

Agenda

Conservation Advisory Council

Wednesday, July 25, 2012 1:30 p.m. – 4:15 p.m.

New Address:

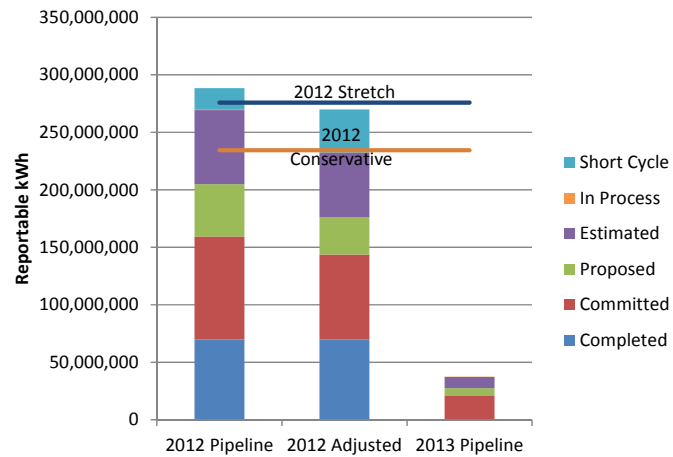
421 SW Oak St., #300
Portland, OR 97204

- 1:30 Welcome, introductions and short announcements**
- 1:35 Mid-year Update** *(information)*
Staff will present dashboards and other information on results to date and progress towards 2012 goals
- 1:50 2013 Preliminary Budget Concepts by Sector** *(information)*
- 2:20 Heat Pump Incentive Qualification** *(feedback)*
CAC will be asked for a recommendation on how to deal with a central ducted heat pump measure qualification that implicates customer choice. This topic arises out of a PUC docket (UM 1565).
- 2:50 Break.**
- 3:00 2011 Fast Feedback Survey Results** *(information)*
- 3:15 Residential Gas Weatherization Cost-effectiveness** *(feedback)*
Recent changes in three key assumptions are impacting societal cost effectiveness for several measures currently on the margin. Staff will present the issues and some solutions that Energy Trust and the PUC are exploring for CAC discussion and feedback.
- 4:00 Public Comment**
- 4:15 Adjourn**

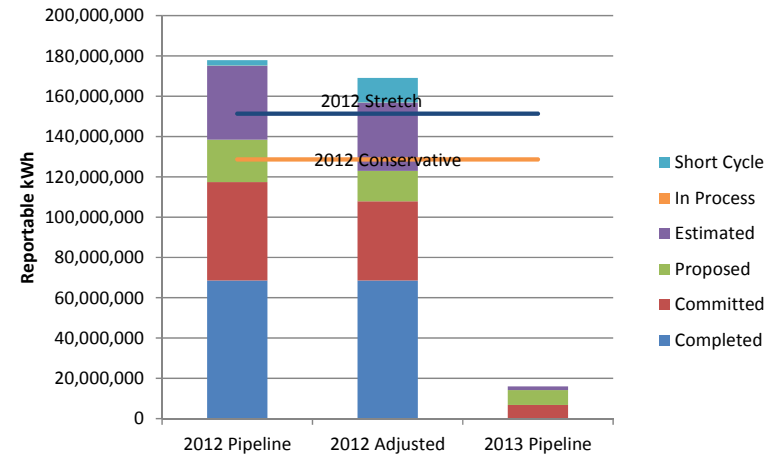
The next scheduled meeting of the Conservation Advisory Council will be on September 12, 2012.



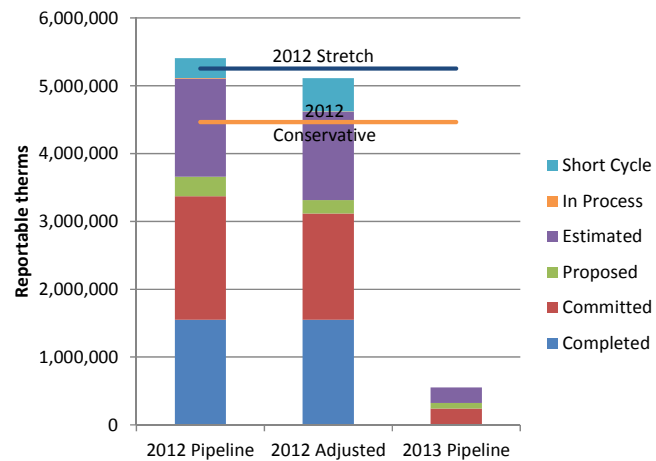
PGE Savings Pipeline 2012-2013



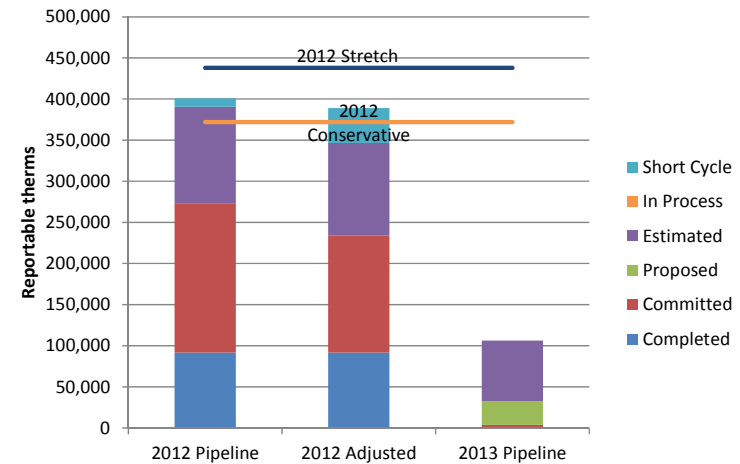
PAC Savings Pipeline 2012-2013



NWN Savings Pipeline 2012-2013



CNG Savings Pipeline 2012-2013





Kick-Start Bonus

Kick-Start Bonus Maximum Possible Exposure for Bonus pay-outs in 2012					
	<i>Bonus Incentive</i>	<i>Base Incentive</i>	<i>kWh Savings</i>	<i>therm Savings</i>	<i># of Projects</i>
PE	\$2,067,297	\$9,771,668	54,393,359	727,056	477
EB	\$2,124,564	\$10,100,654	65,481,552	571,138	1640
Totals:	\$4,191,862	\$19,872,322	119,874,911	1,298,194	2,117

Source: Energy Trust project tracking system as of June 30, 2012. All data is preliminary.

Note: No new offers will be made. Due to inevitable fallout of some bonus projects in the pipeline, final total will be lower than shown.



Preliminary 2013 Budget Concepts by Sector

Presented to Conservation Advisory Committee
July 25, 2012

Residential Sector 2013 Budget Concepts



2013 Themes – Existing Homes

- Customer & Contractor Engagement
 - EPS
 - Referral Codes
 - On line forms
 - Ideas 42 findings
- Lender ally expansion
- Behavioral savings expansion
- Transition from reliance on ISMs
- Market actor collaborations



2013 Themes – New Homes



- EPS
- Live Net Zero
- Verifier infrastructure
- Air sealing pilot



2013 Themes Products



- Recycling continued
- Innovative retailer strategies
 - Point of sale
 - Mid stream incentive
- Increased efficiency levels
- Market lift

Commercial Sector 2013 Budget Concepts



2013 Themes – Commercial Sector



- Building the business case
- Enhanced O&M offerings
- Continued coordination with external organizations



2013 Themes – Existing Buildings

- Building the business case
- Support for longer term planning
- Lighting transition
- Targeted O&M incentives
- Targeted incentives for specific markets
- Schools





2013 Themes – New Buildings

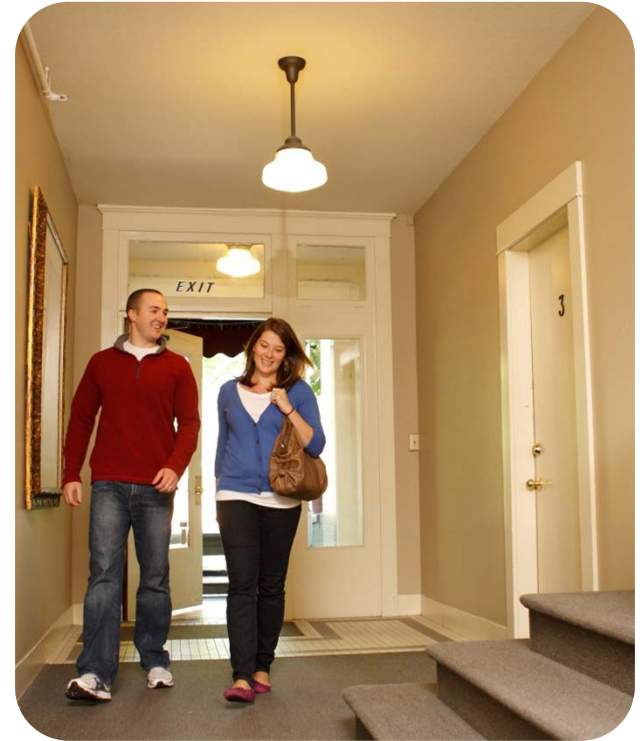


- Early design assistance
- Market Specific offers
 - Data centers
 - Small commercial offering
- Technical specialists and training
- Solar ready



2013 Themes – Multifamily

- Expanded outreach
- Direct Install
- Midstream incentives
- Behavioral savings expansion
- Custom projects
- Pilots
 - MPower
 - Memory Care





2013 Themes – Non-PMC



- Strategic Energy Management
- Resource Conservation Management
- 80 plus
- Building Operator Certification
- Lighting Design Lab

Industry & Ag Sector 2013 Budget Concepts



2013 Themes – Industry & Ag



Implement

- No major changes proposed to offerings, strategies, incentives.

Innovate

- Embed SEM innovations
- Test new approaches to serve Small Industry/ Ag

Improve

- Develop new tools, procedures & messages to make participation easy & increase savings



Production Efficiency 2013 Concepts

- Sources of Savings continue from 2012
 - 75% Custom Track
 - Custom capital = ~ 55%
 - Custom O&M and SEM = ~ 20%
 - 25% Streamlined (Trade Ally) Tracks
 - Industrial lighting = ~20% electric savings
 - Small Industrial & Ag initiative = ~5% elec, 25% gas savings



Innovative/ changing elements

SEM

- IEI and Corporate SEM continue – standardize
- SEM Maintenance (was IEI Maintenance)
- CORE pilot for small industries continues
- ISO 50001
- Wastewater SEM (ACWA)

Other Innovations

- Comprehensive design pilot for lighting & LEDs
- Scientific Irrigation Scheduling
- Refrigeration Operator Coaching (ROC)
- O&M Blitz (redesign of Kaizen Blitz)

CAC Heat Pump Qualification Discussion

We are seeking a recommendation on how to deal with a central ducted heatpump measure qualification that implicates customer choice. It arises out of a PUC docket (UM 1565). The docket involves whether and to what extent Energy Trust should consider fuel-choice in setting incentives.

Currently we offer incentives for efficient equipment for whatever fuel a customer chooses, if the customer needs an incentive to invest in higher-efficiency equipment. If a customer chooses electric, we provide an incentive for a high-efficiency heat pump. If a customer chooses a high-efficiency gas furnace, we provide no incentive to single family homes beyond moderate incomes because most people already buy a high-efficiency furnaces without an incentive.

In the docket, NWN argues that the heat pump incentive encourages people to switch from gas to electric when that is not in their economic interest. i.e., the incentive sends the wrong signal to the market. NWN suggests that we not provide a heat-pump incentive to gas-heated customers.

This approach could open the door to setting incentives according to the economics of different fuels, which raises a couple of concerns:

- i. Philosophical question of why we don't leave the choice to the consumer per ETO fuel neutrality policy.
- ii. The analytical and practical question of how we would make analyze choices without tying Energy Trust and the CAC in knots.

Our question to the CAC is: would you recommend that we not offer heat pump incentives to customers who heat with gas?

We are not proposing to change the heat pump incentive at this point, we are trying to help the parties involved in the docket explore options and see if there is a way to resolve the issues in the docket without investing all the time and effort the docket will require.



Fast Feedback Summary of 2011 Results

Conservation Advisory Council
July 25, 2012



Purpose of Fast Feedback

- In the past, Energy Trust gathered most participant feedback during program evaluations
 - These evaluations often took place 1 to 2 years after project completion
- Fast Feedback gathers info about participant experience soon after the project is complete
- Feedback should be more accurate since participant recall is better and we have a greater chance of reaching the right person



Background

- Pilot conducted in 2009 for Existing Buildings and Production Efficiency
- Useful results lead to expansion to most programs in Q2 2010
- Sampling and reporting were brought in house in Q3 2010
- Surveying done by Gilmore Research Group since Q2 2011
- This is the first annual summary



Method

- Short phone survey to recent participants about:
 - Satisfaction
 - Investment decision process
 - Use of tax credits
 - Suggestions for changes
- Open-ended comments are also collected
- Representative samples (90/10) attempted
- 3,439 surveys completed for 2011



Commercial/Industrial

	Completed surveys
Existing Buildings – Oregon	199
Existing Buildings – Washington	10
Multifamily	76
New Buildings and New Multifamily	71
Production Efficiency	184
Commercial Solar PV and Water Heating	32
Small Wind	5



Residential

		Completed surveys
Home Products	Clothes Washer	261
	Refrigerators	259
	Refrigerator Recycling	262
Existing Homes	Air Sealing	138
	Ceiling Insulation	242
	Floor Insulation	231
	Wall Insulation	151
	Duct Insulation	51
	Duct Sealing	158
	Heat Pump	232
	Water Heater	243
	Windows	128
	Home Performance	109
	Home Energy Review	237
	Washington	65
Residential Solar	Solar Electric	140
	Solar Water Heating	20

Commercial & Industrial Results



Satisfaction & Free Ridership

Survey Group	Satisfaction	Free Ridership (savings-weighted)	
		Electric	Gas
Existing Buildings – Oregon	94%	30%	27%
Existing Buildings – Washington	100%	--	--
Existing Multifamily	87%	27%	48%
New Buildings and Multifamily	83%	--	--
Production Efficiency	91%	14%	20%
Commercial Solar Electric and Water Heating	91%	--	--
Small Wind	4 of 5		



Trends in 2011

- Business Energy Tax Credit (BETC) changes caused a decline in use of tax credits over the year
 - Lower satisfaction with info on tax credits, confusion expressed in comments
 - Drop in free ridership (FR) when BETC changes and mitigation happened, but FR is slowly creeping back up
- Hard to talk with the owners of New Buildings projects
 - Decided FR could not be accurately assessed with responses from design allies, other non-owners



Survey changes for 2012

- Added questions about the impact of BETC changes on projects (Q1 and Q2 only):
 - “Are you aware of the changes that occurred in 2011 to the state business energy tax credit?”
 - “Have the changes in the tax credit caused you to reduce, cancel or delay and previous plans to install energy efficient or renewable energy equipment or design at your facility?”
 - “What equipment or design was affected?”

Residential Results



Satisfaction & Free Ridership

		Satisfaction	Free Ridership
Home Products	Clothes Washer	88%	47%
	Refrigerators	90%	52%
	Refrigerator Recycling	95%	31%
Existing Homes	Air Sealing	88%	21%
	Ceiling Insulation	92%	28%
	Floor Insulation	96%	27%
	Wall Insulation	90%	35%
	Duct Insulation	88%	31%
	Duct Sealing	89%	38%
	Heat Pump	88%	42%
	Water Heater	91%	47%
	Windows	85%	42%
	Home Performance	90%	27%
	Home Energy Review	91%	--
	Washington	86%	--
Residential Solar	Solar Electric	94%	--
	Solar Water Heating	100%	--



Trends in 2011 – Home Products

- Changes to appliance specs only slightly reduced FR compared to 2010
- 2011 was the last year for RETC credits for appliances; use was high for washers
- FR climbing slightly for fridge recycling over the last few years
- 84% of recycled fridges were replaced, most with a new unit



Trends in 2011 – Existing Homes

- Satisfaction generally high
 - Windows still difficult for customers; no longer require a second measure, but must have stickers
- FR down slightly from 2010 for air sealing, ceiling insulation
 - Stable or slightly higher for other measures, especially heat pumps, water heaters, windows and Home Performance
- Satisfaction in WA trended up over the year to 100% in Q3 and Q4



Survey changes for 2012

- Removed questions on federal tax credit, and state tax credit for appliances
- Added gas furnaces for Washington
- Added a new question for Washington on importance of cost savings, environmental benefits, comfort, etc. (for market research)
- Q2 and Q3 refrigerators will be drawn from Sears Instant Incentive participants
- Water heater sample from 0.67 gas units only
- Planning to add phone HERs to HER sample

Next Steps



Using results and next steps

- Free ridership results to be used in True-up
- Satisfaction results used in Quarterly, Annual OPUC (and WUTC) Reports
- Staff continue to use open-ended comments for insight on program experience
- We will continue reporting results to staff on a quarterly basis, with an annual external report



Gas Weatherization Cost-Effectiveness

Presentation to Conservation Advisory Council
July 25, 2012



This Presentation/Discussion Will:

- Describe key drivers of cost-effectiveness changes
- Describe the issues with gas cost-effectiveness
 - at a measure and program level
- Discuss a proposal to the PUC to allow some gas weatherization measures with B/C challenges to continue
- Solicit feedback re: proposal
- Refer CAC members to PUC process for final disposition



Root Causes

1. Savings from weatherization measures are lower than expected
2. Costs of weatherization are higher than expected
3. *Long Term* forecasts of gas costs, the cost that weatherization avoid, have decreased by approximately 45%



Cost-Effectiveness Difficulties are Primarily with Societal Test

- *The primary investment test for efficiency investments used by Oregon PUC. Societal BC=*

All benefits to utility and participant

Total combined costs to participant and Energy Trust

- Carbon compliance costs are part of avoided cost
- Customer health/safety/comfort benefits could be included, but available data shows limited value and does not support quantification. This is not conclusive, but conclusive evidence is not available.
- Excludes Oregon economic costs and benefits that are not to the utility system or participant (e.g., jobs)



Measure Cost (single family)

2011 Program:					
	Average	Median	1 st Quartile	2010 est.	Change
<u>Per square foot</u>					
Ceiling Insulation	\$0.89	\$0.76	\$0.58	\$0.51	+49%
Wall Insulation	\$1.36	\$1.21	\$0.96	\$0.78	+55%
Floor Insulation	\$1.48	\$1.35	\$1.01	\$0.77	+75%

<u>Per home</u>				2009 est.	Change
Duct sealing	\$964	\$850	\$683	\$480	+77%
Air sealing	\$659	\$600	\$457	\$435	38%

Above excludes Home Performance, Clean Energy Works



Why Have Costs Increased?

Context: *Energy Trust controls incentives, but does not control or manage contractor pricing.*

We don't know why costs have changed, but here are some possibilities:

- Improved data cleaning methods for cost estimates
- Material costs have increased. Probably labor too
- Promotion of weatherization could have increased consumer's willingness to pay higher prices
- Customers do not have a clear idea of energy paybacks



Updated Estimates of Savings

- Evaluation of 2007-9 based on statistical billing analysis
- Evaluations reviewed by independent experts and Board evaluation committee, posted on the web
- Waited for three years of results to make sure that results are robust and to account for program changes
- Excluded one air/duct sealing contractor with large volume and performance issues from results



Savings Caveats

- For air sealing- only one year of reliable sample size for air sealing- more evaluation later this year
- Evaluation results are only through 2009- improved air sealing training and increased emphasis on air sealing requirement in floor insulation specifications since 2009 are not reflected in evaluation results



Measure Savings (single family)

Measure	Current Therms per home	Pre-evaluation Therms per home	Decrease
Ceiling Insulation	63	88	-29%
Wall Insulation	48	94	-49%
Floor Insulation	54	85	-37%
Duct sealing	19	34	-44%
Air sealing	25.5	25.5	0%



Why Have Savings Changed?

- Limited experience with duct and air sealing in our climate- savings depend on many details of homes and on exactly what contractors do
- Customers continue to manage better to use less, including program nonparticipants
- Interactive effects (e.g., efficient furnaces)
- Measures do not perform perfectly

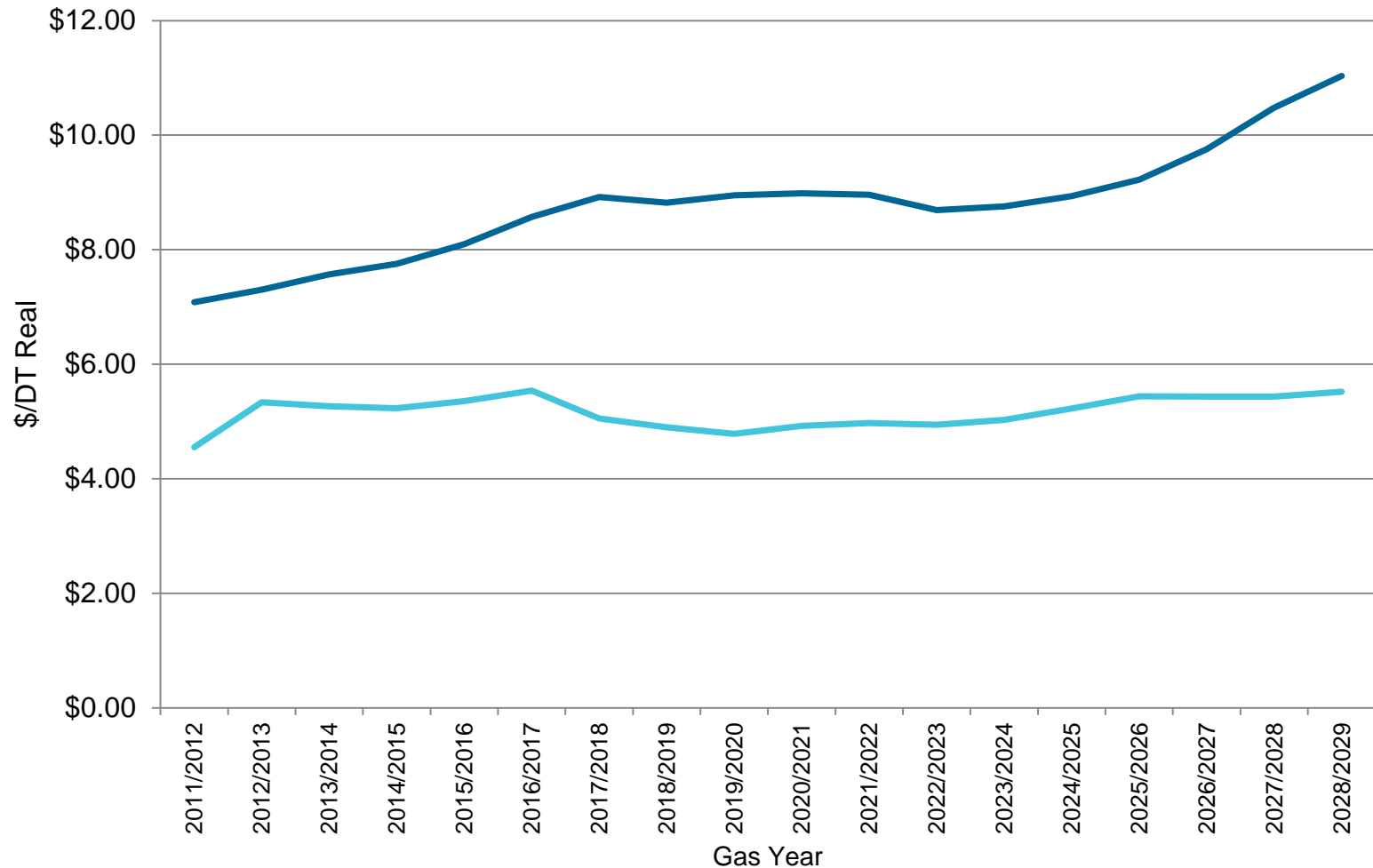


Avoided Costs of Gas

- Energy Trust updates avoided costs for planning purposes every 2-3 years, based on updated utility forecasts used in integrated resource planning
- NW Natural 2011 update is 45% lower on average, over 20 years. We extrapolate to 45.
- Draft 2012 avoided cost forecast is even lower
- Lower costs are used in NW Natural IRP this year
 - IRP will determine whether weatherization is least-cost resource
- Energy Trust will update for internal planning when forecast of costs is finalized



Avoided Cost Comparison



— 2011 IRP Update — 2009 IRP



Why Have Avoided Costs Changed?

- Economic Slowdown
- Reduced use/home
- Dramatic increase in new gas supply, particularly from fracking
- Even at low cost, gas being mined for higher-value co-products (e.g., butane)
- Many, many uncertainties cloud this picture



With New Avoided Costs More Gas Measures Have Societal Test Issues

Old Avoided Costs:

- Duct sealing
- Air sealing
- Floor insulation
- Wall insulation

With New Avoided Costs, Add:

- Ceiling insulation
- Solar water heat
- Some multifamily boilers
- Gas weatherization measures as a whole




Societal B/C ratios with NW Natural 2011 Avoided Costs:

Ceiling insulation	0.7
Floor insulation	0.4
Wall insulation	0.4
Duct sealing	0.2
Air sealing	0.3
Solar thermal	0.9*
0.67 EF water heater	0.5
Multifamily boilers	Custom—some below 1
Gas homes program	0.6 or 0.7**

*With non-energy benefit proxy.

**Rough estimate- includes program management, admin and support.



Could These Measures Achieve Societal B/C of 1?

- With program improvements, measure cost decreases and savings improvements, and higher avoided cost forecasts, some measures could achieve a societal B/C of 1.
- Very difficult for duct and air sealing
- Challenging for floor, wall, 0.67 water heater
- Challenging for program as a whole



Energy Trust Proposed Strategy

- **Seek OPUC approval to continue** to provide incentives for some, but not all measures not meeting societal test threshold
- UM-551 provides for **categories of exceptions** under which PUC may authorize approval to continue
- **Provide customers with access to payback estimates** that correlate well with typical home loads
 - Possibly based on home size, fuel, square feet, measures already installed.
 - Not a simulation model, more like a lookup table calibrated to load data and evaluations.
- Design revisions to program structure, management and Energy Trust costs to **bring program societal B/C toward or to 1 in 2013**. Budget process to developed detailed concept.



UM-551 Allows Exceptions to Societal Test Where:

- The measure produces **significant non-quantifiable non energy benefits**. In this case, the incentive payment should be set at no greater than the cost effective limit (defined as present value of avoided costs plus 10%) less the perceived value of bill savings, e.g. two years of bill savings
- Inclusion of the measure **will increase market acceptance and is expected to lead to reduced cost** of the measure
- The measure is included for **consistency with other DSM program in the region**
- Inclusion of the measure helps **to increase participation in a cost effective program**
- The package of measures **cannot be changed frequently and the measure will be cost effective** during the period the program is offered
- The measure or package of measures is included in a **pilot or research project intended to be offered to a limited number of customers**
- The measure is **required by law or is consistent with Commission policy and/or direction**



Energy Trust Draft Proposal

Duct Sealing:

- Discontinue contractor testing-based duct sealing for gas homes in Jan 2013
- Pursue prescriptive duct sealing pilot

Air Sealing:

- Decide when 2010-11 evaluation results are in
- Unless results improve markedly, discontinue in contractor testing-based air sealing in mid-2013
- Develop concept for prescriptive pilot. Pursue if feasible



Energy Trust Draft Proposal

Floor Insulation:

- Adjust limits to eligibility based on existing insulation levels
- After 2010-11 evaluation is complete, decide whether to discontinue in mid-2013

Ceiling insulation:

- Adjust limits to eligibility based on existing insulation levels
- Require ceiling air sealing as part of treatment

EF 0.67 Water Heaters:

- Develop more competitive, higher-volume market
- Market transformation potential



Energy Trust Draft Proposal

- With these adjustments in mind, request that PUC except the listed measures from the societal test for two years, to assess impact of the adjustments.



Reasons for Exception

- Potential improvements to cost, savings
- Uncertain gas avoided costs
 - Extrapolation to 45 years increases uncertainty
- Non-energy benefits
 - We lack a strong quantitative case based on home performance respondents, but there is still some value
- Value of efficiency in moderating gas prices and volatility/hedge value of efficiency investment



Reasons for Exception

- Evaluation uncertainty for air sealing
- Possibility of non-energy costs in bids
- Allow EEAST and CEWO pilots to reach conclusion



PUC Process

We will finalize proposal this week or early next

- Timing is critical due to budget process

PUC staff will analyze and make recommendations to commission

Commission will consider at a late August or September meeting

Decision will drive 2013 budget process for these measures



Questions and Discussion

- Assess Energy Trust's proposed case
- Energy Trust's reasons for exception:
 - Are they defensible?
 - Are there others?