

November 12, 2012

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Public Utility Commission
Attn: Filing Center
550 Capitol Street NE #215
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Salem, Oregon 97308

Re: UM-1622 Filing for Energy Trust Proposal for Cost-Effectiveness
Exceptions- Additional Programs

Attached to this letter, please find a request that the Oregon Public Utility Commission approve temporary cost-effectiveness exceptions for (i) the gas efficiency portions of Energy Trust's New Homes and Products, Existing Buildings, and New Buildings programs, (ii) certain individual gas measures in those programs, and (iii) Commercial and Industrial solar domestic water heating that augments gas water heating.

The attached document outlines how each request relates to the exception criteria to cost effectiveness guidelines established in Commission Order UM 551.

We look forward to your consideration of this matter. Please let me know if you have any questions or need clarification or additional information regarding this request.



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ENERGY TRUST PROPOSAL FOR GAS COST-EFFECTIVENESS EXCEPTIONS- ADDITIONAL PROGRAMS

Introduction

Energy Trust of Oregon requests that the Oregon Public Utility Commission (PUC) grant exceptions to the societal test for certain portions of Energy Trust's efficiency programs. These requests are based on the exceptions provisions of Oregon PUC rule UM-551. This request is in response to new lower forecasts of avoided gas costs that result in many previously cost-effective efficiency programs and measures having societal benefit-cost ratios calculated as less than one.¹

This proposal covers programs and measures not addressed in our previous request, filed under UM-1622, which the Oregon PUC has approved. Specifically, we are proposing that the PUC approve exceptions for:

- Gas efficiency portions of the following programs at the program level:
 - New Homes and Products
 - Existing Buildings and
 - New Buildings,
- Some individual gas measures in those programs, for reasons of market transformation (UM-551 exception criteria B) or leverage of other measures (exception criteria D)
- Commercial and Industrial solar domestic water heating that augments gas water heating- because of opportunities to increase savings/dollar (exception criteria B) and because it helps leverage the cost effective solar programs for gas-heated pools and electric-heated commercial DHW systems (exception criteria D).

The intent of this request is to maximize societal and utility benefits from efficiency programs over the long run by managing the transition to new avoided costs in a way that is strategic, preserves infrastructure, and allows for further improvements in situations where cost-effectiveness can be improved. There is a cross-cutting theme-time will allow us to optimize programs to the new gas price environment, avoid damaging the delivery infrastructure, and retain the flexibility to react to future market or policy changes. Too quick a reaction to the low avoided gas forecast could potentially reduce our ability, in the long run, to deliver cost-effective gas efficiency, and in some cases, electric efficiency in Oregon. We believe that the strategies specified in this request for exceptions will provide the most ratepayer and societal benefits in the long run

¹ For this proposal we are using 2011 Northwest Natural modified Integrated Resource Plan filed avoided cost forecasts for a working estimate of applicable avoided costs. Since IRP does not include avoided cost forecasts past 20 years, for longer-lived measures we are following our established practice of projecting flat real costs after year 20. If final 2012 avoided cost forecasts are significantly higher or lower, further adjustment to programs will be required, and we may ask for different exceptions.

Energy Trust's Analysis to Support This Request

The 2011 Northwest Natural filed 20-year forecast of avoided costs is roughly 45% lower than the earlier forecasts that Energy Trust had been using for planning.

To assess how these lower avoided costs could impact the cost effectiveness of the gas portion of each program, we recreated our 2011 annual BCR gas calculations with the new avoided costs. The costs used in this program-level analysis include:

- the cost of measures for the societal test, or
- the incentive for the utility test,

Both tests also include program management and allocated administrative costs.

We are also reviewing all measures individually to assess cost-effectiveness. The costs used in the measure-level analysis include:

- the cost of the measure (for the societal test) or
- the incentive (for the utility test)

Program management and administrative costs are not included, because programs are generally not reliant on a single measure.

The review of individual measures is an extensive task which has not been completed. However, we have included in this memo analysis and recommendations for commercial solar water heat and for new homes Builder Options Packages. Where available, we have also included observations about the patterns of measures passing or not passing tests for other programs.

Implications of Lower Gas Avoided Cost Forecasts

Even with the lower avoided cost forecasts, there is significant cost-effective gas efficiency potential. However, if we limited our efforts to gas programs and measures that would pass the societal test without consideration of the exceptions clauses of Oregon PUC order UM-551, the volume of gas program savings would shrink considerably.

Potential impacts if the societal test is applied without consideration of exceptions are summarized below:

Production Efficiency and Efficient Home Products Program: the impact is nominal. The programs and most measures are still cost-effective.

Existing Buildings Program:

- Program as a whole: Without program changes, the societal B/C ratio for the gas program in 2013 would be slightly above or below 1, depending on a number of assumptions. The program does pass the utility system test.
- Measures: The following measures now do not appear to be cost-effective on a site-by-site basis:
 - Custom controls and custom boilers at some sites
 - Economizer retrofits on small unitary systems
 - Roof insulation at some sites
 - Custom HVAC at some sites
 - Some prescriptive cooking and water heating measures.

These measures provided about 15% of program gas savings in 2011. Measures with a societal B/C of .7 or less constitute about a 5% reduction in program savings.

New Buildings Program:

- Program as a whole: The gas portion of the program would not pass the societal test (benefit/cost ratio of .7) but would pass the utility system test (cost/benefit ratio of 1.6).
- Measures: Some custom gas measures do not pass the societal test. This is the second largest source of gas savings after LEED² projects, which are cost effective. Other measures that may not pass include: unit heaters, demand control ventilation, condensing furnaces, and clothes washers, all measures that serve the small commercial new construction market. These small commercial measures represent many projects, but a small portion of overall program gas savings. A deeper detailed look at this last class of measures is needed before we draw conclusions.
- More measures may fail the societal test in 2013 because of the impacts of the new code, which increases the baseline level of efficiency.

New Homes and Products Program: The gas program as a whole would pass the societal and utility tests on the basis of one year of cost and savings, but key measures, include gas Builder Option Packages, and an efficient gas water heater for new homes would not.

Solar thermal for Business Domestic Hot Water: Solar thermal is interspersed into other programs, but has common economics issues. Pool heaters are within rounding of a societal benefit/cost ratio of 1. Solar domestic hot water does not pass the societal test, with a ratio of .9.

PUC Policy

Oregon PUC Docket UM-551, Order 94-590 provides a number of situations where the PUC may make exception criteria to the standard societal test calculation³:

- 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 programs 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

² The US Green Building Council's Leadership in Energy and Environmental Design process. In this program track Energy Trust awards incentives based on the building's rating through this process, focusing on those LEED points which are based on energy efficiency

³ OPUC UM551 (OR 94-590) Section 13

Proposal in Summary

This section summarizes Energy Trust's proposal, including exceptions requested, and Energy Trust's commitment to further analysis and program improvements. The proposed program improvements will enhance the programs' benefit/cost performance and will also further clarify where exceptions for market transformation may be appropriate on a longer-term basis. Details follow in the next section.

Overall this proposal is designed to provide value based on the societal test consistent with the exceptions criteria of UM-551. The impacts of the new lower avoided cost forecasts vary considerably by program, as does the potential for market transformation, and the interdependence between gas and electric efficiency programs. For these reasons, the specifics of the proposal vary by program.

We suggest that the PUC approve the exceptions detailed below:

1. *New Buildings-*

- a. **Program Level Cost-Effectiveness: We propose that the Oregon PUC make exceptions, consistent with UM-551 exception criteria B, for the gas portion of the new buildings program as a whole.** The gas program is not cost-effective on a single-year basis but by influencing market practices and codes and standards, the program is likely to be cost-effective over many years. -
- b. **Measure-Level Cost-Effectiveness: We propose that the Oregon PUC make an exception consistent with UM-551 exception criteria B and D,⁴ for all gas measures in the New Buildings program.** Energy trust will conduct a detailed measure-by-measure assessment to see if each important efficiency measures could be cost-effective with market transformation or with other program changes or if other UM-551 exceptions apply. We will sunset efficiency measures where, after study, we conclude that an exception is not warranted.

2. **New Homes- Measure Level Cost-Effectiveness. We propose that the Oregon PUC make exceptions consistent with UM-551 exception criteria B and D,⁵ for the gas Builder Option Packages and the ENERGY STAR (Energy Factor > .67) tank water heater for new homes.** Energy Trust will review each package to see if each important efficiency measures could be cost-effective with market transformation or with other program changes or if other UM-551 exception criteria apply. We will sunset efficiency measures where, after study, we conclude that an exception is not warranted.

3. *Existing Buildings-*

⁴ We suggest criteria D because the gas side of the new buildings programs helps leverage electric savings, since the program is more appealing to the developer and more efficient to run if it considers both fuels.⁵ We suggest criteria D because the gas aspects of the new homes program help leverage electric savings, since there are both electric and gas measures in gas heated homes and because it is difficult to run the heating aspects of a program solely for the minority of homes which are electrically heated.

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- a. Program-Level Cost-Effectiveness.** : We propose that the Oregon PUC make exceptions, consistent with UM-551 exception criteria B, for the gas portion of the existing buildings program as a whole. Energy Trust believes that we can bring the program to cost-effectiveness over the two-year period 2013-14.
 - b. Measure-Level Cost-Effectiveness: For Existing Buildings, we propose that the Oregon PUC make an exception for gas measures with B/C ratios of .7 or higher, consistent with UM-551 exception criteria B.** Energy Trust will examine measures with a B/C ratio between .7 and 1 to develop methods to lower cost, increase savings, or transform the markets or if other UM-551 exceptions apply. We propose discontinuing measures with a B/C ratio of less than .7 because of the more limited prospects for market transformation that these measure would have in the existing buildings market.
4. **Solar water heat that meets Domestic Hot Water Needs in Commercial and Industrial Facilities.** For this measure, we propose that the Oregon PUC make an exception consistent with UM-551 exception criteria D. Solar water heating for domestic hot water helps leverage Energy Trust engagement in the LEED program for new buildings, which is a tool for advanced building efficiency in new buildings. It also helps leverage pool solar water heat, and simplifies marketing of solar for displacing electric water heat. Energy Trust proposes to reduce incentive offerings to pass the utility test in 2013, employ a screen to eliminate extreme high-cost projects. Even with these changes, it will be difficult to get solar for displacing gas domestic hot water to pass the societal test, but the other benefits described above will accrue at lower cost.

Supporting Actions by Energy Trust to Improve Cost-Effectiveness

To help programs with the societal test, **Energy Trust will explore ways to reduce program delivery costs.** We will reduce Energy Trust internal costs and contracted costs through productivity improvements, particularly through process automation, but also through review of the activity of each department through the budget process. This process is reflected in the draft 2013 budget.

We will enact changes as described in this memo over the course of 2013 and 2014 calendar years. Impacts on cost and savings will be somewhat delayed as projects based on prior commitments are completed. The impact of changes will be slowest for New Buildings, where the time between project approval and construction completion is sometimes three years. Energy Trust will report on its progress in improving cost-effectiveness in summer of 2014 as part of planning for 2015 budgets

Energy Trust plans to fulfill all contracted commitments to energy users for incentives for projects. This may include some commitments to new building construction and large building retrofit that are not completed until 2014 or 2015. It is not atypical for large construction projects to occur over 3 or more years. The primary reason is to avoid expensive legal issues and market-damaging loss of working relationships.

Energy Trust will adjust incentives so all measures pass the utility test. This is an issue for a small number of measures.

Additional Details of the Proposal

New Buildings

Explanation of the Program

The primary objective for New Buildings is to achieve far reaching market transformation using a variety of mechanisms – including incentives, best practices, and energy code changes. The program coordinates with NEEA to influence code upgrades for efficiency improvements where the program helps create market acceptance⁶. The program continuously creates far greater savings than specific project measures for which savings are claimed. Through successive code cycles, the savings amount to a large percentage of the prospective energy use from all new buildings.

The timing of this benefit is driven by Oregon Building Codes and Federal code and standard upgrade cycles, and by cycles in the new construction market. Once measures are in code and codes are enforced, they become standard practice and the price for many measures plummets, thus lowering the societal cost.

Process for Program Performance Improvement

- **New Prescriptive Measures.** Beginning immediately all new prescriptive incentives will be reviewed with the new avoided cost assumptions. Measures that on the surface do not appear cost-effective, but appear to be eligible for UM-551 exceptions, will be considered through the current PUC/Energy Trust procedures or modified procedures as agreed between PUC and Energy Trust.
- **New Custom Projects.** Starting January 1, 2013 all new custom projects will be reviewed with the new avoided cost assumptions. We will develop an analysis of whether classes of custom projects meet criteria for UM-551 exceptions. This will also be considered through the same procedures as above.
- **Existing Prescriptive Measures.** We will review all existing prescriptive measures over the course of 2013 and 2014 and continue only those measures which are cost-effective either on a site-by-site basis or potentially cost-effective if markets are successfully transformed, or if other UM-551 criteria apply. These will be considered through the same procedures as above.
- Energy Trust will work to minimize program delivery and administrative cost in the interests of improving the societal benefit/cost ratio for the program as a whole.
- If warranted by the analyses described above, we will propose measure-specific UM-551 exceptions using established procedures.

New Homes and Efficient Home Products

⁶ NEEA is funded to achieve electric market transformation, but since work on new buildings requires a focus on all measures, Energy Trust's and NEEA's efforts also impact gas aspects of building energy codes.

Explanation of the Program

Savings in the gas part of the new homes program results primarily from incentives based on an Energy Performance Score (EPS), which is based on typical performance of homes with various features. While the EPS system provides incentives for a wide variety of efficiency strategies, most homes install one of a series of measure bundles called Builder Option Packages (BOPs). These are packages of electric and gas measures which qualify the home for ENERGY STAR certification. They are a consistent element of the region's new homes programs. Because ENERGY STAR certification is contingent on installing an entire bundle of measures pre-approved by the US Environmental Protection Agency, and that certification is critical to our program marketing, our cost-effectiveness analysis of measures is based on these bundles taken each as a whole. There are also incentives for single measures, for builders who don't want to install the entire package, including the ENERGY STAR gas water heater. These measures receive separate cost-effectiveness screening. Because it is impractical to separately screen every individual home that receives an EPS, the cost-effectiveness analysis of the BOPs is used to qualify the entire Energy Performance Score system as cost-effective.

Status

Some of the gas heat BOPs with more advanced savings did not pass the societal test prior to the recent reduction in forecasts of avoided costs. Because most gas heat BOPs appeared to pass the societal test, including the most popular ones, and costs are expected to come down as markets transform, we allowed the more advanced BOPs in the program. The societal benefit cost ratios prior to the change in avoided costs ranged from .7 to 1.4 for various gas BOPs.⁷ The utility benefit-cost ratios ranged from 1.9 to 3.0.

We have not yet performed an extensive revised benefit/cost analysis for each of the gas BOPs with the new avoided costs. With the update in gas avoided costs, the societal benefit-cost ratios for these packages will be reduced, but by less than 45% drop in value. This lesser decrease is because the packages include both electric and gas measures. We are confident that each BOP passes the utility system test with the new avoided costs.

The market success of the electric new homes program is dependent on having an effective gas program. This is because many of the electricity-saving measures are in homes with gas heat. The existence of a dual fuel program is also important for sharing the operating cost and keeping the program management affordable.

The ENERGY STAR water heater in question is a market transformation target for the ENERGY TRUST. There is limited experience and cost information for this technology for new homes. We have experienced a range of costs for replacement units in existing homes, which provides us with significant

⁷ Two more experimental high-performance BOPs were included as a pilot to encourage innovative housing design. On paper, the B/C ratios for these homes are lower, but the costs and savings are largely unknown. We will learn more about these paths based on this experiment.

hopes that costs will, on average, decline. The PUC has already approved a cost-effectiveness exception for this measure in existing homes. The rationale for new and existing homes is identical.

Process for Program Performance Improvement

- Similar to new buildings,

Existing Buildings

Status: The existing buildings program is not primarily a market transformation program. However, we believe that we can increase savings per dollar expended for this program through a variety of economies in program delivery, in support services, and in promoting lower costs for some measures. For this program only, we propose cutting some measures starting January 2013- those with a societal B/C ratio based on the new avoided costs of .7 or less. This reflects the unlikelihood that those measures could be delivered cost-effectively without a major increase in avoided costs. As noted, these measures constitute roughly 5% of program savings and should not have a major impact on the programs goals or infrastructure. These reductions will also help improve the program cost-effectiveness. The number .7 was chosen as a rough indicator of measures that would require a major change in cost and savings to pass.

In 2013 and 2014 we will examine the classes of measures with societal cost-benefit ratios between .7 and 1. We will continue those with market transformation potential, or where we think the price can be reduced sufficiently to make them cost-effective or where another UM-551 exception applies. We will discontinue the others.

Solar Domestic Hot Water That Reduces Gas Use for Domestic Hot Water in Commercial and Industrial Buildings

Status

Based on 2011 avoided costs compared to 2011 project costs and savings, solar domestic hot water for business buildings with gas water heat does not appear to pass the societal cost effectiveness (B/C = .9). This is a result of two factors:

- Average system costs for solar systems have increased over the last several years, where Energy Trust's market transformation forecast for this technology predicted a decrease.
- Reduced forecasts for gas avoided costs.

Energy Trust, has, with PUC approval, employed a proxy to reflect the non-energy benefits of solar water heat. The proxy has been employed, and the measure still does not pass the societal test. Decreases in measure cost would not make the measure pass the societal test, because they would also decrease the value of the proxy for non-energy benefits.. This is because the proxy is based on what the customer pays.

Energy Trust has recently implemented changes in eligible equipment and in quality control procedures. Together these could potentially lower system cost by perhaps 10-15%. However, for reasons discussed above, these will not render the program societally cost-effective with the new avoided cost forecast. Without much higher avoided cost forecasts or Energy Trust adjusting incentives down so as to be insignificant, this measure will not pass the societal test.

With the updated avoided cost forecast, current incentives of \$8 per therm, do not pass the utility system test either.

Proposal

Energy Trust requests that this measure be granted an exception from the societal test requirements in UM-551, for the two years 2013 and 2014 for these reasons:

- There are short-term opportunities to improve the cost performance of this technology which, while not large enough to render the measure cost-effective, may have spillover benefits-influencing the cost of systems commonly sold in Oregon outside of Energy Trust's programs. (UM-551 exception criteria B).
- The solar domestic hot water measure helps support the market for the solar pool measure in the market (UM-551 exception criteria D).
- Solar hot water is an integral part of the process for some buildings to attain LEED certification. That is a major motivator for developers to work with Energy Trust to achieve advanced efficiency levels in our New Buildings program. (UM-551 exception criteria B),
- The status of solar thermal could be impacted by changes in state tax credit policy, or a legislative decision to define solar DHW as a renewable measure in SB1149, or changes to the PUC's cost-effectiveness policy could change the status of this measure. Given these possibilities, we think that it makes sense to limit the disruption to the market for solar water heat at this time. The reduction in incentives (to conform to the utility cost test) may significantly reduce the market, but eliminating incentives for gas domestic hot water systems would have a greater impact.
- The reduced incentive proposed below could send a signal to the market to focus on high-value applications (e.g., commercial laundries or breweries or restaurants with constant need for hot water over many hours), and thus improve cost-effectiveness (UM551 exception criteria B).
- Avoided cost forecasts are historically volatile. While avoided costs would need to nearly double to render this measure cost-effective, a higher avoided cost in combination with other factors would help.

Process for Program Improvement

Energy Trust will adjust residential and commercial system incentives downward to approximately \$4.70 per therm⁸ so the measure passes the utility system test. We will also screen commercial solar DHW as a custom measure to eliminate high-cost systems based on cost and savings for the specific system. This

⁸This incentive may vary based on final determinations of avoided cost effective January 1, 2013

will allow Energy Trust to develop a threshold for “high cost” systems, and refuse funding beyond a given cost per therm or similar threshold (to be determined).

These changes will reduce dollars spent on solar hot water and increase savings per dollar, although not enough that the measure will pass the societal test.

We also propose to retain our design assistance services for commercial new construction projects that incorporate solar.