ITEM NO. 1

PUBLIC UTILITY COMMISSION OF OREGON
STAFF REPORT
PUBLIC MEETING DATE: October 9, 2012

REGULAR X **CONSENT** ____ **EFFECTIVE DATE** N/A

DATE: October 1, 2012

TO: Public Utility Commission

FROM: Juliet Johnson JJ

THROUGH: Jason Eisdorfer and Maury Galbraith JE MG

SUBJECT: ENERGY TRUST OF OREGON: (Docket No. UM 1622) Request approval of exceptions to cost effectiveness guidelines.

STAFF RECOMMENDATION:

Commission grant exceptions to cost effectiveness for the measures proposed and summarized below.

DISCUSSION:

Energy Trust is requesting specific exceptions to the Commission's current cost effectiveness guidelines for energy efficiency. Commission Order No. 94-590 in Docket UM 551 specifies that the total resource cost test (TRC) must be used to determine if energy efficiency measures and programs are cost effective. The same order allows for measures that are not cost effective to be included in utility programs if it is demonstrated that:

A. 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

B. Inclusion of the measure will increase market acceptance and is expected to lead to reduced cost of the measure

C. The measure is included for consistency with other DSM program in the region

D. Inclusion of the measure helps to increase participation in a cost effective program

E. The package of measures cannot be changed frequently and the measure will be cost effective during the period the program is offered

F. The measure or package of measures is included in a pilot or research project intended to be offered to a limited number of customers

G. The measure is required by law or is consistent with Commission policy and/or direction

Order 94-590 indicates that the above conditions apply both to measures and programs with the exception of Item D.

Energy Trust is seeking cost effectiveness exceptions for two years for measures associated with 1) gas homes weatherization, and 2) small commercial new buildings. Attachment A lists current benefit-cost (B/C) ratios (from both a societal and utility perspective) for measures being proposed. A description of the measures and how each relates to the UM 551 exception conditions are described below.

Gas residential weatherization

1. Single family duct sealing - Energy Trust proposes to discontinue existing incentives for duct sealing in single family homes because the B/C ratio is well below 1. Instead, Energy Trust proposes to implement a prescriptive duct sealing pilot. The two phase pilot would refine the duct sealing procedure and then assess savings and costs and determine if the revised protocol could be effectively implemented by contractors. Energy Trust seeks an exception to cost effectiveness for the single family duct sealing prescriptive pilot under the following UM 551 condition:

   - Condition F - Measure included in a pilot

2. Ceiling insulation - The current insulation B/C ratio is above 1 but would be below 1 with an updated gas avoided cost. Energy Trust is confident they can improve the measure cost with improved information to customers about paybacks. Energy Trust also plans to improve average performance by adjusting the eligibility requirements to eliminate some low-yield installations. The UM 551 exceptions criteria that apply are:

   - Condition B - Exception is expected to lead to reduced cost of the measure
   - Condition F - Measure included in a research project intended to be offered to a limited number of customers

3. Wall insulation - As with ceiling insulation, Energy Trust believes they can improve the cost of wall insulation with improved information to customers about paybacks.
   - Condition B - Exception is expected to lead to reduced cost of the measure

4. Floor insulation - Energy Trust has increased emphasis on requirements to seal the floor area as insulation is installed. This may increase savings. Energy Trust believes they can improve measure cost with improved information to consumers about paybacks. Energy Trust believes they can improve savings by adjusting the eligibility requirements to eliminate some transactions with existing insulation. The follow UM 551 exceptions apply:

   - Condition B - Exception is expected to lead to reduced cost of the measure
   - Condition F - Exceptions allowed for a research project intended to be offered to a limited number of customers

5. Air sealing - An evaluation of Energy Trust's Air sealing program for 2010 and 2011 will be completed later this year. The updated evaluation will indicate whether savings have increased and costs decreased. Based on the results of the evaluation, Energy Trust will either a) work to further reduce costs to the point where the B/C ratio exceeds 1, b) similar to what is being proposed for duct sealing, plan for a pilot to develop an alternate approach, or c) develop a strategy to discontinue the incentives for air sealing. Therefore, the following UM 551 conditions may apply for the 2 year exception period:

   - Condition B - Exception is expected to lead to reduced cost of the measure
   - Condition F - Measure may be included in a pilot

6. Multi-family boiler replacements - Multi-family boilers are customer measures with different B/C ratios for each installation. Most installations have a B/C close to 1 but some are below. Energy Trust argues that multi-family boilers associated with low and moderate income housing provide for significant non-energy benefits by contributing to the financial stability of limited income housing agencies by stabilizing their long-term operating costs. Energy Trust requests that installations with B/C less than one be included in the two year waiver.

   - Condition A - Measure includes significant non-quantifiable non energy benefits

7. Home solar domestic water heat - The TRC B/C ratio for solar pool water heat is greater than 1 using the previously agreed to proxy value that is included in the calculation. The TRC B/C ratio for solar domestic hot water is 0.9. When Energy Trust originally made their filing, they believed they could reduce costs to improve

the B/C ratio for solar domestic hot water. However, since the filing, they determined that because a proxy is used in the calculation, reducing cost doesn't lead to increased B/C ratio. Energy Trust suggests that eliminating solar water heat would be disruptive to the small but viable solar water heating industry in Oregon and is asking for the measure to be retained for another two years while further analysis is performed. Staff presents a recommendation on this measure in the Staff assessment section of this memo.

8. 0.67 energy factor water heaters - Energy Trust believes the cost of this recently-introduced measure will drop with increased competition. There is also an opportunity for this measure, along with similar initiatives nationwide, to influence Federal manufacturing standards for water heaters, which will also increase the cost.

    - Condition B - Exception is expected to lead to reduced cost of the measure

9. Manufactured home duct and air sealing - Gas heated homes constitute less than 5% of homes treated by Energy Trust's manufactured home offering, with the rest being electric. Maintaining the small fraction of gas heated homes simplifies implementation for Energy Trust and contractors and constitutes a tiny fraction of the overall gas existing homes program. The applicable UM 551 condition is:

    - Condition D - Measure may increase participation in a cost effective program (electric manufactured home duct and air sealing)

In addition to the individual measures described above, Energy Trust may need to make additional significant changes to the gas component of the Existing Homes program to achieve a societal B/C of 1. Energy Trust is asking the Commission to consider these exceptions when evaluating the performance measures for program cost effectiveness for existing homes gas weatherization. Energy Trust plans to budget for a 2013 gas existing homes program with a targeted societal B/C ratio of 0.8, with the intent of bringing the B/C ratio above 1 in 2014.

Small commercial new buildings

For small commercial new buildings, Energy Trust has built packages of pre-vetted measures with bundled savings and incentives. The measures below are included in packages, but individually have B/C ratios less than 1.

10. Radiant heating and cooling in offices - Energy Trust has started to see radiant floors or panels in innovative projects with aggressive energy goals. The cost for

radiant heating and cooling can vary significantly.[1] There are significant non-quantifiable monetary benefits to radiant heating, such as increase in leasable space, increase in floor to ceiling height, increased rent, etc. Energy Trust contends it's important to have an offer to the market that won't change often and includes promising core measures with high potential to become cost effective over the next two years. Energy Trust recommends that incentives continue for both electric and gas fuel sources for another two years in an effort to learn more about these projects and collect cost data. The following UM 551 exception criteria apply:

- Condition A - Measure produces significant non-quantifiable non energy benefits
- Condition B - Inclusion of the measure will increase market acceptance and is expected to lead to reduced cost of the measure
- Condition E - Package of measures cannot be changed frequently and the measure will be cost effective during the period the program is offered

11. Air barriers in offices - Air barriers were not found to be cost-effective in office simulations despite proving cost-effective in retail spaces. Costs are difficult to quantify, there is limited experience in quantifying benefits, and installation and material costs can vary significantly based on building construction. Air barriers are a requirement of the Oregon Reach code and 2012 International Energy Conservation Code (IECC). It's important to include air barriers in the package from the beginning for consistency. Inclusion will increase potential for mechanical system downsizing, increased market acceptance and associated potential cost decline. An exception is being sought for air barriers based on the following UM 551 criteria:

    - Condition E - Package of measures cannot be changed frequently and measure will be cost effective during period program is offered

12. Fan Static Pressure Reduction - This measure can be achieved in several ways at a wide range of costs. Design-build projects, the target market of this offering, often don't attempt to right-size HVAC equipment and identify ways to minimize fan energy. Providing an incentive will help support system optimization and increase market adoption which will lower the cost of installations over time. It is important to include this in the package from the beginning for consistency. The measure increases the potential for mechanical system downsizing, increased market acceptance and potential cost decline. The following UM 551 exceptions apply to this measure:

[1] Examples provided by Energy Trust show incremental costs ranging from $2.50 to $17.13 per square foot. Differences are due to different heating and cooling sources and differences in contractor mark-ups.

- Condition B - Exception is expected to reduce the cost of the measure
- Condition E - Package of measures cannot be changed frequently and measure will be cost effective during period program is offered

13. Phantom Plug Load Reduction - Phantom plug load reduction costs are variable based on the implementation strategy. As projects move to more innovative and efficient HVAC and lighting designs, plug loads become a larger piece of overall building energy consumption. Phantom plug load reduction devices are also a requirement of the Oregon Reach code and the 2012 IECC. Inclusion of plug load reducers will increase participation in the program by offering an option for an end use not currently covered. The following UM 551 exception conditions apply:

    - Condition B - Exception is expected to reduce the cost of the measure

Party comments:

Parties were invited to weigh in on this docket. Citizens Utility Board (CUB) supports Energy Trust's requests and believes they comply with PUC Order No. 94-590 guidelines for allowed exceptions. CUB suggests that no one is served well by drastically cutting back on existing programs during times of low gas prices. CUB says the requested exception period will allow parties to examine gas price trends and make appropriate program design and financial allocation decisions in response.

Northwest Energy Coalition (NWEC) agrees that Energy Trust's request complies with the guidelines for exceptions under Order No. 94-590 and recommends the Commission affirm the temporary exceptions and duct sealing pilot request in this docket.

Northwest Natural Gas (NW Natural) supports Energy Trust's request and says the two-year period will allow Energy Trust time to study their program design and look for ways to make their programs cost effective. NW Natural suggests that Energy Trust and NW Natural could explore ways to increase their partnership in delivering energy efficiency to customers. NW Natural says they believe this two year time frame may be used to seek clarification from the Legislature on the degree to which the State believes gas utility customers should invest in energy efficiency. NW Natural says that there are energy savings opportunities in its service territory but that with low gas prices, achieving ongoing savings will need to either become part of basic utility service, or creative means for encouraging or investing in savings will need to develop.

Staff assessment

Staff has reviewed in detail Energy Trust's proposal and party comments. Staff suggests that for ceiling, wall and floor insulation, there are potentially significant non-quantifiable non energy benefits associated with comfort, health, and a customer's desire to reduce waste. Therefore, Staff suggests the Commission also take into account UM 551 exceptions condition A (the measure produces significant non-quantifiable non energy benefits) when considering these measures.

The majority of homes in Oregon are heated with gas. Over the years, a substantial market in residential home weatherization has been developed in Oregon. If incentives for gas home weatherization were eliminated due to current low gas prices, the market for weatherization would contract and there would be a significant reduction in the market for contractors. If gas prices go up again, it would take time to re-establish the market for home weatherization. Therefore, UM 551 condition E (programs cannot be changed frequently and may be cost effective over the period of the measures) may also apply to all gas home weatherization measures.

Staff recommends that measure 7 (home solar domestic water heat) also be considered in light of UM 551 condition D (inclusion of the measure helps to increase participation in a cost effective program). Staff notes that, to the extent keeping an incentive for solar domestic hot water will support the viability of the solar thermal industry, retaining the incentive increases access to and participation in solar pool water heat programs which *are* cost effective.

Relative to measures 11 and 13, Staff suggests that because air barriers and phantom plug load reducers are requirements of Oregon Reach Code and the 2012 IECC, UM 551 condition C (consistency with other programs in the region) also applies.

Additionally, relative to all measures impacted by current low gas prices, the Commission may wish to support a general direction of not dismantling programs due to low gas prices that may fluctuate in the future.

In summary, Staff reviewed Energy Trust's proposal and party comments and recommends that the Commission grant two year exceptions for the measures presented and consider these exceptions when evaluating Energy Trust's program cost effectiveness performance measures for 2012 and 2013. Staff feels satisfied UM 551 conditions justify the proposed exceptions. Two years will provide adequate time for Energy Trust to work with trade allies to reduce costs and maximize savings. Two years will provide time for all parties to examine and better understand gas price trends. Meanwhile, the Commission can consider overall energy efficiency program

configuration and strategy going forward, given the most likely price and supply and demand conditions.

PROPOSED COMMISSION MOTION:

Exceptions to cost effectiveness guidelines be granted for two years for the following measures:

- Gas Single family duct sealing prescriptive pilot
- Gas residential ceiling insulation
- Gas residential wall insulation
- Gas residential floor insulation
- Gas residential air sealing
- Gas multi-family boiler replacements
- Home solar domestic water heat
- 0.67 energy factor water heaters
- Manufactured home duct and air sealing
- Gas funded component of Existing Homes program, as a whole
- Radiant heating and cooling in offices
- Air barriers in offices
- Fan static pressure reduction in offices and retail
- Phantom plug load reduction in offices

Additionally, it is recommended the Commission take into consideration these exceptions when evaluating Energy Trust's performance against the PUC's cost effectiveness performance measures for 2012 and 2013.

Attachment A

Gas Weatherization Measures	Benefit Cost Ratio	
	Societal	Utility
Ceiling Insulation	1.2	3.7
Floor insulation	0.6	2.5
Wall insulation	0.7	3.1
Duct Sealing	0.4	0.7
Air Sealing	0.5	1.0
Solar Thermal - Domestic Hot Water	1.0	1.5
Solar Thermal - pool	1.3	5.0
ENERGY STAR 0.67 water heater	0.9	1.0
Manufactured homes duct and air sealing	0.8	0.8

Small commercial new building measures	Benefit Cost Ratio	
	Societal	Utility
Office - Electric - Best package with radiant heat	0.5	3.1
Office - Gas - Best package with radiant heat	0.8	2.1
Retail - fan static pressure reduction	0.9	4.2
Office - Air barriers with electric heating	0.6	3.6
Office - Air barriers with gas heating	0.8	4.5
Office - variable flow supply fans	0.9	11.5
Office - fan static pressure reduction	0.8	3.6
Office - phantom plug load reduction	0.9	2.1