# Board Decision
# Amending Cost-Effectiveness Policy

February 13, 2008

## Summary

Amend the Energy Trust cost-effectiveness policy to approve the use of a 5.2 percent discount rate in Energy Trust analysis.

## Background

- For several months, staff has been discussing avoided costs, levelized costs, discount rate, and other factors with the Oregon Public Utility Commission (OPUC) staff and utilities. Some of these factors are still under discussion, but we think we have reached a reasonable resolution of the discount rate.

- Essentially, discount rates allow us to compare the value of energy resources with different lives and costs over time.

- For example, most of the cost of energy efficiency is paid at the time of installation. In contrast, the cost of fuel for a gas-fired power plant is paid each year as it is used. If the same discount is used to calculate the value of the two equal investments over time, energy efficiency will look artificially low because more of its cost is discounted over a shorter time period. However the energy efficiency measure's benefit is a function of the savings over the life of the measure and the associated avoided costs.

- Energy Trust calculations qualify measures and programs for funding and evaluate success. Energy Trust has used a low 3% discount rate to estimate the cost of efficiency over time. Utilities, in contrast, use higher discount rates for efficiency and other resource options. While each utility uses a slightly different rate, they are all close to 5.2%.

- When Energy Trust and utilities use different discount rates, the OPUC and utilities have a hard time evaluating efficiency costs compared to other resources in integrated resource planning.

- The problem becomes more significant with the passage of the Oregon Renewable Energy Act, which authorizes the utilities to seek supplemental efficiency funds. The OPUC intends to evaluate those filings using IRP data and analysis.

- Because a higher discount rate makes efficiency investments look more expensive, a higher rate could reduce Energy Trust programs if the OPUC did not raise the levelized cost performance measure it uses to evaluate Energy Trust efficiency programs.

## Analysis

- In our discussions with the OPUC staff and utilities, we agreed on a 5.2% (real) discount rate, which is higher than Energy Trust's 3% and lower than utility rates in IRP. We have also reached consensus on new avoided costs for both gas and electric programs to be used by ETO in program and measure screening and reporting of savings. Both the proposed new discount rate of 5.2% and the new avoided costs are now more in line with those used by the utilities for IRP purposes.

- Using a 5.2% discount rate makes a relatively small difference for Energy Trust measures with shorter lives (like compact fluorescent bulbs), and more for measures with longer lives (like insulation). Even with a higher discount rate, the new avoided costs are higher than those we use now, which means that most efficiency programs are more highly valued. The only exceptions are certain long-lived gas measures

- We have reached agreement with OPUC staff and utilities regarding changes to other economic inputs to benefit/cost and levelized cost calculations (including avoided fuel and construction costs, savings from avoided transmission and distribution construction, avoided power delivery, CO2 benefits, the 10% conservation advantage from the regional power act, and hedge value of efficiency). These will result in higher avoided utility system and societal costs, which are likely to make efficiency measures more cost-effective. The net result is that with all the proposed changes, including the discount rate, all electric measures have higher benefit-cost ratios. Gas measures also have higher benefit-cost ratios except for those with long (45 or 70 year) lives. All current programs and measures still pass the cost-effectiveness test.

- We are still discussing OPUC performance measures. OPUC staff understands that we need higher levelized cost performance measures to develop more aggressive programs. Staff has every expectation that the OPUC will increase the levelized cost performance measures, which should make efficiency programs more attractive.

- Revising the cost-effectiveness policy to adopt a 5.2% discount rate would allow us to use the new avoided costs to analyze new measures and initiatives and work on new supply curves. If we wait for agreement on performance measures, we would have to informally calculate values using the new assumptions and use the old values in formal communications and stakeholder discussions, which would be confusing.

## Recommendation

Amend the cost-effectiveness policy to incorporate a 5.2% discount rate, by adopting resolution number 464. The proposed amendment was favorably reviewed by the Policy Committee in January, 2008.

# RESOLUTION #464

## APPROVING AMENDMENTS TO THE ENERGY TRUST COST EFFECTIVENESS POLICY

**WHEREAS:**

1. **Energy Trust uses a three percent discount rate to evaluate efficiency programs for purposes of analyzing new measures and initiatives, developing supply curves and reporting on results. Utilities, in contrast, use higher discount rates for efficiency and other resource options.**
2. **When Energy Trust and utilities use different discount rates, the OPUC has a hard time evaluating efficiency costs compared to other resources in integrated resource planning. The problem becomes more significant with the passage of the Oregon Renewable Energy Act, which authorizes the utilities to seek supplemental efficiency funds. The OPUC intends to evaluate those filings using IRP data and analysis.**
3. **Energy Trust has discussed discount rate with OPUC and utility staffs in the context of other factors that affect the avoided cost of resource, factors such as avoided fuel and construction costs, savings from avoided transmission and distribution construction, avoided power delivery, CO2 benefits, the 10% conservation advantage from the regional power act, and hedge value of efficiency.**
4. **Energy Trust has communicated to the OPUC the importance of increasing the levelized cost performance measure that the OPUC uses to evaluate Energy Trust program performance. Without such an increase, using a higher discount rate could prejudice Energy Trust programs.**
5. **Assuming a higher levelized cost performance measure and considering the other avoided cost factors mentioned above, increasing the discount rate Energy Trust uses to qualify and evaluate measures and programs to 5.2% should not have a significant effect on Energy Trust programs.**

**THEREFORE, the Energy Trust of Oregon, Inc. board of directors amends the Energy Trust cost-effectiveness policy as follows:**

# 4.06.000-P Cost-Effectiveness Policy and General Methodology for the Energy Trust of Oregon

| History | | | |
|---|---|---|---|
| Source | Date | Action/Notes | Next Review Date |
| Board Decision | February 27, 2002 | Approved (R83) | March 22, 2002 |
| Board | March 22, 2002 | Reviewed, Revised | April 3, 2002 |
| Board | April 3, 2002 | Reviewed, Revised (Minutes) | April 2005 |
| Board | September 7, 2005 | Revised (R353) | September 2008 |
| Board | February 13, 2008 | Revised (R464) | February 2011 |

### *Introduction*

The Energy Trust of Oregon seeks a future that includes sufficient, stable, and affordable power available to all customers through sustained investment in energy efficiency and renewable resources that reduce the economic and environmental costs of using gas and electricity. To properly evaluate such investments, the Energy Trust of Oregon (Trust) evaluates energy saving projects and measures and analyzes how to compare their economic cost compares to alternative sources of gas and electric energy. In the past the Oregon Public Utility Commission (OPUC), the Northwest Power and Conservation Council (NWPPCC) and the Northwest Energy Efficiency Alliance (Alliance) have all used similar approaches and assumptions to analyze the cost-effectiveness of energy efficiency investments. This policy encompasses three generic perspectives – Consumer, Utility System, and Societal. It describes the key variables or economic model inputs that define these perspectives and allow the analyst to compare the cost of energy efficiency to conventional sources of gas and electrical energy.

### *Policy*

The Energy Trust of Oregon adopts the Utility and Societal perspectives, as described below, as its primary perspectives for evaluating energy efficiency projects. It will also use the utility-system perspective as an additional tool to assure that the kWh saved per dollar invested by the Trust is reasonable. The Consumer perspective is used to help design projects.

The societal cost definition is in alignment with the OPUC docket no. UM-551's definition of Total Resource Cost (Societal) perspective as including total costs and total benefits in cost effectiveness calculations. The following costs will be included in the societal perspective:

1. Trust incentives paid to the participant
2. Trust administrative costs
3. Monitoring, evaluation and non-incentive costs of PMCs and Energy Trust staff
4. Oregon and local government administrative costs associated with incentives
5. The participants remaining out-of-pocket costs for the installed cost of the measures

The cost of tax credits to the State of Oregon will not be included, because they are considered to be a transfer, not a net cost to society. However, to the extent that they are significant, the administrative costs of those tax credits will be considered.

The Energy Trust will include the following benefits:

1. the value of the electrical and/or gas energy saved based on (1) the Regional Technical Forum long-term forecast of wholesale market prices for electricity and (2) the NW Natural gas price forecast for gas, as long as it is reasonably consistent with the Regional Technical Forum forecast of gas prices for power plant fuel.
2. non-energy benefits as quantified by a reasonable and practical method and described in situations where they cannot practically be quantified
3. for electricity, bulk system transmission capacity benefits (both line loss and avoided transmission construction.
4. for electricity, transmission and distribution benefits, both line losses and avoided Transmission and Distribution construction.
5. natural gas capacity benefits are of a lesser magnitude and difficult to quantify, so the Energy Trust will not quantify them. Natural gas delivery loss benefits are also modest in magnitude. Local delivery losses will be considered to the extent that they are included in NW Natural price forecasts. Gas transmission losses are difficult to quantify and will be described.

In addition, the Energy Trust will apply in its analysis the 10% credit for energy efficiency as required under the Northwest Power Act and OPUC docket no. UM-551. This credit recognizes the benefits of conservation in addressing risk and uncertainty.

Both the Power Act and OPUC docket no. UM-551 also suggest consideration of external costs such as environmental costs associated with air pollution. The Trust will initially use a credit of $15.00 per ton of carbon dioxide and will update that figure as information improves.

### *Methodology*

The following additional decisions have been made about implementation of this policy:

- For the near-term, the Pro-cost model, using marginal costs from the Aurora model, will be used to analyze the costs and savings of efficiency programs. The selection and specifics of these tools will be updated as time, resources, and opportunities permit to maximize transparency, time-dependent variations in resource value, and reasonableness.
- The Energy Trust of Oregon will adopt a 3% discount rate for comparing the costs and benefits of efficiency investments to other investments.
- The Energy Trust of Oregon will develop estimates of line losses specific to Oregon based on prior utility filings if this provides an improvement over Regional Technical Forum estimates, and then update these with better information when it is available.

The Energy Trust of Oregon will investigate the use of data from prior PGE and PacifiCorp filings to enhance estimates used by the RTF for avoided transmission and distribution costs attributable to efficiency measures. The Energy Trust of Oregon will work over the next several months with PGE, PacifiCorp, the NWPPC, and others to improve these estimates.

The economic comparison will be presented as a benefit-to-cost ratio except for the consumer perspective that (for reference) will be presented as a two simple payback, one with non-electric benefits and one without non-electric benefits. The final decision on cost effectiveness will be based on the benefit-to-cost ratio for the Societal and Utility System perspectives (must pass both if data permits use of both) over the appropriate project period along with description and Board consideration of non-quantified costs and benefits. The Energy Trust will

also consider other factors in selecting programs, as specified in the various strategic and action planning documents of the Energy Trust.

The cost-effectiveness analysis will include impact on the action of customers who do not directly participate and long term market effects (e.g., impact on long-term price, sales, or efficacy of efficient technologies beyond the direct program participants) for projects where such effects are a significant and likely result.

In conclusion, an Energy Trust project should be reviewed from both the Utility system and the Societal perspectives, and if the Societal benefit-to-cost ratio is greater than 1.0, it should be considered cost effective.

Moved by: Seconded by:

Vote: In favor: Abstained:

Opposed: [list name(s) and, if requested, reason for "no" vote]