

Non-energy Benefits Factoring into Cost-Effectiveness Formulas for Energy Trust of Oregon

April 1, 2021

Energy Trust of Oregon has invested in understanding quantifiable benefits of energy efficiency beyond energy savings, or non-energy benefits. This has been done both directly and through co-funding the NW Power and Conservation Council's Regional Technical Forum. We actively seek further exploration of benefits which can be quantified, and are available to help inform discussions with the Oregon Public Utility Commission (OPUC) and interested stakeholders about possible non-energy benefits to research and/or apply.

Non-energy benefits quantified and in use

- Water saving for water that would go through a water treatment system (staff apply the water rate value for residential customers with well/septic, too)*
- Water savings for some irrigation canal piping projects (savings from reduced evaporation, leakage, spill at the end for canals; these projects have renewable and efficiency measures)
- Fuel savings from wood, propane, fuel oil (these can be negative or positive values)*
- Comfort from adding cooling to a site*
- Reduced cost for replacement bulbs and labor due to the longer measure life of LEDs over the lights they replace in commercial and industrial settings
- Warranties that are longer for efficient equipment than for less efficient alternatives*
- Productivity benefits from industrial and agricultural measures that accelerate processes in predictable ways (labor savings, inverter welders have less clean-up time, certain irrigation measures improve crop yields, pump maintenance savings, custom process improvements)
- Avoided or reduced fines from emissions violations (custom industrial; not yet used but could be if applicable)

Non-energy benefits not currently quantified but could be considered by Energy Trust

Energy Trust proposes to research the following over the next five years:

- Health improvements and related cost savings from weatherization or improved temperature control in at a site*
 - This might include fewer hospital visits, reduced use of medications and/or fewer missed days of work. A lot of research is coming together but it is mostly about low-income programs with different processes and activities from Energy Trust's programs. Energy Trust will look for ways to apply the data to things we can do.
- Impact of efficiency programs on late utility payments and utility debt load*
 - Based on initial work we expect the numerical impact to be modest. However, debt has a profound corrosive influence on the quality of life and prospects of households with limited financial means. Our intent is to quantify the direct financial impact and describe the rest.
- Floorspace savings from efficient equipment that takes less floorspace than standard equipment*
 - For example, tankless water heaters save about three square feet of basement or closet space compared to standard tank water heaters; note the OPUC has said no to this potential NEB in the past

*Relevant to the residential sector

Energy Trust is considering the following but has not committed to researching at this time:

- Fire prevention from reducing use of fireplaces and baseboard heaters*
 - This was quantified for ductless heat pumps; the benefit was too small to make a difference
- Water savings for untreated water (standard irrigation)
- Outdoor air quality*
 - The Regional Technical Forum produced a methodology which could be used to provide customized values by county, but the variance is so great that creating a single estimate for Oregon is not meaningful, and the work to customize by county is significant. To date this has also been considered a societal value and beyond the parameters of the cost-effectiveness test because the benefits are not to ratepayers or the utility, but to the general public.
- Resilience*
- Customer interest or willingness/eagerness to pay for equipment or homes*
 - Note the OPUC has said no in the past regarding solar thermal water heat
 - This may overlap with benefits already counted
- Avoided or accelerated future home upgrades*
 - For example, adding or re-sizing gas lines or electrical capacity, constructing a site to be solar ready
- Making homes or businesses more ready for future integration with utility demand control programs*
 - For example, a water heater data port included in factory-shipped units

Non-energy benefits not currently quantified but could be considered by the OPUC

NEBs that are frequently suggested but are likely not quantifiable. These may be more suitable as considerations for measure-level cost-effectiveness exceptions.

- Comfort in general*
- Noise reduction from quieter equipment or weatherization*
 - Individuals place very different values on this
- Other workplace productivity benefits
- Educational achievement (better grades/learning in comfortable/healthy schools)
 - There is data for schools, unknown for homes, the data would be complex to apply
- Impressing your neighbors or status upgrade from new “modern” or “green” equipment*

Non-energy benefits of high interest by stakeholders that are either not suitable to the traditional cost-effectiveness framework or are already incorporated in some manner

- Load shifting
 - This is addressed by valuing power differently at different times in our current framework
- Increased property values or rental values
 - Since power and gas cost savings are already in the analysis, and that's one driver of these values, this is at least partially redundant. Another perspective: it benefits the current owner, but hurts future owners or renters
- Increased local property taxes from increased property value
 - Seems like a transfer of government gains at the expense of participant loss
- Any NEBs that a co-funder is pursuing with their dollars
 - They are already accounted for in the incremental cost term of the Total Resource Cost test and would be double counting if defined as an NEB

*Relevant to the residential sector