



Report and Recommendation of the President to the Board of Directors

Project Number: 43906
July 2009

Proposed Loan Visayas Base-Load Power Development Project (Philippines)

In accordance with ADB's public communications policy (PCP, 2005), this abbreviated version of the RRP excludes confidential information and ADB's assessment of project or transaction risk as well as other information referred to in paragraph 126 of the PCP.

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 6 July 2009)

Currency Unit	–	peso (P)
P1.00	=	\$0.0209
\$1.00	=	P47.96

ABBREVIATIONS

ACIL	–	ACIL Tasman
ADB	–	Asian Development Bank
APA	–	asset purchase agreement
CFB	–	circulating fluidized bed
DHI	–	Doosan Heavy Industries and Construction Company
DOE	–	Department of Energy
DSCR	–	debt service coverage ratio
EIA	–	environmental impact assessment
EMP	–	environment management plan
EPC	–	engineering, procurement, and construction
EPIRA	–	Electric Power Industry Reform Act
ERC	–	Energy Regulatory Commission
FIRR	–	financial internal rate of return
IPP	–	independent power producer
KEPCO	–	Korea Electric Power Corporation
KEXIM	–	Korean Export-Import Bank
KPHI	–	KEPCO Philippines Holdings Incorporated
KSPC	–	KEPCO SPC Power Corporation
LGU	–	local government unit
LLA	–	land lease agreement
NEA	–	National Electrification Administration
NGCP	–	National Grid Corporation of the Philippines
NPC	–	National Power Corporation
PEMC	–	Philippine Electricity Market Corporation
PSALM	–	Power Sector Assets and Liabilities Management Corporation
PSC	–	power sales contract
SIEE	–	summary initial environmental examination
SPC	–	SPC Power Corporation
TransCo	–	National Transmission Company
WESM	–	wholesale electricity spot market

WEIGHTS AND MEASURES

GWh (gigawatt-hour)	–	unit of energy
kWh (kilowatt-hour)	–	unit of energy
MW	–	megawatt
MWh	–	megawatt-hour
MVA	–	unit of apparent power

NOTES

- (i) In this report, "\$" refers to US dollars.
- (ii) Borrower's fiscal year (FY) ends on 31 December. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2009 ends on 31 December 2009.

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I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan without government guarantee to KEPCO SPC Power Corporation (KSPC) to finance the construction, operation, and maintenance of a 200-megawatt (MW) coal-fired power plant in Naga City, Cebu, in the Visayas region of the Philippines (the Project). The plant will use circulating fluidized bed (CFB) combustion boiler technology—a more environment-friendly technology—and provide much-needed base-load power to the Visayas grid. This Project will represent the first collaboration between the Asian Development Bank (ADB) and Korean Export-Import Bank (KEXIM) under a memorandum of understanding signed in 2008 by the two institutions as part of the Asian Infrastructure Financing Initiative. The project design and monitoring framework is in Appendix 1.

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS AND OPPORTUNITIES

2. The Visayas region in the Philippines—an important center of industry, trade, education, and tourism for the country—is facing an imminent power crisis. Intermittent blackouts now take place on Cebu, Panay, and Negros islands and are expected to become more frequent until new generation is brought on-line. Overreliance on the region's abundant geothermal resources and low tariffs, which were not allowed to rise to pay for new capacity, has resulted in underinvestment in the region's power generation resources, particularly intermediate and base load. As a result, the power mix in the Visayas is extremely dichotomous, with 71% currently generated from geothermal sources and 22% from old, very inefficient, and less environment-friendly diesel power plants with variable costs for generation four or five times as high as the variable costs of geothermal. Moreover, tight supply conditions are an obstacle to progress in the reform agenda for power of the Government of the Philippines (the Government) embodied in the Electric Power Industry Reform Act of 2001 (EPIRA). Specifically, implementation of the wholesale electricity spot market (WESM) in the Visayas grid has been deferred due to the assumption that spot prices would be excessively high if the supply–demand balance is not improved prior to launch.

3. In November 2005, National Power Corporation (NPC)¹ and Power Sector Assets and Liabilities Management Corporation (PSALM)² conducted an open and competitive public bidding for a lease covering 8.4 hectares of land within the existing Naga Power Plant Complex.³ The primary bid document was a land lease agreement (LLA) requiring the winning bidder to construct, operate, and maintain a base-load merchant power plant with a minimum capacity of 100 MW on the leased land for a term of 25 years. KEPCO Philippines Holdings Inc. (KPHI), a wholly owned subsidiary of Korea Electric Power Corporation (KEPCO), the national electric utility of the Republic of Korea, was the winning bidder. However, SPC Power Corporation (SPC) had been given the option to top the winning bid and it exercised its right to do so. NPC, PSALM and SPC signed the LLA in December 2005. Subsequently, KPHI and SPC

¹ NPC, a state-owned electricity utility, was solely responsible for electricity generation and transmission in the Philippines. The National Transmission Corporation (TransCo) was formed to take over responsibility of transmission with the passage and implementation of the EPIRA.

² The EPIRA created PSALM to privatize certain generating assets of NPC.

³ The complex is currently operated by SPC Power Corporation (previously Salcon Corporation) under a rehabilitation, operation, maintenance, and management agreement with NPC. The 203.8 MW complex includes four generating plants: 6 x 7.3 MW Cebu Diesel Plant I, 2 x 27.5 MW Land-Based Gas Turbines, the 50 MW Naga Coal-Fired Thermal Plant 1, and the 56.8 MW Naga Coal-Fired Thermal Plant 2. The agreement expires in 2012. These plants are quite old and have very low efficiencies. In 2008, NPC announced plans to either “take out or rehabilitate” the existing power plants after the agreement expires.

formed a joint venture (60%/40%) to implement the Project, and the LLA was assigned to KSPC. The Project was granted "pioneer status" and given an array of investment incentives, such as a 6-year income tax holiday starting from commercial operations and reduced tariffs for imported equipment.

4. The first unit of the Project was originally scheduled to begin operation in December 2008 and the second unit in June 2009. However, construction was delayed primarily due to difficulties KSPC encountered in signing power sales contracts (PSCs) with local distribution utilities. Most distribution utilities had PSCs with NPC, under which they were given NPC time-of-use rates that were very low compared with prices needed for cost recovery of a base-load power plant. Indeed, the rates were not enough for NPC to cover its own costs of providing power from its geothermal and diesel power plants and its power purchase agreements with independent power producers. The lack of PSCs in turn meant KSPC had difficulty securing debt financing for the Project.

5. Several developments have since compelled distribution utilities in the Visayas to sign PSCs with private generators. First, the supply shortage in the Visayas has become so critical that virtually no reserves are available on the Visayas grid. Second, NPC is no longer signing new PSCs, which means any distribution utility that anticipates load growth within its franchise will have to purchase power from new sources. Third, NPC has already privatized 58% of its generating assets, and continues to sell its plants. Distribution utilities are therefore concerned that NPC may not be able to access enough power to meet its delivery obligations under its PSCs. Finally, in February 2009 the Energy Regulatory Commission (ERC) approved raising the time-of-use rates by 48% in the Visayas from P2.89/kilowatt-hour (kWh) to P4.27/kWh to more accurately reflect NPC's true cost of providing electricity.

6. With an increasing number of PSCs signed and its competitive tender for engineering, procurement, and construction (EPC) services completed, KSPC arranged bridge loans with KEXIM and Korean Exchange Bank, and commenced construction on the Project in December 2007. KSPC engaged Sumitomo Mitsui Banking Corporation (SMBC) as lead arranger for the commercial loan syndication. KEXIM and SMBC began due diligence on the Project in July 2008. KSPC and KEXIM approached ADB for assistance in December 2008. ADB joined the due diligence process for the Project in late January and obtained concept clearance on 6 March 2009.

A. Sector Performance

7. Since 1936, NPC has been the state-owned entity responsible for generation and transmission of electricity in the Philippines under the development plans of the Department of Energy (DOE). It is heavily indebted and lacks the financial and technical resources to adequately invest in any new or even existing assets. Over the past decade, the Philippines has gradually restructured its power subsector under the EPIRA, which outlines comprehensive reforms to encourage more private sector investment and thus relieve the Government's financial burden for developing the national power system. Such measures will allow the Government to divert its scarce financial resources to much-needed social and infrastructure programs that are more focused on poverty reduction. Moreover, greater private sector involvement is expected to improve the system's efficiency and reliability, as well as increase competition. This would result in more affordable electricity tariffs that could spur economic growth and reduce poverty.

8. The EPIRA was designed to establish a model similar to that implemented in countries such as Australia, New Zealand, and Singapore. The main features include (i) a separate and privately operated transmission company, (ii) competing generation companies bidding into a WESM, (iii) all or part of the retail market open to competition, and (iv) an independent regulatory body. Appendix 2 contains a detailed description of the EPIRA and an update of its implementation.

9. Due to the country's geographic layout, the power system in the Philippines is divided into three major grids, each serving one of the country's three regions—Luzon (northern), Visayas (central), Mindanao (south). While many of the national institutions necessary for reform have been established, the pace of implementation has varied across regions with Luzon leading the way. The following particular features of the Visayas grid have led to unique challenges in implementation for the region.

1. Industry Structure

10. **Generation.** In 2008, approximately 71% of power supplied to the Visayas grid came from geothermal sources primarily from Leyte and Samar, 22% from diesel, and 6% from coal. Cebu currently represents about 46% of total Visayas demand; but with only 25% of the total capacity it has the highest power deficit.

Table 1: Installed and Dependable Capacity, by Fuel Source, in the Visayas, 2008

Fuel Source	Installed Capacity		Dependable Capacity		Electricity Generation	
	MW	%	MW	%	GWh	%
Coal	198	11	155	10	504	6
Diesel and Oil	604	33	419	28	1,786	22
Hydropower	11	1	10	1	38	0
Natural Gas	55	3	48	3	21	0
Geothermal	964	53	861	58	5,691	71
Total	1,832	100	1,493	100	8,040	100

GWh = gigawatt-hour, MW = megawatt.

Note: Figures may not sum precisely because of rounding.

Source: Department of Energy power statistics.

11. Power generation in the Visayas by ownership is shown in Table 2. NPC controls about 70% of generation capacity in the Visayas through outright ownership or power purchase agreements. Distribution utilities own almost all of the hydropower, and private companies own most of the diesel. The largest private generators in the Visayas, including those under independent power producer arrangements, are Global Business Power Corp. (Global Power), SPC Corporation, and Philippine National Oil Company–Energy Development Corporation.⁴ The

⁴ Global Power is part of Metrobank Group and owns 247 MW of installed capacity. It is also part owner of the 246 MW Toledo Expansion Project in Cebu. SPC Corporation, 40% owner of the project company, owns or operates 372 MW of generating capacity in the Visayas grid, 204 MW of which is under a rehabilitation, operation, maintenance, and management agreement with NPC until 2012 and about 169 MW of which was recently won in a privatization bid. Philippine National Oil Company–Energy Development Corporation (PNOC-EDC) is 60% owned by First Gen, a Lopez Group company, and operates 659 MW in the Visayas, 610 MW of which is the Leyte A Geothermal Plant, which has a power purchase agreements between NPC and Philippine National Oil Company–Energy Development Corporation that expires in 2021/2022. To ensure a competitive market, the EPIRA requires that no one company, including its related entities, may own more than 30% of the installed generating capacity of one grid or 25% of the total installed generating capacity nationwide.

400 MW of Non-NPC dependable capacity includes 171 MW recently privatized under EPIRA's framework. Appendix 3 shows the ownership of each generation plant.

Table 2: Installed Capacity and Generation in the Visayas by Ownership, 2008

Ownership	Installed Capacity	%	Dependable Capacity	%
	(MW)		(MW)	
NPC	401	22	330	22
IPP with PPAs with NPC	812	45	763	51
Non-NPC	618	34	400	27
Total	1,832	100	1,493	100

IPP = independent power producer, MW = megawatt, NPC = National Power Corporation, PPA = power purchase agreement.

Source: Department of Energy, Power Statistics.

12. The WESM was launched in Luzon in 2006 and, year-to-date, an average of about 23% of power is being bought on it. In the Visayas, the WESM has been run on a trial basis since late 2006, and ERC granted approval to launch it in 2008, but DOE delayed the official launch due to the tight demand and supply situation in the Cebu, Negros, and Panay subgrid. The shortage of supply cannot be readily rectified by transmission upgrades alone. The Visayas grid therefore requires new generation, but private investors have been reluctant to build new plants without a functioning spot market, government guarantees, or long-term power purchase agreements. Since the latter two options run counter to the new regime that policy makers would like to implement, extending the WESM to the Visayas is essential to ensure adequate generation to meet projected demand. Yet WESM implementation is likely to result in very high prices in the short term (which could be politically difficult) until, paradoxically, new generation can be brought on-line to bring prices down. This impasse has been a barrier for several years to both implementation of sector reform and establishment of new generation capacity, leading to the power crisis in the Visayas today.

13. To stabilize supply, in January 2009 DOE initiated implementation of the Visayas Supply Augmentation Auction Program, to be administered by the Philippine Electricity Market Corporation and the National Grid Corporation of the Philippines (NGCP). The auction program is a day-ahead market, which allows entities that have their own power supply to use their own generators and grid-connected customers to sell interruptible portions of their loads through an auction process. The auction program is a form of demand management that will ease the supply deficit by adding as much as 137 MW and will serve as an interim measure until the WESM launch. Generators will then be able to sell power to the WESM as well as through bilateral contracts with distribution utilities and progressively to large users and households after ERC determines that all requirements have been met for "open access" (Appendix 2).

14. **Transmission.** NGCP is the private concessionaire charged with improving, expanding, operating, and maintaining the country's transmission system. The transmission system in the Visayas is a long and narrow string of island grids covering Bohol, Cebu, Leyte, Negros, Panay, and Samar, connected by submarine cables with limited capacity. While Leyte has a surplus of generation available given its rich geothermal resources, constraints on transmission capacity limit the export of this power to the Cebu, Negros, and Panay subgrid. Fortifying submarine interconnectors in the Visayas grid as the solution to the power crisis in the region is not viewed as optimal or efficient from a technical or economical viewpoint, because it is very costly and

would not substantially improve the system's reliability. Thus, DOE advocates building more capacity on each island as the best way to enhance the region's energy security (Appendix 3).

15. **Distribution.** The distribution of electricity remains a regulated activity under the EPIRA. Distribution utilities are given an exclusive franchise to operate in a particular geographic area. Of the 141 distribution utilities nationwide, 16 are private investor-owned utilities, 6 are owned by local government units, and 119 are customer-owned electric cooperatives. The electric cooperatives are regulated by the National Electrification Administration (NEA); its mission is to expand rural electrification; provide financial, institutional and technical support to the electric cooperatives; and prepare electric cooperatives to operate and compete in a deregulated environment.

16. Aboitiz Power Corporation owns distribution utilities covering one third (about 350 MW) of the demand in the Visayas, including the Visayan Electric Company Inc., the second-largest privately owned distribution utility in the Philippines. Aboitiz Power Corporation also has significant equity interests in generation assets totaling 394 MW.⁵ Moreover, Vivant Corporation has interests in many of the same power companies as Aboitiz Power Corporation, including Cebu Energy Development Corporation, Visayan Electric Company, and Cebu Private Power Corporation. Cross-ownership of generation and distribution in Luzon is often cited as a reason for high electricity prices in the region. By providing a price to benchmark power rates, the Project is viewed as an important check on the possible abuse of market power by emerging vertically integrated utilities in the Visayas.

17. A major concern in the reform process is the poor financial condition of many electric cooperatives. In the Philippines, they are customer-owned, nonprofit organizations. The cost recovery mechanism approved for them is based on cash flow, rather than the performance-based method approved for private investor-owned utilities, which considers depreciation and a certain return on assets. The rate calculation for electric cooperatives provides only for operation and maintenance expenditure and actual debt service requirements, together with a 5% reinvestment surplus. Funds from this reinvestment account are for capital investment in the network. However, historically the use of these funds has not been closely monitored, and some of the funds may have been diverted to cover increased operating expenses.

18. ERC recognizes the flaws in the revenue-setting regime for electric cooperatives and will apply a performance-based, rate-setting methodology by the end of the year. In addition, to address concerns about the solvency of electric cooperatives, PSALM assumed all outstanding obligations of electric cooperatives to NEA and other government agencies. NEA is authorized to guarantee the purchase of electricity by these electric cooperatives on the spot market. Also, NEA now offers two lending windows to support electric cooperatives: a short-term revolving credit facility for shortfalls in monthly payments owed by electric cooperatives to power suppliers with borrowed amounts due in 30 days, and a standby credit facility covering up to a 1 month payment with borrowed amounts due in 3 months.

19. Another concern in the distribution sector is the distribution utilities' preparedness for the WESM and open access. The limited participation of electric cooperatives in the WESM relates to practical reasons. Most are not liquid or financially viable entities and have historically

⁵ These include 50% ownership in East Asia Utilities Corporation, which operates a 50 MW bunker C-fired plant within Mactan Export Processing Zone I; 60% ownership in Cebu Private Power Corporation, which operates a 70 MW bunker C-fired plant in Cebu City; and 26% effective ownership in Cebu Energy Development Corporation, the project company for the 264 MW Toledo Expansion Project. The EPIRA permits distribution utilities to source 50% of their power from affiliated companies.

invested little in their nonpower infrastructure (in large part due to cash-flow constraints resulting from their regulatory framework). As such, many cooperatives are not able to meet the WESM's prudential or technical requirements. In addition, many cooperatives are more comfortable with their long-established custom of sourcing directly from NPC (rather than interacting with the WESM, which is seen as uncertain).

20. The Government and international development agencies, including ADB,⁶ have offered several assistance programs to strengthen the management and technical capabilities of the electric cooperatives. NEA is also partnering with the WESM market operator to offer capacity building programs to the cooperatives to develop their proficiency to participate in the spot market and contract with power suppliers other than NPC.

2. Demand-Supply Balance in the Visayas

21. In 2008, the Visayas grid had 1,493 MW of dependable capacity (about 11% of the country's total) of which only 1,125–1,277 MW were supplied to the grid at any one time. Peak load was estimated to be 1,176 MW.⁷ The grid has already reached the critical period, defined as the year when existing capacity cannot meet peak demand plus the reserve margin required by ERC.⁸ During 2007, 54% of days had yellow alerts and 5% red alerts, indicating that reserve shortages were forecast even with the dispatch of all available plants. If any of the plants experienced an unplanned shutdown, the entire Visayan grid would suffer power outages.

22. Historically, the Visayas relied on its vast geothermal resources for its power needs, particularly for base-load power; and built smaller diesel plants on each island for peaking power. It has been a net exporter to Luzon until recently, but many years of below cost-recovery tariffs led to underinvestment in intermediate and base-load capacity. When geothermal resources could no longer fulfil the region's rapidly growing demand (about 6-9% growth per year) new generation was not brought on-line in time. The region still has untapped geothermal resources, but existing geothermal plants are only operating at a fraction of their rated capacities⁹ and new geothermal capacity is expected to come on-line very slowly relative to demand growth. Moreover, the geothermal resources are concentrated in Leyte and Samar, and technical constraints make evacuation of power from these areas difficult.

23. To meet the growing electricity demand in the area, the Visayas grid will require about 869 MW of additional capacity through to 2014. However, committed projects for the Visayas grid, including this Project, offer a total of 320 MW. Indicative projects total 644 MW and include the announcement by Cebu Energy Development Corporation¹⁰ in December 2007 of

⁶ ADB. 2007. *Technical Assistance to the Republic of the Philippines for the Rural Electric Cooperatives Development Project*. Manila.

⁷ Registered capacities, dependable capacities, and peak demand may vary slightly throughout as several sources provide inconsistent information.

⁸ This is 23.4% for Luzon and the Visayas, comprising 2.8% load following and frequency regulation, 10.3% spinning reserve, and 10.3% back-up.

⁹ Philippine National Oil Company commissioned the 49 MW Northern Negros Geothermal Field and plant in February 2007. However, at present it is producing only 7MW due to a mineral blockage in the existing wells. The plant was shut down in May 2008 to clear the wells, which took about 9 months. After refurbishment, the plant is only be able to produce 18 MW. Leyte A (590 MW) has been operating at about 88% capacity factor and recently has been below its rated capacity due to a lack of steam.

¹⁰ A consortium comprising Global Power (footnote 8), Formosa Heavy Industries Corp. of Taiwan, Aboitiz Power Corp., and Vivant Power Corp., is investing an estimated \$450 million for the construction of a 246 MW (3 x 82) coal-fired CFB facility.

construction of a 246 MW (3 x 82) coal-fired power plant adjacent to an existing power plant in Toledo, Cebu, with a target for completion of 2010.

24. While a reserve margin of about 25% is considered appropriate in a well-managed system to assure continuous supply, experience in the Philippines suggests that a higher margin is needed. This is particularly applicable in the Visayas where most of the diesel generation plants are very old and the region does not have a strongly meshed transmission network. The reserve margin in 2008 was about 50% on an installed (or nameplate) capacity basis. However, taking into account the derated capacities and availability of individual plants, the actual reserve margin on a dependable capacity basis was closer to 25%, yet power outages still occur in the Cebu, Negros, and Panay subgrid in particular. The power shortage in the Visayas is projected to continue until 2011, when the Project and Global Power plants are expected to come on-line. In 2011–2012, a slight oversupply is projected. However, since the Project is second in the merit order in terms of short-run marginal cost, it is expected to displace older, more expensive diesel plants and be fully dispatched. From 2013 onward, demand growth will result in no oversupply.

B. Asian Development Bank Operations

1. Country Strategy

25. ADB's country strategy and program for the Philippines (2005–2007, extended to 2010)¹¹ was developed with significant input from the Government to highlight its priorities and key areas for partnership. The country strategy and program lists inadequate infrastructure, fiscal imbalance, and uncertain investment climate as binding constraints to more rapid poverty reduction. The Project addresses the first area by providing much-needed base-load power capacity. It addresses the second area by not putting additional strain on limited government financial resources in its attempt to achieve its goals in infrastructure investment. The Project addresses the third area by introducing an international sponsor that can advocate for the development, integrity, and transparency of the reform process.

26. The country strategy and program also advocates more cooperation between ADB's public and private sector operations to enhance investor confidence and promote private investment critical to offset fiscally constrained public investment. By supporting a private sector investor, the Project is a logical continuation of the initiatives of ADB's public and private sector operations (Southeast Asia Regional Department and Private Sector Operations Department) in power subsector development and reform that is designed to promote an adequate, well-regulated, and market-oriented power sector.

27. The Project is also in-line with ADB's country operations business plan for the Philippines, 2009–2010, which calls for interventions to support critical infrastructure projects, including power generation, and cites power generation as a specific target area for private sector operations.

¹¹ ADB. 2008. *Country Operations Business Plan, Philippines 2009–2010*. Manila.

2. Long-Term Strategic Framework

28. Infrastructure is a core area under ADB's long-term strategic framework 2008–2020 (Strategy 2020).¹² Infrastructure is fundamental to achieving poverty reduction and inclusive growth, and Strategy 2020 recognizes that infrastructure gaps in the Philippines have held back industrialization and job creation. As part of its work in infrastructure, Strategy 2020 cites that ADB will "help expand the supply of energy." The Project falls under this core area, and follows this particular mandate. In addition, the Project catalyzes private sector engagement in infrastructure, and thereby utilizes one of the five drivers of change¹³ emphasized by Strategy 2020.

3. Energy Policy

29. ADB's *Energy Policy*¹⁴ recognizes that coal-based generation will grow to meet the electricity needs of the region. It states that ADB will encourage developing member countries to adopt available cleaner technologies, such as CFB, and assist them in collaborating with developed countries on technology transfer. Under the policy, ADB may support subcritical coal technology for developing member countries with small-sized grids depending on oil-based power supply as a least-cost option to diversify fuel sources to improve system reliability and energy security. The Project complies with ADB's *Energy Policy* along all of these dimensions. It was developed based on the intent of the governments of the Philippines and Republic of Korea to cooperate in activities promoting cleaner power generation to address projected power shortages under a memorandum of understanding signed in 2004. It will also decrease dependency on expensive and inefficient diesel plants, and increase reliability of the Visayas transmission system particularly in the Cebu, Negros, and Panay subgrid.

III. THE PROPOSED PROJECT

A. Project Description

30. The Project involves construction and operation of a 200 MW coal-fired power plant on 100,000 square meters of land in the *barangay* (district) of Colon, in the city of Naga, Cebu Province, about 20 km from Cebu City. The plant consists of two nominal 100 MW units (one unit can generate as much as 103 MW), each comprising a boiler, electrostatic precipitator for particulate matter control, steam turbine generator, condenser, and circulating water system. The plant will use CFB boiler technology, known as "cleaner coal" technology as CFB boilers are very low generators of nitrogen oxide and sulfur dioxide emissions.

31. The project site is on the previous ash pond disposal area of the existing 203.8 MW Naga Power Plant, which provides easy access to transmission lines and seawater for cooling and industrial use, as well as joint use of existing power plant infrastructure (access road, water intake channel, and jetty trestle). The plant will be interconnected to the Visayas transmission grid through a new 138 kilovolt substation (the New Naga Substation) located less than a kilometer away. KSPC contracted Doosan Heavy Industries and Construction Co., Ltd. (DHI) after a competitive bidding process for plant EPC. DHI will supply the boilers, which will be

¹² ADB. 2008. *Strategy 2020: The Long-Term Strategic Framework of the Asian Development Bank 2008–2020*. Manila.

¹³ The five drivers of change are (i) private sector development and private sector operations, (ii) good governance and capacity development, (iii) gender equity, (iv) knowledge solutions, and (v) partnerships.

¹⁴ ADB. 2009. *Energy Policy*. Manila.

Foster Wheeler “Compact” CFB combustion boilers. This boiler model was first put into commercial operation in 1993. To date, more than 40 units are in operation including more than 16 units at 100 MW and larger, which burn a wide variety of fuels. Fuji Electric Systems Co., Ltd. is designing, manufacturing and supplying the steam turbine generator. It is a major manufacturer of turbine generators and has shipped 450 units worldwide since 1959, totaling almost 23,000 MW. Construction of the plant began in December 2007 with financing provided by equity and bridge loans. As of May 2009, 55% of the construction milestones were completed. The Project's target for commercial operation is February 2011 for the first 100 MW unit and May 2011 for the second 100 MW unit.

32. The Project's feasibility study cited a preference for coal as the fuel source because other fuel sources were deemed either not easily or sufficiently available (hydro, biomass, geothermal, natural gas) or relatively expensive (solar, wind, oil). The configuration of two 100 MW units was deemed optimal due to the small size and projected demand of the Visayas grid.¹⁵ Subcritical technology was adopted because supercritical is technically more difficult to apply and not cost-effective for power plants below 500 MW. However, the use of CFB boilers allows the Project to utilize a wide range and lower cost fuel, and results in lower nitrogen oxide emissions and sulfur dioxide emissions. Appendix 3 contains further explanation of the Project's rationale for fuel source and technology.

B. The Borrower and Sponsors

33. KSPC, a registered Philippines company, is 60% owned by KPHI and 40% owned by SPC. KPHI is a wholly owned subsidiary of KEPCO. In turn, KPHI owns 40% of SPC, giving KEPCO 76% effective ownership of KSPC. Both KEPCO and SPC have a long history of operating power plants in the Philippines. This provides added comfort not only with technical aspects of the plant's construction and operation, but also with the sponsors' ability to contribute to the reform process.

34. KEPCO is the Republic of Korea's only fully integrated electric utility, and is the monopoly operator of the country's power transmission and distribution system. KEPCO generates more than 95% of the electricity consumed in the Republic of Korea through 68,000 MW of generation capacity operated by its six wholly owned generation companies, all separately corporatized in April 2001. The generation sources include coal (pulverized and CFB), gas and oil-fired power plants, nuclear power plants, and hydroelectric plants. The Government of the Republic of Korea, directly and indirectly, owns 51% of KEPCO. The company began its foreign expansion in the Philippines and has since implemented or is in the process of developing projects in more than 10 countries including Cambodia, Indonesia, Mongolia, and People's Republic of China. It will provide the primary technical, managerial, and financial support to the Project.

35. KEPCO has more than 10 years experience with power projects in the Philippines. Its Philippine operations, conducted through KPHI, provide approximately 16% of Luzon's installed generation capacity or 12% of the Philippines' installed generation capacity. In 1995, KEPCO was awarded the rehabilitation, operation, maintenance, and management contract for the 650 MW Malaya Thermal Power Plant in Rizal. Subsequently, a consortium led by KEPCO won the build-own-transfer contract for the construction of the 1,200 MW Ilijan Combined Cycle

¹⁵ The largest single unit in the Visayas grid is 77.5 MW. For a grid size less than 2,000 MW and with the peak demand on any one island below 600 MW, an outage of a single unit above 100 MW would cause large disruptions to power supply and could damage the system.

Power Plant in Batangas. In June 2004, DOE and the Korean Ministry of Commerce, Industry and Energy entered into a memorandum of understanding to foster cooperation between the two countries in the field of energy; promote the development of environment-friendly power generation through the use of cleaner technology; and assist the Philippines in addressing the power supply shortage in Cebu. KEPCO's participation in this Project represents the first undertaking under this memorandum of understanding.

36. SPC was organized in 1994 after a consortium led by Salcon Holdings Philippines Inc. was awarded a rehabilitation, operation, maintenance, and management contract for NPC's Naga Power Plant Complex. In 2005, KPHI bought Salcon's shares and became the largest shareholder in SPC. In November 2008, SPC won the bid for privatization of the 146.5 MW Panay and 22 MW Bohol diesel power plants with its bid offer of \$5.86 million.

C. Development Impacts

37. The Project supports sustainable growth in the Visayas region by increasing the availability of reliable and competitively priced power to help alleviate the current power supply shortage without additional fiscal burden on the Government. The Project will revitalize implementation of the Government's reform agenda for the power subsector, which aims to lower electricity costs over time by increasing competition and efficiency through private sector investment in the sector. The construction and operation of a plant by a large and experienced global energy provider using more environment-friendly technology and adhering to ADB safeguards will result in the achievement of operating efficiencies that are consistent with global industry best practices and more environmentally sound power generation. Moreover, it will provide a demonstration effect for future greenfield power plants (particularly coal-fired) in the Philippines under the new regulatory environment. The design and monitoring framework is in Appendix 1.

D. Implementation Arrangements

38. **Land Lease Agreement.** KSPC is the lessee under a 25-year lease of the project site, under which it has an obligation to build a new power plant of at least 100 MW capacity by December 2011. KSPC has the option to extend the lease another 25 years. Upon expiration, all immovable assets become the property of NPC and PSALM. KSPC, NPC, PSALM, and SPC signed a co-use agreement that addresses the joint use of certain existing infrastructure of the power plant site (access road, water intake channel, and the jetty trestle). The jetty and the jetty extension (a component of the Project) is located on foreshore land, which NPC will lease from the Department of Environment and Natural Resources. The co-use agreement grants KSPC access to the foreshore area for use of the jetty.

39. **Engineering, Procurement, and Construction.** The EPC contract was awarded to DHI through a qualified bidding process. DHI is part of the Doosan group, one of the oldest and largest conglomerates in the Republic of Korea specializing in infrastructure support. DHI has built over 400 nuclear, thermal, and combined cycle power plants around the world since its establishment in 1962. For the Project, DHI's obligation includes constructing and testing the plant and transmission line, and importing all required equipment.

40. **Offtake Arrangements.** KSPC's target is to contract 170 MW, or more than 91% of net output. The contract period is 10 years starting from commercial operation date (COD). Under the PSCs, the buyer will pay KSPC for a minimum number of kilowatt hours at the contract price, based on the Project's long-run average cost adjusted for inflation, the dollar/peso

exchange rate, and coal prices. The PSCs will not have the backing of any government undertaking since the EPIRA prohibits the issuance of sovereign guarantees for offtake arrangements. The PSCs are similar and differ only in the contract quantities and capacity caps. ERC approved the initial draft of the PSCs, and is expected to approve amendments to the PSCs requested by lenders.

41. KSPC has signed nine PSCs for a total contracted capacity of 171.1 MW. The distribution utilities are primarily in central Negros and Cebu provinces. In addition to the eight electric cooperatives, KSPC has contracted 15 MW with Mactan Electric Company, a private investor-owned utility, and 37 MW with iN2Power, a newly formed wholesale power aggregator that combines supply from generators to match the full load profile (base load, intermediate, peak) of energy buyers.

Table 3: Data on Electric Cooperatives
(figures for 2007 unless indicated otherwise)

Item	CEBECO I	CEBECO II	CENECO	NOCECO	NORECO 1	NORECO II	VRESCO
NEA rating	A+	A+	A+	A+ (2004)	A+	A+ (2006)	A+
Customers (number)	108,801	101,290	156,317	118,861	48,411	104,323	88,989
Household Level of Electrification	42%	57%	71%	87%	31%	53%	46%
Operating revenue (P million)	536	775	2,506	782	203	931	686
Operating margin (P)	35,280,819	17,277,722	76,290,057	47,749,994	(322,141)	26,581,686	11,253,915
Net margin (P)	7,176,756	1,045,809	(41,111,512)	7,149,974	(8,125,393)	908,575	(16,185,864)
Operating margin 2006 (P)	(31,983,386)	8,921,658	35,561,697	33,479,069	(6,297,036)	17,627,594	(2,922,924)
Net margin 2006 (P)	(60,257,080)	(9,835,314)	(77,415,951)	14,674,362	(7,214,706)	713,285	(26,259,400)
Actual kWh purchased	107,612,696	165,324,916	553,771,302	150,003,728	39,665,053	190,609,205	137,036,965
KSPC volume from the project (kW)	7,000	12,000	64,000	10,000	2,700	16,400	7,000
Actual peak load (kW)	21,967	36,709	107,063	31,210	9,020	38,190	27,062
KSPC volume % of peak load	32%	33%	60%	32%	30%	43%	26%
Actual power supply cost	3.85	3.77	3.75	3.87	3.91	3.80	3.76
Load factor	56%	51%	59%	55%	50%	57%	58%
System loss	9%	10%	12%	11%	14%	12%	14%
Number of employees	201	226	367	338	184	300	277

() = negative, kW = kilowatt, kWh = kilowatt-hour, CEBECO I = Cebu I Electric Cooperative Inc., CEBECO II = Cebu II Electric Cooperative Inc., CENECO = Central Negros Electric Cooperative, Inc., NEA = National Electrification Administration, NOCECO = Negros Occidental Electric Cooperative Inc., NORECO I = Negros Oriental I Electric Cooperative Inc., NORECO II = Negros Oriental II Electric Cooperative Inc., VRESCO = VMC Rural Electric Service Cooperative, Inc.

Note: NEA ratings are based on a point system to measure an electric cooperative's financial viability and performance. Areas of consideration include payment history of NEA loans, system loss, collection efficiency, payment history to power suppliers and TransCo or NGCP, nonpower cost, amount of energization, and financial results. Demerit points are given for observations such as management instability and cash advances to officers and employees.

Sources: National Electrification Administration and ACIL Tasman.

42. Any capacity not contracted over the life of the Project will be sold on a merchant basis to the WESM. If the WESM is not launched by the Project's COD, KSPC will sell any excess and uncommitted power through the Visayas Supply Augmentation Auction Program, to NGCP to serve as ancillary services, or on an ad-hoc basis to large customers connected directly to the grid.

43. **Coal Supply.** Fuel is low-sulfur, sub-bituminous coal supplied to the Project under coal supply contracts with two Indonesian coal companies selected after screening potential suppliers and several rounds of negotiations. KSPC has also entered into backup coal supply arrangements with Philippine National Oil Company-Exploration Corporation.

44. **Transmission.** KSPC and NGCP will enter into a transmission service agreement for the transmission of electricity generated by the Project. In addition, KSPC is obliged, under memorandum of understanding, to construct and cover the cost of the transmission line to connect the power plant to the new Naga Substation (0.7 km), and turn it over to TransCo upon completion. In turn, NGCP will provide engineering and right-of-way acquisition services for the associated line. NGCP will build a new Naga substation at its own cost to enable the full dispatch of the Project's power. If the substation is not completed by the time the plant is ready for commissioning, NGCP will implement a contingency plan and bear the costs for building a temporary line to the old Naga Substation.

45. **Operation and Maintenance.** KSPC will contract operation and maintenance to East-West Power, one of KEPCO's six generation companies. East-West Power has experienced operating power plants overseas. In addition to daily operation and maintenance of the plant, East-West Power will be responsible for security, safety, hiring and training of personnel, environmental compliance, procurement of consumables and spares, and major maintenance. Major overhauls, intermediate overhauls, and preventive maintenance will follow an alternate cycle between units to minimize plant outages and smooth maintenance expenditures.

E. Environmental and Social Dimensions

1. Environment

46. The emissions guaranteed in the EPC contract are below Philippine standards and World Bank guidelines for all pollutants. CFB combustion boilers are inherently very low generators of nitrous oxide emissions due to their low combustion temperature and staged combustion, and are capable of removing up to 98% of sulfur dioxide emissions.

Table 4: Comparison of Project Emission Requirements with World Bank and Philippine Requirements

Pollutant	World Bank Standard ^a	Philippine Standard ^b	Project Requirement
Particulate Matter	50 mg/Nm ³	150 mg/Nm ³	40 mg/Nm ³ (@ 12% CO ₂ dry)
SO ₂	0.2 tons/day/MWe 2,000 mg/Nm ³	700 (245 ppm)	200 ppm (@ 6% O ₂ dry) (approx. 572 mg/Nm ³)
CO	—	500 mg/Nm ³	320 ppm (@ 6% O ₂ dry)
NO _x	750 mg/Nm ³	1,000 (487 ppm)	150 ppm (@ 6% O ₂ dry) (approx. 308 mg/Nm ³)

CO = carbon monoxide, NO_x = nitrogen oxides, SO₂ = sulfur dioxide, mg/Nm³ = milligrams per normal cubic, MWe = megawatts of electrical output, ppm = parts per million.

^a World Bank Group. 1998. *World Bank Air Emission Limits from Pollution Prevention and Abatement Handbook*. Washington, DC (effective July).

^b Based on Philippine Clear Air Act of 1999.

Source: World Bank.

47. Total carbon dioxide emission of KSPC's Cebu power plant is 1,006,148 tons of carbon dioxide/year. The Philippines nearly doubled its total carbon dioxide emissions to 80.5 million tons in 2004 from 43.9 million tons in 1991. However, the Philippines' share of the total world emission of carbon dioxide remains small. The Philippines accounts for only 0.3% of global carbon dioxide emissions although it comprised 1.3% of the world's population in 2004.

48. The Project is classified as category A under ADB's *Environment Policy* (2002). The environmental impacts were assessed and the Government approved the environmental impact assessment on 5 December 2005. The summary environmental impact assessment was prepared and, in accordance with ADB's *Public Communications Policy* (2005), disclosed to the public through the ADB website on 10 March 2009.

49. The environment management plan (EMP) is part of the Project's environmental impact assessment and outlines measures to be implemented during construction and operation of the Project to mitigate air pollution, noise, waste generation (liquid effluents, thermal pollution, and ash), water quality deterioration, and traffic. The EMP also outlines a monitoring program that will involve continuous emissions monitoring; installation of equipment to monitor wastewater quality; and ambient air quality monitoring systems to measure sulfur dioxide, nitrogen oxide, and dust content in the immediate vicinity of the plant. Annual environmental audits will be undertaken by a third party duly accredited by the Department of Environment and Natural Resources. A multipartite monitoring team was established comprising contractors, local consultants, and officials of relevant government agencies and local government units that will be responsible for overseeing monitoring activities. KSPC has allocated funds for EMP implementation. Results of environmental due diligence indicate that the mitigating measures identified in the environmental impact assessment and EMP, including environmental monitoring during construction, are being properly implemented with no adverse or detrimental effect on the environment. The construction of the 0.7 km transmission line will not cause any significant environmental impact and will not cross any environmentally sensitive areas. Ash will be disposed as raw material for cement manufacturing through agreement with Cebu Provincial Government (CPG). In emergencies, ash will be transferred from the silo in a humidified form and stored in the emergency ash pond on-site, lined with high density polyethylene (HDPE) to ensure no ground seepage of the wet ash. In the event that alternative ash disposal is needed in the future, any proposed site will be required to meet ADB's environmental and social safeguards requirements and approval.

50. Due diligence of the Project's environment-related activities confirms that the Project meets ADB's environmental requirements as well as national and local requirements. Site visits indicate that adequate environment, health, and safety management systems are in place. Implementation of the EMP during operation should ensure that any adverse or significant impacts will be adequately addressed.

2. Social Aspects

51. **Labor, Health, and Safety.** The Project will provide employment opportunities for qualified local residents, and contribute directly and indirectly to business opportunities in the area. Antipollution technology and devices will be installed to prevent air pollutants from going into nearby communities. KSPC will monitor the health of local communities, contribute to the improvement of local health services and facilities, and conduct periodic medical missions that will distribute free medicines.

52. **Land Acquisition and Involuntary Resettlement.** Due diligence was conducted on the Naga land (the plant site), which used to be occupied by 22 families with no legal title. In October 2008, 17 families voluntarily relocated to a site provided by the Naga local government. KSPC provided financial assistance and the labor force needed to construct homes for the relocated families. KSPC also provided basic infrastructure and utilities at the relocation site, such as new access roads, and power and water supplies. The remaining 5 families claim to have legal titles and have partially encroached on the leased land. While awaiting a judicial resolution, the disputed areas have been fenced off from the rest of the plant site and the families remain unaffected. Due diligence confirms that no other issues relate to those affected by the construction of the KSPC plant on the Naga land. In the event of any unforeseen land acquisition or involuntary resettlement impacts, KSPC will comply with ADB's Involuntary Resettlement Policy.

53. The Project will evacuate power to a 138-kilovolt transmission line requiring land and right-of-way acquisition; TransCo prepared a land acquisition and resettlement plan. The KSPC transmission line (the project transmission line) extends 0.7 km and connects to the NGCP line. Acquisition of public and private land for the project transmission line will affect assets of people living close to the project site, hence the overall project category is "B" with respect to ADB's *Involuntary Resettlement Policy* (1995). A short resettlement plan for this project component was prepared as part of the main land acquisition and resettlement plan. Activities under the short resettlement plan will mitigate adverse social and economic impacts from land acquisition, and establish an ongoing relationship with those affected throughout the life of the Project.

54. **Community Engagement.** KSPC implements projects and activities to establish a harmonious relationship with the host community through its social development plan and its corporate social responsibility policy. The social development plan covers KSPC interventions and donations in areas such as health, sanitation, nutrition, and education to support programs by the local government unit that favor various project stakeholders. An annual budget of P240,000 is allocated for implementation. The recipients of KSPC's community programs are residents of Colon barangay and include the relocated families. Moreover, the local government unit will benefit directly from the Project through additional financial resources provided by Section 289 of the Local Government Code and Energy Regulations 1-94 from DOE. KSPC will assist the municipality in obtaining the funds provided by these codes.

55. **Indigenous People.** No indigenous people live in Naga City. Most of the households in the city classify themselves as Cebuano. No indigenous people will be affected by the Project; hence, the Project is categorized as C under ADB's *Policy on Indigenous Peoples* (1998).

IV. THE PROPOSED ASSISTANCE

A. Loan

56. ADB will provide a direct loan of up to \$120,000,000 to KSPC without government guarantee from ADB's ordinary capital resources.

B. Justification

57. The Project merits ADB support for the following reasons:

- (i) The Project will provide much needed electricity to an economically promising area of the Philippines with a current power shortage, and will thereby support the country's continued growth and contribute to reduced poverty in the region.
- (ii) The Project is directly in-line with the Government's road map for the energy sector under the Philippine Energy Plan for 2005–2014.¹⁶ By demonstrating that a greenfield project can be successfully financed and operated in light of imminent market-oriented sector reforms, the Project will provide much-needed support for the Government's reform agenda. By addressing the region's power supply shortage, the Project will catalyze the pace of reform as set out by the EPIRA, which has stalled due to the assumption that launching the WESM during a shortage would result in politically untenable spot prices.
- (iii) The Project will have a demonstration effect for future private sector investments in greenfield coal-fired power generation under the new regulatory regime. The Project, through the expertise of its sponsors and compliance with ADB safeguards, will be a model in the application of cleaner technologies to coal-fired power plants of this size. Moreover, the finance structures used for the Project can serve as a model to finance future greenfield coal projects.
- (iv) ADB's country strategy for the Philippines (2005–2007) lists inadequate infrastructure, fiscal imbalance, and uncertain investment climate as binding constraints to more rapid poverty reduction. The Project addresses the first area by providing much-needed base-load power capacity, and the second area by not adding strain to the limited financial resources of the Government. ADB's participation will give added assurance to investors and cofinanciers that the Government will more likely support this Project throughout its life due to ADB's involvement, and thereby improve the sector's uncertain investment climate.
- (v) The Project is in-line with ADB's country operations business plan for the Philippines, 2009–2010, which calls for interventions designed to support critical infrastructure projects including power generation, and cites power generation as a specific target area for private sector operations.
- (vi) By supporting a private sector investor, the Project is a logical continuation of the initiatives of ADB's public and private sector operations (Southeast Asia Regional Department and Private Sector Operations Department) in development and reform of the power subsector that is designed to support an adequate and well-regulated market-oriented sector. Specifically, ADB's support for KEPCO and SPC's first merchant power plant will improve the competitiveness of the generation sector by reducing its oligopolistic structure. These sponsors are likely to contribute to the development and viability of the wholesale electricity market and the integrity of the reform process. In time, the improved competitive environment is expected to result in more affordable and sustainable electricity tariffs that could stimulate economic activity and reduce poverty.
- (vii) The Project falls under one of the mandates of Strategy 2020, which cites that ADB will "help expand the supply of energy" as part of its work in infrastructure, a core area under ADB's long-term strategy. Infrastructure is fundamental to achieving poverty reduction and inclusive growth, and Strategy 2020 recognizes that infrastructure gaps in the Philippines specifically have held back

¹⁶ Department of Energy, Philippines. 2005. *Philippine Energy Plan 2005-2014*. Manila.

industrialization and job creation. In addition, the Project catalyzes private sector engagement in infrastructure, and thereby utilizes one of the four drivers of change emphasized by Strategy 2020.

- (viii) The Project complies with ADB's *Energy Policy*. It will adopt CFB, a more environment-friendly technology, and will improve system reliability and energy security through diversification away from oil-based generation in the context of a smaller size grid. Due diligence confirms that coal-based generation using subcritical boiler technology is the least-cost option, and that adequate mitigation equipment and measures are incorporated in the project design.
- (ix) ADB's participation is needed to fill a gap in the present financial environment in which sources of funding previously available have abated due to outside market factors and the exposure limits of banks to the Project's sector.
- (x) KEXIM brought the Project to ADB's attention based on the signing of a memorandum of understanding by ADB and KEXIM in June 2008 for nonsovereign financing under the Asian Infrastructure Financing Initiative. Cooperation and cofinancing with bilaterals is a key agenda item promoted under ADB's recent general capital increase. If approved, the Project will represent the first collaboration between ADB and KEXIM under this initiative.

C. Anticorruption and Combating Money Laundering and the Financing of Terrorism

58. Integrity checklists were completed for KEPCO, the shareholding companies (KPHI and SPC), and their management, based on internet searches, press reviews, and use of the World Check database. No issues or concerns were found. KSPC was advised of ADB's *Anticorruption Policy* (1998, as amended to date) and policy relating to the *Combating of Money Laundering and the Financing of Terrorism* (2003). Consistent with its commitment to good governance, accountability, and transparency, ADB will require KSPC to institute, maintain, and comply with internal procedures and controls following international best practice standards for the purpose of preventing corruption or money laundering activities or the financing of terrorism and covenant with ADB to refrain from engaging in such activities. The investment documentation between ADB and KSPC will further allow ADB to investigate any violation or potential violation of these undertakings.

V. ASSURANCES

59. Consistent with the Agreement Establishing the Asian Development Bank,¹⁷ the Government will be requested to confirm that it has no objection to the proposed assistance to KSPC. No funding will be disbursed until ADB receives such confirmation. ADB will enter into suitable documentation, in form and substance satisfactory to ADB, following approval of the proposed financing by ADB Board of Directors.

¹⁷ ADB. 1966. *Agreement Establishing the Asian Development Bank*. Manila.

VI. RECOMMENDATION

60. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan of up to \$120,000,000.00 to KEPCO SPC Power Corporation for the Visayas Base Load Power Development Project from ADB's ordinary capital resources with terms and conditions as are substantially in accordance with those set forth in this report and as may be reported to the Board.

Haruhiko Kuroda
President

27 July 2009

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
<p>Impact</p> <p>Sustainable economic growth in the Visayas</p> <p>Competitive power market with increased private sector participation, as intended under the Government's reform program</p> <p>Increased use of more environment-friendly technology in coal-based generation in the Philippines due to demonstration effects of the Project</p>	<p>Annual increases in FDI, GDP, and per capita income</p> <p>At least two more private sector companies invest in power in the Visayas</p> <p>At least two new CFB plants by 2016</p>	<p>National macroeconomic data</p> <p>Statistics and information disclosed by DOE and other government agencies</p>	<p>Assumptions</p> <p>Availability of reliable and affordable electricity results in increased economic activity and investment</p> <p>Regulatory reform for the power subsector continues in a transparent, consistent manner</p>
<p>Outcome</p> <p>Increased supply of reliable and low-cost base-load power in the Visayas</p>	<p>Involuntary load shedding eliminated in Cebu, Negros, and Panay subgrid by 2011</p> <p>Reserve margin in the Visayas grid increases from 4% in 2009 to 20% in 2011, and stabilizes at 10% in the long term (30%+ on a nameplate basis)</p> <p>Marginal cost of the Project is one third of diesel-based generation^a</p>	<p>Statistics and information disclosed by DOE and other government agencies</p> <p>Project company's operating reports</p>	<p>Assumptions</p> <p>Adequate development of power system in the Visayas continues, other than the Project</p> <p>Plant produces electricity as planned</p> <p>Adequate transmission</p> <p>Risk</p> <p>Coal supply is not stable and competitively priced.</p>

Design Summary	Performance Targets and/or Indicators	Data Sources and/or Reporting Mechanisms	Assumptions and Risks
<p>Outputs</p> <p>Project built and operating in an environmentally sustainable manner</p>	<p>200 MW of capacity is commissioned and operating by 2011</p> <p>Sale of 745 GWh per year from 2012 onward</p> <p>Emissions of sulfur dioxide at 572 mg/Nm³ and nitrous oxides 308 mg/Nm³ are below World Bank standards for thermal generation</p>	<p>Completion certificates</p> <p>Project company's operating reports</p> <p>Reports by an independent engineer</p>	<p>Assumptions</p> <p>Finance raised</p> <p>Contractors perform in a timely manner and in accordance with guaranteed performance standards as per respective contracts</p>
<p>Activities with Milestones</p> <ol style="list-style-type: none"> 1. KSPC enters into PSCs approved by ERC by September 2009 2. Finance documents signed in January 2010 3. First drawdown of ADB loan in February 2010 4. Unit 1 commissioned in February 2011 and unit 2 in May 2011 			

ADB = Asian Development Bank, CFB = circulating fluidized bed, DOE = Department of Energy, EIRR = economic internal rate of return, FDI = foreign direct investment, FIRR = financial internal rate of return, GDP = gross domestic product, GWh = gigawatt-hour, KSPC = KEPCO SPC Power Corporation, mg/Nm³ = milligrams per normal cubic meter of gas, MW = megawatt, PSC = power sales contract.

UPDATE OF SECTOR REFORMS

1. Electricity prices in the Philippines are among the highest in Asia. They reflect distortions from high-priced take-or-pay contracts that National Power Corporation (NPC) signed with independent power producers (IPPs) in the early 1990s to alleviate the country's power crisis. However the Asian financial crisis suppressed economic growth and reduced electricity demand, leading to a significant surplus of power-generating capacity, especially in Luzon. As a result NPC became heavily indebted and could not adequately maintain its own plants.

2. To reduce public debt, improve efficiency in the sector, and encourage competition to bring down the cost of electricity, the Government embarked on a market-oriented reform program. The restructuring program is progressing steadily to meet its targets, although much later than originally planned. The reform plan embodied in the Electric Power Industry Reform Act of 2001 (EPIRA) mandated a radical restructuring and includes the following actions:

- (i) separate the transmission and generation functions and unbundle power rates;
- (ii) create the Power Sector Assets and Liabilities Management Corporation (PSALM) to take ownership of and manage the orderly privatization of NPC generation and transmission assets and the power purchase agreements with private IPPs;
- (iii) create a wholesale electricity spot market (WESM) where all energy generated is traded between generators and distribution utilities or retailers;
- (iv) mandate the Energy Regulatory Commission (ERC) to replace the Energy Regulatory Board as the industry's independent regulator; and
- (v) introduce competition in the retail supply of electricity (open access), subject to certain conditions, starting with large electricity users and eventually extending to the supply of electricity to households. Among the conditions are privatization of at least 70% of the total capacity (or 4,336 megawatts [MW]) of the NPC generation assets in Luzon and the Visayas, and transfer of management and control of at least 70% of the IPPs to independent IPP administrators.

3. **Unbundling.** Rates were unbundled into four components on consumers' electricity bills: (i) generation, (ii) transmission, (iii) distribution, and (iv) the universal charge. Generation charges are passed through based on the blended weighted average of a distribution utility's sources of power supply. For generation based on bilateral contracts, ERC must approve the underlying contracts. The approval process includes public hearings where consumers from the distribution utility's franchise may raise objections. Generation purchased from the spot market is based on WESM prices. Transmission charges are also passed through based on ERC approval of the capital budget of the National Grid Corporation of the Philippines (NGCP) for every 5-year regulatory period, the second of which spans 2006–2010. The universal charge is collected for specific purposes including missionary electrification, environmental charges, payment of NPC's stranded debt and costs,¹ and payment of distribution utilities' stranded costs. This charge is collected by distribution utilities as a pass-through charge.

¹ EPIRA permits NPC, PSALM, and distribution utilities to recover, through a universal charge, costs associated with their take-or-pay contracts by the Energy Regulatory Board as of 31 December 2000. These costs take two forms: stranded debt and stranded costs. Stranded debt refers to unpaid obligations of NPC, while stranded cost is the difference between the NPC-contracted purchase price and the actual price at which electricity was sold. The amount of stranded debt and costs that NPC or PSALM would seek to recover would depend on several factors including the proceeds from the privatization program. The imposition of the stranded cost charges on customers within the universal charge, and the period of such imposition, will require ERC approval.

4. **Privatization.** In 2001, NPC's transmission assets were spun off to the state-owned National Transmission Corporation (TransCo) to assume the electrical transmission functions of NPC until privatization. After three failed attempts, PSALM held a fourth round of bidding in December 2007 to privatize the operation of the country's power transmission system under a 25-year concession. Two bidders participated and a consortium comprising State Grid Corporation of China² and two local companies, Monte Oro Grid Resources Corp. and Calaca High Power Corp, won with its bid of \$3.95 billion. The concession contract was awarded on 1 December 2007 and after NGCP obtained the necessary congressional franchise, it took over operations on 15 January 2009. NGCP will assume all of TransCo's obligations to the Project, including construction of the New Naga Substation and engineering services for the associated transmission line connecting the substation to the Project.

5. NGCP manages the central dispatch of power with the aim to ensure safety, power quality, stability, reliability, and security of the transmission grid. As the system operator it schedules enough power generation to meet expected power demand throughout the day with adequate reserve margins for contingencies, and arranges for the provision of ancillary services. For grids without the WESM, NGCP prepares and implements the generation dispatch schedules. For grids with the WESM, the system WESM operator is part of NGCP and provides real-time system information to the market operator. The market operator then provides NGCP with a generation dispatch schedule according to bids submitted by the generation participants. All energy, including quantities sold through bilateral contracts, is dispatched by the system operator.

6. As of 31 May 2009, 16 of NPC's power plants with a total capacity of 2,168 MW in Luzon and the Visayas had been sold and turned over. This represents about 58% of the operating capacity in Luzon the Visayas that can be counted toward the 70% needed to declare open access. The Asian Development Bank (ADB) supported privatization of the 600 MW Masinloc coal-fired thermal power plant bought by AES Corporation of the United States, the largest asset that has been turned over to date, and is considering support for the purchase of the 748 MW Tiwi-MakBan geothermal power project, which was turned over in May 2009. The privatization process experienced a setback when Suez-Tractabel S.A. backed out of the sale of the Calaca coal-fired thermal power plant because the power plant had deteriorated since its bidding date in October 2007.³ PSALM entered into a negotiated bid for Calaca and reawarded the plant in July 2009⁴. PSALM is targeting to reach the 70% privatization threshold by 2010.

7. Under the EPIRA's directive, PSALM launched its first attempt to appoint, in a competitive bidding process, IPP administrators to manage NPC's contracted capacity. The administrators will make a monthly payment to NPC and assume NPC's obligations to source fuel and manage the sale of the power from the IPPs, including bidding on the WESM and bilateral contracting. The IPP administrators will operate independently of PSALM to minimize opportunities for collusion. The first IPP administrator bid was announced in October 2008 for

² State Grid of China owns 40% of NGCP and operates the national transmission system of the People's Republic of China (PRC). Its transmission, distribution, and other assets cover 88% of the national territory and it is the PRC's second largest state-owned enterprise and the largest utility in the world. Its participation in NGCP is expected to greatly improve the reliability and efficiency of the Philippines' grid.

³ The ADB Board of Directors approved ADB's participation in the financing for the Calaca project in February 2008, but no financing agreements were signed for this project. In July 2009, PSALM successfully re-bid the Calaca plant for \$362 million. The winning bidder is DMCI Holdings Inc. When turned over, NPC and PSALM will have privatized 74% of its generation assets in Luzon and Visayas.

⁴ PSALM successfully re-bid the Calaca plant for \$362 million. The winning bidder is DMCI Holdings Inc. When turned over, NPC and PSALM will have privatized 74% of its generation assets in Luzon and Visayas.

the power purchase agreement contracts attached to the 1,200 MW Sual and 700 MW Pagbilao power plants in Luzon; bids are due in May 2009.

8. **Wholesale Electricity Spot Market.** The Philippine Electricity Market Corporation (PEMC) launched the WESM in Luzon in June 2006 and functions as the market operator. The WESM is a mandatory gross-offer pool with net bilateral settlement and nodal marginal pricing. All generators are required to offer into the market but may settle bilateral contracts that are registered with the market operator directly with energy buyers. Spot market volume in 2008 was 4,927 gigawatt-hours (GWh) representing 14% on average of total volume in the system, and the cumulative average price was P4,770/megawatt-hour (MWh). Year to date, about 23% of power is being bought on the WESM. According to a World Bank-sponsored study,⁵ some dysfunctional aspects of the WESM market rules could create distortions or inefficiencies in the pricing signals for investors.⁶ However, many industry analysts believe the WESM has been generally operating satisfactorily since its commercial launch.

9. The study also drew several conclusions regarding the readiness of various participants for the launch of WESM in the Visayas based on interviews and a review of the trial operations. In summary, PEMC as the market operator is prepared, but NGCP as the system operator was considered understaffed and not fully prepared to operate in a market context. The generators had submitted market offers and tested the market systems but were not fully prepared to operate in the market. The electric cooperatives were not ready to operate in a market context and many had not even registered and participated in trial operations. The study also predicted very high prices should the WESM be launched in the current demand–supply situation, which could cause political problems.

10. The EPIRA mandates procurement of at least 10% from the market for distribution utilities for the first 5 years from the establishment of the WESM. In Luzon, PEMC targeted 45 distribution utilities to participate in the WESM but only 14 are now members. The majority of distribution utilities fulfill the requirement through generators that buy power from the WESM on their behalf. WESM participation also requires a prudential deposit in cash or letter-of-credit based on a distribution utility's net exposure to the WESM. PEMC is partnering with the National Electrification Administration (NEA) to offer capacity building programs to electric cooperatives to develop their proficiency to contract with power suppliers other than NPC and to participating in the spot market. NEA will also offer to guarantee the purchase of electricity by the electric cooperatives to help them meet the 10% requirement; the guarantee will be conditioned on participation in capacity building programs.

11. In December 2007, PEMC obtained approval to launch the WESM in the Visayas in 2008, but the Department of Energy overturned this decision because it was likely to result in high WESM prices in the Cebu, Negros, and Panay subgrid due to tightened supply conditions. To stabilize supply, the Department of Energy directed implementation of the Visayas Supply Augmentation Auction Program in January 2009, to be administered by PEMC and NGCP. The

⁵ Intelligent Energy Systems. 2008. *Technical Assistance on WESM Policy Development. Report to the DOE. Final Report: Extension of WESM to Visayas.* Manila.

⁶ For example, a significant number of trading intervals have spot prices at or below zero, implying that generators are bidding below their short-run marginal costs in order to get dispatched. This may be due to generators having take-or-pay fuel contracts in addition to the market procedures on the management of generation minimum load. However, traders or generators may try to make up for zero prices by bidding very high prices during peak, which makes WESM prices more volatile. Transmission constraints have also shown weaknesses in the WESM's pricing determination methodology. However, ERC recently approved a method, proposed by PEMC, to address such situations.

Visayas Supply Augmentation Auction Program is a day-ahead market that allows (i) entities that have their own power supply (embedded generators) to use their own generators and sell that capacity and (ii) grid-connected customers to sell an interruptible portion of their loads through an auction process. This is a form of demand management as it would allow participants to manage their loads as well as to run their self-generation facilities, as means to ease the supply deficit and augment supply in the region. PEMC believes that the Visayas Supply Augmentation Auction Program can add as much as 137 MW to supply the grid.

12. **Regulation by the Energy Regulatory Commission (ERC).** ERC's functions include (i) developing and enforcing technical standards for transmission and distribution; (ii) licensing suppliers of electricity, including generators and power aggregators; (iii) preventing abuse of market power and anticompetitive or discriminatory behavior; (iv) resolving disputes between participants in the sector; and (v) setting rates for noncontestable sectors of the industry. At present the noncontestable sectors are transmission, distribution, and generation. Generation will become contestable with the onset of open access and retail competition. ERC reviews and approves the terms and conditions of bilateral contracts between generators and franchised distribution utilities. Once approved, the generation rate is a pass-through by the distribution utility to its customers. ERC approves the WESM's pricing methodologies and oversees its implementation by the market operator.

13. ERC is widely viewed by industry participants as having the intent to be transparent and nonpolitical, but lacking the human resources to conduct rulings efficiently and reasonably. To address these concerns and move the reform program forward, ADB has provided a loan and technical assistance⁷ to the Philippines to support ERC's ability to, among others, (i) respond efficiently and fairly to market issues, and (ii) communicate all regulatory matters clearly and effectively to the public and stakeholders.

14. **Open Access.** Section 31 of the EPIRA provides for the establishment of retail competition and open access to distribution networks, subject to five conditions:

- (i) establishment of the WESM,
- (ii) approval of unbundled transmission and distribution wheeling charges,
- (iii) initial implementation of the cross-subsidy removal scheme,
- (iv) privatization of at least 70% of the total capacity of NPC generating assets in Luzon and the Visayas, and
- (v) transfer of the management and control of at least 70% of the total energy output of power plants under contract with NPC to the IPP administrators.

15. In Resolution 3-2007, ERC set out the timeline for open access to distribution networks and implementation of retail competition. According to the resolution, retail competition will commence upon fulfillment of the five preconditions of the EPIRA's section 31 and of two other "vital requirements": establishment of necessary infrastructure (such as a customer switching system) and promulgation of pertinent regulations. Once all of these conditions are met, ERC will give 6 months notice before open access and retail competition commences within the Luzon grid; this will include the franchise areas of both private utilities and electric cooperatives. Retail competition will begin with end-users with an average peak demand of 1 MW.

⁷ ADB. 2004. *Technical Assistance to the Republic of the Philippines for Institutional Strengthening of Energy Regulatory Commission and Privatization of National Power Corporation*. Manila.

16. After 2 years, the second phase of retail competition will begin with the threshold of contestability going down to 750 kW, for both single and aggregated loads. Thereafter, the threshold will go down gradually until it reaches households (within 7 years following commencement of the second phase of retail competition, a maximum of 9.5 years in total from the original ERC notice).

17. ERC cannot set a definitive timetable due to uncertainty from PSALM on the timing of reaching the privatization targets. In response to political concerns about electricity prices, industrial and other large power consumers have requested that implementation of retail competition and open access be accelerated within the framework of the EPIRA. A number of industry participants, comprising IPPs and investor-owned distribution companies, petitioned ERC to make an order to allow interim open access to come into effect for large power users. These applicants argued that although EPIRA preconditions have not yet been met, making such an order would be consistent with the EPIRA's policy intent. On the other hand, others are concerned that interim access may negate the will of the Government to follow through with its privatization targets and hence continue to have undue influence on the market.

RATIONALE FOR ADOPTION OF FUEL TYPE AND TECHNOLOGY

1. In June 2004, the Ministry of Commerce, Industry, and Energy of the Republic of Korea and the Department of Energy of the Philippines signed a memorandum of understanding to foster cooperation between the two countries in addressing the projected power supply shortage in Cebu, and to promote utilization of technology for more environment-friendly power generation. Later that year, the Korea Electric Power Corporation (KEPCO) and the SPC Power Corporation (SPC) worked jointly to support a feasibility study that resulted in a recommendation to construct a 200-megawatt (MW) coal-fired power plant on the island of Cebu, utilizing circulating fluidized bed (CFB) combustion technology, in an area adjacent to SPC's Naga Power Plant Complex (the Project). In determining the optimal location and fuel supply for the Project, the study took into account the unique configuration of the Visaya's transmission grid and the availability of other fuel sources, including indigenous renewable resources such as geothermal. After determining coal to be the optimal fuel type, the study considered subcritical CFB technology to be the most effective from the viewpoint of the plant's size, coal characteristics, environmental regulation, and cost.

A. Considerations for Location

2. The Philippines is the world's second largest user of geothermal energy for power generation with 1,958 MW accounting for 12% of the country's total installed capacity. The continued development of geothermal energy as an economically competitive and environment-friendly resource remains a Government priority. Almost 50% of the Philippines total geothermal capacity is located in the Visayas (723 MW in Leyte and 242 MW in Negros). Total geothermal potential in the Visayas is estimated at 1,619 MW constituting 42% of the country's total geothermal reserves. However, existing geothermal plants are only operating at a fraction of their rated capacities¹ and new geothermal capacity is expected to come on-line very slowly relative to demand growth. Even accounting for the new geothermal capacity expected, the Department of Energy has identified a need for additional base-load generation in Cebu.²

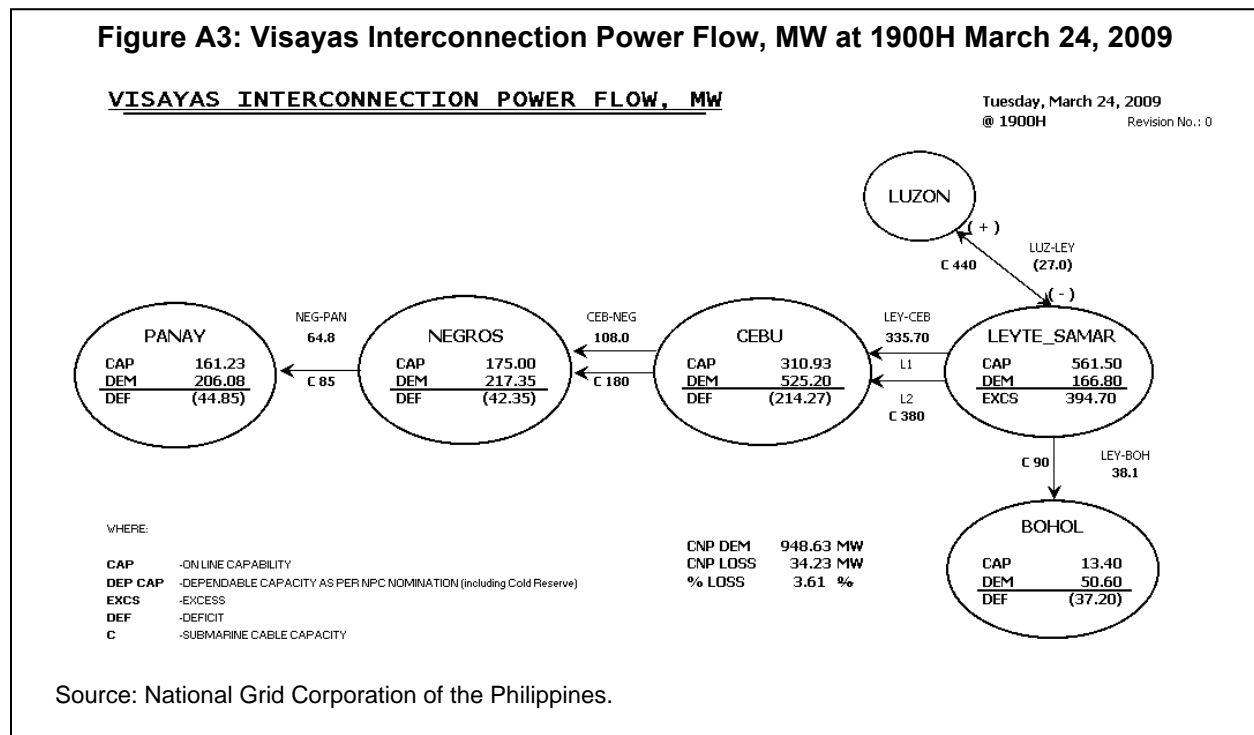
3. Historically the majority of electric power produced by geothermal plants in Leyte was supplied to the Luzon Grid as the demand for power in the Visayas was less than the geothermal power generation available. However, as energy demand grew in the Visayas in recent years, the situation has reversed. The Visayas may become a net importer this year as the demand–supply balance reaches critical levels and additional capacity (and refurbishments) are brought on-line in Luzon.

4. Figure A3 shows the flow of power through the grid at 19:00 hours on 24 March 2009, one of the highest peak hours for demand this year. Demand on the grid was 1,166 MW, while total available capacity was 1,222 MW. To make up for demand and line losses, 27 MW of power had to be imported from Luzon. Cebu represents 45% of total Visayas demand, but only 25% of the total capacity. Cebu had the highest power deficit (214 MW). Panay and Bohol face the most potential line losses due to their position at the end of the grid. The figure also

¹ Geothermal plants have not been operating at full capacity due to instability and declines in steam supply and other technical constraints such as mineral blockage of wells.

² This outcome was confirmed in the model constructed by the lenders' market consultant for project supply and demand. The model assumes the following additions to geothermal capacity: PNOC-EDC's 20 MW Nasulo Geothermal Project in Negros in 2010, 40 MW Dauin Geothermal Project in Negros in 2012, and 100 MW Cabalian Geothermal Project in Leyte in 2015. The model also assumes additional wells are drilled to offset the natural decline in performance of existing wells, so the capacity factor of geothermal plants remains at 60%–80%. Even so, the model shows that coal projects are a necessary supplement to provide adequate supply.

highlights the vulnerability of the grid, particularly in the Cebu-Negros-Panay region, since none of the interconnections are managed on an N-1 basis.³ If a submarine cable goes down or its capacity is reduced, or if a large power station is on outage up the supply chain, it could easily disrupt power in all three islands. For this reason, the Department of Energy advocates building more capacity in Cebu, Negros, and Panay to enhance each island's energy security. Adding plants on Cebu Island in particular will help increase reliability of power to the region's largest load center (metro Cebu City), as well as to Negros and Panay.



5. Adding capacity to submarine interconnectors in the Visayas grid is not viewed as an optimal or efficient solution to the power crisis in this region. Submarine cables are very costly, and most of the geothermal capacity on Leyte and Samar is already being evacuated through existing interconnectors or consumed locally. Relying on such a solution also involves technical issues such as high line losses and difficulties in regulating voltage over long distances. The technical vulnerability of the grid would remain high. Management personnel from the National Grid Corporation of the Philippines (NGCP) warn against "applying a transmission solution to a generation problem."

6. Nonetheless, NGCP has a number of projects under way to upgrade the submarine cables interconnecting the Visayas islands. Ongoing is the Negros–Panay Interconnection upgrading to add another 100 MW to the existing 100 MW capacity (peak limit 76–85 MW), which will optimize the utilization of indigenous power coming from geothermal capacity additions in

³ The N-1 rule states that during the outage of any single transmission element of the power system, the following conditions must be simultaneously met: (i) no transmission elements are overloaded, (ii) bus voltages are within allowable limits, (iii) the remaining generators stay in synchronism after a disturbance, and (iv) no service to customers is interrupted. To meet N-1 compliance, the dispatch of power flows on the transmission path between Leyte and the Cebu, Negros, and Panay subgrid would be limited to 220 MW, versus 360 MW under the current approach.

10. **Sanitation and Hygiene.** The mission confirmed that toilets with septic tanks are adequately provided in the construction site for sewage disposal. Domestic and solid wastes are managed through implementation of the waste management plan to maintain cleanliness on the construction site.

11. **Environmental Provisions in the EPC Contract.** Environmental specifications in contract documents is reflected in the General Design Condition (Vol II, Section 1) of the EPC contract, which states that the plant will conform with the requirements of the EIA and follow national and World Bank environmental guidelines in effect at the time of signing of the EPC contract on 10 December 2007.

3. During Operation: Additional Environmental Concerns and Issues

12. **Environment Studies and Plans.** As part of the Project's overall environment management planning and conditions of the Project's environmental approval, the following environment studies have been and/or are being undertaken: (i) detailed marine study and EIA for the pier expansion, (ii) thermal dispersion modeling for the final design of the discharge channel, (iii) emergency preparedness and disaster management plan, and (iv) ash management and disposal plan. The status of these studies and plans is shown in Table A4.3.

13. **Jellyfish Attack.** Based on KEPCO's experience in the Republic of Korea, the possible incursion of jellyfish through seawater intake inside the plant is a natural phenomenon that occurs rarely and cannot be predicted. Should this event occur, an extra physical barrier such as nets will be installed temporarily and additional staffing will be provided to attend to the fish net installation and removal of jellyfish debris.

Table A4.3: Environment Studies and Plans

Study/Plan	Status	Responsible Party
Marine study and EIA of pier expansion	Marine study to commence in April 2009 and to be completed in 3 months; EIA preparation and review by Department of Environment Natural Resources to follow 3 months after completion of the marine study	KSPC
Thermal dispersion modeling	Modeling study commenced on March 2009. Based on the preliminary results of the thermal dispersion modeling study, the submerged discharge tunnel design is the most recommended option due to lesser impacts on temperature increase consequently complying with government and World Bank 3°C limit.	KSPC
Emergency Preparedness and Disaster Management Plan	Safety and Security Contingency Plan prepared and dated 25 June 2008.	KSPC
Ash Management and Disposal Plan	Development of a detailed ash management and disposal plan involving cement manufacturers to be completed.	KSPC and Local Government

EIA = environmental impact assessment, KSPC = KEPCO SPC Power Corporation.
Source: Asian Development Bank.

14. **Ash Disposal.** On 10 November 2009, KSPC and the Cebu Provincial Government (CPG) entered into an Ash Disposal Agreement and MOU for Ash Recycling, whereby CPG provides the ash generated by the Project to one or more cement manufacturers. KSPC (or its transportation contractor) will deliver the ash to the cement manufacturer on behalf of CPG. Recycling of ash for use as a raw material in cement manufacturing is considered an environmentally acceptable practice globally. In emergencies, ash will be transferred from the silo in a humidified form and stored in the emergency ash pond on-site, lined with high density polyethylene (HDPE) to ensure no ground seepage of the wet ash. In the event that alternative ash disposal is needed, KSPC and CPG agree that KSPC will not deliver, and CPG will not allow any ash disposal to any site other than to the cement manufacturer, until any proposed site meets ADB's environmental and social safeguards requirements and approval.

4. Environmental Management System

15. **Environment, Health, and Safety Arrangements and Procedures.** The EPC contractor Doosan has established its environmental, health, and safety (EHS) management certified as ISO 14001 and OSHAS 18001 compliant. An EHS active program for the Project is in place and implemented by an EHS team at the project site. The program's EHS policies include (i) promoting control of the residual impact of atmospheric emissions, ground or sea water, and wastes in all construction activities to preserve the natural environment; (ii) promoting health and protection of human beings by identifying, controlling, and monitoring risk; adapting safety processes; and being prepared for emergencies; and (iii) promoting the application of the rules of safety and protection of workers and equipment, and considering these rules to be applied to suppliers and subcontractors. EHS team responsibilities include (i) issue and promote the EHS active program, (ii) manage the EHS index, (iii) provide risk control management, (iv) inspect workers and equipment, (v) provide EHS education and induction, (vi) issue EHS contracts, (vii) manage site security, (viii) monitor physical examination results, (ix) manage first aid and site emergency control, (x) manage environmental monitoring and control, and (xi) liaise with local government regarding EHS concerns. No accidents have been recorded.

16. KSPC will establish an environmental management system (EMS), to be led and monitored by its environmental department, with three staff and one manager during project operation. The Project will comply with all relevant local laws and regulations regarding environmental protection.

B. Social Safeguard Due Diligence

1. Land Acquisition and Involuntary Resettlement

a. KEPCO Power Plant

17. KSPC acquired the land for the coal-fired power plant (visited by the mission) through open and competitive bidding conducted by NPC and PSALM on 14 November 2005. KSPC will lease the land for 25 years; its only use will be for the new power plant. The Naga land has an approximate area of 119,406 square meters (m²). Of this only 84,359 m² will be occupied by the proposed power plant project. This parcel of land is registered in the name of NPC under Original Certificate of Title No. OP-58961.

18. The land used to be occupied by 22 nontitled and/or informal settler families. KSPC, NPC, and Naga City, Cebu, signed a memorandum of agreement for the necessary negotiations

with the affected nontitled and/or informal settler families and secured the relocation site just outside the leased land. Of the 22 affected families, 17 have voluntarily evacuated and relocated. The local government unit (LGU) provided the affected families with a plot of land in the relocation site. KSPC provided financial assistance and the required labor force for construction of their new houses. KSPC assisted with demolition of the existing structures through its contractor, and owners were allowed to keep salvageable materials for use to reconstruct their new houses. Each family was provided with a lot of 30 m² for the dwelling structure. The relocation activities started on 15 October 2008 and were completed after 1 month. The remaining five families, who claimed to have legal titles and have partially encroached on the leased land, have filed a case in court. While awaiting the court resolution, the encroached areas have been fenced off and the families remain unaffected.

19. The relocation site is publicly owned land. At the time of the mission, no certificates of award had been granted to the relocated families. The *barangay* officials in close coordination with the Office of the Mayor had initiated the process of preparing the necessary certificates of award, which have legal standing and represent protection for relocated families against eviction or repossession of home lots. KSPC will assist the municipality in accessing funds provided by Section 289 of the Local Government Code and Energy Regulations No. 1-94 of Department of Energy.

20. The mission visited the resettlement site to assess the condition of housing and infrastructure, and community living standards. The mission found that the new houses are well constructed and located in an elevated area with access to fresh sea breeze and away from the ash pond of the old plant, where they used to experience a bad dust smell. The mission held discussions with the *barangay* officials and local residents. The mission also inspected the new access road going to the resettlement site and the water supply system for the relocated families. It was noted that KSPC had played a significant role not only in financing physical improvements to the area, but also supporting community programs and emergency assistance. Aside from physical improvements and moving allowance, a new access road (gravel type only), power, and water supply (i.e., shallow wells) have been provided to the relocated people. More information is available from KSPC's Social Development Plan and Corporate Social Responsibility Program.

21. No outstanding grievances are related to compensation for structures owned by informal settlers. Relocated families said in interviews that they are satisfied with their present situation because the relocation site is very accessible to their work place, and basic utilities (power and water) are provided. A respondent said that the financial package of P15,000 per family is not enough to rebuild their house and the allocated lot of 30 m² is too small, as their previous lot was at least 50 m². An LGU official mentioned that subdivision of the available resettlement area was calculated at 30 m² per relocate to accommodate all 17 families. The Office of the *Barangay* Captain serves as the channel to accept and address complaints, requests, and grievances from local residents. The Social Development Plan also applies to relocated families.

b. 138 KV DC-ST Transmission Line from KEPCO Power Plant to New Naga (Cebu) Substation

22. The National Grid Corporation of the Philippines³ project related to the KSPC plant includes the following components: (i) substation area; (ii) access road; and (iii) right-of-way

³ The National Grid Corporation of the Philippines has been awarded the 25-year concession contract to manage the country's power grid and in January 2009 took over these operations from National Transmission Corporation.

(ROW) corridors of the transmission line components, including the KSPC project transmission line. The project transmission line will cover only the installation of the 0.70 km long line (138 kV DC/ST, 6-795 MCM ACSR/AS “Condor”) from the KSPC power plant to the new Naga substation. Approximately half of its length will pass inside the SPC Power Complex. A 30-meter-wide ROW corridor passing through flat and rolling lands, will affect about 10 houses and 9 secondary structures, most of which are located beside a barangay road that the line will traverse. Table A4.4 presents the summary of project-affected people, structures, and properties.

Table A4.4: Impact Figures

Description	Impact Figures
Estimated Area of Affected Private Land ^a	6,327 m ²
Estimated Area of Affected Land inside Salcon Power Complex	9,467 m ²
Estimated No. of Affected Houses	10
Estimated No. of Affected Structures	9
Estimated Number of Project Affected People	
Landowner	5
Tenant	4
Structure Owner	13

m² = square meter

Source: KEPCO SPC Power Corporation, July 2009.

23. Use of the ROW easement of the transmission lines, including the land required for steel towers to be erected inside the Salcon Power Plant Complex, is covered by the Naga co-use agreement executed by NPC, PSALM, and KSPC on 25 June 2008. For ROW passing through private lands, landowners will be paid at current fair market value. The initial standard rate used to calculate compensation was P389.00 per m². After negotiations with affected people and to reflect the latest Schedule of Unit Base Market Value for Residential, Commercial and Industrial Lands for the Municipality of Naga in Cebu, the rate was increased to P813 per m². While the land use is residential, TransCo adopted the valuation for industrial lands.

24. A short resettlement plan for the project transmission line was extracted from the main land acquisition and resettlement plan. Affected households will be granted disturbance compensation and the option to self-relocate to their chosen or preferred place of residence. They can opt to transfer in the same vicinity as long as they move their structure 30 meters away from the right-of-way limit, i.e., 15 m from the left and 15 m from the right. Together with the tenants, landowners will be compensated for affected crops, plants, and trees. The land acquisition and resettlement cost for the KEPCO line is estimated at P7 million.

25. Prior to actual implementation of the Project, National Grid Corporation of the Philippines (NGCP) undertook consultation, dialogue, and information campaigns with project-affected people, LGUs, and other stakeholders to keep them fully informed about the important aspects of the Project. After all consultations and dialogue, an official endorsement from the affected LGUs (Colon barangay and Naga City), and development councils was secured as proof of social acceptance of the Project.

2. Indigenous Peoples

26. No indigenous people live in Naga City. The majority of household populations classify themselves as Cebuano. No indigenous people will be affected by the Project. Therefore no issues are resulting from the requirements of ADB's *Policy on Indigenous Peoples* (1998).

3. Community Engagement

27. As part of its commitment to meet the conditions of the environmental compliance certificate, KSPC will implement and undertake a social development plan (SDP) and various corporate social responsibility (CSR)⁴ projects and activities. The SPD and CSR activities began upon commencement of construction activities and will continue throughout commercial production of the KSPC power plant.

28. The SDP will include activities and programs to benefit not only the barangay directly affected by the Project but the entire host community. The SDP incorporated with the CSR will have an annual budget of P240,000.00 with projects and activities that involve health, sanitation, nutrition, and education. No specific budget per year is allocated for relocated families but the SDP is applicable for all local residents in Colon barangay.

C. Conclusions and Recommendations

29. **Environment.** The mission confirms that ADB's environmental assessment requirements as well as national and local requirements related to environmental impacts of the Project have been adequately met. Environment, health, and safety management and plans are in place with responsibilities of addressing environmental impacts and implementation of mitigating measures during construction by Doosan. Site visit and construction monitoring results indicate that the ongoing construction of the Project has no significant adverse impact on the environment. Follow-up environmental management studies and plans are now being undertaken to provide for more detailed planning. Implementation of the Project's EMP during operation will ensure that any adverse or significant impacts will be adequately addressed. Applicable national and World Bank environmental standards are and will be strictly monitored and adhered to.

30. **Involuntary Resettlement.** For land acquisition and resettlement issues, the Mission did not find any outstanding issues with the compensation and assistance provided to nontitled families relocated from the Project site. For the project transmission line, a short resettlement plan was prepared, which the mission found satisfactory. Moreover, KSPC will continue to assist affected families and contribute to the local community through its SDP and the CSR program.

31. **Indigenous Peoples.** With respect to the requirements of ADB's *Policy on Indigenous Peoples*, the mission found that the Project will not affect any indigenous peoples. Hence, the Project is categorized as C.

⁴ In compliance with condition 6 provided upon the issuance of Board of Investment certificate of registration, which states that the company will undertake various CSR projects and activities.

SHORT RESETTLEMENT PLAN FOR THE PROJECT TRANSMISSION LINE

A. Description of the Project

1. The proposed 138 kV DC-ST transmission line from the KEPCO SPC Power Corporation (KSPC) Power Plant to the New Naga (Cebu) Substation (the project transmission line) aims to provide a new termination point that can accommodate future load growth and maintain an electricity highway characterized as a reliable, secure, stable, and resilient power system. It will establish the asset boundary between the National Transmission Company (TransCo) asset boundary and power plant by separating control of Salcon Power Plant Complex from TransCo's substation. The proposed substation will serve as the receiving station of the proposed KSPC 200 megawatt (MW) Coal-Fired Power Plant. The old Naga (Salcon) switchyard is already congested, and all the installed protection equipment and materials are underrated and operating beyond their economic life.

B. Scope of Land Acquisition and Resettlement

2. A social analysis carried out in the project area concludes that the Project would require land acquisition and resettlement. The project transmission line will cover the installation of a 0.70 kilometer (km) long transmission line (138 kV DC/ST) from the KSPC power plant to the New Naga Substation. For expediency, the land acquisition and resettlement program for the project transmission line will be incorporated into the overall land acquisition and resettlement plan (September 2008) prepared by TransCo, which will be implemented by National Grid Corporation of the Philippines (NGCP)³⁶ as part of the New Naga Substation Project. In addition to the project transmission line, the NGCP New Naga Substation Project land acquisition and resettlement plan (LARP) also covers the following components, which are not being proposed for Asian Development Bank (ADB) financing: (i) expansion of the existing New Naga Substation, (ii) construction of the Banilad–Quiot–New Naga 138 kV cut-in-line, (iii) Suba L1 and L2 138 kV line extension, (iv) Sigpit and Suba L3 138 kV line extension, and (v) New Naga 69 kV line extension.

3. Approximately half of the length of the project transmission line will pass inside the Salcon Power Complex (i.e., existing Naga Power Plant). A 30-meter wide right-of-way (ROW) corridor will pass through flat to rolling lands, and affect about 10 houses and 9 secondary structures, most of which are located beside a barangay road that the line will traverse. Table A5.1 summarizes the Project's impact on people, structures, and properties.

4. Use of the ROW easement for the transmission lines, including the land required for steel towers to be erected inside the Salcon Power Plant Complex, is covered by an agreement to be finalized between KSPC, PSALM and SPC. For ROW passing through private lands, landowners will be paid at current fair market value. The initial standard rate used to calculate compensation was P389.00 per square meter (m²). After negotiations with affected people and to reflect the latest Schedule of Unit Base Market Value for Residential, Commercial and Industrial Lands for the Municipality of Naga in Cebu, the rate was increased to P813 per m². While the land use is residential, NGCP adopted the valuation for industrial lands.

³⁶ The National Grid Corporation of the Philippines was awarded the 25-year concession contract to manage the country's power grid and in January 2009 took over these operations from TransCo.

Table A5.1: Impact of the Korea Electric Power Corporation Project Transmission Line

Description	Impact Figures
Estimated Area of Affected Private Land ^a	6,327 m ²
Estimated Area of Affected Land inside Salcon Power Complex	9,467 m ²
Estimated Number of Affected Houses	10
Estimated Number of Affected Structures	9
Estimated Number of People Affected by the Project	
Landowner	5
Tenant	4
Structure Owner	13
Relocated Households	10

m² = square meter.

^a Residential use but officially classified as industrial lands.

Source: Korea Electric Power Corporation SPC Power Corporation.

5. House and structure owners will be paid the replacement cost of their houses and structures. Relocated households will be granted disturbance compensation. Together with the tenants, landowners will be compensated for affected crops, plants, and trees. The land acquisition and resettlement cost for the project transmission line is estimated at P7 million.

C. Resettlement Principles and Policy Framework

6. The resettlement principles adopted for the project transmission line recognize the national and local laws such as the Republic Act 8974,³⁷ RA 7279, Article VII, Urban Renewal and Resettlement (Sections 26 and 28), and relevant ADB policies and operations manuals, in particular ADB's *Involuntary Resettlement Policy* (1995), and Operations Manual (OM) F2 on Involuntary Resettlement (2006).³⁸ The resettlement principles adopted for the project transmission line will comply with ADB social safeguard requirements.

7. The primary objective of this short resettlement plan is to identify impacts and plan measures to mitigate various losses due to implementation of the project transmission line. The resettlement plan is based on the general findings of the census survey, field visits, and meetings with various project-affected people in the affected area. Taking into account the various losses, the entitlement matrix provides for compensation and resettlement assistance to all those affected including nontitleholders. In general terms, the people affected by the project transmission line will be entitled to the following: (i) payment for nonagricultural lands (i.e., residential, industrial, commercial land); (ii) payment for crops, plants, and trees; (iii) payment for houses and other structures; and (iv) grant for disturbance compensation to relocated households.

8. The policy also provides integrated income restoration measures for affected households losing their source of income and income opportunity. The census survey identifies 10 households living along the route of the project transmission line that currently derive their livelihood from working as laborers and construction workers, operating a small convenience store, raising livestock, among others. The construction of the project transmission line will require relocation of 10 households. The affected households will self relocate to locations of their choice. They are likely to resettle within the same vicinity but outside the 30-meter ROW

³⁷ Republic Act No. 8974. An Act to Facilitate the Acquisition of Right-of-Way, Site or Location for National Government Infrastructure Projects and For Other Purposes, November 2007.

³⁸ ADB. 2006. *Operations Manual*. OM Section F2: Involuntary Resettlement. Manila.

limit. Most of the people affected rely on wages for their livelihood hence their income will be temporarily affected during reconstruction of their dwelling units. In addition to compensation for structures at replacement cost, they will be provided disturbance compensation sufficient to cover their expenses while reconstructing their houses and/or structures. Skilled workers and laborers from among the affected households will be prioritized for project-related employment. This requirement is clearly specified in the terms of reference for contractors. The literacy and skills training program of the Social Development Plan will give priority to affected people who lack skills and other directly affected people who wish to learn new livelihood skills.

9. A detailed entitlement matrix lists various types of subproject losses, identification and/or eligibility, and entitlements; and provides basic parameters for preparation of compensation and resettlement benefits (Table A5.2). The end of the validation period for affected people based on the parcellary and house-to-house surveys will serve as the cut-off date in identifying affected people who are entitled to compensation and benefits. A written notice about the NGCP Project, including the project transmission line, and the cut-off date will be given to the respective barangay officials. People moving into the subproject area after this date will not be entitled for compensation and assistance.

Table A5.2: Entitlement Matrix

Type of Loss/Impact	Application	Compensation/Mitigating Measures	Entitled Person	No. of Households
Loss of nonagricultural lands (i.e., residential, industrial, commercial land)	Nonagricultural lands located within the proposed transmission line ROW corridors, substation area, and access road	Payment of land based on current fair market value	Landowner	5
Loss of standing crops, plants, and trees	Crops, plants, and trees located within the proposed transmission line ROW corridors, substation area, and access road	Cash compensation based on fair market value	Owners of affected crops, plants, and trees	5
Loss of structure and/or house	Houses and structures located within the proposed transmission line ROW corridors, substation area, and access road	Cash compensation based on replacement cost (no depreciation) Owners may retain salvageable materials if they completely dismantle their affected houses or structures	House and/or structure owner	13
Loss of income and/or disturbance of relocated people during transfer of residence	Households that have to transfer residence due to the Project	Disturbance compensation equivalent to the daily minimum wage in the project-affected area multiplied by 60 days If qualified, will be prioritized for project-related employment Skills training	Relocated households	10

Note: This entitlement matrix applies to the overall NGCP Project including the Korea Electric Power Corporation transmission line.

Source: NGCP (formerly TransCo) Land Acquisition and Resettlement Plan New Naga Substation Project, September 2008.

D. Profile of Affected People

10. A socioeconomic survey covered 12 of 36 households affected by the NGCP New Naga Substation Project and the project transmission line. All interviewed households are headed by males from 27 to 67 years of age. Almost all (11 or 92%) are in the working age group (15–64 years). Most of them (8 or 67%) work as construction workers or laborers, while the rest are self-employed including a pedicab driver, a *sari-sari* (neighborhood store) owner, and a livestock trader. All earn more than Cebu provincial monthly per capita poverty threshold of P1,085.00: 3 households report monthly earnings of P3,000–P6,000, 6 report monthly earnings of P6000–P12,000, and 2 report relatively high monthly income of P12,000.

11. All the interviewed households own their houses with floor areas ranging from 6.75 m² to 96 m². Most houses are relatively small with floor areas of 20 m² and below. The rest are average-size houses ranging from 21 m² to 40 m². Most of the houses have strong wall and roofing materials like galvanized iron sheets, concrete walls, lumber, and plywood; while the rest use light materials such as bamboo, salvage materials, and nipa shingles.

12. NGCP prepared a list of affected families (AFs), which was attested by barangay officials.

Table A5.3: List of Affected Relocated Household and Structure Owners

AP#	Type of AP	Type of Structure	Floor Area (m ²)	Material		
				Roofing	Siding	Flooring
1	R, SO	Bungalow	40.76	GI Sheets	CHB	Concrete
2	R, SO	Bungalow	25.00	GI Sheets	CHB	Concrete
3	R, SO	Bungalow	17.50	GI Sheets	CHB	Concrete
4	R, SO	Bungalow; Other Structures	83.41	GI Sheets	CHB	Concrete
5	R, SO	Bungalow; Other Structures	39.90	GI Sheets	LM, iron grill	Concrete; LM
6	R, SO	Bungalow	11.10	GI sheets	CHB	Concrete
7	R, SO	Bungalow	25.75	GI sheets	Plywood	Concrete
8	R, SO	Bungalow	26.50	GI sheets	CHB	Concrete
9	R, SO	Shanty	16.00	GI sheets	CHB	Concrete
10	R, SO	Bungalow	16.00	GI sheets	CHB	Concrete
11	SO	Hut Structure*	8.59	GI Sheets	LM	Bamboo and Concrete
12	SO	Pig Pen	14.70	GI sheets	CHB	Concrete
13	SO	Shanty	2.70	GI Sheets	LM	Bamboo

CHB = concrete hollow block; GI = galvanized iron; AP = affected person; R = relocate; SO = structure owner; LM = combination of lumber, plywood, bamboo mat, bamboo split; Other Structures = may include convenience store, shed, stockhouse or pigpen.

Note: Actual size and type of materials will be validated prior to payment of compensation.

Source: Korea Electric Power Corporation SPC Power Corporation, July 2009.

E. Stakeholder Participation, Disclosure, and Grievance Redress

13. The project transmission line and related development activities were discussed with the local communities during the consultation meetings at the sites. The discussions included all primary³⁹ and secondary stakeholders⁴⁰ involved with implementation of the NGCP Project and

³⁹ The primary stakeholders are the different categories of project-affected people, i.e., relocated people, landowners, tenants, tillers, and house and/or structure owners), including TransCo and NGCP. In this Project, KEPCO, as a project proponent, is considered a primary stakeholder.

⁴⁰ Secondary stakeholders are other individuals or groups with interest in the project such as LGUs, nongovernment organizations, community-based organizations, and others.

the project transmission line. The directly affected populations' concerns and suggestions on the types of mitigation measures were gathered and considered in preparing the LARP. Negotiations with affected people on compensation rates were undertaken between September 2008 and May 2009. Engagement with the affected people and the local community will continue throughout implementation of the project transmission line.

Table A5.4: Indicative List of Affected Landowners and Tenants

AP#	Tower/Pole Span	Type of AP	Lot Number
1	2-3	Landowner	
2	2-3	Landowner	
3	2-3	Landowner	
4	2-3	Landowner	886-part
5	2-3	Tenant	886-part
6	2-3	Tenant	886-part
7	2-3	Tenant	886-part
8	2-3	Tenant	886-part
9	2-3	Landowner	935

AP = affected person

Source: TransCo Land Acquisition and Resettlement Plan New Naga Substation Project, September 2008.

14. Written communications were sent to the LGUs to inform them about the Project and request an endorsement. To date, the Project has been presented to the affected LGUs (Colon barangay and Naga City) and development councils (Provincial Development Council of Cebu and Regional Development Council for Region 7). They have all issued a resolution signed and confirmed by their members. Copies of the LARP were distributed to the municipal office for reference by the LGUs and their constituents.

15. This short resettlement plan will also be made available at KSPC and ADB offices, and be posted on the ADB website.

F. Role of Nongovernment Organizations and Community-Based Organizations

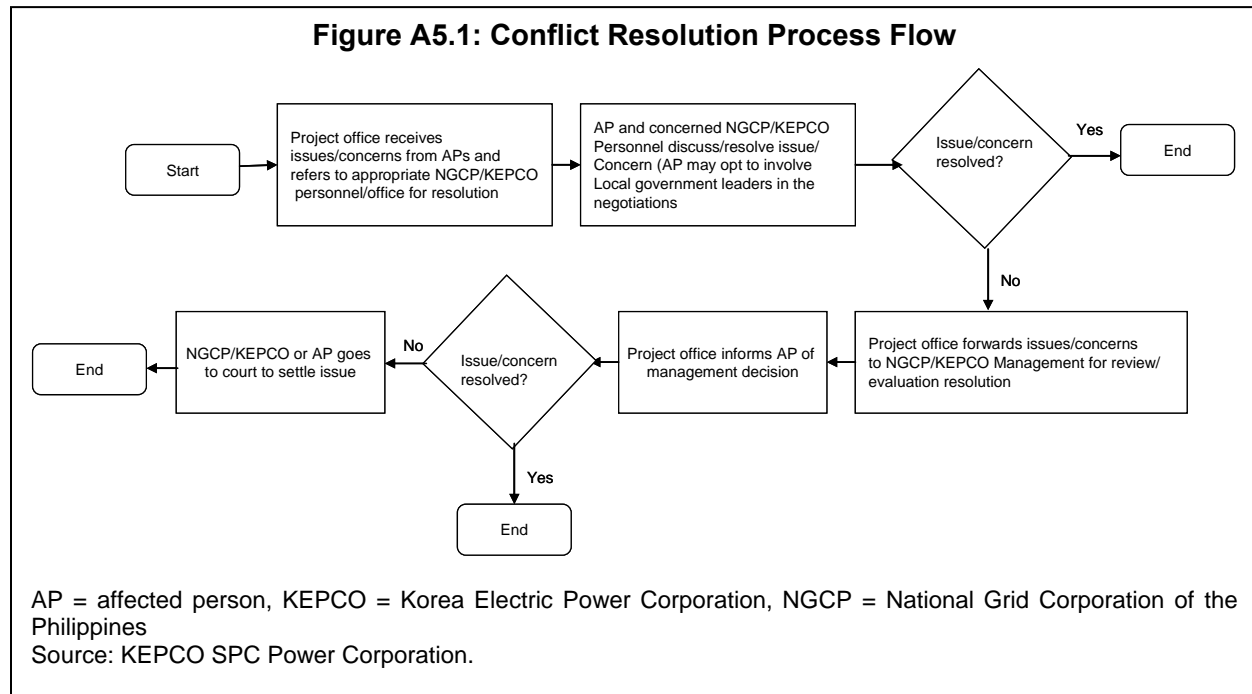
16. As with any national development project, the affected people may seek the assistance of nongovernment and/or community-based organizations for a nonpartisan or impartial assessment of the Project. NGCP encourages these groups to participate in public hearings and community dialogue, and voice their concerns about the Project.

G. Implementation Arrangement and Grievance Procedures

17. KSPC, per its agreement with NGCP, will be responsible implementing the resettlement plan for the KEPCO transmission line based on ADB requirements, and will provide the necessary resources such as budget and human resources. KSPC will process and disburse payments for resettlement and property compensation related to the KSPC transmission line. All compensation and other assistances will be paid to all affected people prior to commencement of civil works.

18. KSPC and NGCP will settle issues that may arise concerning payment for land, crops, and improvements and relocation. They will be assisted by a legal adviser to be hired by NGCP to handle all the legal matters and concerns. All other issues on relocation and ROW that cannot be resolved by NGCP and the project office will be referred to the Land and Land Rights Department, Office of the General Counsel. As a last recourse, NGCP could elevate the related

concern or issue to the concerned trial court for resolution and/or decision. The conflict resolution process is shown in Figure A5.



H. Budget and Implementation Schedule

19. The total estimated cost for resettlement, operation, and management for the project transmission line is P7 million. The estimate includes all costs related to compensation for land, resettlement cost, and other benefits as per the entitlement benefits, plus the nongovernment organization cost. The costs of the private land and trees were derived in close coordination with the city assessor's office, local residents, and affected people based on the prevalent market value of land in the area.

20. In addition to the resettlement budget, KSPC has allocated P20,000 annually for literacy and skills training for directly affected people as well as residents of Colon barangay.

21. Activities for public acceptance, from identification of affected LGUs up to the securing of project endorsements, are complete. All the affected LGUs and development councils endorsed the Project by 31 March 2008. Land acquisition and resettlement activities, such as identification and socioeconomic survey of affected people, secondary data gathering, preliminary cost estimation of affected properties, and actual preparation and securing approval were conducted from January to September 2008. The measurement and detailed cost estimation of houses and structures; counting of crops, plants, and trees; and inventory of other affected properties were started earlier even prior to NGCP approval of the LARP. Land acquisition and resettlement implementation is targeted for completion by the end of September 2010.

Table A5.5: Budget for Land Acquisition and Resettlement

Type of Payment	KEPCO Transmission Line
Acquisition of Private Lands (P813/m ² x 6,327 m ²)	5,143,851
House and Other Structures	1,226,696
Crops, Plants, and Trees	256,225
Disturbance Compensation	106,273
Contingency (5%)	170,815
Total	6,903,860

Source: Korea Electric Power Corporation SPC Power Corporation, July 2009.

I. Monitoring Arrangements

22. NGCP will have overall responsibility to supervise and monitor implementation of the short resettlement plan through its Social Engineering and Right-of-Way Management Department in coordination with KSPC representatives. KSPC will report to ADB on a quarterly basis during implementation of the resettlement plan. The monitoring report will address all aspects of relocation, resettlement, and rehabilitation of households. The nongovernment organization implementing the resettlement plan will conduct field monitoring and monthly assessments of progress in the field, and prepare the monthly report for NGCP and KSPC. KSPC will prepare a complete status report on resettlement plan implementation and submit it to ADB when the resettlement plan has been implemented. The report will reflect the resettlement experience and identify lessons to improve management of resettlement for future projects.

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

Country/Project Title: Philippines/Visayas Base-Load Power Development Project

Lending/Financing
Modality:

Direct Loan

Department/
Division:

Private Sector Operations Department/
Infrastructure Finance Division 2

I. POVERTY ANALYSIS AND STRATEGY

A. Linkages to the National Poverty Reduction Strategy and Country Partnership Strategy

1. Based on the country poverty assessment, the country partnership strategy, and the sector analysis, describe how the project would directly or indirectly contribute to poverty reduction and how it is linked to the poverty reduction strategy of the partner country.

Power generated by the Project will be connected to the local grid, which will contribute to the Government's goal of providing affordable, universal electric service by 2011. Increasing power supplies to local grids will bring the benefits of electricity to remote communities, including better health care, sanitation, and education; greater income-earning opportunities; and higher living standards.

B. Poverty Analysis

Targeting Classification: General intervention

1. Key Issues

The Project will contribute to poverty reduction by supporting economic development of the Visayas region by providing needed power to support economic activities. The Project will generate employment and the *barangays* (districts), municipality, province, and region will benefit directly from the Project through additional financial resources provided by Section 289 of the Local Government Code (LGC)^a and Energy Regulation (ER) 1-94 from the Department of Energy.^b The project developer will assist the municipality in tapping the funds provided by Section 289 of the LGC and ER 1-94. Increased economical and efficient base-load generation capacity in the region will enable the Government to meet demand for electricity in 2011. A positive, direct impact on local labor is expected during implementation and an indirect impact will be due to the increased income-earning opportunities generated by increased access to electricity.

2. Design Features.

The Project is establishing a 200 megawatt (MW) thermal power project using circulating fluidized bed combustion boiler technology in Colon barangay of Naga City, in the province of Cebu. The Project includes the design and construction of an associated line to connect the plant to the New Naga Substation. The project developer will implement livelihood and community development programs as part of the Social Development Plan (SCP) and Corporate Social Responsibility initiative.

C. Poverty Impact Analysis for Policy-Based Lending

Not applicable.

II. SOCIAL ANALYSIS AND STRATEGY

A. Findings of Social Analysis

The Project requires minimal land acquisition and resettlement.

KSPC will provide employment opportunities for qualified locals, and will contribute directly and indirectly to business opportunities in the area. Priority will be given to qualified residents of Naga for employment in plant operation to minimize the influx of migrants, who would exert tremendous financial pressures on the delivery of basic services by the host municipality. Antipollution technology and devices will be installed to eradicate air pollutants and ensure they do not infiltrate nearby communities. KSPC will continue monitoring the health of local communities, and contribute to the improvement of health services and facilities. KSPC will continue to provide periodic medical missions with free medicines.

KSPC acquired land for the coal-fired power plant through open and competitive bidding held in November 2005 by NPC and PSALM. The land, also called Naga land, was leased to KSPC for 25 years and will be solely used for the construction, testing, operation, management, and maintenance of the new power plant. KSPC has provided financial assistance and the needed labor force to construct dwelling units for relocated families. KSPC provided basic

infrastructure and utilities, such as a new access road, power, and water supply in the relocation site. Due diligence confirms that no outstanding issues relate to those affected by the construction of the power plant (Supplementary Appendix 4 on environment and social due diligence report).

For the proposed KSPC transmission line, acquisition of public and private land will affect livelihood patterns of people living in villages close to the project site. In addition to permanent private land losses, standing crops, plants, and trees located within the transmission line right-of-way corridors will also be affected. During construction, activities over 4–5 years would result in movement of construction materials, equipment, and temporary in-migration of labor force dust, and noise pollution and may contribute to pressure on water resources, sanitation, and solid waste management systems. The Project is expected to generate livelihood and employment opportunities during plant construction and operation. KSPC has adopted measures to address community concerns about compensation packages for land acquisition, replacement of agricultural land, and apprehension of environmental pollution due to the Project, including redress of grievances.

No indigenous peoples reside in Naga City. Most of the household population classify themselves as Cebuano. Since no indigenous peoples will be affected by the Project, it is categorized as C with respect to ADB's *Policy on Indigenous Peoples* (1998).

As part of its corporate social responsibility, the project company developed an SDP, which covers proposed interventions of KSPC such as health, sanitation, and nutrition; education; and donations to support local government unit community programs for the various project stakeholders. An annual budget of P240,000 is allocated for SDP implementation.

B. Consultation and Participation

1. Provide a summary of the consultation and participation process during the project preparation.

The Government initiated discussions with the local community in October 2004 during the formal scoping meeting; a second meeting was conducted on 6 August 2005 as a public hearing on the findings of the environmental impact assessment for the Project. During the meeting, the Project's potential environmental and social impacts, land acquisition, relocations, mitigation measures, and monitoring programs were discussed. Concerns raised were clarified and recorded, and mitigating measures incorporated in the reports. During project implementation, a multipartite monitoring team will be established, comprising officials of relevant government agencies, contractor, consultants, and local government units. The team will be responsible for overseeing implementation of the monitoring program to ensure that public resistance to development is controlled through conduct of IEC and continuous implementation of the SDP.

2. What level of consultation and participation (C&P) is envisaged during the project implementation and monitoring?

Information sharing Consultation Collaborative decision making Empowerment

3. Was a C&P plan prepared? Yes No

The community and various stakeholders were consulted in different venues for participation in the study. These consultations include informal interviews, a formal scoping meeting, and public hearing. Residents and other project stakeholders were given the opportunity to discuss the possible environmental and social impacts of the Project. Local government officials from cities and barangays have shown their support for the Project through issuance of official endorsement.

C. Gender and Development

1. **Key Issues.** Women are normally responsible for caring for the family especially attending to basic health needs of children. If the relocated untitled families continue to live at the site close to the power plant, incidence of illness may increase and the women will have to carry the burden of caring for sick children.

2. **Key Actions.** Measures included in the design to promote gender equality and women's empowerment—access to and use of relevant services, resources, assets, or opportunities and participation in the decision-making process:

Gender plan Other actions/measures No action/measure

KSPC through its SDP will conduct regular medical missions to the host barangay to monitor health conditions and at the same time identify illnesses of local residents including women and children related to coal-fired power plants, such as severe asthma and allergies, depressed immune systems, learning disabilities, autism, and behavioral disorder.

III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS			
Issue	Significant/Limited/ No Impact	Strategy to Address Issue	Plan or Other Measures Included in Design
Involuntary Resettlement	For the proposed KSPC transmission line, private and public land will be used. Loss of land and restricted access to agricultural land will have limited economic impacts.	Compensation for land at replacement rates that are well above recorded transaction rates; restoration of access to common property resources; restoration of income via measures elaborated in the short resettlement plan	<input type="checkbox"/> Full Plan <input checked="" type="checkbox"/> Short Plan <input type="checkbox"/> Resettlement Framework <input type="checkbox"/> No Action
Indigenous Peoples	No indigenous people live in Naga City; most households classify themselves as Cebuano. No indigenous people will be affected by the Project.	None	<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input type="checkbox"/> Indigenous Peoples Framework <input checked="" type="checkbox"/> No Action
Labor <input checked="" type="checkbox"/> Employment opportunities <input type="checkbox"/> Labor retrenchment <input type="checkbox"/> Core labor standards	Plant construction and operation will provide employment opportunities to qualified local population. Employment arrangements will comply with employment and labor standards as provided in the applicable laws and regulations.	None	<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input checked="" type="checkbox"/> No Action
Affordability	No impact; power will be made available through the grid.	None	<input type="checkbox"/> Action <input checked="" type="checkbox"/> No Action
Other Risks and/or Vulnerabilities <input type="checkbox"/> HIV/AIDS <input type="checkbox"/> Human trafficking <input type="checkbox"/> Others	None	None	<input type="checkbox"/> Plan <input type="checkbox"/> Other Action <input checked="" type="checkbox"/> No Action
IV. MONITORING AND EVALUATION			
Are social indicators included in the design and monitoring framework to facilitate monitoring of social development activities and/or social impacts during project implementation? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			

^a Republic Act 7160 Local Government Code of 1991, Section 289- Share in the Proceeds from the Development and Utilization of the National Wealth states that the local government units will have an equitable share in the proceeds derived from the utilization and development of the national wealth within their respective areas including sharing the same with the inhabitants by way of direct benefits.

^b ER No. 1-4 promulgated by the Department of Energy on 24 May 1994 prescribes the provision of direct benefits to pertinent local government units hosting energy generating facilities and/or energy resource development projects within their jurisdiction to Section 5 of Republic Act (RA) 7638-Department of Energy Act of 1992.