



Energy Efficiency Power Purchase Agreements

Jason Eisdorfer and Juliet Johnson
Oregon Public Utility Commission

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Background

- 2011 Oregon Legislature enacted Section 6 of HB 2960
- Directed PUC to submit a report on Energy Efficiency Power Purchase Agreements (EE PPAs)
- Report submitted December 1, 2012
- In preparing report:
 - Held daylong workshop with national experts
 - Issued extensive surveys
 - Provided two copies of report for comments



Energy Efficiency Generally

- Energy Efficiency (EE) is the cheapest “resource”
- Cheaper to save energy than to build or buy energy
- EE costs about 3¢ per kilowatt-hour compared to 6-9¢ per kilowatt-hour to buy or build energy
- Energy Trust runs EE for large utilities in Oregon
- Energy Trust “buys” EE savings by paying incentives upfront to customers for projected savings
- Third-party spot checks savings after the fact



What is an Energy Efficiency

Power Purchase Agreement (EE PPA)?

- “PPA” traditionally used to describe an agreement to sell and buy power generated over time
- EE PPA is different because it is an agreement to sell and buy energy savings over time
- Key features:
 - Agreement between two or more parties
 - Payments made over time
 - Savings must be measured or validated

Standard EE Incentive Model



**One-time upfront
incentive \$**



Energy savings



**Utility
or
Energy Trust**

EE PPA Model



Install and verify savings
Payment \$ over time

Energy savings

**3rd Party
EE Provider**

**Utility
or
Energy Trust**

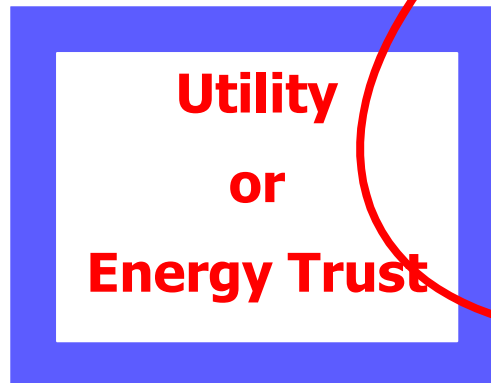
**Savings
Verified over time**
**Payment \$
For savings**

EE PPA Model



← **Install and verify savings**
Payment \$ over time

→ **Energy savings**



↙ **Savings
Verified over time**
↘ **Payment \$
For savings**



Has this been tried before?

- Mid-90's and early 2000's US electric utilities tried this
 - Mostly large commercial and industrial customers
 - Challenges with complex contracts and high cost of verifying savings and making payments over time
 - Virtually all programs ended or evolved into simpler, upfront payment programs, like Energy Trust's



Why are we looking at this again?

- Energy Trust has been good at getting savings from residential, industrial and certain types of commercial customers
- Large commercial office buildings have been more of a challenge
- Renewed interest in finding ways to get savings from large commercial office buildings
- More advanced wireless monitoring equipment and computer models could reduce complexity and cost



Key Findings - 1

- Where would an EE PPA be most feasible:
 - Stable long-term use, tenancy and building ownership
 - Large office buildings
 - Large projects (“deep retrofits”)
 - Owners must be willing to enter into complex contracts



Key Findings - 2

- Not optimal for:
 - Residential
 - Small commercial
 - Equipment such as appliances, computers, etc.
 - Absence of extremes peaks of temperature and load
 - Regions/areas where power prices are low
 - Absence of sizeable inventory of large office buildings

Key Findings - 3

- Where might EE PPAs have advantages over other models?
 - Where “persistence” is an issue
 - Persistence means EE measures continue to result in savings over time.
 - Some measures don’t need ongoing monitoring to ensure persistence, whereas other do
 - EE PPA may lead to increased persistence for some measures
- Where existence of a PPA contract may enable lower cost financing



Key findings - 4

- Potential disadvantages
 - Costly ongoing monitoring and verification
 - Unknown costs and risks
 - Complexity around potential changes in ownership and building use
 - Utilities and customers may not choose to participate



Final thoughts

- New modeling and monitoring tools may reduce challenges from past EE PPAs
- Should not pay more for EE savings than necessary
- Should not pay more than the next cheapest resource (avoided cost)
- Commission Staff is currently working with Energy Trust and stakeholders on deep and persistent savings pilots
- PUC committed to reliable energy at lowest cost and risk