

Subject: **Special Evaluation Study on ADB's Energy Policy**
—Position Paper

A. Background and Rationale

1. The Asian Development Bank's (ADB) role in power sector development among its developing member countries (DMCs) started in the early 1980s. ADB's first Energy Policy paper¹ was released in March 1981, several years after the first oil shock of 1973, and shortly after the second oil crisis of 1979 in the wake of the Iranian revolution. In both events, the world faced record-high crude prices and supply spigots so that ADB's policy focused on overcoming the crisis caused by these two oil price shocks. Furthermore, the policy paper emphasized the development of energy infrastructure and indigenous energy sources to promote efficiency and create incentives in order to attract foreign investment to DMCs.

2. In 1995, ADB released its second Energy Policy paper.² The paper noted that the power sectors in the DMCs were growing bigger, unmanageable, and inefficient. The worsening situation of the energy sector was attributed to the seeming dual role of government as both monopoly owner and policy maker. The 1995 Energy Policy recognized the changing needs of the sector, with a reduced requirement for infrastructure and emphasized the need for a financially robust and highly efficient energy sector operation. It advocated the recovery of full costs, and the avoidance of subsidies and cross-subsidies. It further sought the establishment of independent regulators to adjust electricity tariffs on the basis of transparently promulgated tariff principles. For the short term, ADB promoted corporatization and commercialization of government-owned utilities as a prelude to their privatization efforts and the entry of the private sector through build-own-operate/build-own-operate-transfer (BOO/BOOT) options. The development of interregional trading in energy was also recommended.

3. The most recent paper³ on ADB's energy policy (2000 Review) was circulated on 8 December 2000. The policy emphasis was particularly attuned to the development of independently regulated and privatized energy markets, which in turn, was expected to lead to more efficient uses of energy, lower costs, and more private investments. The 2000 Review recommended four operational priorities:

- (i) *The reduction of poverty.* Pro-poor growth, poverty intervention, particularly in rural areas;
- (ii) *Promoting private sector involvement.* Restructuring, promoting private sector investment;
- (iii) *Addressing regional and environmental impacts:* Clean Development Mechanisms (CDM), renewable energy; and
- (iv) *Promoting regional cooperation.* Exporting power from hydropower and from natural gas through cross border transmission.

4. These core areas provide an intent and emphasis on creating an appropriate policy and institutional environment, and capacity development to enable DMCs to develop and extend the availability of their energy resources. Within the bounds of its basic principles and objectives,

¹ Working Paper No. 2–81. *Role of the Bank in the Energy Sector in the Region.*

² ADB. 1995. *The Bank's Policy Initiatives for the Energy Sector.* Manila.

³ ADB. 2000. *Energy 2000. Review of the Energy Policy.* Manila.

the 2000 Review supports a wide range of energy development initiatives. In addition to sector restructuring and private sector participation, it recommends specific directions common to all sub-sectors, such as poverty reduction, social development, removal of subsidies, governance, information technology, environmental protection, efficiency improvements, energy conservation, co-financing, and capacity building to support ADB's energy policies.

5. The 2000 Review calls for a review within 5 years of its implementation. In this light, the Regional and Sustainable Development Department (RSDD) of ADB requested the Operations Evaluation Department (OED) to conduct an independent evaluation of the 2000 Review to assess its relevance and effectiveness in directing and guiding ADB's operations in the energy sector.

6. Prior to elaborating the purpose, scope, and methodology of this evaluation, this position paper describes the global context of energy, ADB's operations in energy, and major lessons from these operations. It briefly provides the contextual setting of the evaluation of the 2000 Review.

B. The Global Context of Energy: Current Scenario and Challenges

7. Since the 2000 Review, there have been a number of major developments in the region. The very large increases in fuel costs have impacted on the costs of producing energy. There has also been a concurrent increased concern about environmental issues and fuel security. Expected energy market reforms have been slower than expected. They have been further delayed by the renegotiation of power purchase agreements (PPAs) by several countries, a lack of investor confidence, and a lack of tariff prices that reflect true costs. As a result, demand-side management (DSM) initiatives continue to be hampered by the lack of clear price signals. Efficiency improvements through the reduction in system losses continue to be a major problem for DMCs.

8. Recent rising cost of fuel for generation has been a major challenge faced by the sector.

- (i) Increases in price of primary fuels for generation have been very steep. This is primarily a result of increased demand for imported coal for the People's Republic of China (PRC) and the world-wide increased demand for oil. Oil prices have undergone two major price increases in 2000 and 2005. Coal prices rose sharply in 2004, but have since declined (Table 1). The outlook for coal prices is more positive than for oil, with prices expected to fall below \$40 per ton, whereas oil prices in the near future are expected to remain above \$50 per barrel. (World Bank, 2005: Energy Economist 2005). These costs have primarily impacted on DMCs with very large imported fuel components.

Table 1: Historical Prices of Coal and Oil

Year	Coal Price (\$/ton)	Oil Price (\$/barrel)
1999	25.89	18.07
2000	26.25	28.23
2004	54.70	37.73
2005	47.00 (estimate)	53.60

Source: World Bank, Global Coal (2005).

- (ii) The increased generation costs have subsequently increased the focus on:
- renewable energy,
 - energy efficiency (see below),
 - energy security, and
 - raising revenues to meet the increased costs.
9. There has been a greater concern about environmental effects. This, in turn, has promoted a greater emphasis on CDM, emissions trading, and renewed calls for energy efficiency. Emission trading has commenced world wide, but its possible value and exploitation in Asia are largely undeveloped.
10. Expected energy market reforms have been much slower than expected.
- (i) As noted in the 2005 OED annual report,⁴ this market reform objective for the energy sector may have created overambitious expectations as the complexity of reforms and the political and economic changes, which need to accompany them, have taken much longer than expected to occur. Furthermore, the expected reforms are likely to take considerable time to implement and the reform process is continuous so that progress will be difficult to measure. The primary need to develop market reforms is the development of independent regulation, and pricing signals which reflect the true costs of production.
- (ii) Pakistan and Philippine power sector restructuring and privatization have been delayed significantly, and the expected proceeds from sales cannot be used for debt reduction.
- (iii) OED has raised concerns about the low level of tariffs throughout the region. This is a major impediment to reform, as has been the use of political influence to delay tariff increases to cost recovery levels. Subsidies and cross subsidies persist across sectors and consumers.
- (iv) Regulatory expertise and regulatory independence have not developed as much as was expected and have, in some instances, created a strong backlash as a result of pressure created by multilateral development funds.⁵
11. Lending institutions and investors have become more risk-averse.
- (i) Private sector finance for generation has been limited in the last 3 to 4 years. Private sector financial institutions have become increasingly risk-averse and now require an equity contribution in the order of 50%. Previously, independent power producers (IPPs), with government guaranteed off-take agreements, were able to finance their plant with equity contributions as low as 20%. The financial institutions want to reduce their risks and demand the development of clearly independent regulation, tariffs which recover full costs of supply, contracts for the supply of electricity, and the development of markets with depth and liquidity to trade the electricity contracts.

⁴ ADB. 2005. *2005 Annual Evaluation Review*. Manila.

⁵ Until 1999, only two countries, out of 190 reviewed by Henisz et. al. (2005), had successfully completed privatization.

- (ii) There has been a major withdrawal of IPPs from the region; Enron, Edison Mission, Intergen, Mirant, El Paso, NRG, and Sithe have exited the Asian energy market. This has severely reduced the pool of private capital available for privatization.
- (iii) ADB's private sector participation, on the average, has more than doubled during the past 5 years.

12. Renegotiations of PPAs with IPPs have impacted on the willingness of private investors to participate in new infrastructure.

- (i) At least three countries among the DMCs, including Indonesia, Philippines, and PRC, have renegotiated their PPAs with IPPs. This increases the risks for future privately developed supplies, and increases the financial costs for potential investors.
- (ii) The renegotiations and concurrent regulatory uncertainty undermine power privatizations and ADB's intention to promote private sector investments.
- (iii) Many of the PPAs were a response to over-forecasts of needs and/or actual undersupply. The foreign currency needs to service PPAs have placed increasing financial burdens on DMCs with these contracts, especially in the aftermath of the Asian financial crisis.
- (iv) OED evaluations in the 5-year period to 2005 indicated a need to develop better PPAs which share risk more equitably between the IPP and the off-taker.
- (v) The shift to increased privatization and market-based policies will again require a change in focus for PPA contracts management. This has not been resolved as yet.

13. Transmission and distribution losses remain unacceptably high.

- (i) ADB's energy policy encourages the development of efficiency and governance which leads to self sustaining sectors, including the reduction of technical and non technical losses.
- (ii) A special evaluation study⁶ (SES), undertaken by OED in 2003, indicate persistence in many DMCs of very high level of system losses due to technical losses and theft.
- (iii) The problem of system losses is often compounded further by protracted accounts receivable.

14. There has been an increased focus on the alleviation of rural poverty through the supply of electricity to rural areas.

- (i) Providing access to electricity remains a very high priority for many of the poorer DMCs.
- (ii) Rural connections to electricity, supported by ADB funding, have delivered significant social and economic benefits to rural regions.
- (iii) The very large costs of the connections and the subsidies which are required remain a concern, particularly, where no increase in economic activity is foreseen which can be used to reduce these subsidies. Rural electrification is a necessary, but not a sufficient condition to alleviate poverty.

⁶ ADB. 2003. *Special Evaluation Study of Cost Recovery in the Power Sector*. Manila.

15. Regional co-operation in energy transmission and sales have commenced but only with limited success.

- (i) The Lao People's Democratic Republic (Lao PDR) to Thailand interconnection has been successfully implemented.
- (ii) Regional Technical Assistance (RETAs) grants for international trading of energy have totaled \$11.1 million and \$11.8 million in the periods 1995–1999 and 2000–2005, respectively, with few tangible results.
- (iii) The Greater Mekong Subregion (GMS), Central Asian Republics (CARs), and India-Bangladesh power exchanges have been put in place.

16. Concerns about energy have become increasingly global, drawing attention to the need to reassess the relevance of the 2000 Review and its strategic focus. The Millennium Declaration of 2000, for instance, called for a realignment of global and national priorities to reduce poverty, along with a fundamental reorientation of policies, laws, and institutions. Attention to energy, which is critically important for the poor, can enhance achievement of the Millennium Development Goals (MDG),⁷ particularly those relating to (i) eradication of extreme poverty and hunger, (ii) ensuring environmental sustainability,⁸ and (iii) developing a global partnership for development. The pertinent MDG target is to halve, between 1990 and 2015, the proportion of people whose income is less than \$1/day and the proportion of people who suffer from hunger. Another target is to integrate the principles of sustainable development into specific country policies, strategies, and programs to stop and reverse the loss of environmental resources.

17. Energy is central to sustainable development and poverty reduction efforts. It affects all aspects of development (social, economic, and environmental) and affects livelihoods, access to water, agricultural productivity, health, population levels, education, and gender-related issues. None of the MDGs can be met without major improvements in the quality and quantity of energy services in developing countries. Energy for sustainable development supports the achievement of the MDGs, especially the target to reduce by half the proportion of people living in poverty by 2015.

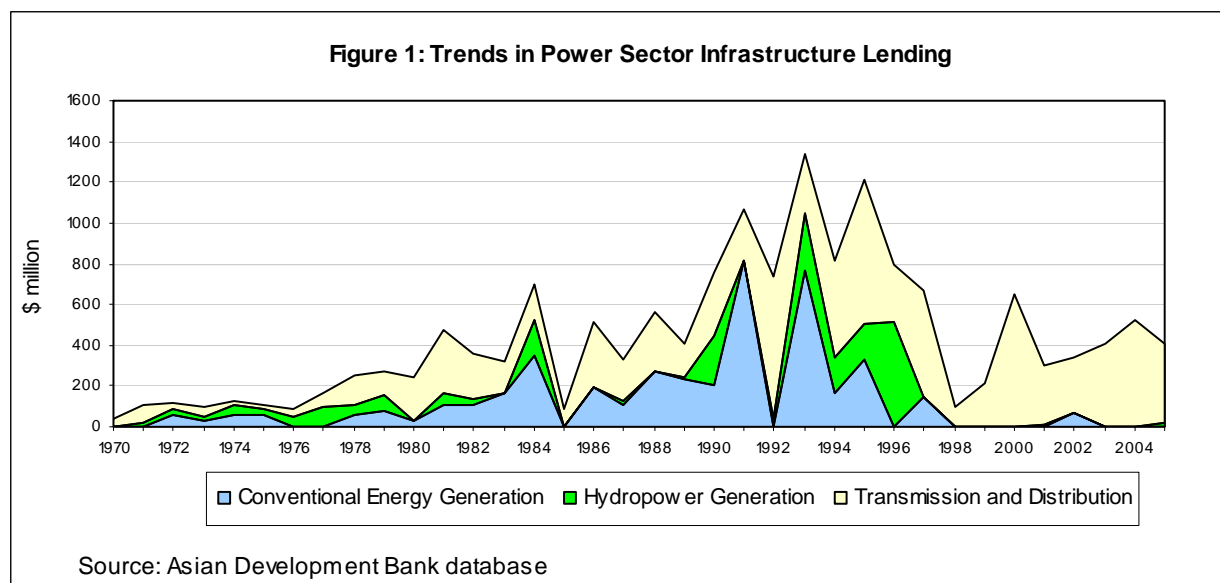
18. Many institutions need to adapt to new and emergent roles, as well as to domestic alliances and global partnerships. Promoting shared commitments to international agreements, conventions, and codes of conduct; and mainstreaming these commitments into national policies, strategies, and programs are major priorities.

C. Brief Review of ADB's Operations in Energy

19. Funding for energy infrastructure peaked in the early 1990's and declined significantly for a number of years (Figure 1). However, since 1998, funding for infrastructure has again increased, particularly for transmission projects. Technical assistance (TA) grants have seen an uninterrupted steady increase over the past 15 years. Funding for energy sector development has averaged over \$330 million per year since 1989 implementing ADB's energy policy for more sector reform.

⁷ Available: <http://www.undp.org/mdg>.

⁸ The current definition and indicators of environmental sustainability, as covered under the MDGs, do not include specific references to the seas, inland water bodies, and energy (marine, coastal, and inland energy).



20. The electricity sector funding trends mirror the development of the power sectors in the DMCs. Several recipients of large infrastructure loans and energy sector programs (for instance, Indonesia, Malaysia, PRC, and Thailand) have now developed their energy sectors to the level where donor funds for infrastructure are no longer needed or the level of assistance required is very low. On the other hand, recent DMC members with low levels of infrastructure and low technical capabilities, still require significant assistance for infrastructure, energy sector development, and capacity building before they become self sustaining.

21. ADB lending continues to support transmission and distribution projects and power sector development. ADB's lending for renewable energy projects (Indonesia and PRC) has not increased, however there has been a significant increase in TAs for the sector, possibly indicating a high need for capacity building. Lending for transmission and distribution projects has been held constant partially due to very large loans made to India and Bangladesh and the need for reconstruction in the former Soviet States and Afghanistan. There has also been a very large increase in private sector lending to the sector in response to the need for more private capital, with a corresponding drop in the funding of generation projects in the public sector. Table 2 sets out the funding shifts for the periods 1995–1999 to 2000–2005. In response to environmental and renewable energy issues, ADB has incurred a large increase in lending and TA activities for renewable energy and clean energy projects.

**Table 2: ADB's Lending to the Energy Sector
1996 to 2005 (\$million)**

	1996 to 2000	2001 to 2005	Change (%)
Public Sector Total	4,084	3,229	-20.9
Generation	152	73	-52.2
Energy Sector Development	1,496	1,449	-3.1
Hydropower	512	26	-94.9
Renewable Energy Generation	158	161	1.9
Transmission and Distribution	1,766	1,520	-13.9

Private Sector	123	314	155.7
Technical Assistance	40	44	9.5
Thermal Generation	3	2	-13.3
Energy Sector Development	25	30	18.1
Hydropower	4	1	-71.6
Renewable Energy	1	5	783.3
Transmission and Distribution	7	5	-32

Source: Asian Development Bank database.

22. ADB has shown a greater concern for the mitigation of the environmental effects of hydropower, thermal energy production and in the management of wastewater, among others. Lessons learned from previous experiences and the development of DMC expertise has been reflected in more recent TAs and the reports and recommendations of the President (RRPs) and in the increased adoption of these measures by DMCs.

23. Committed ADB projects in the medium term to 2007 reflect a continuation of the present focus.

Table 3: Future ADB Electricity Sector Lending 2005–2007

Country	Lending Focus
Afghanistan	Transmission, Rural Electrification Renewable Energy
Bangladesh	Power Sector Development
Bhutan	Rural Electrification, Renewable Energy
Cambodia	Transmission and Distribution
Cook Islands	Generation
Fiji	Rural Electrification
India	Power Sector Development, Hydropower
Indonesia	Power Sector Development
Kazakhstan	Transmission
Kyrgyz	Transmission
Lao PDR	Transmission, Rural Electrification, Renewable Energy, Nam Theun II
Maldives	Rural Electrification (Islands)
Nepal	Renewable Energy, Rural Electrification
Pakistan	Transmission and Distribution
PRC	Renewable Energy, Conservation
Philippines	Power Sector Development
Samoa	Power Sector Development, Renewable Energy
Sri Lanka	Rural Electrification
Tajikistan	Transmission
Uzbekistan	Renewable Energy, Energy Efficiency
Vietnam	Transmission, Generation, Restructuring

Lao PDR = Lao People's Democratic Republic, PRC = People's Republic of China.

Source: Asian Development Bank database.

Sector-Specific Issues and Questions Raised (for guidance only)

Sector	Issues	Questions raised
Market Reform and Privatization	Slow pace of reform Political interference with reforms and regulation	<p>What are the relative developing member countries' (DMC's) status in market reform and regulation with regard to the development of</p> <ul style="list-style-type: none"> • Political commitment • Independent regulation • Sector unbundling • Private sector participation • Has the Asian Development Bank (ADB's) involvement been with the "willing" support of the DMC • What role should the energy regulator take in the development of incentives for energy efficiency and emissions controls? • Other than CAREC Members Electricity Regulators Reform, how is information shared by regulators. How is this knowledge translated into the development of technical skills which underpin the economic and legal regulation of energy. How are levels of expertise assessed and gap assessments

Sector	Issues	Questions raised
		<p>made</p> <ul style="list-style-type: none"> • Unbundling Power Purchase Agreement (PPA) commitments
Energy Efficiency	<p>Negawatts—the most inexpensive form of increased capacity is by saving energy or shifting demand from peak to off peak.</p> <p>Lack of clear price signals from many institutions</p> <p>Lack of interest and expertise of consumers to implement demand-side management (DSM) /energy efficiency programs</p> <p>The large number of transactions and associated costs to develop energy efficiency programs.</p>	<p>What are the major initiatives used to promote energy efficiency?</p> <p>What should ADB's role be with regard to energy efficiency? That is, what is achievable, what resources will be required to perform ADB's role?</p> <p>What are the major attainable supply and demand side efficiencies which can be promoted?</p> <p>What are the roles of tariffs and metering?</p> <p>What role does regulation play?</p> <p>Are efforts aimed at demand or supply?</p>
Renewable Energy	<p>Increased fuel costs and the renewed emphasis on energy security have raised the importance of renewable energy (RE).</p>	<p>How well is regulation developed?</p> <p>Is Institutional development sufficient to evaluate and finance renewable projects?</p> <p>Are the projects best cost?</p> <p>Is redundancy built into designs? (External and internal evaluation capabilities)</p> <p>Is there a 'level playing field' for the technology? What conflicts exist? (e.g., Biomass and pollution)</p> <p>Are subsidies being used appropriately i.e., aimed at demand, not at supply?</p> <p>How applicable is this technology for RE?</p>
Energy Security	<p>Energy security (e.g., gas pipeline into Europe from Russia) is becoming a very important issue.</p> <p>Least cost options may not be adhered to if this increased security becomes a major concern. Hence, some renewable projects may become more attractive.</p>	<p>Is Nuclear Energy become a feasible option?</p> <p>How does this concern affect regional trade?</p> <p>Will this make renewable projects more attractive?</p>
Rural Electrification	<p>Least cost supply solutions</p> <p>Affordable energy for consumers</p> <p>Energy Security</p> <p>Subsidies</p> <p>Lack of qualitative evaluation and base line data.</p> <p>Renewable (eg solar/wind/hydropower is not reliable).</p>	<p>How successful are the current programs for the long term?</p> <p>What is the institutional capacity (ADB and MDC) to evaluate these, implement and maintain these projects?</p> <p>Is the choice of technology most appropriate?</p> <p>What are the real effects on poverty?</p> <p>Are subsidies appropriate in scope and appropriately directed?</p> <p>Are other complementary projects being implemented?</p>
Regional Cooperation	<p>Energy Security</p> <p>Regional Vs Bilateral trading</p>	<p>Are these projects meaningful with respect to the major objectives of poverty reduction?</p>

Sector	Issues	Questions raised
	arrangements	<p>To what extent are the projects technically or politically oriented?</p> <p>Is the aid being targeted at, and through the most appropriate executing agencies (EAs)?</p> <p>If the aid is to promote trade, is there a strong initial emphasis on developing a regional regulatory regime and followed by member country independent market operators?</p> <p>Will Power Security (self-sufficiency in particular) impede these objectives?</p>
Country and EA Readiness	Project Design Staff and Skill Levels Institutional Strength at DMC Financing capabilities	<p>How does each form of assistance (projects/TAs) fit into the overall country strategy? What are the expected outcomes of the assistance in forwarding the overall aims of the country sector?</p> <p>How does the assistance “fit” in terms of previous and expected future development in the sector, and what are the minimum conditions derived from previous assistance in order for the successful implementation of the proposed assistance?</p> <p>How does the assistance complement/distort other aid?</p> <p>Is/has the assistance been targeted at the correct institute? (policy should not be left to a technical organization)</p> <p>Does the ADB have the resources to develop and administer the assistance—for instance, are the number of transactions low or high, is the coordination between different EAs (policy vs technical) extensive?</p> <p>Does the bank have/want to acquire the necessary numbers of staff with current expertise to develop, monitor and evaluate the assistance?</p> <p>Is the assistance acceptable to the shareholders and are the current safeguard polices adequately reflective of the shareholders?</p> <p>Is the assistance affordable, least cost and reduces country risk (note these are conflicting priorities and will shift with time)?</p>
Safeguards and covenants	Are ADB’s safeguards reasonable and achievable The Operations Evaluation Department (OED) has commented on the need to shift from return on investment/return on equity (ROI/ROE)-based covenants as these do not promote capital efficiency.	<p>Are ADB’s safeguard policies with respect to the energy sector still appropriate and achievable?</p> <p>Does the DMC have the necessary skills and the regulatory/legal capability to enforce environmental/resettlement compliance?</p>
Corruption	How prevalent is this in the	What are the major sources of corruption in the

Sector	Issues	Questions raised
	power sector	Energy Sector? How well does the existing policy address these?
Private sector investments	Lack of enabling Institutions – finance, regulation PPA contracts Exit of many major (US) companies	Are the enabling institutions in place to reduce project risks? (see sector reform) Are risks being allocated equitably How is foreign currency risk being taken into account? Are PPA contracts convertible to a market structure
Transmission and Distribution	Sustainability Technical and non technical losses Land access and long delays Technical and non Technical Losses Access to reliable power Inter-regional connections – regulations	What is the extent of the sustainability of this sector – tariffs, losses, planning What is the role of private sector capital?
Generation (thermal)	Emissions by coal and HSFO Clean Coal Technology Private vs Public Sector development	Is Clean Coal Technology the choice for the future? Are current funding mechanisms suitable? Is there enough
Generation (Hydro)	Generally Contentious Environmental degradation, fisheries Resettlements Redundancy required Renewable	How are conflicting interests reconciled Are systems balanced with regards to type of generation?
Fuel	Very high prices Conflict between internal sources and imports if environment is taken into account. Fuel Access and transport problems in China, India See security above – diversity	Is transport of fuel more efficient than energy generated? Is there a role for public sector lending? Is there a need for the development of regulation/ and privations?

