change have called out areas of the Pacific Northwest as less impacted than many other areas of the country. These projections lead to expectations of major population and business growth in the region as climate refugees from drought areas in the Southwest move north. There could also be intra-state dislocation as well, if dry conditions in Eastern Oregon persist or worsen.

As described earlier in the paper, any time there is major growth or process change in industry, there is an opportunity for degradation of efficiency or increasing efficiency. Long term, the impacts of climate change may lead to greater efficiency opportunities in the region, but short and mid-term, there could be loss of realized savings due to measure failure from process changes or business closure before end of useful life.

<u>Challenge: Adaptive management of program costs and maintaining cost-effectiveness while increasing services to smaller industries.</u>

Resource acquisition from smaller industries has historically cost the program more than savings from large industries cost. But while savings from small industry are more expensive, they are still cost-effective, and are included in the resource potential. Given that these small-medium industries pay all public purpose and supplemental electric efficiency funds and that they are usually eligible for gas incentives, the program is highly motivated to reach them. As we do, we will need to adaptively manage program costs and tactics to appropriately scale cost-effective delivery to these customers.

The table below shows the sector's electric savings and incentives paid for the past 5 years to large and small-medium industries. The column "Rate ($/kWh)" is the average incentive cost for the project's first year savings. This is alternately referred to as "acquisition cost" or "incentive run rate" in annual budget documents, where projections about expected acquisition costs are used to budget incentives to meet annual savings goals. This calculation does not take into account measure life or other discount rates needed to calculate levelized cost.

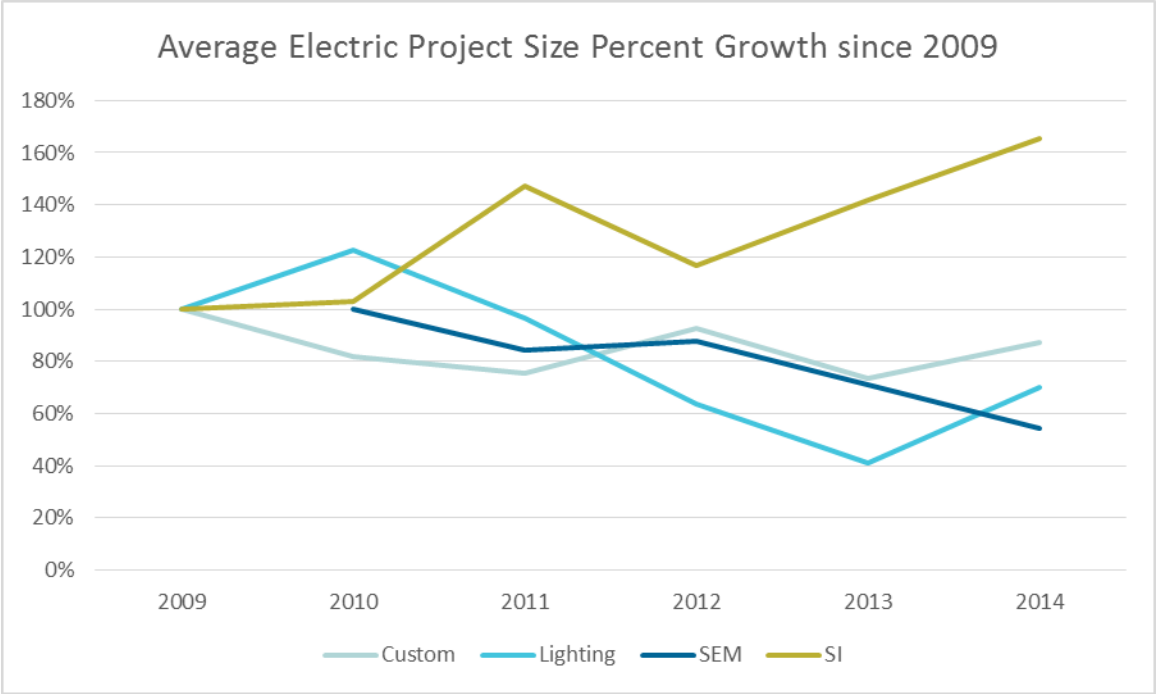
Comparison of Acquisition Costs						
	Large industries (> 1 aMW)			Small-medium Industries (< 1 aMW)		
Year	Incentives	Savings	Rate ($/kWh)	Incentives	Savings	Rate ($/kWh)
2010	$5,734,702	86,726,144	0.0661	$4,169,156	45,294,208	0.0920
2011	$7,465,974	75,671,779	0.0987	$5,696,100	53,789,113	0.1059
2012	$8,259,375	85,787,126	0.0963	$5,852,309	48,766,054	0.1200
2013	$6,627,587	103,416,021	0.0641	$5,333,404	42,365,596	0.1259
2014	$7,108,105	100,287,004	0.0709	$8,126,830	61,475,633	0.1322
Total	**$35,195,742**	**451,888,074**	**0.0779**	**$29,177,800**	**251,690,604**	**0.1159**
note: Incentives are summed excluding studies and ITSP payments						

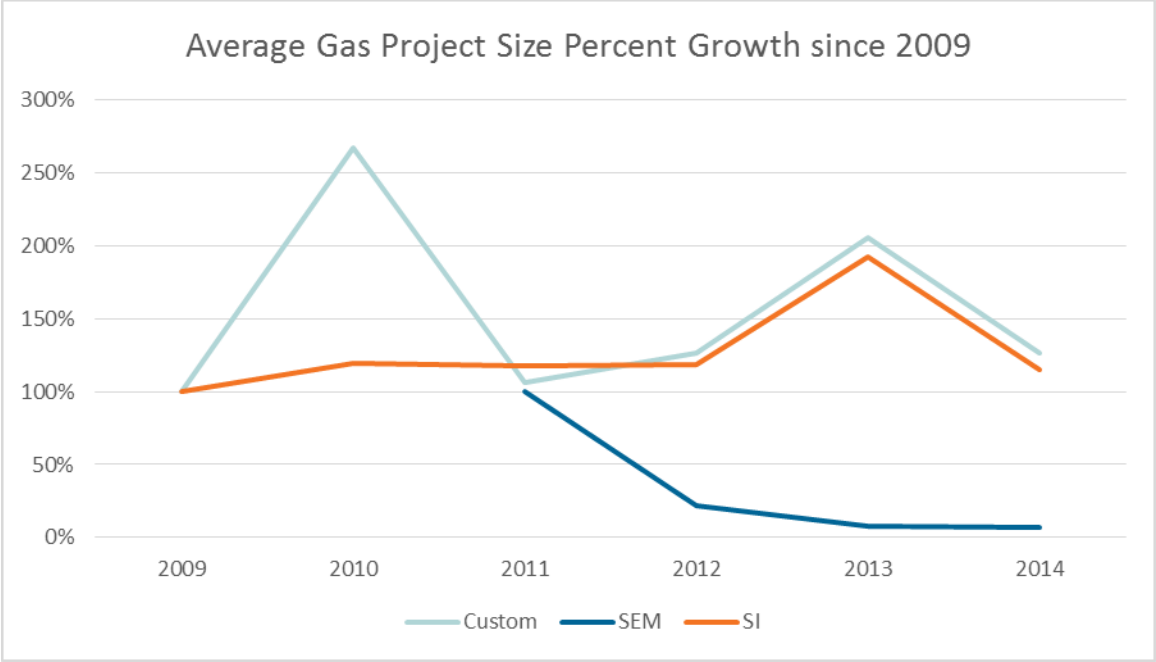
Related to this is the trend of meeting goals with a higher number of smaller projects that has been experienced in both of the business sectors over the past 5 years. A natural outgrowth of program maturity and efforts to engage smaller business, this trend increases management and delivery costs associated with each kWh or therm acquired, and these effects are detailed in annual program plans and budgets.

The charts below characterize changes in average project size by track for the sector, using 2009 as the base year for each track. Looking at the data, it is clear that much of this trend is a direct outcome of intentional strategies and is by design, rather than an unfortunate side-effect, as it represents the program trying to reach all cost-effective conservation, not just the lowest hanging fruit. Regardless, the changing average size of energy projects does increase delivery and management costs and does create challenges to effectively budget and set goals based on history.

The data also shows that smaller project sizes are not a trend across all tracks. Program strategies and actions directly affect a trend, and can even reverse it. Average project sizes are up in Streamlined Industrial, where new streamlined measures are added continually. A multi-year downward trend in lighting savings per project was turned around in 2014 by the development of Performance +, which addresses lighting design

comprehensively. SEM electric savings per site are down by design, as a direct result of serving small-medium industries after 2012, but the reduction in gas savings per SEM site is a signal of problems that need to be addressed. Other than this, the industrial gas portfolio is basically too small and lumpy to draw conclusions from the historical data.





F. Summary: Linking the Strategic Plans

	Energy Trust 2015-2019 Plan Energy Efficiency Strategies			
	Continuously improve program designs to provide excellent customer service and support customers with energy solutions	**Manage the total cost of efficiency** to maximize cost-effective conservation potential	**Broaden participation** by serving people and businesses we have not yet reached	Replenish energy conservation resource through **new technology**, strategies, and innovations
Overall Industrial Sector				
Hold steady with what's working	x	x		
Increase annual gas projects/ savings	x			
Expand services to smaller industries	x		x	
Adaptively manage program costs	x	x		
Partner to support new tech/ applications	x			x
Success stories and recognition	x			
Harness IT technology/data	x			
Custom Track				
Geographic coverage of PDCs: all areas	x		x	
Scope of PDCs: all sizes of industries	x		x	
Develop scoping and other tools	x	x		
Tune technical management processes	x	x		
Streamlined Tracks				
Expand Performance+ Lighting	x			x
Add geographically diverse Trade Allies	x		x	
SEM				
Recruit 100+ new SEM participants	x		x	
Develop Continuous SEM offering	x			x