



# Fiscal Autonomy Review

## *Comparative Study of Regulatory Fiscal Autonomy Around the World*

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## A. Executive Summary

This study's objective is to inform the reader about essential elements of the important relationship between fiscal autonomy and the decision-making and planning independence of an energy regulatory authority.

Most regulatory authorities obtain the majority of their funds through fees and charges paid by the regulated companies. The means by which funding is provided to a regulatory authority can be measured and assessed on five separate objectives, each of which affects the efficient operation of the regulatory authority: balance, independence, stability, diversity, and flexibility. A *well-balanced* funding scheme will provide a broad-based source of long-term revenues for the regulatory authority. A funding scheme will promote regulatory authority *independence* if, under the scheme, the funds are provided regardless of the outcomes of the authority's decision making process. *Stable* sources of funding that do not vary with time or economic factors can lead to a high level of fiscal autonomy for the regulatory authority. *Diversity* in the funds that are provided means that all parties have a stake in the authority's activities. *Flexible* sources of funding are those that can be adapted quickly to changing situations and can help the regulatory authority maintain its focus and provide its necessary services through unpredictable times.

There are seven common funding mechanisms utilized globally to provide funds for regulatory commission activity: Government appropriation, taxation of regulated entities, flat assessment on each company, one-time license fees assessed on assets of newly regulated entities; recurring license fees assessed on sales by regulated entities, tariff filing fees, and other miscellaneous charges (e.g. for purchase of documents, copies, etc.) These are not mutually exclusive methods, as more than one type of mechanism may be applied in funding a regulatory authority. The chart below summarizes these mechanisms and their regulatory effectiveness as considered in relation to the levels of balance, independence, stability, diversity, and flexibility each provides. Judgment is provided for illustrative purposes only.

EFFECTIVENESS OF FUNDING MECHANISMS					
Type	Balance	Independence	Stability	Diversity	Flexibility
<b>Appropriation</b>	High	Moderate	Moderate	High	Low
<b>Tax</b>	Moderate	High	Moderate	Moderate	Low
<b>Assessment</b>	Moderate	Moderate	High	Low	High
<b>One time fee</b>	Moderate	Low	Low	Low	Moderate
<b>Recurring Fee</b>	High	Moderate	High	Moderate	Moderate
<b>Tariff fee</b>	High	Low	Low	Low	Low
<b>Other</b>	Low	High	Low	High	High

In addition to the analysis of the funding objectives and mechanisms, brief surveys were conducted of eight national-level regulatory authorities from around the world. The results of

these surveys were included as examples throughout this study and are included in their entirety in Section 3 – Study Methodology and Findings.

Further, this study makes specific recommendations, based on the funding objectives and mechanisms, on how best to promote the fiscal autonomy, and thus the independence, of the regulatory authority. These recommendations, discussed more fully herein, are as follows:

- A regulatory authority should utilize a hybrid funding mechanism, similar to that utilized by the United Kingdom and the United States, whereby the authority receives funding from diverse sources: partially from appropriations and partially from a variety of fees, assessments, and taxes.
- A hybrid funding mechanism should reflect both the short- and long-term goals of the regulatory authority; there should be a correlation between the authority's funding mechanisms and its future plans.
- The funding mechanism should have a sound legal basis because the funding process will not be efficient if the issue of funding for the regulatory authority needs to be addressed on a recurring basis.
- Regulatory effectiveness, and thus investor and consumer confidence, would increase if allocated funds are made available to the regulatory authority on a predictable and stable basis so that key short-term and long-term financial decisions can be devised and implemented.
- Levels of funding should be free from outcome-based decision making, as this will provide a stable level of funding that does not fluctuate based on decisions made by the regulatory authority and will enhance regulatory effectiveness.

## **B. Introduction**

### **1. Background**

This paper reviews the objectives and characteristics of funding mechanisms and their relationship to fiscal autonomy for energy regulatory authorities. In addition to discussing general concepts associated with these funding mechanisms, the following are also explained:

- Specific funding practices for a representative sample of leading national-level regulatory authorities around the world.
- Basic advantages and disadvantages of certain funding mechanisms as they have been implemented at these authorities and as they apply to general notions of fiscal autonomy.

Developing and maintaining efficient energy markets and a having a reliable energy infrastructure are necessary prerequisites to the development of a vibrant national economy. Around the world, the production and delivery of electricity has traditionally been performed by either investor-owned electric utilities or government-owned electric power institutions. Both these entities tended to be natural monopolies, requiring operational and fiscal oversight by an independent regulatory body. In recent years, a number of countries have addressed the efficacy of the vertically-integrated utility (one that owns electric production, transmission, and distribution) and have restructured their electric power markets to accommodate various levels of market competition. Countries embarking on this path have included the United Kingdom, the United States, Australia, and Hungary. Regardless of the degree to which a country has restructured its power sector and developed a competitive electric power market, key elements of this essential market continue to require oversight and regulation by a regional or national regulatory authority.<sup>1</sup>

Assuring safe, reliable, and fairly-priced electric power can be a daunting task for any regulatory authority, especially because it requires expertise in a wide range of substantive areas, including accounting, financial analysis, economic forecasting, and engineering. This portfolio of skills must be maintained to fairly and accurately assess and pass judgment on a variety of issues, such as rate approval, transmission and generation siting, construction certification, and management and operation auditing. The ability of the regulatory authority to develop and maintain a highly professional and proficient technical and legal staff (and thus to fulfill its mission as a regulatory authority) will depend, to a large extent, on the level and continuity of allocated funding.

There are three major measures that have been developed and utilized by legislators and policy experts to achieve and safeguard the independence of regulatory authorities. One of them, the implementation of fiscal autonomy is the main focus of this study. The two other equally

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<sup>1</sup> Because governmental entities that regulate electric power markets are referred to in many different ways in different countries (e.g. commission, authority, board, etc.), for the purposes of this paper, they will be collectively referred to by the general term, “authority.”

important measures are regulatory independence (where regulators are shielded both from political influence and the influence of regulated parties) and political independence (a commitment to provide for a stable regulatory framework over time). A regulatory authority that is strong in these areas can provide assurances to investors and stakeholders that promote the levels of foreign investment and consumer confidence necessary for a reliable and efficient energy infrastructure and market. While political and regulatory independence are beyond the scope of this paper, fiscal independence is a significant and important issue that assists in achieving those high levels of investor and stakeholder confidence. This paper examines the objectives and characteristics of fiscal autonomy, providing relevant examples from leading national-level regulatory authorities from around the world.

## 2. General Notions of Regulatory Independence

Independence is an important goal because it allows regulatory authorities to:

- Make a credible commitment to the interests of both consumers and investors.
- Give confidence to investors so the long-term goal of a healthy and robust electricity infrastructure and market that benefits consumers will be realized.
- Provide comfort to consumers that utility prices are just and reasonable, that service is safe and reliable, and that politics does not unduly influence regulatory authority decision-making.

Raising utility customer prices is never a popular decision. Elected officials are often fearful that they will lose votes if electricity prices are increased. In many countries, justifiable price increases have been withheld at the expense of short and long-term investors, to the detriment of the electricity market and infrastructure development. Private investment for large assets (such as power plants and natural gas pipelines) will not be forthcoming unless the government makes a commitment to rules that ensure investors an opportunity to earn reasonable returns on investment.

### **Fiscal Autonomy and Regulatory Effectiveness**

Like any other government agency or business, a regulatory authority must set realistic goals, prioritize activities, and efficiently manage organizational and human resources in order to be effective. If its funding source is stable, predictable, and well-balanced, the authority will be able to make decisions and allocate its resources in a manner that will contribute towards fulfillment of its mission.

The authority is expected to perform a wide range of duties. Investors and industry look to the authority for indications concerning the future direction of the energy sector – a sector which has a universal impact on society. If the authority is not allowed to pursue a full range of options and opportunities, it cannot guarantee both returns on investment and a continuous supply of fairly-priced power.

The authority must implement successful policies to spur the development of nascent, innovative segments of the power sector and to continue the growth and success achieved in other areas. To develop and implement a successful policy framework, the authority must (based on circumstance and a variety of factors) be provided some degree of fiscal reliability and autonomy. Of course a level of uncertainty is always expected in the operation of governmental and non-governmental entities, for example, in the form of economic cycles, political elections, and pending litigation. However, uncertainty in policy development and implementation could have dire consequences. Hesitation and uncertainty will hinder the level of investment needed to meet the goals discussed above.

For a regulatory authority to develop effective policies to guide the power industry, it is essential that the authority be able to attract and retain qualified personnel. The authority must know where to place their people, and what kind of expertise their employs need to have. Fiscal autonomy allows the authority to successfully incorporate and mobilize its human knowledge assets. This makes the job of implementing appropriate policies far easier, and thus increases the overall effectiveness of the authority.

Like most government agencies around the world, regulatory authorities are competing for qualified personnel with private sector firms and other entities that tend to have access to greater financial resources and flexibility in their hiring processes. Weak financial autonomy can greatly damage an authority's ability to compete in this area. Achieving a greater degree of fiscal autonomy will allow a regulatory authority to meet this challenge.

Another important element of policy development for regulatory authorities is the ability to develop an effective information technology (IT) network that will allow for appropriate coordination of activities essential to the authority's mission. A flexible and responsive IT infrastructure allows for essential knowledge management and transfer capabilities that can provide a basis for solid policy development. Fiscal autonomy will allow the regulatory authority to plan and implement the appropriate systems, so authority staff can access and share the resources necessary for effective policy development.

A successful regulatory authority must be able to communicate with its stakeholders, including industry and the public at large. Without robust communication capabilities, activities may be misunderstood. If the authority's stakeholders do not appreciate the rationale behind the authority's decisions and actions, there is the very real risk that parties may align in opposition to the authority's initiatives and thus impede the authority's goals. Fiscal autonomy enables an authority to develop a stable and reliable communication network that can enhance stakeholder trust and confidence in the regulatory authority, strengthen the credibility of the regulatory authority, and thus gather essential support for the authority and the fulfillment of its mission.

### **Fiscal Autonomy and the Role of Auditing**

Audits are a necessary part of the process by which governmental and non-governmental entities demonstrate the legitimacy of their financial operations. They essentially provide a "report card" of how an entity spends its money. Effective and respected auditing processes can help maintain order in the economy by detecting and curbing fraudulent activities, such as accounting frauds. As the expanse of the global economy and the complexity of international financial transactions increase, it becomes more important for institutions associated with business and foreign investment to utilize the auditing process to provide the confidence that can serve as the basis for sustained and healthy economic development.

Proper auditing of a regulatory authority is important because it demonstrates that internal and external resources are being utilized in a manner consistent with their intended purposes. A properly performed audit ensures that funds are being spent in the intended manner. This

determination is vital for attracting foreign investment and promoting public confidence in the audited institution. Direct international investment is often contingent upon an auditor's finding that the appropriate regulatory body has its financial house in order.

It is a common practice around the world for regulatory authorities to have both internal and external audits performed upon their financial operations. Regulatory authorities in Australia, Brazil, South Africa, United Kingdom, and the United States are all subject to internal and external audits. In addition, following calls by the Chinese Premier, Zhu Rongji, for better auditing procedures, the Chinese National Audit Office recently announced that it will be making the results of its audits open to the public over the course of the next five years. Respected and legitimate audits can provide the public and other governmental entities with necessary confidence in the regulatory authority's fiscal effectiveness and can provide the basis for more significant movement towards fiscal autonomy of the regulatory authority.

The external auditors currently used by regulatory authorities include the Big Four: Deloitte Touche Tohmatsu, KPMG, Ernst & Young, and PricewaterhouseCoopers. While it is not essential that auditing be performed by one of these firms, it is essential that the independence of the firm conducting the audit is beyond question and, importantly, that the firm has received approval or accreditation from an appropriate recognized professional organization. The International Accounting Standards Board is an independent, privately-funded accounting standard setter based in London, of which the Philippines is a member. Within the Philippines, an appropriate body to provide this kind of certification would be the Philippines Institute of Certified Public Accountants, which contains an Accounting Standards Council that issues accounting standards. Of further importance is that the auditor itself reports to a party unaffiliated with the regulatory authority being audited. This is essential in preserving the independence, integrity, and public acceptance of the findings.

### **Indicators of Regulatory Effectiveness**

It is fundamental for every organization to be able to critically assess its own performance. It is doubly important for a regulatory authority that oversees an industry of such critical importance to the public as energy. The regulatory authority needs to be able to assess its effectiveness in meeting the legitimate expectations of its stakeholders. Generally, a regulatory authority may be considered effective in this respect when, given the necessary autonomy and resources, it:

- Develops and maintains an adequate level of competencies.
- Performs its regulatory functions in a timely and cost-effective manner that ensures the confidence of the regulated entities, the government, and the general public.
- Strives for continuous improvements in its performance.

In order for a regulatory authority to be able to measure its effectiveness and provide the basis for measurable future improvement, a quality management model with specific performance

indicators should be adopted.<sup>2</sup> While the actual model is not important, it is vital that some form of model be used so that the performance indicators may be placed within an appropriate analytical context. That way the authority can consider its performance (as measured by the indicators) in relation to its stakeholders, the regulatory processes it utilizes, and the expected results of these processes. Once an appropriate model and indicators are adopted, they may provide a solid basis for improvement in regulatory effectiveness.

Two different types of performance indicators are generally used to measure regulatory effectiveness: direct and indirect. Direct performance indicators measure the regulatory authority's activities based on data generated within the authority itself. Indirect performance indicators measure the stakeholder activities (mainly the regulated entities) to determine the effectiveness of the regulatory authority. Each indicator has its advantages and disadvantages. Direct indicators can provide a measurement of the authority's performance, but do not address the authority's mission or desired outcomes. Indirect indicators can reveal the extent to which desired regulatory outcomes are being achieved (by looking at the actions of the parties being regulated), but must be considered with a certain degree of caution because of the numerous other factors that affect stakeholder performance besides the regulatory authority.

Because the process of determining regulatory effectiveness through the use of performance indicators is an inexact science, subject to numerous factors that may be beyond the control of the regulatory authority, it is difficult to compile a truly representative list of performance indicators. Thus, at a minimum, it is important that the performance indicators assess the *quality* of the work performed, instead of merely the *quantity*. Regulatory activities appropriate for measuring by direct indicators may include the following:

- Timely and efficient processing of all applications and filings. This could consist of measurable determinants such as: meeting deadlines, avoiding inefficient interactions with licensees, having the correct regulatory expertise available in a timely and properly utilized manner, proper prioritization of relevant issues.
- Meeting internal standards of quality, cost, and timeliness in areas such as: producing technical reports, decision documents, public hearing documents, etc., meeting internal standards of quality, cost, and timeliness for informing, communicating, and corresponding with the public, necessary enforcement actions, and other activities such as assisting/advising other government departments, congressional select committees, international work, research activities, etc.

Because direct performance indicators are used to determine the overall effectiveness of the regulatory structure and systems, these indicators should be representative of the overall performance of the regulatory authority and provide information about all aspects of the regulatory work. These indicators should:

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<sup>2</sup> One model that has been used by various regulatory authorities is the European Foundation for Quality Management's Business Excellence Model. This model consists of five enablers (leadership, policy and strategy, people, partnership and resources, and processes) and four results (customer results, people results, society results, key performance results).

- Verify that regulatory work is performed in accordance with the mission, strategic guidance, and detailed plans.
- Verify that regulatory work is performed according to internal procedures.
- Measure the successful performance of work processes.

### **Examples of the Use of Direct and Indirect Performance Indicators**

**Indirect Performance Indicators** – Monitoring (i.e. the regular supervision of a licensee’s activity) is an appropriate means by which a regulatory authority can gather and measure indirect performance indicators and thus improve the authority’s ability to determine whether specific desired outcomes are occurring in the marketplace. Through monitoring, an authority can also develop a benchmarking process to further compare and measure regulated entities’ performances. A well-designed benchmarking process can identify practices that improve the overall operations of the regulated entity. Monitoring may occur through the submission of regular and ad hoc information for regulated entities, as well as data and on-site inspections.

Most regulatory authorities engage in some form of monitoring, whether simply the collection of data on power plant capacity for resource planning, or the more advanced monitoring of competitive wholesale markets and energy trading to promote competition and decrease instances of discrimination. Information can be collected either on an ad hoc basis, or through weekly, monthly, quarterly, and annual reports. Areas of particular importance for monitoring include the following:

- Continuity and quality of power supply: this includes voltage quality, customer satisfaction, and use of network company’s electrical safety equipment.
- Network development: the development of and adherence to technical standards and requirements for network wires and interconnections.
- System operator performance: this includes assuring price transparency; guaranteeing operators are collecting necessary data to ensure system integrity (including generator capacity and consumption forecasts); coordination capabilities in case of breakdown or other emergency; and increasing economic efficiency.
- Market pricing: this includes comparison of bidding strategies of market players; analysis of fuel prices; pricing data (“peak” and “off-peak”; daily minimum, average, and maximum prices; different time periods depending on market situation; data from different markets); and potential monopolistic behavior.
- Market operation monitoring: this includes monitoring the market share of biggest supplier and price elasticity.

**Direct Performance Indicators**– From 1998 through 2000, the Federal Energy Regulatory Commission (FERC) of the United States conducted a significant internal examination (FERC First) that used, among other tools, direct performance indicators as a means by which to modernize and reengineer the agency’s processes and procedures. The United States was (and still is) in the midst of restructuring its energy markets and introducing competition in the retail and wholesale sectors. One of the goals of FERC First was to examine and measure the levels of efficiency of various internal operations and to adapt the overall processes of the commission to make it more amenable to the structure and challenges of the transformed markets it was regulating. While FERC First was a one-time study, similar performance indicators may be used on an ongoing basis to determine regulatory authority efficiency.

Some of the specific direct performance indicators considered in FERC First included:

- Time needed to respond to situations such as complaints filed by stakeholders and other parties affected by regulated entities, applications for hydroelectric projects and natural gas pipeline certifications, and proposed changes to transmission and rate tariffs.
- The ability of staff to physically and electronically collaborate on the development of documents related to commission decisions.
- The level of effort required for personnel with necessary expertise to be selected and allocated to produce the necessary documents associated with a specific subject area.

As a result of this internal examination using direct performance indicators, numerous structural changes were implemented to FERC’s internal personnel organization, its information technology infrastructure (which reflected the new collaborative framework), and the process used to assign responsibility for documents filed with the commission. Through the use of direct performance indicators, FERC was also able to implement changes that resulted in the following:

- Combination of gas and electric departments to reflect the convergence underway in the industry.
- Increased use of market monitoring to promote competition and decrease discrimination.
- Reduction in levels of management hierarchy and streamlining of review processes that have led to increased staff productivity.
- Increased use of Dispute Resolution Services and related screening techniques to identify appropriate cases that can be better served by more limited Commission resources.
- New criteria that promote leadership and strategic planning.

### 3. Study Methodology & Findings

This study sought relevant information from various countries designed to represent a range of factors including level of industrialization, geographic location and regulatory history. Regulatory agencies representing eight countries throughout the world were surveyed for this study. Those countries were:

- Australia
- Brazil
- Hungary
- India
- South Africa
- United Kingdom
- United States
- Zambia

The regulatory authority from each of these countries was sent the following questions:

1. How was your commission funded in its most recent fiscal year? Is the funding through your general governmental fund/national treasury, filing fees, licensing fees on regulated utilities, fees based on energy consumed and/or total revenues of regulated utilities, or a combination of the above?
2. When and how does your commission receive its funds?
3. For funds coming from the government's general fund/national treasury, does your commission receive its monies directly or do they pass through other governmental organizations first?
4. For monies coming from outside sources, such as fees/revenues assessed on regulated entities, does your commission receive these funds directly or do they pass through other governmental organizations first?
5. Once the budget is determined for your fiscal year, when does your commission receive these funds? For example, do you receive these funds in one lump sum at the beginning of the fiscal year or on a monthly basis? Please describe.
6. When was your commission founded?
7. Please describe the process by which your commission is audited. Is auditing performed internally, externally, or a combination of both?

While the number of countries surveyed was limited, it did represent a reasonable sampling of regulatory agencies from industrialized and developing nations. Following are the highlights of the responses received, along with major characteristics of the economy and the energy markets:

## 1. Australia

### **Regulator:**

Australian Competition and Consumer Commission (ACCC) – established in 1995

### Market:

- Population of 19.3 million
- 2001 GDP of \$365.8 billion
- Electricity generation of 202.7 billion kilowatt-hours. (85% thermal, 15% hydro).
- Natural gas production of 1.12 Tcf and consumption of 755 Bcf.
- Oil production of 633,000 barrels per day (imports 239,000 barrels per day).
- World's leading coal exporter with large natural gas reserves.
- Third largest LNG exporter in Asia-Pacific region.
- Proven oil and gas reserves have almost doubled in recent years, with significant exploration yet to be performed.
- Undertaking infrastructure development to bring more natural gas reserves to market.

### Funding & Auditing:

- 99% of the ACCC's funding comes from the government, with 1% coming from the sales of goods and services such as publications and workshops.
- Funding comes directly from the government on an "as needed" basis.
- The ACCC is audited both internally and externally. The external audit is conducted by the government (Australian National Audit Office) and the internal audit is performed by independent auditors, who report to the ACCC's Audit Committee.

## 2. Brazil

### **Regulator:**

The Electric Energy National Agency (ANEEL) – established in 1996

### Market:

- Population of 174.4 million.
- 2001 GDP of \$511.7 billion.
- Electricity generation of 342.3 billion kilowatt-hours. (87% hydro, 13% thermal)
- Natural gas production of 260 Bcf and consumption of 333 Bcf.
- Oil production of 1.6 million barrels per day (imports 600,000 barrels per day).
- Experienced rapidly expanding oil, natural gas, and electricity markets in recent years.

### Funding & Auditing:

- ANEEL is principally funded through a combination of fees collected on electric services and funds from the National Treasury.
- Funds are also derived from sales of publications, donations, funds from contracts or agreements, and revenues from sale or rental of real estate.
- ANEEL is audited both internally and externally. Internally, an Internal Auditing Department was created at the agency and externally, both the legislative and executive branches have auditing responsibilities

### **3. Hungary**

#### **Regulator:**

The Hungarian Energy Office (HEO) – established in 1994

#### Market:

- Population of 10.2 million.
- 2002 GDP of \$61.4 billion.
- Electricity generation of 35.1 billion kilowatt-hours (60% thermal, 39% nuclear, 1% hydro).
- Natural gas production of 114 bcf and consumption of 472 bcf
- Oil production of 31,000 barrels per day (imports 118,000 barrels per day).

### Funding and Auditing

- The HEO is self-financing. 75% of the HEO's funding comes from a regulatory fee (0.05% of each licensee's net sales revenues of the immediately preceding year) and 25% comes from the collection of an administrative fee which is determined by the Minister of Energy in agreement with the Minister of Finance.
- Funds are paid directly to the HEO twice per year: on January 15 and June 30.
- The HEO is audited both internally and externally. Its internal audits are performed by an internal auditor. Its external audits are performed by the Ministry of Economy and Transport (every second year) and by the State Audit Office of Hungary, the Government Control Office, and the Tax and Financial Control Administration (on an ad hoc basis).

### **4. India**

#### **Regulator:**

Central Electricity Regulatory Commission (CERC) – established in 1998

Market:

- Population of 1.0 billion.
- 2001 GDP of \$514.4 billion.
- Electricity generation of 533 billion kilowatt-hours (80% conventional thermal, 18% hydro, 2% nuclear).
- Natural gas production/consumption of 803 Bcf.
- Oil production of 759,000 barrels per day (imports 1.2 million barrels per day). Sixth largest global energy consumer.
- Third largest producer of coal. Relies on coal for more than 50% of its total energy needs.

Funding:

- The Government of India (GOI) funds 100% of the CERC.
- The fund provisions for the CERC are contained in the budget proposal of the Ministry of Power and the funds are made available to the Commission once the budget is approved.
- Filing fees collected by the Commission are directly credited to the GOI and are governed by the Regulations issued by the CERC.

## 5. South Africa

**Regulator:**

National Electricity Regulator (NER) – established in April 1995

Market:

- Population of 43.6 million. 2001 GDP of \$114.7 billion.
- Electricity generation of 194.4 billion kilowatt-hours (92% thermal, 7% nuclear and 1% hydro).
- Natural gas production/consumption of 49.4 Bcf.
- Oil consumption of 482,000 barrels per day (imports 258,000 barrels per day).
- A major coal producer and exporter with a highly developed synthetic fuel industry and small reserves of oil.

Funding & Auditing:

- The main source of funding for the NER is license fees paid by the licensed generators of electricity. There are eleven such generators and the fee is paid on a monthly basis. These fees are based on the amount of electricity generated by the licensee in the prior calendar year. The fee schedule is determined by the NER.
- The Department of Minerals and Energy approves the budget of the NER and NER invoices the generators of electricity.
- Other funds are received from donors, such as aid agencies. This source of funds varies on an annual basis and requires the submission of a business plan in advance of receiving them.

- Audits are both internal and external. The internal audits are outsourced to an outside firm and are performed quarterly and the external audits are performed by the Auditor General. In addition the NER financial statements are audited annually.

## 6. United Kingdom

### **Regulator:**

Office of Gas & Electric Markets (OFGEM) – established in 1999 following the merger of two energy offices.

### Market:

- Population of 59.8 million.
- 2001 GDP of \$1.527 trillion.
- Electricity generation of 355.8 billion kilowatt-hours. (80% thermal, 18% nuclear, 2% hydro).
- Natural gas production of 3.8 Tcf and consumption of 3.4 Tcf.
- Oil production of 2.5 million barrels per day (exports 800,000 barrels per day).
- A major European oil and natural gas producer.
- One of the largest energy consumers in Europe.

### Funding & Auditing:

- The majority of OFGEM's funds come from license fees from regulated companies. The balance comes from the central government.
- Funds from the central government are made available at the start of the fiscal year and are passed directly to OFGEM.
- The license fees are provided directly to OFGEM in 2 phases. The first 75% is received in the first quarter and the final 25% is received in the third quarter.
- OFGEM is audited both internally and externally.

## 7. United States

### **Regulator:**

Federal Energy Regulatory Commission (FERC) – established in 1977, predecessor established in 1920.

### Market:

- Population of 280.6 million.
- 2001 GDP of \$10.4 trillion.
- Electricity generation of 3.7 trillion kilowatt-hours. (74% thermal, 12% nuclear, 12% hydro, and 2% renewables).
- Natural gas production of 19.4 Tcf and consumption of 22.3 Tcf.

- Oil production of 9.1 million barrels per day (imports 10.4 million barrels per day).
- The world's largest energy producer, consumer, and net importer. Globally, ranks first in coal reserves, sixth in natural gas reserves, and twelfth in oil reserves.

Funding & Auditing:

- FERC derives its funding from a combination of fees and annual charges on regulated entities. The fees are filing and license fees and from sales of publications.
- The funds are appropriated from the general fund of the government and are subject to the annual budget process; however, the fees collected reimburse the general fund.
- Funds are made available to FERC at the beginning of the fiscal year.
- FERC has both internal and external audits.

## **8. Zambia**

**Regulator:**

Energy Regulatory Board (ERB) – established in 1995

Market:

- Population of 9.8 million.
- 2001 GDP of \$3.1 billion.
- Electricity generation of 7.82 billion kilowatt-hours (provided mostly through hydro, with a small amount provided by oil).
- Imports 10,800 barrels of oil per day.
- Neither produces nor consumes natural gas.

Funding & Auditing:

- The ERB is funded through license fees from regulated activities. 95% of the budget comes from license fees and the remainder comes from other sources, including donors.
- The ERB is authorized to collect up to 0.5% of the regulated entities' annual revenue. They currently collect 0.45%.
- The license fees are paid directly to the ERB on a monthly basis, based on revenues, and at the end of the year the figures are reconciled.
- An independent audit firm appointed by the Minister audits the ERB.

## C. Framework for Funding Mechanisms

### 1. Objectives of Funding Mechanisms

The purpose for funding a regulatory authority is to ensure appropriate levels of balance, independence, stability, diversity and flexibility in the authority's activities. It is important to balance the needs and expectations of the regulatory authority with the level of resources available from within the electricity sector. As will be emphasized throughout this paper, independence of the regulatory authority is an important component of the regulatory process. The funding must insulate the authority from pressure to provide output-based rewards, such as the issuance of permits or the granting of rate requests. The funding must provide stable revenues over a given period of time and, as such, must be removed from any potential volatility associated with prices charged for electricity or volume of electricity sold. Diverse sources of funding will more likely ensure consistency and continuity of anticipated funding levels while distributing the burden of financial support among appropriate beneficiaries of the system. A flexible, broad-based approach to funding is desirable to support the authority's ability to adequately respond to statutory requirements, legislative priorities, electricity sector expectations, and emergency situations.

#### 1 - Balance

A primary consideration for funding a regulatory authority is to ensure that there is a balance between the needs of the regulatory process and the resources available within the power sector. A funding scheme that is disproportionately dependent on narrow funding mechanisms will not produce effective long-term regulation. A funding scheme that is overly costly will not promote efficiency in the power sector.

A well-balanced funding scheme must include several different broad-based mechanisms. It must be targeted to a level that is appropriate for the activities of the regulatory process and have the support of the government and the regulated companies, as well as the regulator.

Individual funding sources are considered well-balanced if they can provide a broad-based source of revenues for the regulator over time. A poor balance would come from funding sources that are very narrow in scope, such as miscellaneous charges for minor services offered by the regulator.

#### 2 – Independence

An important objective of the funding process is to ensure that no funding mechanisms are outcome-based in their implementation. There must be no expectation of a particular decision or decision-making pattern from the authority before funds become available. Charging fees for granting licenses is a good example of this mistake. Fees should be charged for license applications, so the fees are assessed regardless of whether the license is actually granted. If the authority only receives its funds following approval, it could be construed that the authority is approving license applications just so it will receive its funds.

A high degree of independence results if the funding mechanism is free of outcome-based decision-making. There is a low degree of independence if there is a perception that the regulatory authority is affected by outcome-based decision-making.

### **3 – Stability**

For financial and administrative reasons, stability of funding is important to the regulatory authority. Funding sources that contribute to the stability of the authority are preferred over those that are volatile and are affected by factors outside the control of the regulator. For example, the United States and the United Kingdom have predictable funding and stable resources, which lead to strong fiscal autonomy. There must be some insulation from potential swings in the power market such a decrease in the volume of power sales or the amount of power transmitted and distributed. It is not confidence-building to have funding that increases or decreases depending upon economic conditions that are beyond the regulator’s control. While it may be appropriate to have some revenue come from such sources, in the long run, sources must be more stable.

Highly stable sources of revenue are those that do not vary with time or economic factors, while low levels of stability are provided by volatile sources of funding.

### **4 – Diversity**

If funding is drawn from a broad spectrum of sources, such as the appropriation from government funds (which comes from all sectors of society), then it is highly diverse. If it is drawn from a narrow source of funds, such as a tariff fee (which comes only from a small section of the electricity market), then it is not diverse. The question of diversity is important when considering a range of factors for funding. A high level of diversity will provide insurance against unforeseen circumstances. In addition, diversity in funding involves a broader range of stakeholders and increases the likelihood of receiving constructive and informed input on regulatory matters from the necessary parties.

### **5 – Flexibility**

Some funding sources are more flexible in their design and implementation than others. An assessment that is highly flexible can be implemented quickly. It is well suited to support the regulatory authority either in times of extraordinary activity or at start-up. Less flexible mechanisms may have other advantages. Flexibility in the source of funding is important to the regulatory authority as part of a broad-based funding scheme over time.

## 2. Considerations in the Design of Funding Mechanisms

A fundamental principle of fair and just regulation is that the authority is independent of the entities it regulates. The mechanisms used to fund the regulatory authority are critical to ensuring regulatory independence. The following are important considerations to bear in mind when determining the authority's funding scheme:

- Funding needs to have a sound legal basis, such as enacted statutes or decrees. Funding is not efficient if questions about its legitimacy need to be addressed on a recurring basis.
- Funding must be independent of the decisions made by the authority and must not be subject to positions taken by the authority upon requests from regulated entities. For example, if funding is based on a percentage of revenue, then the regulator could be perceived to have a vested interest in higher rates, which would increase revenue, and thus funding. Further, if funding is based on licenses granted, stakeholders could perceive an ulterior motive to approve license applications.
- Funding must be stable and not influenced by outside conditions such as cyclical variations in the economy, unusually hot or cold weather, or physical damages to electric power facilities that could result in spikes or declines in power sales.
- Funding must contribute to the financial and cash flow requirements of the authority. It is important that the amount and manner of funding be coordinated with the particular financial needs of the regulatory authority. For example, if the authority requires greater levels of funding at certain points during the fiscal year, the funding should be coordinated to mirror those requirements.
- Under certain circumstances, such as during sector restructuring and the establishment of a new regulatory body, there will likely be a need for special funding mechanisms to cover the costs of extraordinary expenses such as the hiring of new personnel, development and occupation of new office space, and other related start-up costs. Short-term funding must be designed to meet these needs. This funding may be in the form of one-time appropriations, or a one-time special assessment on regulated entities for the purpose of allowing the practical development of the new regulatory authority. Such funding, however, will not be appropriate over a long period of time. As the regulatory authority matures, it will be important to develop a mature, robust funding scheme that will support it.

### 3. Common Types of Funding Mechanisms

Many regulatory authorities support their operations through a combination of funding mechanisms. A list of funding mechanisms in common practice, with a fuller discussion elaborating how each relates to the five funding objectives, is provided below.

- Government appropriation
- Taxation of regulated entities
- Flat assessment on each company
- One time license fees assessed on assets of newly regulated entities
- Recurring license fees assessed on sales by regulated entities
- Tariff filing fees
- Other sources, such as charges for purchase of documents, copies, etc.

The chart below depicts each of the seven funding mechanisms, as characterized by the levels of balance, independence, stability, diversity and flexibility each provides. Judgment is provided below for illustrative purposes only.

EFFECTIVENESS OF FUNDING MECHANISMS					
Type	Balance	Independence	Stability	Diversity	Flexibility
Appropriation	High	Moderate	Moderate	High	Low
Tax	Moderate	High	Moderate	Moderate	Low
Assessment	Moderate	Moderate	High	Low	High
One time fee	Moderate	Low	Low	Low	Moderate
Recurring Fee	High	Moderate	High	Moderate	Moderate
Tariff fee	High	Low	Low	Low	Low
Other	Low	High	Low	High	High

#### *What is the most effective funding source?*

Perhaps the most effective funding mechanisms are those with diverse sources of revenue for the regulatory authority, such as those used in the United Kingdom and the United States. The benefit of this arrangement is that the regulator is not dependent on any one source of funding. If there is a decline in the sale of electricity, as may happen in times of an economic recession, then any fee structure based solely on amount of electricity sold will result in a loss of revenue for the regulator. Similarly, revenues would be lost if there were damage to the transmission system, no electricity could be transmitted or sold until the line was repaired. In case of storms, this can mean several weeks of lost revenue to the utility and thus to the regulator.

Revenues based on *profits* of the utility will depend on the success of other people at managing their company. Failure of utility management could then also cause a loss in anticipated revenue to the regulator.

The objective for both the regulator and the power sector is to create a funding mechanism that is stable, predictable and has broad stakeholder consensus. Effective planning can only be performed when the expenses and revenues are known quantities. When the costs of regulation are unknown, the uncertainty makes it more difficult for people to manage. Similarly, when investors want to know that regulatory funding is not a contentious and uncertain process and that the regulatory authority will have the resources necessary to provide fair, just, and transparent regulation.

Moving away from a funding mechanism that consists mostly of government appropriations and towards a mechanism characterized by increased levels of funding provided by other sources represents a solid step towards achieving fiscal autonomy. It is important to note that it might be best for the authority to achieve this gradually over a period of years. This will allow the regulatory authority time to experiment with different funding mechanisms and to adjust to the levels of funding that come from assessments, taxes, and fees in lieu of appropriations.

## Characteristics of Sample Funding Sources:

### 1 – Budgetary Appropriations

Type	Balance	Independence	Stability	Diversity	Flexibility
Appropriations	High	Moderate	Moderate	High	Low

A widespread mechanism for funding regulatory agencies is through budgetary appropriations from the Government. This is the process used in India. Expenses of the regulatory authority are considered to be part of the cost of operation of the government and are treated as a regular expense along with those of other agencies of the government.

There is logic to the budgetary appropriations approach as regulatory authorities are often part of the host government, no matter how independent they are by design. They are government agencies, their employees are government employees entitled to government benefits and often they are ultimately responsible to the minister/cabinet secretary for that sector of the economy. It is the policy of the government that the electricity sector be regulated, and laws or decrees have been issued to make this possible. Therefore, it is good public policy for the government to support the regulatory authority with appropriations.

Funding via budgetary appropriations will ideally result in a high degree of balance between the needs of the regulatory authority and the ability of the taxpayers to pay. Elected members of the legislature make the appropriation decisions. As representatives, they can best judge the ability of their constituency to pay. They also understand the demands placed on the treasury for use of government funds.

The appropriations process is moderately supportive of an independent regulatory authority. Generally, government support allows the regulator to function without getting money directly from the regulated companies. Appropriations are generally not dependent on company

satisfaction with authority decisions. However, there is always the danger that politicians may take issue with specific decisions, and this makes the appropriations process potentially contentious. This is especially true for new authorities in countries where support for regulation does not yet exist.

The appropriations process provides a moderately stable source of revenue. In the United States and United Kingdom, this approach offers significant cash flow benefits because the revenues are made available to the authority on a clear and predictable schedule. However, this may not always be the case. It is possible that policy discussions within the government could cause uncertainty over the level of funding as appropriations are made. At a minimum, it is important that the regulatory authority receive specific guaranteed funding on a specific schedule.

The diversity of this funding mechanism is high. Government funds come from many sources, including taxes, fees and assessments. No single part of the population is burdened any more than they are under the tax system of the nation. Because all sectors share the burden of the continued operation of the authority, funding diversity can also imply equity.

The flexibility this provides to the authority is low. Appropriations are good at providing stability over time, but they are not designed to cover extraordinary expenses. If there should unexpectedly be a large numbers of tariff filings or new license applications appropriations alone would not be able to cover costs. Increased flexibility may be required to operate an authority, especially at start up. This flexibility will only come from receiving funds from a variety of sources.

Examples of this funding mechanism abound in the United States and India. Almost all of the American states and federal government utilize some level of appropriation to support the regulatory process.

## 2 - Taxes

Type	Balance	Independence	Stability	Diversity	Flexibility
Taxes	Moderate	High	Moderate	Moderate	Low

Sometimes a special tax is approved by the legislative body and assessed on regulated companies. The theory is that the entire population benefits from good regulation and thus it is an appropriate obligation of the Government to support the regulatory process. This is regarded by some as more efficient than a general appropriation as the revenues are dedicated exclusively to the regulatory process. Critics of dedicated revenues will point out that the general appropriations process provides a broader base of financial support to the regulatory authority. Narrow taxes provide somewhat less balance between the beneficiaries of regulation, the public at large, and the needs of the authority.

One example of this tax would be a tax on private concessionaires, such as independent power producers and private utilities, who pay a fixed amount of their net revenues to the regulatory

authority. This is a specific tax, paid to the Government, and the revenues are passed through to support the regulatory process.

Most utilities pay business (or corporate) taxes, similar to other companies. Usually these taxes are assessed on profits. In some cases, the taxes are based on the antiquated gross receipts tax, whereby the total revenues of a utility are taxed regardless of their profitability from these revenues. In the United States, the gross receipts tax is being phased out and is being replaced with the corporate income tax, which only taxes profits.

The tax mechanism provides a moderate balance between the needs of the regulatory body and the regulated companies. It provides a high degree of independence for the regulator. Because there is dedicated revenue, for the sole purpose of supporting regulation, there is less likelihood of national budgetary pressures reducing the funding.

The stability provided by this mechanism is moderate. If the tax is based on a stable or increasing factor such as installed generation, transmission and distribution capacity, then it will provide stability. If it is based on a more variable factor such as utility profits, then it is less likely to provide stability.

The diversity provided by taxation is moderate. It is more broad-based than targeted assessments or fees but less diverse than a general appropriation. The flexibility it offers to the regulator is low because it is hard to change. Furthermore, it is not desirable to change the tax once it is in place.

### 3 - Assessments

Type	Balance	Independence	Stability	Diversity	Flexibility
Assessments	Moderate	Moderate	High	Low	High

Assessments are measured appraisals of the cost of regulation and are generally levied on the regulated companies. They are similar to a fee for service. They are based on a predetermined formula imposed upon a measurable quantity.

Once the cost of regulation is determined, this amount is raised from regulated entities in the power sector. The fee may be determined in several ways. It may be based on various factors, including assets of regulated companies, revenues, profits, or units sold. Most regulatory agencies relying on assessments for some portion of their revenue make an attempt to keep the formulas simple so that there is transparency in the system. Often, approval from the legislature is required for the assessment.

In the Commonwealth of Massachusetts in the United States, assessments are based on the revenues of the distribution companies, the principal entities regulated in the now competitive market. The assessments are approved by the elected members of the General Assembly and signed by the Governor.

Assessments provide a moderate level of balance between the beneficiaries of regulation and the needs of the regulator. The needs of the regulator may be met, provided there is no difficulty

with the legislature. However, the regulated companies must provide all the support for the regulatory process, without the balance that would come from other sources of revenue.

Assessments provide a moderate level of independence for the regulatory authority. The performance of the regulatory authority is generally not an issue. This means that any decisions that the authority might make will not be influenced by the demand for more funding.

The stability of this funding mechanism is high for the regulatory authority. The amount of funding can be increased by adjusting the formula used to assess the regulated companies. The formula can be also be adjusted as the revenues or profits of the regulated companies vary. This mechanism is attractive because revenues for the authority are not subject to variations in the economy.

Similarly, a high degree of flexibility is accorded to the regulatory authority through this funding mechanism. In start-up situations, the formula can be set to match anticipated needs. As time passes, and the regulatory system is in place, this may become less important. The diversity of this funding source as the sole source of revenue is fairly low. As the regulatory authority becomes more established, there may be benefits to be derived from the ability to draw upon more than one funding source.

#### 4 – One-time fee

Type	Balance	Independence	Stability	Diversity	Flexibility
One-time fee	Moderate	Low	Low	Low	Moderate

A common source of revenues for regulatory authorities is one-time fees, like license fees, that are generally assessed on regulated entities and any new market entrant. They are usually based on one or more of the following:

- license applications or construction permits;
- installed capacity of the generating unit;
- capacity of transmission or distribution facilities; or
- the amount of electricity sold through the facility.

This funding mechanism provides a moderate balance between the needs of the regulatory authority and the regulated companies. The one-time fee provides a source of revenue for the regulator that is based on the level of activity of the regulated companies. It provides a moderate source of revenue for the authority without creating a significant burden upon the regulated entity.

A one-time fee provides a low level of independence for the regulator. This is because it is difficult for the regulator to depend solely on one-time fees. The regulatory body would need to process numerous applications for licenses every year in order to maintain the appropriate level of funding and oversight in the power sector. As such, the diversity of such funding sources is also low.

While the flexibility offered to the regulator in this mechanism is moderate, it is often part of the funding portfolio of regulatory authorities. If there are large, complicated or contentious proposals coming before the regulatory authority, then one-time fees are appropriate. The fees can be implemented as filing fees or licensing fees.

An added benefit is that they may discourage frivolous applications coming before the regulator. If the fees are expensive then only serious applicants will be willing to go through the process. This can contribute to efficient management of the workload.

## 5 - Recurring Fee

Type	Balance	Independence	Stability	Diversity	Flexibility
Recurring Fee	High	Moderate	High	Moderate	High

The recurring fee is any fee that is imposed on a regularly returning basis. A common example is a license fee that is imposed on a recurring basis, as opposed to being imposed only once. This is common in the United Kingdom and Australia.

This funding mechanism provides for a high degree of balance. Regulated entities will be charged the fee and will thus be responsible for supporting the regulatory process. This is appropriate, but it does not capture the broader funding base that is found in a general appropriation.

The recurring fee provides for a moderate measure of independence for the regulator. The regulator does not need to take any particular action to earn the license fee.

This mechanism provides a high degree of stability over time. Once the entity is licensed, it can be counted on to continue payments to the regulator. This characteristic makes this source of funding very common among regulatory agencies.

This funding mechanism provides a moderate level of diversity. There is more than one licensee and more than one sector of the power industry will be licensed, including generation, transmission and distribution. If there are not other sources of funding then there must be a sufficient number of licensed entities to support the regulator authority.

There is a moderate level of flexibility. Generally the charges for licensing fees become part of the license at the time it is issued. Changes will not usually occur to the license once it is issued without concurrence by both parties. Because financing decisions are based on the license, it is unlikely that licensees would be willing to consider increases in licensing fees annually without this being specified in the terms of the license. However, it is likely that there will be more licenses as time passes, and this would provide an opportunity for changes in the level of funding from licensing fees.

Examples of this funding mechanism are common in those countries with licensing schemes, such as the United Kingdom, Australia, and India.

## 6 - Tariff Fee

Type	Balance	Independence	Stability	Diversity	Flexibility
Tariff fee	High	Low	Low	Low	Low

Tariffs are at the heart of regulation. One of the most important roles of a regulatory authority is the fixing of tariffs charged by the regulated companies. Considerable resources are devoted to the review and determination of the appropriate levels and shape of tariffs. Therefore, it is considered highly appropriate that the costs associated with tariffs must be compensated for by tariff filings. There is a high correlation between the entity incurring and the entity paying for the costs. This balances the needs of the regulatory authority with the requirements of the utilities.

Tariff fees do not provide a high degree of independence because it is more desirable for independent regulatory authorities to have access to a more broad-based funding source. If, for whatever reason, there are no requests for changes in tariffs, there is no revenue for the authority, even though they may have significant responsibilities for oversight of aspects of the power sector. In the same way, tariff filing fees provide little diversity for funding the regulatory authority. It is a rather narrow funding mechanism with limited flexibility.

This funding mechanism works best when used as part of a variety of funding mechanisms. It constitutes a reliable source of funds that related directly to an important regulatory expense.

## 7 – Other Funding Mechanisms

Type	Balance	Independence	Stability	Diversity	Flexibility
Other	Low	High	Low	High	High

There are a number of other fees that regulatory agencies routinely charge. These do not generally provide significant revenues. They include fees to parties requesting publications or unusual copying requests. They might include entrance fees for special services offered by the regulator. They are usually targeted toward a specific group and hence are not generally balanced. They contribute to the independence of the regulator; they provide stability and diversity to the funding mechanisms. They are also highly flexible.

## D. Recommendations

Considering global examples and the specific characteristics of funding for the Philippine Energy Regulatory Commission (ERC), with the goal of creating a funding mechanism that is stable, predictable, attracts broad stakeholder consensus, and provides for increased fiscal independence, the following recommendations can be made.

- One of the more effective funding mechanisms is a *hybrid* mechanism, similar to that utilized by the U.K. and the U.S., whereby the regulatory authority receives funding from diverse sources, including appropriations and a variety of fees, assessments, and taxes.
- A hybrid funding mechanism reflects both short and long-term goals; there should be a correlation between the authority's funding mechanisms and its future plans.
- The funding mechanism should have a sound legal basis - the process will not be efficient if the issue of funding needs to be addressed on a recurring basis.
- Regulatory effectiveness, and thus investor and consumer confidence, would increase if allocated funds are made available to the regulatory authority on a predictable and stable basis so that key short-term and long-term financial decisions can be devised and implemented.
- Levels of funding should be free from outcome-based decision making. This will provide a stable level of funding that does not fluctuate based on decisions made by the regulatory authority and will enhance regulatory effectiveness.

An ideal combination would be for the ERC to derive its funding from a combination of taxes, assessments, and fees, with a gradually decreasing portion of its budget being derived from appropriations. An intermediate step that could yield tremendous benefits would be for the actual appropriations to be provided on a stable and predictable basis (i.e. specific amounts being provided to the ERC at specific times). This will provide for more effective regulatory functioning.

A less ideal combination would be for the majority of the ERC's funds to be provided through appropriations. Reliance upon government funding instead of monies raised through the course of ERC operations would impede any movement towards fiscal autonomy. As long as the ERC receives government funds, they should be specific amounts at consistently designated times.

In closing, given the recent dramatic changes that have occurred in the Philippines and the dynamic transitional nature of the Philippines energy market (i.e. activity surrounding EPIRA, natural gas development initiatives), it seems quite pragmatic for the ERC, a newly independent and robust government entity striving to fulfill its mission as an effective model regulatory authority, to secure stable and predictable levels of funding through a hybrid mechanism with a sound legal basis that is free from outcome-based factors.

## **E. References and Acknowledgments**

- The Australian Competition and Consumer Commission
- The Electric Energy National Agency (Brazil)
- The Hungarian Energy Office
- The Central Electricity Regulatory Commission (India)
- The National Electricity Regulator (South Africa)
- The Office of Gas & Electric Markets (United Kingdom)
- The Federal Energy Regulatory Commission (United States)
- The Energy Regulatory Board (Zambia)
- Energy Information Administration website ([www.eia.doe.gov](http://www.eia.doe.gov))
- Egyptian Electric Regulatory Project Technical Reports, prepared for USAID/Egypt, by the Academy for Educational Development, 2001.
- The National Association of Regulatory Utility Commissioners, Washington, D.C.
- The United States Energy Association, Washington, D.C.