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Privatization and Restructuring of the Bangladesh Power Sector

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Abstract

Sectoral inefficiencies and public finance constraints induced the policy-makers for the Bangladesh power sector to introduce private investment into the sector. Independent Power Producers (IPP's) are the organizations being utilized. However, if the rush to privatization occurs without complementary regulatory and structural reforms, cost-effective private investment may not be encouraged. Bangladesh officials have been working on such a reform program, but progress has been slow compared to the proposed growth of IPP investments. If policy-makers had attempted the difficult regulatory and structural reforms first, Bangladesh could expect private sector participation at a more rapid pace and with lower costs.

1. Introduction

Private sector participation in the infrastructure industry to achieve efficiency and to improve reliability is a growing trend. Recent experience with power sector privatization and structure reform focusing on Chile, the U.K. and Argentina has had a demonstration effect: inducing a large number of countries to adopt this privatization process. Bangladesh is one of the nations addressing the twin problems of (1) inefficiencies in state-owned utilities, and (2) persistent and costly supply shortages. This developing country of South Asia has 120 million of population, almost 50% of whom still continue to lead very miserable lives below the poverty line, with very little access to the basic amenities of life. Therefore, to alleviate poverty and realize desirable socioeconomic development, Bangladesh needs to achieve and sustain a high GDP growth rate of 6-7 percent, which is difficult without a high electricity growth rate at a

[1] Sanford Berg provided helpful comments on earlier drafts of this paper. The views expressed here are the author's

reasonable cost. Realizing this fact, the Government of Bangladesh (GOB) has already begun to undertake the massive task of privatization and restructuring of Bangladesh Power sector to ensure efficient and reliable supply of electricity. However, progress has been slow.

As per privatization policy, GOB is trying to obtain new capacity by recruiting private investment by independent power producers (IPP's), the output of which would be sold mainly to state-owned utilities. Gradual privatization of state-owned utilities is also planned in order to remove sector's inefficiencies and adopt a more complicated market structure in this sector in the future. In addition, GOB concluded that, given the magnitude of the inefficiencies and the large capital requirements in the power sector, there was a great need to undertake basic reforms to address the fundamental problems in this sector. But after many years of neglect and under-investment, mostly because of political instability and mismanagement, Bangladesh is in real need of significant investment in this sector. Hence, due to public financing constraints limiting new public investment in this sector, GOB rushed toward private sector participation first, without making the required regulatory reforms.

Therefore, the gains of privatization may not be reaped. Political and regulatory risks may raise the cost of capital required for generating capacity. Higher compensation to private investors is required to cover the additional risks they perceive. Such a development would increase the price of delivered electricity in Bangladesh. In fact, if Bangladesh would attempt first to reform the regulatory structure and institution, then private sector participation could be expected to proceed at a more rapid pace with reasonable prices, notwithstanding her macroeconomic and political problems. In addition, the current public utility has an opportunity

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to make extensive structural reforms; these become difficult, though not impossible, once the utility is privatized. Therefore, it is now very important to get restructuring right, since the privatization of the existing utility is in the planning stages. Another important issue for successful privatization is whether utilities (regardless of ownership) are given the freedom to operate according to commercial principles. That is, are they free from all kinds of non-commercial obligations, including cross-subsidization of particular customers. Also, the key question is whether the constellation of political forces that caused the current situation are truly prepared to support real reform.

The analysis that follows attempts to explain and evaluate privatization policies and structural reform of Bangladesh power sector along with the regulatory framework and derive implications for future regulatory reform.

2. Policy perspectives/ background

In 1996, Bangladesh was still at a very low level of electrification, with only 15% of its population having access to electricity. In response to the electricity demand growth at an average rate of 11% per year during the period of 1972-94, per capita generation increased 8% per year from 15.6 KWH in 1973 to 95 kWh in 1996 (see Appendix), which is still low in comparison to that in neighboring countries. Since power is the basic infrastructure for higher economic growth, technological progress and improvements in societal welfare, government analysts predict a maximum peak demand of 4051 MW by the terminal year of the 5th Five Year (1997-2002) plan. The total generation capacity corresponding to that demand is 5739 MW, including a reserve margin of 1688 MW by 2001/2002. Finally, a total of 3319 MW generation

capacity is planned to be added to the system, raising the installed capacity to 5875 MW (see Appendix). To meet these projected demands requires a large volume of investment in this sector.

Achieving such a large volume of investment through the public sector alone is unlikely. Competing demands on public expenditures and declining levels of foreign assistance from donor agencies reduce the potential for public investment in this sector. The former factor deserves wider explanation because it provides the rationale behind private investment in the power sector of Bangladesh. In addition, the issue of whether private or public ownership makes a big difference in utility performance is a much debated one and for many advanced countries ownership is very much a national policy choice. The following tables show the fall in the share of development expenditure allocated for power sector in the GDP.

Table 1(a) Development Expenditure (DE) as a percentage of GDP

Year	*DE/GDP*
1990/91	6.32
1991/92	6.65
1992/93	6.91
1993/94	8.72
1994/95	8.80
1995/96	7.70

Source: RBD-1996 (pp.105)

Table 1(b) Composition of Development Expenditures (%)

Heads	*1985/86-1989/90*	*1990/91-1994/95*	*1995/96*
Social Services	10.5	17.6	23.3
Economic Services	34.7	27.7	22.3
Infrastructure	41.4	41.9	40.3
Others	13.5	13.0	14.3

Source: RBD-1996 (pp.106)

Table 1(c) Distribution of Development Expenditures within infrastructure

Heads	*1985/86-1989/90*	*1990/91-1994/95*	*1995/96*
1.power	21.1	15.2	12.0
2.oil, gas and natural resources	5.6	5.5	4.3
3.transport	12.6	17.7	20.6
4.communication	2.2	3.5	3.4

Source: RBD-1996 (pp.106)

It is clear from the Tables 1(a), 1(b) and 1(c) that the share of development expenditure to the GDP is increasing over the period of 1990/91-1995/96, (except 1995/96) when the share of infrastructure in development expenditure remained stable at around 40% during the period of 1985/86-1995/96. But the breakdown of this share within infrastructure sub-sectors shows that the share going to the power sector has declined from 21.17% in the late eighties to 15.2% by the early nineties and further down to 12% in 1995/96. During the period of 1990-96, effective generation grew only at 2.3% against the maximum demand growth rate of 5.5%. These results show that the recent power crises in the country is mostly due to the lack of investment in this sector during the nineties. Given the many claims on public funds, it is difficult for the public sector to finance the large volume of investment required in the power sector. In addition, existing state-owned utilities under Ministry of Energy and Mineral Resources (MEMR) - BPDB (generation and transmission in whole country; distribution in urban areas except Dhaka), DESA

(distribution in Dhaka) and REB (distribution in rural areas) -are characterized by operational inefficiencies[2], revenues which are not covering costs, costly supply shortages and frequent supply interruptions.

Recognizing these trends, the government of Bangladesh (GOB) amended its industrial policy during the Fourth plan (1990-95) to enable private investment in the power sector to address the constraints in capacity expansion. The GOB also adopted the recommendations contained in the report on power sector reform, made by a high level inter-ministerial Working Group formed for restructuring the power sector, to address the fundamental problem of inefficiency and to attract private sector investment into the power sector.

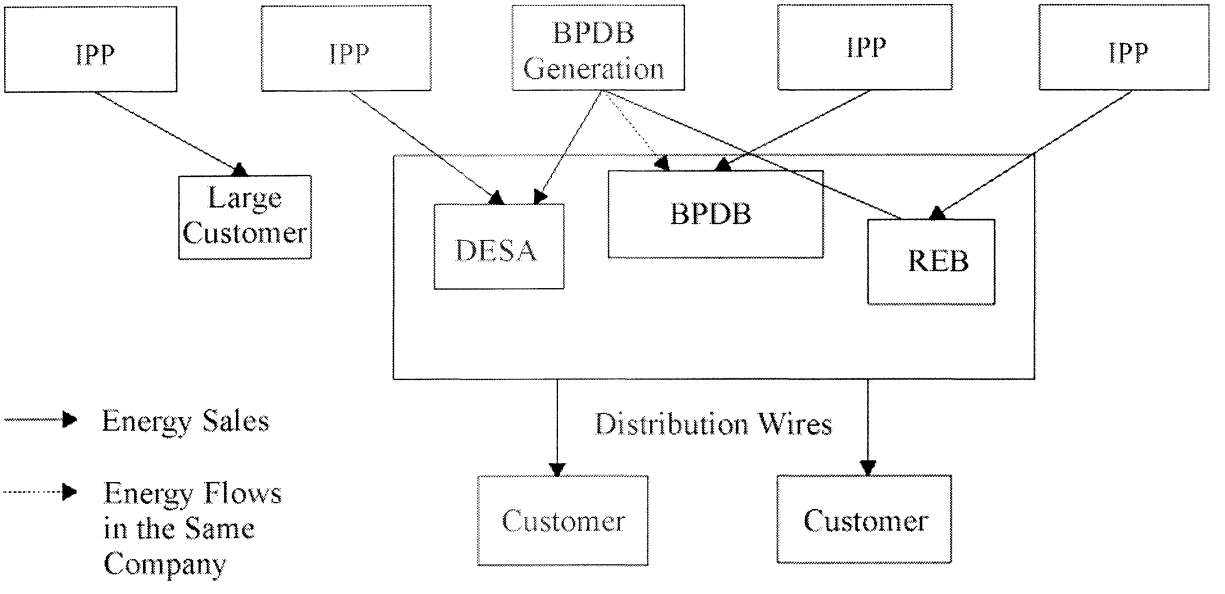
3. Private power generation policy

Characterized by supply shortages and inefficient state utilities, Bangladesh is trying to obtain new capacity by recruiting private investment by independent power producers (IPP's). The output would be sold to state-owned utilities. This power purchasing system is known as Purchasing Agency (PA) model in energy literature. The GOB created and set up a regulatory body named Power Cell under MEMR in 1995 in order to translate his strong commitment to attract private investment for installing new generation capacity. The Power Cell has already proposed tariff setup and a standard security package for IPP's projects which will be implements on a build-own-operate (BOO) basis.

3.1 Purchasing Agency (PA) model

[2] The electric power supply system suffers from operational and managerial deficiencies which are reflected in a very high and increasing system loss, estimated to be 35 percent of the generated output in 1986/85, which was 41 percent in 1990/91. The high rate of loss is attributed largely to illegal connections, theft and under-reporting of

The power produced by the IPP's is purchased by BPDB/DESA/REB or any other transmission or distribution company which may be established in the future, or any large consumer. The present structure of Bangladesh power sector with IPP's is shown in the figure below.



It is obvious from the above diagram that the PA is not a single entity. But it does not indicate that wholesale competition exists in this case because Power Cell dictates which organization will be the power purchaser at the time of issuance of the Request for Proposal (RFP). The designated organization purchases the produced power from the IPP's at a specific voltage at the outgoing terminal (interconnection point) of the substation of the power plant. The transmission line for interconnection with the national grid is provided by the appropriate agency. The IPP's bear the costs of interconnecting facilities up to outgoing terminals of their

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actual use through the manipulation of meter reading (Khan and Hossain, 1989).

projects. It is obvious that this cost is related to the plant sites[3] that are selected by GOB in consultation with the investor/project sponsor (see PSPGPB).

Consultation raises the issue of *discretion* and whether Power Cell can be insulated from regional political pressures and the special interests represented by the various fuel suppliers. Fuel for each project is solely determined by GOB, with respect to due preference for indigenous resources like natural gas, coal and any other fossil fuels. However, GOB may allow other fossil fuels, including imported fuels, if deemed necessary. Such discretion also raises concerns for the transparency of the process. Project sponsors and fuel suppliers sign an agreement regarding fuel supply which is known as Fuel Supply Agreement (FSA). Other hydro or other renewable and nonrenewable source-based projects are also open to the investors with different PPAs.

3.2 Tariff Structure and Security Packages

IPP's have contracts with the purchasing agency, known as Power Purchaser Agreements (PPA's). These contracts include an availability/capacity payment, and are designed to cover fixed cost (which covers debt service, return on equity, fixed operation and maintenance cost, insurance and other fixed costs). This capacity payment is dependent on a certain level of availability of the power plant, which is known to the bidders at the time of REP issuance. However, there are penalties for not being available. Also, these contracts have an energy payment covering the variable costs of generation in order to dispatch the plant. According to the bidding rules, the bidders offer a bulk power tariff, based on the capacity and energy payment and provide the equivalent levelized tariff over the contract period with respect to the discount

[3] Efficient transmission pricing is a very difficult task, especially with respect to the location of new plants. Therefore, GOB or Power Cell must have a long term plan for geographical distribution of new plants.

rate, tariff profile restriction and plant factor specified during the solicitation of bids. They also provide a yearly tariff profile over the contract period to meet their annual debt service requirements. The mechanism includes adjustments for efficiency gains, although the incentive effects of poorly-designed mechanisms ought to be given some attention.

The Power Cell has prepared a standard security package document: Implementation Agreement (IA), PPA and FSA for IPP's to eliminate the need for protracted negotiations between GOB and sponsors. The PPA (when executed by government agencies) is guaranteed by the GOB for performance obligations of the concerned utilities. When the fuel is supplied by public sector, the performance of the fuel supplies is also guaranteed by the GOB under the terms of FSA. Of course, the security packages initiated by GOB are, in no way, sufficient to reduce all investment risks. But the key issue here is the *credibility* of such commitments – since investors require returns on investment commensurate with perceived risks.

4. Relevance of PA model in Bangladesh

In the content of GOB's policy objectives and technical and political constraints, this Purchasing Agency (PA) model may be an appropriate one for Bangladesh power sector. As competition for energy supply devolves to even lower levels, the system for maintaining consumption, and settling payment becomes increasingly complex and expensive which requires the higher level of technical and engineering sophistication, which is absent in Bangladesh power sector. In addition, GOB frequently uses the vertically-integrated utility to meet various social objectives. However, the greater degree of competition in the system will restrict GOB's effort

to use the energy system to achieve such social objectives. On the contrary, limited competition with higher degree of government intervention for social obligations creates some problems that hamper the whole privatization process.

4.1 Potential advantages

This power purchasing system characterizes the Purchasing Agency (PA) model, where the GOB or the Power Cell (as a regulatory body) orders a state-owned utility to purchase new power requirements by competitive bid from IPP's. PA could be an appropriate structure for Bangladesh, if properly implemented. First, the electricity system is not on a sound commercial footing. In the sequence of steps toward reform, it may reasonably choose to achieve tariff and supply agreements and to remove operational inefficiency. Such steps enable participants to get the accounting system in place before the introduction of complicated spot markets or open access. Second, problems of conflict of interest, self-dealing and market power would require more extensive breaking up of the existing vertically integrated companies. For example, the metering, billing and collection systems as well as the market clearing and settlement system – especially with retail competition – are extremely costly and may outweigh the benefits to be gained from greater levels of competition. Achieving a more competitive structure is, therefore, perceived as complicated and expensive, and absorbing much management time.[4] Third, faced with supply shortages and constraints on the capacity expansion, it is easier for GOB to invite an alternative source of capital into state-owned system without forcing the entrants to face market

[4] On the other hand, half-way steps in reform are often frozen into the market structure for extended periods. Competition in generation at least places the risk of bad forecasts and poor management directly on the shoulders of equity-owners rather than on the backs of poor citizens. Government "management" of competition is often a code

risk.[5] Such an approach may be more successful in inducing private investment in the Bangladesh power sector. GOB has been able to attract the private investment in the power sector:[6] 1930 MW, a substantial part of the proposed generation capacity addition of 3319 MW in the 5th Plan Year (1997-2002), is expected to be obtained through the private sector investment. (Appendix)

Fourth (and perhaps most importantly), in this system it is easier for GOB to accommodate social policy obligations. At present, GOB is discriminating among new plants in order to diversify indigenous fuel sources through the Power Cell, which is asking for bids for a particular type of fuel,[7] or plants in a particular location. It is also easier for GOB, in this system, to achieve other social policy objectives such as rural electrification and subsidies to producers.

Fifth, continual bidding for new plants might uncover lower cost resources, provided GOB does not limit bids to specific technology or fuel sources. However, this contradicts the above-mentioned fourth advantage.

Sixth, this system may create pressure on GOB to deal with existing tariff inadequacy. In this system, merely a contract does not guarantee payment unless there is a third party as a

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for continuing of the status quo.

[5] In any transactions/contracts involving risks, for efficient allocation, risks should be borne by those that can best reduce them, not those in the weakest negotiation position. Therefore, risk bearing by the GOB/Power Cell is meaningful in the sense that they can reduce the risks and allocate unavoidable risks appropriately and also that they will have a strong incentive to minimize risks.

[6] Bangladesh has signed an agreement with the U.S.-based company AES Transpower Private Ltd. for the 300 MW-450 MW Meghnaghat and 360 MW Haripur gas-based power plant on the basis of the PPA for twenty-two (22) years, scheduled to be completed in 2000. Another contract has been signed with the British company Midland Power for 100 MW Baghabani gas turbine. The U.S.-based Finnish multinational Wartsila NSD Inc. has set up a 110 MW barge-mounted power plant in Khulna which has been generating power since September '98. This plant is using furnace oil to generate power which the BPD is buying at 5.8 U.S. cents/KWH. (DS, June 9,August 15, 1998.)

[7] But GOB has to be very careful with respect to fuel diversification stratagem so that it does not require the IPP's to choose indigenous fuels or a specific generation technology, in some cases, with adverse effects on fuel diversity and efficiency.

guarantor or the tariff covers costs (at realized consumption levels). Hence, introducing IPP's as a solution to capital inadequacies of existing plant may fail because of the lack of a suitably credit worthy purchaser of the power. In this system, revenue adequacy for the IPP requires the customer to pay the distribution companies and distribution companies to pay the PA (if not the same) and the PA to pay the IPP's. (shown below) (Hunt and Shuttleworth, 1996) Flow of payment:

Since the tariffs are not set at an adequate level in Bangladesh, distribution companies (also the PA) may not be able to pay the IPP's properly. Hence, as a guarantor, GOB will have to pay a large amount of money every year as subsidy, as long as prices are not remunerative. This situation places direct pressure on GOB to remove tariff inadequacy. The Power Cell could be given independence to adjust tariffs to costs. However, for short term political gain, GOB may do the reverse, worsening the tariff inadequacies and hampering the long term privatization process in this sector. But in case of positive steps by GOB, procurement of new plant through competitive process under PPA may be a preparatory step that can mesh well with tariff reform and other requirements for commercialization.

4.2 Potential problems

One important features of this model is that it requires economic regulations. In this industry structure, there is competition among generators to supply a single buyer of output (who can then exercise monopsony power). But, regulation is needed to ensure that the remaining monopoly elements in the energy sector run do not abuse their power. Hence, private sector participation in Bangladesh power sector with little attention beforehand to structural and regulatory reforms may result in inadequate competition and higher than necessary costs. Therefore, independent regulation of this sector is very crucial to reap potential benefits (Berg. 1997). But the goal of independent regulation of the sector and professional management of the enterprises involves making trade-offs, since the government still seeks to maintain, in its hands, a range of interventionist tools. Inconsistent policy objectives can result in inappropriate and ineffective policies. Such inconsistencies may exacerbate the poor performance of this sector.

Another significant problem with this system is that the long-term contracts reduce the risk that competitive entry via a new technology will cause current generators to lose revenue. Although providing insurance to IPP's against market risk makes it easier to raise capital, insulation from these risks undermines the incentives to innovate (an important feature of more market-driven situations). Also, millions of dollars are at stake in each new IPP contract; opportunities for corruption are large and cannot be adequately counteracted by introducing more rules and regulations. In addition, this system requires separation of PA and transmission from the incumbent utility, creating a more level playing ground between incumbent and new entrants and consequently contributes to reducing the transaction costs involved in IPP projects. But these requirements are not fulfilled in Bangladesh electricity, where the greater part of the

purchased power and the entire transmission system are both owned by incumbent utility. At present, in the case of large shortages, this problem is addressed by having GOB as the guarantor of PPA; successful restructuring of the incumbent utility needs to address this problem. If associated issues are not resolved, potential benefits of introducing this system may not be reached by Bangladesh.

5. Power Sector Regulation

5.1 Industry Structure and Regulation

Although international experience in power sector privatization and structural reform suggests that efficiency depends more on the incentives explicitly developed by regulators than on the form of ownership, some view an independent regulatory body as unnecessary. If privatization is limited to IPP's making long-term power sales to state-owned utilities where the tariffs are in order, regulations need to be no more than a series of transaction-specific contracts between the government and IPP's. However, in Bangladesh, tariffs are not in order (ie. They do not provide revenues commensurate with costs). In addition, the potential for privatization is more comprehensive (involving distribution and transmission) so a regulatory body is very important. An independent agency is needed when it is impossible to prespecify the complete terms of regulation in one or more contracts. Some interpretive discretion is also needed because it is difficult to write legal clauses that adequately address all the uncertainties about future market conditions.

But the efficacy of reform and the ability to attract private investment is very much a function of uncertainties which are supposed to be reduced when there is a regulatory body that

is at least partially insulated from the politics of elections. However, inappropriate or uneven application of regulation either by the regulator or his political masters can raise the cost of capital to a large extent, allowing billions of dollars of uneconomic assets to be built unnecessarily. With undue financial pressures on suppliers, this situation ultimately results in deterioration of service quality and destruction of assets (through inadequate maintenance). Poor regulation associated with a politicized judicial system may increase the damaging effects further. But the appropriate application of regulations may allow GOB to achieve performance results that markets would produce were they are able to function efficiently.

For Bangladesh, which has just started privatizing its power sector, the main benefits of regulation may not come from partial elimination of the efficiency losses due to monopoly power, but from creating a system of private ownership that can reduce the economic losses produced by the capacity shortages and inefficient operations so common in incumbent utilities. To obtain this benefit, GOB has to create and sustain a regulatory body which is limited in scope, clear in operation, transparent, predictable and independent. It is a relevant to ask whether the Power Cell has the characteristics required to sustain privatization and promote strong sector performance.

5.2 Power Cell as a Regulatory Body

The Power Cell, as a regulatory body under Ministry of Energy and Mineral Resources, is given the mandate to promote private power development, recommend power sector reforms via restructuring, conduct tariff studies based on long run marginal cost (LRMC), and formulate a regulatory framework for the power sector. It is also given the authority to facilitate all stages of promotion, development, implementation, commissioning and operation of private power

generation projects and address the concerns of project sponsors. It is supposed to assist project sponsors in obtaining necessary consents and permits from GOB. The Power Cell, in many of its activities, is supposed to play both the roles of promoter and of dispute arbiter. This dual role could lead to internal conflicts.

The Power Cell, headed by a Joint Secretary of Energy and Mineral Resources, is yet to formulate a regulatory framework for this sector, which implies that the privatization is going on with an ad hoc regulatory framework (See, FFYP: pp. 328-345). On the one hand, such a situation is inappropriate for signing long-term contracts. It has created some problems already, since (despite power shortages) all private power projects have been delayed over a year and a few of them will be delayed further. On the other hand, Bangladesh has no proven track record of transparent and independent regulation for any of the sectors in the infrastructure industries. Also, she has neither stable politics nor an independent judiciary. Therefore, it is extremely important for GOB to establish such record, establishing Power Cell as a powerful and independent functional entity. However, the stated functions of the Power Cell exist on paper so far, not in practice. In most of the disputes between IPP's and BPDB or fuel suppliers that have arisen, the Prime Minister has taken the ultimate steps to achieve a solution, showing that Power Cell has very little autonomy or real authority and is acting only as an arm of the Energy Ministry. At this initial stage, such steps taken by the Prime Minister or Energy Minister may be reasonable, but this cannot be the permanent way.

Although the Power Cell need not be given complete authority over all policy decisions that affect the power sector, there ought to be independence in the way it implements policy. What we really mean by an independent regulatory body is that the government agency does not

have to get approval from the Prime Minister or other high-level political authority to raise or lower tariffs (Tenenbaum, 1996). This degree of independence is not likely in Bangladesh at this initial stage of privatizatio--for social and political reasons. Tariffs, for example, are set by a cabinet committee on purchase, but setting the tariffs at proper legal covering the LRMC is one of the most important functions of Power Cell.

However, the financial risk premium attached to current projects will reflect the politicization of the conflict-resolution process. Private investors that enter into a poorly defined and regulated energy sector often require supernormal returns to cover the additional risks they perceive. Furthermore, lenders may demand very short amortization periods. To reduce these risks, government needs to provide contractual obligations that commit the government to ensuring a long-term revenue stream. This is exactly what being done in the Bangladesh power sector through PPA and FSA. From a policy perspective, such long term contractual obligations, especially overly-generous ones, are an inadequate substitute for a proper regulatory structure. Guarantees also tend to reduce the government's ability to introduce real efficiency into the sector. Therefore, there is no alternative to creating a transparent, non-politicized and functional regulatory agency to promote improved energy sector performance.

At present, the first task of the regulatory body is to bring tariffs up to costs and to convince people that the tariff increases reflect the true costs previously suppressed or subsidized by the government. The best way to do this is to make the regulatory process as transparent as possible, which reduces the potential for corruption[8] and also improves government credibility. It

[8] Ambiguity in the negotiated contract has already raised the question of fairness and violation of the international competitive bidding rules, risking the image of the country. A total of five international companies responded to government invitation in June 1997 for setting up one 300-450 MW power plant. Of the five, the U.S.-based

is also essential that the regulatory body brings the regulation of public and private power supply under one roof, as long as the electric utility sector is not completely privatized. Therefore, a permanent, transparent and powerful regulatory body is needed. Related debate will be intensified in the future, when transmission is separated from generation. Hence, charges for access to and use of the transmission system will need to be regulated to ensure efficient generation in the short run and efficient choice of plant type and location in the long run. Without a credible and experienced regulatory body, the possibility of government mismanagement and political micromanagement is increased.

6. Structural reform

One of the most common features of long-term contractual arrangements for IPP's is that they do not create significant competitive pressure on existing state-owned utility. Thus, these arrangements do not improve the efficiency of the public sector, though they increase supply capacity. Undoubtedly, expansion is very valuable in a system facing public financing constraints, but other efficiencies ought not be sacrificed. For this reason, government needs to design other efficiency-enhancing mechanisms for existing plants. In addition, privatization

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company AES eventually emerged as the lowest bidder and, in its technical proposal, it also responded positively to the condition imposed by GOB to use the gas turbines, the main equipment of a gas-based power plant, made by the German company ABB, or "equal" quality equipment. This word, "equal", originated the ambiguity in the contract because, according to PDB experts, there is still no "equal" to the ABB gas turbine in the world. Later, the AES company requested reconsideration of the condition relating to the manufacturing company of the gas turbine, arguing that the GOB, according to the RFP, is to purchase *power*, not any specific *machinery*. This argument secured the support of the State Minister and Secretary of the concerned ministry. The question is, why GOB included this specific condition regarding plant equipment in RFP but is arguing to expunge this from the contract later.

If there was no such specific conditions at the time of RFP or bidding, the bidding prices could be lower. Meanwhile, Marubeni corporation, the second lowest bidder, wrote to the Prime Minister on June 4, 1998, alleging that the GOB has violated International Competitive Bidding (ICB) rules/RFP conditions by relaxing the conditionalities for AES company. The Marubeni also said that it was ready to offer tariff equal to or even lower

along with restructuring, is very important in order to avoid some potential problems, such as preferential treatment of state-owned companies over IPP's and new entrants. Therefore, restructuring is also very important to improve overall utility performance. The same conclusion was reached by an inter-ministerial Working Group, constituted on the third of February 1993, to review the necessity and feasibility of private investment (along with the public sector) in the power sector. According to that group, mere private investment in generation is not the solution for the present problem. Given the magnitude of the inefficiencies and large capital requirements in the power sector, the Working Group concluded that there was a great need to undertake basic reforms to address fundamental problems in the sector (See, FFYP pp.328-345).

6.1 Policy Objectives

The basic theme of reform is to separate transmission, distribution and generation, and to privatize all of them through corporatization, in order to achieve commercial characteristics of efficiency, expand the power sector, increase the operational efficiency of the public sector (as long as not privatized), improve quality of reliability, and attract private investment. Obviously, there are two overriding objectives for the energy sector – efficient operation and expansion of electricity, and reliable supply at compensatory, yet affordable, tariffs. These are to be realized through the introduction of remarkable sector changes. These changes essentially include a complete revision of the role of the state, the regulation of the sector by an independent authority, and increased private sector participation. But the most important design element may be recasting of the role of the GOB to become a policy maker, with some reservations or social

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than the rate offered by AES, if allowed to apply the same conditions adopted by AES. (DS July 7,1998.)

obligations, and to abandon its conflicting roles of owner, operator and regulator that have so far impaired sector efficiency and effectiveness and caused the chronic electricity shortages.

6.2 Recommended reform

Options for reform focus in the following areas:

(i) *Restructuring of DESA* as a corporatised entity endowed with appropriate management and financial autonomy and commercial independence. Dhaka Electric Supply Company (DESC), a new distribution company, has been set up under DESA. DESC will own and operate assets for the distribution network initially at Mirpur and, in the course of time, all the distribution asses of DESA will be transferred to DESC.

(ii) *Restructuring of BPDB* along functional lines. In the first phase, the functions of generation and transmission should be separated from distribution. Two separate corporatised entities (public limited company) would be created: one for carrying out generation and transmission and the other for distribution should be established according to this proposal. In the long run, generation and transmission functions also should be separated.

(iii) *Formulation of Regulatory Framework* and change of existing laws in order to set tariffs in order and remove distortions of tariff through various subsidies. For transparency, any subsidy for meeting social policy obligations is recommended to be done by direct government funds – targeting customer groups.

(iv)In order to attract private sector participation, actions on the following fronts are recommended:

a.*generation*: specific power generation projects identified at the national level will be offered for private investment on the basis of BOO or BOT through

competitive process.

b.*distribution*: the government will invite private parties to participate in the distribution of power sector on an experimental basis when cooperative societies of the utility sector employees are given special emphasis, which may lower the trade union pressure against privatization.

c.*contracting of services*: the government will consider contracting out some functions currently performed by BPDB and DESA, particularly meter reading, billing, and collections.

d.*wheeling arrangements*: the power generated by private generators may be supplied to the grid system of the generation and transmission company as per well-specified rules. The private/public generators may also sell the produced power directly to large consumers through the transmission and distribution facilities if transmission facilities are adequate and the commercial terms and conditions of such wheeling arrangements are acceptable to all concerned. Already, Power Grid Company of Bangladesh (PGCB), a subsidiary company under BPDB has been set up, to which all transmission assets of BPDB will be transferred in the course of time.

Some of the steps regarding recommended options are already initiated/implemented in current privatization and reform programs.

6.3 Sequencing Reform Process

In the reform process, GOB overlooked the necessary relationship between privatization and reform process where privatization itself is a part of the sequence of the reform process. In

this process, choice of industry structure with respect to an internally consistent and comprehensive set of policy objectives and technical and political constraints comes first, and then the chosen structure determines the requirements for regulation and trading arrangements whereas privatization comes last. Even though the stated sequence is not definitive, experiences of successful energy sector reform elsewhere strongly support this chronological order. However, this sequence is not maintained in the reform process of Bangladesh power sector. Bangladesh could be able to reap benefits of restructuring more successfully if the time sequence for privatization and restructuring is maintained properly. In Bangladesh, the opening up of generation to private investors occurred first because of the severe power crises, whereas regulatory restructuring of state-owned utilities has a low political priority. But by restructuring the electricity sector and engaging in regulatory reform first, Bangladesh might remove inefficiencies from the existing utilities and meet current energy demands with lower generation capacity. This strategy would reduce costly investment in generation. Also, it could make the bidding procedure more competitive through inducing more IPP's as bidders, consequently lowering the bidding price.

6.4 Regional Initiatives

There is another important issue for reliable and economic energy supply. Future power trade via regional initiatives is ignored in the recommended reform program. SAARC (South Asian Association for Regional Cooperation) is proceeding toward SAFTA (South Asia Free Trade Area) from SAPTA (South Asia Preferential Trading Agreement), SAARC could be extended to energy cooperation through SAARC power grid for energy support.

Transfers of electricity between utility and neighboring regions is not a new idea.

Exchanges based of differences in natural production costs between regions are economically efficient. GOB can balance the load fluctuations by exchanges with India or Nepal, because they may have different load fluctuations. GOB can reduce the overall reserve margins needed by diversifying the potential sources of supply outside the border with such exchanges. Surplus capacity in a neighboring region can result not only from simple differences in load timing, but also from differences in climate, economic structure and so on. In fact, energy trade can play a very important role to ensure reliable supply at a reasonable cost. Already, India and Nepal, which has a large hydro-potential, signed a financial agreement to build a $5 billion, 6000 MW power plant. India has already proposed Bangladesh for one 1000 MW power plant. Therefore, it is the right time for Bangladesh to go ahead with energy cooperation policy.

7. Concluding Remarks

The Purchasing Agent model is the choice of industry structure for private sector participation in Bangladesh energy sector. The approach, if properly implemented, appears to be the appropriate one with respect to government's policy objectives. But rushing toward private sector participation first, without regulatory and structural reform of the energy sector, may hamper the privatization process significantly. Bangladesh is trying to promote power sector privatization and eliminate inefficiencies from state-owned utilities with an extremely ad hoc regulatory system, which not only generates very large inefficiencies but also lacks the assurance of fair play that private investors eventually require. As a consequence, rate-payers/taxpayers are bearing most of the risks through governmental guarantees for private investment. However,

efficiency does not depend only on the form of ownership, but also on the form of regulation and the incentives established by the regulatory body. The perceived net present value of an existing plant depends on the discount rate used to value future net cash flows. Uncertainty about future regulatory rules increases risk, raising the price of capital-intensive electricity. It is tempting to put off tough political decisions involving subsidy reductions, industry restructuring, bureaucracy bottlenecks, independent regulatory creation, and regional initiatives. However, if not now...when?

Appendix

Table 2(a) Power Development During 1972-96

Items	**1972**	**1973**	**1975**	**1980**	**1985**	**1990**	**1995**	**1996**
Installed Capacity (MW)	550	608	752	822	1141	2352	2908	2908
Effective Generation (MW)	469	455	557	625	1018	1834	2133	2105
Maximum Demand (MW)	183	222	396	462	887	1509	1970	2087
Per Capita Generation (KwH)	-	15.6	22.9	27	46	70	92	95

Source: FFYP, p.328

Table 2(b) Projected Demand and Generation for Power During Fifth Plan

Year	Maximum Demand (MW)	Generation Capacity (MW)	Firm Capacity (MW)	Reserve Margin (MW)	Reserve Margin (% of Maximum Demand)
1997/1998	2806	2813	2352	7	-
1998/1999	3109	3464	2983	355	11.42
1999/2000	3447	4342	3681	895	25.96
2000/2001	3736	5156	4196	1420	38.00
2001/2002	4051	5739	4779	1688	41.67

Source: FFYP, p.342

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