IMPROVING REGULATORY AGENCY EFFICIENCY AND EFFECTIVENESS

Best Practices, Processes and Organizational Structures[1]

Gürcan Gülen, Ruzanna Makaryan, Dmitry Volkov, Michelle Foss
Center for Energy Economics
Bureau of Economic Geology
University of Texas at Austin

BACKGROUND

Practically all over the world, services that most urban dwellers consume such as roads, water, sewage, telephones, electricity and natural gas, among others, are usually known as "public services." The provision of these services has historically been in the domain of state-owned monopolistic enterprises except for few places such as the U.S. where privately-owned "utilities" provided these services since the early 20th century but under regulation by federal and state agencies. Starting in the 1980s, the U.S. style regulation has been adopted in many countries as they restructured their utility sectors to allow for private participation. An increasing number of countries have reorganized their public service sectors in order to achieve greater competition, efficiency, quality of service and affordable pricing.[2] Many of these reforms have focused on the telecommunications and energy (electricity and natural gas) sectors.

A common element in these reforms is the creation of distinctive institutions for each of the following functions: policy-making, commercial operations and regulation. Policy-making functions reside usually in ministries and commercial provision of the services are assigned to the companies, both state-owned and private. Regulatory agencies are established primarily to ensure "just and reasonable" pricing, equitable access to infrastructure, good quality service and

[1] This is a working paper; energy sector regulation is a continuous area of research for CEE. Comments and suggestions are welcome: gurcan.gulen@beg.utexas.edu, 713-478-4373, 1801 Allen Pkwy, Houston, TX 77019.
[2] According to Bertolini (2004), roughly 130 countries have established an estimated 200 regulatory bodies, including independent agencies, government departments, and contract supervision units since the early 1990s. Regional regulatory associations were formed to facilitate experience sharing (www.globalregulatorynetwork.org).

security of supply. Regulatory agencies are also charged with developing rules and methodologies to provide a "level playing field" for companies wanting to participate and compete in the sector. Frequently the establishment of the regulatory agency is linked to the transition towards competitive markets and it is thus important to control the market power of incumbents in order to allow the emergence of new service providers.

The cost of these regulatory agencies is ultimately carried by the society and it is thus in everyone's interest to ensure that this regulation is as efficient and effective as possible. Poorly designed, poorly implemented, or politically driven regulation can have a significant impact on the efficiency and competitiveness of the sector. Regulation has national and regional economic impacts. Finally, regulatory efficacy is a critical element in attracting foreign capital into these utility sectors which, in developing countries, usually require significant additional investment in order to meet economic development objectives.

In this paper, we focus on energy regulators. Unfortunately, the results of worldwide experience with energy regulators have been mixed at best. We try to identify the behaviors and characteristics (principles, processes and organizational structures) that allowed some energy regulators to achieve their objectives while others struggled. We focus on factors that may help increase efficacy of regulation, including communication, consultation, consistency, predictability, flexibility, independence, accountability, transparency, timeliness, resources, structure and expertise.[3]

Role of regulators

There is a near consensus on the main responsibilities of regulators. For example, Smith (1997a) identifies three: to protect consumers from abuse of market power, to support investment by protecting investors from arbitrary action by government, and to promote economic

[3] This list is based on the list provided by Berg (2000).

efficiency. In their survey of electricity regulators in the EU, Johannsen et al (2004) finds that promoting competition, market transparency and protecting customers as most common objectives of regulators. However, many regulators have numerous objectives, balancing of which can be difficult. For example, achieving efficiency of supply and developing regulations or mechanisms for security of supply can be contradictory. Adding environmental and social considerations may complicate decision making on efficiency and/or security even further. Multiplicity of objectives may also make it more difficult to decipher on which grounds the decision is reached. Even when the reasons are made public, they may be difficult to defend as one objective may be used as an excuse for another. For the purposes of this paper, we focus on the following four responsibilities:

- Development and implementation of regulations for establishing and sustaining a fair investment environment (based on the restructuring legislation)
- Promotion of competition and least-cost investments
- Protection of consumers against abuses by market players
- Education of consumers about competition

Functions of regulators

Performance of regulators in carrying out their functions is evaluated based on how well they meet their responsibilities. These functions are difficult to evaluate as they are often qualitative and subjective:[4]

- Issuing licenses to market participants operating in the regulated marketplace,
- Setting tariffs for non-competitive segments (e.g., T&D),
- Developing performance standards for various segments (in particular, for those in direct contact with customers),

[4] For a more complete list, see *Designing an Independent Regulatory Commission* by Berg et al.

- Monitoring the market (e.g., against exercise of market power),
- Auditing accounts of regulated firms (a uniform accounting system makes auditing easier), and
- Resolving disputes among stakeholders.

Often newly established regulators have been charged with managing transition from the regulated (or state-owned) to restructured environment. These inexperienced regulators face uniquely challenging problems. According to Navarro (1996) the most important challenge is judging whether the generation market can be competitive. In many jurisdictions, legislators tried to impose divestiture and market share limits (20% being a favorite benchmark) but implementation was left to regulators. Designing independent system operators, supervising the governance of these entities, preventing abuse of market power, and having a flexible balancing market all contribute to competitiveness of generation.

Also high on Navarro's list are end-user prices and allocation of stranded costs. Clearly most politically sensitive issue, end-user prices cover a wide range of issues including ratemaking methodology (cost of service or incentive), sector pricing, programs for the poor, demand side management goals, and distributed generation. Stranded costs are often a contentious issue in U.S. jurisdictions where previously regulated utilities complain about not getting their promised rate of return in a competitive environment; but state entities elsewhere can also be entitled to stranded cost recovery. In Texas, for example, low operating cost of nuclear and coal units allowed their operators to collect large revenues when natural gas prices caused electricity prices to stay high, leading to 'negative' stranded costs. This raises the question of which methodology to us to calculate these costs (e.g., market-based versus book

value). In an early stage when an agency is trying to establish its competence and independence, these problems can be detrimental.

Jurisdiction of regulators

In order for the regulator to play its role as effectively as possible, the industry coverage of the regulator, the jurisdictional boundaries between the regulator and the ministry, and relations with other regulators are of interest. There is general (but not unanimous) support for multi-industry instead of industry specific agencies, at least within each sector (such as the energy sector) if not across sectors. The merger of Offer and Ofgas to create Ofgem in the UK is an example of realizing the benefits of multi-industry regulation. One of the reasons for the joint regulation of gas and power industries is the increasing integration of the companies operating in both. Similarly, with restructuring in many sectors, companies leveraging resources to provide multi-sector services, such as gas, power, water, cable TV and the like are becoming more common. Given the similarities across network utilities, resources can be leveraged and learning can be enhanced across sectors. Capture by either regulated entities or politicians is also more difficult as a larger number of stakeholders with different interests creates a system of checks and balances. A multi-industry regulator may have a better chance to survey capital markets and hence help improve efficient investment across sectors.[5]

The role of the regulator with respect to the ministry is more difficult to assess. In general, there is agreement that the ministry will remain in charge of policymaking while the regulator will administer licenses and set tariffs. But clearly, regulators are likely to have valuable input in policy debates and the ministry (or the government) has great interest in tariffs paid by the "voters." Unfortunately, too often governments undermine the regulator on the issue

[5] For a detailed discussion of pros and cons of multi-industry regulation, see Smith (1997b).

of setting end-user prices. For new regulators trying to establish their legitimacy, this interference can have a lasting negative effect.

Most countries have an antitrust regulator, especially if they have opened up other economic sectors to competition. Utility industries that still maintain certain natural monopoly characteristics may present market power issues. Indeed, there have been market abuses (e.g., in California electricity market). However, electricity markets have peculiarities that require technical expertise to evaluate market abuse cases. Antitrust regulators would have to collaborate with utility regulators to investigate these cases. After the California crisis, many regulators in the U.S., including the FERC, formed market oversight (or monitoring) divisions to invigilate market participants. Jurisdictional boundaries between antitrust regulators and utility regulators, though, remain blurred. Since energy trading was also under investigation in California, CFTC was also involved, adding another regulator into the mix.

DESIRED CHARACTERISTICS OF REGULATORS

Energy sector regulation is technically complex, contentious, and politically intricate even for experienced regulators let alone newly established ones in developing countries. To function effectively and achieve goals in such an environment, certain characteristics are desirable for a regulatory agency. **Table 1** provides a list of characteristics that different researchers or forums found as desirable or even necessary. We consider the following four as most important and mostly inclusive of other aspects considered by others:

- Independence
- Enforcement powers, or authority
- Transparency and accountability
- Competency

Independence, albeit with minor qualification, is unanimously desired. It is surprising that the authority to enforce rules and regulations without undue influence is not unanimously considered as necessary. Perhaps, in countries where the rule of law is established and administrative agencies created by law have a history, authority is taken for granted. But, we like to emphasize it because legal mandate is not sufficient in practice for regulatory agencies to have enforcement powers, especially in countries where these kinds of agencies are new and incumbent political interests are strong and oppose the change.

Table 1 – Desired characteristics / best practice principles / cultural values

WFER 2003[1]	World Bank[2]	USAID Nexus study	CEER	PURC[4]	Utility Regulators Forum[5]	Stern (1997)
Independence	Independence	Independence	Independence	Legal Mandate, Values	Independence	Informal Independence
A minimum set of functions & public service obligations		Legal mandate & financial resources	Enforcement Powers	Legal Mandate		
Impartiality, transparency & simplicity	Legitimate / Accountability	Transparency	Transparency & Accountability	Values	Accountability & Transparency	Accountability & Transparency
Diligence and ethics	Competency / Expertise	Expertise	Competency	Resources	Effectiveness & Efficiency	Expertise
Appeals		Public involvement[3]	International activities		Communication	
Dispute resolution in individual cases					Consultation	
Benchmarking					Consistency	
Predictability					Predictability	
Flexibility					Flexibility	

[1]World Forum on Energy Regulation held in Rome in 2003.
[2]Primarily from Bertolini (2004) and Estache (1997) but these factors are also discussed by Smith (1997a-c) as well as other World Bank publications.
[3]Public involvement is the central theme of the Nexus study (AEAI and PA Government Services, 2005). It can be seen as the necessary condition for transparency and accountability, but it is a necessary condition for success according to the study.
[4]PURC list is mostly based on *Designing an Independent Regulatory Commission* by Berg et al.
[5]Office of Water Regulation (1999), Perth, WA, Australia.

Transparency and accountability also appear to be unanimously desired characteristics. Some provide further qualities such as communication, consultation, consistency (of treatment of participants across service sectors, over time and across jurisdictions), predictability, impartiality and flexibility that feed into transparency and improve accountability.

We believe that the skill and knowledge level and competency of staff can be equally, if not more, important for the success of the agency. Although competency is not explicitly listed by all in **Table 1**, effectiveness and efficiency can be interpreted to imply competency, as Office of Water Regulation (1999) calls for "staff with appropriate levels of technical knowledge." The paper also claims that "Independence requires that regulators have the *expertise necessary to make judgments* without undue influence from, or reliance on, market participants" (emphasis added). Utilities participating in the survey also expressed a desire for regulator to have industry experience. Industry expertise is also listed by others. Taken together, staff competence appears to be highly desirable.

Table 2 – Priorities when investing in a developing country.

	Minor	Major	Critical 'Deal Breaker'
Legal framework defining the rights and obligations of private investors			**X**
Consumer payment discipline and enforcement			**X**
Availability of credit enhancement or guarantee from government or multilateral agency			**X**
Independence of regulator and processes from arbitrary government interference			**X**
Administrative efficiency – lead time to get necessary approvals and licenses		**X**	
Judicial independence – degree of perceived independence from government influence		**X**	
Tenure and stability of elected officials in political process		**X**	
Regulations that clearly define and allow exit for investors in infrastructure		**X**	
Investment grade credit rating for long-term foreign exchange debt		**X**	
Negative perceptions and resistance to private investment amongst members of civil society (trade unions, press, NGOs)		**X**	
Sector in transition to a competitive market structure		**X**	
Country ranking in Transparency International's Corruption Perception Index		**X**	
Cost and available tenors to borrow in domestic banking market		**X**	
Reliance on a competitive bidding process to select project investor/purchaser		**X**	
Ability to vertically integrate with other segments of the energy chain (upstream generation or downstream distribution; gas supplies; power exports; etc)	**X**		

Source: Lamech and Saeed (2003).

Overall, despite some differences, there is agreement among experts in terms of desired characteristics in a regulatory agency. According to a World Bank survey of power investors,[6] "independence of regulatory agency and processes from arbitrary government interference"

[6] Lamech and Saeed (2003).

ranks fourth in the list of investment priorities in developing countries and is deal-breaker criteria (**Table 2**). Competency of the regulator comes across in couple of items: administrative efficiency (item 5) and regulations that clearly define entry-exit in infrastructure (item 8). Item 1 (legal framework) covers the jurisdiction, authority and competence of the regulatory agency to the extent it is empowered to carry out auctions for projects, license them and regulate the facilities once they are built. Delays in licensing (e.g., due to staff's inexperience with project evaluation or industry technologies), changes in regulations midstream projects, retroactive changes to participant obligations are all factors that concern investors. Transparency is also a concern, albeit not specific to the regulatory agency; and although it is ranked as item 12, it is still a major concern.

Independence

Clearly, the regulator should not be influenced by the entities that are subject to its regulation. EU Directives on gas and electricity require that regulators shall be wholly independent of the electricity/gas industry. Perhaps also obvious but harder to achieve is the requirement that the regulator should be independent from government as well. In Article 3 of the EU Gas Directive, it is stated that "It is a generally accepted principle that the regulators should enjoy appropriate independence in their day-to-day work from regional or national government. This is to guarantee regulatory stability and to avoid situations in which the decisions of the regulator are constantly modified." Note, however, that independence is qualified with "appropriate," leaving room for interpretation. Smith (1997a) mostly confirms these expectations defining independence with following requirements:

- An arm's-length relationship with regulated firms, consumers, and other private interests.

- An arm's-length relationship with political authorities.
- The attributes of organizational autonomy—such as earmarked funding and exemption from restrictive civil service salary rules—necessary to foster the requisite expertise and to underpin those arm's-length relationships.

The list from Johannsen et al (2004) is similar:

- Independence from government.
- Independence from stakeholders.
- Independence in decision-making (substantial competencies and actual decision-making powers).
- Organizational autonomy (in charge of their own budget and personnel policy).

Berg (2000) describes independence as the balancing role a regulatory agency should play with respect to interests of three main stakeholder groups: government, suppliers and customers. Government includes not only the current leaders but also a group of politicians, ministries, courts, and state agencies among others. Suppliers include private and public entities that generate, transmit, distribute, market and trade energy as well as members (e.g., cooperatives), shareholders, financiers and managers. Even the group of customers is complex, encompassing a wide range of different size users from smallest residential to largest industrial. Especially within residential users, policy makers are most concerned about low-income consumers, underserved (or in some places no service) areas, and rural users.

Others are more prescriptive in defining independence. According to Council of European Energy Regulators (CEER), in order to be independent a regulator should have:[7]

- Independence from the interests of the regulated industry

[7] CEER presentation titled CEER WG SEEER – Regulatory Benchmarking Standards for SEE from the 3rd Athens Process Forum, 2003-10-23/24, Sofia.

- Legal personality, separate from the ministries
- Clear and sufficient competences
- Financial independence from the state (revenues preferably from participant fees)
- Board members:
    - meritocratic and impartial appointment process
    - fixed mandate, removal for cause only
    - no direct or indirect financial interests in the energy sector, no conflicts of interest
- Sufficient, highly qualified personnel and own management policy
- Sufficient equipment (budget, buildings, IT technology, etc.)

In order to enhance autonomy, some claim that commissioners should be appointed from individuals with professional background and training in economics, finance, law and engineering, but preferably from outside the electricity sector, by a high level executive such as the president or prime minister on staggered terms that cross election cycles. Smith (1997c) claims that commissioners having industry background is not only unnecessary but also can be undesirable if it restricts candidate pool, or creates de facto regulators for each industry in multi-industry agencies. We agree as long as the staff is competent and has job security (i.e., not afraid to raise technically accurate but politically unappealing issues), and the commissioners are mature and politically free enough to listen to their technical staff's suggestions.

Most would agree that the salary scale for commissioners and staff should be competitive with the private sector and regulated companies. In many developing countries, however, this may become a handicap as civil servants in ministries can become jealous of higher paid staff of regulatory agencies, which hurts cooperation among these entities, or the staff can become

uncreative and risk-averse in order to protect their position. It is often the technically well-trained staff who can appreciate what actions need to be taken in the sector however politically unsavory these may be; but when the staff become more concerned about their job security than providing professional advice to commissioners and policy makers, indecision or, worse, wrong decisions rule the day.

As Smith (1997a) puts it, there is strong consensus on the formal safeguards required for independence:

- Providing the regulator with a distinct legal mandate, free of ministerial control.
- Prescribing professional criteria for appointment.
- Involving both the executive and the legislative branches in the appointment process.
- Appointing regulators for fixed terms and protecting them from arbitrary removal.
- Staggering terms so that they do not coincide with the election cycle, and, for a board or commission, staggering the terms of the members.
- Exempting the agency from civil service salary rules that make it difficult to attract and retain well-qualified staff.
- Providing the agency with a reliable source of funding, usually earmarked levies on regulated firms or consumers.

But, these are not sufficient. Regulators must resist improper pressures and influence and must win the respect of key stakeholders, enhance the legitimacy of their role and decisions, and build a constituency for their independence. As such, training in media skills and negotiation, and spending time and resources in public education and outreach become highly desirable. Even these measures may not help if the appointment was political to begin with. In many countries, either the president or the prime minister (or the cabinet) appoints commissioners.

Party affiliation often becomes a criterion. Where democratic governance and transparency is suspect, this appointment scheme is open to abuse, despite the requirement of staggering terms. An alternative could be the election of commissioners by the voting public. For example, commissioners for the Texas Railroad Commission (TRRC) are elected. TRRC regulates the natural gas industry in Texas, mostly from the perspectives of safety and environmental compliance. The natural gas industry in Texas is a mostly self-regulating competitive market but TRRC is highly respected by most stakeholders when it needs to interfere.

However, this Anglo-Saxon style independent regulation may not be appropriate, or even feasible, in emerging countries all over the world. The economic and political history of most countries and the desire to "protect" small consumers of utility services (i.e., a large portion of the electorate) make independence from government practically impossible. Governments see these agencies' independence as a threat to their authority and ability to develop and implement policies. Under such circumstances, it is easy to see how conflicts between agencies and governments may arise and, in turn, hurt the image of the country in the eyes of the investors. In particular, conflicts arise over tariffs. Most of the time, prior to restructuring tariffs are below costs and cross-subsidized. Regulators are expected to ensure cost recovery when they rationalize tariffs.[8] Too often, their efforts to do so are blocked by the governments.

As Stern (1997) puts it, "In the end, the government is the ultimate guarantor of regulatory reputation; however independent the law may specify the regulator to be." Distinguishing between formal and informal independence, Stern suggests that in such countries, agencies with an advisory role but without decision-making authority may be more appropriate. He even suggests that, provided that the agency can publish its recommendations through widespread media outlets and can present them to relevant bodies (legislative committees,

[8] See Lamech and Saeed (2003) for investors' perspective on this issue.

regulated entities, etc.), it can have more independence than an agency with legally established independence but subject to government interference during decision-making. We consider this suggestion potentially workable provided that the agency is trained in media skills, public relations and communication. Case studies show that quality communication with the public plays an important role in securing acceptance of difficult decisions such as tariff rationalization.[9]

Enforcement powers

The authority to enforce regulations is crucial for regulators to be effective in achieving their responsibilities. Specifically, regulators should have full and exclusive authority over tariff setting; issuing licenses to market participants; monitoring licensed entities and penalizing them in case of non-compliance; and establishing quality of service standards. Exclusive tariff setting authority is particularly challenging to establish; it is simply too tempting for politicians to offer free or cheap electricity regardless of market and industry conditions, especially during election times. Unfortunately, the "customer = voter" equation continues to dominate electricity sector policy and regulation all over the world to the detriment of the overall economy in the long-run. It is also in this context that some see a significant role for the regulator in the strategy, design and oversight of electricity market reforms. However, the regulator is often created by the law that outlines the reform process;[10] as such it is somewhat late for the regulator to contribute to strategy and design, especially when laws are over-prescriptive. One lesson seems to be that laws should be lightly and flexibly written with only the basic principles, leaving detailed framework and design work to industry participants including the new regulator. Unfortunately, the political nature of the legislative process with all the lobbying by various interest groups have

[9] For example, see Bacon and Kojima (2006).
[10] Except for the U.S. where regulators have played important roles in designing restructuring paths and strategy.

led to overly prescriptive restructuring legislation in many countries, putting the new regulator in the unenviable position of making it all work while constantly undermining the authority the regulator needs to do so.

Transparency and accountability

Transparency implies the openness of the regulatory process and decisions to stakeholders. If different interests from government, industry and customer groups have the right to access the regulatory process, they can participate and provide input before decisions are reached. As such, accountability requires public hearings, a public record of submissions and public access to decisions, and an annual report of activities including a financial audit (with budget subject to prior review by appointing authority such as the office of president or prime minister). In addition to public hearings, consultative bodies of consumers, industry representatives and/or others are also suggested in order to ensure meaningful public participation, which enhances accountability of the regulator.[11]

However, we believe that such public participation can be helpful only if the participating public is able to understand technical background of the issues at hand. Industry representatives will likely have more information about the issues than, say, the consumer groups. This situation of asymmetric information can be abused, especially if the regulatory staff and leadership are not competent. On the other hand, for consumer groups to contribute constructively they need to do more than simply to complain about prices or service quality; they need to base their arguments on economic, technological and business principles of the industry. Otherwise, their participation would likely create delays and induce politicians to get involved, undermining the success of the reform process. One of the best examples of failed restructuring attempts is the collapse of the electricity market in California in early 2000s. The California restructuring law

[11] For example, see AEAI and PA Government Services (2005) and Smith (1997c).

was written with participation of all major stakeholders, and as such ended up including market design elements that were clearly inconsistent with each other from economic and technical perspectives. These flaws created opportunities for market abuse that eventually led to the failure of the California experiment with introducing competition into the electricity market. Governor Davis was incapacitated by his political aspirations and failed to fix the problem using measures that would be sound economically (e.g., eliminating the artificial gap between wholesale and retail price caps); grandstanding as the protector of consumers appealed to him more. Sadly for him, his political calculations backfired and his political career ended. Although the California case is extreme, examples of participation gone astray are numerous. When it comes to public participation, the balance between accountability and regulatory efficacy is delicate.

On the other hand, some of the requirements for independence such as guidelines for appointment of commissioners and for their removal (non-arbitrary, clearly defined violations subject to a code of ethics) help render a regulator more transparent and accountable. Leaving the resolution of contentious appeals (e.g., on tariff or license decisions) to the courts will render the regulator more transparent and balanced.

Smith (1997a) provides a similar list: public access to decision-making and reasons for decisions, external auditing, effective appeal process for agency decisions, and code of ethics to avoid conflicts of interest. But there is also a significant discrepancy: Smith suggests review of budget by the legislature rather than the executive branch. One may reasonably argue that bringing legislature in this process may politicize already tough decisions facing a regulator further and damage its independence. At the least, delays may occur. On the other hand, FERC and state PUCs in the U.S. have functioned this way for a long time.

Smith (1997c) stresses the importance of the appeal process for accountability of the regulator. For the process to be effective, appellate body needs to be independent as well, and cases that can be appealed need to be limited to "errors of fact or of law, including failure to follow a required process." Unfortunately, in many countries, the appeals end in courts that are rarely immune to political influence; judicial independence was ranked sixth in **Table 2**.

Competency

Recruiting competent staff and establishing institutional competency can be a challenge, especially in the early years of regulation. In most countries, there is no history of economic regulation by independent agencies. Moreover, there is no history of competition and private investment in the electricity sector. Although there are very good engineers in almost every utility around the world, their expertise with economics, finance and public administration would be limited. As such, it may be difficult to find sufficient number of employees to form the staff of the regulator from the country's own work force. In order to attract and keep qualified personnel, salaries compatible with private sector (usually much higher than civil service salaries) should be provided. We believe that it is also important that the staff is empowered to innovate, take initiative and make decisions; else, they would become unproductive bureaucrats or seek employment in the private sector. Unfortunately, in many countries, the inability of the regulator to establish its autonomy curtails staff's creativity.

It is also possible to achieve competency through hiring outside experts as needed. This way, core staff of the regulator (and hence the fixed costs) can be kept to a minimum, which helps with the credibility and independence of the agency. According to a 2003 survey of

regulatory agencies across the world (51 responding),[12] 75% of the agencies contract out regulatory functions, with a third of them spending more than 20% of their budget on consultants. A great majority of the agencies participating in the survey (91%) deem contracting out particularly useful in improving competence. Building trust with key stakeholders (71%) and independence (62%) are also helped by the use of outside experts. Importantly, 41% indicate that contracting helped to reduce costs.

However, there are also challenges to contracting out. Survey participants cite budgetary constraints (70% excepting Eastern and Central European regulators) as a main obstacle. Lack of appropriate consultants (in number and quality) not only limits access but also raises the cost of these services. Two functions that are most contracted out are tariff reviews and output measurement; since both are extremely resource intensive, cost impact can be significant. Many also acknowledge the difficulty of specifying and managing contracts. Only 44% have accounting systems to compare the costs of performing a task in-house and contracting it out.

Overall, contracting out regulatory functions can be of great help but cannot substitute in-house competency. At the least, the regulator should have staff who can evaluate the suitability of contractors' work; otherwise the regulator can risk losing its legitimacy and credibility.

BENCHMARKING REGULATORS

There have been a limited number of studies that attempted to benchmark performance of regulators in a rigorous manner. Mustafa (2002) focuses on telecom regulators in the Middle East. The first criterion concerns the establishment of the regulator; those based on enabling laws are preferred over those based on decrees. The nature of the regulator with respect to number of sectors, number of commissioners and the like is also a significant criterion. The

[12] The survey was conducted in 2003 by Environmental Resources Management for the World Bank, Infrastructure Economics and Finance Group. Bertolini (2004) is based on "Contracting out Utility Regulatory Functions," a report prepared by ERM for the World Bank.

author favors sector-specific regulators with collegial boards. Autonomy, financial independence, competency of staff, transparency, and appeal process are among the other criteria used by Mustafa (2002). However, the study answers these questions simply as yes or no for each country, which leaves room for debate as to which regulator performs better overall. There is also no criterion about the success of regulators in creating a fair investment environment or in lowering costs for consumers.

Johannsen et al. (2004) focus on the four dimensions of independence: from government, from stakeholders, in decision-making and organizational autonomy. They survey the members of the Council of European Energy Regulators (CEER), a self-grown organization of 16 national independent regulators, in order to investigate formal measures to secure these four dimensions. As a result, they develop an "independence index." According to their results, European regulatory agencies are quite different. Perhaps surprisingly, regulators in countries with the least amount of market opening (e.g., Greece, Italy, France, Portugal and Ireland) score the highest, i.e., most independent.

Ocana (2001) compares energy regulators in 23 OECD countries in terms of their characteristics. He identifies four types of regulation: 1- independent regulatory agencies with concrete regulatory powers; 2- ministerial agency; 3- independent advisory agency (reporting directly to the Ministry); and 4- no specialized regulatory organization. Agencies 2 and 3 have similar functions to Agency 1 but they work for the Ministry and lack regulatory powers of 1. Responsibilities and powers of these agencies also differ across OECD countries. Ocana draws three conclusions:

- there is no regulatory agency in countries that have adopted a 'light-handed' approach to regulation (e.g., New Zealand and Germany),

- independent regulators with concrete powers are more common in countries that have restructured their industries, and
- in the remaining countries regulatory organizations show variation that cannot be readily related to the regulatory framework but can perhaps be explained by legal and administrative traditions.

In studying the energy regulators in the EU, Nwajagu (2004) concludes that regulators were not effective when evaluated based on criteria such as market opening, unbundling and prices. The author attributes the shortcomings of the regulators to their inexperience. But, to many followers of the energy sector reform in the EU, it is evident that political will to follow Gas and Electricity Directives has been sorely lacking, especially in countries such as France and Greece. Surely, the participatory process and political interference are also culpable for the shortcomings observed by the author.

These studies help us improve our understanding of various regulatory experiences, and offer some evidence on our observations discussed throughout the paper. But, they are limited to OECD countries and hence fail to capture even more challenging political and market dynamics of developing countries. We shared some of our experience in Africa, Latin America and Eastern Europe throughout the paper. In **Table 3** below, we offer an admittedly cursory and broad-brush evaluation of how we perceive regulators to have performed in meeting the four responsibilities we defined before. Overall, the picture is not positive.

Table 3 – A cursory evaluation of energy regulators' performance

	Grade	Comments
Development and implementation of regulations for establishing and sustaining a fair investment environment	B+	Most regulators developed high quality regulations, sometimes with outside assistance; but implementation is hampered by politics. Private investment remains unwelcome in most countries.
Promotion of competition and least-cost investments	D	Political choices for fuels, market abuse, and political obstruction of tariff rationalization prevented competition from taking root; expensive projects continue to be pursued.
Protection of consumers against abuses by market players	C	Badly designed markets, regulators' inability to establish authority, and political interference during 'crises' led to abuses by all market stakeholders. Although most claimed acting to protect customers, they all ended up hurting

		them more in the long run.
Education of consumers about competition	F	Never considered as a priority; no budget for it. In many cases, no public hearings or participation. Hence, it was more difficult to manage the backlash when the issues such as tariff rationalization are addressed.

The next steps for our research include a survey for regulatory staff, investors and consumers in energy markets (in both developed and developing countries) and statistical analyses of performance indicators. This way, we hope to better focus on factors that lead to better performance by energy regulators.

REFERENCES

AEAI and PA Government Services (2005). *The Nexus between Energy Sector Reform and Democracy & Governance*, prepared for the review of USAID.

Bacon, Robert and Masami Kojima (2006). *Phasing Out Subsidies: Recent Experiences with Fuel in Developing Countries.* World Bank Public Policy for the Private Sector Note 310.

Berg, Sanford (2000). "Developments in Best-Practice Regulation: Principles, Processes, and Performance" *The Electricity Journal*, July, pp. 11-18.

Berg, Sanford, Ali Nawaz Memon and Rama Skelton. *Designing an Independent Regulatory Commission* by, Public Utility Research Center, University of Florida.

Bertolini, Lorenzo (2004). Regulating Utilities – Contracting out Regulatory Functions, Public Policy for the Private Sector Note No. 269, The World Bank Group.

Estache, Antonio (1997). Designing Regulatory Institutions for Infrastructure—Lessons from Argentina, Public Policy for the Private Sector Note No. 114, The World Bank Group.

Johannsen, Katja Sander, Lene Holm Pedersen, and Eva Moll Sørensen (2004). Independent Regulatory Authorities – a Comparative Study of European Energy Regulators, Institute of Local Government Studies, Denmark.

Lamech, Ranjit and Kazim Saeed (2003). What International Investors Look for When Investing in Developing Countries: Results from a Survey of International Investors in the Power Sector, Energy and Mining Sector Board Discussion Paper No. 6, The World Bank Group.

Mustafa, Mohammad A. (2002). Benchmarking Regulators – Making Telecom Regulators More Effective in the Middle East, Public Policy for the Private Sector Note No. 247, The World Bank Group.

Navarro, Peter (1996). "Ten Key Questions for the Restructuring Regulator," *The Electricity Journal,* August/September, pp. 65-70.

Nwajagu, Ifunanya C. (2004). The Independence and Efficacy Of European Community (EC) Energy Regulators: How Possible? University of Dundee.

Ocana, Carlos (2001). "Trends in the Management of Regulation: A Comparison of Energy Regulators in Member Countries of the Organziation for Economic Development and Co-operation," *International Journal of Regulation and Governance*, Vol. 3(1), pp. 13-32.

Office of Water Regulation, Perth, WA (1999). *Best Practice Utility Regulation*, Utility Regulators Forum discussion paper.

Smith, Warrick (1997a). Utility Regulators—Independence Debate, Public Policy for the Private Sector Note No. 127, The World Bank Group.

Smith, Warrick (1997b). Utility Regulators—Roles and Responsibilities, Public Policy for the Private Sector Note No. 128, The World Bank Group.

Smith, Warrick (1997c). Utility Regulators—Decisionmaking Structures, Resources, and Start-up Strategy, Public Policy for the Private Sector Note No. 129, The World Bank Group.

Stern, Jon (1997). "What Makes an Independent Regulator Independent," *Business Strategy Review*, Vol. 8(2), pp. 67-74.