

Energy Efficiency Incentives for Utilities: Approaches in US, Stakeholder Process in Idaho

Wayne Shirley, Jim Lazar and Lisa Schwartz
Webinar Convened by Idaho State Senator Elliot Werk
November 20, 2009



The Regulatory Assistance Project

Maine ♦ Vermont ♦ Illinois ♦ New Mexico ♦ California ♦ Oregon




Regulatory Assistance Project

- Nonprofit organization founded in 1992 by experienced energy regulators
- Advises policymakers on economically and environmentally sustainable policies in the regulated energy sectors
- Funded by US DOE and EPA, the Energy Foundation, ClimateWorks and other foundations
- We have worked in 40+ states and 16 nations



Today's Webinar

- How sales and conservation affect utility profits
- Role of positive financial incentives for utilities in promoting all cost-effective energy efficiency
- Types of incentives, design features, pros and cons
- Idaho Power stakeholder process
- Principles for legislative actions



How Sales Affect Utility Profits Under Traditional Regulation

- Rates are set to recover the utility's cost of service
 - **Revenue requirement** = expenses + return of and return on investment + taxes (during past or future test period)
 - **Prices** = revenue requirement \div *expected* unit sales
- **Utility profit** = *actual* sales - *actual* expenses
 - In reality, profits have little relationship to the allowed revenue or rate of return set in the rate case.
- Increasing sales can increase profits. Conversely, reducing sales through energy efficiency programs reduces revenues to cover the utility's fixed costs, reducing its earnings.



Decoupling Sales and Profits

- Decoupling is a ratemaking mechanism that breaks the link between energy sales and utility profits.
 - Rate case process remains the same
 - Prices are adjusted periodically, based on actual units sold, to keep utility revenue at its allowed level – no more, no less.
- The Idaho Commission approved a decoupling pilot for Idaho Power for 2007-2009. The company has filed a request to make decoupling permanent.
- Decoupling only removes the utility's disincentive toward energy efficiency; it does not provide an incentive.



Do Utilities Need Energy Efficiency Incentives?

- The energy efficiency program manager functions best with:
 - Clear performance metrics
 - Alignment of financial risks and rewards for those metrics
- Incentives make the manager squarely responsible for developing best program designs, partnerships and marketing strategies.
- Utilities have the opportunity to earn a return on supply-side investments. Absent an explicit incentive mechanism, they have little reason to invest in energy efficiency.*
- Shareholder incentives should be considered when energy efficiency programs are ramping up to high levels or to motivate a utility to continue performing at a high level.

**Except during prolonged periods of high market prices where the utility does not have an automatic power cost adjustment.*




Types of Positive Financial Incentives

➤ Performance Based

- **Shared Savings:** Earnings based on percentage of “net” benefits (resource savings minus costs) or avoided costs of energy efficiency, often tied to a minimum threshold of energy and capacity savings
- **Management Fee:** Earnings based on percentage of program costs if manager achieves or exceeds goals – e.g., energy/capacity savings, participation or installation levels, reductions in administrative costs
- **Standard Performance Contracting:** Incentive payments per kWh and kW of savings from installed measures, under standardized terms

➤ Cost Capitalization

- Annual energy efficiency program costs included in rate base and amortized over time; utility earns authorized rate of return on equity (ROE), potentially with a bonus ROE



Performance-Based Incentives

➤ **Pros**

- Well-designed mechanisms can control utility expenditures by rewarding increased program penetration and minimizing costs
 - Net benefits increase when the utility achieves cost-effective savings and when project costs are reduced
- Under management fee approach, utility has an incentive for energy efficiency spending

➤ **Cons**

- Requires more analysis (determining net benefits)
- For shared-savings mechanisms, accurate measurement and verification of savings is critical
- Management fee approach does not necessarily focus spending on cost-effective programs and net benefits
 - Can address by basing incentive rates on carefully vetted and approved budgets, not expenditures, by adopting aggressive goals and clear performance metrics, and through good oversight



Cost Capitalization – With ROE Bonus Option

➤ **Pros**

- Amortizing instead of expensing better matches cost recovery to the useful life of efficiency measures (7 to 10 years). Amortization period can be less (3 to 5 years).
- Mitigates initial rate impacts of efficiency expenditures
- Helps level playing field with utility-owned supply-side resources
 - But a power plant may still be more attractive to the utility
- Can incorporate an ROE adder to make efficiency the most profitable investment

➤ **Cons**

- Approach is generally out of favor among utilities (except in Nevada)
 - Don't want a regulatory asset that increases imputed debt, potentially affecting credit ratings
 - Need capital to finance asset – must raise new capital or use retained earnings or internal cash flow
- Incentive not tied to performance



A Couple of Ways to Measure Costs and Benefits

➤ **Utility Cost Test**

- Measures cost-effectiveness purely from the perspective of utility expenditures compared to supply-side resource costs

➤ **Total Resource Cost**

- Measures cost-effectiveness regardless of the split in costs between the utility (ratepayers) and program participants

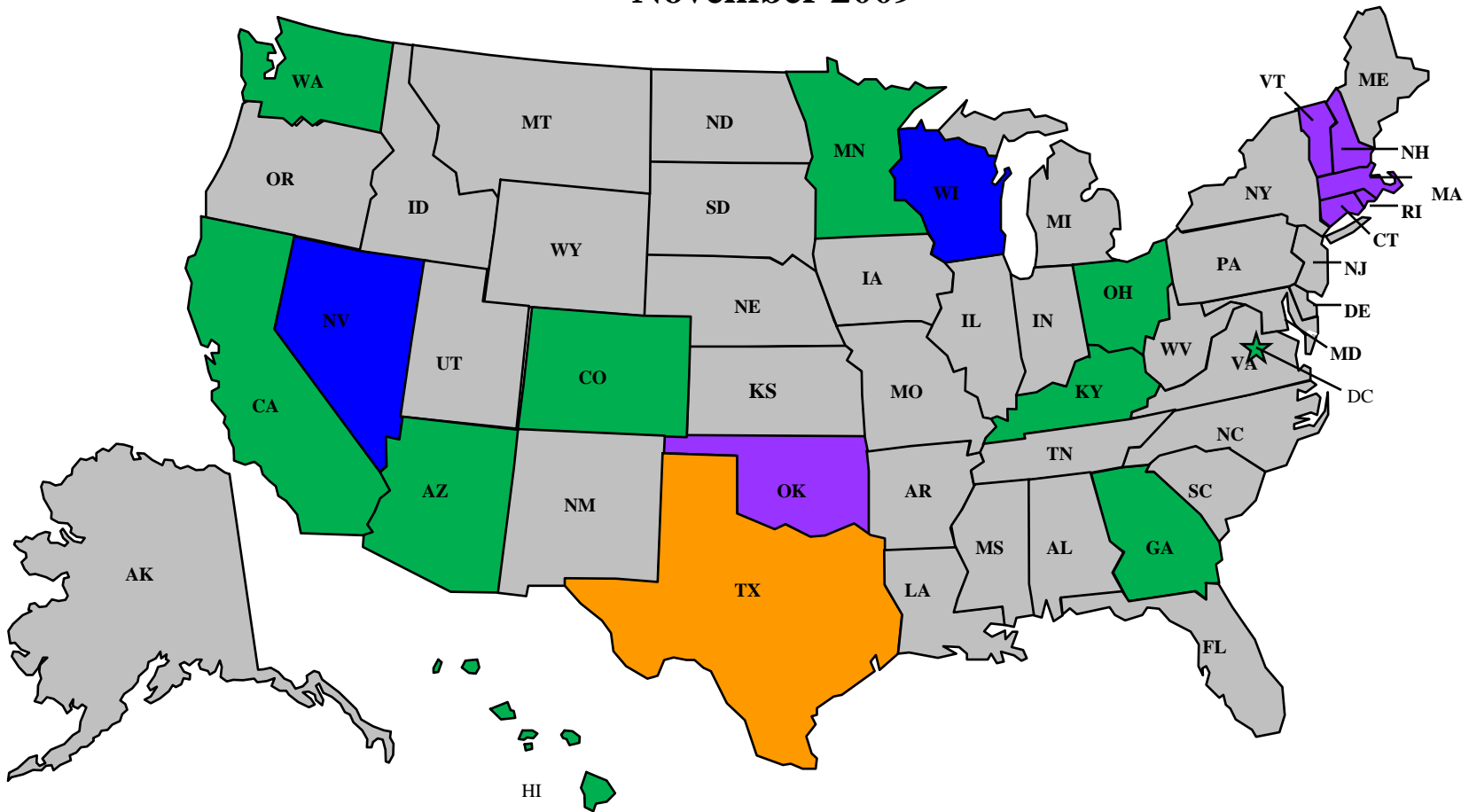
➤ Some jurisdictions also include externality costs (those not captured by the market system)

➤ For both tests, the benefits are the avoided costs of supply-side resources – the reduction in energy, capacity, transmission and distribution costs.



**EXAMPLES OF INCENTIVES
IN THE U.S.**

States With Energy Efficiency Incentives for Utilities* November 2009



LEGEND

States with shared savings incentives for utilities or third-party administrators

States with a performance-based management fee

States that give utilities a return on investments in energy efficiency

States with performance-based contracting and a utility incentive for achieving goals

*Or incentives for the third-party energy efficiency administrator



Shared Savings - Arizona Public Service Company

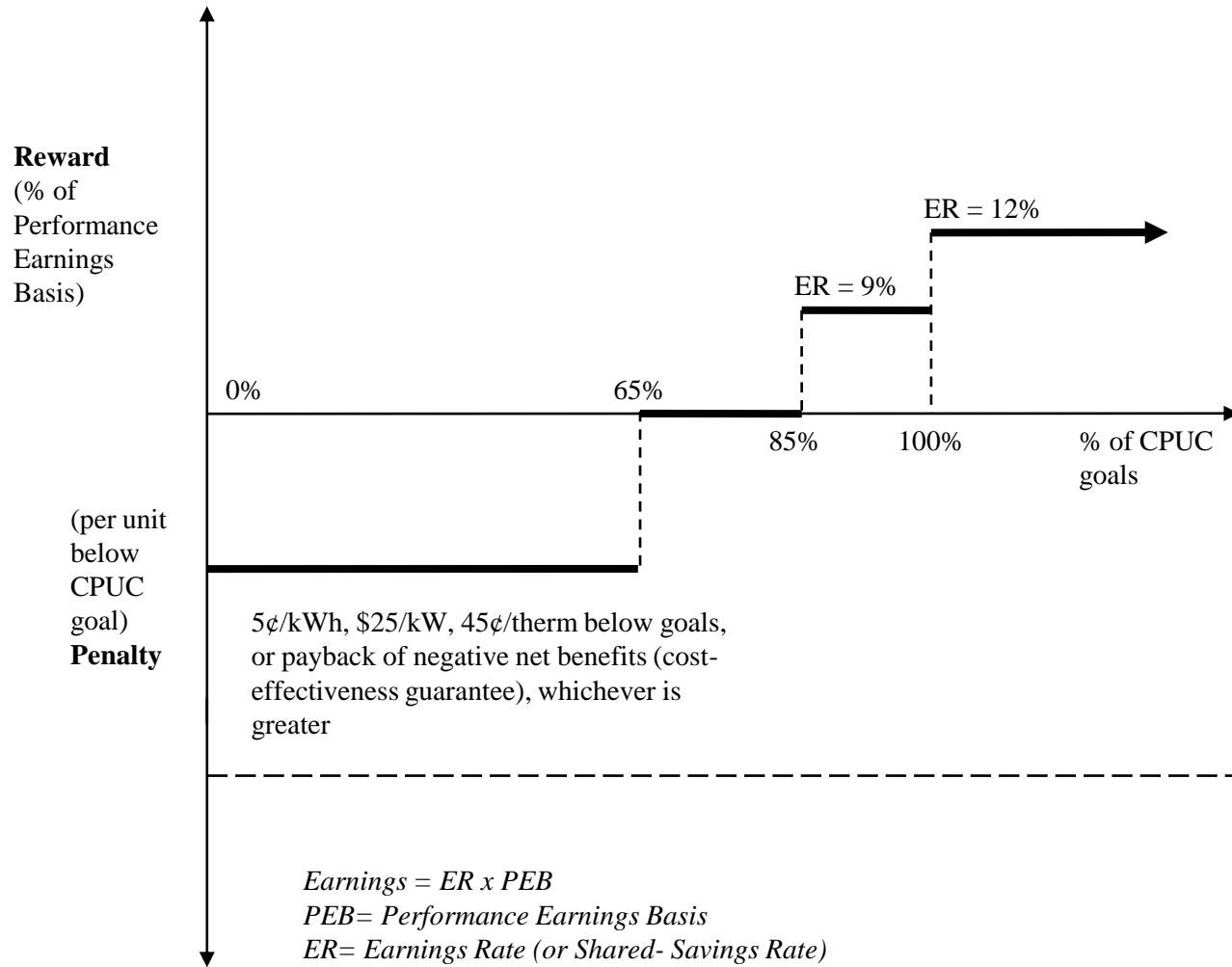
- Demand-side management (DSM) programs funded through base rates, plus adjustor for amounts over/under
- Incentive: 10% of net economic benefits achieved (benefits minus costs)
 - Capped at 10% of program spending



California Risk/Reward Incentive Mechanism

- Commission established savings goals for energy, demand and therms for three investor-owned utilities for 2006-08
 - Levels higher than had ever been achieved
- Incentives for achieving 85% of goals, based on average performance on all applicable measures
 - 9% to 12% of net economic benefits (total dollars capped)
 - No incentive if achievement is below 80% for *any* goal
- Penalties for failure to achieve at least 65% of goals
- Utility gets a portion of incentive after verification of actual *measures installed* and *program costs*; final incentive payment after verification of *savings*
- Program under review to “consider a more transparent, more streamlined and less controversial RRIM program”

California Risk/Reward Incentive Mechanism, 2006-2008



See California PUC D.08-09-043 at 8. Earnings and penalties are capped by utility:
PG&E - \$180 million, SCE - \$200 million, SDG&E - \$50 million and SoCalGas - \$20 million



Colorado

- HB 1037 (2007) directed Commission to offer utilities an opportunity to make demand-side management investments more profitable than other investments
 - By 2018, energy savings in aggregate must reach at least 5% of 2006 sales
- Commission rulemaking established performance incentives for natural gas utilities
 - Percent of net economic benefits = Energy Factor x Savings Factor
 - Energy Factor = Zero + 0.5% for each percentage of achieved savings > 80% of savings target
 - Savings Factor = Actual savings achieved ÷ the approved savings target (per \$1 million expended)
 - *Example:* 15,000 dth savings target; utility at 106% of target (18,000 dth)
 - Energy Factor is $0.5\% \times (106 - 80) = 13\%$
 - Savings Factor is $18,000 \div 15,000 = 1.2$
 - Percentage of net economic benefits = $13\% \times 1.2 = 15.6\%$



Colorado

- Public Service of Colorado performance incentive
 - 0.2% of net economic benefits for each 1% of goal attainment beyond 80%, up to 10% of net benefits at 130% of goal attainment
 - 4% of net economic benefits if 100% of DSM goal is achieved
 - 0.1% of net economic benefits for each 1% of goal attainment beyond 130%, up to 12% of benefits at 150% of goal attainment
- Utility also gets a \$2 million (after tax) “disincentive offset” each year it implements an approved demand-side management plan
- Cap: Performance incentive + disincentive offset cannot exceed 20% of total DSM expenditures



Minnesota Shared Savings

- Shared savings incentive since 2000 based on percent of net economic benefits
 - Minimum performance to earn incentive: 91% of savings goal
 - Percent of net benefits awarded increases with savings, capped at 150% of goal
 - Commission is exploring changes to program
- 2007 Next Generation Energy Act for natural gas and electric utilities
 - Achieve energy savings each year equal to 1.5% of retail energy sales by 2012
 - Includes end-use and market transformation programs, rate design, codes and standards, and utility infrastructure improvements
 - Commission may order submission of incentive plans for approval and must consider if the plan:
 - is likely to increase utility investment in cost-effective conservation
 - is compatible with the interest of ratepayers and other interested parties
 - links incentive to performance in achieving cost-effective conservation
 - Commission may:
 - Change allowed ROR on efficiency investment based on utility's efforts and success
 - Share between ratepayers and utilities net savings to extent justified
 - Adopt any mechanism that makes cost-effective conservation a preferred resource choice for the utility, considering impact on utility earnings



Nevada Bonus ROE

- Nevada law gives utility its authorized return on equity plus a 5% bonus for prudent and reasonable conservation and demand management investments
 - If utility's authorized ROE is 8%, energy efficiency investments earn 13%
- Statute also allows utility to request a bonus ROE for “critical facilities” such as reliability investments in the same manner



Management Fee for Vermont EE Utility

- Performance-based contract between Vermont Public Service Board and third-party “Energy Efficiency Utility,” currently the Vermont Energy Investment Corporation
- Contract includes performance-based goals
 - Cumulative annual electricity savings, peak demand savings by season and geographic area, total resource benefits, and specific program goals (e.g., increased measure penetration in certain business end uses)
- Incentives capped at 2.6% of total budget for 2009-2011
- Minimum performance requirements
 - Benefit/cost ratio, spending on residential and low income, program participation by small nonresidential customers, and geographic equity



Puget Sound Energy Conservation Incentive Mechanism - Washington

- Washington Commission sets energy savings targets annually
- Incentive for reaching the Baseline Target (100% of goal)
 - “MWh Incentive” *plus*
 - Shared Savings Incentive = Baseline savings target (MWh) * Net Shared Incentive (\$10/MWh) * Shared Savings Rate (5%)
 - Shared Savings Rate is the percent of savings eligible for the incentive.
- Additional incentives for incremental savings
 - MWh Incentive = Incremental savings (MWh) * \$20/MWh, *plus*
 - Shared Savings Incentive = Incremental savings (MWh) * Net Shared Incentive (\$45/MWh) * Shared Savings Rate
 - Shared Savings Rate = 10% for savings between 100% and 110% of target
 - Shared Savings Rate rises incrementally to 100% at 150% of target – e.g., the rate is 20% for savings between 110% and 120% of target
- Penalties below 90% of target (penalties much larger than incentives)
- At least 75% of savings must be achieved in both the residential and commercial and industrial sectors



IDAHO POWER STAKEHOLDER PROCESS



Idaho Power Stakeholder Process Status

- Two workshops held
 - October 6: Educational on alternative incentive mechanisms
 - November 10: Focus on specific options for Idaho Power
- Final workshop scheduled
 - December 9: Attempt to reach consensus on framework, if not details



November Meeting: Narrowing of Options

- Shared Savings Mechanism
 - Symmetrical incentives and penalties
 - Progressive: Higher % shared savings as performance increases
 - Range of 0% to 15% of savings to company (plus cost recovery for measures and lost margin recovery through Fixed Cost Adjustment)
- Collaborative target setting (with IPUC final authority)
- Balanced performance between sectors required
- Still examining whether incentives should be based on Total Resource Cost (societal savings) or Utility Cost (utility-system only savings)



November Meeting: Narrowing of Options

- Timing of incentives
 - A portion in first year after measures installed; balance after evaluation
- Measures included initially
 - Only those for which utility operates programs
- Evaluation and measurement
 - Utility retains contract with oversight from stakeholder collaborative



Idaho Power Stakeholder Process: Next Steps

- December 9th stakeholder meeting in Boise
- Modeling of options discussed in November to be presented by Idaho Power
- Attempt to reach resolution on:
 - Level of incentives
 - Collaborative structure
 - Evaluation approach
 - Implementation issues



Principles for Legislative Actions

- Setting savings goals for energy and demand
- Ensuring authority and flexibility for the Commission
 - To adopt the most appropriate mechanism
 - To rate-base DSM investments using a shorter amortization period than the life of the measures
 - To make efficiency a competitive investment
 - To use the Total Resource Cost test to determine net benefits
 - To decide whether savings beyond efficiency programs for customers can be included (e.g., codes) to align utility and customer interests
- Addressing extra-jurisdictional gaps for unregulated utilities
- Addressing programs for low-income households
 - Minimum spending levels or higher incentives



Resources

- National Action Plan for Energy Efficiency, *Aligning Utility Incentives with Investment in Energy Efficiency*, prepared by Val R. Jensen, ICF International, November 2007, at <http://www.epa.gov/cleanenergy/documents/incentives.pdf>.
- Peter Cappers, Charles Goldman, Michele Chait, George Edgar, Jeff Schlegel and Wayne Shirley, *Financial Analysis of Incentive Mechanisms to Promote Energy Efficiency: Case Study of a Prototypical Southwest Utility*, Ernest Orlando Lawrence Berkeley National Laboratory, March 2009, at <http://eetd.lbl.gov/EA/EMP/reports/lbnl-1598e.pdf> and <http://eetd.lbl.gov/EA/EMP/reports/lbnl-1598e-app.pdf> (appendices).
- Peter Cappers and Charles Goldman, *Empirical Assessment of Shareholder Incentive Mechanisms Designs Under Aggressive Savings Goals: Case Study of a Kansas “Super-Utility,”* Ernest Orlando Lawrence Berkeley National Laboratory, August 2009, at <http://eetd.lbl.gov/EA/EMP/reports/lbnl-2492e.pdf>.
- Michael W. Rufo, Itron Inc., “Evaluation and Performance Incentives: Seeking Paths to (Relatively) Peaceful Coexistence,” Proceedings of the 2009 International Energy Program Evaluation Conference, Aug. 12-14, 2009, pp. 1030-1041, at <http://docs.cpuc.ca.gov/efile/CM/106837.pdf>.



Wayne Shirley, director
wshirley@raponline.org
505-286-4486

Jim Lazar, senior advisor
jlazar@raponline.org
360-786-1822

Lisa Schwartz, senior associate
lschwartz@raponline.org
541-967-3077

www.raponline.org

RAP is committed to fostering regulatory policies for the electric industry that encourage economic efficiency, protect environmental quality, assure system reliability, and allocate system benefits fairly to all customers.