



State Clean Energy-Environment Technical Forum
Using Co-Benefits to Advance Clean Energy Programs
Thursday, June 14, 2007
Call Summary



Participants: 49 participants from 19 states and several national and international organizations (see the participants list at <http://keystone.org/html/documents.html#co>)

Key Issues Discussed

- Co-benefits of energy efficiency (air quality, energy savings, and public health)
- Measuring co-benefits of energy efficiency
- Barriers to leveraging co-benefits into support for energy efficiency

Summary of Presentations

Note: All of the presentations from this call are available for download at <http://keystone.org/html/documents.html#co>. Please refer to these documents for additional detail on the presentations.

A. Welcome and Introduction – Sue Gander, Program Manager; Clean Energy-Environment State Partnership, State and Local Branch, U.S. Environmental Protection Agency (EPA)

- Today's call is the last one for Fiscal Year 2007. We will take a break over the summer and begin again in the fall. **EPA is interested in feedback** on topics, format, speakers, and how to make the Forum as implementation-oriented as possible. Participants are encouraged to send comments and suggestions by email to Sue Gander (gander.sue@epa.gov), Catherine Morris (cmorris@keystone.org), or Heather Bergman (hbergman@keystone.org).
- The topic today is **the use of multiple benefits to advance clean energy programs**.
 - EPA is working with state partners to promote the use of multiple benefits as a key strategy to advance clean energy. We will profile some of those efforts today.
 - This call is an overview, and we hope to come back to this topic in more detail next year.
- Although energy savings are often enough to make the case, documenting multiple benefits is **a way to broaden the number of stakeholders** supporting the advancement of clean energy by assembling a whole portfolio of benefits to help state agencies can make a better case for clean energy within and outside of state government.
 - The background document outlines some of the tools states can use to identify and quantify benefits.
 - There is a **new EPA guidebook** in the works to help states better quantify and communicate the results of multiple benefits.

B. Co-Benefits of Clean Energy in Texas - Dub Taylor, Director; Texas Office of Energy Conservation

- **Introduction**
 - The Texas State Energy Conservation Office (SECO) is **one of 56 state and territory energy offices** involved in demonstration and deployment; SECO is not the research and development business.

- The energy sector in Texas is comprised of more than oil and gas. Oil and gas peaked a while ago, and Texas became a net energy importer in 1993.
- **Electricity demand growth in Texas**
 - Texas has seen a 2.5% increase annually in demand that has been driven by a growing housing stock (and the consequent appliances and air conditioning) and by growth in industry.
 - Peak summer demand is about 70,000 megawatts (MW) with 88% of generation from natural gas and coal.
 - Wind, solar, and biomass together represent only 2% of generation, but wind power in particular is increasing.
- **Texas Air Quality Challenges**
 - 80% of the population lives in 16% of the state. There is a concentration of emissions from generation and automobiles in this area.
 - 41 counties are in near and non-compliance with ozone standards.
 - Beyond reducing mobile emissions, one opportunity is to reduce electricity demand through energy efficiency.
 - For every unit we save at the plug socket, we save 3 units at the generation plant.
 - Texas is in many ways an electrical island, so reduction in demand has an immediate impact on generation and emissions within the state.
- **Texas Emissions Reduction Plan (TERP)**
 - In 2001, the Texas Legislature passed Senate Bill 5 to reduce emissions and reduce peak demand and control costs.
 - Local governments are setting energy efficiency (EE) goals and meeting those goals through building EE and mobile emission reduction.
 - There are public sector “lead by example” (LBE) initiatives in schools.
- **Co-Benefits of Renewable Energy**
 - There is growing acceptance for incorporating EE and renewable energy (RE) technologies into state implementation plans (SIPs).
 - In 1995, the public utility looked at the Utility Integrated Resource Plan (IRP) and conducted deliberative polling on what the public feels is the best way to meet resource needs. Across the state, EE/RE was the preferred choice. The polling also found that customers would be willing to pay slightly more for EE/RE.
 - Polling results provided additional support for the creation of a renewable portfolio standard (RPS) in 1999, which started with phased-in targets. Texas is currently beyond the target. There are currently 3,000 MW of wind generation installed and 1,000 under construction.
 - The state is already seeing economic development as a result of RE project development.
 - The wind-related economy has been stable when compared to agriculture, oil and gas. The economic development benefits are particularly significant in rural areas where wind is being developed.
- **RPS Expansion**
 - The 2005 Perryman Group study looked at the potential benefits of an expanded RPS and identified construction royalty benefits, reduced natural gas demand, and related positive impact on prices. The study projected a \$3.8 billion net economic benefit to the state, taking into account costs to ratepayers.

- Senate Bill 20 proposes new RPS targets of 5,000 new MW by 2015 and a 500-MW carve-out for non-wind energy.
- Wind gets the majority of the RPS, because of its lower cost.
- The bill also authorized the public utility commission (PUC) to approve speculative transmission to support wind generation.
- Different parts of the state were identified as likely sites for generation, and infrastructure costs would be included in the rate base.
- Boone Pickens is planning a 4,000-MW wind farm in the Panhandle.
- **Renewable Energy for Hedging**
 - A supplemental benefit of the RPS was the implementation by the municipal utility Austin Energy of the GreenChoice program, which allows customers who subscribe to lock in a specific rate. This has been a great hedge against the rising fossil fuel costs.
 - The Texas Commission on Environmental Quality subscribed 100% to RE and saved almost \$600,000 as a large energy user.
- **EE Portfolio Standard**
 - The EE portfolio standard was a replacement for demand-side management programs under deregulation. Utilities are required to meet 10% of growth in energy demand through EE. An independent firm documented that EE programs are over-performing, which gave confidence to the legislature to increase the targets. The new target calls for a 20% off-set of electricity demand by 2009.
- The Texas A & M eCalc tool provides a way to document co-benefits and is available at <http://ecalculator.tamu.edu/>.

Questions and Comments

How are GreenChoice funds allocated?

GreenChoice is a renewable energy offering to customers. Utilities make agreements with wholesale power providers and then market the green power to customers who pay a fixed RE charge rather than a fuel charge. The proceeds go to the utility, and the utility uses the funds to purchase the RE.

Please expand on the new goal to set EE standards for buildings.

Page 7 of the background explains this. The goal is to achieve a 5% electricity consumption reduction in 5 years by local governments. Recent legislation extends this by 6 years and adds state agencies and state universities. The new legislation also sets a separate requirement for K-12 schools for similar reductions with less stringent reporting requirements.

Participant Comment: Local government EE programs are tracked through the North Carolina State Energy Conservation Office. Because there is no enforcement mechanism to ensure savings, the emission benefits are discounted by 60% in the SIP.

C. Using Co-Benefits to Speak Multiple Languages and Influence People on Their Own Terms - Chris James, Manager; Climate Change and Energy Programs, Connecticut Department of Environmental Protection

• Introduction

- Connecticut and New England have been using co-benefits as measures for greenhouse gas (GHG) reductions to influence policies in other areas, such as air quality and economic development.
- This should be a good template for others as it provides specifics of how states can be successful in using co-benefits to advance EE.
- More multi-sector, multi-agency coordination is needed to promote EE, and doing so requires that the actions we undertake are framed in a way that goes beyond energy savings.
- Performance of EE persists over time, and we can measure it. We developed replicable protocols that allow us to evaluate other benefits and demonstrate that they are cumulative.
- For example, nitrogen oxide (NO_x) and sulfur dioxide (SO₂) reductions have public health benefits.

• Environmental Benefits

- Criteria and non-criteria pollutant reductions
- Less need to operate dirty and costly peaking units
- Indirect benefits in other media, such as water and solid waste

• Economic Benefits

- Energy savings of \$4 for every \$1 invested in EE
- Public health expenditure savings of \$4 for every \$1 invested
- Creation of local jobs
- Reduced operation of “out of merit” electric generating units (EGUs)
- Increased cash flow through the New England forward capacity market (FCM)
- Reduced need for imported fossil fuels

• Energy Benefits

- Improved grid reliability and nimbleness
- Increased development of even more efficient technology and measures
- Decreased need for transmission upgrades and new power plant construction
- Synergies with combined heat and power (CHP); power going where it is needed

• Analytically Barriers

- Measurement and verification (M&V) protocols exist today, but they are new and different from what is currently being used.
- Current M&V methods are not appropriate and may be inaccurate.
- Existing tools do not appropriately account for the differential risk between various resources.
 - The state worked with EPA and the American Council for an Energy Efficient Economy (ACEEE) to develop protocols to show the New England ISO and utilities that a MW is a MW. This was a challenge, but we were successful.
 - Some of the modeling for power plant and electricity dispatch precision falls apart at small scale. We need more granular and robust approaches.

- **Mental Barriers**
 - There is a perception that EE does not work.
 - M&V protocols are not robust.
 - Many people are just skeptical.
 - There is a failure to recognize the need to change and/or that the world has changed.
- **Institutional Barriers**
 - Stovepiping predominates (by statute, regulation, and/or policy). We had to work hard to overcome this context. Success is measured according to stovepipe statutes. We need to convince others that there are multiple benefits.
 - Energy “priorities” conflict with environmental “priorities,” which in turn conflict with economic “priorities.”
 - There is a tendency to think in the weeds, rather than to focus on “how this could work.”
 - There is a lack of accountability.
- **Financial Barriers**
 - Funds are often available for new and exciting ideas, but once the concept is proven the funding dries up. Analysts call this the “valley of death.”
 - There is a lack of creativity among financial and insurance sectors, which are risk averse. We are trying to work with financial and insurance sectors to address fuel price risk and EE benefits. We need to evaluate EE as a resource and treat it just like any other.
 - Last summer the New England ISO transition capacity market improved reliability. The ISO capacity is different from the delivered MWh; rather, it is the ability to deliver MW. The ISO developed rules that show how resources will be treated within the capacity market. These rules included M&V protocols for all demand-side and supply-side resources. *Note: More information on the New England ISO forward capacity market is available in the summary from the February CEETF call on this topic at <http://www.keystone.org/html/documents.html#forward>.*

Questions/Discussion

How much has interest in EE been driven by increasing energy prices?

Two distribution companies’ first-quarter reports indicate that more than 60% of their annual budgets for energy has been given out, primarily to commercial and industrial (C&I) customers. The residential sector has less interest in EE. However, 20-25% has been spent on compact fluorescent lights (CFL), up from 8% a few years ago.

Please clarify the program for capacity purchases in the New England ISO forward capacity market.

ISO-NE plans to hold a declining clock auction in the future, but in the transition period, the price of capacity is set and increases each year to purchase capacity 3 years in advance. All resources, supply and demand, are paid the same. The capacity market includes all generation, including diesel generators.

How did you get participating utilities to include distributed generation(DG) as part of the program?

In Connecticut, we required the PUC to link financial incentives to MW. This is a separate program from EE.

In Texas, we have an interconnection protocol and a required payment (utilities must pay the avoided costs to DG. The program is not sufficient to incentivize DG to sell power back to the grid. Municipalities and cooperatives are self-regulated, and some have embraced DG. Distribution cooperatives are not as enthusiastic about taking back self-generated electricity because it technically is in violation of wholesale contracts. There may also be safety concerns for workers.

Are there any permitting decisions that put EE on an equal footing with building new generation?

In Connecticut, the legislature recently required an IRP-like procurement. EE may come first; sewage treatment plant upgrades must use the most efficient design; etc. We met with the air quality experts to get them thinking about how to integrate EE into the permitting process.

How cooperative were local governments regarding green building requirements? TERP established a statewide minimum energy code. Local governments can go higher if they choose to do so. Enforcement has been a challenge. Some entities were already exceeding the statewide code. There has been some negotiation in adopting the state standard and it has been fairly well accepted.

The next State Clean Energy-Environment Technical Forum will be in Fall 2007. Participants will be notified of the date and topic by email. Suggestions are welcome. Please email Gander.sue@epa.gov or cmorris@keystone.org.