

Agenda

Conservation Advisory Council

Wednesday, June 21, 2017

1:30 p.m. – 4:30 p.m.

421 SW Oak St., #300, Portland, OR 97204

1:30 Welcome and Introductions

New Conservation Advisory Council facilitator—Hannah Cruz, Sr. Communications Manager

1:35 Announcements, Old Business and Short Takes *(discussion)*

May 2017 CAC minutes, reminder on budget review survey, September CAC meeting date change, Residential PMC RFP update and Board Strategic Planning Workshop next steps

1:50 2017 Legislative Update *(information)*

Staff will provide an update on the state legislative session and bills that are being monitored. Under our grant agreement with the OPUC, Energy Trust does not take positions on legislation or engage in political issues. During legislative sessions, we monitor bills that could impact Energy Trust and respond to legislative requests for information.

2:00 Residential Lighting Market Update *(information)*

Staff will present an overview of recent trends in residential lighting in the Products program.

2:30 Cannabis Market Update *(information)*

Staff will present an update on the cannabis market for production grow facilities.

2:45 New Buildings Program Update *(discussion)*

Staff will present an update on the New Buildings program, including market engagements, community building, training and education.

3:15 Business Customer Reports Overview *(information)*

Staff will provide an overview of Energy Trust's Business Customer Reports, a recently launched business customer engagement tool.

3:30 Large Customer Funding Analysis *(discussion)*

Staff will describe the history of the large customer funding analysis, present the 2016 results and review next steps given the report's findings that Energy Trust reached the funding threshold.

4:15 Public Comment

4:30 Adjourn

The next scheduled meeting of the Conservation Advisory Council is Wednesday, August 2, 2017

Conservation Advisory Council Meeting Notes

May 3, 2017

Attending from the council:

Jess Kincaid, Bonneville Power Administration (for Brent Barclay)
JP Batmale, Oregon Public Utility Commission
Holly Braun, NW Natural
Roger Kainu, Oregon Department of Energy
Julia Harper, Northwest Energy Efficiency Alliance
Andria Jacob, City of Portland
Don Jones, Jr., Pacific Power
Don MacOdrum, Home Performance Guild of Oregon
Garrett Harris, Portland General Electric
Lisa McGarity, Avista
Stan Price, Northwest Energy Efficiency Council
Allison Spector, Cascade Natural Gas
Charlie Grist, NW Power and Conservation Council
Tony Galluzzo, Building Owners and Managers Association

Attending from Energy Trust:

Mike Bailey
Tom Beverly
Peter West
Cameron Starr
Marshall Johnson
Mike Colgrove
Kathleen Belkhatat
Oliver Kesting
Jay Ward
Hannah Cruz
Kate Hawley

Others attending:

Alan Meyer, Energy Trust board
John Frankel, NW Natural
Chris Smith, Energy350
Scott Brogan, ICF
Jason Jones, Ecova
Rick Hodges, NW Natural

1. Welcome and introductions

Peter West convened the meeting at 1:30 p.m. The agenda, notes and presentation materials are available on Energy Trust's website at: <https://www.energytrust.org/about/public-meetings/conservation-advisory-council-meetings/>.

2. Old business and announcements

Hannah Cruz announced an upcoming opportunity to provide input on Energy Trust's annual budget process and how it intersects with utility planning. An internal project team has been convened to discuss the budget process, timing, objectives and improvements. Conservation Advisory Council members and other Energy Trust stakeholders will be emailed a survey with open-ended questions to provide feedback.

Peter West added a new criterion to Conservation Advisory Council member selection: experience in the energy industry. Conservation Advisory Council members expressed support.

3. 2017 Legislative Update

Jay Ward provided an update on the current legislative session.

Jay Ward: Energy Trust doesn't lobby or take positions on legislation, but we do monitor and report on legislative issues. This legislative session, we've monitored about 100 bills that may impact us. Nine bills dealt with the public purpose charge.

Holly Braun: What was most startling or surprising to you?

Jay Ward: It's common to see bills about increased oversight of Energy Trust.

Brent Barclay: Is anything related to code advancing in the process?

Jay Ward: The governor may have an interest in administrative code changes, but it's not in rulemaking.

4. Existing Buildings Pay for Performance offering

Kathleen Belkhatay provided an update on Pay for Performance.

Kathleen Belkhatay: One unique aspect of this program, unlike Strategic Energy Management, is that the customer is working directly with a contractor for performing the operations and maintenance and capital measures. Contrary to our other programs, where we are using engineering estimates for savings, we are looking at what was achieved at the end of the year. For the customer, it's an opportunity to be hands off or as involved as they want. The pilot customer is very happy with the level of service and savings.

Holly Braun: Who was the manager for this project?

Kathleen Belkhatay: It was internally managed. We looked at existing conditions and in some cases used code as a baseline. Pulling the measures apart is complicated. We are looking at how we handle this by backing out the savings.

Oliver Kesting: This is the remaining piece we need to pin down before launching the program.

Kathleen: Pay for Performance allies will work with customers through this program and will receive training. We'll start with retail, office and grocery customers

JP Batmale: What's the Program Management Contractor role? Does the PMC coordinate allies' outreach?

Kathleen Belkhatay: There's a little bit of outreach from the PMC on this offering as initial work in the market. The PMC will mostly review energy reduction plans and qualify and train Pay for Performance allies. They are helping do engineering review and program design.

Stan Price: I'm interested in talking more about the baseline issue. Maybe offline.

Holly Braun: Are you connecting with the city's scoring mechanism to find the right buildings?

Kathleen Belkhatay: That could be a future strategy.

Jess Kincaid: What's the threshold for delayed payment. How long are customers willing to wait for payment?

Kathleen Belkhatay: Seattle City Light got some customer input about this through a workshop. There were some questions about the length of the contract. It's not an issue after the first year.

Charlie Grist: How long is the term? Is it monitored over the full course of the three years?

Oliver Kesting: It's monitored for three years, and we're assuming a five-year measure life.

Charlie Grist: Was there a baseline discussion?

Oliver Kesting: We have been trying to design the program to use the most accurate information upfront to determine what the baseline should be and deduct any extra savings from the model.

The challenge is if the baseline is code and you're looking at the whole-building level, you'll pay on the additional savings also. We can either deduct it upfront or on the back end. I would like some input from the Conservation Advisory Council members. Do you see value in going the second route and paying for savings we actually see at the whole building level?

Stan Price: Yes. I appreciate the hard work you've put into this. I'm not a huge fan of worrying too much about free ridership. I'm in favor of moving this baseline discussion to after-the-fact, so a project isn't held up with a calculation of what the baseline should be. Having the discussion up front puts a throttle on the program that's supposed to encourage participation so you can learn more. If you are trying to weed it out after the fact instead of screening out good candidates, it's helpful.

JP Batmale: This is what a code building should be.

Charlie Grist: If it has a five-year measure life, it limits the term of the baseline thinking. Lighting is a good example. By limiting the term life cycle, you can decide what's in and what's out. The Regional Technical Forum is using a dual baseline where you have a condition for a while and if lighting needs to be replaced after year one, you make some adjustments. What will happen without the intervention, you don't know. Some look like early replacement of things that would have happened anyway. You can change the operating hours of a grocery store and it adjusts the baseline.

JP Batmale: Is the challenge old equipment that never dies—zombie equipment?

Oliver Kesting: Zombie equipment is the nickname we've given equipment that just keeps running and won't get replaced unless we intervene. That's not the concern as much as equipment they would have replaced in the timeline of the program. How do we deduct that? We've seen more and more challenges as we look at it. One solution would be to take a lower evaluation factor.

Stan Price: One of the screening criteria is that there's no planned significant capital project during that time. This may have more implications during the full-scale program. The risk factor may not be significant.

Don Jones: How long they'll wait for payments depends on the size of the payment. The idea of having a baseline calculation will complicate the process.

Julia Harper: If more than six potential projects are interested, how will you decide?

Kathleen Belkhatat: We'll look at the diversity and geographic locations to get a mix.

Chris Smith (Energy 350): Cost-effectiveness will be used to screen projects out, right? If you look at the full cost and full savings, projects end up not being cost-effective and need to be looked at incrementally. If it passes the screening, doing nothing is a viable option. I would hate to throw out good projects. I like the idea of netting it out in the end with evaluations but not ruining good projects up front.

Charlie Grist: Other programs struggled with building and reviewing models. Are you doing that in house? Have you had similar struggles? Is there room for a third party to help?

Kathleen Belkhatat: ICF's engineering team will review the models. We've developed a performance tracking tool that has a standardized format that should help to make review easier.

Holly Braun: Between this and Strategic Energy Management, how do the incentives compare?

Kathleen Belkhat: For SEM, we offer \$0.04/kwh and \$0.40/therm for achieved savings after the first year. We pay for incremental savings each subsequent year. For Pay for Performance, we offer \$0.05/kwh (operations and maintenance path), \$0.10/kwh (capital path) \$0.60/therm (operations and maintenance path) and \$1.20/therm (capital path) for achieved savings after the first year. The same rate is paid on maintaining the same level of savings in the second and third year.

Oliver: For operations and maintenance measures, that's a total of 15 cents compared to 4 cents for electric savings. Engineering services and coaching are a big part of costs in SEM. In Pay for Performance, we are paying the 15 cents, but the customer needs to have the contract with and pay the Pay for Performance ally.

5. Residential Trends: Existing and New Homes

Marshall Johnson provided an overview of residential trends and sources of savings, including for New Homes and Existing Homes programs in Oregon and Washington.

Don MacOdrum: What is the difference between trade ally and non-trade ally in gas versus electric?

Marshall Johnsons: We have a lot of contractors who install windows but aren't trade allies. A larger percentage of homes with non-trade ally projects are related to windows installed in homes heated by gas.

Lisa McGarrity: Are you counting electronic ignition savings?

Marshall Johnson: We've decoupled the savings from Fireplace Efficiency savings of the unit from electronic ignition savings. This data includes a small subset of Electronic Ignition units that were in Avista territory prior to offering all measures at the start of 2017.

Charlie Grist: How are you measuring savings from midstream ignitions?

Marshall Johnson: We took an allocation based on 2015 baseline research and collected data to adjust the allocation.

Don MacOdrum: Related to the Savings Within Reach trend, there is a steep increase on the gas side and NW Natural recruitment helped. Were they doing something new?

Marshall Johnson: We expanded Savings Within Reach income eligibility. We also focused on HVAC trade allies participation. HVAC contractors are a good fit to support participation this pathway.

Tony Galluzzo: This suggests the DHP measure is upgrading people from electric heat to addcooling also, but what happens on the gas side?

Lisa McGarrity: Are you taking into account a penalty if customers add air conditioning, or does it net out in the savings from heating.

Marshall Johnson: There's a non-energy credit applied, but we aren't taking a reduction for air conditioning use. In general, air conditioning hours of use is pretty low.

Holly Braun: Why is the lowest HSPF efficiency level showing up in 2016?

Marshall Johnson: We did a pilot in manufactured homes to replace electric furnaces, using lower efficiency units due to space limitations.

Holly Braun: It looked like lower tiers were already transformed. Do we know if that will come up in 2018?

Marshall Johnson: It will in retrofits (aka, conversions) and upgrade incentives. We are encouraging 9.0 or 9.5 Heating Seasonal Performance Factor to replace forced air furnaces and evaluating the discontinuation of heat pump upgrade incentives in 2018.

Peter West: Planning staff will be back to a future Conservation Advisory Council meeting with analysis results for some of these measures.

Charlie Grist: Is there an upgrade and conversion program?

Marshall Johnson: Yes, we have both, but the conversion is what we'll set our sights on. There's a bigger savings opportunity.

John Frankel: You show 4,224 EPS new homes. What percentage of the market is that?

Marshall Johnson: That's 38 percent in Oregon and 34 percent in Washington.

Holly Braun: New Homes was big on the pie chart for gas savings. Market transformation is a big part of that. Is that from the baseline moving up in furnaces?

Marshall Johnson: That is from changes to the new construction code, not furnace market transformation.

Charlie Grist: It's great to see year-over-year trends. It's helpful and I want to encourage it. Is there full market data on EPS new homes? Also, aerator savings are big. Have you evaluated them?

Marshall Johnson: We have a sense of the composition of measures that get recognized and a sense of the water heating breakdown in EPS, along with a decent sense that non-efficient water heating is going into code homes. Tankless water heaters are going in new homes on the gas side. We've done some evaluation work on aerators. We have a good sense of how often they get installed and it will be updating other elements in 2018 to align with assumptions from the Regional Technical Forum.

Alan Meyer: We did a study on flow rates.

Marshall Johnson: We did a study on flow rates for multifamily buildings, as well as install rates from Energy Saver Kits. Bathroom aerators and showerheads had the same installation rate and kitchen ones had the worst rates.

6. Updates on Portland's Home Energy Scoring Ordinance

Andria Jacob and Andrew Shepard provided information about the City of Portland's Home Energy Scoring ordinance.

Andrew Shepard: Energy Trust helped train trade allies to deliver Home Energy Scores, and also raised customer awareness. We participate in the Oregon Department of Energy-led HB 2801 group. We hosted additional stakeholder meetings to discuss scoring. EPS for existing homes will no longer be offered by mid-2017. Earth Advantage will use the U.S. Department of Energy Home Energy Score that will be available for homeowners. EPS for new homes will remain as an offering.

Andria Jacob: City council adopted an ordinance last December. It stems from our work on climate action and protection. The national carbon emissions trend is much higher than ours and we are trending downward. Our goal is to reduce emissions by 80 percent by 2050. We are currently at 21 percent despite the growth in population. Owner occupied single-family homes are the starting point as the largest chunk of the housing market.

We are used to seeing informational labels on many things, but not on homes. Single-family homes sold in Portland will receive a score and report. The sellers or builders are

the regulated parties. We are the first to require this at the point of listing. We won't publish scores on Portland maps, but realtors will have to scores to regional multiple listing service listings. The draft scorecard is out for review and public comment.

Jess Kincaid: Has any effort been made to have instant-savings measures installed when existing homes are scored?

Andrew Shepard: That's a great suggestion. We've looked into that. We would like to empower real estate professionals to help or order kits.

Holly Braun: This is awesome to see the progression. Realtors weren't in favor of this. Who will enforce scores being entered into RMLS? Is there an exemption for low-income customers? What is the qualification process?

Andria Jacob: The realtors lost the debate, but they could challenge it in court. There were a number of them in support of this. We promised to go back 30 months after implementation, and compliance rates are part of it. We would like to rely on training and education. People will start to do it over time. Earth Advantage will be our quality assurance partner and implementer.

To get around the administrative burden of qualifying people, we specified programs that already do it. If sellers are qualified for Low Income Home Energy Assistance Program or reduced-cost lunches at school, for example, we will take people's word for it. Code does give us the ability to levy fines, but that will come later. Rulemaking will happen in July and August.

Lisa McGarrity: Will there be an exemption processes? Who will pay for it if there's no money?

Andria Jacob: Low-income customers will be exempted, including households who make less than 60 percent of the median income.

Garrett Harris: Will the city coordinate with Energy Trust to track leads and closed transactions for trade allies?

Andrew Shepard: Some of the upgrades are outside of what we can track and quantify. We will track on what we can.

Andria Jacob: We have an evaluation contractor who goes over and above energy savings.

Tony Galluzzo: It sounds like an assessment similar to what an allied technical assistance contractor would provide. Is this for all utilities?

Andria Jacob: They are trained and licensed providers. The market driven cost is about \$200 to \$250.

Roger Kainu: I was just at conference where this came up. Nationally, it looks like the prices are coming down to more like \$100. Home inspectors can give scores while they are doing their inspections.

7. Energy Trust's diversity, equity and inclusion strategy

Debbie Menashe provided an update on the current status of Energy Trust's Diversity Initiative strategies and community outreach efforts. She shared the mission statement and initiative standards, objectives and goals to bring cultural competency to both the organization and its programs and projects. The purpose of the mission is to better serve diverse populations, contractors and partners. Debbie asked for assistance to convene a group of clean energy organizations to identify the jobs that are available now and in the future in order to better recruit diverse populations.

Lisa: Will you use a third party to help with data analysis?

Debbie: We do that often. We also need help understanding cultural concerns and history.

Andria Jacon: The Clean Energy Works Portland pilot proved that it's difficult and tricky to work with diverse customers. It's not easy, but great to see. We had an external party do an equity audit to understand who benefits from or is harmed by these policies and actions. When we engaged with groups, we heard feedback that it was the city's priority, not theirs.

Don Jones: Have you considered asking other organizations that are out ahead of you on these things?

Debbie Menashe: Yes. We don't cover the low-income community, but we are focused on reaching everyone.

Jess Kincaid: Reach out to the educational system. Community colleges, colleges and universities are trying to support equity.

Debbie Menashe: Mount Hood Community College had a career fair about ten days ago and we attended.

Don MacOdrum: How deep back into the pipeline are you looking? A lot of people are starting to make decisions about their careers in school that will impact the rest of their lives.

Debbie Menashe: We are working with DeLaSalle High School for interns who have been with us all year. We hope that they remember when they move on.

Allison Spector: It's good to look at the educational institutions and why women and people of color are not in certain fields. Are there champions that keep them interested and engaged? Can you support that?

Charlie Grist: This came up in the seventh power plan. Ways to look at data to see where we are touching and not. There is a coalition of 10 utilities or so that are trying to produce some ways to measure by the end of this year. NEEA is participating.

Roger Kainu: Oregon Worksource puts on a presentation about equity gentrification. He can point out where the pockets are within Oregon with the highest concentrations of different groups.

8. Planning 2017 Conservation Advisory Council agendas

Peter West asked what topics should come to Conservation Advisory Council meetings in 2017.

Peter West: What is missing? Sector trends analysis will become part of the upcoming budget process. Penetration analyses will show results of deep reaching into markets. We will present ductless heat pump analyses will come back in about August or September.

JP Batmale: How about a status report on the new residential PMC selection and process?

Peter West: Selection will be presented in September, and status updates will provided in 2018.

Andria Jacob: When will the decision be made?

Peter West: It will go to the board on July 26.

Alan Meyer: You can be fairly confident that the recommendation will go through.

JP Batmale: Do we ever hear what comes out of the board strategic planning workshop?

Alan Meyer: The information will be available following the next board meeting.

Don MacOdrum: Selection and notification of respondents happens on June 26. Would that be public?

Peter West: The selection will be approved and publicly available at the July 26 board meeting.

9. Public comment

Dave Bamford: The diversity study is very progressive, and I would love to see scoring become the national model. It can become a great selling tool for realtors.

10. Meeting adjournment

The next scheduled meeting of the Conservation Advisory Council will be on June 21, 2017 at 1:30 p.m.

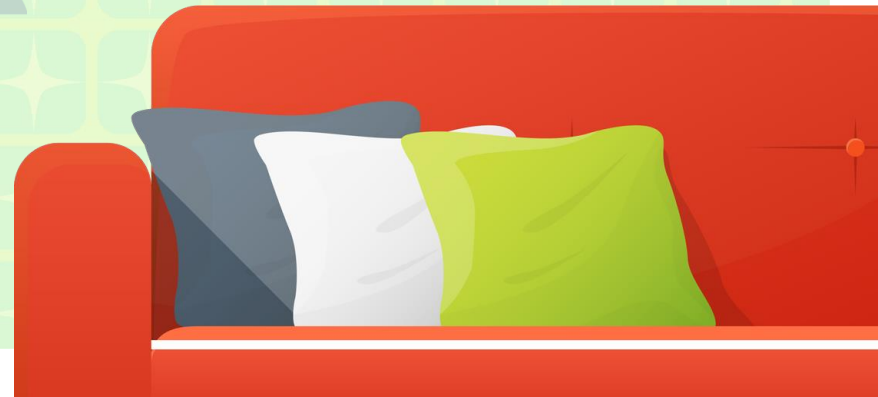


Retail Lighting
Strategy Update
Conservation Advisory
Council
June 21, 2017

Findings from Bonneville Power Administration

Residential Lighting

Understanding the past and
looking into the future



By the numbers

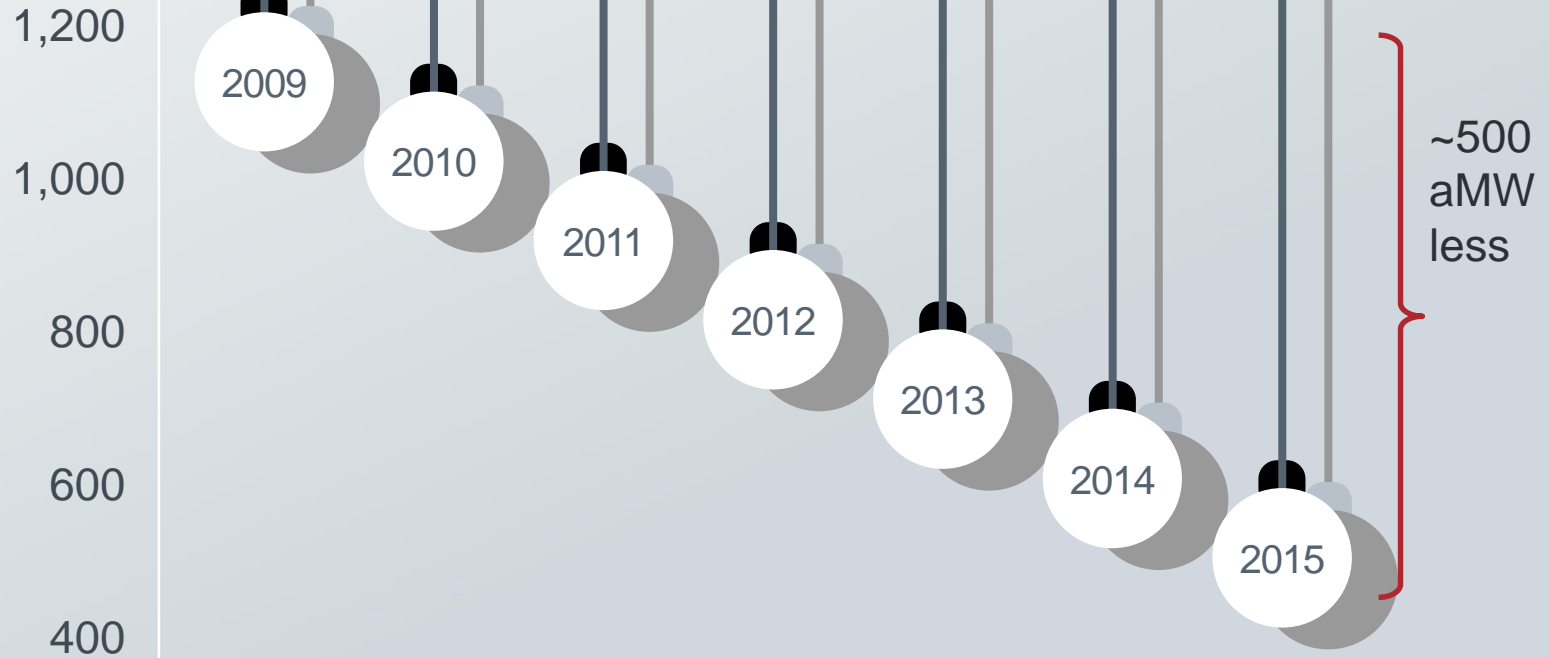
More than
300 million
lamps in NW homes

3rd largest
residential end-use

Approximately
6%
of total regional
energy use (all sectors)

More than
25%
of the region's residential
program energy and
demand savings

aMW CONSUMPTION



**39% decline in
lighting consumption**



What caused the drop?

\$23

2011

\$7

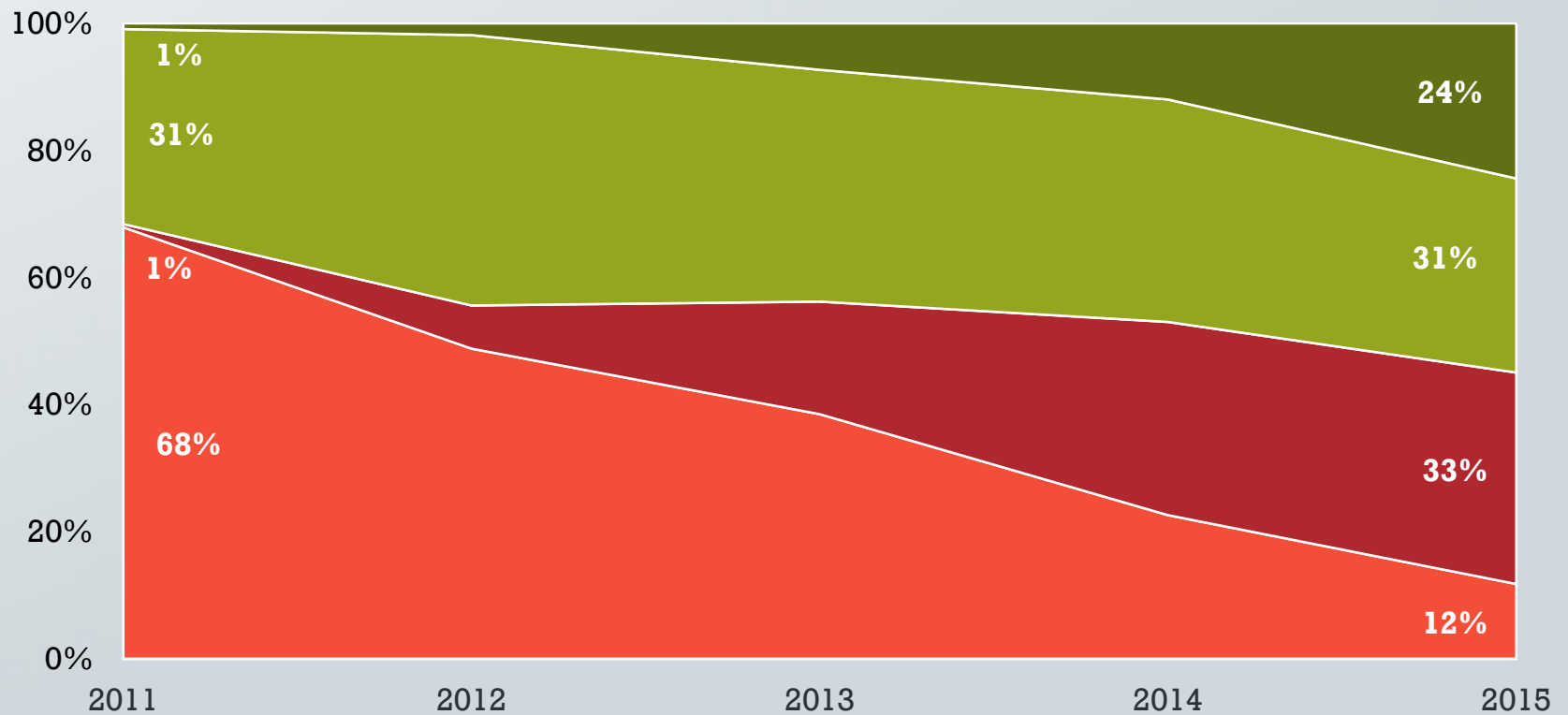
2015

Less Expensive LEDs

Average Cost of a Typical General Service Lamp

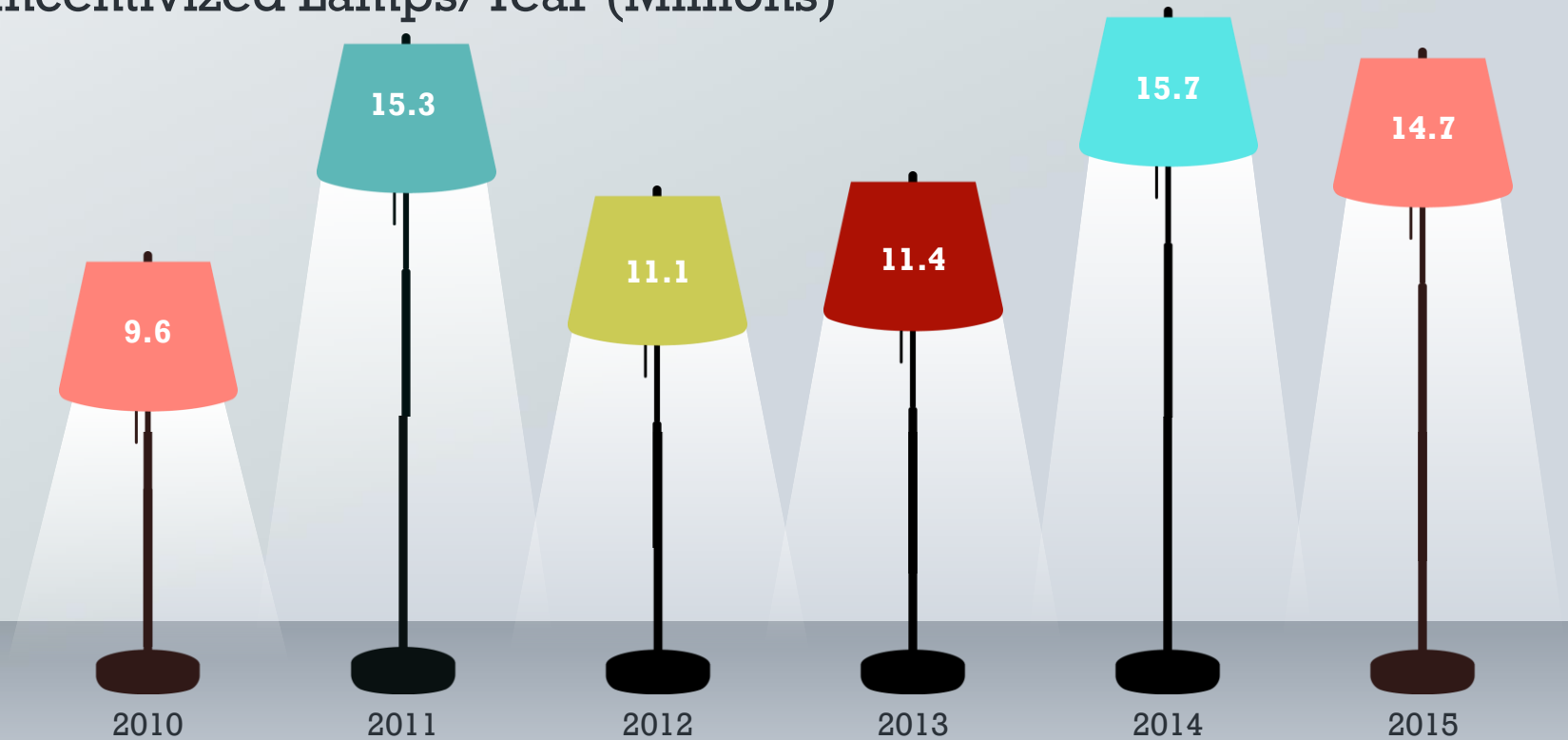
EISA came into effect

General Service Lamps Market Share



Persistent region-wide utility programs

Incentivized Lamps/Year (Millions)



\$23

2011

\$7

2015

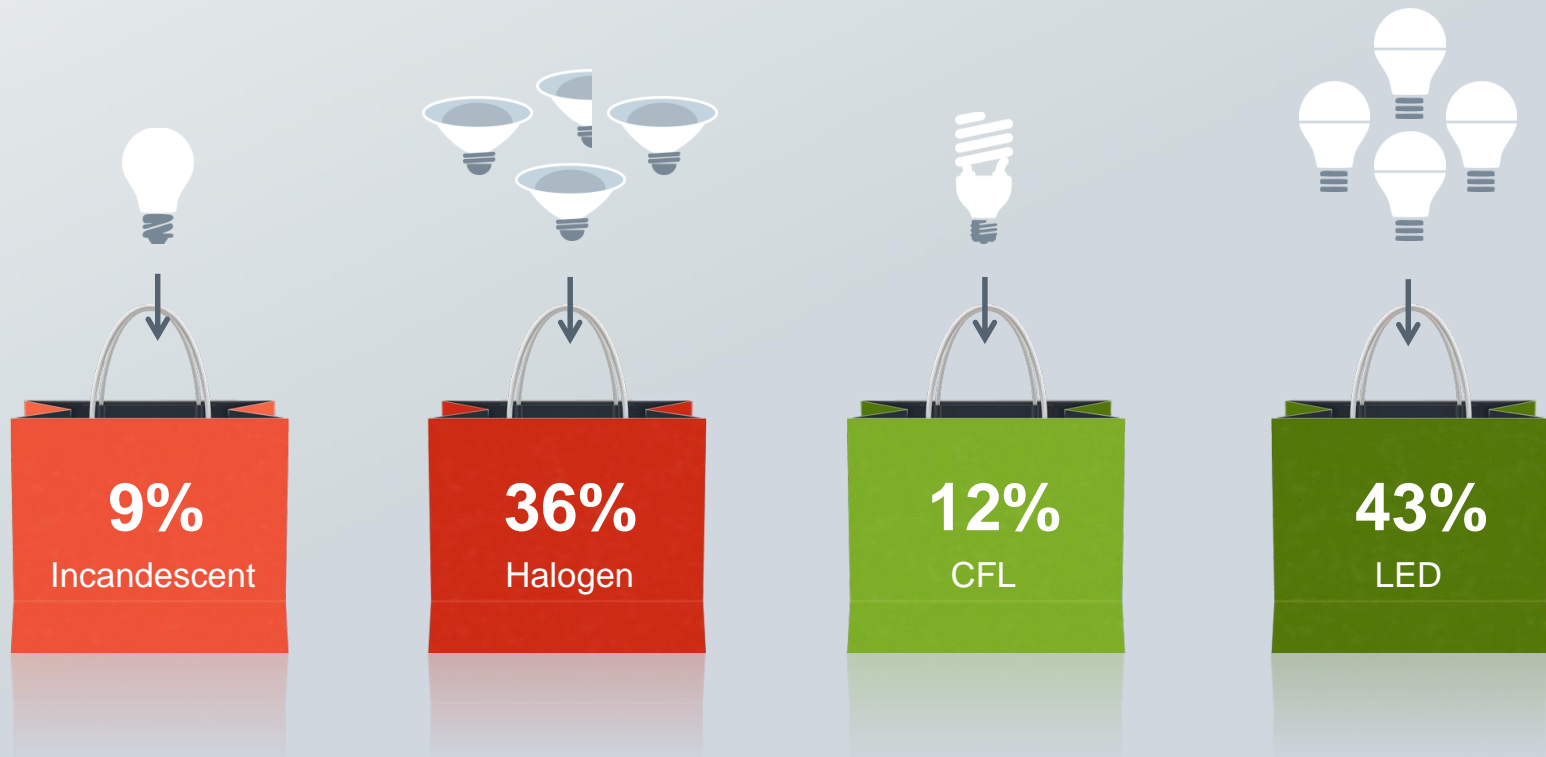
\$5

2016

LED Prices Continue to Decline

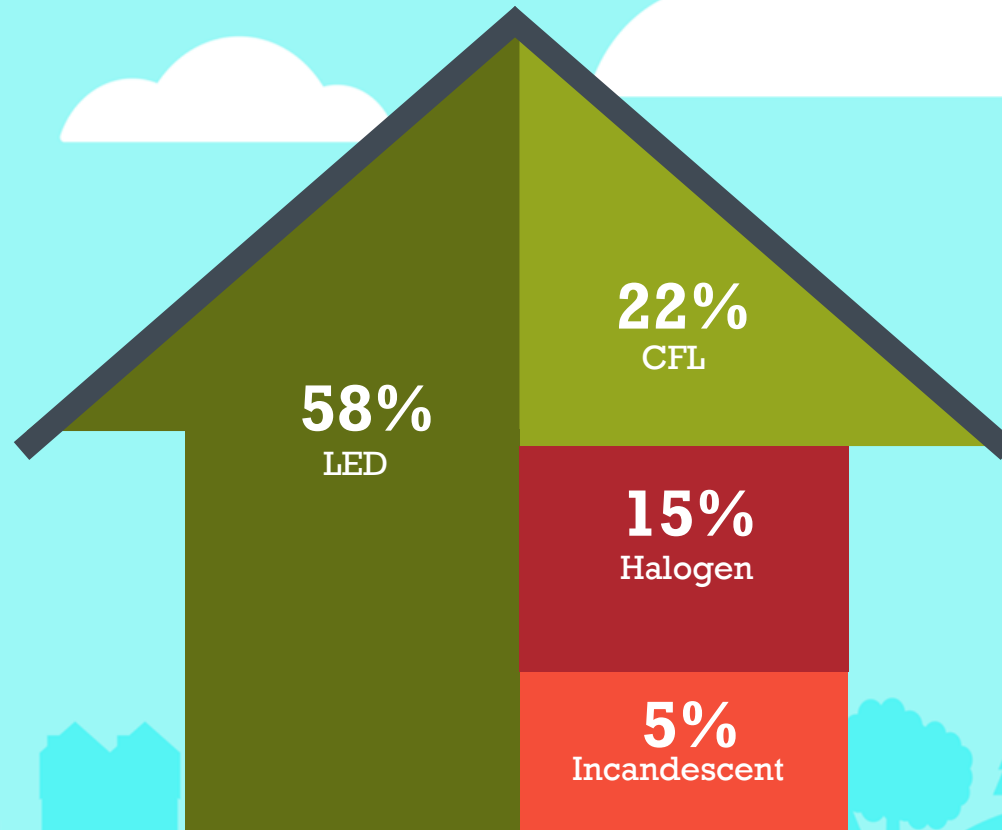
Average Cost of a Typical A-Type Lamp

LEDs were the top seller in 2016



Looking ahead

LEDs will be 58% of lighting stock by 2020



Energy Trust Retail Lighting Update

Retail Lighting Market Landscape

- Quickly changing
- Complex
- High volume



Decision-making Framework

1. Track LED market share
2. Characterize max market-share indication point
3. Track incremental cost
4. Adaptive measure approval and budget management
5. Improve industry stakeholder engagement



Data Sources

- Nielsen Sales Data
- Residential Building Stock Assessment (NEEA)
- Retail Lighting Market Tracking (NEEA)
- PMC Shelf Surveys



Goals

- Achieve available cost-effective savings
- Minimize over-incentivizing and free-ridership
- Avoid prematurely exiting the market
- Allow for flexibility and innovative program design
- Grow relationships with retailers, manufacturers and other market actors



A photograph of a brick building with a sidewalk, potted plants, and a bench. The building has a dark awning and a sign. The sidewalk is paved and has several large potted plants and a white metal table and chairs. A wooden bench with a metal frame is in the foreground. The background shows a street with trees and a clear sky.

Thank You

Ryan Crews

Residential Program Manager


EnergyTrust
of Oregon



Cannabis Market Update

Conservation Advisory Council

June 21, 2017

Overview and History

- Energy Trust began serving medical facilities in May 2013; adult-use/recreational began in 2016
- 2013 to 2015: incentives provided to 12 medical cannabis projects; about 800,000 kWh in savings
- 2016: incentives provided to 15 cannabis sites; about 1 million kWh in savings
- 2017: expect savings to exceed 4 million kWh
- Outreach strategy



Baselines

Baseline lighting is 1,000 watt HPS; some fluorescent

Baseline HVAC is standard eff. heat pump or mini-split

Baseline loads are 80-100 watts per square foot

Typical lighting hours

- Vegetative - 18 hours/day, 7 days per week
- Flowering - 12 hours/day, 7 days per week



Opportunity: Lighting, HVAC, Other

HVAC

- Three coil systems – cooling and dehumidification
- Variable refrigerant flow (VRF)
- Water cooled chillers and water side economization

Lighting: LED, ceramic, plasma

Dehumidification

Odor control – Plasma ionization air filtration

Savings of 25-50% currently feasible



Challenges

- Cultural – Growers know what works
- New players – Investors interested in bottom line
- Technological knowledge
- Competing priorities – Permitting, power, product
- Awareness of programs; building trust
- Learning with the market





Terrie Stone's Head Cultivation Manager
Quay Stone

INCENTIVES FOR CANNABIS CULTIVATION

GREENHOUSE REBATES AVAILABLE

- Infrared, IR, polyethylene greenhouse covers
- Greenhouse controllers
- Condensing unit heaters
- Under-bench heating equipment
- Thermal curtains

Cultivation of medical and adult use cannabis can be energy intensive. Energy Trust of Oregon offers licensed growers free technical services and cash incentives for the installation of energy-efficient equipment at new and existing grow facilities.

Custom energy solutions

Energy Trust can work with cannabis producers to identify and implement custom improvements that can reduce energy costs over conventional equipment.

Energy Trust offers free technical services and provides cash incentives for:

- High-efficiency lighting and lighting controls, including LEDs. Energy Trust lighting specialists can work with you or your lighting vendor to specify qualified equipment.
- Technical studies to identify energy-efficiency opportunities for HVAC, insulation and other improvements, for qualified projects. Energy Trust pays 100 percent of the study cost.

Cash incentives are based on estimated annual energy savings and are available at \$0.25 per kilowatt hour saved and \$2.00 per therm saved.* Incentives can cover up to 50 percent of your upfront project cost and can be provided directly to the equipment vendor or contractor, reducing your investment. All custom projects must be pre-approved by Energy Trust to be eligible for incentive payments.

Eligibility requirements

- Your business must be licensed by the State of Oregon and be on the active business registry
- Energy-efficiency measures must be installed in a permanent structure. Trailers or movable structures are not eligible for incentives.
- The project site must be located in Oregon and served by Portland General Electric, Pacific Power, NW Natural, Cascade Natural Gas, or Avista, on a qualifying rate schedule
- Energy Trust must conduct pre- and post-verification for the installation
- Additional eligibility requirements may apply and could vary depending on your project

*Incentives are subject to availability and may change.



Get more from your energy.

To learn more about additional rebates and cash incentives available for your project, visit www.energytrust.org/grow or call 1.866.202.0576.

Energy Trust of Oregon
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Portland, OR 97204
1.866.202.0576 energytrust.org

Serving customers of Portland General Electric,
Pacific Power, NW Natural, Cascade Natural Gas
and Avista. ©2017



Thank You

Sam Walker

Sr. Program Manager,
Industry and Agriculture