OPUC Report on Energy Efficiency Power Purchase Agreements

November 30, 2012

Chapter 1 - Introduction

The 2011 Oregon State Legislature enacted Section 6 of HB 2960 which directed the Oregon Public Utility Commission (OPUC or Commission) to submit a report on energy efficiency power purchase agreements by December 1, 2012. The report must address:

(a) The feasibility of energy efficiency power purchase agreements;
(b) The cost effectiveness of packaging energy efficiency investments for sale to public utilities as the equivalent of new energy generation facilities;
(c) The potential avoided costs to ratepayers of energy efficiency power purchase agreements; and
(d) The most effective means of maximizing energy efficiency achieved from energy efficiency power purchase agreements through monitoring and verification.

On March 28, 2012, the Commission opened an investigation to gather information and comments about energy efficiency power purchase agreements (Docket UM 1573). On April 5, 2012, the Commission held a daylong workshop with national and regional experts to discuss energy efficiency power purchase agreements. Additionally, extensive surveys were sent out and the Commission sought comments from interested parties on two previous drafts of this report.

This report is organized into the following chapters:

1. Introduction
2. What is an Energy Efficiency Power Purchase Agreement?
3. Feasibility
4. Cost Effectiveness
5. Monitoring and Verification
6. Avoided Costs
7. How Much to Pay for Efficiency
8. Ongoing Developments
Chapter 2 - What is an Energy Efficiency Power Purchase Agreement?

An energy efficiency power purchase agreement (EE PPA) is a method for paying for electricity or natural gas savings. It is an ongoing payment from a utility, or from an entity like the Energy Trust of Oregon, on behalf of a utility, intended to achieve sustained savings from energy conservation measures. The payments may extend for many years. The distinguishing features of an EE PPA are that payments are made over time (e.g. annual payments for annual savings) and payments are tied to savings achieved, however measured. An EE PPA is a contractual arrangement between a utility and a customer or third-party service provider.

Although they involve energy savings rather than power generation, the structure of an EE PPA resembles payments made under the feed-in tariff for the ongoing production from solar systems. It also resembles payments made by utilities to qualifying facilities under Public Utility Regulatory Policies Act (PURPA). Important distinctions, however, are that for PURPA projects electric utilities are mandated by federal law to purchase the output from qualifying facilities at a specified cost. EE PPAs, on the other hand, would be voluntary, and there would be no set price for savings. Chapter 7 addresses considerations for how much to pay for efficiency under an EE PPA.

An EE PPA is not a grant, cash incentive, rebate, loan, shared-savings agreement, or any other form of payment for energy savings. Appendix A contains a brief summary of these other non-EE PPA energy efficiency payment options.

There can be variants of an EE PPA. Payments from a utility (or Energy Trust) can be made directly to customers installing measures, or they can be made to a third-party intermediary who has a separate arrangement with a customer. In this report, the third-party intermediary is called an energy services provider (ESP). An EE PPA can be tied to financing or not. If financing is included, it can come from an ESP, from the utility itself, from a bank or financial institution, or from an entity like the Energy Trust that is acquiring efficiency on behalf of a utility. Although financing can be included in an EE PPA, it is not a distinct feature of an EE PPA itself. An EE PPA is the arrangement by the utility or its agent for the specific purchase of efficiency savings.

EE PPAs will tend to have higher than normal requirements for verifying that savings are occurring and for estimating the amount of savings. This is because the utility will be paying for each kWh saved and will rely on those savings for purposes of serving load.

Appendix B contains a summary of a specific variant of an EE PPA proposed by EnergyRM that is being discussed in Oregon and the Northwest. It has unique features beyond basic payment for savings, such as providing financing, billing the customer for savings, and a lease payment from the ESP back to the customer.

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1 Oregon Revised Statute (ORS) 757.365
Under current law, all transactions between an ESP and a customer (and between an ESP and a utility) would be voluntary. The utility would need to file a tariff with the OPUC for an EE PPA program. The Commission cannot order a utility to enter into an EE PPA.\(^2\)

**Use of EE PPAs**

From the mid-90s through the early 2000s, a number of U.S. electric utilities offered EE PPAs to reduce energy consumption through demand-side management (DSM) bidding programs or standard offer programs. While EE PPAs have been used by U.S. electric utilities, they have not yet been used by utilities that serve only natural gas customers.

In DSM bidding, the utility solicits competitive bids from contractors, energy service companies (ESCOs), or customers to provide energy savings at a specified price for a fixed period of time and for a specified market and/or area. The winning bidders are paid based on the savings achieved. The utility negotiates a multi-year contract with winning bidders that indicates the size of contract (MWh or MW savings goal), the time period over which savings from customers must be acquired, the payment schedule, how savings will be verified, target markets (e.g. commercial buildings in a given geographic area), allowable measures (e.g. comprehensive projects only), and consequences for failure to meet contract terms (e.g. penalties for non-performance).

According to Lawrence Berkeley National Labs, about 40 utilities have implemented DSM bidding programs. The majority of those were implemented in the 1990s.

In standard offer programs, the utility offers a set price per kilowatt-hour for every unit of energy that customers or ESCOs can document as saved. “Standard offer” is just one of many names given to these programs. Others include “performance contracting” and “pay-for-performance.”\(^3\) Multiple prices can be offered for different sources of savings (i.e., different prices for lighting, heating and cooling, etc.).

One example is Public Service Electric and Gas’s (PSE&G) standard offer program in New Jersey in the 1990s. PSE&G offered contracts to participating customers or ESCOs. They made payments for energy savings over a 5- to 15-year time horizon. Payments varied depending on the measures installed.

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\(^2\) Electric utilities are expressly required by statute to collect a surcharge from their retail customers to fund the “public purpose expenditure standard.” (ORS 757.612(2)). The monies generated by the public purpose surcharge may be used to fund new cost-effective local energy conservation, the above-market costs of new renewable energy resources, and low-income weatherization (ORS 757.612(1)). In contrast, unlike the public purpose surcharge set forth in ORS 757.612, no statute requires, or gives the Commission authority to require, an electric or gas utility to implement an EE PPA type of program. That said, the Commission does have authority to allow a utility to institute programs like EEPPA programs. See, e.g., ORS 757.247.

The New York State Energy Research and Development Authority (NYSERDA), California utilities, and Texas utilities implemented standard performance contracts between 1998 and the early 2000s. They offered incentives to ESCOs or customers on a first-come, first-served basis for qualified projects with payments that varied for savings from lighting and non-lighting measures. Payments were made over a 2-3 year period.

Basic Results

Energy savings in early standard offer and standard performance contract programs came almost entirely from large commercial and industrial customers. Standard offer and performance contract energy savings cost less than buying power on the market or building new power plants, but more than other types of energy efficiency programs. Most of the savings came from the same few energy efficiency measures, particularly lighting. Programs sometimes paid substantially more than the actual costs of the efficiency measures. The extra money, which came from ratepayers, became profit for the entity offering the programs.

There were challenges with complex contracts and high costs of doing business. One of the more expensive costs was to check and make sure energy savings actually occurred. When only simple measures, like lighting, were installed, the cost of verifying how much energy was saved made little sense. Some parties resisted spending money on the monitoring and verification of savings (M&V) for such simple measures.

Because of these issues, virtually all EE PPA type programs were either terminated or modified. Programs evolved into simpler, more direct programs that did not require complex contracts or ongoing M&V. In modified EE PPA type programs, payments were made up front or over a short period of time, rather than spread out over multiple years. Payments were based largely on historical performance and industry standards rather than measured savings. Energy efficiency incentives varied based on the type of measures installed.

For example, in contrast to programs originally offered in the 1990s, New Jersey’s current pay-for-performance program makes three separate payments: one for completion of an energy reduction plan, a second for installation of measures based on projected energy savings, and a third, typically a year later, based on measured savings. New York has similar performance-based incentives.4

The transition to simpler programs with more up-front payments was due in large part to challenges associated with complexity and high contracting and monitoring costs of the longer, more complex programs.

Basic and targeted rebate or incentive programs, such as those used by the Energy Trust, are now almost universally used in the U.S. Complex EE PPA type programs are extremely rare. The large commercial buildings market remains largely untapped and there is a renewed interest in finding ways to realize savings from that market.

4 Id. at 9-10.
Chapter 3 - Feasibility

Feasibility is defined as the state or degree of being relatively easily and conveniently done. The feasibility of an EE PPA varies based on the EE PPA’s configuration.

Generally, the feasibility or lack of feasibility of an EE PPA flows from these essential features:

- It is a long-term pricing arrangement;
- It likely requires long-term M&V;
- It likely requires ongoing baseline use estimation (i.e., how much energy would have been used without the program);
- It can involve complex contracting, particularly if an ESP finances the improvements (i.e. if contracts are required between utility and ESP and between an ESP and end-user);
- It requires a large market of eligible projects, willing participants, qualified contractors, and investors to fund the projects, if the projects are not customer funded.

In terms of the market for EE PPAs, the following customer characteristics are important to the feasibility of an EE PPA program:

- Large projects to cover the overhead costs of contracting and M&V (perhaps over $250,000 of project costs);
- Stable long-term use, tenancy, and ownership of the facility, as well as an owner with a strong financial balance sheet. This financial strength is important for a number of reasons:
  - EE PPAs involve long-term contracts; it is therefore important that the building remain occupied and its use remain relatively stable during the contract term.
  - The underlying basis for any financing is the project and its savings, so the owner signing the contracts must be creditworthy.
  - Savings from the project must be “modelable,” making it important that the building’s use and occupancy remain stable.
  - Unless the EE PPA has a termination provision upon sale of the building, it may be a challenge to explain the EE PPA to a new owner.
- EE PPAs are probably best suited for owner-occupied buildings. This is so because of the points noted above, as well as the fact that while tenants are often responsible for energy costs in a leased building, they ordinarily do not otherwise benefit economically from improvements to the building.

Based on the features above, EE PPAs are most likely feasible for packages of measures associated with large projects in large owner-occupied buildings or groups of buildings.
Stable long-term use (relative to computing, electronic, heating, cooling, ventilation, or lighting), tenancy, and ownership of the building help to make a building “modelable” to the point where savings can be calculated and reliably used as the basis for payment.

The end uses and end user market segments where an EE PPA is generally not feasible are residential and small commercial buildings. For these markets, transactions would be too small to make economic sense. The complex financial arrangement and ongoing M&V would likely result in transaction costs too high for the associated savings. Also, sophisticated negotiations and contracts may not be appropriate for homeowners, small businesses owners, and landlords. Turnover in most retail commercial buildings and restaurants is generally too high for long-term contracts. Large government-owned or subsidized residential complexes may be plausible candidates for an EE PPA.

EE PPAs are also not feasible for separately financing activities or measures such as home appliances, computers, and other similar equipment. Incentives, rebates, education, and the establishment of efficiency standards are more effective ways to influence customers at the point of sale.

Based on the features and characteristics listed above, the market segments where EE PPAs are most feasible are deep retrofits in large office buildings, especially if owned or managed by a large entity. EE PPAs might also work for big-box retail stores or multiple buildings with stable tenancy owned by large entities. They also might work in factories in some circumstances. An EE PPA may also be feasible for some large multi-family buildings.

Although these market segments provide the most promise for EE PPAs, EE PPAs are not the only way to achieve energy savings in these sectors. The following chapter includes a description of other means to potentially acquire savings in these same sectors.
Chapter 4 - Cost Effectiveness

This chapter addresses the cost effectiveness of packaging energy efficiency investments for sale to public utilities as the equivalent of new energy generation facilities. As an economic regulator, the OPUC deems something cost effective if, compared to other methods, it is the lowest cost method of achieving a specific goal, including consideration of risk. The OPUC insists on cost effectiveness of investments to ensure that rates remain low for customers.

In this report, we examine the cost effectiveness of an EE PPA through two screens:

- For what end-user and end-uses is an EE PPA feasible? The possible cost-effective segments for an EE PPA are a subset of the “feasible” segments.
- For what end-users and end-uses might an EE PPA be superior to other approaches?

As indicated in Chapter 3, EE PPAs are feasible for deep retrofit projects in large buildings, particularly office buildings, some big-box retail stores, and potentially some large multi-family buildings.

An EE PPA may be superior to other methods if persistence of savings over time is an issue. Persistence means that energy efficiency measures continue to result in energy savings over time. Ongoing monitoring and verification of savings and baseline estimation, although traditionally time consuming and expensive, could lead to more persistence of savings than up-front incentives only. EE PPAs may also be superior where the existence of a long-term contract with a utility that provides a stream of payment for energy savings enables a customer to secure financing it could not have otherwise obtained. It is unknown to what extent this would benefit customers and enable additional projects.

An EE PPA may be most well suited for situations where owners are considering major upgrades, such as replacing the heating and cooling plant. A benefit of an EE PPA is that it could enable deep building retrofits where the combination of measures allows for synergistic savings that would not be achieved using a measure by measure approach.

As compared to other alternative payment approaches, disadvantages of EE PPAs are their inherent complexity and the costs incurred to develop credible monthly baseline use estimates needed to calculate savings that are the basis of utility payments. Changes to tenants and/or usage and new equipment make calculating baselines and savings problematic. Another potential disadvantage is that uptake by utilities and customers may be limited due to complexity, contracts, and transaction costs.

In estimating savings and payments, a utility must consider not just the energy costs before and after the efficiency measures are taken, but also how code requirements or best practices should affect calculations of the savings. When equipment is old and not functioning well, its replacement will occur soon in any case. If so, the appropriate
baseline may not be the energy use associated with old equipment, but energy use by equipment that would comply with current codes or standards.

Another complication is that conflicts could arise regarding the calculated baseline and energy savings. Contracts would need to spell out how changes in building use and disputes regarding savings and baseline would be handled. The Commission would ultimately need to resolve disputes regarding savings estimates used for utility projects.

Utilities would need to project savings from EE PPAs for planning purposes and then count on those savings going forward. Typical power purchase agreements include bilaterally negotiated protections for the utility and its customers such as credit assurances and security requirements. Long-term contracts and the need for long-term savings estimates may be seen as unnecessarily risky and labor intensive as compared to other methods.

In order for an EE PPA to be cost effective, it has to be better than other alternative approaches for the same applications. There are other methods of acquiring savings in large commercial buildings. These are described below.

Comparison with other approaches:

Up-front incentives

Generally, Energy Trust’s experience indicates that customers prefer receiving up-front payments rather than after-the-fact yearly payments. Up-front incentives have a demonstrated record of getting customers making one-time investments to buy higher efficiency equipment (e.g. high-efficiency home appliances, high-efficiency industrial motors, etc.). Incentive-based payments for savings, such as those given by Energy Trust, have been proven effective in most major markets, including residential, multifamily, small and large commercial, industrial, and the municipal/university/school/hospital (MUSH) markets.

In incentive programs, there are no complex contracts, customers own the upgrades, and there is no need for long-term M&V. Savings are typically projected up-front using best available research. In some cases, savings are verified over time for large or operator controlled measures. For example, in Energy Trust’s Strategic Energy Management Initiative program, support is provided to encourage persistence of savings.

The Northwest Energy Efficiency Alliance (NEEA) and Energy Trust are both running programs that focus on deep energy retrofits. As part of NEEA’s BetterBricks Existing Building Renewal program, NEEA is taking the following steps:

- Inventorying deep retrofit case studies;
- Developing integrated measure packages;
- Developing an owner roadmap for building renewal (Deep Retrofit Playbook);
- Developing a business case based on energy and non-energy benefits;
● Planning four deep retrofit pilot buildings in the region;
● Working on education, marketing, and training; and
● Inventorying advanced monitoring software available that would support deep retrofits.

Energy Trust supports major building renovations through their New Buildings Program. They pay for design assistance, detailed studies, and the development of an elaborate incentive structure. Typically, incentives are paid upon building start up and upon completion of a quality control check that ensures measures were installed properly. Energy Trust is piloting, with some initial indications of success, commercial strategic energy management services, where customers are rewarded for savings persistence.

Savings in large commercial buildings might also be achieved piece-by-piece rather than all at once. Some customers become comfortable with efficiency improvements incrementally over time, so they prefer a measure-by-measure approach. This approach benefit that some technologies become more efficient over time. A disadvantage of a measure-by-measure approach is that savings based on the interactive effects of multiple measures operating simultaneously may be missed.

There are other innovative programs in Oregon that are helping to achieve conservation in multiple sectors, not just the large commercial sector. Appendix C contains a summary of various energy efficiency programs that are available in Oregon.
Chapter 5 - Monitoring and Verification of Savings

This chapter addresses the most effective means of maximizing energy efficiency achieved from EE PPAs through M&V.

In Oregon, conservation is treated as a resource. Estimates of savings are relied on to meet future needs of utility customers. Therefore, measurement, verification, and persistence of savings are important.

Persistence of savings varies by measure, so the need for extensive M&V protocols varies. Over years of monitoring, the energy efficiency industry has developed “deemed” savings values that accurately represent energy savings for the majority of energy efficiency measures. Generally, persistence is particularly challenging for behavior-dependent controls and behavioral efficiency measures in commercial buildings. Deep retrofits in commercial buildings can be divided into three types of measures related to persistence:

- Hardware with limited dependency on controls, such as lights, insulation, windows, and heating and cooling equipment. There is negligible persistence risk with these measures. The equipment works fine for as long as it is properly designed, installed correctly and in correct applications, and maintained.

- Controls are an area where persistence is important. Controls extract additional savings by optimizing schedules and equipment operation. Controls can be divided into three subcategories, relative to persistence:
  - Stand-alone controls such as motion sensors and daylight controls. Persistence is generally not a problem with these measures but some decay in savings may come from wear and tear or occupant over-rides.
  - Sophisticated controls algorithms such as chilled water reset. These are often deep in the programming, and even many operators do not know how to change them. Persistence is not a problem with these.
  - Building schedules and other obvious control settings. Occupants often feel empowered to modify these in response to comfort issues. These measures are likely the biggest source of persistence problems.

- Building energy management supported by feedback systems (aka Energy Information Systems (EIS)). EISs are metering and analysis tools that look at power use. These are highly dynamic and people-dependent processes where persistence may be an issue.

To maximize energy efficiency through an EE PPA, M&V protocols should be designed to recognize that persistence of savings varies by measure. Persistence may be an issue
for 45 percent of savings potential in office buildings in the region, based on information from the Northwest Planning and Conservation Council (NWPCC).5

An EE PPA paid over an extended period would require verification of ongoing savings. Existing M&V protocols are relatively time consuming and expensive, which is why most programs have transitioned away from long-term M&V and toward an up-front payment or payments over a short time. Payments are based primarily on deemed savings values with intermittent third party evaluations to spot check savings achieved. It is difficult to quantify what M&V costs of an EE PPA would be. Cost would depend on many factors (type of software used, type of equipment installed, etc.).

The cost of M&V has fallen as technology has improved. Advanced software may prove to be a low-cost way of verifying long-term measure persistence. However, advanced software must be validated. A tool that could measure savings from a whole building perspective at low cost for many years is a high bar for a verification tool and it would take a minimum of three years and perhaps longer to validate a tool for this purpose.

NEEA is researching advanced software, including the DeltaMeter which is being proposed by EnergyRM in the EE PPA described in Appendix B.

Energy Trust, on the other hand, addresses persistence through program design and evaluation. Their programs employ up-front design and quality control work to assure proper installation, installer and operator training, commissioning where appropriate, and program support for persistence through strategic energy management programs. Energy Trust hires third-party contractors to perform impact evaluations of programs which are subject to review by independent experts. As a benchmark, Energy Trust currently spends 3-4 percent of their program budgets on M&V, market research, and planning.

As the number of energy efficiency projects has increased over time, the certainty around savings delivery by measure and in aggregate has increased as the direct result of extensive M&V. With higher certainty surrounding savings delivered, measured variances between planning estimates and savings reporting decreased and the need for continued extensive M&V on certain technologies/projects decreased.

5 Appendix D contains a table prepared by NWPCC from their 6th power plan that shows projections for savings potential for the existing stock of office buildings in the Northwest Region. NWPCC staff estimated and highlighted the measures, in their judgment, where there are potential issues with persistence due to the need for human intervention or management. This is the source of the 45 percent estimate.
Chapter 6 - Avoided Costs

This chapter addresses the potential avoided cost to ratepayers of energy efficiency power purchase agreements. The Commission defines avoided cost as the cost of power that is avoided by the utility when energy efficiency measures are installed. In order for an efficiency measure or method to be cost effective, not only does it need to be lower cost than alternative methods (as described in Chapter 4), but the cost of the measures or of the method being used also need to be lower than the avoided cost. This is important so that customers do not pay more than required to achieve the desired result.

Electric and gas utilities update their avoided cost projections as part of their Integrated Resource Plan (IRP) filings at the OPUC. For electric utilities, avoided costs from IRPs are the basis for payments made to qualifying facilities (under the federal PURPA statute of 1978; section 210). Up to the point where new power plants are needed, avoided costs are typically the cost of wholesale power. After that, avoided costs reflect the full cost of new power plants, including fuel and other operating costs.

Portland General Electric’s and Pacific Power’s more recent IRPs indicated that the 15-year levelized avoided costs for a hypothetical project with flat 24 by 7 output at an 8 percent discount rate are 7.5 cents/kWh and 5.3 cents/kWh, respectively.

Natural gas is not subject to PURPA, but avoided costs are calculated by Oregon natural gas utilities as part of their IRPs. For natural gas measures, the basis of avoided cost is the forecasted wholesale fuel costs. For Northwest Natural Gas the levelized 19 year avoided cost for flat savings is $5.27 per decatherm.

The avoided cost of a measure depends on when the savings occur (hour, day, season, etc.). A measure that reduces use at a peak demand time has a higher avoided cost than a measure that reduces use in off-peak times. For example, savings from air conditioners will show a higher value over the same time period than a flat savings measure. Measure life and duration of savings considerations are important for all Energy Trust programs.

Energy Trust calculates the avoided cost associated with efficiency measures they incent. In calculating avoided costs, Energy Trust considers avoided energy and capacity costs. They also consider adders to avoided cost to account for other factors. The following adders are included in Energy Trust’s electric avoided costs:

- Avoided transmission and distribution capital costs (currently about $3/MWh levelized).
- Line Losses – Energy savings at the meter result in even more savings at the generator due to avoided transmission and distribution system line losses.
- Regional Act Conservation Credit - The Northwest Power Act directs the NWPCC and the Bonneville Power Administration to give conservation a 10 percent cost advantage over sources of electric generation.
- **Premium / Hedge Value** – NWPCC considers the premium value to include six major categories of value: generation capacity deferral, fuel price and carbon risk, efficiency purchases made during low market price conditions, displacement of RPS requirements, short term cost reduction, and provision of opportunity to develop and resell conservation.

The following adders are included in Energy Trust’s gas avoided costs:

- Risks associated with CO2 and NOx emissions;
- NW conservation credit (as discussed above); and
- No hedge value is currently used in gas cost effectiveness.

The following table shows an example of an avoided cost calculation for electricity, similar to those currently performed the Energy Trust:

<table>
<thead>
<tr>
<th>Sample Electric Avoided Cost Calculation (per kWh)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PGE Avoided Cost</td>
<td>$0.0750</td>
</tr>
<tr>
<td>Avoided Transmission and Distribution</td>
<td>$0.0030</td>
</tr>
<tr>
<td>Line Losses</td>
<td>$0.0038</td>
</tr>
<tr>
<td>Regional Act Conservation Credit</td>
<td>$0.0075</td>
</tr>
<tr>
<td>Premium / Hedge Value</td>
<td>$0.0050</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$0.0943</strong></td>
</tr>
</tbody>
</table>

As a broad reference point, Energy Trust’s 2011 commercial retrofit programs as a whole averaged 2.9 cents/kWh and 32 cents/therm. This includes all program management costs, evaluation, planning and allocated administrative cost. Assuming a three year life, Energy Trust’s Strategic Energy Management pilot appears to be achieving operational and behavioral savings for an average cost of 3.5 cents/kWh and 46 cents/therm.
Chapter 7 - How Much to Pay for Efficiency

An important issue with an EE PPA is how much a utility should pay for savings. The Commission's overarching goal is to acquire all cost-effective energy efficiency at the lowest possible cost to ratepayers. Energy efficiency is treated on par with generation resources.

To that end, the Commission effectively has adopted the following incentive policy for current Energy Trust programs:

- The Commission gives Energy Trust flexibility to design incentives and set incentive levels.
- The Energy Trust sets incentives at levels necessary to foster investment while aiming to minimize free ridership.
- The Energy Trust determines the type of incentive offered (e.g. up-front payment versus annual payment).
- The Commission allows bundles of energy efficiency measures to include non-cost-effective measures if specific criteria are met.
- Incentives should never exceed the direct cost of the measures less bill savings to the end user.

There are two basic approaches to determining how much to pay for energy resources. The first, and by far the most common, is to pay based on the cost of the resource (i.e., cost-based). The cost is the amount that needs to be paid in order to make transactions happen in the local marketplace. The second approach (rarely used) is to pay based on the value of the resource (i.e., the avoided cost). In most all cases, except qualifying facilities under PURPA and a few others, the Commission takes a cost-based approach.

For an EE PPA, the existing cost-based policy approach would apply and utilities should only be allowed to pay what is necessary to foster investment while minimizing free ridership. The Commission should authorize paying no more than the lesser of:

1. The direct cost of acquiring the package of measures
2. The avoided cost

(1) Direct cost of the measures

The Commission typically allows for a resource price to be set at a level to recover the cost of acquiring the resource. In the case of Energy Trust incentives, this means to pay for the level of incentive that is necessary to realize the energy savings.

Paying a premium beyond Energy Trust’s typical project incentive may be worthwhile if it achieves deeper savings or more persistence of savings. However, there are other paths to these ends in addition to an EE PPA. The costs for a deep retrofit on average might be
somewhat higher due to the analysis and management requirements and the cost of some of the measures.

There is no need to pay more for efficiency than it actually costs. A primary benefit to ratepayers of energy efficiency is that it costs less than generating resources. In the Commission’s policy view, it should remain that way.

(2) Avoided cost

As described above, the avoided cost can be considered the value of efficiency. The Commission seeks the lowest costs for efficiency so as to yield the largest net value to ratepayers. There is a difference between the value of efficiency and the cost of efficiency. Payments at the full avoided costs are only used in a specific and small subset of situations, such as are paid to qualifying generators as required by PURPA. Paying avoided costs is an anomaly, not the norm. Cost-based rates and payments are the norm. It is the Commission’s policy view that the utility should never pay more than the avoided cost of the efficiency resource.

Minimum of (1) & (2)

To ensure ratepayers are receiving the full benefits of conservation through an EE PPA, the Commission recommends that utilities never pay more than either of the two cost caps outlined above. ⁶ Consistent with the goal of maintaining affordable energy prices for consumers, the Commission recommends that customers pay only the lesser of the direct cost of measures or the avoided cost. These cost caps ensure that customers continue to benefit from both the value and low cost of conservation. The Commission suggests that these price caps be expressly stated as project requirements in any legislation enabling EE PPAs. Some consideration should also be made of customer’s bill savings in determining how much to pay. For the purpose of a well defined and limited pilot program, it may be appropriate to apply the cost caps in a flexible way to allow for exceptions on an as needed basis.

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⁶ In an arrangement where a customer pays for savings at the retail rate, as in the EnergyRM EE PPA described in Appendix B, a third cost cap is recommended where payments would be limited to the utility’s retail rate minus the fixed-cost portion of that retail rate.
Chapter 8 - Ongoing Developments

Energy Trust is expanding its commercial deep retrofit pilot program. NEEA is also working on a commercial deep retrofit pilot program with projects in multiple states. NEEA is also considering an evaluation of advanced metering software that could support EE PPAs. As well, Energy Trust and PUC Staff will continue to explore opportunities for pilots where relevant aspects of EE PPAs could be tested.