

World Bank Group

- The World Bank (operations w/ sovereign guarantee)
 - IBRD: commercial-term loan, guarantee
China, Indonesia, Malaysia, Philippines, PNG & Thailand
 - IDA: interest-free credit, guarantee
Cambodia, Indonesia, Lao, Mongolia & Vietnam
- IFC (International Finance Corporation)
equity capital, loan and guarantee to **private** entities
- MIGA (Multilateral Investment Guarantee Agency)
sovereign risk guarantee

Financing Sources of Energy Investment

- Internal savings by energy entities
- Public equity/debt finance
 - government agencies
 - commercial banks
 - international financial institutions (IFIs) and ODA
- Private equity/debt finance
 - joint venture
 - IPO
 - BOT (project financing)

World Bank Lending for Energy

Key Strategic Objectives in EAP

- **Power Sector Reform**
 - corporate restructuring and privatization of utilities
 - institutional reform for private sector participation
 - development of competitive power market/ power trade
- **Environmental Protection**
 - reform for natural gas development and utilization
 - mainstreaming of renewable energy
 - energy efficient improvement
- **Improved Access to Energy (rural electrification)**

World Bank Energy Lending in EAP

Lending volume in \$million

Country	FY96	FY97	FY98	FY99	FY00	FY01
China	840 (2)	800 (2)	613 (3)	100 (1)	320 (1)	
Indonesia	373 (1)	86 (2)				
Thailand		245 (2)		300(PCG)		
Philippines	250 (1)					
Vietnam	180 (1)		199 (1)		150 (1)	
Cambodia	40 (1)					
Mongolia	35 (1)					30 (1)
Lao PDR			35 (1)			
Malaysia/PNG				100 (1)	17 (2)	
Total EAP	1,718 (7)	1,131 (6)	847 (5)	200 (2)	487 (4)	30 (1)

() denotes # of projects. PCG stands for Partial Credit Guarantee.

World Bank Energy Lending Projects under Implementation (1) (as of May 2001)

Country	Project Name	US\$M	Note (Board approval)
China	Tianhungping Hydro	300	FY93 Zhejiang Province
China	Zhejiang Power	400	FY95 Zhejiang Province
China	Tongbai Pumped Storage	320	FY00 Zhejiang Province
China	Yangzhou Thermal	350	FY94 Jiangsu Province
China	E.China Jiangsu Transmission	250	FY98 Jiangsu Province
China	Sichuan Transmission	205	FY95 Sichuan Province
China	Ertan Hydro II	400	FY96 Sichuan Province
China	Shanghai Waigaoqiao	400	FY97 Shanghai Municipality
China	Tuoketuo Power	298	FY97 Inner Mongolia A.Prov.
China	Hunan Power	300	FY98 Hunan Province
China	Sichuan Gas Development	255+GEF	FY94 Sichuan Province
China	Energy Conservation	63+GEF	FY98 SETC
China	Renewable Energy Dev.	100+GEF	FY99 SETC

World Bank Energy Lending Projects under Implementation (2) (as of May 2001)

Country	Project Name	US\$M	Note (Board approval)
Indonesia	Sumatera & Kalimantan Power	215	FY94 PLN
Indonesia	Power Transmission & Distrib.	263	FY96 PLN
<i>Indonesia</i>	<i>Solar Home System</i>	<i>0.5(GEF)</i>	<i>FY97 IBRD closed in Jan01</i>
Laos	S.Provinces Rural Electrification	35	FY98 EdL/MIH
Mongolia	Mongolia Coal	35	FY96 Baganul Coal
Mongolia	Energy	35	FY01 Energy Authority
PNG	Mining Sector/Gas Sector TA	10+7	FY00 PNG Government
Philippines	Transmission Grid Reinforcemt	205	FY96 NPC
Thailand	Lam Takhong Pumped Storage	100	FY95 EGAT
Thailand	Metropolitan Distrib. Reinforce.	115	FY97 MEA
Thailand	Distribution Automation/Rehab.	100	FY97 PEA
Vietnam	Power Transmission & Distrib.	199	FY98 EVN
Vietnam	Rural Energy	150	FY00 EVN

World Bank Energy Operations

(FY02-04: High Case)

Country	FY02	FY03	FY04
China	2 (+GEF)	1 (+GEF)	1
Indonesia	1	PCG?	1?
Philippines	1		
Thailand	(GEF)		
Vietnam	1 (+PRG)	1?	1
Others	Cambodia	PNG	Mongolia

GEF: Global Environmental Facility grant

PCG: Partial Credit Guarantee; PRG: Partial Risk Guarantee

WB Priorities in Energy Program

- Policy-based lending and AAA; no new project lending to power utilities in middle income countries.
- Programmatic lending (APL, strategic partnership w/GEF)
- Capacity building
- Paradigm shift in rural electrification program
- Mainstreaming renewable energy for improved access
- AAA for energy trade
- Collaboration w/ADB, JBIC and other donors
- Cross-sectoral perspectives
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Energy Program in China

- **Power Sector**

- Continue support of policy and institutional reform, capacity building for independent regulators (central/provincial) and competitive power market
- Yi Xing Pumped Storage (FY02S)
- a power transmission project (FY04?)

- **Environment/Access**

- Hubei Small Hydro (FY02)
- Strengthen support of gas sector reform by AAA & a gas distribution project (FY03 or later)
- WB/GEF Strategic Partnership for Renewables (CRESP) (FY02)
- GEF: Energy Conserv.II (FY02); Bldg.Energy Eff. (FY03)
- clean coal technology (IGCC, zero emission, etc.)

Energy Programs in SE Asia

- **Power Sector Reform**

- ID: Energy APL (FY02) for PLN restructuring
- ID: guarantee operations for PLN investment support (FY03?)
- PH: continued collaboration w/ADB for NPC restructuring
- TH: support of sector reform through supervision of portfolio

- **Environment/Access**

- ID: Energy APL for hydrocarbon pricing reform and phase-out of leaded gasoline; restructuring of Pertamina
- ID: Rural Electrification (FY03/04 APL?)
- PH: Rural Electrification (FY02 APL);
- PH: GEF for Distribution Loss Reduction (FY02)
- TH: GEF for ESCO Development (FY02)

Energy Programs in IDA countries

- **Energy Sector Reform/ PSD**
 - VN: Continue support of comprehensive energy policy planning and implementation by “NEPC/NEPO” (through Energy SECAL?)
 - KH/LA/MN: Continue support of power sector reform
 - VN & LA: PRG for BOT projects
- **Environment/Access**
 - VN: SEER (Sys.Optimization, Equitization & Renewable) (FY02)
 - VN: Rural Energy II (FY04)
 - VN: SEER II (FY06)
 - KH: Rural Electrification & Transmission (FY02)
 - MN: Energy Project (FY01); Energy Project II (FY04)
 - MN: GEF for Indoor Cooking Stoves for urban poor

Examples of WB Non-Lending Products

- China: TA for Power Sector Reform
- China: TA for Oil & Gas Sector Reform
- Vietnam: Renewable Energy Action Plan
- Vietnam: Energy CDF
- Indonesia: Power Demand/Investment Planning
- Mongolia: Energy Efficiency
- Regional – TA for GMS Power Trade
- Regional – Study on Natural Gas Trade

Greater Mekong Subregion Power Trade Support by the World Bank

- Expert Group for GMS power trade: joint technical assistance by WB/ADB since FY98
- Laos → Thailand
 - Nam Theun 2 BOT hydro: risk guarantee? (FY02)
 - EGAT transmission lines: PCG for debt financing (FY00)
- Vietnam → Cambodia
 - EVN grid extension: IDA credit (FY02)
 - EdC transmission lines: IDA/JBIC cofinance (FY02)

GMS Power Trade: Recommendations for Policy

National Priority

Regional Coordination: An ad hoc group with no formal structure should assume responsibility for developing the regional protocols and early planning for regional integration. Recently established GMS Experts Group could fulfill this role.

Regional Protocol: A formal regional cooperation agreement and permanent organization to coordinate the planning, development, operation and regulation of a future interconnected system should be established.

Flexibility in Laws, Regulations, and Contracts: compatibility of legislation, regulations and contracts to ensure that they permit the required flexibility for the regional market to expand.

Transmission Ownership: Each government should establish a clear policy of which entity will own and operate the transmission assets.

Open Access Transmission for wholesale competition.

Environmental Impact: need of a regional approach to resolve conflicts between regions/countries, coordinate regulation and incorporate environment issues into overall planning.

GMS Power Trade

Recommendations - Technical/Institutional

Regional Transmission Expansion Master Plan: A master plan should be established to provide information on least-cost plant locations and transmission development.

Regional Transmission Network Expansion: Each of the governments in the region should commit to the construction of specific/low risk, least-cost transmission lines.

Regional Operations Protocol: Operators of transmission systems should develop an operations protocol to establish procedures to maintain a reliable operation and facilitate trading.

Leadership: It should be assumed by a regional coordination group (already established: GMS Experts Group).

Independent Regulator: Each of the countries should consider establishing an independent regulator in order to reduce financial uncertainties.

Technical Assistance: Development community to provide technical assistance to strengthen institutions on power trade issues.

GMS Power Trade

Recommendations – Commercial/Financial

Generation Tariffs and PPA: a two-part tariff: a capacity/availability payment related to fixed costs, and an energy payment function of the actual production and variable energy costs.

Transmission Tariffs: a system of transparent transmission tariffs which will provide a firm basis for expansion and operation of the network.

Generation Risk: Governments and agencies should take all necessary steps to reduce the uncertainty on the future of generation.

Transmission Planning and Construction Risk: Governments and utilities should take measures to reduce the risks associated with transmission planning and construction.

Taxes and Royalties: Governments should communicate clearly their policy on taxation and royalties on exports of electricity to all interested parties.

Financial Support: Official donors should provide adequate financial instruments to support transmission development and power trade.