

## **Overview of Utility Regulation**<sup>1</sup>

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### A. Introduction

There is a growing consensus that the successful development of utility infrastructure – electricity, natural gas, telecommunications,<sup>2</sup> and water – depends in no small part on the adoption of appropriate public policies and the effective implementation of these policies. Central to these policies is development of a regulatory apparatus that provides stability, protects consumers from the abuse of market power, guards consumers and operators against political opportunism, and provides incentives for service providers to operate efficiently and make the needed investments.

Because the way regulation is done plays such a vital role in infrastructure development and use, most discussions of utilities policy focus on how regulation should be done, for example, how to introduce and facilitate competition, how to provide operators with incentives for improved performance, and how regulators should involve stakeholders. The academic literature calls such work normative theories of regulation, but we will refer to this simply as normative work, which is the primary focus of this “Overview of Utility Regulation.” We say that our “primary” focus is on normative work because we would be in error if we failed to recognize why regulation occurs. For example, there is always a political context within which a country chooses to initiate, continue, or change its regulation of utilities. The motivations for regulation affect how regulation occurs and are considered by a second basic school of thought on regulatory policy, namely, positive theories of regulation. Positive theories focus on the roles of stakeholders in the policy-making process, the results of their advocacy of solutions that address their individual interests, and broader motivations, such as the public interest.

This overview provides a broad description of the motivations for regulation and the issues that regulation addresses.<sup>3</sup> We begin by describing the regulatory problem, which includes issues of market power, opportunism, and asymmetric information. We then discuss the basic approaches of regulation for dealing with these issues. We first cover market structure, which examines monopoly power and competition. We then examine financial analysis, which regulators use to ensure financial viability, guard

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<sup>1</sup> This paper is adapted from the Annotated Reading List on Utility Regulation developed for The World Bank by Mark Jamison and Sanford Berg of the University of Florida, Farid Gasmi, Université de Toulouse, and José I. Távora, Pontificia Universidad Católica del Perú.

<sup>2</sup> Arguably, telecommunications no longer qualifies as a “utility” in the traditional sense. We include telecommunications as a utility to simplify discussion.

<sup>3</sup> We generally refer to the “government” when we discuss the development of policies and refer to the “regulator” or “agency” when we discuss the implementation of policy. We recognize that the institutional arrangements for developing and implementing regulation vary across countries. For example, regulatory agencies take the initiative in opening markets to competition in some countries, while this may be done within a ministry elsewhere. However, it is too cumbersome to try to reflect all possible divisions of responsibilities for regulatory policy in this narrative.

against cross-subsidy, and protect against excessive price levels. Regulating the overall price level is considered next, followed by issues of rate design. We then turn to non-price issues, such as service quality, environmental impacts, and social issues. We next cover information issues and close with a discussion of the regulatory process.

The remainder of this overview is organized as follows. Section B defines the regulatory problem from different perspectives and identifies three basic approaches for overcoming the information issues that tend to underlie many regulatory policies. Section C describes the first approach, namely, the use of competition. Section D summarizes the second approach, the gathering and use of information on markets and operators. Section E examines the last approach, the use of incentive regulation. The remaining sections examine related issues. Section F describes issues in tariff design. Section G covers service quality, environmental, and social issues. Section H examines the regulatory process. Section I contains concluding observations.

## B. The Regulatory Problem

It seems fair to say that governments establish regulation of utilities to improve sector performance relative to no regulation. What might be meant by “improve sector performance,” however, can be subject to considerable debate. It often means that the government wants to control market power and/or facilitate competition. It may also mean that the government wants to address commitment issues to protect operators and customers from politically driven decisions that sacrifice long-run efficiency for short-term political expediency. “Improve sector performance” might also mean that the government has chosen to regulate in order to favor particular types of customers or to protect operators from competition. In one country, for example, regulation has been used to subsidize electricity for farmers. In many countries, regulation has subsidized customers of primarily local telephone services with the prices imposed on large users of long distance telecommunications. In the 1900s, many counties used regulation to protect monopoly telephone companies from competition.

Except where otherwise noted, we address normative issues of regulation, with the perspective that regulation is intended to improve welfare.<sup>4</sup> In this context, welfare means the aggregate benefit that utility services provide, including benefits to consumers and operators as well as externalities. Externalities are benefits or costs from a transaction that are received or borne by third parties who are not part of the transaction. Air pollution produced by electricity generation is an example of a negative externality.

We should note at this point that some observers make convincing arguments that policy makers sometimes have motives other than maximizing welfare, for example, to gain short-term political advantage or to benefit political supporters. Such motives raise

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<sup>4</sup> Focusing primarily on welfare is not meant to imply that distributional issues in regulation are unimportant. We have already mentioned situations where governments use regulation to benefit some groups over other groups, and Sections F and G address the distributional issues of assisting the poor. We focus on welfare because this is the measure of benefit most often used in research and because policies that emphasize welfare do not preclude policies that address distributional issues.

the issue of how citizens can regulate their government and the regulator, discussed in Section H.

From a normative perspective, regulation of a utility operator may be desirable if (1) the welfare objectives of the government are different from the objectives of the operator and (2) the operator has an information advantage over the government. To illustrate why this might be true, consider a situation in which the government and the operator each has a single objective. The government wants service expansion in rural areas and the operator wants to maximize profits. An unregulated operator with market power would restrict output to maximize profits and would invest capital in areas that gave the highest profits. It is unlikely that either of these outcomes would be consistent with the government's objective, so the government may want to take steps that would make it in the operator's best interest to expand service in rural areas.

Now consider a situation where the government and operator have the same objective, say to offer service of a particular quality throughout the country at the lowest possible cost. In this case, the government can simply give the operator whatever relevant information it has and let the operator pursue this objective on its own. Regulation is not needed because it cannot improve results; i.e., regulations designed to persuade the operator to do what the government wants will be redundant with the operator's own strategic objectives.

In practice a government's objectives are typically different from an operator's objectives. For example, the government may be primarily concerned with new investments, service expansion, and low prices. In contrast, privately owned operators are likely to want to maximize profits, an objective that is generally understood to be inconsistent with widely available services and low prices across the board if operators have market power. State-owned operators may want to satisfy key political supporters, maintain high levels of employment for politically powerful unions, or secure large budgets.

To illustrate the importance of an information advantage<sup>5</sup> by the operator – a situation generically referred to as an information asymmetry – suppose that the government and the operator have different objectives and that the government knows just as much as the operator about customer demand and the operator's ability to satisfy customer demand. In this case, the government could achieve its objectives by simply micro-managing the operator, i.e., telling the operator when to maintain lines, how many workers to employ, etc. This approach is called command-and-control regulation, but it is not really regulation as we traditionally think of regulation. Rather, it is complete government management of the operator. However, information asymmetry is generally the case.

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<sup>5</sup> In this context asymmetric information means that the operator has what economists call private information about its ability to operate efficiently, about patterns of customer demand, or about the amount of effort required for the operator to be efficient.

There are three basic approaches to dealing with asymmetries in objectives and information: subjecting the operator to competitive pressures, gathering information on the operator and the market, and applying incentive regulation. In the following sections, we describe each of these approaches and how regulators put them into practice. Regulators typically use some combination of the three approaches, and the proper mix depends on the country's needs and objectives, institutional capabilities and arrangements, cost of obtaining information, and potential for competition.

### C. First Approach: Competition

Regulators subject operators to competitive pressures by liberalizing markets and facilitating competition. When operators are subject to competitive pressures, two things happen that help overcome the asymmetry problems described above. The first is that the operator, in its pursuit of profit, has an incentive to provide service quality levels and price levels that are best for customers, subject to the operator's need to cover its costs. Competition can provide this result because fully informed customers will buy only from those operators that provide the most beneficial combinations of quality and price. In other words, customers seek to maximize their individual net consumer surplus, which is the difference between the gross value that the customer receives when consuming the service (called willingness to pay) and the price the customer pays. Even if the operator is state-owned, competition presses it to act like a privately owned operator since it must be responsive to customers in order to finance its operations, unless it can use its status as a state-owned service provider to gain an advantage over rivals. For example, if a state-owned operator is allowed access to taxpayer-provided monies when cash flows are unable to support investments, the state-owned operator can have an incentive to make uneconomic investments that further its political goals or reduce competitive pressures. The second result of subjecting the operator to competitive pressure is that outcomes reveal actual customer demand, the operator's innate ability to be efficient, and how much effort the operator is willing to exert to be efficient.

There are three basic approaches to subjecting the operator to competitive pressure. The first is to have multiple operators compete in the market for customers. This is called competition in the market, and examples include having multiple mobile telecommunications service providers and multiple electricity generation providers. The second method, called competition for the market, is to have operators compete by bidding for the right to be a service provider. Franchise bidding to operate a city water system is an example of this second approach. The third technique is to have operators compete across markets by comparing operators that serve different markets and rewarding those that provide superior performance. Competition in the market is discussed next, followed by competition for the market. The third approach, called competition between markets, but also known as benchmarking or yardstick regulation, is covered in Section E.

## 1. Competition in the Market

There are several approaches to facilitating competition in the market. When all elements of the utility service can be competitive, then generally a primary job of the regulator is to remove barriers to entry or competition. Typical steps include removing licensing restrictions or large licensing fees, reducing switching costs, and requiring access to essential inputs, such as telephone numbering resources.

When some elements of the utility service have monopoly characteristics, such as gas distribution lines, and other elements can be competitive, such as gas production, then regulators also use tools such as structural separation and unbundling to facilitate competition. Structural separation segregates the potentially competitive portions of the utility service from the non-competitive portions. For example, electricity generation is generally considered to be potentially competitive, but electricity distribution is not. These non-competitive, yet essential portions of the service are called essential facilities.<sup>6</sup> Structural separation prohibits a single operator from providing both the competitive and non-competitive portion of the service in an attempt to ensure that the provider of the essential facility does not use its control of the essential facility to hinder competition. Structural separation is sometimes called unbundling, but some forms of unbundling may be less severe than structural separation. With simple unbundling, for example, the regulator may allow a single operator to combine competitive and non-competitive elements to provide bundled service, while requiring that the operator allow rivals access to the essential facility so that they are not disadvantaged relative to the operator's own competitive service. For example, some regulators require incumbent fixed line telephone operators to allow rivals to lease local telephone lines, but the regulators also allow the incumbent operators to continue to offer a retail service that bundles the local telephone line with usage. Regulators that want to facilitate competition generally take steps to remove barriers to entry, even if structural separation or unbundling is required. When structural separation or unbundling does not involve separate ownership, regulators often require accounting separations or ring fencing to ensure that there is no cross-subsidization from the non-competitive operations to the competitive operations.

Access pricing is an important element of regulatory policies designed to facilitate competition in the market. When a utility service is unbundled, the rivals often pay the operator an access price for use of the non-competitive element of the service. Because this price is a source of revenue for the incumbent operator – the operator that provides both the competitive and non-competitive portions of the service – and a cost for the incumbent's rivals, the incumbent has an incentive to raise this price to a level that limits competition. In telecommunications, where competitors must interconnect their networks in order to allow customers of rival networks to communicate, regulators generally require that service providers negotiate such interconnection arrangements and adopt cost-based prices.

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<sup>6</sup> An essential facility is one that is necessary for the provision of the final product and that cannot be economically duplicated by rivals to the essential facility provider.

## 2. Competition for the Market

Competition for the market may be desirable when competition in the market is infeasible or impractical. In such cases, the right to be the monopoly provider of a service could be auctioned off through an efficient auction, one in which the most efficient firm wins the auction and agrees to give up most of the monopoly profit. An efficient auction promotes cost efficiency because the most efficient firm is also the firm that is able to pay the highest price for the right to be the monopoly. In paying this high price, the successful bidder gives up at least some portion of its monopoly profits, which can be distributed to customers. In general, monopoly profit is one above the operator's cost of capital that results from the operator's having market power. Post-auction regulation may still be necessary if prices need to adjust to unanticipated events, but periodic re-bidding may substitute for typical price regulation.

### D. Second Approach: Obtaining and Analyzing Information

In addition to using competition to overcome asymmetries in information and objectives, regulators can also decrease information asymmetries by obtaining information on the operator and markets, typically including financial data and operating statistics. The financial data that regulators require from operators typically include balance sheets, capital structure, income statements, cash flow statements, and depreciation schedules. Regulators can gather financial data from a variety of sources, including reports to shareholders and taxing authorities, but the most common approach is to require the operator to provide the regulator with financial statements annually in accordance with a uniform system of accounts, which is a set of regulator-determined accounting rules that define the accounts and the accounting practices that the operator must follow when reporting financial information to the regulator. Operating statistics typically include annual or monthly information on prices, quantities of individual services sold, number of customers, number of employees, quality of services provided, sources of fuel or water, electricity generator or water treatment operating statistics, etc. In electricity markets, where competition among electricity generators takes the form of an auction for the right to sell electricity for a given time period, regulators may need to obtain information on bid prices and actual sales. Analysis of this information for purposes of regulating overall price levels is described below in the subsection on financial analysis.

### E. Third Approach: Incentive Regulation

The third approach to dealing with information asymmetries is for the regulator to design and implement incentive schemes that reward the operator for using its private information to achieve the government's objectives. To be most effective, the reward should (1) provide the operator with additional units of something it wants – for example, profits – when the operator gives the government something it wants – for example, lower prices, (2) give the operator performance options that provide higher rewards for accepting more challenging performance goals, and (3) allow the operator to keep only a minimal reward – for example, accounting profits that are no greater than the operator's

cost of equity – when the operator chooses the least challenging performance goal. Cost of equity is the financial return that the operator must give its investors to induce them to provide capital for the firm.

## 1. Basic Approaches to Incentive Regulation

Incentive regulation is generally implemented by controlling the overall price level of the operator. There are four basic schemes for regulating overall price levels. The first is generally called rate-of-return or cost-of-service regulation. This regulatory instrument establishes an overall price level that allows the operator to receive accounting profits that are just equal to its cost of equity at the time the price level is set. Actual profits may deviate from the cost of equity until the next time the regulator reviews the operator's profits. The second approach is called price cap regulation or RPI-X regulation, which establishes the operator's overall price level by indexing the price level according to inflation minus an offset, called an *X*-factor. The *X*-factor should reflect the difference between this operator and the average firm in the economy with respect to their abilities to improve efficiency and to changes in input prices. Directly measuring these efficiency and input price inflation differences to establish an *X*-factor is called pure price cap regulation.

The third approach to regulating the overall price level is called revenue caps. This is similar to price caps except that the inflation-minus-*X* formula applies to revenue rather than prices. The fourth approach to regulating the overall price level is called benchmarking or yardstick regulation. This form of regulation provides competition between markets by comparing operators across markets, in effect forcing the operator to compete against the performance of comparable operators in other markets.

Many regulators adopt hybrid incentive schemes that combine features of the three basic methods of incentive regulation described above. For example, the U.S. Federal Communications Commission once combined elements of rate-of-return regulation and price cap regulation, allowing operators to choose from a menu of options. Each option included an *X*-factor and a formula that determined the proportion of accounting profits that the operator would be allowed to keep. Options with more aggressive (larger) *X*-factors allowed operators to keep larger proportions of their accounting profits. Regulators in the U.K. use elements of rate-of-return regulation to establish *X*-factors in price cap regulation. This is described in the next subsection.

## 2. Financial Analysis

In practice, most forms of incentive regulation involve extensive financial analysis, which includes determining the operator's cost of capital, historical costs, and projected costs. The cost of capital consists of two elements, the cost of debt and the cost of equity. Regulators typically obtain debt costs from operators' financial reports, where the operators list their long-term debt instruments and the interest rates paid. Estimates of the operator's cost of equity can be obtained by using financial models such as an expanded Capital Asset Pricing Model. These consider elements of risk, such as country

risk, market risk, and the risk-free cost of capital. Regulators combine the operator's cost of debt and cost of equity into a weighted average, called the Weighted Average Cost of Capital.

While historical information alone is generally used in rate-of-return regulation, some regulators, such as those in the U.K., use historical and projected operating and investment costs to set X-factors. Historical operating and investment costs can be obtained from the operator's accounting records, but care must be taken if accounting standards were historically weak or inconsistent over time. In the U.K. approach, projected operating and investment costs, existing net investment in regulatory assets or rate base, and projected net investment are used in a net present value analysis to establish X-factors. This method involves making demand forecasts, identifying investment requirements to meet the projected demand, and forecasting the associated operating expenses. These projections are analyzed and adjusted by the regulator to determine how the operator's overall price level should be allowed to change relative to inflation.

When using accounting costs, whether historical or projected, regulators place below the line any costs that are not needed to provide the utility service or that are considered excessive. Costs for items needed to provide the utility service are considered to be used and useful and so are kept above the line, which means that they can be recovered through prices charged for regulated services. Costs that are excessive, perhaps because the operator paid too much for an item or made an avoidable mistake in an investment, are considered imprudent and the excess is placed below the line.

### 3. Ring Fencing or Accounting Separations

Accounting separations - the process of separating costs and revenues of regulated operations from non-regulated operations - is another important aspect of financial analysis since it is not unusual for an operator to provide services that the regulator does not regulate. For example, an operator may provide utility services in another country, offer utility services that have been deregulated, or offer non-regulated, non-utility services such as data processing. Accounting separation places the associated costs and revenues of these operations below the line. A regulator's policies regarding accounting separation typically prescribe (1) accounts used to record only regulated activities, accounts used only for non-regulated activities, and accounts used for both types of activities, (2) how the costs and revenues in accounts used for both regulated and non-regulated activities are to be divided between the two types of activities, (3) how the operator is to value transactions between the regulated and non-regulated portions of the business (called transfer pricing), and (4) reporting and auditing requirements.

Some regulators use the term "ring fencing" to be synonymous with accounting separation. Other regulators use this term more broadly to include such practices as different regulatory treatment for different services. Throughout the rest of this document, we will use the terms ring fencing and accounting separation interchangeably.

#### 4. Benchmarking or Yardstick Regulation

The third form of incentive regulation creates competition between comparable operators in separate markets. Regulators using this form of regulation should usually choose performance measures that are general in nature and that operators can affect, e.g., cost per kilowatt hour. More granular performance measures – e.g., line maintenance cost per kilowatt hour - restrict the means by which operators can improve overall performance. Unlike granular performance measures, general performance measures allow operators to make economic tradeoffs – for example, between capital investments and operating expenses. In addition to being used for regulating overall price levels, benchmarking can be used for regulating such items as service quality and network expansion.

#### F. Tariff Design

Once the overall price level has been established for an operator, the work of establishing the rate (or price) structure still remains. This work is called tariff or rate design and refers to relationships among individual prices (or rate elements) that the operator charges. In some instances, the regulator may choose not to regulate the price structure, as when (1) the objectives of the operator are in line with, or at least do not contradict, the objectives of the regulator as these relate to rate design and (2) the regulator's resources are limited and regulating price structure is a low priority.

Most economists agree that efficient price structures cover total cost and align prices with marginal costs. Marginal cost is the additional capital and operating cost that results from increasing output by a single unit.<sup>7</sup> Marginal cost pricing may be difficult when there are economies of scale or scope because prices equal to marginal costs would not cover all of the costs of the operator. In these situations, regulators and operators generally favor multipart pricing or Ramsey pricing. Under this arrangement, the operator charges separate prices for different elements of the service. For example, a water provider may charge a connection fee plus a usage fee. With Ramsey pricing, which is also called differentiated pricing or the inverse elasticity rule, the operator charges higher prices to customers with inelastic demand and lower prices to customers with elastic demand. Customers have inelastic demand if they do not change the amount they purchase by very much if the operator changes its prices. Conversely, customers have elastic demand if they respond to changes in prices by making large changes in the quantities that they purchase. More precisely, inelastic demand means that a 1 percent change in price results in a percentage change in the quantity demanded that is less than 1 percent, while elastic demand means that the 1 percent change in price results in a greater than 1 percent change in quantity demanded.

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<sup>7</sup> If the system is capacity-constrained, meaning that capacity cannot be increased, marginal cost would also include the marginal congestion cost.

## G. Service Quality, Environmental, and Universal Access/Service Issues

In addition to pricing issues, regulators address non-price issues such as service quality, environmental protection, infrastructure development, and access to services for the poor by attempting to minimize the effects of asymmetries in information and objectives. For example, an operator with market power may have an incentive to degrade retail service quality if doing so increases profits, or to degrade quality for inputs sold to competitors if doing so decreases competitive pressures. Service quality regulation generally includes quality standards, mechanisms for monitoring quality, and penalties for not meeting the standards. It is less typical for the operator to receive a reward for exceeding service quality standards.

Environmental regulation is similar to service quality regulation in that it often includes standards, monitoring, and penalties or rewards. Sometimes markets are used for environmental regulation, as when the government issues tradable emission permits to electricity generators so that a generator with low pollution control costs can profitably decrease its emissions and sell some portion of its permit allowance to a generator with higher pollution control costs. In many countries, the utility regulator does not have direct responsibility for environmental regulation. Where this is the case, the regulator should be aware of the environmental policies and regulations because incentive mechanisms and decisions on above- or below-the-line treatment of environmental protection costs can affect the operator's efforts to cooperate in reaching the country's environmental goals.

In some instances, the regulator may want the operator to provide services that are not commercially viable. The most common examples are infrastructure expansion and service or service access to the poor. In the case of infrastructure expansion, the regulator may desire a rapid system expansion beyond what a profit-maximizing operator in a competitive market would choose, or desire network expansion into a rural area where customers are unwilling or unable to pay prices that cover the cost of developing the infrastructure. The most common solution is a requirement in the operator license or concession contract that sets out network deployment expectations and the rewards or penalties that apply to encourage the operator to meet the expectations. Other approaches include special franchises and subsidies for rural areas.

Policies for services to the poor generally use some combination of three basic elements: competition, service quality standards specific to services for the poor, and subsidies. Research has shown that competition provides operators with incentives to find ways to profitably provide service to the poor. For example, competition in mobile telecommunications in developing countries gave operators an incentive to develop prepaid service, which made it possible for the poor, who are generally unable to establish credit for post-paid service, to obtain service. Competition among entrepreneurs who transport water from wells or streams has also increased the supply of water to the poor in some instances. Situations also arise where services to the poor can be made affordable by offering a lower quality than provided to wealthier customers. For example, a shared sewage system provides a lower level of service than a system that

gives each customer a separate connection but is likely more affordable for the poor than the higher quality system.

Subsidies are another common feature of policies designed to assist the poor. These generally take the form of service or infrastructure development obligations for operators. In these situations, the operator internalizes the subsidies. In other instances, the subsidies may be explicit. For example, water customers living in low-income areas of Colombia receive credits on their bills. Customers in wealthier areas have surcharges on their bills to fund the subsidies to the poorer customers. Subsidy arrangements should be approached with caution. Research has shown that higher income customers traditionally benefit more from subsidies than do poorer customers.

## H. Regulatory Process

An important feature of utility regulation is the institutional framework within which it occurs because this affects stakeholders' beliefs and ability to influence regulation, the incentives and capabilities of the regulatory agencies, and the role of politics in the regulatory process. In fact, the institutional structure of regulation takes us back to our first point about objectives because the institutional structure plays a significant role in determining the regulator's objectives. If the regulatory agency is subject to daily political pressures, for example, it may place more weight on short-term political goals than on long-term infrastructure development goals identified in the country's laws. The consequence of pursuing short-term political goals may be that the politically powerful benefit more from the regulatory process than the politically weak. There is also a danger that the agency may be subject to capture by operator interests and so serve the interests of the industry rather than pursue the provision of efficient utility services. To avoid these and other outcomes that serve the needs of special interests, experts generally recommend institutional arrangements that (1) focus the country's political efforts on establishing laws under which the regulator can function properly and (2) make it easier for customers and other stakeholders to regulate the regulator. These arrangements are designed to ensure, to the extent practical, that the regulator's objectives correspond to those of the population. These arrangements encourage regulation under the law, independence, transparency, predictability, legitimacy, and credibility of the regulatory system.

### 1. Institutional Arrangements

Institutional arrangements in regulation include institutional design, methods for review and appeal of regulatory decisions, mechanisms for encouraging ethical conduct, and processes for managing relationships with stakeholders. The design of regulatory institutions includes such features as appointment processes for regulators, agency financing, scope of responsibilities and authority of the agency, regulatory processes for protecting stakeholders' rights as well as providing them with information, and the management structure of the regulatory agency. Appointment and removal processes for regulators and financing of the regulatory agency affect the regulator's ability to operate independently of short-term political interests and the government's ability to ensure that

the regulator is following the government's established policies. For example, if the president, parliament, or ministry of a country can remove the regulator at will, then, absent extraordinary self-control on the part of politicians, the regulator has an incentive to serve the politicians' short-term interests. Then again, a regulator-for-life with budgetary control would have extraordinary power and, absent strong judicial oversight, would be able to pursue personal agendas in conflict with the policies and laws of the country. Policies that provide due process for stakeholders ensure that those affected by regulation are able to submit information and opinions that are relevant to regulatory decisions to the regulator. Policies that require the regulator to keep records, make the records publicly available, and provide substantive explanations for regulatory decisions allow customers and other stakeholders to observe how the regulator makes decisions and can facilitate appeals of regulatory decisions.

## 2. Review and Appeal

The review and appeal processes for regulatory decisions includes decision-making processes, choices of regulatory instruments, stakeholder and government roles in regulatory decision making, mechanisms for appeal of regulatory decisions, and alternative dispute resolution processes. Regulatory instruments include legislation and licenses, the choice of which is often determined by the legal traditions in a country and the ways these instruments can be changed. For example, the regulatory process is politicized if a license is the regulatory instrument and the ministry can change the license at will. In some countries, regulatory decisions are subject to ministry review, which can also politicize regulation. To avoid such situations, some countries provide only judicial review of regulatory decisions or establish administrative tribunals. For example, in the U.K. most major regulatory decisions can be appealed to the Competition Commission, as well as the courts. Some countries allow courts to overrule the regulator only on legal or procedural grounds and not on the substantive grounds of the regulatory decision itself. In some situations legal processes can delay regulatory decisions to such an extent that the decisions cannot be made in a timely fashion, which degrades sector performance. To avoid such delays, some countries use alternative dispute resolutions procedures, such as binding arbitration, to speed resolution of conflicts.

## 3. Ethical Conduct

The regulator's ethical conduct is important because control mechanisms such as appeals and due process are imperfect and may be costly. Instruments for encouraging ethical conduct include adopting conflict-of-interest standards and codes of conduct. Conflicts of interest may include financial stakes in operators by regulators or family members, having recently worked for an operator or another stakeholder, serving as a consultant for a stakeholder, or negotiating future employment or business arrangements with a stakeholder. Codes of conduct often cover such issues as meetings with stakeholders, recordkeeping procedures, and political activities.

#### 4. Stakeholder Relations

Stakeholder relations affect the independence of the agency and include the use of advisory boards, communication strategies, grievance procedures, and relationships with the government, consumers, operators, and investors. Some regulators use advisory boards to facilitate stakeholder input, especially on issues of long-term planning and issues such as service quality regulation that require ongoing surveillance. Care must be taken when using advisory boards to ensure that the stakeholders represented do not obtain privileged positions for influencing the regulator. Regulators generally receive complaints from consumers related to prices and service quality, and often have special staff designated to handle these complaints. Some of the regulator's interactions with stakeholders can take the form of negotiations. Such circumstances make it important for regulators to develop strategic negotiation skills, such as identifying parties' interests and win-win solutions. Lastly, regulators generally dedicate trained staff to deal with the press because the public receives most of its information about regulation through newspapers and other media. This reliance on journalists makes it important for regulators to develop good press relations, provide effective press releases, and learn how to provide timely and accurate information to the press.

##### I. Concluding Observations

Regulation is performed in a network of relationships among persons and institutions that differ in their objectives, incentives, and sets of information. For regulation to result in effective and efficient sector performance – which is necessary for customers to receive their maximum benefit from the sector – decision-making procedures should be in place to limit information asymmetries and provide incentives for operators, government, and regulators to work for the best interest of customers and the economy. This generally means that (1) effective competition should be encouraged whenever possible, (2) the regulator should gather information about the sector and provide stakeholders with information on the regulator and its decisions, (3) incentive regulation should reward the operator who accepts performance goals that make customers better off with the opportunity for higher profits, (4) requirements should be established for service quality and access for the poor, and (5) regulatory processes should align the goals and capabilities of the regulator with the welfare of customers.