New Buildings 2015

Program: *New Buildings, Major Renovations, Tenant Improvements*
Program Manager: *Jessica Rose*

Program Overview

Energy Trust New Buildings provides incentives for energy-efficient design and equipment to support construction of high-performance commercial new buildings and major renovations of all sizes and types of buildings. Participants can leverage a comprehensive set of services and incentives. These include early design and energy modeling assistance and a wide array of standard and customized equipment incentives, including modeled savings incentives for whole-building approaches and incentives for integrating solar designs. New in 2012, the market solutions offering helps small businesses under 70,000 square feet achieve deeper energy savings through standard tiered incentives packages for six building types – new measures are added to these packages as developed – and new building type specific packages will be released in 2015. New Buildings began in 2003 and has been implemented since 2009 by Portland Energy Conservation, Inc.

New Buildings will continue to drive significant changes to how buildings are designed and constructed, resulting in sustained market practices that promote high-performance buildings and the benefits of healthy, productive, and energy-efficient places to live, work and do business in Oregon. This long-term strategic vision guides energy program savings goals, market development, innovation in delivery and the development of cost-effective measures and decision-making tools to influence market shifts.

2015 Savings Goals

The table below compares savings goals for 2015 to 2014 goals.

	2014 Goals	2015 Goals
PGE	31,803,345	19,136,437
PAC	11,987,2589	17,117,683
NWN	500,386	323,496
CNG	54,562	70,165

State of the Market

After years of a depressed construction market, large projects are coming online in 2016 and 2017. New Buildings projects 2-3 years into the future because projects enter the program pipeline in 2015 that will close in 2016 or as late as 2017. Key drivers of savings are:

Codes and standards in addition to avoided cost, some of which are reflected as programmatic market transformation not claimed by NEEA, called "MTx."

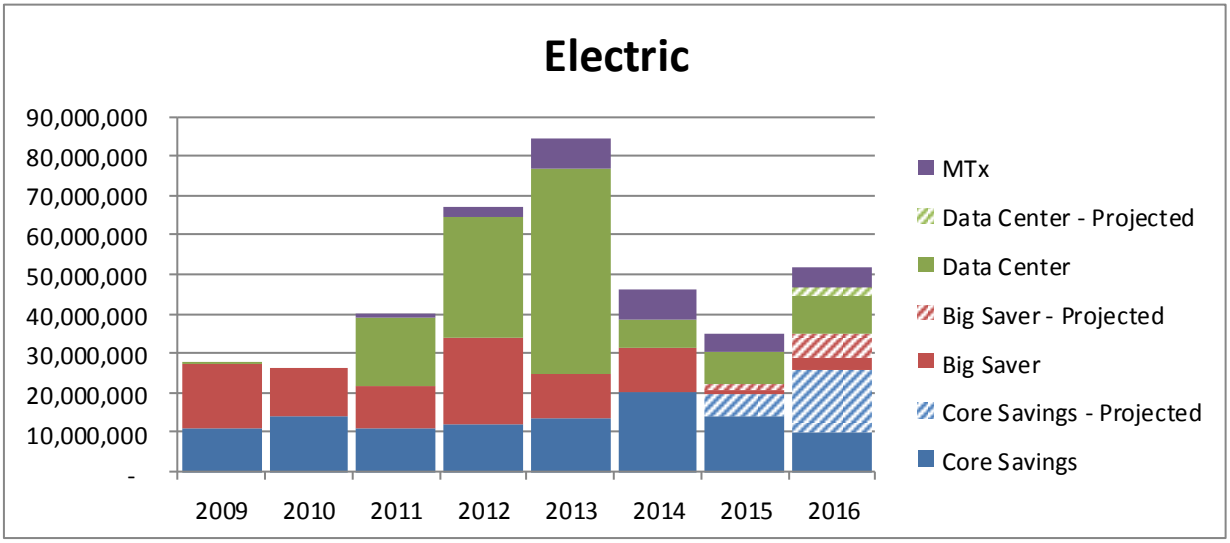
> Oregon has some of the most stringent energy building codes in the United States. As higher building energy codes are adopted, program staff will continue to strive to raise projects to the next level in energy savings to exceed code, develop a transformation model and strategies to claim savings, and collaborate with NEEA, BCD, ODOE and industry leaders. New Buildings has focused on achieving the next level through an integrated design process to lead customers towards bigger savings opportunities.

Project types: Large savings projects, "big saver," and Core savings projects, "core savings."

> Variations with annual savings occur with large projects, are driven by the cyclical nature of new construction, trends in commercial real estate, and volume of small buildings. For the first time in program history, New Buildings will begin to grapple with these changes in the marketplace along with the compounded effects of two code cycles.

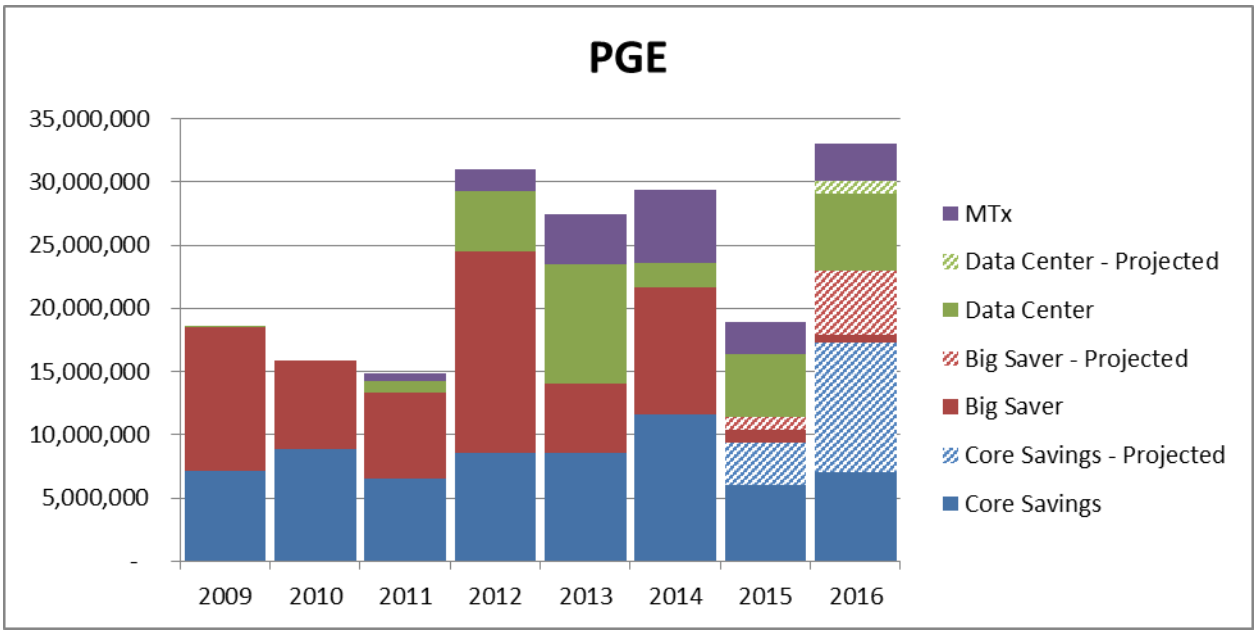
Market shifts due to the cyclical nature of the new construction market

> Project enrollments are increasing due to economic changes, and many of these projects will close in 2015 or 2016 – though 2016 is where we expect some of the large savings projects with longer planning and construction timelines to close.



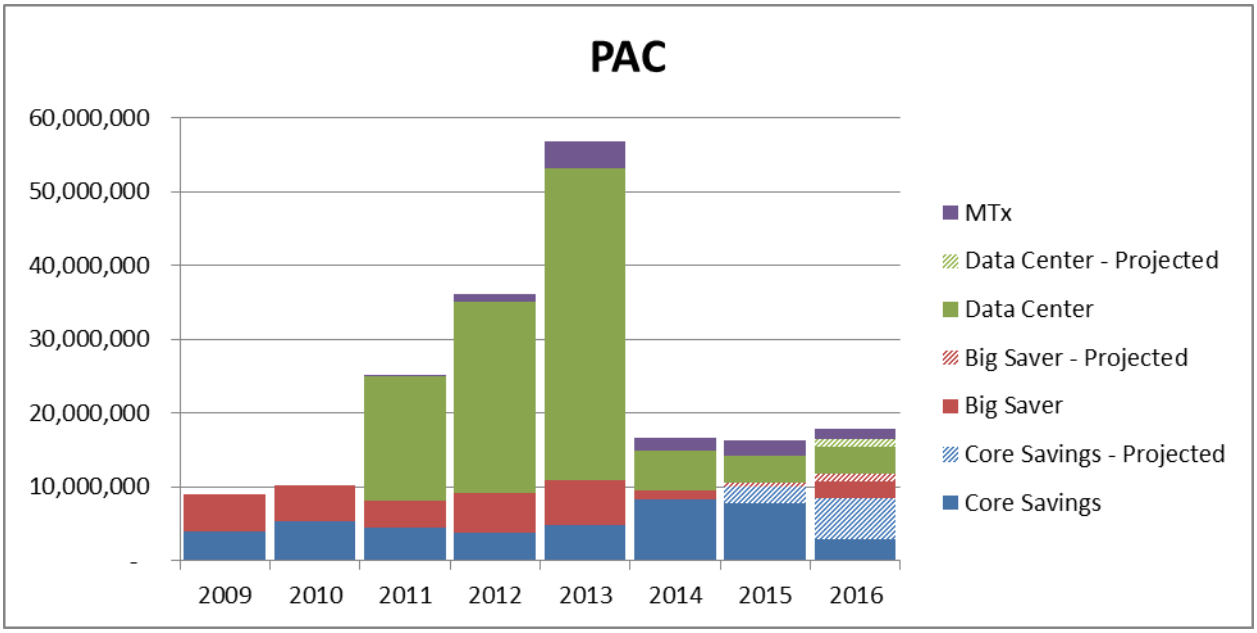
PGE

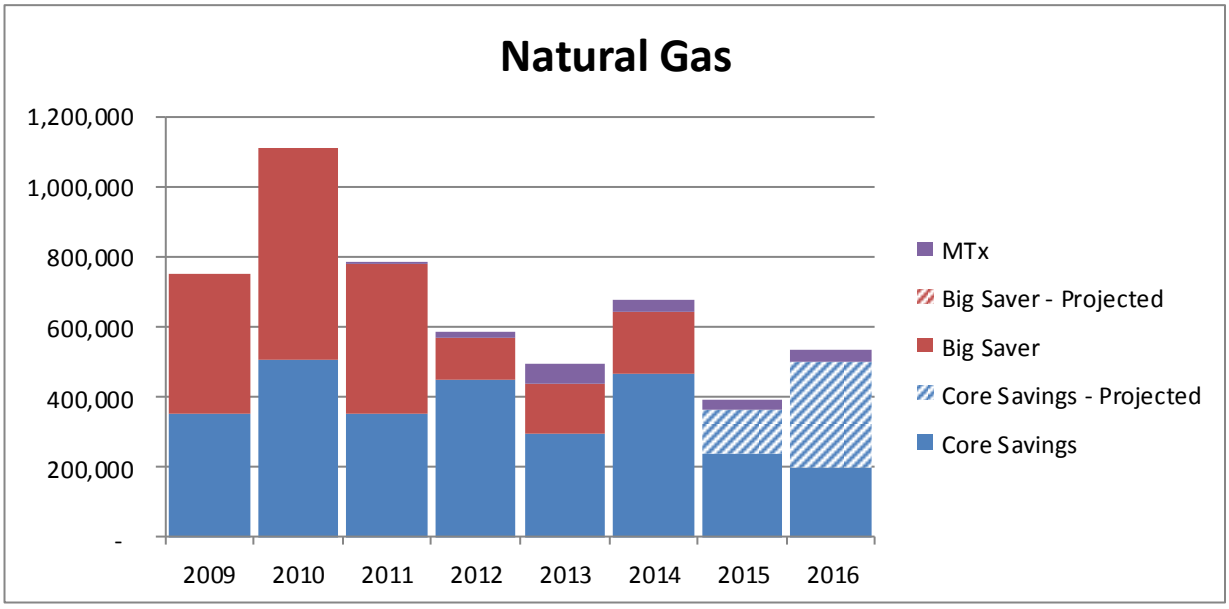
The 2016 savings pipeline for PGE is already very strong. Adding in projections based on current project enrollments and project turn-around times, 2016 will be a banner year in PGE territory. The 2016 pipeline is strong due to a high number of enrollments in 2014 (an all-time high, and 20% more enrollments than in 2013). In PGE the program has historically closed about 150-200 projects (193 forecasted for 2014). At this time the program already has 111 in the pipeline for 2015 and 59 in the pipeline for 2016. Even though the market growth spurt is expected to level off in the next 1-2 years, the volume will remain high. Because of project timelines, high enrollments in 2014 and early 2015 will bring project savings in 2016 and 2017. In addition, large multifamily and office projects are starting to move forward which we anticipate to be developed next year and completed in 2016 and 2017.



Pacific Power

The 2015 savings pipeline for Pacific Power is healthy largely due to enrollment of small projects. Large savings projects are also expected and have been steady since 2011, though the scale will shift down; currently, 2015 has 127 projects enrolled and the 2016 pipeline has 46 projects enrolled with two high savings projects, and we estimate that in 2015 another large project will begin technical analysis for 2016 savings. For comparison, in Pacific Power the program has historically closed about 100-135 projects (126 forecasted for 2014).

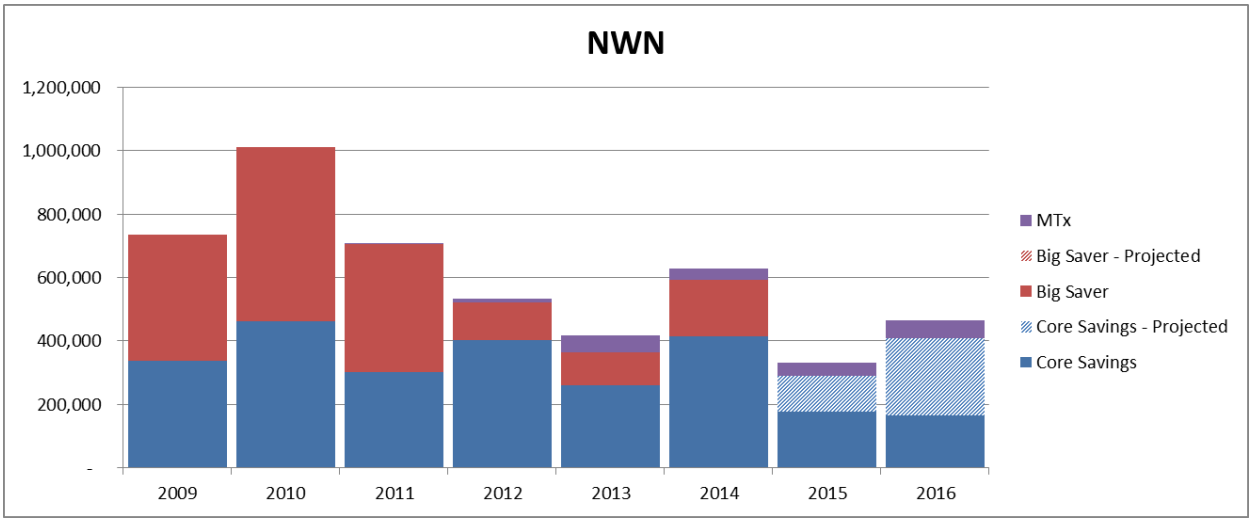




Overall, the impact of significantly fewer large projects, decreased activity in healthcare and decreased savings from LEED® and custom gas measures, since the 2010 code and the updated gas avoided cost in 2013, are causing a drop. There are less savings from direct-fired radiant heating, restaurant equipment (peaked in 2012) with fewer fast food chains purchasing gas fryers, and tankless hot water heater savings declined in 2011 when the measure was updated.

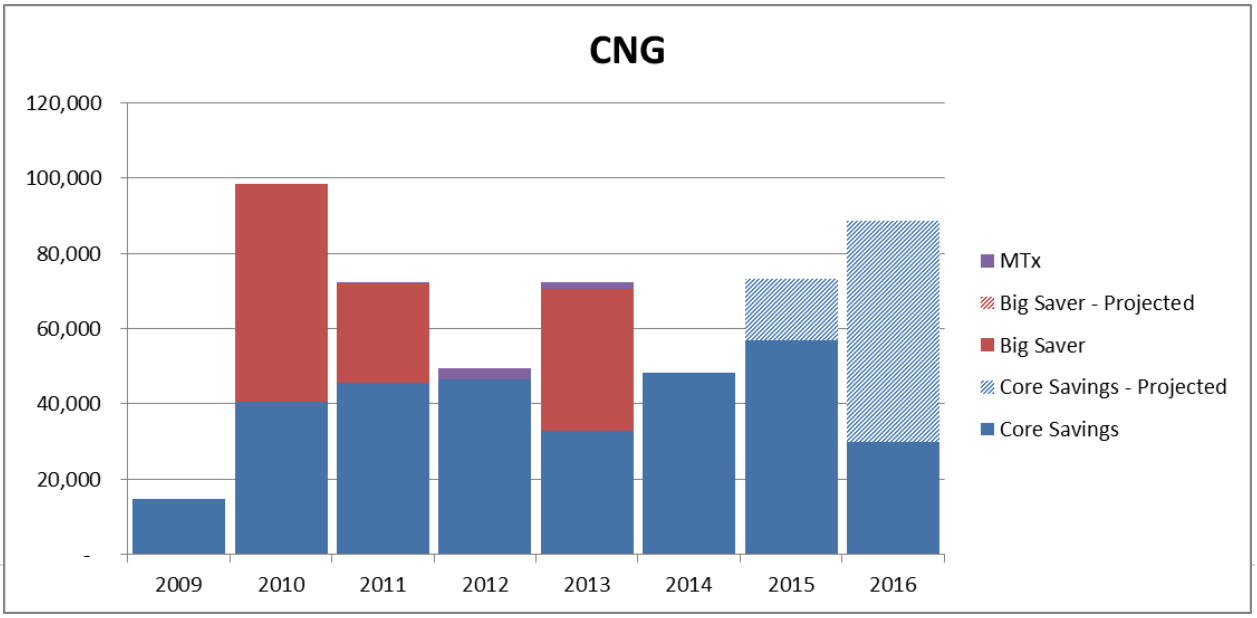
NW Natural

The 2014 code change and avoided cost will impact a number of measures. In 2015 the program will invest in developing new gas measures that will be available if equipment is readily available on the market. Savings are not expected to reach historically high levels, but savings may rebound somewhat as large multifamily projects come online in 2016 and beyond. In NWN the program has historically closed about 100-200 projects (182 forecasted for 2014). At this time the program has 107 in the pipeline for 2015 and 12 in the pipeline for 2016.



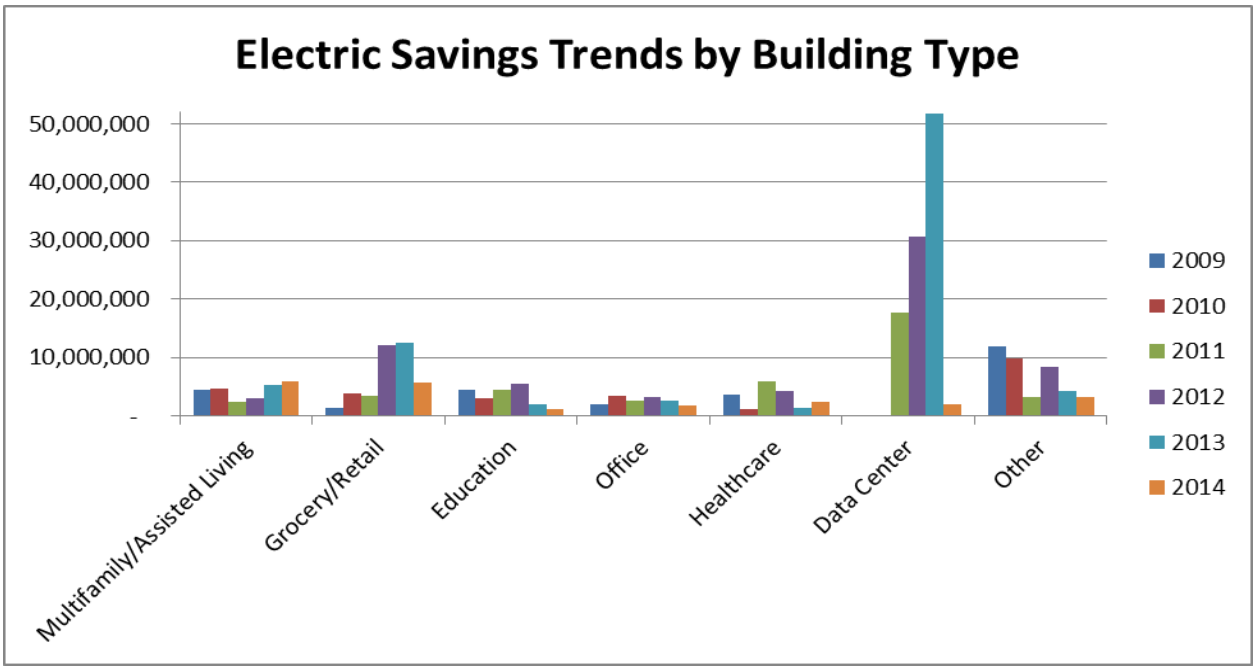
Cascade Natural Gas

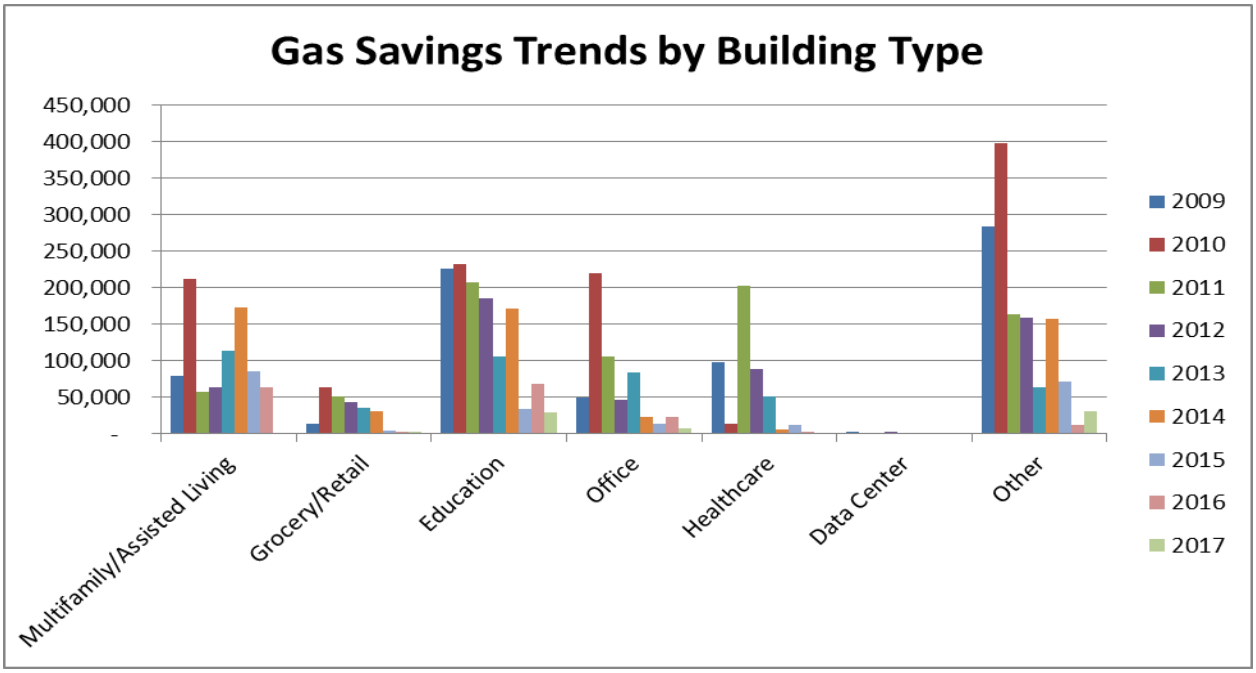
CNG savings are holding strong due to increased construction activity in Bend. With fewer historical savings from large projects CNG is not as affected by the reduction in large projects. In CNG the program has historically closed about 20-35 projects (34 forecasted for 2014). At



this time the program already has 38 in the pipeline for 2015 and 16 in the pipeline for 2016.

The six market segments shown on the graph below has accounted for between 50-95% of electric savings and 60-85% of gas savings in previous years. Many key market segments follow a boom and bust cycle, especially retail and grocery. There is a gap in savings realization for 2015 while projects are in design and the pipeline is being built, but there is an overall market decline in some segments where there is less construction.





Multifamily: We have seen an increase in multifamily for the last three years, but so far most of the developments were small to medium in size. Now larger multifamily towers and condos are entering the program pipeline and will drive up savings in 2016 and beyond. Savings per project for these high-rise projects will not be as high as in 2009-2010 due to the 2010 and 2014 code changes catching up to the above code program. Program expects to see a market correction in the next few years due to the overbuilding that is occurring.

Grocery/Retail: 2012 and 2013 were high savings years in the grocery and large retail sectors as large chains made significant investments in Oregon. That trend is on the decline, with most new grocery activity coming from smaller "marketplace" style buildings.

Education: Education building projects have slowed down in recent years with most savings coming from community colleges which invested during the economic downturn. Now, school bonds are passing and school construction is expected to pick up. Many communities passed bonds recently, setting up an elongated procurement process before these projects are complete, putting savings in 2017, but program influence will happen much sooner than this. Schools will also renovate where they don't build ground-up new construction.

Office and Light Industrial: Commercial real estate is rebounding, many architectural firms are targeting tech companies relocating to Portland. This means that many tenant improvement projects will come through. These typically small savers will be met with a new Market Solutions Office IT package, focusing on lighting design, and will drive the specification of lights toward LED to beyond 2014 code and toward the 2017 code.

Two other areas that are seeing noticeable increased development activity are in office buildings and light industrial. While there are strong indications that market demand will support new large-scale development projects, the design and construction timelines are projected into 2016 and 2017, providing the program with a window in 2015 to impact major design decisions.

Healthcare: Healthcare savings have been slow since a boom that resulted in high savings in 2011 and 2012. One larger healthcare facility is slated for construction completion in 2016. Otherwise, construction activity will be focused on smaller offices and urgent care centers, many of which are renovations.

Data Centers: 2015 will be a significant year for influencing the market and potential savings that will be realized in 2016 and 2017 – many colocation/mid-tier data centers are planning to relocate to Hillsboro and Beaverton. We expect to modify our offering and test out some new training and education opportunities.

Other: The rest of program savings is made up of a mix of projects: government (e.g. fire and police stations), auto dealerships, parking garages, warehouses, industrial (non-production), assembly (e.g. museums and community centers), and restaurants round out the mix. Parking lots, industrial, warehouses and auto dealerships have the potential to be medium to high

savings projects. There are local market conditions influencing the building of each market, which the program outreach managers track closely. With market solutions packages in place, the program will continue to serve smaller projects while fully supporting large projects in a way that achieves their full efficiency potential.

2015 – 2016 Program Plan

The following objectives will maximize per-project savings by focusing on delivering greater savings from small projects, managing increased project volumes, continuing to deliver services and incentives to projects implementing replicable and innovative solutions. Program staff will continue to work closely with market actors, thus capturing more benefit from our activities. Some of these strategies are already underway and can be expanded for greater impact, while others are new and will be developed further.

Objectives

- Meet or exceed savings and cost-effectiveness goals
- Achieve high technical realization of savings
- Maintain a high level of customer service and satisfaction
- Maintain high quality program delivery

Strategic Summary

New Buildings will continue to build on success with engaging a majority of the market, helping customers achieve savings for small and large buildings by introducing simple pathways, deploying market transformation engagement strategies to help owners and project teams, and providing a wide range of offerings and supporting market adoption of new codes and standards. Activity and savings change year to year in new construction and the program's sustained awareness in the market is critical to maintaining program influence, momentum and relevance as we manage significant changes and new challenges.

New Buildings will manage significant changes in the market place in 2015 and place major efforts on positioning the program for success in 2016. Within the year we anticipate a growing volume of small projects, and for the first time in the program's history, there will be few large savings projects. New Buildings staff will retool packages and new measures to adjust for the second of two code-driven baseline changes since 2010 (Oregon Energy Efficiency Specialty code changed in 2010 and 2014) in addition to gas and electric avoided cost changes.

As codes target simple, prescriptive measures for the adoption of the prescriptive code pathway, the program needs to move quickly to advance early design practices across many project types.

While codes changes result in savings, the majority of code-driven savings show up in NEEA's forecast and are not included in program goals below, except for program-driven market transformation savings where the program supports a portion of project level code compliance.

Large savings projects will enter the program in 2015 but will not complete until 2016 or 2017. We expect a savings rebound in 2016. In 2015 the program will increase focus on how to effectively target savings strategies with customers and allies to deliver significant savings and rapidly transform markets with new technologies ahead of the next code cycle, which is expected to be a significant upward baseline shift for both gas and electric.

Strategies and Tactics

Making it Easy & Recognize and Reward Success. Two new incentive packages will be launched for small commercial – for a total of 8 market solutions – targeting office tenant improvement and high-rise multifamily (70,000-100,000 square feet) that will complement the existing low-rise multifamily incentive package. For larger savings projects that are developing an energy model, we plan to rollout new approaches to modeling in addition to testing out new modeling software with the idea that it will streamline the process.

> **Office Tenant Improvement** will roll out and focus on lighting and advanced controls strategies. We expect uptake with many firms relocating and expanding operations, in particular in hi-tech.
>
> **Hi-rise Multifamily** will also roll out by the second quarter, and focus on a combination of centralized systems, common area strategies and in-unit efficiency measures. We expect this to launch in time to serve the new set of high-rise multifamily projects being planned.
>
> **Building energy modeling** will be modified to address different levels of modeling and improve the program's return on investment, while testing out improved modeling tools and barriers to market acceptance of new tools. To begin introducing net zero strategies into the broader market, in addition to the net zero offering (below), the program will dedicate resources to provide practical knowledge to energy analysts who model high-performance buildings.
>
> **Public recognition and reward.** High-impact ways to advance awareness and reward project owners and their teams will include local media strategies, awards and digital media that has a great marketing ROI. Big Check presentations will be continued.
>
> **Expanded training and education**. Net-zero project video case studies will continue to be used to provide rich, dynamic web content, support outreach and marketing and serve as a means to promote New Buildings cohort projects. Topics will range from design solutions to integrated design, the owner's perspective, cost-benefit analysis, technologies and/or best-case strategies.

Innovative program design. New Buildings developed a revised **net-zero offering** that will be available in 2015 with the goal of enrolling 30 buildings. The offering will be open to projects targeting at least 70% energy savings over typical building use (approximately 40% energy savings over Oregon 2010 code). The offering will have greater emphasis on the design

process with enhanced focus on setting energy targets early, creating community to increase momentum and information transfer, and providing the right tools and resources for design construction of net-zero buildings in Oregon.

Incentives and Services for Net Zero can include the following, depending on the project.

Early Design: Engage more deeply and encourage commitment, including commitment meeting prior to charrette, early design charrette (with incentive), shoe-box model at charrette (with incentive) and EUI goal-setting (with template/tool and program support).

Technical Assistance: Streamline and encourage analyses that support low-energy design and provide 75% of cost of energy model, CFD, daylighting and other energy-related studies.

Incentives are tied to modeled achievement at $0.40/kWh and $1.20/therm.

Performance and post-occupancy will address ways of closing the feedback loop by connecting occupant use to the “as designed” building and energy model to help designers improve. Incentives are for monitoring and reporting installation, and a management dashboard will support building operators.

The marketing team will play a key role in the development, launch and delivery of this offering, including: Informing the design and messaging of new tools, templates and resources; promoting the new offering; disseminating information and resources as they become available; and supporting customer engagement activities. In applying these themes, New Buildings seeks to lower perceived barriers to entry, so that all stakeholders in the net-zero ecosystem understand the value of net-zero design, have a distinct, actionable role in making net-zero buildings a success.

Better tools for early design, better scaled to meet the needs of small buildings, and a more dynamic design process will help position the design team and the owner for success earlier in the process of early design. Currently, many buildings under 100,000 square feet do not model because of the cost and complexity of available tools. Program staff identified tools that will be rated using criteria and tested for accuracy, as well as how they handle transitioning savings strategies, identified by the owner and architect in early design, to more detailed energy analysis. National Renewable Energy Lab has a new tool that is likely to be a good fit for our market and New Buildings will create access to that tool and enable support for users.

Gas and electric savings technologies are in development in 2015 and will be tested for cost-effectiveness. The objective is to bring new technologies, including Variable Refrigerant Flow as a new HVAC measure, to market for the 2016 pipeline and add to current measure packages where the 2014 code has adopted many technologies that have led savings acquisition the last 6 years.

Data center activity in early design picks up, with savings to be realized in 2016-2017 with some program changes. Many data centers are expected to enter the design process in 2015 then move quickly to building and completing the program in 2016 and 2017. The program will leverage recent data center market research findings to target not only customers, but also to target a wider range of potential market actors involved in the process. This means a focus on general contractors and IT specifications, as well as consideration of performance-based measures. This will drive innovation from more likely candidates who value longer term investments and alignment with corporate goals. The program will work to determine new approaches to privately-owned data centers with corporate goals, and for the public institutions that house and manage their own data that may be open to the idea of addressing broader innovative strategies. We will consider post-occupancy strategies and performance-based approaches for this type of customer that are more likely to share their success story to help us move the market. We will be prepared to expand volume of colocation data centers (also known as mid-tier data centers because of their size) expected to enter the design process in 2015 as they determine if they will locate to Oregon.

Focus on strategies to improve HVAC, which has significant potential among colocation facilities but can run up against tight service level agreements with their clients. For this challenge, a two-fold marketing strategy will be developed.

Target equipment vendors to continue to understand the pipeline and improve programmatic strategies.

NEEA collaboration on Oregon codes, Reach codes, strategic markets and emerging technologies and gas savings opportunities in New Buildings. New Buildings and NEEA will gain alignment, where possible, to continue to feed the programmatic pipeline as we adjust for code and advance design practice with emerging cost-effective technologies. Looking ahead, NEEA will review 2015 Washington and 2018 national code change proposals for inclusion into Oregon practices, and New Buildings will collaborate to inform market shifts and understand impacts. We will continue to inform market progress with above-code adoption of measures, techniques and strategies, and identify market gaps that can be addressed regionally. Continue to collaborate with BCD and ODOE on efficiency opportunities and alignment to ease the process for contractors, designers and customers, and inclusion of above-code measures at building jurisdictions.

Targeted campaigns will continue in our marketing approach ranging from small commercial to net zero, lighting and data centers**.**

'Hey Building' creative marketing campaign will continue, with greater emphasis on micro-targeting small commercial and featuring "perfect match" stories between allies and owners.

Net zero campaign is about building community around net zero, supporting outreach, and providing a creative platform to get beyond awareness and drive action. It's a different approach from Hey Building. On-demand net-zero project case studies will be used to provide rich, dynamic web content, support outreach and marketing. Topics will range from design solutions to integrated design, the owner's perspective, cost-benefit analysis, technologies and best-case strategies.

Data center marketing will address this risk-adverse customer group with conservative approaches to saving energy. Test how to deliver trainings and create momentum toward smart efficiency choices that address perceptions with data center uptime.

Commercial Lighting campaign, supported by New Buildings, will launch an integrated statewide marketing campaign for commercial and industrial markets to promote advanced lighting solutions, including LEDs, controls and lighting design.

Regional outreach, local presence and leveraging partnerships with organizations to further reach. Continue successful regional outreach. New Buildings staff is located in Southern Oregon, Eastern Oregon, Central Oregon and Salem. In addition to local staff support, outreach is also vertically integrated by market segment enabling targeted delivery to building owners, design build community, developers, architects, engineers, contractors who have built long-standing relationships and trust by delivering incentives and savings strategies in all areas of Energy Trust service territory.

Continue to add high value to the Design Ally Network. Manage the growth of the ally network and the expansion of design build contractors. Professional design firms are engaged with the program, but New Buildings can continue to grow influence within the firm to position Energy Trust as a resource beyond incentives. Market research showed the importance of this shift to fully leverage the client/owner relationship. Leverage emerging light industrial opportunities through continued collaboration with Production Efficiency to increase savings and create seamless customer experience. There is an uptick in industrial activity in CNG territory.

Deliver the *Allies for Efficiency* training series with American Institute of Architects, co-hosted regionally, live in Portland. Continue to build on relationships with school districts, track the passing of bonds and leverage RFP process to increase likelihood that savings strategies are addressed in the bidding process.

Enhance communication of the business case for energy efficiency investments. Many owners value energy efficiency, as indicated in program evaluations, and they get *why* it's important to the bottom line and building a more livable community. What is often the greatest challenge for owners and designers is the actual process of designing and constructing better buildings, simply because there are so many considerations and

players may prefer to stick to the systems they know best unless there is greater certainty and awareness.

Continue to identify and implement program and administrative efficiencies. Number of payments processed has increased by 38.2% from 2011-2014. The number of enrollments are expected increase by 15-20% from 2011 – 2014. New Buildings has evolved to be a robust program supporting both resource acquisition and market transformation. Efficiency investments made in 2013 and 2014 have allowed the program to handle a 20% increase in project activity (enrollments and payments) from 2013 to 2014.

Future investments. The program is investing in a number of areas in 2015 for a few overarching reasons. In the near term, we will take advantage of market conditions (increase in small projects that will maximize savings in 2015-2016, beginning to see increase in large projects that will bring savings in 2017-2020) and mitigate loss of savings from 2014 code and avoided cost changes. Long term, the program will identify and support the next wave of measures and strategies to bring program savings and ultimately become code by increasing and securing program influence on market actors to support program's future market transformation activities.

Risks to Achieving Savings

The factors that influence savings are described in more detail below.

Avoided Cost and Code Changes: Analysis of gas and electric measures adopted by the 2014 code and recent avoided cost changes revealed a number of gas and electric measures that will be removed from the program. In response, in 2015 the program will develop additional measures for future implementation. Across six markets, some of the measures impacted are core savings measures and will have a significant impact on customers.

Codes are targeting simple, prescriptive measures for the adoption of the prescriptive code pathway, which puts increased pressure on the program to develop enough cost-effective prescriptive measures to maintain momentum in key markets.

Market Transformation: Market transformation savings, which the program has been claiming in various iterations since 2012, will decrease in 2015 as NEEA begins to claim savings from the multifamily sector (which accounted for about a third of the 2014 market transformation savings).

Market Trends: Adapting to market trends is critical. In 2014, the volume of small commercial projects increased significantly. We don't have an updated market penetration number to demonstrate the square footage, but the last process evaluation indicated 70% of the market was coming through New Buildings. We've had success with large savings projects and these are expected to pick up in 2016-2017, with several large-savings projects already enrolled and starting design.

New Buildings is capitalizing on achieving record breaking enrollments in 2014 to maximize the potential for savings, since the type, size, scope, and quantity of project enrolled will have reduced savings per project. Factors having an effect on overall savings in the marketplace are:

- Building type – For example, grocery stores bring in higher savings compared to a similarly-sized office building or fire station.
- Building size – National large box grocery stores have significantly higher potential for savings than a small, local grocery store.
- Project scope – Ground-up construction increases the potential for a project to achieve deeper and broader savings than a TI.
- Quantity of projects – When large and small grocery chains are all expanding the program has a much larger potential for savings