Thailand

Why Liberalization May Stall in a Mature Power Market:

A Review of the Technical and Political Economy Factors that Constrained the Electricity Sector Reform in Thailand 1998-2002

October 2003

Joint UNDP/World Bank Energy Sector Management Assistance Programme (ESMAP)

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Abbreviations and Acronyms

AAA	Analytical and Advisory Services of the World Bank
ASEAN	Association of South East Asian Nations
CC	Combined Cycle
DSM	Demand-Side Management
EGAT	Electricity Generating Authority of Thailand
EGCO	Electricity Generating Public Company
EPPO	Energy Policy and Planning Office
ERC	Expert Review Committee
ESI	Electrical Supply Industry
ESMAP	Joint UNDP/World Bank Energy Sector Management Assistance Programme
ICR	Implementation Completion Report
IFC	International Finance Corporation
IFI	International Financial Institution
IPP	Independent Power Producer
ISO	Independent System Operator
MEA	Metropolitan Electricity Authority
MOE	Ministry of Energy
MOF	Ministry of Finance
NEPO	National Energy Policy Office
NESA	New Electricity Supply Arrangement
PEA	Provincial Electricity Authority
PPAs	Power Purchase Agreements
PSD	Private Sector Development
PTT	Petroleum Authority of Thailand
ROR	Rate of Return
SET	Stock Exchange of Thailand
SOE	State Owned Enterprise

Units of Measure

KWh	Kilowatt Hours
MW	Megawatts

Preface

This review is based on information collected from representatives of government and state-owned energy enterprises during a mission to Bangkok in January 2003, interviews of Bank staff, and lessons from recent literature. It includes an evaluation of ESMAP performance that is intended to be an Implementation Completion Report (ICR) covering ESMAP assistance for power sector reform in Thailand in 1999-2000 in the form of a panel of international experts who commented on the Thailand Power Pool and Electricity Supply Industry (ESI) Reform Study (the Study) developed by a consortium of consultants. This document was first reviewed by a panel of World Bank experts and then circulated to the government and state-owned energy enterprises for their review. The comments of all reviewers have been incorporated in the text. The review was conducted by Yves Albouy and Kazim Saeed. The principal author was Yves Albouy. Editing was done by The Grammarians, Inc. and desktopping by Mr. Sumit Kayastha. Marjorie K. Araya from ESMAP supervised the production, printing, distribution and dissemination of this report.

This document is divided into six sections. Section 1 presents background on the Thai electricity sector. Section 2 evaluates the reform program: its relevance and how it failed to meet most of its milestones, including those addressed by the Study. Section 3 correlates actual reform measures with the sector's performance in 1998-2002, and Section 4 examines various explanatory models linking the fate of the reform with country factors. Section 5 then turns to the evaluation of the Study output and ESMAP advice for additional explanations. In closing, Section 6 sounds a cautionary note for the future of the ESI liberalization in Thailand and presents the main lessons applicable to several similar cases.

Executive Summary

1. In the aftermath of the Asian financial crisis, Thailand set out to define an accelerated plan for deep structural reform of its electricity sector. The reform plan, developed by a consortium of international consultants for the government in 1999-2000, proposed unbundling of the sector leading to the establishment of a power pool for spot trading. An Energy Act—with this "Pool Model" as its centerpiece—was approved by the Thai Cabinet on October 25, 2000. By spring 2003, however, the Energy Act had not been presented to Parliament. The Pool Model had been rejected, and the reform blueprints under active consideration did not involve the Pool Model. What technical and political economy factors led to this reversal?

2. This review argues that, following the 1997 crisis, the proposed reform plan was helped by some particularly conducive country factors: a tough but not paralyzing challenge, a quick return to macroeconomic stability, and an influential reform champion. But many sector factors worked against the plan. Among these were the sector's acceptable level of efficiency and consistent resistance by incumbent state-owned utilities (the latter of which feeds on legitimate concerns but also special interests) and a biased reading of the international experience. The political economy was also not quite ripe. Although market liberalization was politically feasible, its political desirability was weak because it was not clear that market liberalization would markedly reduce electricity prices for consumers. The desirability grew weaker with news of reform experiences abroad (particularly in California and the UK) and with a fading sense of crisis as Thailand recovered from the 1997 shock. A full liberalization promised efficiency gains that were too small and elusive to justify its cost and risks. Overall, full liberalization was not needed to solve the issues that remain the key concerns of policymakers: the fiscal and financial performance of the Thai electricity sector.

3. Two key lessons emerge visibly from the Thai experience. The first has to do with the reform strategy for cases like Thailand (for example, Mexico, South Africa, Eastern China, and a few countries in Central Europe), where the expected benefits lie less with improving economic efficiency than fiscal and financial performance, and therefore the "standard" reform model, while technically feasible, is not blatantly attractive. In these cases, a new challenge and effective champions may not be enough to get the political green light and see deep reforms through. The specifics of the cases require particular attention to three areas:

(i) Sequencing: the creation of a power pool will not bring early wins; it is better to start with price reforms and divestment of distribution into several DisCos while announcing the plans for future liberalization and limiting IPP's with rigid PPAs.

(ii) Adaptation: Make all the amends to the "Anglo-Saxon" market model that are technically safe, but minimize the risks and cost of market failures in a developing country context.

(iii) Selling the reform: Make all the clarifications needed to improve the perceptions of benefits and costs, especially on the measures to mitigate social impact. This challenge, while easy to solve in these countries, is no less important than anywhere else.

4. The second lesson has to do with the interaction between the political economy and the technical design of the reform. The technical specifications of market liberalization, indeed the whole reform roadmap needs to accommodate the country's political economy. Not paying attention to this at the outset may give reform a bad start that dooms subsequent efforts. Conversely, as exemplified by the problems of California, negotiations to arrive at a politically desirable and feasible roadmap must be subjected to a technical scrutiny to ensure that the final reform plan is sound.

5. The Energy Sector Management Assistance Programme (ESMAP) of the World Bank assisted the reform process by supporting a panel of international experts who commented on the reform plan proposed by the consortium of consultants. This review also includes an evaluation of ESMAP performance that concludes that the consultants' study (commissioned by the government) and the expert advice (supported by ESMAP) were of satisfactory quality and efficiency. However, because of their narrow terms of reference, neither adequately addressed the concerns of the skeptics or could help develop a technically adequate model that was sufficiently responsive to the country's key policy goals and political realities.

1

Electricity Sector Challenges in Thailand

Macroeconomic context

1.1 In the three decades before the mid-1990s, the Thai economy grew at more than 7 percent annually and GDP per capita more than tripled. That attracted large inflows of offshore private capital. But financial sector governance was weak, with investment productivity falling and economic competitiveness declining steadily. Then came the jolt of the financial crisis in July 1997. The recovery program stabilized the currency at a lower value, but many impacts remain: a banking crisis, some corporate and social distress, and sluggish exports. The external environment—for example, the weakness of the Yen and the Japanese economy? is not helping. External financing requirements and fiscal deficits continue to be high. The recovery program has received substantial donor assistance. As a part of the effort to improve governance and remove bottlenecks, the government gave higher priority to public sector reform and private sector development (PSD), broadly defined here to include not just regulatory and market reforms and private sector involvement but also, when needed, price reform, commercialization, and corporatization.

Energy sector structure in 1997

1.2 The National Energy Policy Office (NEPO) under the Prime Minister conducted all energy policy work and was the de facto regulator. The organization of each sub-sector in 1997 can be summarized as follows:

- *Petroleum and gas.* Upstream activities were carried out by private companies, but the state-owned Petroleum Authority (PTT) is the dominant entity downstream: one-third of the market in the distribution and marketing of petroleum products and all the parts of the natural gas value chain downstream, including transport.

- *Electricity.* The Electric Supply Industry (ESI) consisted mainly of the state-owned Electricity Generating Authority of Thailand (EGAT) for generation and transmission, the Metropolitan Electricity Authority (MEA) for distribution in three provinces (Bangkok, Nonthaburi, and Samutprakan) and the Provincial Electricity

Authority (PEA) for distribution in the rest of the country, respectively. Co-generators and small producers, 20 of them, were selling power to EGAT. There was no large Independent Power Producer (IPP) operating, but a 1994 request for 5,000 megawatts (MW) by 2002 had elicited 50 proposals. Also, EGAT had established the Electricity Generating Public Company (EGCO) as a subsidiary and privatized two plants that became subsidiaries of EGCO: Rayong (1,232 MW) in 1994 and Khanom (824 MW) in 1995.

- *Coal and lignite.* The main outlet for coal is electricity generation, followed by industry; household use is negligible. Operations are separate from generation except for lignite mines that remain under EGAT control.

ESI challenges and reform programs

1.3 Thailand has a mature ESI that effectively taps indigenous fuel sources: hydro, lignite, and gas. Its expansion now depends on imports, more hydro from neighboring countries, offshore gas and coal, and clean coal technologies. Supply and demand efficiency, while notoriously good, could be improved. Capital requirements exceed US$1 billion per year but by 1997, profitability and supply reliability had eroded.[1]

1.4 Under the 7th Plan (1992-1996), a cabinet resolution provided targets for PSD: (i) reduce the investment and debt burden on government; (ii) promote private IPPs; (iii) encourage utilities to operate as commercial organizations with increased efficiency and flexibility; and (iv) use energy efficiently. In 1996, the Cabinet approved an interim ESI structure: EGAT would be unbundled into its hydro plants and three thermal GenCos selling power to a business unit comprising the transmission system. Later, the GenCos would be corporatized and privatized.

World Bank Group assistance in electricity

1.5 Bank projects supported PSD mostly through studies, but investments continued to support the state-owned enterprises (SOEs). There was no International Finance Corporation (IFC) support and no guarantee or any other help directly to IPPs. But, in 1998, after the crisis, the International Bank for Reconstruction and Development guaranteed EGAT's US$300 million bond issue to help it secure good terms in the immediate aftermath of the 1997 financial crisis.

1.6 A lot of analytical and advisory work (AAA) went into donors program design. Self-standing AAA included studies on the ESI restructuring and privatization and rationalizing bulk supply tariffs. AAA branched out later into regulation, more

[1] For example, for MEA the rate of return on fixed operating assets fell from 15.2 percent in 1991 to 4.2 percent in 1997, for EGAT from 11.3 percent in 1990 to 5.7 percent in 1993 and 3.8 percent in 1997. For PEA, it exceeded 11 percent until 1995 but fell to 1.74 percent in 1997.

unbundling, and competitive market design. The last was the focus of the Study (commissioned by the National Energy Policy Office) referred to in this review. ESMAP funded an Expert Review Committee (ERC) to supervise the Study and evaluate its recommendations (Box1).

Box 1-Power Pool and Electric Supply Industry Reform Study

The Study was commissioned by the National Energy Policy Office (NEPO). While a considerable amount of work had been done on reforms toward a liberalized and competitive power sector, there was, according to the terms of reference an urgent need to bring the results together into a comprehensive and coherent model and to give NEPO the ability to assign realistic and acceptable timelines and strategically manage the reform process. The Study consisted of five components dealing respectively with:

1. market and industry structure
2. generation and transmission
3. separation and reform of distribution and supply
4. energy conservation, efficiency, and diversity in the post reform environment
5. public awareness.

The study, carried out by an international consortium of consultants, started in May 1999. It produced discussion papers a few months later and was completed in March 2000.

2

Progress of Reform Program

2.1 The program met its objectives of attracting IPPs and encouraging utilities to operate more efficiently. IPPs have almost substituted EGAT in generation investment. Commercialization has made strides, and bulk pricing to PEA and MEA was rationalized in 2000. Nevertheless, reform has not advanced on other fronts.

The Reform Program

2.2 The goals of PSD are usually three: (i) fiscal and financial responsibility, (ii) efficiency gains including in energy access, and (iii) improvement in governance. A difficult strategic issue is: what to do and in what sequence. In Thailand, successive governments held the ESI financial and fiscal performance as the paramount objective. They deemed that little price reform was still needed. They pressed on with commercialization and then adopted successive action plans that amount to the following program steps:[2]

(i) Attracting private IPPs
(ii) Creating a competitive bulk power market and privatizing generation
(iii) Allowing multiple buyers of bulk power
(iv) Restructuring and privatizing distribution
(v) Allowing competition in retail supply.

2.3 The strategy heeds most of the lessons of experience,[3] and at first sight it fits the objectives. However, it was not best practice on a few points. First, omitting price

[2] In 1998, the CAS and Investment Program Support operation of the World Bank Group also stressed the financial objective. The assistance program, including the Study, also accepted the government strategy.

[3] It is generally agreed that leasing, concessions, or limiting private ownership to green field projects are only second best and that divestiture is often needed to address most of the shortcomings of state-owned enterprises. Many countries took that step before others and, indeed, it is in general efficient to privatize and let the investors do the "assets grooming" and become a constituency for other reforms. This method works better, however, with competitive manufacturing and services sectors than with vertically integrated monopolies. Successful experiences in energy (for example, in Latin America) privatized only after substantial restructuring and, often, commercialization and regulatory and pricing reforms. In Chile, tariffs were realigned to reflect costs even in rural areas. This is the most feasible sequence technically and politically: Sound management of pricing and assets and public ownership of those assets make unbundling easier and enhance private interest and the proceeds of divestiture; also, labor often has to be streamlined under public sector statutes before assets are placed on the auction block.

reform creates problems in step 4 when cross-subsidies must be dealt with for a large segment of the market. Second, in the case of Thailand, step 4 was the next to take as the quickest and easiest way to fiscal relief and efficiency gains. Step 1 was also a way to attract private finance, but then steps 2 and 3 had to follow quickly before too many long-term power purchase agreements (PPAs) are signed to complicate liberalization. Also, step 5 is highly ambitious and seldom attempted in developing countries.

Program Efficacy

2.4 The program somehow met its early objectives of reducing the electricity sector's direct financial burden, attracting IPPs and encouraging utilities to operate more efficiently. IPPs have almost substituted EGAT in generation investment. Commercialization has made strides, and bulk pricing to PEA and MEA was rationalized in 2000. Nevertheless, it has not advanced toward other milestones, not even step 2 decided in 1996 (competitive bulk market with single buyer), let alone the privatization of generation and steps 3 through 5 contemplated in 1998.

2.5 **Commercialization.** The government created a label of "Excellent State Enterprise" giving utilities leeway in staffing and compensation if performance hurdles are met.[4] EGAT earned that label in 1995, PEA in 1997, and MEA is still working toward it. The government has not provided investment grants for a long time but it continues to guarantee loans made to the ESI, thus allowing them access to concessional funding by the international financial institutions (IFIs) and on the local capital market. MEA still cross-subsidizes PEA.

2.6 **Corporatization.** Preparatory steps were taken for the day (in 2003-2004) when EGAT, MEA, and PEA would be transformed from centrally controlled entities into holding companies with decentralized subsidiaries. Profits would then be taxed at the standard rate of 30 percent, which would be less onerous than the system of remittances (typically 35%-40%) to the Ministry of Finance applied in recent years.

2.7 Non-core functions like security and cleaning are now outsourced. Some studies and construction and maintenance will be spun off in affiliates or separate enterprises by 2004. Deeper changes in the ESI structure—mainly splitting generation in EGAT and unbundling transmission and distribution—were planned by the Study along the lines of international good practice. These are under review, but in the interim, significant steps in that direction are now being taken. Already completed among them is the establishment of six business units (that is, profit centers) and five operating units (that is, cost centers) in EGAT with transparent transfer prices for transactions among

[4] The required "hurdles" are: (i) ROR on revalued assets exceeding 6 percent; (ii) labor cost below 20 percent of total costs; and (iii) annual productivity increases of at least 2 percent.

them. In MEA and PEA, network and retail functions are being separated into separate accounting units.

2.8 **Pricing.** The Study recommends that MEA's and PEA's purchase prices reflect EGAT's supply cost. A study completed in 2000 also made recommendations to rationalize tariffs at bulk and retail levels.[5] That year, the cross-price subsidy from MEA to PEA was replaced by a lump sum payment of some 9 billion Baht from MEA to PEA. Retail tariffs were rebalanced to reduce slightly the subsidization of small users by large ones.

2.9 Competition. The coal and petroleum markets are liberalized. Antitrust legislation exists and is enforced. But it does not deal with gas and power markets and its role is purely "defensive." It is for NEPO (and now Energy Policy and Planning Office [EPPO]) to promote and safeguard competition in those markets. From the start, international competitive (auction) bidding has been the rule for awarding slices of the capacity market to IPPs, after which they face no fuel or market risk. Generators do not compete for sales, and no retailer or consumer big or small can choose suppliers. Recommendations for full liberalization of the wholesale and retail markets were made by the Study. These, referred to as the "pool model," were tabled by NEPO with three important variations but later discarded. Two counterproposals were made that are still under review: the New Electricity Supply Arrangement (NESA) and Partial Liberalization (Box 2).

[5] Review of Electric Power Tariffs, conducted by PricewaterhouseCoopers (PwC) and Merz & McLellan for the National Energy Policy Office (NEPO). Final report released by NEPO in February 2001. (http://www.eppo.go.th/power/pwc-tariff-E.html)

Box 2-Competing Competition Models

Pool Model. The Study recommended splitting EGAT into several GenCos, a power pool for spot trading with an Independent System Operator (ISO) cum Market Operator, and a Settlement Administrator that might be contracted out under the management of market participants. Retail supply and wire businesses are combined in regulated companies to service consumers that are not allowed or willing to use unregulated RetailCos. One or several GridCos own and operate the transmission grid under a contract to the ISO. The ISO may call for additional capacity investment when needed. There should be no affiliation among ISO, GridCos, and generating companies (GenCos or IPPs). Traders are allowed to deal with unregulated entities. All retailers pass the cost of supply to consumers. Consumers may hedge their supply prices with unregulated retailers, and all retailers hedge theirs with the GenCos. In the proposal tabled by NEPO, there are only two thermal GenCos and two regulated DisCos and these are not allowed to enter into contracts.

NESA. A New Electricity Supply Arrangement has been propounded by the recently established EPPO. It contemplates some competition by: (i) splitting up EGAT into three GenCos; (ii) creating an ISO and a GridCo; (iii) creating an Independent Regulator; (iv) separating "network" and "retail" functions within MEA and PEA; (v) allowing private retail companies; and (vi) trading through bilateral contracts between any one of the existing or future GenCos, IPPs, small producers on the one hand, and MEA, PEA and eligible direct customers, on the other.

Partial Liberalization. With the stated objectives of ensuring security and sufficiency of supply and assuming an active role in spearheading ASEAN grid integration, EGAT proposed a model whereby (i) up to 30 percent of total demand could be allowed to operate in a "free market" under a Power Exchange (large industrial consumers could contract from EGAT, existing and future GenCos, MEA, and PEA); (ii) EGAT would keep the generation function, its present PPAs with GenCos, and its ability to contract new PPAs with future GenCos; (iii) EGAT would maintain the transmission and system control functions; (iv) MEA and PEA could buy power only from EGAT; and (v) residential, commercial, and small industrial consumers would purchase power from MEA and PEA.

2.10 **Privatization.** Private investment went mostly to green field generation projects. In 1994, Thailand launched the world largest competitive IPP solicitation. Four deals for gas-fired plants totaling 2,363 MW had reached financial closure and commissioning by March 2003. Three other deals of coal-fired plants totaling 5,943 MW were awarded for commissioning in 2005-08. With the 1997 crisis and slower than expected growth, the IPP program has faced and continues to face many issues[6] translating into time (and probably cost) overruns and possibly the cancellation of nearly closed deals.

2.11 In 1998, EGAT's share in EGCO was cut to 25.1 percent and the balance listed on the stock exchange of Thailand (SET). The Ratchaburi Combined Cycles Blocks 1,2,3 were corporatized as a wholly owned subsidiary of EGAT and later 55 percent of it was divested. Since then, it is the policy that this model will be followed for any new

[6] Only two of these had reached financial closure by the 1997 crisis. They renegotiated their PPAs on the premise that the devaluation of the Baht was a "change of law." The others have struggled to close since 1997. Two coal-fired projects near the start of construction (at Bo Nuk and Hin Krut, sponsored by Gulf Power and Union Power, respectively) have been battling local opposition.

thermal plant that is unsuitable for an IPP. More far-reaching divestitures are planned for 2004 (Box 3). Still, these plans are conservative in many ways: (i) SET listings, not auctions for strategic investors, (ii) a large controlling stake kept by the government; and (iii) no splitting or re-clustering of assets in EGAT, PEA, or MEA before the divestiture.

2.12 **Regulation and policy.** In October 2002, the NEPO was abolished and a Ministry of Energy (MOE) created (Box 3) taking over the policy and regulatory functions. It will also likely guide the preparation of international agreements for the development of hydro and gas resources in neighboring countries that is now actively pursued.

Box 3-Status of Reform Plans in January 2003

Ministry of Energy: A new Ministry of Energy was established on October 1, 2002, under Act B. E. 2545 on Organization of Ministries, Sub-Ministries and Departments. The MOE comprises five departments: Office of the Minister, Office of the Permanent Secretary, Department of Petroleum Resources, Department of Energy Business, Department of Renewable Energy and Energy Conservation, and the Energy Policy and Planning Office that replaces the erstwhile NEPO.

Energy Act: The Energy Act approved in FY00 by the Parliament under the previous government was crafted on the basis of a NEPO-proposed model that introduced a fully competitive market operating as a power pool by FY04. In August 2002, at the behest of EGAT, the government agreed to review the reforms and instructed the Council of State to hold clearance of the Energy Act.

Privatization: The listing on the SET for shares in EGAT, MEA, and PEA as whole companies is planned for 2004: EGAT (Q1), MEA (Q2), and PEA (Q4). This divestiture does not preclude a further breakup to unbundled services since the government will retain majority holding.

Market structure: Following unanimous decision by EGAT, MEA, PEA, and the government to move away from the Pool Model, the MOE instructed concerned parties (EPPO, State Enterprise Policy Office under the Ministry of Finance, EGAT, MEA, and PEA) to finalize a new model. The NESA is not acceptable to EGAT, but it is to MEA and PEA with the proviso that unbundling network and retail functions would be through a separation of accounting systems and not through creation of separate legal entities. The Partial Liberalization is not acceptable to MEA and PEA. To resolve the current impasse, the government favors a wider debate. Following a decision, the Energy Act would be revised to usher in the new ESI structure.

The setup of an arms-length regulation was studied in detail.[7] The recommendations draw on best practice. The "basic engineering" is adapted to country institutions. It gives a broad mandate anchored in legislation and relies on a mix of procedural and substantive rules, for example, use of price caps that secondary legislation will make precise enough to limit the regulator's discretion. In spite of an IBRD loan condition, implementation did

[7] Principles were agreed by the Cabinet in 1996: (i) Regulatory functions will be taken out of NEPO and vested in a separate body; (ii) the tariff will be set to ensure healthy self-financing ratios. Later, other principles were asserted: (i) A single regulator for gas and power is accountable to a minister; (ii) rulings are made by a five-member commission appointed for three to five years; (ii) the commission rules on pricing, investments, competition policy, and quality of service, and will issue licenses; and (iv) the regulator will be mandated by primary legislation and its rules established by secondary legislation.

not proceed; it is hostage to the other ESI reforms contained in the Energy Act that is still to be redrafted and submitted to legislators.

3

Sector Performance: Did the Program Have any Impact?

3.1 Improvements in sector performance are notable on all fronts. Public sector investments and the rebound from the 1997 crisis explain most of them. Commercialization was also a factor in labor productivity gains and PEA's and MEA's financial recovery. To date, neither commercialization nor the IPPs have made a social or environmental impact.

Economic and Financial Impact

3.2 **Efficiency gains.** PSD generally fosters spectacular efficiency gains in the medium run. The commercialization drive under the aegis of the Ministry of Finance (MOF) largely explains the improvements registered in 1990-1997. They have continued since then, but gains in labor productivity slowed down from their spectacular pace of the early 90s.[8] For PEA and MEA, the explanation is in major part the dip in sales that followed the crisis; for EGAT, the same reason except that one could have expected a boost in the sales per employee after 2000 when purchases from IPPs and labor-shedding measures kicked in. Capital productivity slumped for generation: The cost of capital increased with the terms required by the IPPs and the reserve margin now far exceeds reasonable levels (30.8 percent in 2001 versus an insufficient 8.4 percent in 1997). This is because in spite of short lead times allowed by the technology of gas-fired Combined Cycles (CCs), the long gestation of IPP contracts makes expansion inflexible. Service

[8] **Technical losses:** EGAT fuel consumption per kWh fell from 9.78 MJ in 1997 to 9.348 MJ in 2001; the reduction in generation-and-transmission technical losses (9.35 percent of generation in 1992 versus 5.58 percent in 2001) accelerated since 1997. PEA losses dropped 22 percent (1.3 percent per year), from 7.4 percent in 1990 to 5.78 percent in 2001 at a slower pace since 1997. MEA losses fluctuated between 4 percent and 5 percent in 1990-2002, but the trend is clearly down by 12.7 percent in 13 years, with some reversals and a slower pace since 1997.
Sales per employee: In 1990-2001, EGAT nearly tripled its labor productivity with sales per employee, growing from 1.19 GWh/employee in 1990 to 3.41 GWh/employee in 2001 (the pace after 1997 is half the 10 percent per year registered in 1990-1995). For PEA, sales grew 88 percent (13.5 percent per year) to 1.22 GWh, also at a slower pace after 2001. For MEA, sales per employee grew 61 percent (10 percent per year) to 2.21 GWh in 1990-1995, but only by 22 percent (5.3 percent per year) during 1997-2001, ending at 3.07 GWh.
Number of customers per employee: For PEA, the indicator grew "only" 46.4 percent in 1990-1998 and 15.4 percent in 1999-2002; MEA did better with 69.8 percent (6.92 percent per year) in 1990-98 and 27 percent (7.3 percent per year) in 1999-2002.

quality has been restored to good standards because of that overcapacity and public sector investments in transmission and distribution.[9] The latter also largely explains loss reductions.

3.3 **Energy prices.** PSD is often likely to brings three waves of price changes: (i) increases at the wholesale level because of the "IPPs' bite, " that is, costs that are higher than those of the state-owned generators; (ii) more increases with the start of liberalization because of stranded costs; and (iii) a drop for large users but tangible increases for small consumers who see their subsidies taken away. In Thailand, the latter would occur; households still pay at most 65 percent of service costs, and agriculture 75 percent. But with the current stalemate, the scenario has not unfolded; no IPPs' bite shows in the tariff, and, indeed adjustments since 1997 have remained modest when corrected for currency devaluation and inflation.[10]

3.4 **Sector finances.** Metering, billing, and collection have long stopped being a problem in Thailand, and accounts receivables were hardly affected by the crisis.[11] Other financial indicators have improved since 1998; all three utilities remain sustainable in that they can service their debt and remit 35 percent of their net earnings to the government. But rate of return (ROR) on revalued assets stayed low for all of the ESI. EGAT capacity to service its debt is weak in spite of reduced investment levels and steady increases in its sales prices. This disturbing fact may indicate that the IPPs' bite is indeed here but not passed on to consumers (Annex 1).

3.5 **Sector growth.** PSD can revive sector growth when growth is weak as a result of lack of finances or efficiency in meeting new demand. This was not the case in Thailand: New connections and sales were growing fast before 1997, and their trend since 1997 is a clear reflection of economic activity, more hit by the crisis in Bangkok than in PEA's market.[12]

[9] **Outage indicators**: For MEA city business areas, in 1999-2002, interruption frequency dropped 50 percent to around two per customer per year, and interruption duration to 46 minutes per customer per year. For PEA in 2000-2002, including rural areas, outage frequency dipped from 18.17 to 15.04 and duration from 1,273 to 850 minutes.

[10] **Prices:** Over 1997-2002, retail tariffs rose 29 percent on average, a bit less for MV service but 36 percent for residential use, after having fallen steadily before. Over 1994-2001, EGAT bulk prices increased 58 percent in nominal terms from 1.2 to 1.9 Baht/kWh. (6.75 percent per year) but fell 10 percent in U.S. dollar terms to 4.5 c/kWh because of the devaluation. Since 1997, increases have been limited to 2.64 percent per year in real terms. Simulations suggest that with the current overcapacity, competitive pools could cut bulk prices by some 30 percent (an assertion disputed by EGAT), but a lot of that cut could be offset in the first years by the transition charge needed to recoup stranded costs.

[11] **Accounts receivable:** For PEA, 39 days of sale in 1997 but 32-33 afterwards; for MEA, receivables went from 42.4 days of sale in 1997 to 47.7 in 1998 and returned to 43.4 in 1999.

[12] **New connections:** Connections grew only 8.9 percent (2.9 percent per year) for MEA during 1998-2000 versus 6.72 percent per year in 1990-97. PEA's connections grew 9.13 percent in 1998-2000 versus 37.2 percent (6.53 percent per year) during 1990-1995.

3.6 **Fiscal relief.** Since 1997, private investors have committed some US$5 billion to the sector, all of it for new generation to be commissioned during 2000-2005. Even after this period was stretched to eight years, that was more than needed for generation and about 50 percent of the sector's requirement. The inflow came with important contingent liabilities for the government. Absent the IPPs, the latter would have provided loan guarantees but EGAT's quick return to creditworthiness enabled it to borrow enough money to finance the needed CCs. IPPs will bring fiscal relief only in the future when funding for regional hydro and gas projects becomes too heavy. The partial divestiture of EGCO and Ratchaburi brought only a modest amount compared to what is to come (30 percent of the book value of the three SOEs' total assets add up to about US$4.5 billion at year-end 2001).

Environmental and Social Impact

3.7 **Environmental management and conservation**. PSD can help improve environmental management in two ways:(i) private operators often outperform SOEs in the procurement and operation of clean fuels and plant technology, and (ii) licensing and penalty enforcement is more rigorous. Commercialization and tariff increases spur improvements in end-use efficiency. In Thailand, private and public gas-fired CCs do equally well and tariff hikes are so small that they have less impact on demand than ongoing demand-side management (DSM) programs.

3.8 **Labor restructuring.** Commercialization drives reduced staffing. For distribution, total employment was 39,321 in 2001, 90.6 percent of the 1997 level after the headcounts had risen by 10 percent in 1990-1995. For EGAT, it was cut by 11 percent during 1997-2001 in contrast with 1990-1995, during which it rose 6 percent before returning to its 1990 level. Cuts occurred mostly through attrition and reduction in recruiting to just about 20 percent of departures. Lay-offs were used for those close to retirement. PEA and MEA also have a program of voluntary separation.

3.9 **Tariff rebalancing**. For small households, tariff increases in 1997-2002 reached 43 percent in nominal terms because they bore the brunt of the reduction in cross-subsidies. A US$4 monthly bill for the 60 kilowatt hours (kWh) associated with basic needs is a burden for only the poorest of the poor. So far, the reform has not pummeled the poor and it is not likely to do so since the plan is to retain cross-subsidies in a uniform tariff.

Sales: For 1990-1995, EGAT sales rose at 13.1 percent per year to 72.8 TWh; for MEA, at 10.5 percent per year to 29.2 TWh, and for PEA, they rocketed, at 16.1 percent per year to 37.9 TWh. For 1997-2001, growth for EGAT was only 3.28 percent per year for MEA, it was 1.26 percent per year, and for PEA it was a more resilient 7.17 percent.

3.10 **Indirect impact.** Macroeconomic instability is usually harder on the poor than the better off; whatever fiscal space was provided by PSD helped reduce this impact and probably assisted in funding the social programs that the government is undertaking.

4

Country Factors Influencing the Fate of the Pool Model

4.1 Following the 1997 crisis, some country factors were particularly conducive to the reform of 1998-2000: a tough but not paralyzing challenge, a quick return to macro stability, and an influential champion. But many sector factors worked against the reform: an acceptable efficiency level land resistance by utilities (that fed on special interests and legitimate concerns) and a biased reading of the international experience. The political economy was also not quite ripe: Market liberalization was feasible, but its desirability was weak; it grew weaker with news of reform experiences abroad and a fading sense of crisis.

4.2 Although each reform experience is unique in many ways, it provides grounds to test hypotheses about the ingredients of success (Box 4). One ingredient of success hinges on local leadership, another one on signals that reform is politically desirable and feasible, and others on the reform roadmap as a factor of desirability. All seem to apply here. The analyses below consider country factors. The relevance of the roadmap is evaluated first, and its design, that is the Study and ESMAP advice, are dealt with in the next section.

Facilitating Factors

4.3 **A sector challenge.** In developing countries, deep reform of the ESI has typically occurred only after it was pressed hard by a daunting challenge: huge deficits, collapsing service quality, or entry in a demanding regional trade agreement. In Thailand, a challenge arose as the 1997 financial crisis and the slowdown in the country's exports softened the economy, accelerating the decline in the profitability of the ESI for a few years and scaring investors away while the need for investment funding was quite large.

Box 4-Lessons from the Literature: Ingredients of Reform Success

Ownership of a reform program by local leaders can be assessed using four criteria: (i) The locus of initiative in formulating and implementing it is in the country, not abroad; (ii) the reform carries their deep and thorough intellectual conviction; (iii) they have expressed their political commitment to see it through; and (iv) they have made efforts to build a powerful enough coalition in its favor.

Four factors are likely to be associated with the start of a reform. First, the reform is desirable because of (i) a macroeconomic crisis that propels the government to make changes, and (ii) poor factor performance that affects important constituencies. Second, the reform is feasible because (i) government is in a strong political position and (ii) it has credibility, for example, a solid track record of government in carrying out its programs. Credibility is often associated with the presence of effective reform champions.

Third, the political desirability of reform is strong and sustained only if its roadmap is sound, that is, it accommodates early and tangible wins, social equity constraints, and participation by sector employees. And, finally, the reform's sequencing must acknowledge that energy reforms are not enough to solve macroeconomic crises and that they cannot take hold until broader stabilization measures are already well at work.

4.4 **…but not a paralyzing one**. A major crisis creates inducements to reform but also may exacerbate the dilemma that governments face in breaking up and privatizing national utilities if they are struggling in a sea of red ink that politically acceptable tariff increases can dry up only in the long run. In Thailand, as opposed to the example of Indonesia, that sea was not so deep: After the Baht devaluation, the balance sheet of the ESI had remained sound, with its capacity utilization high and tariff levels adequate, and the moderation in fossil fuel prices eased up the pressure on costs before growth and revenues picked up.

4.5 **A quick return to macroeconomic stability allowing reform to start…** When ESI reforms, especially those for pricing, are subjected to runaway inflation, recession, and other results of deep macroeconomic instability, they do not take hold or are swept away in a cascade of customer insolvency, cross-debts, and drift into barter trade. Experience with tariffs in Brazil and with pool markets in Ukraine or Argentina in 2002 supports this conclusion. In Thailand, there was no quicksand to sap an eventual reform: By 2000, fiscal deficits and inflation had been tamed and growth had resumed.

4.6 **…under the aegis of an influential reform champion.** Reforms never took place without at least one champion with the clout and skills to push them through. This could be a prime minister with good advisers, a powerful ministry or commissioner's office, a federal body as in the United States or a supranational one as in the EU. In Thailand, the NEPO was both enthusiastic about reforms and familiar with the experience of other countries.

Adverse Factors

4.7 **Acceptable efficiency by the ESI.** The public is less sensitive to fiscal and financial issues than to the promise of better prices, services, and access. Such promises are strong reform drivers if the prevailing situation is inadequate and the promise credible. It is not so in Thailand for electricity supply: Prices and service quality are not unacceptable and service is accessible by 99 percent of the villages. Furthermore,

on the basis of recent trends, existing utilities can make a credible pledge to deliver more and better.

4.8 **Resistance by utilities...** Managers and staff in the ESI are key to implementing reforms. In Poland, managers were uncertain about their future, but were eager to show their mettle and help the country make a clean break from the past. But the reverse is the more common case; for example, in India, even the new teams of managers charged with "grooming" restructured SOEs were less than helpful in preparing them for privatization, especially when it involved labor streamlining. In Thailand, managers have many reservations about market liberalization.

4.9 **…feeding on special interests and legitimate concerns…** MEA and PEA do not like the provisions on eligible consumers, as such consumers would reduce their market share and enjoy competitive contract prices while customers of MEA and PEA would not. EGAT deems the Pool Model or the NESA unacceptable on grounds that: (i) the fragmentation of generation into smaller entities could make the system vulnerable to increased foreign ownership; (ii) economies of scale could not be achieved because the Thai power market is small in comparison with others; and (iii) Thailand would not be able to play a lead role in the regional ASEAN grid if EGAT were marginalized. MEA and PEA do not want any scheme, like the Partial Liberalization, that would deregulate wholesale prices while leaving EGAT as a dominant player. PEA sees efficiency losses if its wire business is split into DisCos.

4.10 All three utilities had concerns about full liberalization in regard to: (i) prevention of market abuse, (ii) price volatility, (iii) system security and sufficiency of supply, (iv) impact on rural electrification, (v) subsidies to low-income users and the need for a complex side-payments scheme if uniform national tariffs are maintained, (vi) compliance and coordination with the government's Privatization Plan and timetable, especially if EGAT had to be split beforehand, and last but not least (vii) trade unions' concerns about changes in labor statutes and jobs losses following divestiture.

4.11 …**and a biased reading of international experience**. Reservations about the Pool Model were exacerbated by the California trading crisis, the collapse of Enron, and glitches in the UK and Chile. The difficulties in Argentina and Brazil, though unrelated to the sector, have reduced the appeal of market liberalization worldwide, no matter how positive it still is in many countries. Opponents have even taken heart at the good performance in their home market and abroad of national utilities that were subjected to some competition but kept strong as in Chile, or whole as in France and Hungary.

Leadership and Stakeholder Analyses

4.12 A quick leadership analysis suggests that the Pool Model lacked broad local ownership. The locus of initiative was Thailand, but the goalpost was moved toward liberalization in 1998, when emergency loans were negotiated with the IFIs. Later, when the enactment of loan conditions created unrest, the reform looked "imported" and

became the target of a nationalist backlash. Intellectual convictions were strong but divided for and against the ESI liberalization. Commitment and coalition building were also weak as shown below. Leadership analysis rightly gives a lot of weight to some individuals, but it is incomplete insofar as it looks at the efforts, not the results, of coalition building. A stakeholder analysis that does this suggests that the desirability of the Pool Model was weak because the crisis was short-lived and ESI performance was relatively good and improving.

Reform Readiness Analysis

4.13 A more reliable tool than stakeholder analysis is a template developed by the World Bank to assess reform readiness. It looks at the underlying political basis of the leaders' position and illuminates institutional arrangements that affect the ability of various actors to influence policy decisions and their implementation. Such an analysis is presented in Annex 2 for the Pool Model and summarized in the ratings below.

4.14 **Weak political desirability**. For many, liberalization would not markedly reduce consumer prices because: (i) the major source of savings is already tapped with the introduction of gas and CC technologies; (ii) capital productivity has not improved in liberalized power markets; and (iii) labor inefficiencies have a small impact, are not that large, and the sector could grow out of them quickly. As in many countries, fiscal issues sounded more real to politicians, but there was a widespread feeling that the job could be done with alternatives (selling minority stakes, bonds, IPPs with flexible PPAs) without jeopardizing Thailand's role in regional power development. In sum, the benefits looked long term, elusive, and rather diffuse, and the costs immediate, very real, and concentrated on influential groups. The government faced outside opposition but did not spend much effort to drum up support by the potential beneficiaries of the reform.

4.15 **Strong political feasibility**. There were reform champions in high places (like NEPO) and only mild opposition inside the government. The government had the majority required to pass legislation (the only real hurdle to starting the reform). Opposition by the trade unions was real, but it could be lessened by adequate compensations, and their blocking power was limited; strikes would be unlikely to disrupt electricity supply and gain sympathy in the public.

4.16 **Unclear sustainability**. Political feasibility could be sustained. Once voted, it takes another vote to reverse a law, and while enacting the reform would span more than a four-year legislature and changes in key personnel could occur, the parties that alternate in government had roughly the same position on the topic. The desirability of divestiture was enhanced by the fiscal demand of new social programs. For liberalization, it waned as the sense of urgency dissipated and international experience reduced its appeal.

5

Study Output and ESMAP Performance

5.1 The Study and ESMAP advice were responsive to NEPO's request and made their mark on NEPO's proposal. But since they were too narrowly focused too soon on a "standard" model, their relevance was diminished. The roadmap may have been too sketchy on the ways to accommodate social constraints. In cases like Thailand, the desirability of liberalization is not self-evident; it is important, therefore, to demonstrate its relevance, put social issues to rest, and tweak the model to adapt it to local priorities.

Relevance

5.2 The Study was relevant insofar as it complied with the request by NEPO and dovetailed well with other studies on transitional arrangements and costs. ESMAP help was relevant insofar as it met a client's request, clearly as well as any project-funded or fee-based assistance. But the Study scope was too narrow in that some options were imposed, for example, price bidding by GenCos on a "gross" pool (where contracts do not impact energy dispatch), and it focused on technical design. An opportunity was missed here to improve the fit of the proposal with country conditions and concerns and for ESMAP to develop the local integrative skills that are needed for a successful outcome.

Efficacy

5.3 The Study quality and its dissemination were satisfactory. It presents the pros and cons of the design options to flesh out a "standard" model, one thought by many analysts as most efficient and yet workable based on worldwide experience. It also discusses the nature of stranded costs—mostly resulting from long-term purchase agreements for gas and power—and various recovery methods once the market is liberalized. But according to the utilities' representatives, its value-added was greatest for thrashing out options for sector unbundling and distribution restructuring than for power pool design.

5.4 The Study was state-of-the-art, and its recommendations reasonably took into account actual experience, notably on tricky issues having to do with market entities and rules:

(i) Spot settlements at market-clearing prices, not pay–as–bid, as now in the UK

(ii) Voluntary rather than mandatory forward contracts and for energy only

(iii) Adding a capacity-related charge based on a maximum clearing price of the MWh on the hourly market, not the day ahead market

(iv) Deferring transmission congestion pricing until it is indispensable

(v) Passing spot prices through to all end users and not just eligible ones while letting consumers hedge price volatility through RetailCos if they so wish.

5.5 ESMAP performance was satisfactory. The ERC, within the Study's scope, identified the its technical strengths and weaknesses; all along, their advice was clear, to the point, and basically sound. It deemed the Pool Model feasible, provided its recommendations were adopted (Box 5), but this conditional endorsement did not convince key players.

Box 5-Highlights of the Expert Review Committee's Final Comments

Market structure and design

1. Multiply the number of GenCos: Two for EGAT thermal plants is not enough to guard against market power abuses and not indispensable to maximizing privatization proceeds.
2. More aggressive plans for retail competition: "Gray-area" services (billing, connections) should be unbundled and put up for competition.
3. Multiply the number of DisCos: Splitting PEA and MEA will promote yardstick regulation, the entry of competing RetailCos, and the competition for contracts with GenCos.
4. Develop legal and regulatory frameworks: Many such requirements are on the critical path.
5. Reduce fuel market rigidities: The benefits of the power pool will be severely constrained if the access to and pricing of natural gas are not liberalized.
6. Diversify the ownership of sector entities: Competition is blunted by majority ownership and control by the State.

Transition process

1. Address the problems—mostly specific regulations—raised by the long transition.
2. Recognize the many local obstacles on the road to effective competition, and in the interim be ready with a price regulation that mimics the results of a mature market.
3. Shorten the transition by moving in parallel on several fronts and tackling issues largely ignored so far, such as:
   - ?? organization (ownership) and regulation of transmission
   - ?? quantification of stranded costs and the impact of competitive transition charges
   - ?? emulating the results of competition where state ownership and control are maintained

5.6 In tabling the proposal, NEPO ruled for making only two thermal GenCos out of EGAT and keeping PEA and MEA as two DisCos, supposedly to allow for economies of scale; it also constrained PEA and MEA to get all their supply on the spot

market (as in California) on the more solid ground that if they could negotiate contracts with the GenCos, their bargaining power would discourage the entry of competing RetailCos

5.7 California and other experiences have since shown that the ERC recommendations were right ; they also suggest that initial conditions are often unsuitable to the "standard" model; for example, in some developing countries, spot prices may be so volatile or pool settlements so difficult to enforce that the premise of a "gross" pool is a bad one.

Omissions in the Liberalization Action Plan

5.8 **Analysis of the political economy.** The political desirability and feasibility of the ESI liberalization should have been analyzed to assess the country's readiness to reform as presented in Annex 2. This exercise would have helped in detecting the weaknesses of the roadmap before the technical details were fleshed out. It would also have helped in determining which principles were worth fighting for, which details could have been tweaked safely, and which clarifications and accompanying measures were needed to maximize the chances of success.

5.9 **Clarifications and adaptations.** As Annex 3 tries to illustrate, more could have been done to address local perceptions and concerns, especially after the California crisis and the amendments to market rules in the UK. Some of those concerns may have disappeared with clarifications, such as:

(i) Liberalization does bring extra efficiency and sizable financial gains.

(ii) Liberalization need not hurt Thailand's role as a regional power hub.

(iii) Liberalization may co-exist with uniform tariffs up to a point.

(iv) Economies of scale subsist with smaller GenCos and DisCos.

(v) Unrestricted contracts and spot markets are both needed.

5.10 Other concerns needed to be alleviated with adaptations of the model—mostly inbuilt controls for price instability and abuse of market power—that, while limiting efficiency gains and not satisfying the purist, are technically adequate and meet the political realities of Thailand as they did in some developing countries of South America; for example:

(i) Computed prices may be used to guard against price-bidding failures.

(ii) Capacity requirements may be used to guard against investors' failures.

5.11 **Social impact mitigation.** Measures to mitigate the social impact of liberalization may have lacked credibility: For the ESI workers, there was nothing in writing that could clinch their acceptance, but for the consumers, especially those of PEA, the commitment to continue the current uniform tariff was vague and unsupported by plans to reconcile it with reforms in the long run.

6

Main Conclusions and Lessons

Conclusions

6.1 Government and lenders were overoptimistic about reforming the sector. The main reasons for reform remain the fiscal proceeds and the financial incentive to obtain private participation on the best terms. The main obstacles to the Pool Model were the sentiment that the Model is not a good solution for Thailand and the stranded costs that Model entails. Those obstacles are still present and may be growing. The reasons to hope are that divestiture is set to occur, and the discussion on market liberalization continues within the government. Thailand would benefit from some form of Pool Model, including a vibrant spot market, but clarifications and adaptations to the proposal are needed. Judging from the two counterproposals that were tabled, the risk looms that negotiations will be dominated by politics and may lose sight of key technical requirements. The results could be a half-house that ends up being abused by a few stakeholders, unworkable, too rigid, or less efficient than the status quo.

Lessons

6.2 Acknowledge the specifics of the "mature cases." Thailand is emblematic of several cases in the developing world (Mexico, South Africa, Eastern China) and a few ones in Central Europe,) that did not liberalize their power market and share the following traits:

(i) Billing and collection are not a big issue. Tariff distortions and income levels are such that eliminating most subsidies would cause little or no hardship to the poor.

(ii) Generation is not too inefficient in terms of fuel mix, procurement, and operation.

(iii) A paramount objective is to improve financial and fiscal performance.

(iv) The recourse to private IPPs with PPAs is a relatively easy way to go.

(v) The national utility has legitimate ambitions to play an important regional role.

These are not "basket cases," where radical solutions may have become politically desirable, and though the "standard" market model is technically very feasible in these countries, it is not blatantly attractive. A new challenge (for example, a macroeconomic crisis) and effective champions may not be enough to get the political green light and see deep reforms through. The specifics of the cases require attention to three areas:

(i) Sequencing: Creation of a power pool will not bring early wins; it is better to start with price reforms and divesting distribution into several DisCos while announcing the plans for future liberalization and limiting the recourse to IPPs with rigid PPAs.

(ii) Making amends to the standard market model, that are technically safe, but required to minimize the risks and cost of market failures in a developing country context.

(iii) Making clarifications as needed to improve the perceptions of benefits and costs, especially on the measures to mitigate social impact. This challenge, while easy to solve in these countries, is no less important than anywhere else.

6.3 **Let the political economy and technical design interact.** Technical specifications for the market liberalization, indeed for the whole reform road map, need to accommodate its political economy. Not doing this at the outset may give reform a bad start that dooms subsequent efforts. Conversely, negotiations to arrive at a politically desirable and feasible road map must be subjected to technical scrutiny to ensure that it is sound.

Annex 1

Financial Performance of the ESI in Thailand

EGAT	1993	1997	1999	2001
Rate of return on revalued assets (%)	5.73	3.79	6.92	1.03 (est)
Debt-equity ratio (times)	1.33	1.23	1.98	1.37
Self-financing ratio (%)	32.6	13.91	27.14	15.93
Debt service coverage ratio (times)	1.4	1.05	1.23	0.86
EGAT settled all remittances (including arrears) due to the Ministry of Finance in 2001. All financial data are after payment of remittances equalling 35-40 percent of net earnings to the Ministry of Finance by the utilities.				

MEA	1993	1997	1999	2001
Rate of return on revalued assets (%)	8.1	4.16	-1.18	3.39
Debt-equity ratio (times)	0.54	0.67	1.02	1.06
Self-financing ratio (%)	20.9	64.23	2.21	37.62
Debt service cover ratio (times)	3.1	4.53	1.85	1.89

PEA	1993	1997	1999	2001
Rate of return on revalued assets (%)	13.5	1.74	3.63	0.36
Debt-equity ratio (times)	0.61	0.7	1.01	0.99
Self-financing ratio (%)	59	32.15	48.23	41.49
Debt service cover ratio (times)	4.2	4.63	2.27	1.85

Annex 2

Assessment of Political Commitment

A2.1 From an analysis of country and external factors and interviews with the stakeholders conducted for this review, the following three questions can be answered to assess the degree of commitment of the reform for a Pool Model in Thailand:

i) Was the reform politically desirable? That is, did the benefits to the leadership and its constituencies outweigh the costs?
ii) Was the reform politically feasible? That is, was the leadership able to enact reform and overcome opposition?
iii) Was the reform sustainable over time? That is, were the desirability and feasibility of reform sustained over time and the opportunity for reversals limited?

A2.2 This annex presents the results of a survey administered to senior officials of EPPO, EGAT, MEA, and PEA in January 2003. The survey is based on the template developed by the World Bank to assess reform readiness.[13]

Political Desirability

A2.3 Political desirability is rated **weak:**

?? The pivotal issues between proponents and opponents of the reform were expectations about the reduction in prices due to the power pool and efficiency gains expected from splitting up and privatizing the SOEs.
?? All parties saw the Ministry of Finance as a winner; influx of private capital was accepted by all stakeholders as a benefit.
?? The key beneficiaries did not mobilize in support of the reform.

What social groups are likely to gain substantially from the reform and how? Which ones are likely to lose and how?

A2.4 **Winners.** Reform proponents saw consumers as the main beneficiaries of the reform based on the expectation that the power pool would bring reductions in the cost of electricity in Thailand. Industrial consumers were to benefit the most because they

[13] "Assessing Borrower Ownership Using Reform Readiness Analysis." PREM Note No. 25, World Bank, June 1999.

would be able to negotiate better prices from the generators. The proponents also expected residential consumers to benefit from tariff reductions. Those in the Bangkok area stood to gain more from the reduction in cross-subsidies. The opponents expected private investors—most of them foreign—to be the winners because they would gain entry into the Thai electricity sector and command influence over "strategic" assets of Thailand.

A2.5 Some benefits appeared overestimated or elusive to many. PEA and MEA believed in competition to reduce bulk prices, to some extent in retail competition but much less in the creation of many DisCos. EGAT thought the results of market pool simulations lacked credibility for consumers and investors alike; productivity gains in fuel and labor use would not be greater than what prevailed at the time with the massive use of gas and CC technology and the performance targets set by the MOF. It did not expect prices to come down because of the higher returns expected by private investors, sub-optimal reserve margins, or abuses of market power (especially after the California power crisis of 2001 and the gaming in the UK market that led to recent pool rules change).

A2.6 The power market was expected by reform proponents to increase incentives for private investors to come in. Both proponents and opponents understood that the institution most likely to gain from the influx of private capital was the MOF, as it would reduce the financial burden that the ESI imposes on it. It was unclear to most, however, how heavy this burden is today let alone what it will be in future, absent the reform.

A2.7 **Losers.** EGAT, MEA, and PEA would all be split up under the proposed reform and could be the main losers, as they would no longer exist in their current forms and would be exposed to competition and, eventually, staff downsizing by 20 percent or more. Many expected low-income consumers to lose the most from the expected removal of subsidies. EGAT also saw Thailand as losing to foreign investors and forsaking its potential leadership in regional power development.

A2.8 The costs of the reform appeared underestimated to many. While proponents saw job losses as offset by future expansion, some opponents saw them as a waste of skilled labor. Everybody understood that the Pool Model requires a lot of cutting-edge technology (hardware and software)and a sharp learning curve, to use it properly to make new market institutions work smoothly. And many anticipated with awe the disruptions in the ESI, the stranded costs, and the need to set up competitive transition charges and a system of side payments to maintain a uniform national tariff.

Were any of these groups in the support base of the government (through voting or financial support)? If yes, which ones?

A2.9 The Democrat Party in power then enjoyed both a popular base—very strong in the south—and financing by large industry, banking, and commerce. The opposition enjoyed supports of a comparable kind and size but with electoral strongholds in the north.

Were any of the groups in the core constituency? Were any of them in the swing group, that is, those critical to the majority who can credibly threaten to shift their support to the opposition?

A2.10 The Bangkok area provided the most important base of independent voters and financial support. But this constituency as a whole stood to gain more from the reform.

Was the government's support base then sufficiently different from other governments to make the reform much more politically desirable?

A2.11 With the crisis, government support to do the reforms increased. A few opinion leaders—for example, academics and anti-globalization advocates—voiced concerns about privatization and liberalization in the name of "national interests," and concerns multiplied as events unfolded: privatizations in the banking sector, the California energy crisis, and NEPO shifting toward full electricity market liberalization after having contemplated less radical reforms that left more power to incumbent utilities.[14]

Has the government expended time and money publicly demonstrating its commitment to reform through a campaign and endorsements by crucial decision makers?

A2.12 In 2000, the government demonstrated some commitment by approving the Privatization Study and the Energy Act. The act was approved by the Cabinet and presented to the Office of the Council of State. Neither the cabinet members nor the Prime Minister conducted sustained campaigns to "sell" the reform. Ministers mentioned in public that reform should happen but were not specific. The chairman of NEPO presented the proposed reform in public forums. Yet the topic did not arouse interest among the Thai political leadership until after the California power crisis was in full swing.

[14] The past policy record provided little clue that it would want to go all the way. The opening to IPPs was well accepted, but it was seen as no threat by sector employees and was opposed only by the hardest of the anti-globalization groups. There was no past attempt to liberalize power markets by this government or previous ones, and the liberalization in petroleum markets, while it was successful, happened a long time ago and affected the same groups in a milder way because the sector was already import-dependent and taxes and storages could cushion eventual price shocks and disruptions in supply.

Has the government actively sought to build public consensus on the reform? If yes, which groups were targeted? To what extent has government allowed these groups' views to be reflected in the reform plan?

A2.13 NEPO conducted consultations through seminars involving all stakeholders, including the three state-owned utilities; private investors; academics; and representatives of industry, labor, and consumers. While some participants, including utilities, felt a lack of technical capability to contribute ideas, EGAT, MEA, and PEA voiced opposition. NEPO did not change market design as a result, but suggestions on the development of the regulator were taken onboard. The reform was not actively debated in the wider Thai political arena, and key beneficiaries never mobilized to support decisions.

What benefits are obtainable more easily by other methods?

A2.14 **Sector financing.** Opponents of the reform contend that borrowing on the local capital market would be enough for PEA and MEA and could be complemented by other sources on an as-needed basis for EGAT; for instance, partnerships with public or private entities from Asian countries for developing regional hydropower. They do not see that the Pool Model's rules and free market entry would make private investment easier and cheaper.

A2.15 **Security of supply.** Issues of security of supply and balanced expansion under a power pool arrangement gained prominence in Thailand with California crisis and the introduction of restrictions on new gas-fired plants by the UK regulator. Opponents were quick to add that central planning had served Thailand well and is intrinsically superior.

A2.16 **Efficiency gains.** There is a wide belief in utilities that efficiency gains can be realized with less social pain by keeping the performance monitoring and incentives put to good effect by the MOF. EGAT, deems that its excess staff (if any) has a limited cost impact and can be better absorbed by growth if EGAT is kept whole and left with a piece of the capacity expansion business. For PEA and MEA, leaving distribution whole makes for a more level playing field in the competition with PTT, which still has a monopoly in gas marketing. All three utilities think that their training programs provide as good a transfer of know-how as would have been possible through private participation.

Political Feasibility

A2.17 Political feasibility of the reform is rated **strong:**

?? No opposition inside government or ruling coalition, for example, cabinet members and non-cabinet members of the coalition.

?? The MOF was supportive because of the reduction in its financial burden.
?? Outside the government, labor unions of EGAT, MEA, and PEA were opposed to the reform; their executives were opposed but with nuances; labor could have been swayed by compensations and/or give-and-take on some details; others (consumers, NGOs) were mostly indifferent.
?? The risk of unfettered union opposition through disruptive strikes was low.

Who within the government needs to approve the reform for its enactment? Does it require legislative change or approval? Is legislation subject to judicial review? Can it be struck down as "illegal" or "unconstitutional?"

A2.18 The reform proposals had to clear three levels of scrutiny on their way to becoming law. The Minister of Energy would propose the reform to the Cabinet. Once the Cabinet approved the proposals, the Office of the Council of State that, among other functions, prepares draft legislation and gives legal opinions to the Cabinet and the Prime Minister would develop the bill. Bills developed by the Office of the Council of State go to Parliament for ratification.

A2.19 The Pool Model cleared the first hurdle when the Energy Act was approved by the Cabinet on October 25, 2000, with clear support by the MOF. The Office of the Council of State has not stated judicial or constitutional objections to the Energy Act. But the new government, which took office in May 2001, did not support it, and its submission to the Parliament was postponed until a new proposal emerges from a review of other options.

If yes, has the governing party enough control and leverage to achieve legislative majority? Does it need support from outside the governing coalition? If yes, is such support a possibility?

A2.20 In a parliamentary system like Thailand's, the government is issued from the majority party or coalition. The democratic government had a solid enough block of votes to pass the reform laws without support by an outside faction.

Which groups within the ruling coalition are known to be opposed to the reform?

A2.21 Opposition was not widespread among political circles at least until the crisis in California, but active support did not exist either. NEPO had a good political vantage point to persuade the Office of the Prime Minister. Concerns may have crystallized after the proposals were submitted, and there could have been a group more sympathetic to the utilities. However, the utilities would have been hard pressed to enlist wider political support to oppose the reform because it would have been difficult to engage the public on the intricate design details and implications of a Pool Model.

Which groups outside the State are known to be opposed? If unions are one of those groups, what is the proportion of unionized workers? Were the unions officially connected to the ruling coalition?

A2.22 The more potent opposition came from the labor unions. Unions played a prominent role in the privatization programs that followed the 1997 financial crisis. In Thailand's power sector, they do not have formal links to a ruling party but have connections and influence among the parties. Union membership among the PEA and MEA staff runs above 75 percent, and above 50 percent in EGAT. The unions were opposed to the unbundling and divestiture of the utilities, fearing layoffs and the loss of benefits.

Was the government offering or about to offer incentive or sanctions for the outside opponents to change their behavior? Were these offers credible?

A2.23 The Office of the Prime Minister included assurances in the Corporatization Law allowing continuity of employment in state enterprises that are corporatized for sale to the private sector. However, the credibility of these assurances was weak among the unions in the absence of a clear supporting statement by the MOF. The history of layoffs in banking sector reform following the financial crisis of 1997 also eroded the credibility of the government's assurances in the eyes of labor.

Would opposition outside the government have disrupted approval through strikes or other actions?

A2.24 The government was quick to yield to union pressure during the divestiture of the Ratchaburi plant in 1998 by granting its employees shares at a preferential price of 10 Baht per share versus 13 Baht per share for other buyers. But the power of the unions was limited in a big way by the low tolerance in Thailand for disruptions in public services such as electricity: The unions tend to stay clear of strikes because they fear that strikes leading to disruptions would sway public opinion against them.

Political Sustainability

A2.25 The sustainability of government commitment for the proposed reform is rated **unclear:**

- ?? The political desirability of the reforms decreased as Thailand emerged out of the financial crisis of 1997, and doubts about the reform increased.
- ?? The political feasibility can be sustained in spite of changes in government. If the proposed reform had passed, it would not have been easy to reverse the reform.

Considering the time needed for approval and implementation, the remaining time in the government's mandate and the record of stability, how strong was the possibility for the government to achieve significant reform steps?

A2.26 The Democrat Party government stayed in office from 1998 to 2001, almost the four-year maximum span between elections. The reform was proposed in 1999 and passed by the Cabinet in the fall of 2000. It was difficult to expect that the same party would remain in power through all the stages of reform. Implementing the recommendations would take at least seven years, four years just to pass legislation and reform generation and transmission.

If a change of government was likely, was there any reason to expect the impetus for the reform to be maintained after the change? Had major opposition groups said they would seek to overturn part of the reform? If yes, which part?

A2.27 Changes in key personnel could occur and did occur. But the parties that alternated in government had roughly the same position on the reform. The new majority formed under the Thai Rak Party carried the elections by winning the vote in the Bangkok area. Its platform enjoys the support of both large industrial and commercial firms and of the poor. It includes a strong defense of national interests and innovative and ambitious social programs. The funding requirements they entail increase the appeal of asset divestiture, albeit on the local financial market. In contrast, as the sense of crisis has dissipated and examples abroad have shown its pitfalls, market liberalization is less and less attractive for everybody, and it is perhaps least desirable to the new majority, since it implies the dismantling of a national industrial giants such as EGAT.

Would a reversal require new legislation? A decree? How easy would it be for future governments not to enforce the reform once approved?

A2.28 Once voted, it takes another vote to reverse a law. Besides, once assets have been sold to private investors, it would be even more difficult to nationalize them. But the executive branch would have had broad discretion in applying the law.

Annex 3

Addressing Local Perceptions and Concerns about Reform

A3.1 Liberalization does bring extra efficiency and sizable financial gains. While accepting that opponents make plausible arguments, proponents of the ESI liberalization can underline that it will increase fuel efficiency in the long run (for example, when the gas market is also reformed) and accelerate gains in labor productivity in distribution and retail where its major scope lies and for which it is an important cost driver. Above all, a transparent competitive market is the best guarantee that Thailand gets optimum terms from investors and, as a result, prices that are minimum and that drop when supply exceeds demand as is now the case in Thailand (not when demand exceeds supply). This kind of efficiency occurs when capital costs and technology closely track world trends and debt-equity ratios are reduced, which in turn implies free market entry and letting investors enjoy upside risks as the reward to risking the downside. Once a facility is operating, the inducements for improving efficiency and reliability that are contained in contracts are no substitute for—indeed are inferior to—those given by competitive markets (they are not as flexible, relevant, and forceful).

A3.2 EGAT's capacity to fund investments may be overrated, as shown by the deterioration of its financial ratios in 2001. The extra costs of PPAs as an alternative to free entry and clear market rules in attracting private money are underrated. The contingent liabilities that PPAs place on the government are huge and not unlikely to materialize, given the history of currency crises and the continuing challenges to the balance of payments of Thailand. A shorter life for PPAs will periodically bring them closer to market conditions but not necessarily reallocate risks. PPAs should be a last resort, as for example in developing hydro that is notoriously less attractive to private sponsors than CCs or coal-fired plants. Studies have also shown a positive correlation between the establishment of proven market and regulation models and the proceeds of divestitures in distribution.

A3.3 **Liberalization need not hurt Thailand's role as a regional power hub.** It is perfectly legitimate for Thailand to be a prime mover in the development of hydro and gas resources in neighboring countries. It can bring to the task very valuable know-how and capital and the motivation of being the principal market for its neighbors. The country's location also makes it the natural transmission hub for the region. But liberalizing the Thai market is not incompatible with the need for stable contracts with

the less advanced and open markets around. And while it may be best for EGAT not to engage in pure trading and keep some physical assets, shedding most of its generation assets may arguably help it become more profitable and adept as a regional power broker and developer.

A3.4 Economies of scale subsist with smaller GenCos and DisCos. According to theory and most simulations, market power abuses could disappear with four or five sellers of roughly equal size. This rule of thumb sounds too simplistic to many, and experience shows having more players is safer. At what point do economies of scale begin to diminish? With recent coal and gas technologies, plant size can be 500 MW or less and a portfolio of four or five of these is more than enough to ensure other economies in procurement and financing. With sub-transmission and distribution, economies of scale occur with load density, and it does not take a large mix of urban and rural areas to assure other economies. For the ESI as a whole, the most cost-effective routes to the acquisition and management of knowledge are information clearing houses and joint research institutes.

A3.5 **Unrestricted contracts and spot markets are both needed.** Once the market structure is acceptable—that is, there are enough players—experience shows that it is a big mistake to exclude some of them from the contract or spot markets: Contracts have a calming effect on spot prices,[15] and spot markets help correct the inefficiency of bilateral bargaining and the rigidity of contracts. Also, as the Study underlined, contracts are only price-hedging instruments. A "net pool," where physical contracts determine most of the energy dispatch, would be less efficient and result in higher prices for everybody.

A3.6 **Computed prices may be used to guard against price-bidding failures**. Theory demonstrates that price bidding on the spot market is best. But human ingenuity to abuse market power has shown itself to be unfathomable. And simple price signals are not so good at optimizing resource allocation among cascading, multipurpose, or multi-annual hydroplants. In either case, an alternative is to allow bidding on quantities only and entrust an independent entity with the responsibility for setting spot prices on the basis of revealed costs. The scheme works well in Chile, where ENDESA is first among equal GenCos in large part because of its hydro. The situation there is not unlike what it could become in Thailand with EGAT.

A3.7 **Capacity requirements may be used to guard against investors' failures**. In theory again, price signals will correct situations of over- and under-supply; also, regional power exchanges may in time come to the rescue to solve imbalances as in the United States and the EU. On the basis of two or three experiences, the Study recommends them over any form of capacity requirements. But it is also true that for power systems like Thailand's, market failures, even mere overreactions or hesitations are costlier and more likely to happen—costlier because power imports cannot be scaled

[15] Frank Wolak. "An Empirical Analysis of the Impact of Hedge Contracts on Bidding Behavior in a Competitive Electricity Market." 4th Annual Power Research Conference, Berkeley, California, 1999.

up on short notice and, with a high rate of demand growth, even a few months' delay may translate into blackouts; more likely because many events, even an election, are enough to trigger investors' hesitations.

A3.8 Even when hydro is by far the least cost alternative, investors are skittish in developing it in an optimal and timely way even with PPAs, let alone as merchant plants. Thailand faces this challenge, and the Study recognized the need for the ISO to step in and call for extra capacity. That may not be enough, and solutions must be explored to reconcile capacity planning with market liberalization, at least open access to allow entry by investors. This view is gaining ground among many practitioners. [16]

A3.9 Liberalization may coexist with uniform tariffs up to a point. Uniform tariffs are a common practice when it comes to small consumers; they respond more to symbolic and political needs than social ones but they do not impair demand efficiency, but rather just create financial imbalances that call for some form of cross-subsidization. This form must be smart, that is non-distorting and simple to administer, and it must be limited by having a restrictive definition of "small." Uniform tariffs are inefficient for electricity-intensive users and financially problematic for large consumers (these two user groups often overlap). The restructuring and privatization of PEA and MEA provide a good opportunity to realign prices with the cost of service for most consumers.

[16] Graham Thomas. "Electricity Market Design and Creation in Asia Pacific." World Energy Conference, May 2001.