

State EE/RE Technical Forum
Call #7: Energy Efficiency Resource Standards
April 14, 2005, 2:00 – 3:30 PM EST

A. Background

What is an energy efficiency resource standard (EERS)?

- An EERS requires energy providers to meet quantitative targets for energy savings, typically in the electricity and natural gas sectors. As seen in the examples below, states have developed EERS in several forms. An EERS may be enacted through legislation or regulation. This kind of policy instrument is similar to, and may be linked to, a renewable portfolio standard (RPS) that requires utilities to generate a set portion of electricity from renewable energy resources. State public utility commissions or other regulatory bodies specify explicit numerical goals that regulated utilities and other entities engaged in energy efficiency (EE) program delivery are expected to meet on an annual and cumulative basis. An EERS may specify that implementation will involve coordination with a public benefit fund (PBF).
- A market-based trading system, like the one recently approved in Pennsylvania, can offer energy providers flexibility in reaching energy efficiency targets. In such a system, a utility that exceeded its energy efficiency targets would be able to sell excess credits to other utilities that found it more expensive or difficult to comply with savings quotas in a given year. Alternatively, excess credits could be banked for use in a future year when the utility anticipated more difficulty in reaching savings targets.
- The EERS approach helps planners design programs that reach a broad range of sectors and end users and offers an efficient way to disseminate new and existing technologies that reduce energy use. These policies can help build large scale programs that reach energy saving goals cost effectively.
- Objectives of an EERS include:
 - Ensuring that all cost-effective energy efficiency opportunities are pursued.
 - Providing a single, transparent basis and point of focus point for energy efficiency program design, administration, and budgeting.

Benefits of an EERS

- Increases the likelihood that cumulative energy efficiency efforts will be large enough to attain policy goals.
- Organized administration could coordinate disparate efficiency efforts, achieving economies of scale in areas such as purchasing equipment; program marketing; and calculating, verifying, and reporting energy savings.
- Allows energy and environmental policy makers to design a program that will deliver maximum emission reduction and economic benefits. A well conceived energy efficiency program design will capture:

- Reduced growth in energy demand, leading to reduced upward pressure on fuel prices. When markets are tight, a small change in demand can mean a much larger change in wholesale and retail prices.
- Reduced costs, increased profitability, and greater availability of capital for other goods and services.
- Reduced pollution and greenhouse gases in a low cost manner – as EE projects typically pay for themselves in energy savings within 2-3 years.
- Peak load reduction.

Barriers to an EERS

- Under a cost plus system, utilities' revenue and profit are linked to unit sales. Increased efficiency could lead to a decrease in profit, sometimes with a large multiplier effect, since profit may depend on sales beyond a specific margin related to the costs of generation and transmission.
- Split incentives can occur when one party, for example a builder or landlord, pays a premium for more efficient appliances or building products, while another party, such as a tenant or homebuyer, receives most of the payback in the form of reduced operating costs.
- Lack of information and marketing can limit the distribution of energy efficient products. It requires research to find and select energy efficient products; and planners, designers, and other buyers may make uninformed decisions (including "panic purchases" - as when a refrigerator breaks down) without including energy efficiency in their criteria.
- Programs need to be structured in ways that do not place regulated and non-regulated electricity providers on different competitive footing.

B. State Experience with EERS

California

The California Public Utilities Commission has adopted annual energy savings goals for the state's four largest investor-owned utilities (IOUs). These goals were adopted through a rulemaking process (01-08-028) and are embedded in California's Energy Action Plan. They specify added efficiency resource procurement on top of existing public benefits program elements. The goals were established jointly by the PUC and the California Energy Commission (CEC) with input from key stakeholders, including utilities, environmental groups, businesses, and supported by statewide studies of electric energy and natural gas efficiency potential. California savings are projected to meet more than half of the IOUs' load growth in electric energy demand between 2004 and 2013. For natural gas, a 116% increase in savings relative to the status quo is expected over the next decade.

Program administrators within each IOU are required to submit energy efficiency program planning and funding levels to the PUC. Goals will be updated every three years, in the regular state program planning and funding cycle. Achieving the savings goals will involve actions such as: energy efficiency standards for new and remodeled building construction, improved air conditioner efficiency, and utility and customer incentives for demand reduction, as well as many others.

California established a “loading order” which requires utilities to pursue energy efficiency, renewable energy, and clean distributed generation before fossil fuel-fired generation.

For more information see:

[D.04-09-060 - Interim Opinion on Energy Savings Goals for Program Year 2006 and Beyond](http://www.cpuc.ca.gov/static/industry/electric/energy+efficiency/rulemaking/eegoals.htm)
<http://www.cpuc.ca.gov/static/industry/electric/energy+efficiency/rulemaking/eegoals.htm>

The State of California Energy Action Plan

<http://www.cpuc.ca.gov/PUBLISHED/REPORT/28715.htm>

Hewlett Foundation Energy Series Report

http://www.ef.org/documents/Secret_Surplus.pdf

Texas

The Public Utility Commission of Texas adopted energy efficiency goals for utilities as a part of the implementation process for the state’s 1999 restructuring law (SB 7). Electric distribution utilities were required to offset 10% of forecast load growth through energy efficiency. To achieve this goal, the utilities were required to provide incentives through standard offer programs or targeted market transformation programs. Incentives were to be paid to energy services companies or retail electric providers for the implementation of the energy efficiency programs.

The Texas PUC worked with IOUs and other interested parties to develop energy efficiency program “templates” that are now being adopted, including:

- Commercial and Industrial Standard Offer
- Residential and Small Commercial Standard Offer
- ENERGY STAR® Homes Market Transformation
- Residential ENERGY STAR® Windows Market Transformation
- Load Management Standard Offer
- Hard-to-Reach Customer Standard Offer
- Air-Conditioner Distributor Market Transformation
- Air-Conditioner Installation Information and Training Market Transformation

In 2001, the Texas legislature adopted energy savings goals for local governments under Senate Bill 5, known as the “Texas Emissions Reduction Plan.” SB5 requires 38 local governments to reduce electricity consumption by 5 percent a year for 5 years, and report annually to the State Energy Conservation Office. The PUC and State Energy Conservation Office (SECO) are working with utilities and local governments to implement efficiency improvement programs and projects, measure and verify energy savings, and incorporate emission reductions into local air quality plans.

Evaluations indicate that the offset to forecast load growth has exceeded 10%. Load growth has averaged about 2% annually, and 10% of this growth amounts to about 0.2% of total annual

electricity sales. Leading state efficiency programs are showing impacts as high as 1% of total annual sales, so 0.2% could be considered a modest goal.

For more information, see: Texas Senate Bill 7

<http://www.capitol.state.tx.us/cgi-bin/tlo/viewtext.cmd?LEG=76&SESS=R&CHAMBER=S&BILLTYPE=B&BILLSUFFIX=00007&VERSION=5&TYPE=B>,

§25.181. Energy Efficiency Goal

<http://www.puc.state.tx.us/rules/subrules/electric/25.181/25.181ei.cfm>, and
<http://www.puc.state.tx.us/electric/projects/22241/032700ar.pdf>

Texas Senate Bill 5

<http://www.tnrcc.state.tx.us/oprd/sips/overview.html>

Pennsylvania

Pennsylvania's Alternative Energy Portfolio Standard (AEPS) (SB 1030), enacted on November 30, 2004, requires all load-serving energy companies in Pennsylvania to provide 18% of their electricity using alternative sources by the year 2020. The AEPS includes demand-side management as an eligible measure. This program is essentially a renewable portfolio standard (RPS) that includes energy efficiency among the compliance options.

The law established two categories of alternative energy sources responsible for a gradually increasing percentage of electricity generation. By the year 2020, Tier I will be responsible for 8% of electricity generation, and Tier II will be responsible for 10% of energy generation. While no efficiency-specific resource target is named, energy efficiency will be among the options available to meet the 10% target. Demand-side management is included among the Tier II sources and will compete with other eligible resources, including waste coal. The decision to include demand-side management in the AEPS was supported by a third party analysis that modeled implementation costs and economic impacts. A credit-based compliance system will be established and banking of credits will be allowed for up to two years.

For more information see:

<http://www.dep.state.pa.us/newsletter/default.asp?NewsletterArticleID=9773&SubjectID=>

Pennsylvania PUC website with docket at:

http://www.puc.state.pa.us/electric/electric_alt_energy_port_stnds.aspx

Economic Impact of Renewable Energy in Pennsylvania

<http://www.bv.com/energy/eec/renewPennStudy.htm>

Illinois

The Illinois Commerce Commission (ICC) is in the process of developing a proposal for a combined renewable energy/energy efficiency portfolio standard. The energy efficiency standard would be similar to Texas', with percentage goals for future load growth. A key issue

is whether demand reduction programs will be allowed to count toward the energy efficiency standard requirement.

For more information see:

ICC website

<http://www.icc.state.il.us/ec/ecEnergy.aspx>

New Jersey

The New Jersey Board of Public Utilities (BPU) set energy efficiency goals of 1,813,750 MWh for electricity savings and 2,596,706 Dtherms for natural gas savings for 2005 through 2008. These goals are to be funded by \$472 million from New Jersey's Societal Benefit Charge, to be made initially available to programs managed by the utilities. Third party studies of the state's energy efficiency and renewable energy potential were used in creating the goals and making the funding decisions.

For more information see:

The State of New Jersey Board of Public Utilities, Office of Clean Energy Funding Allocation and Program Budget, 12-23-04

http://www.state.nj.us/bpu/wwwroot/cleanEnergy/EX04040276_20041223.pdf

C. Discussion Questions

1. What were the policy drivers for your state's efficiency targets? Will an EERS approach provide more savings, at equal or reduced cost, than existing programs?
2. Was the policy/program implemented through legislative or regulatory changes? How was the target established for efficiency savings? Who are the primary proponents and opponents of the policy?
3. What factors did you have to consider in designing an EERS for your state or region? e.g. What sectors (residential, commercial, institutional, industrial) are eligible in the target and why; Whether electricity and natural gas utilities are subject to targets; How the savings will be verified, etc.
4. What additional resources are needed to implement the policy? What sort of implementation timeframe would be realistic?
5. How should you set the baseline for measuring savings? How do you factor in new federal or state efficiency standards and similar programs to avoid rewarding "business as usual" improvements?
6. What is the primary source of financing/funding the efficiency programs under the target? If your EERS involves credit trading, what role would state agencies play in

developing and managing the trading program?

7. How is the program evaluated and what metric is used to measure success? What mechanism allows for mid-stream corrections to targets, procedures, and administrative functions if evaluations showed a need for change?
8. Have you attempted to estimate the environmental benefits of the policy/program? If so, what method did you use?

D. Resources

In addition to the state documents mentioned above, the resources listed below explore EERS directly or offer useful background information.

Comments of the American Council for an Energy-Efficient Economy (ACEEE) - Senate Energy Committee Hearing on Power Generation Resource Incentives and Diversity Standards, March 8, 2005

In their comments for the Senate hearing on Power Generation Resource Incentives and Diversity Standards, the ACEEE described an Energy Efficiency Resource Standard (EERS) as “a simple, market-based mechanism to encourage more efficient generation, transmission, and use of electricity and natural gas,” that “consists of electric and gas end-use savings targets for retail utilities, with flexibility to achieve them through a market-based trading system.”

<http://www.icc.state.il.us/ec/docs/050309ecCommentsACEEE.pdf>

Energy Efficiency and Renewable Energy Sources: A Primer, National Association of State Energy Officials (NASEO), July 15, 1998

This primer offers a basic understanding of state energy efficiency and renewable resource programs. The first chapter provides a historical context with brief descriptions of federal energy efficiency and renewable energy legislation from the Energy Policy and Conservation Act of 1975 to the Energy Policy Act of 1992.

www.naseo.org/energy_sectors/stateenergy/eere_primer.pdf

The New Mother Lode: The Potential for More Efficient Electricity Use in the Southwest

A publication from the Southwest Energy Efficiency Project, this study explores the potential for electricity efficiency in Arizona, Colorado, Nevada, New Mexico, Utah, and Wyoming by modeling “business as usual” and a “high efficiency scenario” for electricity use from 2003 through 2020.

<http://www.swenergy.org/nml/>

The California Measurement Advisory Council offers resources for energy market assessment and evaluation.

<http://www.Calmac.org>