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Regulatory Policies and Reforms in the Power and Downstream Oil Industries

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Since the late 1980s, developing countries have been privatizing their utilities sectors primarily because of fiscal constraints. The public sector has been unable to fulfill the massive investments necessary to bring up these sectors to modern standards of service and coverage. Traditionally, these sectors were viewed either as natural monopolies or as being of strategic interest, thus requiring substantial regulation or direct public ownership.

Today, these arguments are no longer valid. Rapid technological changes and new financial arrangements have put into question the historical notions of natural monopolies. In addition, upon recognizing that many existing regulations have become obsolete and even harmful to economic growth, countries began to institute regulatory reforms. As economies also became more open, the pressure to become more competitive brought calls for even more fundamental regulatory reforms to reduce costs and increase productivity, competitiveness and growth. With the ongoing privatization in the utilities sectors, the trend toward economic regulatory reform is likely to continue in the future.

Like many developing countries, the Philippines has witnessed substantial trade liberalization and economic deregulation in various economic sectors such as telecommunications, banking and finance, water and air transport and cargo handling, potable water distribution and sewerage, and energy generation, transmission and distribution. Successive government administrations have also moved to privatize the country's utilities sectors and have helped devise new regulatory frameworks for these sectors. For instance, to address the power crisis in 1992 and 1993, the power generation sector was opened up to private sector participation. The late

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1990s also saw the concessioning of Manila's water supply and sanitation systems and the long-term leasing of Manila's container terminal facilities.

This paper focuses on the electricity and downstream oil industries. Both are essential to most productive processes and are important elements in final demand. The electricity network has strong externalities as well as economies of scale and scope. The government monopolized the generation and transmission of electricity and closely regulated distribution throughout the country. Currently, the power sector is at the forefront of deregulation and privatization. Prior to the electricity sector's deregulation in 1996, the government also heavily regulated the oil industry. Unlike electricity, however, the oil industry neither exhibits aspects of natural monopoly nor displays economic features that would warrant government regulation.

This paper aims to summarize the major reforms in the power and downstream oil industries and to analyze the economics behind these reforms. Is regulation necessary? What form of regulation should be adopted? How can the policy reforms bring about competition? How will prices be set and investment financed?

Designing effective regulatory frameworks and enforcing them are not easy. Effectively balancing redistributive concerns and efficiency requires efficient institutional mechanisms to resolve inevitable conflicts. With few exceptions, developing countries have the problem that a significant gap exists between rules and enforcement capacity. Given the little experience in government regulation in a market-driven setting, research is needed to provide a deeper understanding of the issues associated with regulatory reforms within the context of economic, institutional and political structures, and to possibly come up with ways to shore up weak administrative and enforcement capacities.

The paper is divided into five sections. Section 2 presents the underlying theoretical foundation of regulation, particularly the regulation of utilities. Section 3 discusses the prereform state of the power sector and the reforms under Republic Act 9136. Section 4 compares the condition of the downstream oil industry before and after deregulation and discusses how the industry deregulation has fared. Section 5 summarizes the emerging issues and policy implications of the paper.

ECONOMIC REGULATION: THEORY AND PRACTICE

Why regulate utilities

Economic regulation refers to restrictions on prices, quantity, and entry and exit conditions for certain industries. There are two main types of regulation: regulation of structure and regulation of conduct (Valletti and Estache 1998). The former includes setting merger controls, removing entry barriers and restrictions on the line of business, or breaking up an integrated incumbent. The regulation of con-

duct covers firms' pricing behavior in terms of level and structure. The constraint on prices can be both at the final and intermediate levels.

The most common economic argument for regulation is to address market failures, economies of scale (and scope) in production, or inequities in demand. Traditionally, governments have regulated the utilities sector. Compared with the rest of the economy, utilities have three distinctive characteristics (Guash and Spiller 1998):

- ✦ They require technologies that are commonly considered specific, sunk investments;
- ✦ They display aspects of natural monopoly such as economies of scale and scope in the physical provision of basic services, economies of scale in planning and managing the network, network externalities and advantages in raising capital, which are being gradually eroded by technological innovations;
- ✦ Their products are massively consumed by captive consumers with fairly inelastic demand.

These features of the utilities sector formed the basis for raising the need for governmental regulation. In theory, if there are economies of scale or scope, average costs decrease as the scale and scope of operations expands. This implies that a single firm may be able to produce more efficiently than several competing firms. However, the control over price exerted by a monopolist could give rise to efficiency losses to society; hence, regulation is necessary to curtail abuses of monopoly power.

On the other hand, when an industry is characterized by increasing returns to scale or when network externalities or significant coordination costs are present, regulation is also an important mechanism for increasing economic efficiency. The general principle is to regulate segments of the market that exhibit natural monopoly characteristics not only to restrain abuses of monopoly power but also to protect consumers and ensure access (i.e., fair price and quality) by future competitors to essential or bottleneck facilities often controlled by incumbent firms.

Interconnection and access to networks as an intermediate service or bottleneck facility is critical to fostering competition and reducing market domination. Regulation should ensure that access and interconnection charges (a) promote an efficient structure of production, use, and consumption; (b) allow network operators to make a sufficient return; and (c) promote efficiency while avoiding unnecessary construction of duplicate networks. In the presence of alternative delivery systems or bypass technologies, the correct access prices become vital to ensure efficiency of the total system.

There are basically two approaches in addressing the access problem:

- ✦ Break up the vertically integrated dominant firm and prohibit the essential facility spin-off from re-entering the competitive market; and
- ✦ Preserve the vertically integrated firm as a monopoly, while regulating either the final prices to consumers or access prices to competitors, or both, to promote competition.

The access problem becomes more serious in the presence of vertically integrated industries. By allowing the bottleneck owner to compete against other firms, there is a danger that the incumbent will set access charges that may make further entry difficult. Policies prohibiting vertical integration across monopolistic and competitive segments of the production process are necessary to facilitate access terms and to eliminate conflict of interest. The threat of market foreclosure to upstream competitors has led to a policy of unbundling or separating the stages of utility production.

Establishing and implementing an effective regulatory system is a difficult activity; the process requires a regulatory tradition and track record, expertise and strong institutional support that are often lacking in developing countries. The difficulty is exacerbated because governments face multiple objectives such as ensuring competition, generating high revenues from privatization for fiscal reasons, meeting ambitious investment demands, facilitating the rapid expansion of basic services, and taking into account distributional factors in the pricing of services.

Efficient regulation is hampered by the problem of asymmetric information: Firms have a good idea of their costs and demand structure, but the regulator often does not have access to such information. Moreover, since regulation redistributes resources and rents, politicians can use it to secure political gains rather than correct market failures—hence, leading to socially suboptimal economic results and undermining the effectiveness of even the well-designed regulatory framework.

How to regulate monopolies

Regulation is seen as a principal-agent relationship in which a regulator (the principal) attempts to control the firm (the agent), a natural monopoly. The fundamental problem confronting the regulator is the asymmetry of information that can be reduced but not eliminated. The regulated firm will always know more about its economic environment, production cost, effort, demand and quality than the regulator and will try to extract some rent from consumers as a result of the information advantage.

Given the regulator's lack of information about the regulated firm, Loeb and Magat (1979) suggest that the regulator should simply transfer the consumer surplus to the firm to induce the latter to behave optimally. However, this leaves

the equity issue or the cost of public funds unresolved because the monopolist appropriates the entire economic surplus.

Baron and Myerson (1982) indicate that there is a trade-off between efficiency and informational rents. Assuming that these rents are costly to society, the Baron and Myerson model allows the monopolist to charge a higher price and provides a pricing formula that accepts the monopolist's cost declaration at face value plus some margin.

Laffont and Tirole (1986) introduce a model with a richer asymmetry of information both on the technology and unobservable cost-reducing efforts of the firm. In this model, optimal regulation requires a menu of contracts to be offered to firms. The contracts should be designed such that the firms themselves would select the one that is consistent with their hidden information. Thus, a high-cost, low-effort firm would not choose the same contract as the one chosen by the low-cost, high-effort firm. Essentially, the point of Laffont and Tirole is that efficiency gains must be balanced against the higher informational rents that the regulated firm is required to give up in exchange. One important difference between their model and that of Baron and Myerson is that, in the latter scheme, prices need not be distorted to reduce informational rents.

Price regulation in practice

Regulation of a standard monopolist

There are two main approaches to monopoly regulation: rate-of-return regulation and price cap regulation. The rate-of-return regulation is a cost-based regulation that allows firms to earn sufficient revenues to cover costs, including a fair rate of return on equity. The principle is to control prices, though indirectly, by allowing the regulated firm to earn only a normal or fair rate of return on its capital investment. It is used in Canada, Japan, and is the dominant form in the United States. This price-setting method requires detailed information on costs, assets and investments. Its main drawback is that it generates perverse incentives. As Estache (undated) points out, guaranteed a set rate of return, the regulated firm tends to overinvest in capital (the Averch-Johnson effect) or simply overstate the value of assets when this is difficult to assess. The larger the value of the asset, the larger the benefits allowed; hence, the higher the prices will be.

In addition, this method provides little incentive for productive efficiency because the firm can pass production costs on to the final users in the form of higher prices. The rate-of-return regulation penalizes efforts to reduce costs, as these would have to be passed on in the form of lower prices to customers.

Price cap regulation was introduced in the United Kingdom as an alternative to the rate-of-return regulation. This method is used in some states in the United States as well as in Australia, Puerto Rico, Singapore and Latin America. It

is based on the control of maximum prices. Under this scheme, the firm is free to increase its price between review periods at the rate of inflation (RPI) minus some amount (X) to reflect expected increases in productivity arising from technological improvements. The system provides incentives for cost reductions and efficiency gains. That is, the firm retains any profits that may result from cost cutting or technological innovation at least until the end of the review period. For the next review period, the initial price and the new X will reflect the new cost structure, therefore enabling consumers to benefit from the increased efficiency.

A problem with this pricing system is that it is difficult to determine the magnitude and the time duration of the annual adjustment factor. In practice, the resulting price cap is either too high, which allows the regulated firm to earn enormous profits at the expense of consumers, or too low, which drives the firm into bankruptcy. Another problem is that the regulated firm is given the incentive to cut quality as a way of reducing costs and earning bigger profits. In contrast, under rate-of-return regulation, over-investing in quality may be a rewarding strategy for the firm.

With the introduction of electricity sector reforms in 2001, the Philippines is currently shifting toward price cap regulation for retail tariffs of all distribution utilities. The regulatory approach for distribution retail tariffs is still based on the rate-of-return regulation principle with assets revalued on a replacement cost basis. The rate of return base cannot be greater than 12 percent.

Regulation of access/interconnection

The setting of access charges is another highly difficult exercise. In practice, regulators may let access charges be set by private negotiation and intervene only if parties fail to reach an agreement. Interconnection and access costs can be calculated in several ways, and, indeed, there are complexities in apportioning costs into line-sensitive and traffic-sensitive areas; peak and off-peak hours; central business district, metropolitan, provincial and rural areas; and different areas of the network hierarchy.

In theory, the best solution is to set the access price equal to the marginal cost of production. In this case, however, the incumbent will recover only the variable cost and incur a loss equal to the fixed cost. Therefore, in the absence of government subsidies, the alternative ("second best solution") is to set access charge equal to the average cost of the bottleneck owner. When different services are produced with the essential input, still another alternative is to allow access charge to follow an inverse elasticity rule in which the more a good is needed by a downstream user, the higher the access charge that the bottleneck owner should be allowed to levy on that user.

The efficient component pricing rule (ECPR), also known as the Baumol-Willig rule, is a more creative second best solution. When final products are homogeneous and the market is contestable, the ECPR simply sets the access charge equal to the difference between the final price and the marginal cost on the competitive segment. The basic message of the ECPR is to set the access price equal to the net benefit earned by society when that service is provided competitively. The ECPR can avoid inefficient entry, but it does so at the expense of maintaining the incumbent's monopoly power over final goods.

The ECPR has been criticized because of its assumption that all firms face identical cost structures and provide perfectly substitutable goods. Its opponents suggest that access charge must consider cost and demand asymmetries between monopolist and competitors as well as allow for several competitors by introducing product differentiation. Another criticism is it abstracts from incentives so that there is no reason to have more than one firm in the competitive segment. Therefore, entrants must be more efficient than the monopolist or they will never choose to enter. In that case, however, the monopolist will cease providing the service at all because it can earn higher revenues by selling its rights without incurring any costs. Thus, it limits the development of dynamic efficiencies arising from competition.

Laffont and Tirole (1996) propose a global price cap as an alternative to the ECPR. The global price cap includes both access charges and final goods prices. The bottleneck input is treated as a final good and included in the computation of the price cap. The approach requires that the weighted average of all these prices does not exceed the cap. When the cap is properly set, the regulated firm is induced to choose an optimal price structure. It does not require the regulator to measure marginal cost or to estimate demand elasticities. Nevertheless, one major concern that has been raised regarding global caps involves predatory practices that the incumbent can engage in. By increasing the access prices and reducing the final product price, the incumbent can satisfy the global cap while engaging in a price squeeze that damages competition.

In the Philippines, transmission rates are currently regulated by a revenue cap scheme following the Energy Regulatory Commission's adoption of performance-based regulation in transmission wheeling rates in May 2003. Like retail electricity rates, the regulation of transmission wheeling tariffs had been based on the rate-of-return regulation principle.

Franchises and concessions: alternatives to price regulation

Franchises and concessions are seen as alternatives to regulation in natural monopoly settings and often used to encourage competition, to transfer operating

rights and use of assets to the private sector, and to set the initial price of services and subsequent adjustment mechanisms.[1] Compared to regulation, franchises and concessions impose no informational requirements on a government agency. They are important schemes for introducing private sector participation in sectors where the government does not want to transfer ownership of assets to the private sector.

Franchising refers to the granting of a right or license to operate a defined service and to receive associated revenues after a competitive bidding process is carried out. Competitive bidding for the natural monopoly dissipates all the monopoly rents. A franchise is essentially a contractual arrangement. As such, it requires the regulator to be constantly involved—to monitor compliance, reconcile opposing interpretations of obligations and responsibilities, and negotiate the contractual conditions.

Franchising natural monopolies offers the following advantages:

- ✦ Reduces opportunities for regulatory capture as well as the scope for political interference in management;
- ✦ Encourages cost efficiency because franchise contracts specify maximum prices for set qualities of goods and services and permit cost savings to accrue to the franchisee during the life of the contract;
- ✦ Fosters productive efficiency because the competitive nature of contract bidding assures that the lowest prices are obtained but the franchisee still earns a normal return on investment; and
- ✦ Achieves optimal pricing even when sunk costs rule out contestability because competition occurs before firms commit themselves to investment programs.

Its disadvantages are:

- ✦ Requires complex design and monitoring systems when multiple bidding targets are present;
- ✦ Cannot cover every conceivable circumstance;
- ✦ Renders contract enforcement difficult;
- ✦ Leads to poor service quality and lack of incentives due to the fixed-term nature of the contracts; and
- ✦ Cannot commit to a path of price adjustments over the life of the franchise. This allows the franchisee to abuse renegotiation opportunities, which in turn renders the initial price bid (based on which the franchise is awarded) almost meaningless.

[1] Most of the discussions in this section were drawn from Guash and Spiller (1998).

In sum, franchise-bidding is superior to monopoly regulation only if its post-award abuses can be contained and if repeated bidding is practicable. Water and sanitation, solid waste collection, urban transportation, rail, airport and subway services, toll roads, and cable and television are the sectors that seem most appropriate for franchise-bidding regulation.

Concessions are very similar to franchising. The only difference is that concessions involve more detailed follow-up supervision and additional future obligations of the operator are built into the contract. Concessions are well suited to sectors with monopoly characteristics. The government delegates the right to provide a particular service to another party but maintains some control over the sector by dictating the rights and obligations of the provider. Box 1 describes the responsibilities of the government for concession. The service must be provided under the conditions specified in the contract or license. The private sector assumes operational responsibility and some of the commercial risk of provision. In general, the concessionaire must achieve specified targets.

The approach includes build-own-operate, build-operate-transfer and lease-and-operate contracts. Under the first two types of agreements, the private sector is responsible for financing and carrying out the investment specified in the contract. Under the build-operate-transfer scheme, the assets revert to the State at the end of the concession terms, while under the build-own-operate system, the ownership of the existing assets and the responsibility for their future expansion and maintenance are transferred to the private sector. Under the lease-operate-contract, the private contractor receives a fee to provide the service, including operating and maintaining the infrastructure.

Concession arrangements embody a regulatory framework and in practice should be viewed as an integral part of regulation rather than as a substitute for it. The terms of the contract need to be monitored, enforced and occasionally revised. In practice, the number of cases in which privatizations/concessions went sour and contracts had to be renegotiated are quite high. The commonly-encountered problems are poor concession design, unclear concession/regulatory rules, ex-post changes of the rules of the process and inappropriate bending to requests for renegotiation.

POWER SECTOR

Industry Characteristics and Structure

The electric power industry encompasses four major activities:

- Generation: production of high-voltage electricity that ranges from 12 kilovolts to 500 kilovolts (kV);
- Transmission (grid network phase): conduction of large blocks of high voltage electricity at the power plants to distribution companies;

Box 1. Government responsibilities

Framework
- ✦ Adopting legal provisions to enable the granting of concessions
- ✦ Establishing or identifying regulatory authorities
- ✦ Managing government support of infrastructure projects
- ✦ Managing public relations and information

Project identification and analysis
- ✦ Identifying projects amenable to concessions (including inhouse and unsolicited proposals)
- ✦ Prioritizing projects amenable to concessions
- ✦ Hiring advisers
- ✦ Performing a preliminary review of the costs and benefits of the project (without duplicating the analysis to be performed by the private sector), especially in cases where the government will be assuming part of the market risk
- ✦ Reviewing legal and regulatory issues
- ✦ Determining preliminary selection criteria
- ✦ Granting permission for the project to go ahead (for example, for the opening of the bidding process)
- ✦ Setting a timetable for the project

Enabling and supporting measures for specific projects
- ✦ Granting permits and other necessary authorizations (environmental permits, right of way)
- ✦ Determining the form of government support for the project

Design of the concession arrangements
- ✦ Choosing legal instruments
- ✦ Allocating responsibilities
- ✦ Choosing and designing pricing rules and performance targets
- ✦ Determining bonuses and penalties
- ✦ Determining duration and termination
- ✦ Designing adaptation mechanisms to new or unforeseen circumstances
- ✦ Choosing and designing a dispute settlement mechanismConcession award
- ✦ Choosing the method of award
- ✦ Making decisions regarding prequalification and shortlisting
- ✦ Determining bid structure and evaluation method
- ✦ Determining bidding rules and procedures
- ✦ Proceeding with the bidding
- ✦ Negotiating

Exercising regulatory function
- ✦ Implementing regulatory function
- ✦ Supervising and monitoring
- ✦ Enforcing rules (imposing penalties)

Source: Kerf et al. (1994) as cited in Guasch and Spiller (1998).

- ✦ Distribution: delivery of electricity from the transmission system to the final consumers at a usable level of voltage (usually 220 volts);
- ✦ Supply: contracting for the delivery of electricity to the customer, metering and billing.

In most countries, the electricity industry is traditionally vertically integrated. As Box 2 shows, the features of the electricity industry closely resemble those of

Box 2. Major characteristics of the electricity industry

- Essential to most productive processes and is an element in final demand
- Cannot be stored
- Has strong externalities
- Investment is specific and cannot be divided
- Needs close coordination because supply and demand must be balanced continuously throughout the system
- Economies of scale and scope are present
- Network takes a long time to build
- Demand and supply fluctuate randomly (demand fluctuates by day and season and with variations in the weather, power outages cannot be predicted)
- Demand is highly inelastic to price changes
- Represents a captive market

Source: Guasch and Spiller (1998)

a natural monopoly. This thus creates the rationale for the state's direct control through ownership and regulation. For instance, scale economies can provide the network owner substantial market power. Other characteristics such as nonstorability of electricity supply, consumers' dependence on the suppliers and the essential nature of the service can further enhance suppliers' market power.

However, the traditional vertically integrated monopoly approach has changed with the technological innovations in the 1980s. Now smaller optimal size of generation plants, combined with growth in the market size, has undermined the natural monopolistic characteristics of the electricity industry and challenged the traditional paradigm. While high-tension transmission and low-tension distribution systems are natural monopolies, generation and supply are now considered competitive. This allowed countries to adopt a market approach to power supply and introduce competition and unbundling of the industry. The United Kingdom provided the main impetus for radical reforms in an industry normally considered a natural vertically integrated monopoly. Without any model to follow, the British government pursued the deintegration of the industry that separated the natural monopolies from the potentially competitive parts and created a spot market for bulk power. The British experience has convinced observers that privatization works and reforms in the electricity sector are feasible and attractive.

The Philippine electricity sector prior to reforms: circa 1900 up to the mid-1980s

The country's electrification started in the late 19th century as La Electricista constructed a central station in Manila that generated electricity using 10 of 60-kilowatt AC steam generators. Franchises for electricity distribution were given to

private and municipal or city government-owned utilities and cooperatives. In 1905, the Manila Electric Rail and Light Company (Meralco) took over La Electricista after it was granted a 50-year franchise for the construction, maintenance and operation of an electric railway and a light heat power system from Manila to Pasig. In 1962, the Lopezes bought the company.

The legislation of Commonwealth Act 120 in 1936 created the National Power Corporation (NPC), which would develop the country's potentials for power generation. Republic Act 2641 restructured NPC from a nonstock government-owned corporation to a fully government-owned stock corporation. Energy regulation began in 1936 with the legislation of Commonwealth Act 146, which created the Public Service Commission (PSC) to supervise and control all public services, including the power sector.

In 1971, Republic Act 6173 established the Oil Industry Commission to regulate the oil industry and ensure the adequate supply of petroleum products at reasonable prices. In 1972, the PSC was abolished and the regulation of electricity and water was transferred to the Board of Power and Waterworks (BPW). In the same year, Presidential Decree 40 allowed NPC to monopolize the generation and transmission of electricity in the country. The same law granted NPC sole ownership and control over one integrated nationwide transmission network used for power generation. The Martial Law administration under Ferdinand Marcos expropriated Meralco from the Lopez family. In 1973, Presidential Decree 269 established the National Electrification Administration (NEA) to provide financial and technical assistance to electric cooperatives. In 1979, legislation was passed allowing NPC to acquire MERALCO's thermal power plants. This resulted in a substantial increase in its share from only one-third of total electricity capacity to 90 percent, making it the country's major supplier of electricity.

In 1977, the Department of Energy (later renamed Ministry of Energy) was created to formulate the government's energy policies plans and programs. At the same time, Presidential Decree 1206 dissolved the Oil Industry Commission and established the Board of Energy (BOE), which was responsible for setting energy prices, including those of petroleum products and electricity. In 1987, Executive Order 172 reconstituted the BOE into the Energy Regulatory Board (ERB).

By the mid-1980s, shortcomings in the country's power supply were starting to become evident. Table 1 shows that the average production of electricity stagnated at 0.39 million kwh per 1,000 people between the periods 1981-1984 and 1985-1988. In contrast, the average production of electricity continued to increase in other countries. For instance, Thailand's figure rose from 0.38 million to 0.54 million kwh per 1,000 persons during the same periods. Electrification growth deteriorated dramatically as the number of new households electrified dropped from 250 million in 1983 to a measly 100 million in 1986 (Table 2).

Table 1. Average Production of Electricity (in million kilowatt hours per 1,000 people)

Country	1977-1980	1981-1984	1985-1988
Philippines	0.35	0.39	0.39
Brazil	1.01	1.23	1.44
Chile	0.99	1.07	1.23
India	0.17	0.20	0.27
Indonesia	0.06	0.12	0.20
South Korea	0.93	1.30	1.77
Malaysia	0.64	0.83	1.50
Mexico	0.86	1.08	1.25
Thailand	0.30	0.38	0.54
Turkey	0.51	0.57	0.79

Source: World Bank Country Report 1993

Table 2. New households electrified outside Manila (in millions)

Year	New Households Electrified	Year	New Households Electrified
1975	120	1983	250
1976	170	1984	210
1977	180	1985	160
1978	200	1986	100
1979	270	1987	110
1980	320	1988	-30
1981	260	1989	180
1982	330	1990	180

Source: World Bank Country Report 1993

The World Bank (1993) notes that there were virtually no investments for new base load power plants as the bulk of investments made concentrated on improving the financial health of NPC. The 620-megawatt Bataan Nuclear Power Plant that was to go commercial in the mid-1980s was mothballed for safety reasons. The NPC had relied heavily on the plant as an important addition to its supply and failed to invest and do maintenance work on its existing coal and oil fired thermal stations (World Bank 1993). As a result of this neglect, power supply considerably lagged population growth, causing a full-blown power crisis in the late 1980s and early 1990s.

Power outages increased in 1990 as several older oil-fired thermal stations broke down. The country was also hit by natural disasters that severely affected

the delivery of power. While the installed capacity of the two major grids in Luzon and Mindanao appeared sufficient, their available capacity was woefully inadequate. In the Luzon grid, the available capacity ranged from 2,300 megawatts to 3,100 megawatts against an installed capacity of 4,321 megawatts. In the Mindanao grid, the available capacity declined from 600 megawatts hydro in 1990 to 200 megawatts hydro in 1991, although its installed capacity was 1,053 megawatts (904 hydro + 149 diesel). This electric capacity shortage meant greater unmet demands. The NPC data showed a steady decline in the quality and delivery of power in the Luzon grid. Between 1987 to 1990, the Luzon grid accounted for almost 70 percent of NPC's total installed generating capacity and for about 60 percent of NPC's industrial customers. In 1989, the Luzon grid had 41 days of brownouts for a total yearly duration of 429 hours, resulting in 91 Gwh of lost energy sales. In 1990, there were 103 days of brownouts for an annual duration of 1,273 hours resulting in 251 Gwh of lost energy sales (Table 3). Based on average tariffs, NPC's revenue losses amounted to P418.63 million between 1987 and 1990. In addition to the unreliable power supply, the country's electricity costs were relatively high compared with that of other Asian countries (Table 4).

The NPC's poor economic and financial viability, inadequacies in power and relatively high costs of electricity pointed to the state's failure in the areas of ownership and control. Furthermore, the NPC's accumulated losses of almost P2.4 billion between 1990 and 1991 led to its inability to self-finance and generate enough profits to cover investment demand. Part of the dismal performance of the sector could also be traced to distorted pricing and extensive subsidies as well as

Table 3. Power outages in the Luzon grid

Year	Days with brownouts	Energy sales lost (Gwh)	Megawatt per day
1980	145	125	862
1981	90	66	733
1982	148	156	1054
1983	70	130	1857
1984	16	42	2625
1985	8	11	1375
1986	16	18	1125
1987	28	27	954
1988	12	6	500
1989	41	91	2220
1990	103	251	2437

Source: World Bank Country Report 1993

Table 4. Average tariffs (in US$ per kwh)

Country /Utility	Function	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Philippines													
NPC	GT	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.04	0.04	0.04	0.05	0.05
MERALCO	D	0.07	0.07	0.08	0.07	0.08	0.09	0.08	0.08	0.08	0.07	0.08	0.09
Indonesia													
PLN	GTD	0.07	0.07	0.08	0.08	0.09	0.09	0.07	0.06	0.05	0.07	0.06	0.06
Malaysia													
TNB	GTD	0.06	0.09	0.07	0.1	0.09	0.09	0.98	0.08	0.07	0.07	0.067	0.06
Singapore													
PUB	GTD	0.08	0.08	0.09	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.07	0.07
Thailand													
EGAT	GTD	0.05	0.07	0.07	0.07	0.07	0.05	0.05	0.05	0.05	0.05	0.05	0.05
MEA	D	0.05	0.07	0.08	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07

Source: World Bank Country Report 1993
Notes: D distribution
GT generation and transmission
GTD generation, transmission, and distribution

to the failure of the executive branch of the then Aquino administration to anticipate long-term market demand.[2]

Meanwhile, Meralco continued to enjoy unprecedented profits, which reached about P1.9 billion in 1991. In his by-lined article for the *Far Eastern Economic Review*, former Presidential Spokesperson Rigoberto Tiglao attributed this to Meralco's exorbitant margins on the electricity it bought from NPC. The same report noted that Meralco's average tariff in 1991 was 75 percent more than the average rate charged by NPC, while Meralco's counterpart in Thailand only had a 25 percent mark up. Table 4 reveals that in 1991, Meralco's average tariff was 80 percent higher than NPC's average rate.

In regulating prices, the Public Service Commission, the Board of Power and Waterworks and their successor, the ERB, adopted a rate of return on rate

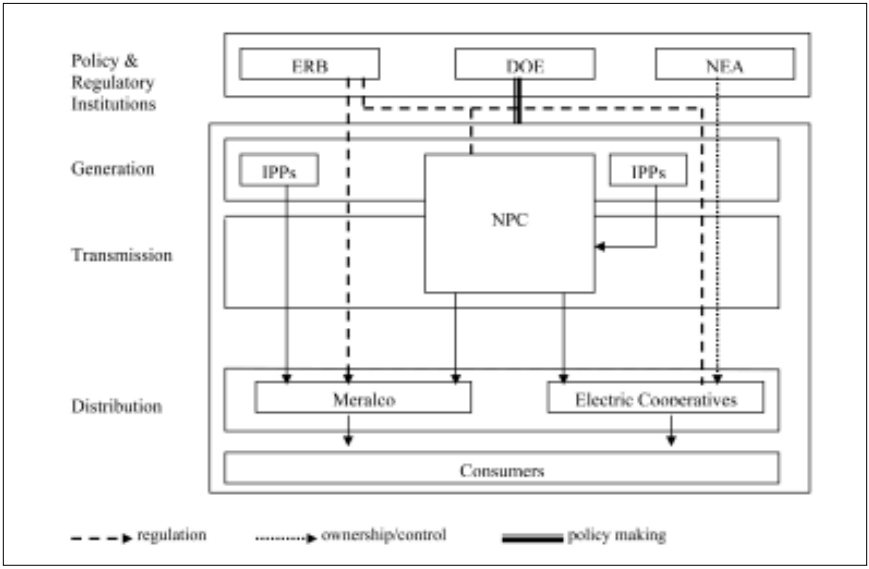
[2] SGV Consulting (1992) points out that the Aquino government had a hand in emasculating the energy plans laid down during the Marcos regime.
[3] Tiglao (1991) as cited in SGV (1992).

base (RORB) methodology. This allowed utility firms to set rates that would cover operating costs and still have an opportunity to earn a reasonable rate of return on the firm's assets devoted to the business. The maximum rate of return permitted was 12 percent of the rate base. The pricing regulations allowed Meralco to make automatic billing adjustments to recover increases in NPC rates and other operating costs, including system losses arising from distribution inefficiencies and pilferage. Since the cost of these losses could be passed on to consumers, electricity companies had little incentive to reduce such losses.

First wave of power sector reforms

In response to the immediate problems of the power sector, the generation sector was opened up to competition by allowing the private sector to invest and participate in augmenting the sector's generation base capacity. Figure 1 describes the resulting structure of the industry. Executive Order 215 issued in 1987 abolished the monopoly of the NPC and provided incentives for the private investors to enter the generation sector. In 1990, the government passed Republic Act 6957, the first build-operate-transfer law in Asia. This relaxed the rules on entry of private firms and reduced the scope for government intervention. In 1992, Republic Act 7638 re-established the DOE, which was responsible for policy formulation, planning and management. Republic Act 7648 was legislated in 1993, which enabled the Ramos administration to expedite independent power producers con-

Figure 1. Structure of the Philippine electricity industry after first deregulation attempt



tracts for the construction, rehabilitation, improvement and maintenance of power projects. In 1994, the build-operate-transfer law was replaced with Republic Act 7718, which increased the number of variants of the build-operate-transfer concept.

The participation of private investors in the generation sector started in 1988 when NPC signed its first build-operate-transfer contract with Hopewell Energy Management of Hong Kong for the construction of two 110-megawatt turbine power plants in Luzon, which became operational in 1991. To generate additional capacity, the NPC entered into a contract with several independent power producers through build-operate-transfer and related schemes. Table 5 contains a list of 41 independent power producer projects with signed contracts that were initially awarded through negotiation and, later, through bidding procedures.

The World Bank (2000) describes the standard NPC contract as an energy conversion agreement wherein NPC purchases all fuel and pays the generator for converting it into electricity at a predetermined heat rate. Although the industry is moving away from this type of agreement and toward one where plants accept some market risk, the World Bank noted that NPC was planning several energy conversion agreements. During this time, the World Bank observes that the industry was also witnessing substantial natural gas development. Reserves in the Malampaya gas field were estimated to be sufficient to provide a continuous supply of 400 million to 450 million cubic feet per day of gas for over 20 years. Its total reserves was pegged at about 3 trillion cubic feet.

Between 1993 and 1998, the generation sector evolved from being a monopoly (in which NPC owned and operated all the power plants) to a monopsony (in which NPC bought the electricity produced by the independent power producers) to a *de-facto* deregulated sector (in which private power producers can supply electricity directly to distributors and large industrial users). In 1998, total generating capacity was 11,988 megawatts distributed as follows:

- 8,619 megawatts in Luzon;
- 1,554 megawatts in the Visayas;
- 1,552 megawatts in Mindanao; and
- 263 megawatts scattered throughout the country belonging to small island grids.

The NPC accounted for about 54 percent of the total installed generating capacity while independent power producers under contract generated the rest. In addition, a total of 518 megawatts of privately-owned installed generation capacity served distributors.

The NPC's independent power producer (IPP) program arrested the power crisis, expanded generating capacity and stabilized power supply. However, it has put financial strain on NPC: NPC's liabilities increased by P230 million (44% of

Table 5. List of independent power producer projects

Project	Operator	Type	Capacity in megawatts	Cost (P/kwh) as of bid date	Cooperation period (years)	Commercial operation date	Contract expiration
1. Casecnan hydro electric plant	National Irrigation Administration	PPA	140	$0.165	20	Jan 2000	Jan 2020
2. Natural gas project	KEPCO	BOT	1200	1.2560	20	Jan 2002	Jan 2022
3. Sual Pangasinan Coal fired powerPlant	Hopewell Holdings Ltd.	BOT	1000		25	Mar 1999 (phase I) June 1999 (phase II)	June 2024
(1-10)				1.4370			
(11-20)				1.3230			
(21-25)				1.2070			
4. Mindanao II (Mt. Apo) Geo.	PNOC-EDC	PPA	48.25	1.550	25	Jul 1999	July 2024
5. Bakun A/B and C HEP	NMHC/Ever/AE V/Pacific Hydro	BOT	65	2.650	25	Jan 2000	Jan 2025
6. San Pascual Cogeneration plant	San Pascual Cogen Co.International	BOO	304	25	June 2001	June 2026	
(1-6)				1.6420			
(7)				1.6210			
(8)				1.4530			
(9)				1.3280			
(10)				1.2670			
(11)				1.2230			
(12)				1.2020			
(13-25)				0.9510			
7. Pagbilao coal fired TPP	Hopewell Energy Ltd.	BOT	700	1.7840	30	Ap 1996 (phase I) June 1996 (phase II)	June 2026

Table 5 continued

Project	Operator	Type	Capacity in megawatts	Cost (P/kwh) as of bid date	Cooperation period (years)	Commercial operation date	Contract expiration
8. Caliraya-Botocan-Kalayaan HEP	IMPSA	BROT	640		25	Jan 2004	Jan 2029
(1-3)				0.700			
(4-9)				1.600			
(10-25)				1.040			
Without pumping							
(1-3)				0.700			
(4-9)				1.040			
(10-25)				0.430			
9. Mindanao coal-fired plant I	State/Harbin	BOT	200		25	Jan 2004	Jan 2029
(1-5)				1.453			
(6-10)				1.494			
(11-15)				1.541			
(16-20)				1.591			
(21-25)				1.767			
10. San Roque multi-purpose HEP	Marubeni/SITHE /Italian-Thai	BOT	345	3.3550	25	Jan 2005	Jan 2030
11. Ambuklao Hydro Power Plant	Miescor	ROL	75	1.350	5	Oct 1995	Oct 2000
12. Baung, La Union Diesel PP	First Private Power Corp	BOT	215	1.373	15	Feb 1995	Feb 2010
13. Bataan EPZA Diesel Plant	Edison Global Electric	BOO	58	1.634	10	Jun 1994	Jun 2004
14. Benguet (Amphohaw) Mini hydro	Hydro Elect. Dev. Corp	ROL	22	88% *NPC rate	5	Jun 1992	Jun 2002
15. Binga Hydro Power Plant	Chiang Jiang Energy Corp	ROL	100	1.150	15	Aug 1993	Aug 2008
16. Calaca Batangas Diesel Plant	Far East Levingston (FELS)	BOO	90	1.779	5	Sept 1993	Sept 1998
17. Cavite EPZA Diesel Plant	Magellan Cogen Utilities	BOO	43	1.346	10	Dec 1995	Dec 2005
18. Clark Air Base Diesel Plant	Electrobus Consolidated Inc	ROM	50	1.140	7	Jul 1992	Jul 1999
19. Engineering Island Power Barge	Sabah Shipyard SDN, BHD	BOO	100	1.568	5	Oct 1994	Oct 1999
20. Gas Turbine (GT) power Barges	Hopewell Tileman Ltd	ROM	270	1.963	10	1993	2003
21. General Santos Diesel Plant	Alsons/Tomen	BOO	50	1.526	18	Ap 1998	Ap 2016

Table 5 continued

Project	Operator	Type	Capacity in megawatts	Cost (P/kwh) as of bid date	Cooperation period (years)	Commercial operation date	Contract expiration
22. Iligan City Diesel Plant I	Alsons/Tomen	BOT	58	1.437	10	Jul 1993	Jul 2003
23. Iligan City Diesel Plant I	Alsons/Tomen	BOT	40		12	Dec 1993	Dec 2005
(1-7)				1.525			
(8-12)				1.318			
24. Leyte A (Leyte-Cebu) Geo	PNOC-EDC	PPA	200	1.650	25	Nov 1997	Nov 2022
25. Leyte A (Leyte-Cebu) Geo	PNOC-EDC	PPA	440	1.550	25	Jul 1998	Jul 2023
26. Limay Bataan CC, Block A	ABB/Marubeni/ Kawasaki	BTO	300	0.920	15	SC May 1994 CC Oct 1994	Oct 2009
27. Limay Bataan CC, Block A	ABB/Marubeni/ Kawasaki	BTO	300	0.934	15	SC Apr 1993CC Jan 1995	Jan 2010
28. Makban Binary Geo Plant	ORMAT Inc	BTO	15.73	0.337	10	Mar 1994	Mar 2004
29. Malaya Thermal Power Plant	KEPCO	ROM	650		15	Jun 1995	Jun 2010
Unit I							
(1-4)				0.167			
(5-15)				0.307			
Unit II							
(1-4)				0.153			
(5-15)				0.279			
30. Mindanao Diesel Power Barge	Mitsui/BWSC	BTO	200		15	Apr 1994Jul 1994	Apr 2009
(1-7)				0.7840			
(8-15)				0.7950			
31. Mindanao I (Mt. Apo) Geo	PNOC-EDC	PPA	47	1.5578	25	Feb 1997	Feb 2022
32.NAGA Thermal Complex	SALCON	ROM	203		15	May 1994	May 2009
CTPP-1				1.2790			
CTPP-2				1.7980			

Table 5 continued

Project	Operator	Type	Capacity in megawatts	Cost (P/kwh) as of bid date	Cooperation period (years)	Commercial operation date	Contract expiration
CDDP-1				1.3790			
GT				1.8600			
33. Navotas Diesel Power Barge I	East Asia Power Corp.	BOO	60	1.5598	5	Sept 1994	Sept 1999
34. Navotas Gas Turbine No. 4	Hopewell Energy Int'l Ltd	BOT	100	2.0690	12	Mar 1993	Mar 2005
35. Navotas Gas Turbines Nos. 1-3	Hopewell Holdings Ltd.	BOT	210	2.0640	10	Jan 1993	Jan 2003
36. North Harbor Diesel Barges	Far East Levingston (FELS)	BOO	90	1.5670	5	Jul 1994	Jul 1999
37. Pinamucan, Batangas Diesel PP	Enron Power Corp	BOT	105	2.0190	10	Jan 1993	Jan 2003
38. Subic Zambales Diesel Plant I	Enron Power Corp.	ROM	28	1.5487	5	Jan 1993	Jan 1998
39. Subic Zambales Diesel Plant II	Enron Power Corp.	BOT	108	1.6590	15	Mar 1994	Mar 2009
40. Toledo Cebu Coal Thermal Plant	Atlas Consolidated Mining	PPA	55	1.00	10	Jul 1993	Jul 2003
41. Zamboanga Diesel Power Plant	Alsons/Tomen	BOO	100	1.4730	18	Dec 1997	Dec 2015

Notes: PPA Power purchase agreement
BOT Build-own-transfer
BOO Build-own-operate
BROT Build, rehabilitate, operate and transfer

Source Reside (2001) and National Power Corporation as cited in the *World Bank Country Framework Report for Private Participation in Infrastructure* (2000)

total liabilities) in 1998 (World Bank 2000). Furthermore, even with the independent power producer scheme, competition was limited. What transpired next was another form of public procurement where the independent power producers became contractors to the existing monopoly, the NPC, for a set of specialized services that included financing. In view of the absence of clear rules and appropriate regulatory framework, negotiated deals were carried out by NPC and the private contractors. Under these circumstances, the deals negotiated unduly favored investors while NPC became a monopsonist in the market for capacity and energy. Given the lack of credible rules and the government's inexperience in contracting in this area, the procurement of privately generated electricity could not be achieved without the government assuming all risks over prices and quantities. The independent power producer received a physical quantity of fuel from NPC and then converted it to kilowatt hours for a processing fee, taking no risks with respect to either input or output prices. As Box 3 reveals, the government has borne virtually all risks except construction costs and some risks associated with the efficiency of operation and availability.

In contrast, independent producers in the United States were able to work out satisfactory power purchase contracts because of the presence of a predictable regulatory framework and a strong judicial system for contract enforcement. For example, the regional monopoly in Virginia, the Virginia Electric and Power Company (VEPCO), requested construction bids for power plants mainly on the basis of the price it was prepared to pay for power (Churchill 1995). That is, VEPCO identified the amount of power it needed and approximately when and where,

Box 3. Risk allocation in the typical energy conservation agreement

Category of risk	Risk borne by government	Risk borne by others
Construction cost		✓
Interest rate		✓
Operation and maintenance cost		✓
Plant efficiency		✓
Change in cost equity		✓
Demand	✓	
Exchange rate	✓	
Fuel cost	✓	
Availability, convertibility, transferability	✓	
Retail tariff	✓	
Sovereign	✓	

Source: *World Bank Country Framework Report for Private Participation in Infrastructure, 2000*

stated the price it was prepared to pay and then asked for bids. It was the developer who took the risk over the number of plants to build and their locations as well as the profitability of the enterprise. The public sector and VEPCO were not involved in developers' prebidding decisions. Bidders then came forward with proposals that more than satisfied the capacity requirements.

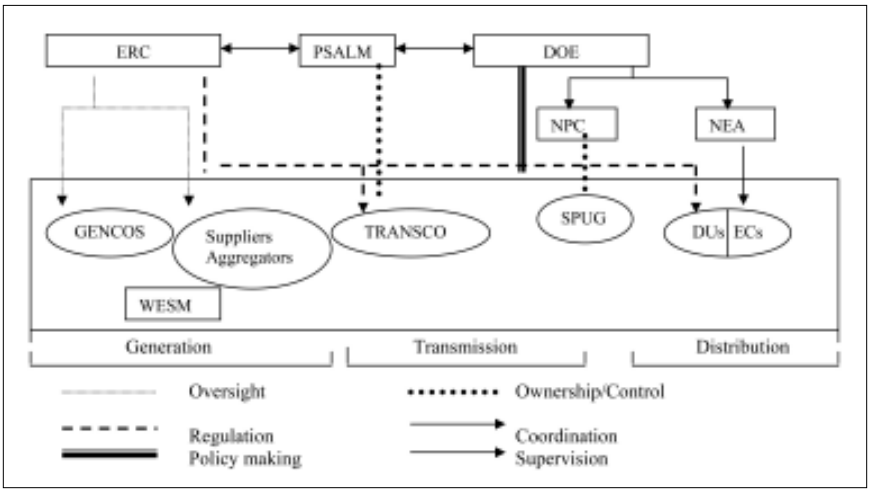
In retrospect, given the Philippines' institutional and regulatory limitations, it may be concluded that the country did succeed in addressing the immediate problems of the power sector. The price the government paid for doing so, however, which is to assume unfavorable financial commitments and provide broad guarantees for market risks, is likely to prevent the country from further expanding generation capacity in the future. Indeed, the excessively risky and costly contractual agreements has led to a gradual deterioration of the NPC's financial position. As Reside (2001) points out, the costs were mostly embedded in the generous off-take (take-or-pay) arrangement, where NPC agreed to purchase power from IPPs regardless of the required level of dispatch. Inexplicably, as Tuano (2001) observes, the NPC management also locked the company into multi-year power purchase agreements that were at least 25 percent more expensive than the government's own generated power and had to be paid at 75 percent to 80 percent of the agreed price in the event that NPC chooses not to use the facility. It must be noted that these contracts were negotiated under the assumption that NPC would remain a monopoly and would be able to pass on its costs to consumers. With the economic slowdown due to the Asian crisis and political instability in the country, this meant excess power supply, which became increasingly costly given the contractual commitment to pay for such excess supplies. In 1999, NPC incurred a loss of P5.9 billion. This further increased to P9.9 billion in 2000. These huge losses required NPC to constantly rely on external sources to finance its capital requirements, which meant increasing servicing costs that consequently took a heavy toll on its capacity for maintenance, repairs and expansion in its transmission capability.

Second wave of power sector reforms

To achieve a more socially optimal outcome in the electricity sector, it is not enough to simply set in place a more competitive environment for power generation, as this has limited impact on efficiency improvements, especially if the traditional monopoly structure remains. An equally important reform initiative is to unbundle the services offered by the vertically integrated monopoly, splitting them into those that can be provided under more competitive conditions and those that continue to have the attributes of a natural monopoly.

Cognizant of this principle, in June 2001 Congress passed into law the Electric Power Industry Reform Act (Republic Act 9136), otherwise known as EPIRA, to accelerate the total electrification of the country and ensure the quality, reliabil-

Figure 2. Power industry structure after EPIRA



GENCOS	generation companies	DUs	distribution utilities
WESM	wholesale electricity spot market	ECs	electric cooperatives
SPUG	small power utilities group		

Source: Department of Energy

ity, security and affordability of electric power in a regime of free and fair competition. Distinguishing four separate production segments in the power sector—namely, generation, transmission, distribution, and supply—the Act ordered the restructuring of the industry by separating the services with natural monopoly elements from those that are potentially competitive. (See Figure 2.) Thus, generation and supply were specified to be competitive and open, while transmission and distribution were required to be regulated. Accordingly, the remaining power facilities of NPC as well as the transmission system were stipulated to be privatized and the creation of a wholesale spot market for bulk power was provided for. In addition, EPIRA spelled out the main rules for the regulation of the four production segments as well as the rules for transition and the obligations and rights of all players involved (i.e., the service providers and government agencies).

Privatization and government regulation

The Power Sector Assets and Liabilities Management Corporation (PSALM), a government-owned and controlled corporation, was established to manage the sale and privatization of NPC generation assets and independent power producer contracts and would exist for 25 years.

The National Transmission Company (TRANSCO) was created to carry out the electrical transmission function of the NPC. It is responsible for the planning,

construction, and centralized operation and maintenance of the high voltage transmission facilities, including grid interconnections and ancillary services. The TRANSCO is wholly owned by the PSALM. The transmission facilities (including grid interconnections and ancillary services) will be awarded to a qualified party in open competitive bidding through an outright sale or a concession contract. The concessionaire will have a contract period of 25 years, subject to review and renewal for a maximum period of another 25 years.

The NPC remains as a national government-owned and controlled corporation and is responsible for the missionary electrification function through the small power utilities group (SPUG). It is also responsible for providing power generation and delivery in areas not connected to the transmission system. It continues operating the Agus and Pulangui complexes, both owned by PSALM. The NPC/PSALM will not incur any new obligations to purchase power through bilateral contracts with generation companies or other suppliers.

The NEA is responsible for preparing electric cooperatives to operate and compete under a deregulated electricity market within five years from the effectivity of Republic Act 9136.

The DOE supervises the restructuring of the electricity industry and is responsible for the formulation of energy policies, plans and programs. Its other functions include the following:

- ✦ Ensure the reliability, quality and security of supply of electric power;
- ✦ Encourage private sector investments in the electricity sector and promote development of indigenous and renewable energy sources;
- ✦ Facilitate and encourage reforms in the structure and operations of distribution utilities for greater efficiency and lower costs; and
- ✦ Establish the wholesale electricity spot market and formulate the detailed rules of its operations.

The ERC is responsible for the regulation of the electric power industry. It is tasked to promote competition, encourage market development, ensure customer choice and penalize abuse of market power. Among its functions are the following:

- ✦ Promulgate rules and regulations, including but not limited to, competition rules and limitations on the recovery of system losses;
- ✦ Review and approve plans for the expansion and improvement of facilities submitted by TRANSCO or its buyer or concessionaire;
- ✦ Determine, fix and approve transmission and distribution wheeling charges and retail rates as well as the universal charge to be imposed on all electricity end-users, including self-generating entities;
- ✦ Promulgate a Grid Code and a Distribution Code for the access and

use of the transmission and distribution facilities;

- ✦ Enforce the rules and regulations governing the operations of the wholesale electricity spot market (WESM);
- ✦ Ensure that all electricity industry participants, including NPC, will functionally and structurally unbundle their businesses and rates and determine the levels of cross subsidies in the existing retail rates until these are phased out as well as set a lifeline rate for marginalized end-users;
- ✦ Determine the electricity end-users comprising the contestable and captive markets.

Price regulation

Competition is the norm in generation and supply of electricity, and the prices charged by generation companies are not regulated by the ERC. Distribution and transmission are considered natural monopolies, and their price system consists of regulated charges. The regulated price to final consumers consists of the following: generation, transmission, distribution, supply and other related charges for electricity service.

The ERC bases its price regulation on the principle of full recovery of prudent and reasonable economic costs incurred or such other principles that would promote efficiency. In case the rate setting methodology used is the RORB, the TRANSCO or its buyer (or any distribution utility) may revalue its eligible assets no more than once every three years. Interest expense is not allowed as deductions from permissible RORB.

Box 4 describes the details of the current price regulation method used by the ERC. The ERC applies a RORB methodology using a maximum rate of return on rate base of 12 percent for NPC and private distribution utilities. However, for rural electric cooperatives, ERC applies a different methodology. Electric cooperatives are allowed to recover costs of their annual cash flow. Acceptable expenses include the cost of purchased power from NPC as well as the nonpower costs of administration, billing, operation and maintenance, amortization of loans from NEA and provision for reinvestment. System losses can also be recovered through the tariff (World Bank 2000).

Competition and access rules

To join the power generation segment, a new company will need to secure a certificate of compliance from the ERC. For distribution, entry requires a national franchise granted by Congress. The supply of electricity to endusers requires a license from the ERC except for the supply of electricity by distribution utilities within their franchise areas. Upon implementation, open access or contestable

Box 4. Current price regulation by ERC

The effective selling price consists of two components:

- Basic rate covers the operating and maintenance expenses, cost of purchased power and the cost of fuel used in operating the electric power plants. It remains the same until the utility files for a change subject to ERC's approval;
- Cost adjustment mechanism is a method to allow utilities to automatically recover additional cost resulting from factors that are beyond the control of the utility such as imported fuel prices, currency depreciation, and cost of electric power bought from independent power producers;

For MERALCO, the cost adjustment mechanism is made up of the following:

- Purchased power adjustment (PPA) recovers changes in cost of power purchased from NPC and its own independent power producers not covered by basic rate and the cost of distribution system losses;
- Currency exchange rate adjustment (CERA) recovers changes in foreign–denominated operating costs and principal debt repayment due to exchange rate movements;

For NPC, it is composed of the following:

- Purchased power cost adjustment (PPCA) recovers changes in power purchased from IPPs;
- Fuel cost adjustment (FCA) recovers changes in operating costs due to changes in fuel prices;
- Foreign exchange adjustment (FOREX) recovers changes in foreign disbursement due to changes in foreign exchange rates.

market is allowed among all end-users with a monthly average peak demand of at least 1 megawatt. After two years, the threshold level will be reduced to 750 kilowatts. Generation companies and distribution utilities are not allowed to participate in transmission. Likewise, the transmission company is not allowed to participate in either the generation or distribution segments.

Stranded costs

The NPC's stranded contract costs and distribution utilities' stranded contract costs are recovered through the universal charge. Here, the ERC reviews the petitions for cost recovery filed by PSALM and any distribution utility that has an eligible contract. It determines, fixes and approves the level of stranded costs. Every year, the ERC conducts a review to determine whether there is an under- or over-recovery and adjust the level of stranded cost recovery charge accordingly.

Emerging issues

Despite opposition from some political groups and members of civil society, great progress has been made in enacting ownership, structural and regulatory changes in the Philippine electric power industry. However, more needs to be done par-

ticularly in terms of ensuring competition in the industry. Access rules for transmission and distribution (i.e., who will be dispatched, in what order and when) as well as a pricing system (price caps or rate of return minus adjustments for efficiency changes) that allows consumers to share in efficiency gains, are still in need of attention. Much more than access and pricing rules is the need to immediately address the social tension and conflicts that have mired the transition process. Is ERC capable of efficient regulation? As commonly practiced in the country, where the Chief Executive is the final regulator, will President Gloria Arroyo be able to strike a balance between efficiency and redistribution, and resolve the conflicts in a manner that does not diminish investor confidence and the credibility of the regulatory framework?

Stranded costs, rising prices and the resulting social conflict

The Power Act was conceived in an environment characterized by distrust between consumers and providers, and between legislators and the executive branch of the government. Its enactment in June 2001 was met with political opposition and civil society and consumer discontent. As expected, the increase in prices brought about by the liabilities of NPC (both on its own debt and on the liabilities associated with the independent power projects), particularly the purchase power adjustment (PPA), became the focus of public ire.

Militant groups called for the total abolition of NPC's and MERALCO's PPA; some civil society groups demanded a full review of NPC's contracts with independent power producers, which they claim are onerous and to blame for the high PPA charges. Amid mounting pressure and widespread public protests, President Arroyo ordered the NPC to stop its P1.25 per kwh PPA charge until the ERC approved the universal charge of P0.40 per kwh proposed by NPC, which would be levied for a period of 20 years in lieu of the PPA.

The other important players—the members of the Senate and the House—are rushing to pass their respective bills as they attempt to outdo each other on who could offer the public a cheaper power deal. The administration senators are proposing a three-year relief from the PPA for all residential consumers and a one-year suspension for industries. The opposition, on the other hand, is proposing a cap on the PPA of Meralco and other distribution utilities at P0.23 per kwh. For NPC's PPA, the first 50 kwh would be exempt from the charges, the second 50 kwh would be charged P0.21 per kwh and consumption above 100 kwh would be charged P0.42 per kwh. The proposal also seeks to exclude costs and items such as income tax, franchise tax and working capital from the charges to customers. Meanwhile, two members of the House of Representatives want the government to take over Meralco's operations.

As the biggest distributor and retailer of electricity in the country serving a total of 3.7 million customers, Meralco's franchise covers Metro Manila, Bulacan, Cavite, Rizal and certain parts of Batangas, Laguna, Quezon and Pampanga. It buys power from four sources: NPC, which accounts for 66 percent of its total energy requirements, and three independent power producers consisting of Duracom Power, First Gas Power Corporation (also owned by the Lopez group) and Quezon Power Philippines.

Since 1994, Meralco's basic rate of P3.40 per kwh has not changed. In March 2000, Meralco submitted a petition to ERB asking for a P0.30 per kwh increase. This was superseded by its unbundling petition, which represented an increase of P1.12 per kwh. This price hike proposal by Meralco all the more enraged the public. Worrisome are the following findings of an independent study on electricity prices commissioned by the DOE :[4]

- ✦ Meralco's application for a rate increase was based on a total revenue requirement of P150 billion and RORB of 17 percent versus the study's estimated total revenue requirement of P121.4 billion and RORB of 12 percent;
- ✦ Meralco was overcharging its consumers by P0.408 per kwh, broken down as follows:
  - P0.20 per kwh due to the inclusion of income tax payments as part of operating expenses;
  - P0.09 due to the use of an 11.5 percent provision for system losses instead of the 9.5 percent ceiling imposed by Republic Act 9136;
  - P0.08 due to the practice of including a two-month cash working capital in the rate base (Meralco is able to collect at about the same time the money it needs to pay for the power it buys);
  - P0.03 per kwh due to the inclusion of about P700 million in profits from related businesses such as pole rentals;
  - P0.005 per kwh due to inclusion of P5 billion worth of revaluation in depreciation expenses;
  - P0.003 per kwh due to inclusion of P576 million worth of idle land that it plans to use later.

The current social tension constrains the deregulation process. The extent to which the tension can be reduced depends on how the following issues are managed:

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[4] Batino (2002). In 2003, the Supreme Court upheld the decision of the ERC (formerly the ERB) ordering Meralco to refund P30 billion to customers.

- *What should be the appropriate policy on stranded costs?* One major concern in the deregulation of the sector has been the staggering cost of stranded assets. The DOE has estimated stranded cost to be around P800 billion (Reside 2001). Of this, Congress has temporarily capped government's share of the expense at P200 billion. The rest will be recovered through a universal levy and the earnings of TRANSCO. As earlier indicated, NPC has proposed a universal charge of P0.40 per kwh. Many of the independent power producer contracts are feared to be lopsided and opposition groups have been clamoring for a review and amendment of contracts. This would require external audits and scrutiny that reward prudent independent power producers and punish arbitrary and onerous ones. On the other hand, full absorption of the stranded costs by the government would lead to a further deterioration of the country's fiscal position. As it is, the expected impact of electricity deregulation on the fiscal deficit is already enormous. The suspension of PPA payments ordered by the president implies an increase in borrowing by around P15 billion. While this leads to lower electricity prices to consumers, household taxes will eventually have to rise. The World Bank (2000) also notes that a contractual buyout option was one major weakness of the independent power producer contracts. The estimated contractual buyout obligation reached US$7.85 billion.[5] In most cases, NPC could not exercise this option and had no choice but to wait for these contracts to expire unless the independent power producers voluntarily agree to NPC's request for negotiation. Clearly, there is a need to effectively balance these concerns versus the need to attract investors and establish credible regulation.

- *What should be the correct policy on rate unbundling and rebalancing? How should the price increase arising from the removal of subsidies be managed?* The country's tariff structures evolved into a complicated pattern of cross-subsidies that had little relationship to real costs and few incentives to minimize costs. Industrial and commercial users subsidized the more numerous residential consumers while urban users subsidize rural users. This type of pricing system puts an enormous burden on regulation and the overall objective of attaining both efficient production and consumption of services provided is lost. The introduction of competition in the electric power industry ought to bring down prices and obviously this requires substantial unbundling

[5] Assuming a total buyout of 45 executed contracts using a discount rate of 10 percent.

and rebalancing of prices. The issue is that this will create tremendous uncertainties regarding the structure of retail electricity prices (Reside 2001). While the business sector is expected to gain, the welfare impact on households is uneven. Government studies indicate that the removal of cross-subsidies will reduce rates by P0.20 per kwh in electricity rates in Luzon but will increase rates by P1.00 per kwh in the Visayas and by P0.30 per kwh in Mindanao (Tuano 2001).

Unless these transition issues are resolved, consultations and negotiations will be slow and protracted, and it will be difficult to effectively proceed with the deregulation of the electricity industry.

Regulatory capacity of ERC

Regulating the power sector is essentially political in nature. Regulation is a game representing a problem of conflict and interactive strategies (Guasch and Spiller 1998). The existence of real and potential monopoly rents in the industry results in competing claims for those rents. Electricity is a basic necessity consumed by all Filipinos. The importance of the industry to the voting population and the potential redistribution of income that can be achieved by expanding access are two reasons that power is a highly politicized sector. For the sector to be governed effectively, it is necessary to resolve the conflicts of interest at the least cost in terms of efficiency and profitability. Sophisticated access rules and incentive systems are meaningless if there is no basic agreement among the varying and competing interests and groups on how gains and losses will be shared.

Apart from setting the rules of the game for ownership, investment and operations, the ERC must help resolve and manage the social conflict, improve accountability and ensure transparency. The ERC itself is undergoing substantial change as it tries to adapt to its changing environment and to build up the regulatory mechanisms to address problems of market failure and anticompetitive practices. While previously, the ERC (or ERB) regulated only a monopoly and a government corporation, the ERC is currently the regulator and competition agency rolled into one. With the present reforms, ERC must confront new issues that will test its regulatory efficiency. This will hardly be a trivial task. Regulatory capacity is not built overnight. It is a process that requires adequate training, accumulation of knowledge through trial and error, progressive narrowing of the information gap between the regulator and the regulated firms as well as the availability of technical, managerial and administrative resources.

The difficulty of establishing an effective regulatory regime is aggravated by the country's lack of regulatory tradition or track record in the effective use of public regulation in a market-driven setting that, at the same time, seeks to meet

other government objectives, namely, ensuring competition, generating high revenues from privatization for fiscal reasons, satisfying ambitious investment demands, facilitating the rapid expansion of basic services and factoring in distributional concerns in the pricing of services. This is further exacerbated by politicians who use regulation to advance short-term political goals that have adverse consequences on investors or that disregard information asymmetries in costs and performance, thus compromising efficiency concerns. All these factors complicate ERC's regulatory functions. They may slow down the implementation of reforms, unless the ERC designs efficient mechanisms that balance the gains and losses among different constituencies and resolve conflict of interests—a task that would be rendered less difficult if openness, transparency and accountability are upheld by all parties involved. Participatory mechanisms and greater reliance on competition and market signals would be desirable components as well of the new regulatory policies.

The Philippine experience shows that, whenever controversial issues arise, the regulatory agency usually adopts a hands-off policy and leaves the final decision to the President of the Republic. This has turned the office, if not the person, of the president a powerful interventionist element as well as the final arbiter, thus compromising the regulatory agency's credibility and independence in making decisions. Thus, as De Vera (1997) argues, as long as the president continues to mediate and broker controversies, the Presidency as an institution becomes an object of regulatory capture.

DOWNSTREAM OIL SECTOR

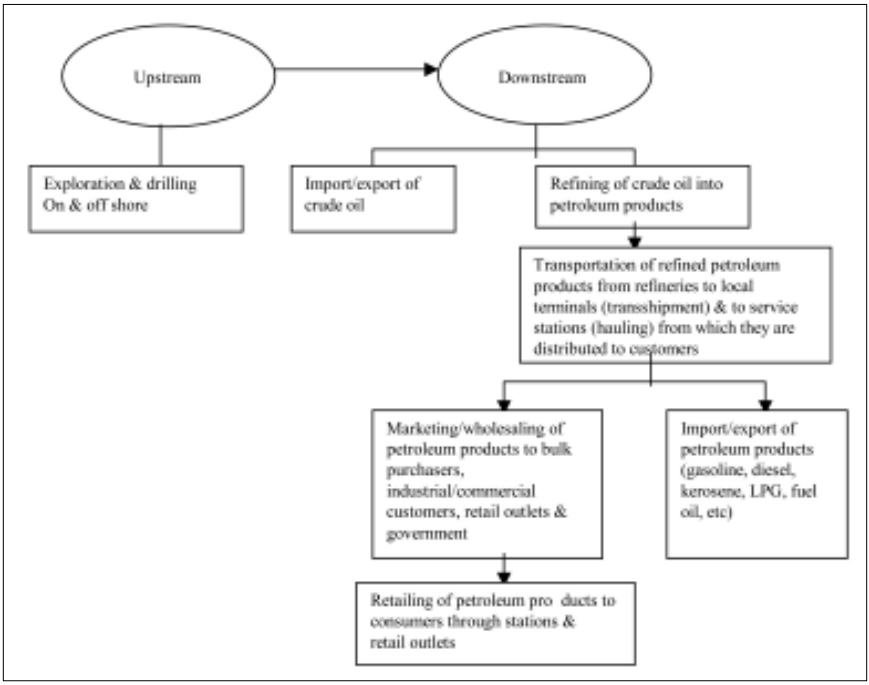
Industry characteristics

The Philippine oil industry is divided into two sectors: the upstream sector, which covers the exploration and production of crude oil; and the downstream sector, which involves refining, transportation and marketing (Figure 3). In 1999, the country's total oil production provided less than 2 percent of total consumption. Given the small quantity of proven oil reserves, the upstream sector is limited in scale and scope; hence, the organization of the industry is largely concentrated on downstream operations. The refining, transporting and marketing stages of the downstream oil sector do not exhibit natural monopoly characteristics. Thus, the heavy government regulation of the industry from 1971 to 1996 could only have been due to political reasons. And pricing policies must have been largely due to political rather than economic considerations.

Pre-deregulation phase: 1970s to early 1990s

Prior to the Martial Law years and the first oil crisis of the 1970s, the downstream oil industry was relatively free, and competition was generally healthy. Six oil

Figure 3. Oil industry segments



Source: PDCP (1997)

refining companies (Shell, Caltex, Esso, Mobil, Filoil and Getty) then operated in the country. After the oil crisis in 1971, the government decided to regulate oil prices through the creation of the Oil Industry Commission (OIC) through Republic Act 6173. In 1973, Presidential Decree 334 established the Philippine National Oil Company (PNOC) to ensure the stability of oil supplies in the country. Government involvement in the sector soon increased significantly when PNOC acquired Esso and Filoil and entered into a joint venture with Mobil.

Aside from the deregulation of the BOE and the creation of the DOE, an Oil Price Stabilization Fund (OPSF) was established to maintain retail prices of petroleum products at relatively stable levels. The industry contributed to the fund when crude oil prices were low and drew from it when prices increased. The Central Bank also provided forward exchange cover to oil firms, guaranteeing the exchange rates on the day oil shipment contracts were signed for a period of 90 to 120 days. The whole process, however, soon led to huge deficits, forcing the government to pour money into the fund.

Between 1969 and 1981, the number of retail stations declined from 4,093 to 3,798 outlets. In 1983, Mobil sold its local operations to Caltex while Shell

purchased Getty. By the mid-1980s, the industry was transformed into a heavily regulated oligopolistic sector. Only three operators (PNOC or Petron, Shell and Caltex) remained and controlled over 90 percent of the oil industry.

In 1987, the BOE was reconstituted into the ERB and tasked to regulate the whole energy sector. Its powers included fixing and regulating the prices of petroleum products, piped gas by franchised gas companies and electric utilities, including the NPC. The ERB ensured that oil prices were within the established price bands, with the OPSF acting as buffer fund in artificially stabilizing prices. Meanwhile, the DOE maintained oil supply stability by regulating the importation of crude oil and oil derivatives; number of refineries, depots, storage tanks and retail outlets; and quality and quantity of oil products to protect consumers against adulteration and short selling.

Pricing was fixed with public hearings conducted every two months. The basic mechanism was a mark-up based on the landed cost of crude over the previous two-month period. A direct company recovery mechanism, which guaranteed a baseline profit for firms, was embedded in the pricing structure. Cross-subsidies were also provided for, with socially sensitive products such as liquefied petroleum gas (LPG) and kerosene being priced lower than gasoline. Higher taxes were imposed on fuels consumed by the rich, although the lower taxed fuels contributed proportionately more to, but received proportionately less from, the OPSF. Aside from the heavy financial burden it imposed on the government, the OPSF distorted prices and led to inefficient resource allocation within the industry. Because of such market distortions, investments in refinery capacity were effectively discouraged. By the 1990s, the regulatory system became unsustainable due to the fiscal pressures from the OPSF. In 1990, the government infused P5 billion, which was entirely wiped out by 1992.

Deregulation phase: 1996-1998

In March 1996, the first Downstream Oil Industry Deregulation Act (Republic Act 8180) was legislated to remove price controls, abolish the OPSF and exchange rate protection and liberalize entry into the industry. In October 1996, however, the Supreme Court declared Republic Act 8180 unconstitutional because of certain provisions that supposedly promoted anti-competitive behavior. These points were:

- ✦ Definition of predatory pricing;
- ✦ Four percent tariff differential between imported crude and imported refined petroleum products; and
- ✦ 40-day inventory requirement for new entrants.

In February 1998, Republic Act 8479 was passed into a law. It was similar to Republic Act 8180 except that the three concerns mentioned above were appropriately considered and revised as follows:

- ✦ Predatory pricing would refer to pricing below average variable cost;
- ✦ Three percent tariff would be imposed on all petroleum products; and
- ✦ 40-day inventory requirement for new entrants was removed.

Republic Act 8479 indicated a five-month transition period before full deregulation was implemented in the industry. During the transition phase, all prices were fixed at their 12 February 1998 level. The government provided a buffer fund to account for any price increases in all petroleum products except petroleum gasoline. Moreover, an automatic oil pricing mechanism (APM) was established to enable local prices to accurately reflect international prices. Except for "socially sensitive" products such as kerosene and LPG, full deregulation was adopted in March 1998.

With the liberalization of entry and the removal of price controls, government regulation has since been confined to the following areas:

- ✦ Enforcement that environmental, planning, product quality, and health and safety laws are enforced and that the reporting requirements on imports and exports for the Basel Convention (of which the Philippines is a signatory) are met;
- ✦ Ascertaining that gasoline stations advertise their prices and that the DOE publishes comparative price information on its website;
- ✦ Observing that a Department of Justice and DOE task force is created to investigate unreasonable price increases and punish offenders;
- ✦ Enforcing the requirements that firms involved in the refining business are to offer 10 percent of their common stock within three years either of the effectivity of revised Oil Industry Deregulation Act or of commencing operations, through a public offering in the Philippine Stock Exchange, and that no person holds more than 5 percent of each firm's stock;
- ✦ Ensuring that the government retains ownership of 40 percent of Petron shares, even as the management of Petron's operations has largely been ceded to Saudi Aramco; and
- ✦ Seeing to it that the following incentives are provided in order to attract new investors:
  - Income tax holiday
  - Additional deductions for labor expenses

- A minimum tax, duty and value-added tax of 3 percent on imported capital equipment
- Tax credit on domestic capital equipment
- Exemption from the contractor's tax
- Unrestricted use of consigned equipment
- Exemption from real property tax on production equipment
- Exemption from duties and taxes on imported spare parts.

Emerging issues

Remaining barriers to competition

Since the deregulation of the downstream oil industry, new players have entered the petroleum industry and have gained a share of the market. Prior to deregulation, the industry was dominated by what is generally known as the Big Three: namely, Petron, Shell and Caltex. Their combined share has declined from 95.6 percent in 1998 to 91.3 percent in 1999 and further down to 90.1 percent in 2000.

As of the third quarter of 2000, 61 new players have engaged in different activities in the oil industry. In terms of investment, new players invested about P12 billion. Fuels bulk marketing received the highest level of new investments (followed by retailing), possibly because of relatively lower entry barriers: Not only do bulk sales not need extensive distribution or retail networks, they also have simple facilities requirements and low capital outlay.

After deregulation, the country's total refining capacity increased to 400 billion barrels per day, a marked improvement from the lackluster performance prior to the reforms. The Big Three still control all refineries, with Petron accounting for the highest refining capacity.

While deregulation has allowed the entry of a significant number of new players in the industry, competition has not yet been sufficient to put a downward pressure on retail pump prices. In large part, this is because the retail business requires extensive distribution or retail networks, which are difficult to set up, given that retail outlets are expensive to construct (estimated at P10 million to P20 million per outlet) and often require red-tape-plagued environmental and planning approvals. Thus, with the new players hampered by the high costs of network creation and effectively unable to price gasoline way below those of their more entrenched competition, the Big Three continue to dominate the retail networks and to have some control over retail prices. In effect, the high costs of setting up distribution networks has proved to be a significant barrier to entry that needs to be addressed by the government's competition policy if retail pump prices are to become more responsive to competitive pressure.

Using econometric models to assess retail gasoline price movements and crude cost changes in the Philippines, Salas (2002) found that retail price adjust-

ments were characterized by an eight-week response lag to crude cost changes. He also found that the deregulation of the oil industry has accelerated the adjustment speed of retail prices to crude cost changes. Another interesting finding was the asymmetry in the adjustment speed: Retail prices responded more quickly and more fully to crude price increases rather than to a similar crude price reduction. This indicated that there were positive economic profits being made in the industry, hence presenting scope for more competition. However, there is clearly a need to closely analyze firm behavior as this asymmetric pricing could be an indication of tacit collusion and market power.

Deregulation failure and rising prices

From January 1999 to July 2000, the pump price of diesel increased by 59 percent while that of petrol rose by 46 percent (Cororaton 2000). These developments were the result of (a) the increase in world price of crude oil from US$10 per barrel in March 1999 to around US$38 per barrel in September 2000 due to the oligopolistic maneuverings of the Organization of Petroleum Exporting Countries (OPEC) and (b) the depreciation of the peso, exacerbated by the fact that the country imports about 97 percent of its total crude oil needs. But in reaction the public demanded the government to intervene and revert to the old price control regime.

Successive price increases were met with widespread protests and fed the public perception that industry deregulation had failed to control the collusive behavior of the Big Three. Public transport groups lobbied for increases in fare rates and threatened the government with major strikes. Other organizations sought to dismiss the oil price deregulation law. To address the supposed anti-competitive practices of the Big Three, a draft bill in the Lower House proposed the creation of a government-owned national oil exchange company: A monopoly, the Exchange would forecast the aggregate demand for all refined petroleum products, source these by an international open bidding process and sell the imports to distributors. Most studies showed, however, that the model was not feasible for the Philippine oil industry, and support for the proposal soon fizzled out.

To release some of the inflationary pressures on retail prices, the government responded by adjusting the tariff rates on imported crude oil and refined petroleum products. Unfortunately, this proved merely to be a short-term solution with a large adverse impact on the fiscal deficit. Moreover, as indicated in Salas (2002), instead of passing on the relief to consumers, the oil firms appropriated the surplus to further increase their profit margins.

Deregulation has indeed allowed the industry to attain some levels of competition as new players gained market share and continued to plan expansion projects. In response, the big players tried to enhance their market share through

advertisements, raffle promos, fuel rebates and their tie-up with convenience stores. However, given the present capacity constraint faced by the new small players, it will take some time before they could aggressively engage in price competition.

Need for more comprehensive competition law and policy and a competition body

Deregulation is not enough to ensure that markets perform efficiently and that their outcomes would be equitable. Rules are needed to orient the behavior of agents and institutions toward supporting the markets' development. Thus, the public's interest should be factored in as well. This requires the formulation of competition law and policy that will protect the competitive process and encourage competitive behavior that will promote economic efficiency.

Under the present law, a DOJ-DOE task force oversees anti-competitive acts. The task force is mandated to investigate and prosecute cases of predatory pricing, cartels and unreasonable price increases. The task force has convened a number of times but its work has been hindered by the (1) lack of manpower, experience in antitrust investigations and judicial precedents in this area; and (2) inability to investigate cases outside the three anti-competitive violations earlier specified (Galang and Solleza 2001).

Cabalu et al. (2001) raise three issues on the current framework of the downstream oil industry:

- ✦ Some components are missing while others are inadequate. The penalties for violations of anti-trust offenses are inappropriate; they are either too harsh or too lenient. Other aspects of anti-trust such as mergers and government-imposed barriers to entry are not covered;
- ✦ There is no coherent overall framework for competition policy in the Philippines. Rather than having Congress enact separate legislation by sector, it is administratively more efficient to adopt a single comprehensive set of policy rules for all sectors;
- ✦ Enforcement officials as well as judges lack the expertise to effectively enforce current laws.

SUMMING UP

Deregulation is not a trivial process. Given conflicting interests and different constituencies, social tensions are inevitable as the cases of the electric power and downstream oil industries have shown. It may be noted that ERC is itself undergoing tremendous transformation as it attempts to adapt to its new dual role as regulatory-cum-competition agency in a changing environment. Regulatory capacity is not acquired overnight. It is a process that requires adequate training, accumulation of knowledge through trial and error, progressive narrowing of the

information gap between the regulator and the regulated firms as well as the availability of technical, managerial and administrative resources.

In the electricity sector, the absence of clear rules and appropriate regulatory framework in the early stage of deregulation led to discretionary decisionmaking, further resulting in high long-term costs and a societal backlash. The Philippine experience shows that while successful in overcoming the power crisis in the early 1990s, the power purchase agreements with independent power producers created an enormous volume of contingent liabilities to the government and led to severe upward pressure on the enduser tariffs. This thus triggered widespread public outrage. Given the manner in which these projects were pursued, the net benefit to the economy might not be positive.

These problems, inherited from the Ramos administration, are constraining the efforts of the Macapagal administration to deregulate and restructure the sector. The lack of accountability is evident when former President Fidel Ramos claimed that his administration inherited the problems from the Aquino government. With the regulatory practice in the Philippines of leaving the final decisionmaking on controversial issues to the President, the tendency to pursue policies with short-term benefits—even if these involve high long-term costs in efficiency and overall welfare—has been strong. This thus highlights the need to establish strong governance and regulatory framework in the country.

Among the immediate challenges that should be addressed are: What should be the appropriate policy on stranded costs? How should the underlying cost of IPPs be allocated? What should be the correct policy on rate unbundling and rebalancing? How should the price increase arising from the removal of subsidies be managed?

The social tension arising from these issues cannot be prolonged; otherwise, this would slow down the reform process and make it difficult to effectively set up the necessary regulatory framework. Complex and crucial issues such as access rules for transmission and distribution as well as a pricing system that would allow consumers to share in efficiency gains are still in need of attention. Barely a year ago, the country has adopted a revenue cap regulation for transmission rates and is currently finalizing the rules and guidelines governing a price cap for retail distribution rates. Note that in the evaluation of the costs and benefits of the shift to a price cap, a lot will depend on the economic conditions of the industry, the legal and political environment, availability of information and the technical capabilities of the regulator.

The institutional capacity of the ERC to effectively carry out its regulatory functions is another important issue. It is responsible for setting the rules of the game for ownership, investment and operations as well as in resolving and man-

aging the social conflict, improving accountability, ensuring transparency and building up the regulatory mechanisms to address problems of market failure and anti-competitive practices. Note that ERC itself is undergoing tremendous transformation as it attempts to adapt to its new role of regulator and competition agency in a changing environment. Regulatory capacity is not built overnight. It is a process that requires adequate training, accumulation of knowledge through trial and error, progressive narrowing of the information gap between the regulator and the regulated firms as well as the availability of technical, managerial and administrative resources.

For the downstream oil sector, deregulation has resulted in some degree of competition as new players entered and gained market shares. However, faced with a capacity constraint, these new entrants are unable to aggressively engage in price competition. Retail requires extensive retail networks, which only the Big Three players dominate. Moreover, retail outlets are expensive to construct and often require tedious environmental and planning approvals. This advantage to the big players poses an entry barrier that needs to be addressed. There is also a need to closely analyze firm behavior, as the asymmetric pricing in the industry could be an indication of tacit collusion and market power.

The successive oil price increases triggered widespread protests and public perception that the industry deregulation failed. Ideally, the task force that acts as the industry's competition body should help manage the tension by communicating and explaining the deregulation process to the public. Though politically unpalatable, the point must be made—and the public made to understand—that setting up a truly competitive environment requires a lot of work and that deregulation does not instantaneously lead to lower prices. This necessitates the need to strengthen the existing competition laws in the industry and their implementation. The DOJ-DOE task force assigned to oversee anti-competitive acts in the industry is currently improperly equipped to address the emerging competition issues in the sector.

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