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Regulatory Policies and Reforms in the Power and Downstream Oil Industries

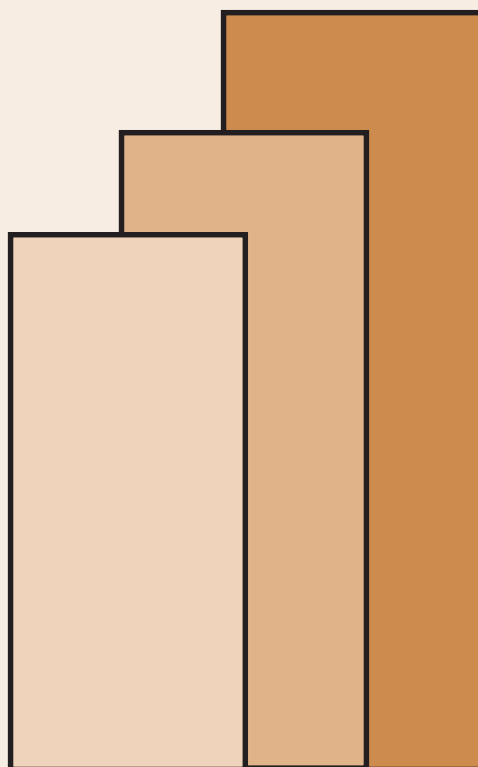
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Abstract

This paper looks at the regulatory reforms in the electricity and downstream oil industries, two important inputs to the production process that were heavily regulated by the government. While electricity has strong externalities as well as economies of scale and scope, the oil industry does not exhibit natural monopoly characteristics nor does it display economic features that would warrant government regulation. The paper also analyzes the economic theories underlying these reforms: why is regulation necessary, what are the different forms of regulation, and how can these policy reforms bring about competition? It also identifies the emerging issues and problems associated with the regulatory reforms. Given our little experience in the effective use of public regulation in a market-driven setting, research is needed to provide a deeper understanding of these issues within the context of our economic, institutional and political structure. This is necessary in order to come up with possible approaches to overcome our weaknesses and shore up weak administrative and enforcement capacities.

keywords: economic regulation, regulatory reform, electricity/power, downstream oil

Regulatory Policies and Reforms in the Power and Downstream Oil Industries

Rafaelita M. Aldaba

I. Introduction

Since the late 1980s, developing countries have been privatizing their utilities sectors primarily because of fiscal constraints: the public sector was 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 considered valid. Rapid technological changes and new financial arrangements have put into question the historical notions of natural monopolies. In addition, the recognition that many existing regulations have become obsolete and even harmful to economic growth has driven countries to institute regulatory reforms. Experience has shown that government failures are capable of creating inefficiencies as market failures. Moreover, as economies become more open, the pressure to become more competitive has brought calls for more fundamental regulatory reforms to reduce costs and to 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 sectors of the economy including telecommunications, financial market, airlines, ports, shipping, water, and energy. At the same time, the country has engaged in privatizing and devising new regulatory frameworks particularly for the utilities sectors. To address the power crisis in 1992 and 1993, the power generation sector was opened up to private sector participation. The late 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 will focus on the electricity and downstream oil industries. Both are essential to most productive processes and are important elements in final demand. Electricity cannot be stored; electricity network has strong externalities as well as economies of scale and scope. Unlike electricity, however, the oil industry does not exhibit aspects of natural monopoly nor does it display economic features that would warrant government regulation. The government monopolized the generation and transmission of electricity and closely regulated distribution throughout the country. Prior to its deregulation in 1996, the government also heavily regulated the oil industry. Currently, the power sector is at the forefront of deregulation and privatization.

The aim of the paper is to summarize the major reforms in the power and downstream oil industries and to analyze the economics behind these reforms. The underlying economic theories behind these reforms are often unclear and misunderstood. 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 is not easy. Effectively balancing redistributive concerns and efficiency is difficult and requires efficient institutional mechanisms to resolve inevitable conflicts. Except for a few exceptions, one major problem in developing countries is the significant gap between rules and enforcement capacity. Given our little experience in the effective use of public 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 our economic, institutional and political structure and possibly come up with ways to overcome our weaknesses and 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 pre reform state of the power sector and the reforms under RA 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.

II. Economic Regulation: Theory and Practice

A. 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 merger controls, removal of entry barriers, and restrictions on the line of business or break up of an integrated incumbent. The regulation of conduct covers pricing behavior of firms in terms of level and structure. The constraint on prices can be both on the final and at the intermediate level.

The most common economic arguments for regulation are based on correcting for market failures, economies of scale, or equity conditions. 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 to be 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 have formed the basis for raising the need for governmental regulation of utilities. In theory, if there are economies of scale or scope, average costs are decreasing. 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. When an industry is characterized by increasing returns to scale or when network externalities or significant coordination costs are present, regulation is an important approach 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 (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 dominance. Regulation should ensure that access and interconnection charges promote an efficient structure of production, use and consumption; allow network operators to make a sufficient return and 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 to prohibit the essential facility spin-off from reentering the competitive market.
- Preserve vertically integrated firm as monopoly while regulating either 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, which 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.

Economic regulation must ensure that the monopolists do not overcharge or cheat on the quality of service provided to customers. At the same time, economic regulation must ensure that the monopolists are getting a reasonable return on their assets, operating efficiently, and making investment decisions that are consistent with demand at unbiased prices.

The establishment and implementation of an effective regulatory system is a difficult activity; it 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, high revenues from privatization for fiscal reasons, ambitious investment demands, rapid expansion of basic services, and distributional factors in the pricing of services. Governments are also tempted to use regulation to advance short-term political goals that may make the regulatory system vulnerable to capture.

Efficient regulation is hampered by the lack of necessary 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 inefficient economic results and undermining the effectiveness of even well-designed regulatory framework.

B. How To Regulate Monopolies

Regulation is seen as a principal-agent relationship in which a regulator – the principal – attempts to control the firm, a natural monopoly – the agent. 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 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 it 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. If these rents are costly to society, the Baron and Myerson model allows the monopolist to charge a higher price and a pricing formula that accepts the cost declaration by the monopolist 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. Given this setting, optimal regulation requires a menu of contracts offered to firms. The contracts should be based on the firms' information such that firms self select themselves. An inefficient firm should not be given the same contract as an efficient firm. Essentially, what Laffont and Tirole are saying is that there is no such thing as free lunch and there is a need to balance efficiency gains with higher informational rents that must be given up. One important difference of their model with the Baron and Myerson scheme is the absence of the need to distort prices to reduce informational rents.

C. Price Regulation In Practice

1. 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 the US. This price-setting method requires detailed information on costs, assets, and investments. The main problem with this method is its creation of perverse incentives. Since the firm is guaranteed a return on its investment, it tends to overinvest (Averch-Johnson effect) or simply overstate the value of the assets when their correct value is difficult to assess (Estache). The larger the value of the asset, the larger the benefits allowed, and 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 through in the form of price cuts 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 US as well as in Australia, Puerto Rico, Singapore, and Latin America. It is based on the control of maximum prices or the imposition of price caps. 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. 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, hence enabling consumers to benefit from the increased efficiency. Some of the problems with this pricing system are the determination of the annual adjustment factor and the length of time for which it will apply. In practice, either the cap is too high and the firm will earn enormous profits or it is too low and the firm goes bankrupt. Another problem with the price cap regime is the temptation to cut quality as a way to reduce cost which implies a higher profit for the monopoly. Under the rate of return regulation, overinvesting in quality may be a rewarding strategy for the private investor.

2. Regulation of Access/Interconnection

The setting of access charges is a highly difficult exercise. In practice, regulators may leave access charges to 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 first best solution is to set access price equal to the marginal cost of production. However, with the theoretical first best, the incumbent would recover only the variable cost and would make a loss equal to the fixed cost. In the absence of government subsidies, the 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, 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 from that specific user.

The efficient component pricing rule (ECPR) also known as the Baumol-Willig rule is one 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 main advantage of the ECPR is when it works it avoids 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 allow for 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 would never choose to enter. In that case, however, the monopolist would cease providing the service at all because it would 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 proposed 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 a weighted average of all these prices not exceed the cap. When the cap is properly set, the regulated firm is induced to choose optimal Ramsey price structure. It does not require the regulator to measure marginal cost or to estimate demand elasticities. One major concern that has been raised with 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.

D. Franchises and Concessions: Alternatives to Price Regulation

Franchises and concessions are seen as alternatives to regulation in natural monopoly settings and are often used to compete for the market, 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 Their advantage over regulation is that they impose no informational requirements on a government agency. Franchises and concessions 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 a 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 arrangement is essentially contractual and as such, it requires constant involvement of the regulator in monitoring compliance, in reconciling interpretations, and in negotiating terms. The role of the government is to set the rules for competition at the bidding stage and enforce the terms of the agreement.

The franchising of natural monopolies has the following advantages:

- reduces opportunities for regulatory capture and lessens 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 and still allowing the franchisee to earn a normal return on investment.
- optimal pricing can be achieved even when sunk costs rule out contestability because competition occurs before firms commit themselves to investment programs.

The disadvantages include the following:

- complex design and monitoring systems when multiple bidding targets are present
- inability to cover every conceivable circumstance
- difficulty in enforcing contracts
- poor service quality and lack of incentives due to the fixed term nature of contracts
- inability to commit a path of price adjustments over the life of the concession which creates opportunities to use and abuse renegotiation opportunities rendering the initial price bid, on which the concession is awarded, almost meaningless

On the overall, franchising is only superior if abuses after the franchise is awarded are contained and repeated bidding is practical. 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.

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

Concessions are very similar to franchising, the only difference is that concessions involve more detailed follow-up supervision and more 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 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.

Box 1: Government Responsibilities	
<p>Framework</p> <ul style="list-style-type: none"> • 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 	<p>Design of the concession arrangements</p> <ul style="list-style-type: none"> • 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 mechanism
<p>Project identification and analysis</p> <ul style="list-style-type: none"> • Identifying projects amenable to concessions (including in-house 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 	<p>Concession award</p> <ul style="list-style-type: none"> • 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
<p>Enabling and supporting measures for specific projects</p> <ul style="list-style-type: none"> • Granting permits and other necessary authorizations (environmental permits, right of way) • Determining the form of government support for the project 	<p>Exercising regulatory function</p> <ul style="list-style-type: none"> • Implementing regulatory function • Supervising and monitoring • Enforcing rules (imposing penalties)

Source: Kerf and others, 1994 as cited in Guasch and Spiller.

The approach includes build-own-operate (BOO), build-operate-transfer (BOT), and lease-and-operate contracts. Under BOO and BOT agreements, the private sector is responsible for financing and carrying out the investment specified in the contract. Under BOT, the assets revert to the state at the end of the concession terms while under BOO, 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 where privatizations/concessions have gone sour and the contract renegotiated are quite high. The common problems are poor concession design, unclear concession/regulatory rules, ex post changes of the rules of the process, and inappropriate bending to requests to renegotiate deals.

III. Power Sector

A. 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.
- 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 a natural monopoly; thus, create the rationale for direct control through ownership and regulation by the state. For instance, scale economies can provide the network owner with substantial market power. Other characteristics such as non-storability of electricity supply, consumers' dependence on the suppliers, and the essential nature of the service can further enhance the market power of the supplier.

The traditional approach has changed with the technological innovations in the 1980s. The reduction in the optimal size of generation plants combined with the growth in market size have undermined the natural monopoly characteristics of the electricity industry and challenged the traditional paradigm of the vertically-integrated monopoly. 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 into 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.

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.

B. The Philippine Electricity Sector Prior to Reforms: circa 1900 up to 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 ten 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) to develop the country's potentials for power generation. Republic Act 2641 restructured NPC from a non-stock government owned corporation to a fully government owned stock corporation. Energy regulation began in 1936 with the legislation of Commonwealth Act 146 that 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). During 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 of a single integrated nationwide transmission network used for power generation. The martial law administration of 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.

Box 3: Chronology of Legislations Prior to Reforms

Year	Law	
1936	Commonwealth Act 120	Creation of National Power Corporation (NPC)
	Commonwealth Act 146	Creation of Public Service Commission (PSC)
1971	Republic Act 6173	Establishment of Oil Industry Commission (OIC)
1972	Presidential Decree 40	NPC monopoly in generation and transmission Abolition of PSC and transfer of electricity and water regulation to Board of Power and Waterworks (BPW) Government expropriation of MERALCO
1973	Presidential Decree 269	Creation of National Electrification Administration (NEA)
1977	Presidential Decree 1206	Creation of Department of Energy (DOE) Abolition of OIC and creation of Board of Energy (BOE)
1979		Acquisition of MERALCO by NPC
1986		MERALCO's return to the Lopezes
1987	Executive Order 172	Reorganization of BOE into Energy Regulatory Board

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, which was responsible for setting energy prices including petroleum products and electricity. In 1987, Executive Order 172 reconstituted the Board of Energy 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-kilowatt hours per 1000 people between the periods 1981-84 and 1985-88. In contrast, the average production of electricity continued to increase in other countries. For instance, Thailand's figure rose from 0.38 to 0.54 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 (refer to Table 2).

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

Table 1: Average Production of Electricity (in million kilowatt hours per 1000 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: UN Yearbook of Energy Statistics as cited in The World Bank Country Report, April 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: The World Bank Country Report, April 1993.

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, Luzon and Mindanao appeared sufficient; their available capacity was woefully inadequate. In the Luzon grid, the available capacity ranged from 2300 to 3100 MW against an installed capacity of 4321 MW. In the Mindanao grid, the available capacity declined from 600 MW hydro in 1990 to 200 MW hydro in 1991 against an installed capacity of 1053 MW (904 hydro + 149 diesel). This electric capacity shortage meant greater unmet demands. 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 where about 60 percent of NPC's industrial customers were located. In 1989, the Luzon grid suffered from 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 total duration of 1,273 hours resulting in 251 Gwh of lost energy sales (see Table 3). Based on average tariffs, NPC's revenue losses amounted to P418.63 million between 1987 to 1990. In addition to unreliable power supply, the country's electricity costs were relatively high compared with other Asian countries (refer to Table 4).

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: National Power Corporation as cited in The World Bank Country Report, April 1993.

Table 4: Average Tariffs (in US\$ per kilowatt hour)

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: The World Bank Country Report, April 1993.

Note: D-distribution, GT – generation and transmission, GTD – generation, transmission, and distribution.

NPC's poor economic and financial viability, inadequacies in power and relatively high costs of electricity pointed to the failure of state ownership and control. NPC represented the classic case of regulatory failure. Between 1990 and 1991, NPC's accumulated losses amounted to almost P2.4 billion. These resulted in its inability to self-finance and generate enough profits to cover investment demand. Part of the blame for the dismal performance of the sector could also be traced to distorted pricing and extensive subsidies as well as to the failure of the executive branch of the Aquino administration to anticipate long-term market demand.²

Meanwhile, MERALCO continued to enjoy unprecedented profits which reached about P 1.9 billion in 1991. The Far Eastern Economic Review (1991)³ 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 25 percent. 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 Energy Regulatory Board, adopted a rate of return on rate base (RORB) methodology. This allowed utility firms to set rates which would cover operating costs and provide 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.

Box 4: Chronology of Legislated Reforms

Year	Law	
1987	Executive Order 215	Abolition of NPC's monopoly in generation and granting of incentives to private investors to enter the generation sector
1990	Republic Act 6957	Build-operate-transfer (BOT) Law
1992	Republic Act 7638	Creation of Department of Energy
1993	Republic Act 7648	Emergency Power Crisis Act
1994	Republic Act 7718	Expanded BOT Law
2001	Republic Act 9136	Electric Power Industry Reform Act (EPIRA)

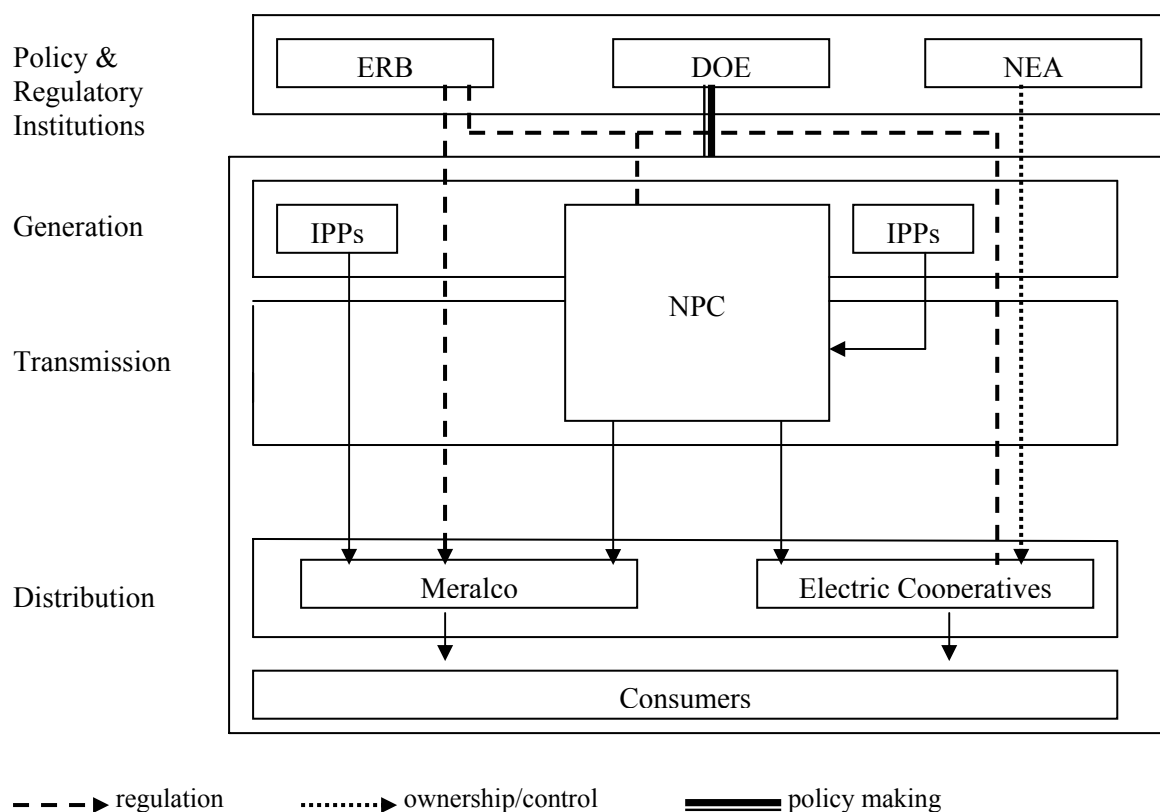
² The Aquino government had a hand in emasculating the energy plans laid down during the Marcos regime. See SGV Consulting Study Team. 1992. Barriers to Entry.

³ Tiglao, R., "Tale of Two Utilities", Far Eastern Economic Review, October 24, 1991 as cited in SGV Consulting Study Team, Barriers to Entry, 1992.

C. 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 which was experiencing massive shortfalls. In 1990, the government passed Republic Act 6957, the first build-operate-transfer (BOT) law in Asia. This relaxed the rules on entry of private firms and reduced the scope for government intervention. In 1992, Republic Act 7638 established the Department of Energy, 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 (IPP) contracts for the construction, rehabilitation, improvement, and maintenance of power projects. In 1994, the BOT law was replaced with Republic Act 7718, which increased the number of variants of the BOT concept.

Figure 1: Structure of the Philippine Electricity Industry After First Deregulation Attempt



The participation of private investors in the generation sector started in 1988 when NPC signed its first BOT 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 contracted with several independent power producers (IPPs) through build-operate-transfer (BOT) and related schemes. Table 5 contains a list of 41 IPP projects with signed contracts that were initially awarded through negotiation but later through bidding procedures.

The World Bank (2000) described the standard NPC contract as an energy conversion agreement, under which 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 toward agreements in which plants accept some market risk, the World Bank noted that NPC was planning several energy conversion agreements. During this time, the World Bank observed 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 400-450 million cubic feet per day of gas over twenty years with total reserves of about three trillion cubic feet.

Table 5: List of IPP Projects

Project	Operator	Type	Capacity in mega watts	Cost (P/kwh) As of bid date	Cooperation period (years)	Commercial operation date	Contract Expiration date
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 power Plant (1-10) (11-20) (21-25)	Hopewell Holdings Ltd	BOT	1000	1.4370 1.3230 1.2070	25	Mar 1999 (phase I) June 1999 (phase II)	June 2024
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/AEV/Pacific Hydro	BOT	65	2.650	25	Jan 2000	Jan 2025
6. San Pascual Cogeneration plant (1-6) (7) (8) (9) (10) (11) (12) (13-25)	San Pascual Cogen Co. International	BOO	304	1.6420 1.6210 1.4530 1.3280 1.2670 1.2230 1.2020 0.9510	25	June 2001	June 2026
7. Pagbilao coal fired TPP	Hopewell Energy Ltd	BOT	700	1.7840	30	Ap 1996 (phase I) June 1996 (phase II)	June 2026
8.Caliraya-	IMPSA	BROT	640		25	Jan 2004	Jan 2029

Botocan-Kalayaan HEP (1-3) (4-9) (10-25) Without pumping (1-3) (4-9) (10-25)				0.700 1.600 1.040 0.700 1.040 0.430			
9.Mindanao coal-fired plant I (1-5) (6-10) (11-15) (16-20) (21-25)	State/Harbin	BOT	200	1.453 1.494 1.541 1.591 1.767	25	Jan 2004	Jan 2029
10.San Roque multi Purpose HEP	Marubeni/SIT HE/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) Minihydro	Hydro Elect. Dev. Corp	ROL	22	88%*N PC 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) 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
22.Iligan City Diesel Plant I	Alsons/Tomen	BOT	58	1.437	10	Jul 1993	Jul 2003
23.Iligan City Diesel Plant I(1-7) (8-12)	Alsons/Tomen	BOT	40	1.525 1.318	12	Dec 1993	Dec 2005
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 1993 CC 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 Unit I (1-4) (5-15) Unit II (1-4) (5-15)	KEPCO	ROM	650	0.167 0.307 0.153 0.279	15	Jun 1995	Jun 2010
30.Mindanao Diesel Power Barge (1-7) (8-15)	Mitsui/BWSC	BTO	200	0.7840 0.7950	15	Apr 1994 Jul 1994	Apr 2009
31.Mindanao I (Mt. Apo) Geo	PNOC-EDC	PPA	47	1.5578	25	Feb 1997	Feb 2022
32.NAGA Thermal Complex CTPP-1 CTPP-2 CDDP-1 GT	SALCON	ROM	203	1.2790 1.7980 1.3790 1.8600	15	May 1994	May 2009
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

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

Between 1993 and 1998, the generation sector evolved from a monopoly to a monopsony of NPC to a de facto deregulated sector in which private power producers can sell electricity 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
- 263 megawatts scattered throughout the country belonging to small island grid.

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

NPC's independent power producer program arrested the power crisis, expanded generating capacity, and stabilized power supply. However, it has put financial strain on NPC as it increased NPC's liabilities by P230 million (44 percent of total liabilities) in 1998 (World Bank, 2000). Furthermore, even with the IPP scheme, competition was limited and what transpired was another form of public procurement with the independent power producers becoming a contractor to the existing monopoly, NPC, for a set of specialized services that included financing. In 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 monoposonist in the market for capacity and energy. To protect their investments, the private investors focused on obtaining satisfactory power purchase contracts and looked to the government to underwrite the risks. Given the lack of credible rules or operating experience with pricing regimes in the Philippines, the procurement of private generation capacity became possible only with the government assuming all risks with respect to 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 5 reveals, the government has borne virtually all risks except construction costs and some risks associated with the efficiency of operation and availability.

Box 5: 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: The World Bank Country Framework Report for Private Participation in Infrastructure, 2000.

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, VEPCO, requested construction bids for power plants mainly on the basis of the price it was prepared to pay for power (Churchill, 1995). VEPCO only indicated the amount of power it needed and approximately when and where, stated the price it was prepared to pay and then asked for bids. The developer took the risk on the number of plants to build and their location and given the final price, the profitability of the enterprise depended on the developer's decisions. VEPCO and the public sector were not involved in those decisions. Bidders then came forward with proposals that more than satisfied the capacity requirements.

In the case of the Philippines, however, given our institutional and regulatory limitations, the increase in generation capacity became possible only through public procurement that pushed the government to take all of the risks. This resulted in the government assuming heavy contingent liabilities as well as a number of lucrative transactions for independent power producers and increased tariffs for consumers. While the IPP scheme successfully addressed the immediate problems of the power sector, it is impossible for the government to expand generation capacity in the future assuming the same financial commitments and broad guarantees for market risks.

Note that these excessively risky and costly contractual agreements led to a gradual deterioration of NPC's financial position. As Reside (2001) pointed out, the costs were mostly embedded in the generous off-take (take-or-pay), where NPC agreed to purchase power from IPPs regardless of the required level of dispatch. NPC management locked the company into multi-year power purchase agreements which were at least 25 percent more expensive than its own generated power and which must be paid 75-80 percent even if it chose not to actually get the electricity (Tuano, 2001). 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, which increased to P9.9 billion in 2000. These huge losses required NPC to constantly rely on external sources to finance its capital requirements and meant increasing servicing costs, which took a heavy toll on its capacity for maintenance, repairs, and expansion in its transmission capability.

D. Second Wave of Power Sector Reforms

Simply pursuing a more competitive procurement of generation has limited impact on efficiency improvements especially if the traditional monopoly structure remains. Unbundling the services offered by the vertically integrated monopoly is important. This meant splitting off those services that can be provided under competitive circumstances from those in which natural monopoly elements prevail.

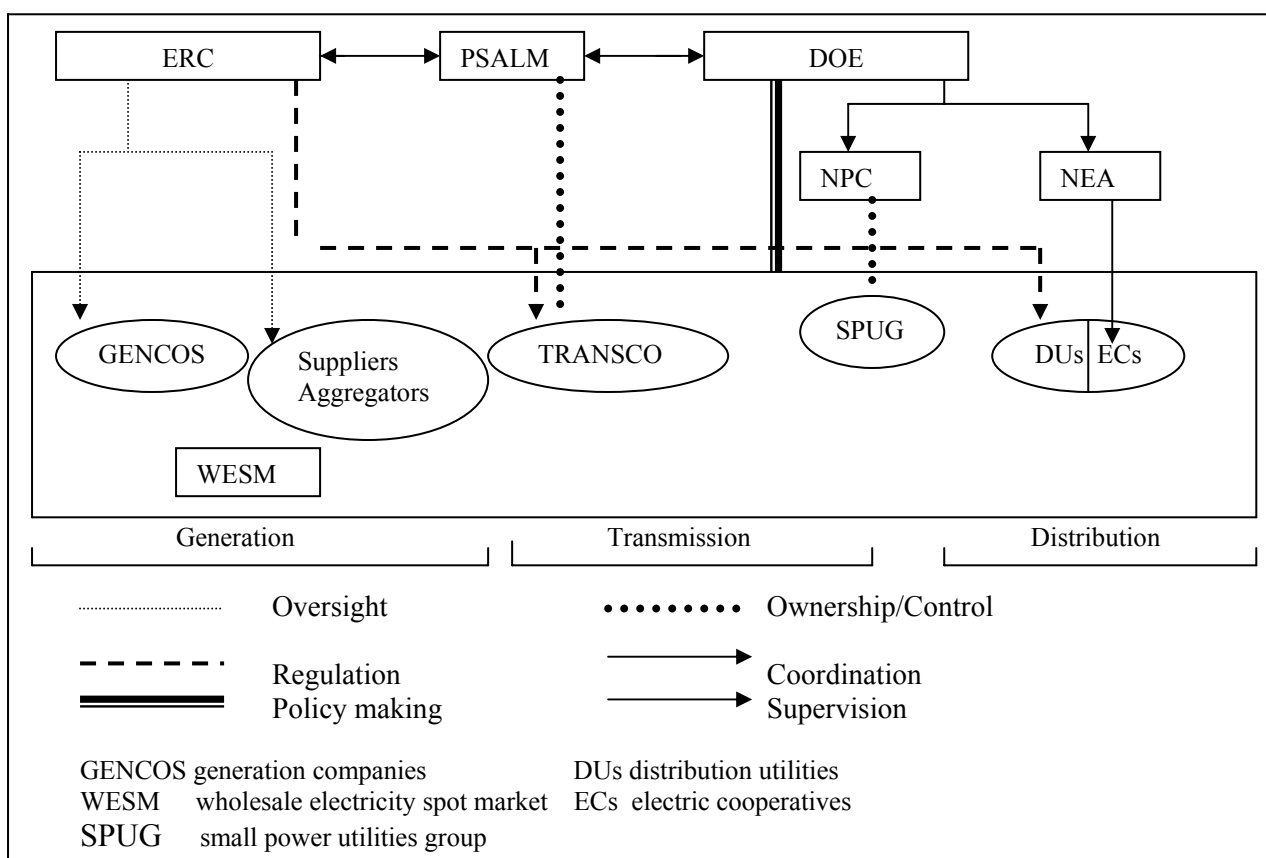
In June 2001, the Electric Power Industry Reform Act (RA 9136: EPIRA) was legislated to accelerate the total electrification of the country and ensure the quality, reliability, security, and affordability of electric power in a regime of free and fair competition. The industry would be restructured by separating the natural monopolies from the potentially competitive parts: the National Power Corporation's remaining power facilities and its transmission system would be privatized and a wholesale spot market for bulk power would be created. The law distinguishes four separate segments in the power sector: generation, transmission, distribution, and supply. Generation and supply would be competitive and open while transmission and distribution segments would be regulated. The law also spells out the main rules for the regulation of these four segments as well as the rules for transition, and the obligations and rights of all players involved: the service providers and government agencies. Figure 2 presents the new structure of the electric power industry.

1. Privatization and Government Regulation

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

The **National Transmission Company (TRANSCO)** is 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 would have a contract period of 25 years subject to review and renewal for a maximum period of another 25 years.

Figure 2: Power Industry Structure After EPIRA



Source: DOE

The **National Power Corporation** remains as a national government-owned and controlled corporation and would be responsible for the missionary electrification function through the small power utilities group (SPUG) as well as for the provision of power generation and delivery system in areas not connected to the transmission system. It would continue operating Agus and Pulangui complexes, which would be owned by PSALM. NPC/PSALM would not incur any new obligations to purchase power through bilateral contracts with generation companies or other suppliers.

The **National Electrification Administration** is responsible for preparing electric cooperatives (Ecs) in operating and competing under the deregulated electricity market within five years from the effectivity of RA 9136.

The **Department of Energy** 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

- establish the wholesale electricity spot market and formulate the detailed rules of its operations.

The **Energy Regulatory Commission** 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:

- 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.

2. Price Regulation

Competition is the norm in generation and supply of electricity and the prices charged by generation companies would not be regulated by the ERC. Distribution and transmission are considered natural monopolies and their price system would consist of regulated charges. The regulated price to final consumers would consist of the following:

- generation
- transmission
- distribution
- supply
- other related charges for electricity service.

ERC would base 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 return on rate base (RORB), TRANSCO or its buyer or any distribution utility may revalue its eligible assets not more than once every three years by an independent appraisal company. Interest expense would not be allowed as deductions from permissible RORB.

Box 6: 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 IPP 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.

Box 6 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. 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).

3. Competition and Access Rules

Generation of electric power would be open; any new generation company would secure a certificate of compliance from the ERC. For distribution, entry requires a national franchise granted by Congress. The supply of electricity to end-users 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 market is allowed to all end-users with a monthly average peak demand of at least 1 MW, after two years, the threshold level would be reduced to 750 KW. Generating 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.

4. Stranded Costs

Stranded debts, stranded contract costs of NPC, and stranded contract costs of eligible contracts of distribution utilities would be recovered through the universal charge. The ERC would review the petitions for cost recovery filed by PSALM and any distribution utility that has an eligible contract. It would determine, fix, and approve the level of stranded costs. Every year, the ERC would conduct a review to determine whether there is an under- or over- recovery and adjust the level of stranded cost recovery charge accordingly.

E. Emerging Issues

Despite opposition from some political groups and members of civil society, great progress has been made in enacting ownership, structure, and regulatory changes in the Philippine electric power industry. However, more needs to be done particularly in terms of ensuring competition in the industry. Access rules for transmission and distribution (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 would allow consumers to share in efficiency gains are still in need of attention. These are complex and difficult technical issues, but, much more than access and pricing rules, there is a 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 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?

1. 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 has been 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 the liabilities associated with the independent power projects) particularly the purchase power adjustment (PPA) has become the center of public ire.

Militant groups want the total abolition of NPC's and MERALCO's PPA. Some civil society groups are demanding a full review of NPC's contracts with independent power producers, which they claim to be onerous and are 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 imposition of PPA charge until the ERC approves the universal charge of P0.40 per kwh proposed by NPC to 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 at P0.21 per kwh and consumption above 100 would be charged at P0.42 per kwh. The proposal also seeks to exclude costs and items such as income tax, franchise tax, and working capital that should not be charged to customers. Meanwhile, two members of the House of Representatives want the government to take over MERALCO's operations.

MERALCO is the biggest distributor and retailer of electricity in the country serving a total of 3.7 million customers. Its 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 IPPs consisting of Duracom Power, First Gas Power Corporation (also owned by the Lopez group), and Quezon Power Philippines.

MERALCO's basic rate of P3.40 per kwh has not changed since 1994. 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 DOE⁴:

- 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 RA 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 like pole rentals
 - P0.005 per kwh due to inclusion 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 is constraining the deregulation process. The extent to which the tension can be reduced depends on how the following issues are managed:

⁴ Batino, C., "Study Finds Overbilling by MERALCO", Philippine Daily Inquirer, 27 May 2002.

- 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 IPP contracts are feared to be lopsided and opposition groups have been clamoring for a review towards amending the contracts. This would require external audits and scrutiny towards rewarding prudent IPPs and punishing arbitrary and onerous ones. On the other hand, full absorption of the stranded costs by the government would lead to a further deterioration of our 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, eventually, household taxes will have to rise. Regarding contractual buyout option, the World Bank (2000) noted that this was one major weakness of the IPP contracts. The estimated contractual buyout obligation reached US\$7.85 billion.⁵ In most cases, NPC could not exercise this option and it has 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? Our 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 and rural users by urban 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 and rebalancing of prices. The issue is this would create tremendous uncertainties with respect to 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.

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

2. Regulatory Capacity of ERC

The process of 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 result 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 determining access are some of the reasons why power is a highly politicized sector. To effectively govern the sector, 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 would be meaningless if there is no basic agreement among the varying and competing interests and groups on how gains and losses would be shared.

Apart from setting the rules of the game for ownership, investment, and operations, the ERC must be concerned with resolving and managing the social conflict, improving accountability, and ensuring transparency. It is to be noted that ERC itself is undergoing substantial change as it tries to adapt to the changing environment in which it operates and as it tries to build up the regulatory mechanisms to address problems of market failure and anticompetitive practices. Currently, ERC is the regulator and competition agency rolled into one. Previously, ERC (or ERB) regulated only a monopoly and a government corporation, but with the present reforms, ERC must confront new issues that would 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 establishment and implementation of an effective regulatory system is complex and requires a learning process. Moreover, the difficulty of establishing an effective regulatory regime is aggravated due to our lack of regulatory tradition or track record in the effective use of public regulation in a market driven setting as well as by the numerous objectives that the government attempts to fulfill: ensuring competition, high revenues from privatization for fiscal reasons, ambitious investment demands, rapid expansion of basic services, and distributional factors in the pricing of services. Politicians may also use regulation to advance their short-term political goals with inappropriate regard for efficiency or implications for investors as well as information asymmetries in costs and performance that may lead to regulatory capture and diminish credibility and overall welfare. All these factors complicate ERC's regulatory functions. They may slow down the process of implementing the reforms depending on ERC's ability to design efficient mechanisms that would balance the gains and losses among the different constituencies and resolve the existing conflict of interests. This task will be less difficult if openness, transparency, and accountability are emphasized. Participatory mechanisms would be desirable and in the future, greater reliance on competition and market signals would ease the regulatory tasks.

Regulatory practice in the Philippines has shown that whenever controversial issues arise, the regulatory agency usually adopts a hands-off policy and leaves the final

decision to the President. This has made the President a powerful interventionist element in resolving conflicts and has made the President and not the regulatory agency as the final regulator. The intervention of the President has also compromised the regulatory agency's credibility and independence in making decisions. For as long as the President continues to mediate and broker controversies, the Presidency as an institution becomes subject to imminent "capture" (De Vera, M., 1997).

IV. Downstream Oil Sector

A. Industry Characteristics

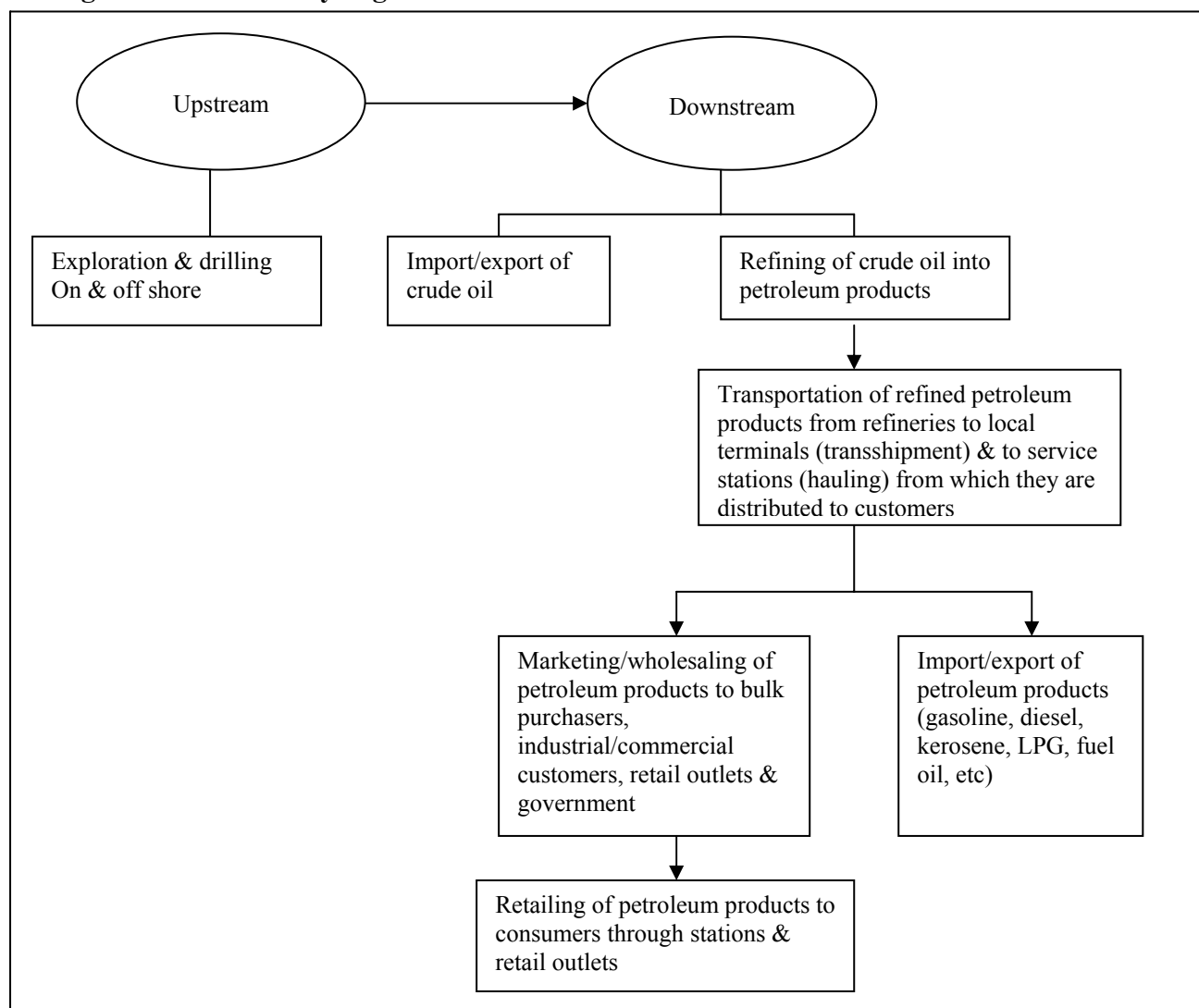
The Philippine oil industry is divided into two sectors: the upstream sector, which covers the exploration and production of crude oil and the downstream sector, which involves refining, transportation, and marketing (see Figure 3). In 1999, the country's total oil production provided less than two percent of total consumption. Given the country's small 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, transportation, and marketing stages of the downstream oil sector do not exhibit natural monopoly characteristics that would warrant government economic regulation. As such the heavy government regulation of the industry from 1971 to 1996 could only be justified by political reasons. This led to a pricing process that was largely political rather than economic.

B. 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 with six oil refining companies (Shell, Caltex, Esso, Mobil, Filoil, and Getty) operating 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 oil supply stability in the country. Government involvement in the sector increased significantly as PNOC acquired Esso and Filoil and had a joint venture with Mobil.

In 1977, the OIC was reorganized into the Board of Energy (BOE) which was mandated to set energy prices including petroleum products, oil pipeline concessionaires, and electricity. The Department of Energy (DOE), which was responsible for government energy policies, plans and programs, was also created during the same year.

Figure 3: Oil Industry Segments



Source: PDCP Bank “Oil Deregulation”, Industry Digest, 1997

An Oil Price Stabilization Fund (OPSF) was also established to maintain retail prices of petroleum products at relatively stable levels. The industry contributed to the fund when crude prices were low and could draw from the fund when crude prices go up. 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, led to huge deficits forcing the government to pour more money into the fund.

Between 1969 and 1981, the number of retail stations declined from 4093 outlets to 3798 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. There were only three operators (PNOC or Petron, Shell, and Caltex) that remained and controlled over 90% of the oil industry.

In 1987, the BOE was reconstituted into the Energy Regulatory Board, which was tasked to regulate the whole energy sector. Its powers included fixing and regulating the rates 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 such that socially sensitive products like LPG and kerosene were priced lower than gasoline. Higher taxes were imposed on fuels consumed by the rich, although the lower taxed fuels contributed more to and received less than optimal 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. Since the regulated prices created 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.

C. Deregulation Phase: 1996-1998

In March 1996, the first Downstream Oil Industry Deregulation Act (RA 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 RA 8180 unconstitutional because of certain provisions that supposedly promoted anti-competitive behavior. These were:

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

In February 1998, RA 8479 was passed into a law. It was basically the same as RA 8180 except for the three concerns mentioned above which were appropriately considered and were revised as follows:

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

RA 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 February 12th 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 more accurately reflect international prices. Except for “socially sensitive” products like kerosene and LPG, full deregulation was adopted in March 1998.

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

- Enforcement of environmental, planning, product quality and health and safety legislation and reporting requirements on imports and exports necessary for the Basel Convention in which the Philippines is a signatory
- Gasoline stations must advertise their prices and the DOE must publish comparative price information on its website
- Creation of a Department of Justice and Department of Energy taskforce to investigate unreasonable price increases and punish offenders
- Any firm involved in the refining business must offer 10 percent of its common stock within three years of the effectivity of the Act or commencement of operations through a public offering in the Philippine Stock Exchange. No one person is allowed to hold more than five percent of this stock.
- The government retains ownership of 40 percent of Petron shares, although management of Petron’s operations has largely been ceded to Saudi Aramco.
- To attract new investors, the following incentives are provided:
 - Income tax holiday
 - Additional deductions for labor expenses
 - A minimum tax, duty and value added tax of three 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

D. Emerging Issues

1. Remaining barriers to competition

Since the deregulation of the downstream oil industry, new players have entered the petroleum industry and have gained a foothold in terms of market share. 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 in 1999 and further 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 in the industry. Fuels bulk marketing received the highest level of new investments followed by retailing. Note that bulk sales have lower entry barriers compared to other sectors,

as they do not require 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 the highest refining capacity accounted for by Petron.

Table 6: Market Shares (in percent)

Corporation	1998	1999	Aug 2000
Petron	39.1	35.7	35.4
Shell	34.5	34.6	33.3
Caltex	22.0	21.0	21.4
Others	4.3	8.7	9.9

Source: DOE

Table 7: Refining Capacity, 2000 (in barrels per day)

Firm/Refinery Location	Capacity
Petron/Limay, Bataan	180000
Shell/Tabangao	137000
Caltex/Batangas	84000
Total	401000

Source: DOE

While deregulation has allowed the entry of a significant number of new players in the industry, competition has not yet been sufficient to lead to a downward pressure on retail pump prices. Note that retail outlets are expensive to construct (estimated at around P10-20 million per outlet) and often require tedious environmental and planning approvals. Retail requires extensive or retail networks and currently, the big three players dominate the retail networks, hence, new players are unable to price gasoline way below those of the big players. This advantage to the incumbent firms poses as an entry barrier, which competition policy should address.

Using econometric models to assess retail gasoline price movements and crude cost changes in the Philippines, Salas (2002) found that retail price adjustments were characterized by an eight-week response lag to crude cost changes. He also found that the deregulation of the oil industry has led to an accelerating trend in the adjustment speed of retail prices to crude cost changes. Another interesting finding was the asymmetry in the adjustment speed as 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.

2. Deregulation failure and rising prices

From January 1999 to July 2000, the pump price of diesel increased by 59 percent while petrol rose by 46 percent (Cororaton, 2000). As prices go up, the public asks the government to intervene, regulate and control oil prices again. It is unfortunate that the oil price deregulation has coincided with rising international crude oil prices and the depreciation of the peso, which exerted further upward pressure on local pump prices. World crude oil prices went up from a low of US\$10 per barrel in March 1999 to a high of around US\$38 per barrel in September 2000 due to the maneuverings of the OPEC cartel. The Philippines imports about 97 percent of the country's total crude oil needs.

The successive price increases have triggered widespread protests and public perception that the industry deregulation has failed and led to a cartel by the big three oil companies. Public transport groups have lobbied for increase in fare rates and threatened the government with major strikes. Other organizations have sought to dismiss the oil price deregulation law. A draft bill at the House proposed the creation of a government-owned national oil exchange to address the cartel issue in the industry. The national oil exchange, a monopoly, would estimate the requirements of all refined petroleum products, source these by an international open bidding process and sell the products to distributors. A lot of objections were raised against the proposal and since most studies showed that the model was not feasible for the Philippine oil industry, support for the proposed oil exchange fizzled out.

To mitigate the retail price increases, the government has responded by adjusting tariff rates on imported crude oil and refined petroleum products. However, this is merely a short-term solution that has a huge implication on the fiscal deficit. A recent paper (Salas, 2002) indicated that the temporary suspension of import duties did not result in a relief for consumers as originally intended, but, was instead taken advantage by the oil firms to increase their profit margins.

It should be noted that deregulation has 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. But, given the present capacity constraint faced by the new small players, it would take some time before they can aggressively engage in price competition.

3. 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. Markets need rules to orient the behavior of agents and institutions to support their development. With deregulation, it is necessary to establish a regulatory framework based on principles of efficiency and equity and in line with public interest. This requires the formulation of competition law and policy

that will protect the competitive process and encourage competitive behavior in order to promote economic efficiency.

Under the present law, a DOJ-DOE task force oversees anticompetitive 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 lack of manpower, lack of experience in anti-trust investigations, lack of judicial precedents in this area and inability to investigate cases outside the three anticompetitive violations earlier specified (R. Galang & C. Solleza, 2001).

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

- Some components are missing while others are inadequate. The penalties for violations of antitrust offences are inappropriate; they are either too harsh or too lenient. Other aspects of antitrust like mergers and government-imposed barriers to entry are not covered.
- Lack of a coherent overall framework for competition policy in the Philippines. A single piece of legislation on competition is administratively more efficient.
- Lack of knowledge among enforcement officials and the judiciary to effectively enforce current laws.

V. A 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, designing effective regulatory frameworks and enforcing them is not easy. Effectively balancing redistributive concerns and efficiency is difficult and requires effective governance through efficient institutional mechanisms to resolve conflicts.

In the electricity sector, the absence of clear rules and appropriate regulatory framework in the early stage of deregulation led to discretionary decision making which resulted in high long-term costs and a societal backlash. Our experience shows that the power purchase agreements with independent power producers, while successful in overcoming the power crisis in the early 1990s, created an enormous volume of contingent liabilities to the government and led to severe upward pressure on the end-user tariffs, which have 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, which were 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 as former President Ramos claims that his administration inherited the problems from the Aquino government. With the regulatory practice in the Philippines of leaving the final decision making on

controversial issues to the President, the incentive to pursue policies with short-term benefits, even where these involve high long-term costs in terms of efficiency and overall welfare, has been strong. Generally, this highlights the need to establish strong governance and regulatory framework in the country.

Among the immediate challenges that should be addressed include the following issues: 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 as this would slow down the reform process and would make it difficult to effectively set up the necessary regulatory framework. Complex and crucial issues such as access rules for transmission and distribution (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 would allow consumers to share in efficiency gains are still in need of attention.

Another important issue is the institutional capacity of the ERC to effectively carry out its regulatory functions. ERC is responsible for setting the rules of the game for ownership, investment, and operations as well as in resolving and managing the social conflict, improving accountability, ensuring transparency and building up the regulatory mechanisms to address problems of market failure and anticompetitive practices. Note that ERC itself is undergoing tremendous transformation as it attempts to adapt to its new role of regulator and competition agency in the face of a changing environment. 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.

In the case of the downstream oil sector, deregulation has resulted in some degree of competition as new players entered and gained market shares. But faced with a capacity constraint, they are unable to aggressively engage in price competition. Retail requires extensive or retail networks and currently, the big three players still dominate the retail networks. Moreover, retail outlets are expensive to construct and often require tedious environmental and planning approvals. This advantage to the incumbent firms poses as an entry barrier, which competition policy should address. There is also a need to closely analyze firm behavior, as the asymmetric pricing in the industry found in the Salas study could be an indication of tacit collusion and market power.

The successive oil price increases have triggered widespread protests and public perception that the industry deregulation has failed and led to a cartel by the big three oil companies. Ideally, the task force which acts as the industry's competition body could help manage the tension by communicating and explaining the deregulation process to the public. Though politically unpalatable, it must be emphasized that a lot of work is needed to build up competition 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 current DOJ-DOE task force assigned to oversee anticompetitive acts in the industry is not properly equipped to effectively address the emerging competition issues in the sector.

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