Residential Sector
2013 Residential Sector Trends

April 2014

Energy Trust of Oregon

I. Overall Residential Sector Trends

The Residential sector is organized around two main programs, the New Homes and Products (NH&P) program and the Existing Homes (EH) program. Each of which is delivered predominantly by a Program Management Contractor (PMC), but there are also activities within these programs such as Opower that are managed directly by Energy Trust of Oregon. There are a number of program tracks within each of these programs, which will be described in more detail throughout this document. In addition, Northwest Energy Efficiency Alliances (NEEA) is a third significant source of savings for the sector.

Figures 1 and 2 show that there has been significant and steady growth in the residential sector from 2009-2012. From 2012 to 2013, electric savings levels remained constant while gas savings decreased by 15 percent. Program staff sees opportunity for moderate growth in the future for electric savings but acknowledges challenges to continue acquiring gas savings at the levels seen historically as we reduce our alliance on kits and face avoided gas cost challenges. 2013 savings for the Existing Home program gas weatherization are impacted by adjustments to accommodate a reduction in avoided gas costs. Electric savings for NEEA experienced an increase 2013 due to their successful upstream TV initiative.

Figure 1: Sector Savings - Electric

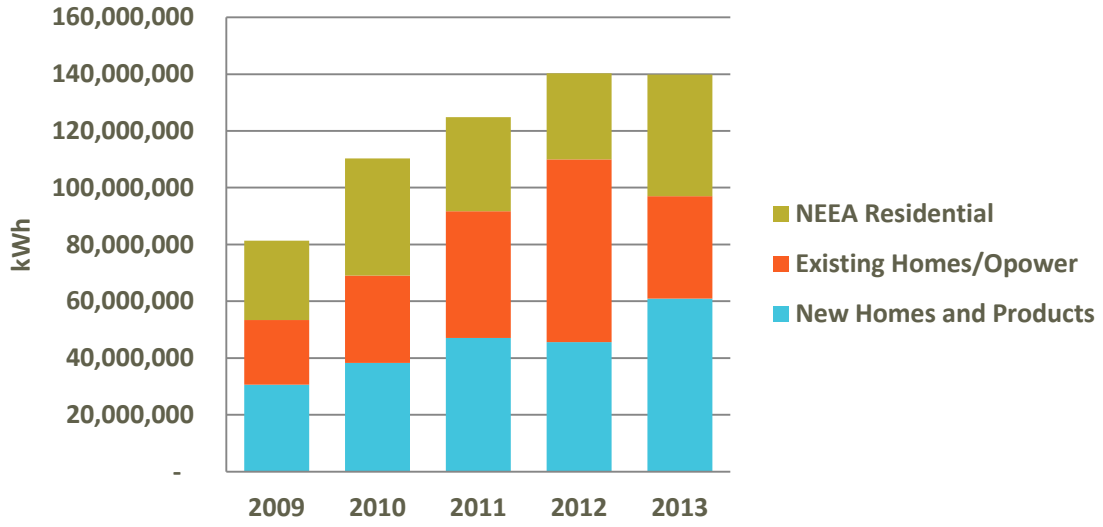
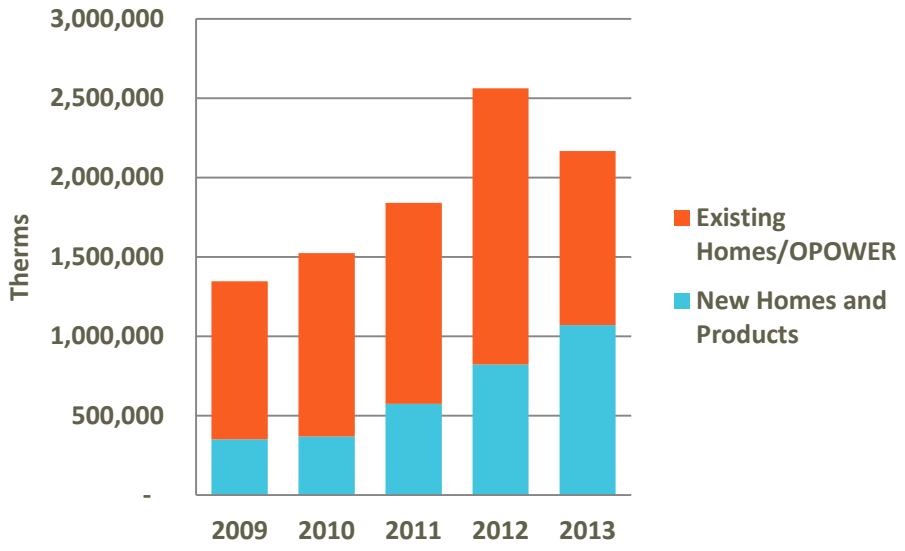


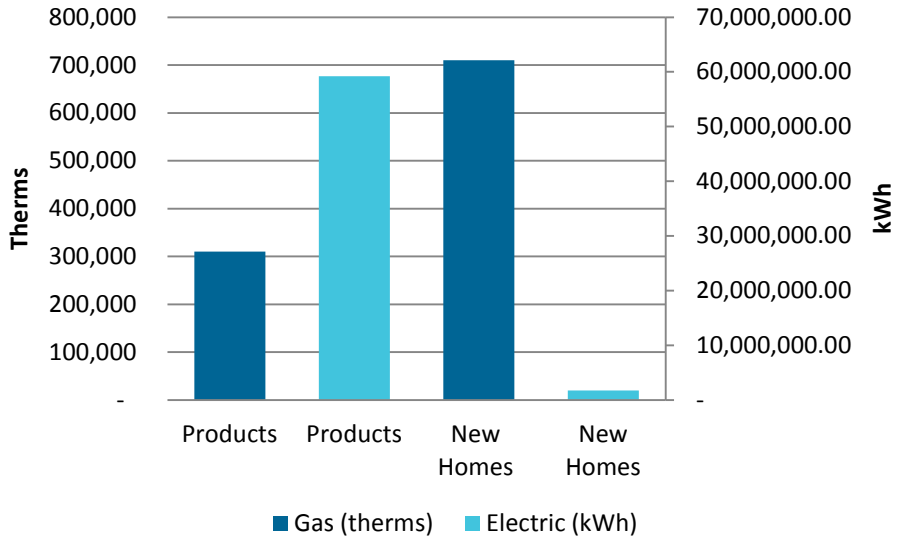
Figure 2: Sector Savings - Gas



II. New Homes and Products Trends

Overall savings for the New Homes and Products program has been steadily increasing for the last few years. Additional lighting savings have driven growth in electric savings, which has more than offset substantial decreases in saving from appliances and refrigerator recycling. Growth in the new construction housing market has driven significant growth in gas savings over the past three years. As shown in Figure 3 (below), the majority of electric savings come from the Products program and the - majority of the gas savings from the New Homes program. This is consistent with prior years.

Figure 3: New Homes and Products Savings in 2013



Products Program

The Products program is predominantly made up of savings from lighting, major appliances, and refrigerator recycling. Figures 4 and 5 (below) show the break out of savings by major measure in the Products program.

Figure 4: Products Program 2013 kWh Savings

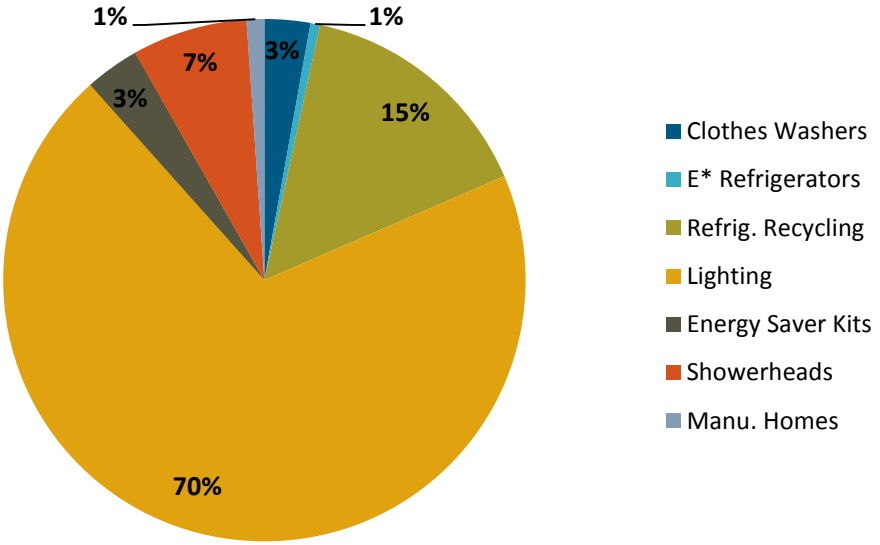
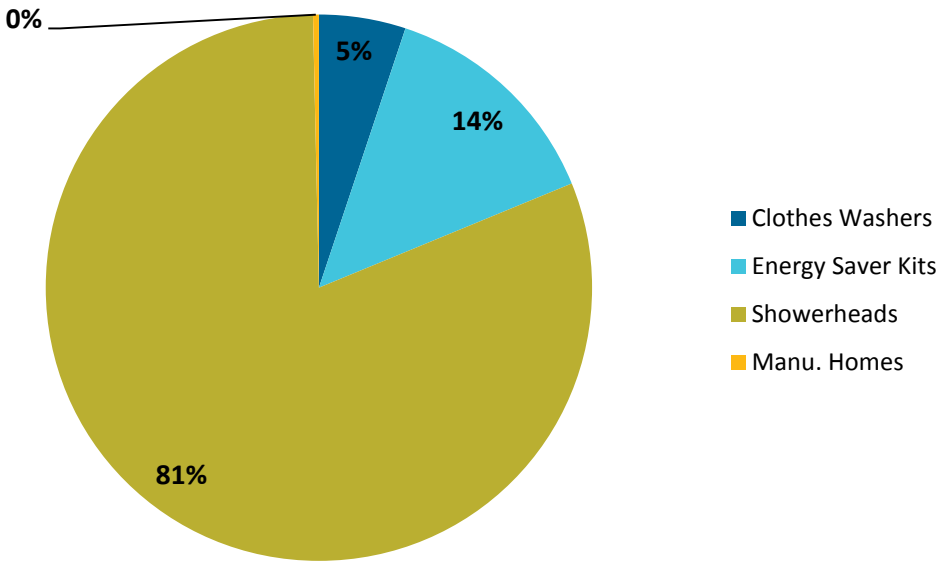


Figure 5: Products Program 2013 Therm Savings



Lighting

Lighting savings exceeded goals in 2013 due to a number of factors. Most significantly was the addition of general purpose CFLs in Q4. Strong LED sales in the second half of the year also helped drive additional savings. In addition, increased engagement with retailers led to a number of promotions and improved product placement to help drive additional sales of high efficiency lighting. Figure 6 and Table 1 show the emergence of general purpose CFLs in the lighting portfolio. Early indications suggest some substitution of specialty CFLs with LEDs.

Figure 6: Savings of Lighting by Category: 2009-2013

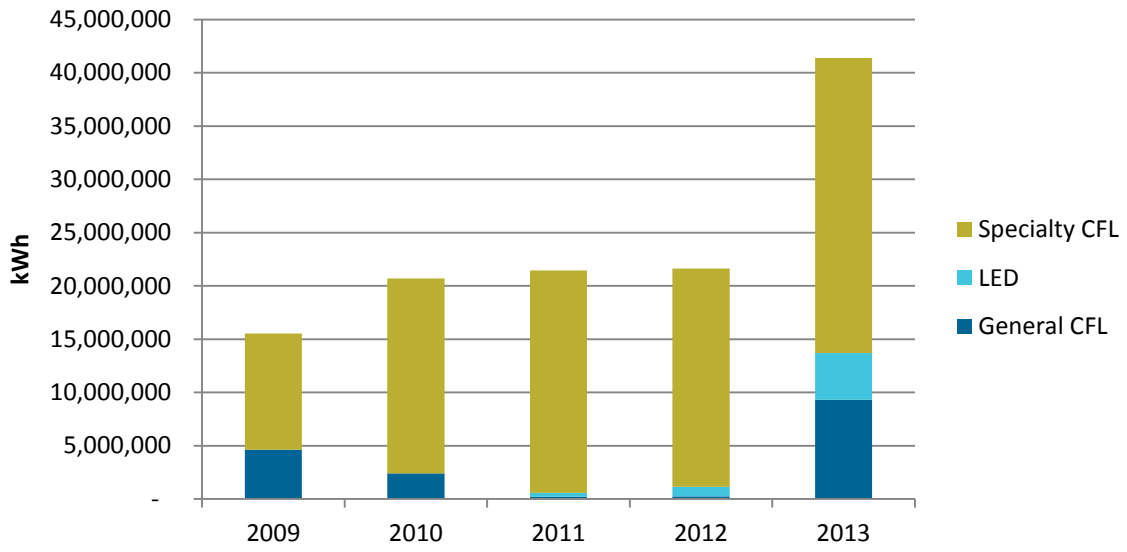


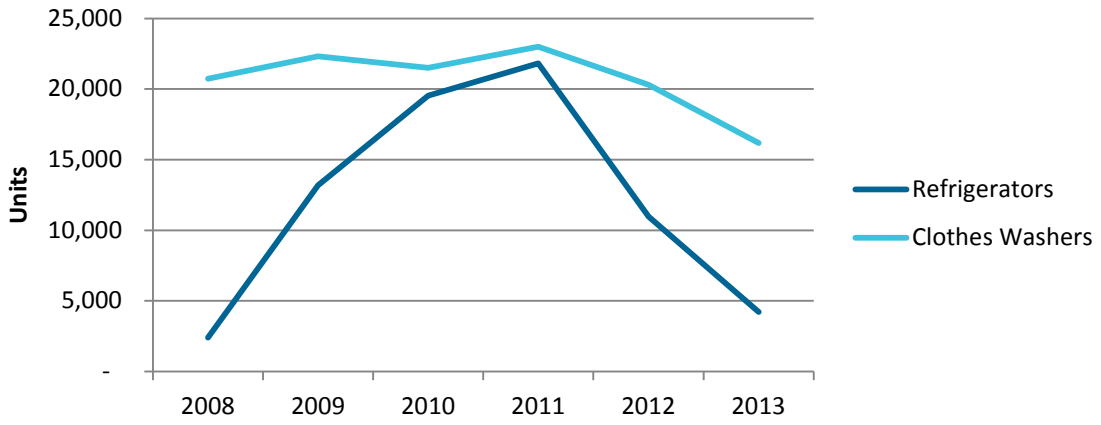
Table 1: Count of Lighting by Category: 2009-2013

Quantity	2009	2010	2011	2012	2013
General CFL	202,211	105,654	6,997	6,631	588,645
LED	0	0	5,630	25,421	221,894
Specialty CFL	452,010	825,136	988,974	793,594	1,273,160
Total	655,121	930,790	1,001,601	825,646	2,083,699

Appliances

In 2013, the program maintained the efficiency tiers for qualifying ENERGY STAR® refrigerators and clothes washers. Both of these measures showed a continued decline in redemptions, most notably refrigerators. The expiration of the state tax credits at the end of 2011 as well as a limited number of qualifying appliances at current efficiency tiers both likely contributed to this decline. Given the decreasing per-unit savings and total redemption for qualifying appliances, the program is looking into new ways beyond traditional mail in rebates to impact this portion of the market. Savings for appliances have traditionally been more expensive, so the decline in savings actually helps to improve the levelized cost of the overall program portfolio. On the other hand, these measures have been very successful at driving awareness of Energy Trust programs.

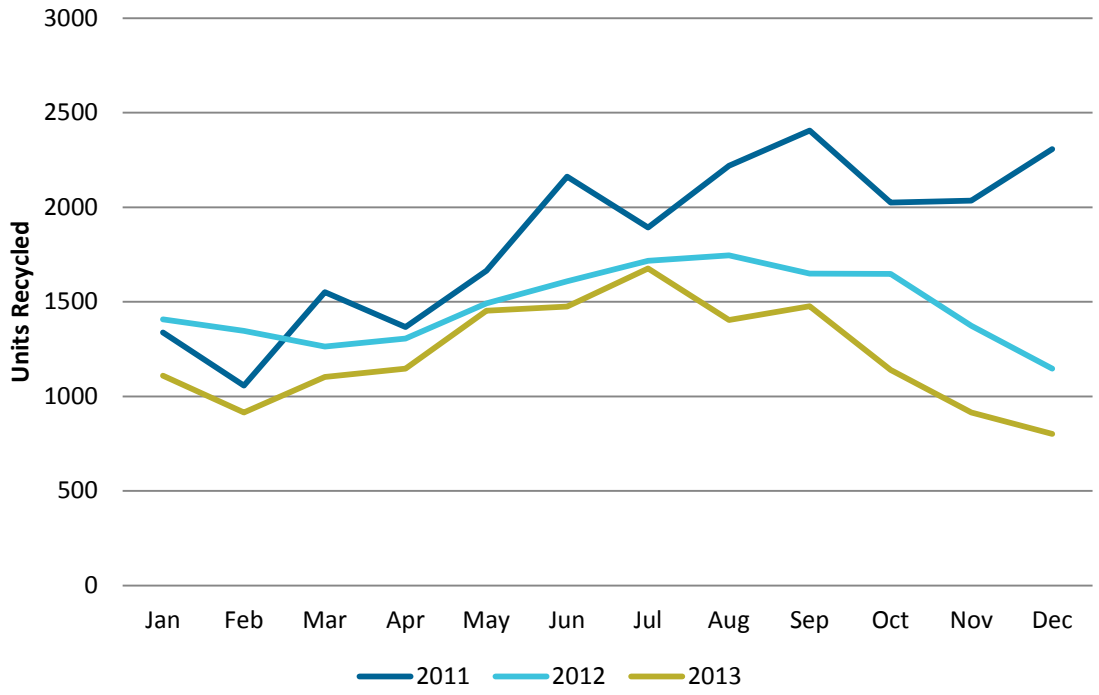
Figure 7: Energy Star Refrigerators and Clothes Washers: 2008-2013



Refrigerator Recycling

Refrigerator recycling activity remains a significant part of the program with over 16,000 units recycled in 2013. As shown in Figure 8 (below), this was approximately a 20 percent decrease from 2012. Several factors contributed to this decrease. Most importantly, the savings for this measure have been declining as the older units are taken off the grid. In light of this, the program has had to reassess the level of marketing support that is provided for this measure. The focus in 2013 was more on leveraging earned media through different campaigns and less on TV advertising. While there were significant earned media opportunities in 2013 through the Fill a Fridge campaign, these were not expected to make up for reduction in marketing levels as compared to prior years.

Figure 8: Refrigerator Recycling Activity 2011-2013

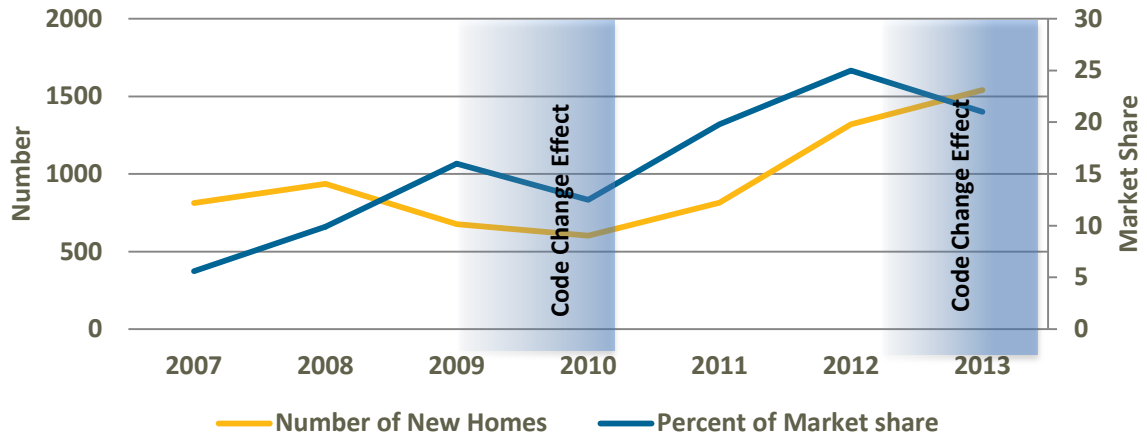


New Homes

2013 was a successful year for the New Homes program with a record 1,540 homes receiving an EPS score, 40 percent more than the goal of 1,100 homes. As shown in Figure 9 (below) market share dipped slightly from 25 percent in 2012 to 21 percent in 2013, but significant growth in the housing market still resulted in a 17 percent increase in the number of EPS new homes.

It is interesting to note how the 2008 and the 2011 energy code updates both resulted in a 5 percent decrease in market share and about a one year delay from the time the code went into effect.

Figure 9: Market Share of New Homes Which Receive an EPS



III. Existing Homes Trends

Existing Homes program savings levels grew steadily from 2009 through 2012, aided by the development of Opower, growth among Prescriptive program offerings, and significant increases in instant savings measures.

In 2013, savings achievement fell short of goals for both the gas and electric portfolio. A lack of year-over-year carryover, reduced reliance on savings from kits (or instant savings measures) and measure adjustments due to cost-effectiveness exceptions objectives are the primary factors that contributed to these results.

The 2013 PMC transition year saw an impact in initial savings in Q1 due to a lack of year-over-year carryover savings. Historically, Q1 months have a higher volume of savings from carryover projects resulting from marketing efforts from the previous year. There were very few applications that transitioned to the PMC in the beginning of 2013; this had an estimated impact at up to 10 percent savings, depending on the utility.

The program goals set for 2013 significantly restricted savings from instant savings measures, decreasing from historical levels of 50-75 percent to a target of 12-35 percent, depending on the utility portfolio. In the past, large Energy Saver Kit promotions and distribution of savings through school-based Living Wise Kits had a significant impact on reaching goals. An important lesson learned in 2013 was that in order to reach goals at levels similar to the past few years, the program remains largely dependent on ISM savings and transitions away from ISM-based savings will need to be more gradual.

Another primary factor in the reduced savings potential in 2013 was the change to measure criteria for measures due to cost-effectiveness challenges. Gas weatherization measures—attic and floor insulation, duct sealing and air sealing—were the key measures either eliminated or adjusted. Through the Oregon Public Utility Commission (OPUC) exception process (UM 1622) Energy Trust was granted an exception to continue to provide incentives for measures that did not meet the total resource cost test. This allowed Energy Trust to redesign measure requirements to increase savings and reduce cost for review and recommendations to the OPUC in July 2014.

Figure 10: Existing Homes Electric Savings by Initiative

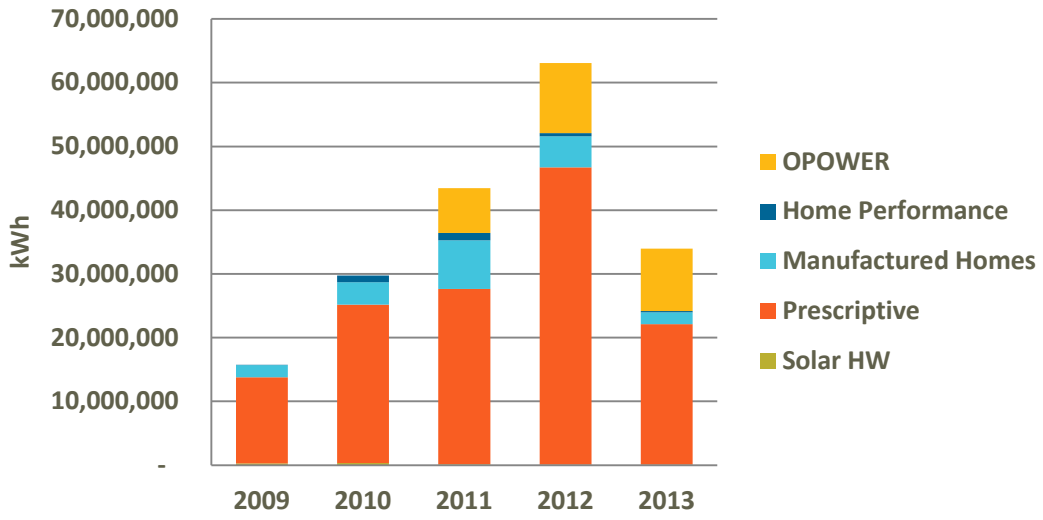


Figure 11: Existing Homes Gas Savings

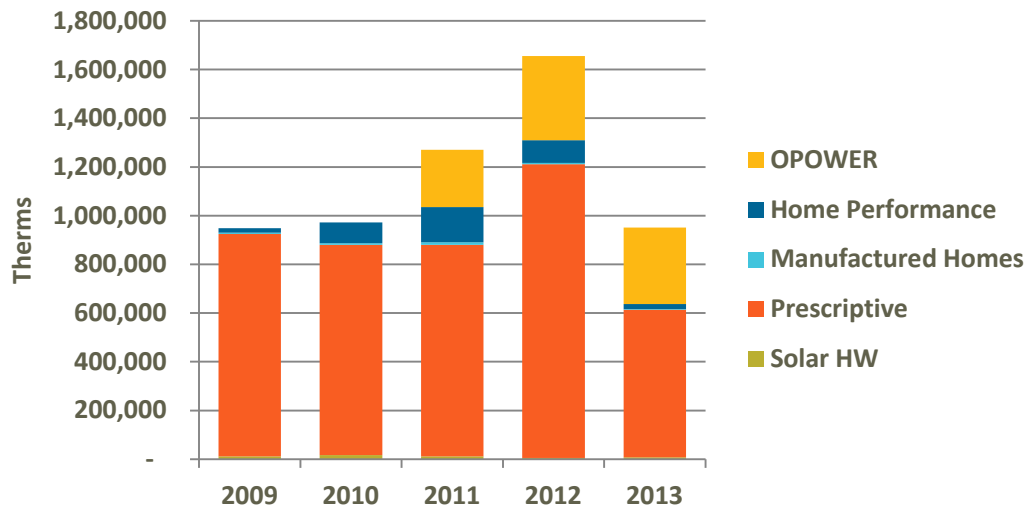


Figure 12 displays the 2013 actual electric savings performance by program track. Energy Saver Kits represent 42 percent of electric savings and comprised only 15 percent of the incentive budget. Prescriptive measures accounted for 40 percent of electric savings and were attributed to 54 percent of incentive spending highlighting the impact on the budget that higher cost higher savings measures have in comparison to ISMs.

Figure 12: 2013 Existing Homes Electric Savings by Category

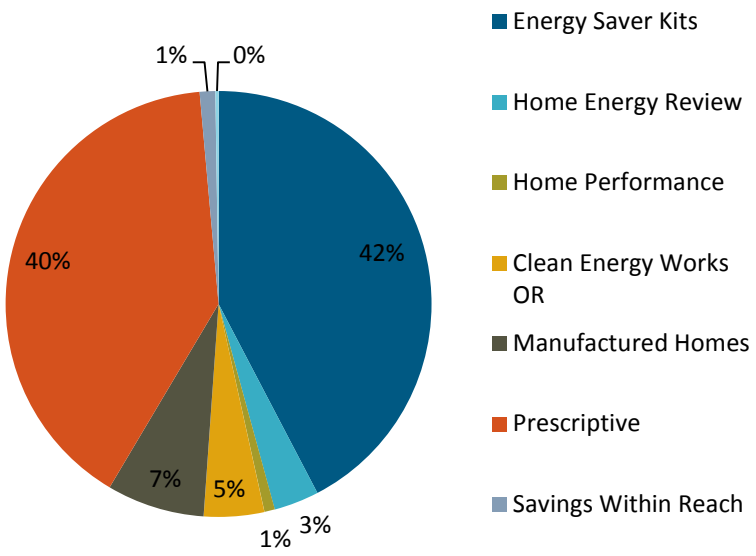
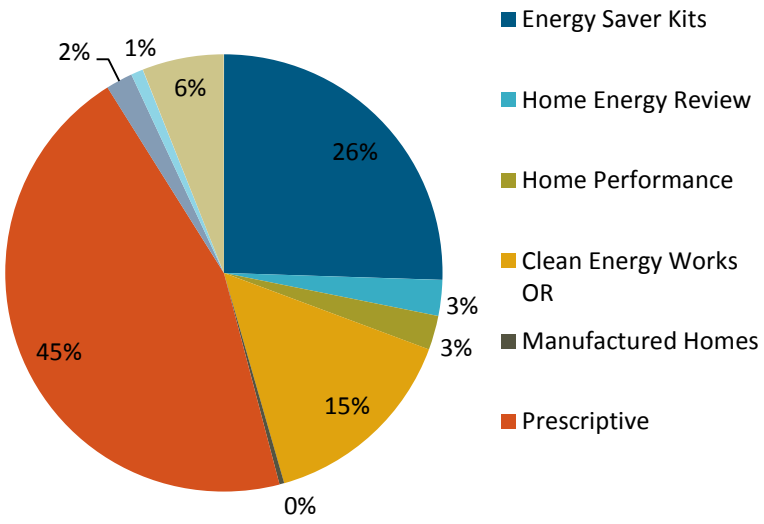


Figure 13 provides the distribution of gas savings by track. Energy Saver Kits represent 26 percent of gas savings and comprised only 6 percent of the budget. Prescriptive measures accounted for 45 percent of gas savings and 58 percent of incentive spending highlighting the impact on the budget that higher cost higher savings measures have in comparison to ISMs.

Figure 13: 2013 Existing Homes Gas Savings by Category



Energy Saver Kits

The following Figures depict annual savings associated with Energy Saver Kits distributed to participant homes and does not include activity related to Living Wise Kits. Energy Saver Kit savings per kit increased dramatically in 2012 and 2013 as a result of the redesigned kit.

Figure 14: Energy Saver Kit Electric Savings

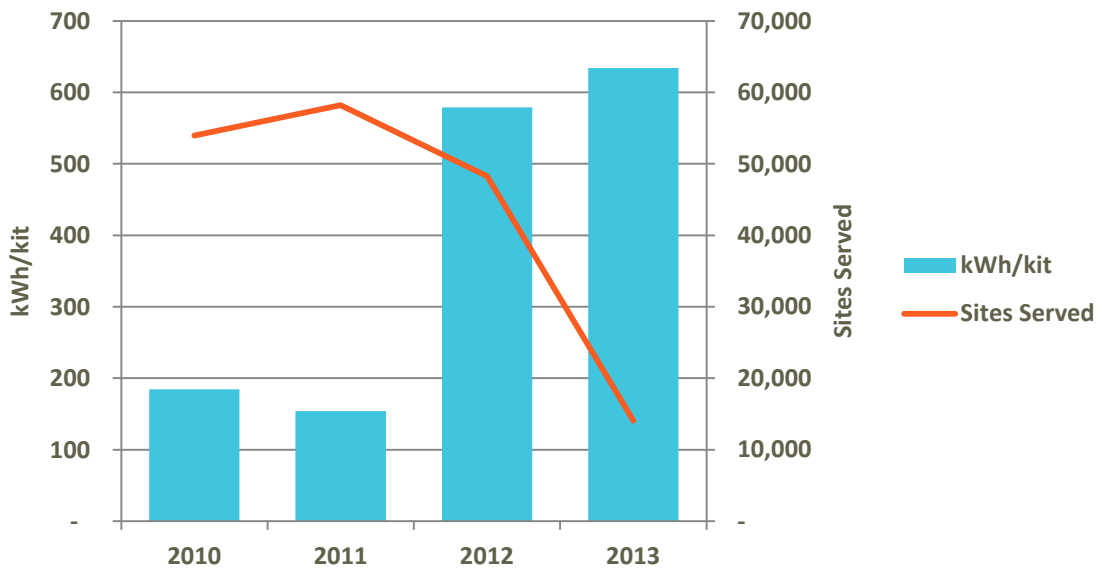
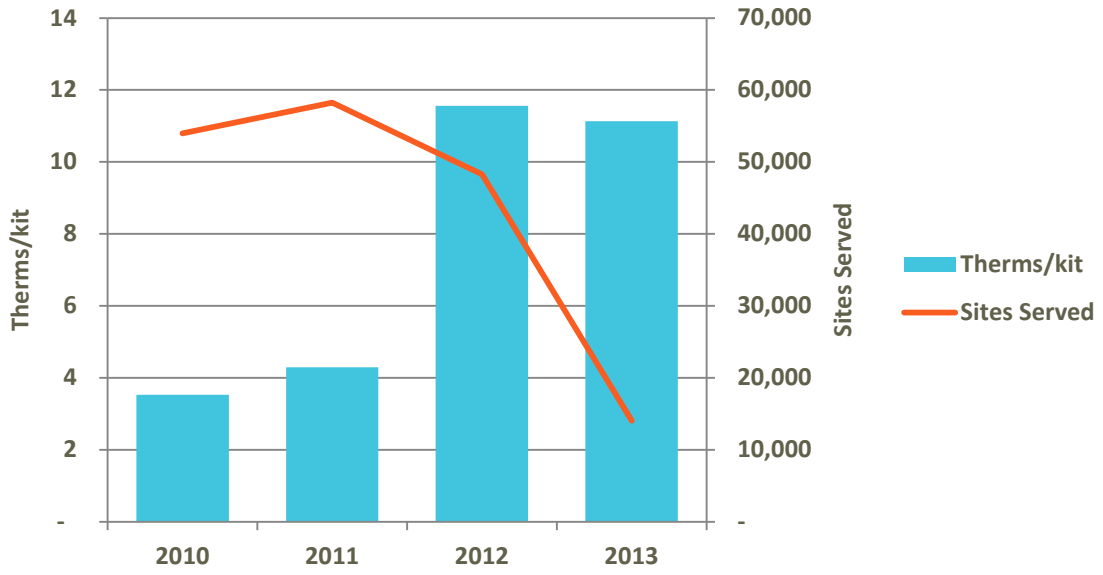


Figure 15: Energy Saver Kit Gas Savings



Direct Installs

Figure 16 and 17 demonstrate the reduced savings acquired through program and trade ally direct installation of showerheads and faucet aerators. Activity declined significantly in 2013.

Figure 16: Electric Savings from Direct Install Activity

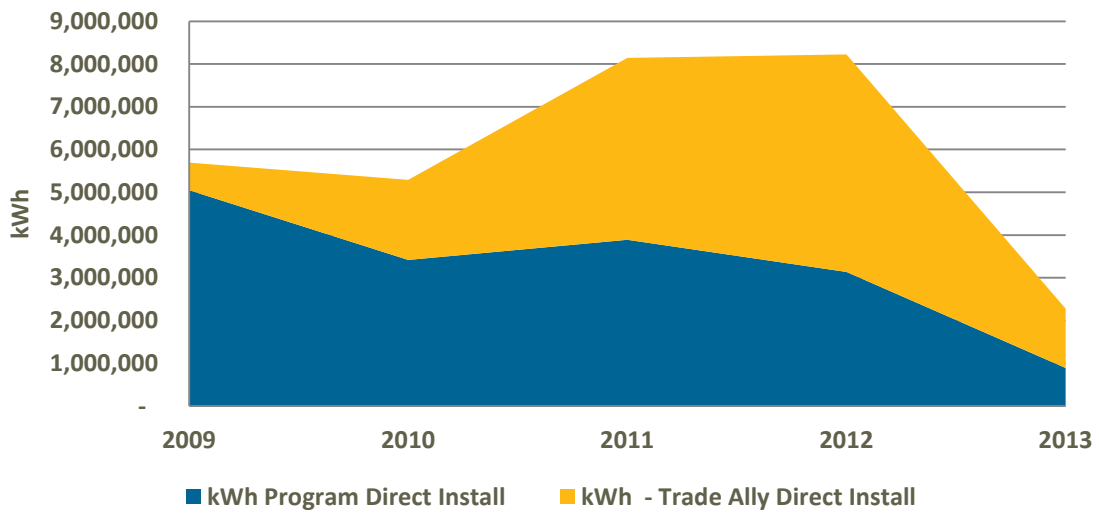


Figure 17: Gas Savings from Direct Install Activity

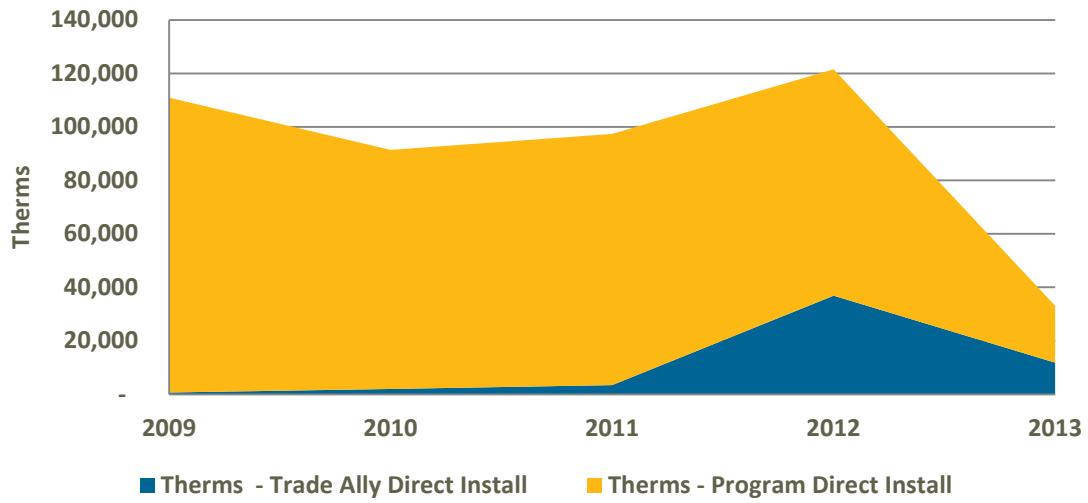


Figure 18 provides primary gas measure trends for 2013 compared to previous years. Most notably, gas fireplaces performed very well in 2013, highlighting the positive impact of targeted retailer outreach and measure specific promotions. The removal of lower tier gas water heaters led to fewer qualified gas water heaters in 2013 which dramatically impacted the recognized measure counts. When comparing 2013 eligible water heater counts to 2011 and 2012, performance slightly increased in 2013. Ineligible air sealing and insulation measures appearing in 2013 are from Clean Energy Works Oregon

(CEWO) projects which originated prior to 2013 measure threshold adjustments and early 2013 processing of applications installed/submitted in 2012.

Figure 18: Gas Measure Trends and Eligibility Comparisons by Year

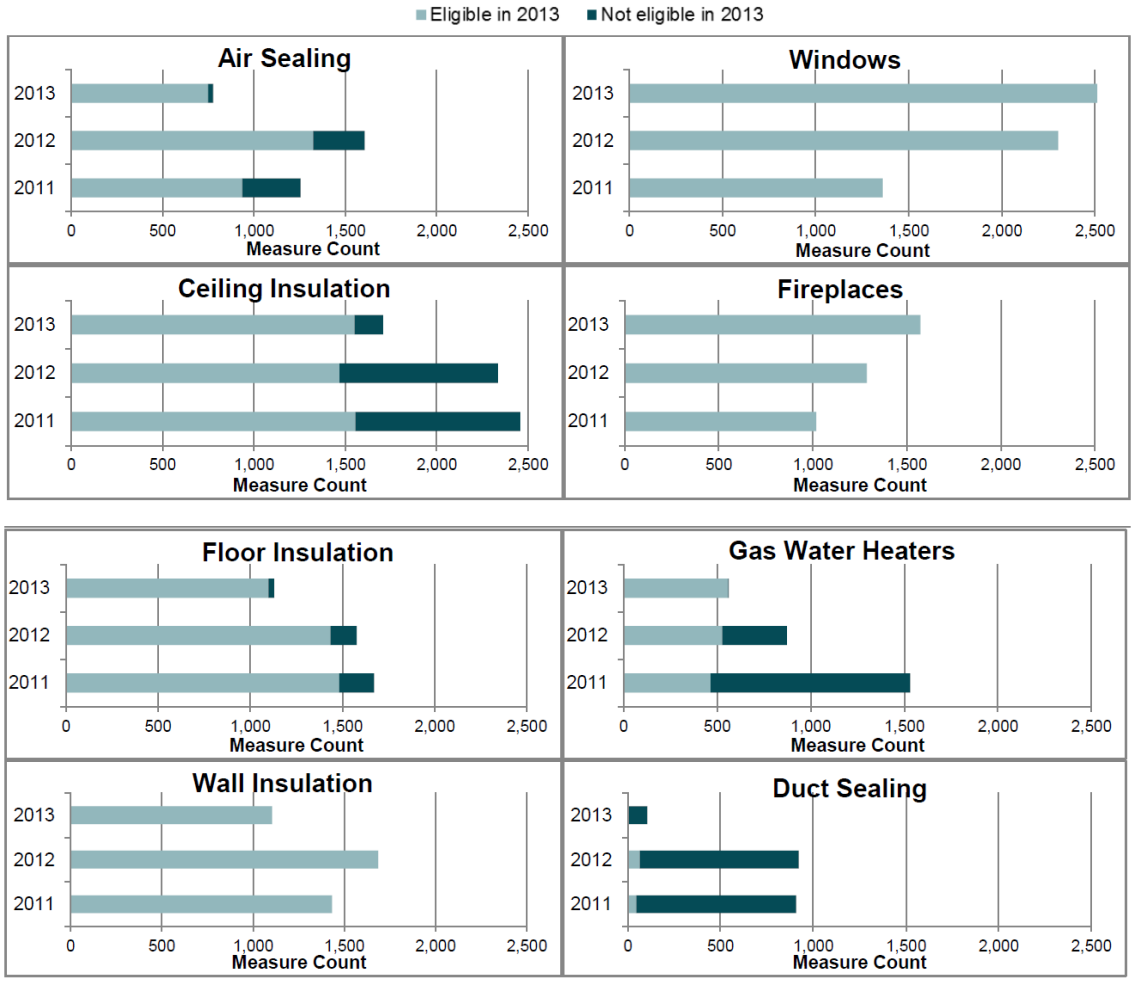
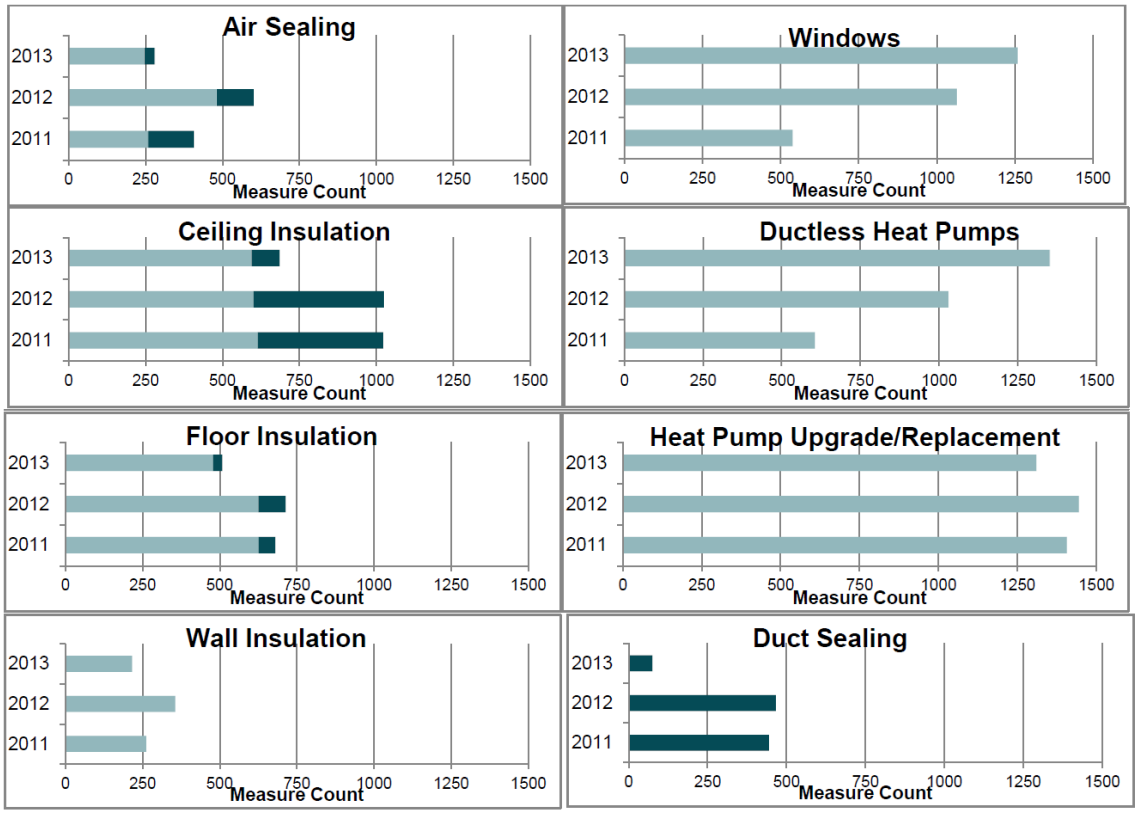


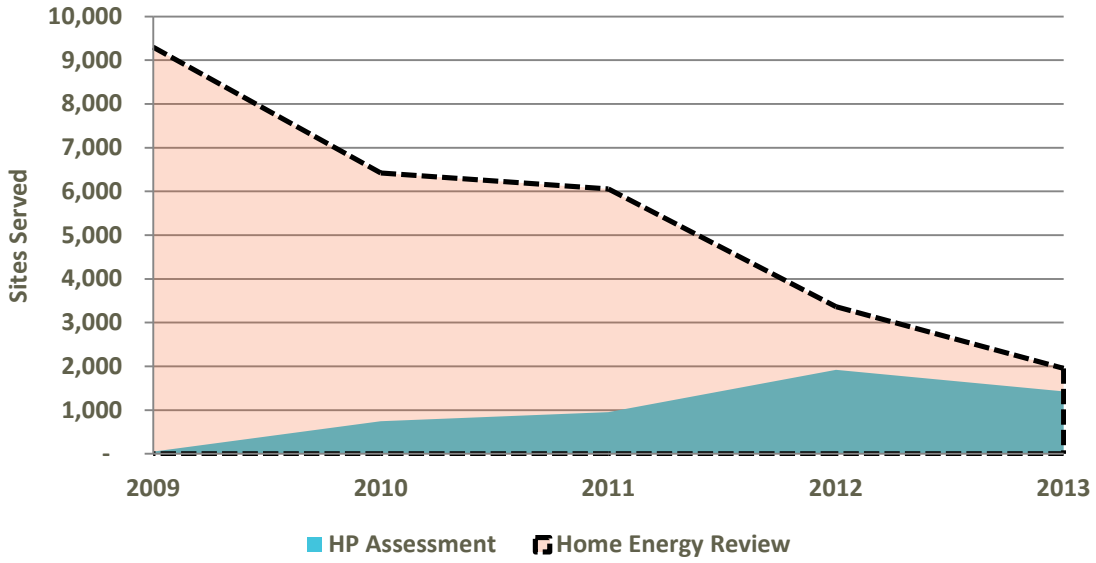
Figure 19 provides primary electric measure trends for 2013 compared to previous years. Most notably, Ductless Heat Pumps (DHPs) performed very well in 2013, highlighting the impact of utility promotions, community efforts and a continuous increase in market activity. Ineligible air sealing and insulation measures appearing in 2013 are from CEWO projects which originated prior to 2013 measure threshold adjustments and early 2013 processing of applications installed/submitted in 2012.

Figure 19: Electric Measure Trends and Eligibility Comparisons by Year



Home Energy Reviews and Home Performance Assessments

Figure 20: Home Energy Review and Home Performance Assessments



Home Energy Reviews delivered through program staff have decreased over the last several years and more Home Performance Assessments are being delivered by trade

allies. Figure 20 includes counts of Home Energy Reviews, which are recognized in Energy Trust's tracking database, along with counts of Home Performance Assessments.

Figure 20: Windows Sites Served by Percentage of Efficiency Tier

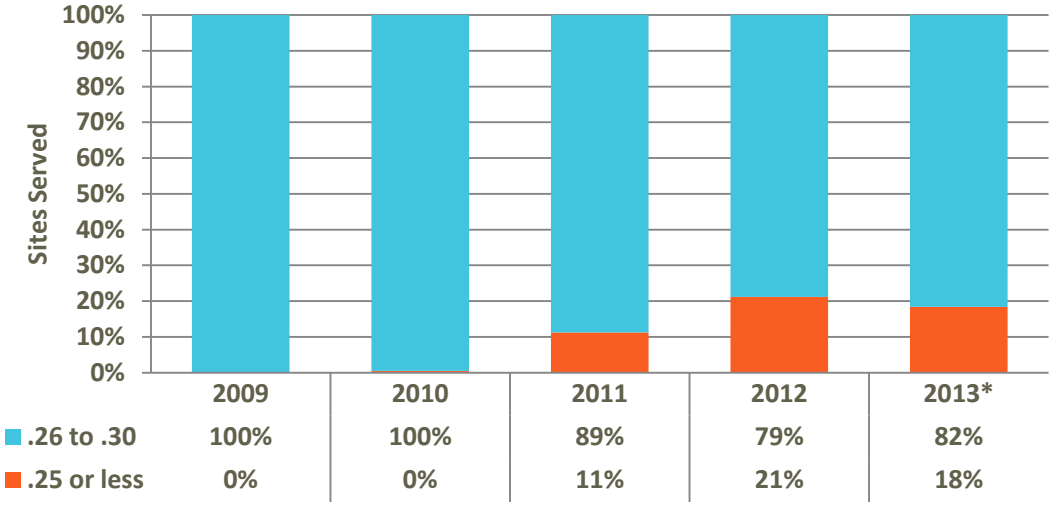


Figure 20 demonstrates sites served with windows measures for the past several years and distinguishes between two tiers of efficient window types. Windows with a U-factor of .25 or lower were introduced in 2011 and have begun accounting for a larger share of activity.