



U.S. Environmental Protection Agency
State Climate and Energy Technical Forum
Background Document

An Overview of PUC s for State Environment and Energy Officials
May 20, 2010

Public utility commissions (PUCs) regulate electric, gas, telecommunications, water and waste water utilities. In most states a single agency will regulate these sectors; however, in some states these functions may be split between more than one agency. Commissioners are typically appointed by the governor and generally serve 4 to 6 year terms, although in approximately one quarter of the states commissioners are elected.

As a general rule, utility commissions are charged with assuring that utilities provide reasonable, adequate and efficient service to customers at just and reasonable prices. Utility regulation takes many forms, including price regulation, resource planning and acquisition, reliability and quality of service regulation. PUCs typically regulate all investor-owned utilities (IOUs) in their state. Municipal and cooperative utilities are often exempted from PUC regulation or have limited regulation.

Focusing on electric utility regulation, this document will explore the responsibilities of PUCs, their decision making processes, how their decisions can affect clean energy¹ and air quality.

Background

Electric Utility Market Structure

Throughout most of the 20th century, electric utilities were regulated monopolies, with utility companies owning the generation, transmission and distribution assets for their service territory (this model is referred to as “vertically integrated”). Beginning in the late 1990s, a number of states restructured the electric sector to introduce competition. Today, approximately one-half of the states are vertically integrated while the other half relies on competitive markets for generation.²

These competitive markets are typically administered by an independent system operator (ISO) or a regional transmission organization (RTO), which also has broad control over participating utilities’ transmission system and ensures non-discriminatory access to market participants.

¹ Clean energy is defined as energy efficiency, renewable energy, and combined heat and power.

² For a map of Electric Restructuring by State, see:
http://www.eia.doe.gov/cneaf/electricity/page/restructuring/restructure_elect.html

Examples include the New England states (ISO-NE), New York (NY ISO), the Mid-Atlantic and the lower mid-west states (PJM), Texas (ERCOT) and California (Cal-ISO).

In states with vertically integrated electric utilities, PUCs regulate generation, transmission and distribution to customers. In restructured states, PUCs only regulate distribution, while the ISO/RTO oversees the generation markets and transmission system. In addition, the Federal Energy Regulatory Commission regulates wholesale transactions and the interstate transmission system.

The Regulators' Charge

Utility regulation is primarily economic in nature and regulators are generally charged with assuring that utilities provide reasonable, adequate and efficient service to their customers. At the same time, regulators must provide utilities with a reasonable opportunity to recover the costs incurred providing service, including a fair return to investors.

Impacts on Clean Energy and the Environment

PUCs have responsibility over several areas that impact electricity generation, the adoption of clean energy, and related emissions of criteria pollutants and greenhouse gases. These areas include:

- Oversight of utility planning processes (also referred to as resource planning);
- Setting prices;
- Determining clean energy targets, budgets, incentives and funding sources; and
- Deciding whether and how to address utility incentives related to energy efficiency and distributed generation.

Resource Planning, Procurement and Management

PUCs oversee important planning processes that affect a utility's resource portfolio, and therefore its environmental profile. In most non-restructured states, utilities are required to obtain commission permission to construct new facilities or enter into contracts for power. For construction of a new plant, the utility usually must obtain a certificate of public convenience and necessity. However, in all states, independent power producers (IPPs) can build generation and sell power without obtaining a certificate of necessity from the PUC, although the PUC may review a utility's decision to purchase from an IPP.

Integrated Resource Planning (IRP)

The widely-accepted method for choosing new resources is known as Integrated Resource Planning (IRP). IRP compares the life cycle costs of different resource choices to select the most economic incremental resource. This analysis treats energy efficiency and other demand side resources as choices in the analysis.³ More than 30 states have

³ For more information, see: National Action Plan for Energy Efficiency (2007). *Guide to Resource Planning with Energy Efficiency*. Prepared by Snuller Price et al., Energy and Environmental Economics, Inc. <www.epa.gov/eeactionplan>

adopted IRP requirements. Many of these states use IRP to compare the costs of new generation to the costs of energy efficiency, however, Vermont also uses the process to apply IRP principles to evaluating transmission projects.

Portfolio Standards

Over the past decade a number of states adopted portfolio standards which require certain types of resources to be added to the system; these include renewable energy standards (RES) and energy efficiency resource standards (EERS). As of 2010, more than 30 states have adopted an RES, while over 20 have adopted an EERS.⁴ Two states with aggressive RES policies are California and Hawaii. For example, California requires that 33% of electricity generation be met with renewables by 2020. Hawaii has set its RES at 40% by 2030, representing the most aggressive standard in the US. Arizona has adopted an EERS that directs its utilities to develop energy efficiency programs which produce electricity savings of 20% by 2020; Ohio has adopted an EERS target of 22% by 2025.

Smart Grid

A common vision of a “smart” grid is an electric grid system where all participants in the grid system (from electricity generators, to transmission and distribution operators, to electricity consumers) communicate and work with each other to increase the efficiency and reliability of the grid. A key feature of a smart grid system is the use of advanced technologies (such as in-home energy displays or home area networks) that provide participants with relevant energy information. These technologies may allow generators, system managers, and customers to receive instantaneous information on electricity needs and prices, and to work together to meet electricity needs in the most efficient way possible. Given the PUC’s oversight role with much of this investment, they can help ensure the benefits are realized and can require public disclosure of measured results. PUCs can also establish complementary policies to ensure that these technologies are effective, such as interconnection standards for clean distributed generation, funding for energy efficiency programs, and rate designs that encourage customers to save energy. Although advanced metering pilot projects are now prevalent in most states, Vermont and Connecticut are in the advanced stages of planning and deployment. However, most of these implementation projects are still in the preliminary stages of study and evaluation.

Pricing

The process of setting prices is known as rate design. How PUCs identify fixed versus variable costs can have a significant impact on energy consumption patterns and the value of energy efficiency. In addition, prices may be set to vary with the time of day or season. Or, prices may be set at different levels for higher levels of consumption, a structure known as inclining block rates, or some combination of these. Rate design can be used to induce changes in how consumers use energy, often for the purpose of avoiding consumption during the time of the

⁴ For details on State RPS, see: U.S. Energy Information Administration (2010). *Annual Energy Outlook 2010*. <<http://www.eia.doe.gov/oiaf/aeo/>>; for details on State EERS, see: ACEEE <<http://www.aceee.org/energy/national/eers.htm>>

system peak consumption.⁵ For example, several western states (e.g., CA, AZ, ID) have adopted inclining block residential rates during the summer.

Determining Targets, Budgets and Funding Sources for Clean Energy

PUCs play an important role in determining level of rate-payer funding for, and the goals of, energy efficiency programs. The process through which this occurs varies by state, but can include establishing/implementing an energy efficiency resource standard (EERS), committing to invest in “all cost-effective” energy efficiency (e.g., California, Massachusetts), or requiring a level of investment in energy efficiency programs through the IRP process (e.g., Oregon, Washington). PUCs can also decide not to fund energy efficiency programs with rate-payer resources.

Utility Incentives for Energy Efficiency

Under traditional PUC regulation, a utility’s throughput incentive (i.e., the incentive to maximize sales in order to increase profit), is in conflict with an aggressive pursuit of energy efficiency. Some PUCs have adopted policies to address this conflict and align utilities’ financial interests with investment in energy efficiency, such as timely program cost recovery, decoupling, lost revenue adjustment mechanisms, and performance incentives for the successful management of energy efficiency programs.⁶

Distributed Generation

Distributed generation (DG) is smaller-scale electric generation that is usually on the customer’s side of the meter. Common DG projects include roof-top photovoltaics and small-scale wind. The emergence of DG has required a number of collateral policies to be updated or developed. These include standardized interconnection rules, which govern the engineering for the connecting a generator to the system, as well as safe harbor or quick review processes that make it easy to connect small scale generation. The Federal Energy Regulatory Commission has interconnection rules for DG, and most states either have standards in place or under development. States with interconnection standards that are considered favorable to small distributed generation include New York, Ohio, and Michigan.

PUC decision making process

Most regulatory agencies typically follow a “rule and enforcement” model of regulation. That is, standards or rules are adopted through a rule-making or legislative process. Public participation is primarily through comments filed by interested stakeholders. Once rules are adopted, regulators typically turn to an enforcement regime, seeking to identify violations of the rule to impose remedies or sanctions.

⁵ For more information, see: National Action Plan for Energy Efficiency (2009). *Customer Incentives for Energy Efficiency Through Electric and Natural Gas Rate Design*. Prepared by William Prindle, ICF International, Inc. <www.epa.gov/eeactionplan>

⁶ For more information, see: National Action Plan for Energy Efficiency (2007). *Aligning Utility Incentives with Investment in Energy Efficiency*. Prepared by Val R. Jensen, ICF International. <www.epa.gov/eeactionplan>

Utility regulation is somewhat different. In addition to rulemaking authority, utility regulators also engage in quasi-judicial proceedings, taking evidence from witness and adjudicating results based on the record. These proceedings are not as strictly formal as court proceedings, and the rules of evidence are usually somewhat more relaxed than in the courts.

Utility regulatory proceedings are usually open to participation by all interested parties. The level of participation can range from informal public comments to more formal submission of expert testimony and the filing of briefs and procedural motions. The stakeholders who typically participate in these proceedings include:

- Commission staff;
- Utilities;
- Official state consumer advocates;
- Privately funded consumer advocates (usually includes industrial and large commercial consumers);
- Energy and environmental non-governmental organizations;
- Local, State and Federal agencies (in both their governmental capacity and as consumers); and
- The general public.

PUCs preside over a number of different kinds of proceedings. These include:

- Rate proceedings;
- Rulemaking;
- IRP;
- Quality of Service determinations;
- Consumer complaints;
- Enforcement proceedings; and
- Energy efficiency program design and funding⁷.

Most proceedings begin and end under formal rules of procedure which are not unlike the rules utilized by courts. These rules set out, among other matters, requirements for notice to the public, the conditions for participation by the public, standards for the introduction of evidence, avenues for rehearing, and content requirements for officially sanctioned tariffs. Between the initial stages of proceeding, where participants are officially allowed to participate in the proceeding and the end of the proceeding, which most often ends with an official commission order, the process may range from informal to formal, depending on the nature of the issues involved and the nature of participants in the case. Even though the formal mechanism provides for the taking of evidence and the rendering of decisions, much of the regulatory process is found in informal negotiations, workshops and other channels through which difficult questions are raised and workable solutions are identified. It is quite common for utility commissions to

⁷ For more information, see: National Action Plan for Energy Efficiency (2005). *National Action Plan for Energy Efficiency Report*. < http://www.epa.gov/cleanenergy/documents/napee/napee_report.pdf>

engage in informal stakeholder proceedings, sometimes facilitated by non-interested parties, to consider new issues or proposed solutions to existing problems.

PUCs often use non-adjudicatory processes to address new and evolving issues. This would include traditional rulemakings, in addition to informal stakeholder collaborative processes. Over the past decade, the stakeholder process has become one of the mainstays of issue resolution. In these proceeding, professional facilitators are often used and the parties work toward a narrowing of issues or their complete resolution through a negotiated or shared agreement. Typical participants include utilities, ratepayer advocates, environmental advocates, and industry advocates.

Conclusion

State PUCs play a crucial role in shaping energy infrastructure and policy, including consideration of many clean energy policies, as listed above. These decisions have a significant impact on emissions from stationary sources, which impacts air quality. State energy and environment offices can work with their PUCs in a range of ways, either formally by participating in regulatory proceedings or more informally through information-sharing. They can also engage on a number of topics, from integrated resource planning to determining targets for energy efficiency programs. Collaboration between these agencies can help each of them to meet their responsibilities and goals, and ensure that they have an energy system that is affordable, reliable and clean.