

POWER DEVELOPMENT PLAN

2006 Update Supplement

INTRODUCTION

The Power Development Plan (PDP), prepared annually by the Department of Energy, is envisioned to serve as an integrated roadmap for decision-makers to ensure consistency and adequacy of information crucial to sector planning, investment opportunities and business strategies in the power sector.

With the dynamic characteristic of the country's electric power industry, industry players need to be abreast on the latest information on power such as peak demand, electricity consumption, supply forecasts, on-going and planned power projects, as well as on corresponding transmission projects.

This **PDP 2006 Update Supplement** provides a summary of the latest developments in the electricity industry focusing on the following three main areas:

- Energy and Demand Projections
- Supply-demand Profile
- Investment Opportunities

2005 POWER SITUATION

In 2005, the country's highest demand was recorded at 8,559 MW, 1.2 percent higher than the previous year's demand of 8,455 MW (Table 1). On a per grid basis, both Luzon and Visayas recorded an increase in peak demand. Luzon was higher by 1.9 percent at 6,443 MW, which occurred in the month of May while Visayas was up by 1.26 percent at 967 MW, which occurred in the month of December. On the other hand, Mindanao peak demand which took place in November was lower by 2.4 percent or 1,149 MW.

Although peak demand increases annually, actual peak demand growth rate is relatively lower than the projections. This has been the trend for the past two years. Similarly, demand growth rate has been continuously decreasing since 2000.

Table 1. 2004-2005 PEAK DEMAND, in MW

Grid	2005	2004	% Change
Luzon	6,443	6,323	1.9
Visayas*	967	955	1.3
Mindanao	1,149	1,177	(2.4)
Philippines	8,559	8,455	1.3

**Excludes the demand of PECO*

The country's total power generation in 2005 increased by 1.1 percent from 55,927 GWh in 2004 to 56,568 GWh (Table 2). In view of the volatility in price of imported oil, generation of oil-fired power plants was limited to only 6,141 GWh compared to 8,504 GWh in 2004, contributing only 10.9 percent of the total electricity generation. The substantial loss, however, in oil-fired generation was gained by natural gas-fired power plants, which contributed the highest share of 16,861 GWh or 29.8 percent share to the generation mix. On the other hand, fuel inputs from coal, hydro and geothermal power plants dropped by 5.6 percent, 2.4 percent and 3.7 percent, respectively. Meanwhile,

contribution from renewable energy sources consisting of wind and solar substantially increased from nil to 19 GWh.

Table 2. 2004-2005 POWER GENERATION, in GWh

Plant Type	2005		2004		% Change
	GWh	% Share	GWh	% Share	
Oil-Based	6,141	10.9	8,504	15.2	(27.78)
Combined Cycle	91	0.2	738	1.3	(87.73)
Diesel	5,717	10.1	6,253	11.2	(8.57)
Gas Turbine	25	0.0	82	0.1	(69.26)
Oil Thermal	309	0.5	1,431	2.6	(78.43)
Coal	15,257	27.0	16,164	28.9	(5.61)
Natural Gas	16,861	29.8	12,384	22.1	36.15
Hydro	8,387	14.8	8,593	15.4	(2.40)
Geothermal	9,902	17.5	10,282	18.4	(3.69)
Renewable	19	-	-	-	-
Total Generation	56,568	100.0	55,927	100.0	1.14

Power generation in the Luzon and Mindanao grids grew by 1.9 percent and 2.2 percent, respectively. The Luzon grid generated 40,599 GWh whereas the Mindanao grid contributed 7,243 MWh. Generation in the Visayas grid dropped by 3.5 percent at 8,698 GWh.

Transmission

There were six transmission projects were completed in 2005 (Table 3). With these projects, the total length of transmission and sub-transmission assets of TransCo reached 20,236 circuit-kilometers (ckt.-kms.): 9,881 ckt-kms in Luzon, 4,807 ckt-kms in Visayas, and 5,547 ckt-kms in Mindanao. Likewise, the combined substation rated capacities rose to 24,607 megavolt amperes (MVA). The Luzon grid has now 19,236 MVA while Visayas and Mindanao have 1,915 MVA and 2,068 MVA, respectively.

Table 3. COMPLETED TRANSMISSION LINE PROJECTS, 2005

Name of Projects	
1	WB-TGRL Substation Projects
2	Panay IV Transmission
3	Negros III Transmission
4	Cebu-Mactan Interconnection
5	Leyte-Cebu Expansion/Uprating Project
6	Mindanao Substation Expansion

The megavolt ampere reactive (MVAR) capacitor banks installed in Luzon stood at 570 MVAR whereas Visayas and Mindanao have 115 MVAR each. In total, there were 800 MVAR capacitor banks installed in 2005.

ENERGY AND DEMAND PROJECTIONS

Energy consumption is estimated to increase annually at an average of 4.2 percent to 4.6 percent in Luzon, 6.1 percent in Visayas and 6.3 percent to 6.7 percent in Mindanao (Table 4). Energy forecasts were calculated from the aggregated projected energy sales of all distribution utilities, directly connected customers, and embedded generators.

Table 4. 2006-2014 ENERGY CONSUMPTION PROJECTIONS, in GWh

Year	Energy Forecasts					
	Luzon		Visayas		Mindanao	
	Reference Case	High-Demand Case	Reference Case	High-Demand Case	Reference Case	High-Demand Case
2006	43,091	43,335	6,587	6,581	7,797	7,943
2007	44,666	45,275	6,930	7,054	8,229	8,500
2008	46,605	47,512	7,323	7,580	8,693	9,086
2009	49,027	50,065	7,786	7,997	9,206	9,731
2010	51,103	52,257	8,265	8,442	9,779	10,443
2011	53,316	54,553	8,767	8,915	10,413	11,113
2012	55,680	56,950	9,316	9,418	11,113	11,813
2013	58,195	59,450	9,915	9,960	11,886	12,568
2014	60,790	62,065	10,560	10,536	12,749	13,376
AAGR (%)	4.2	4.6	6.1	6.1	6.3	6.7

Notes: (1) Reference case refers to DOE forecasts
(2) High Case refers to NPC or TransCo's forecasts

From the energy forecasts, the peak demand was calculated using the average historical load factor. Using the same peak demand projections in the PDP 2006 Update, the peak demand average annual growth rate (AAGR) in Luzon is projected at 4.0 percent to 4.3 percent, 5.7 percent to 6.0 percent in Visayas, and 6.0 percent to 6.5 percent in Mindanao (Table 5).

Table 5. 2006-2014 PEAK DEMAND PROJECTIONS, in MW

Year	Demand Forecasts					
	Luzon		Visayas		Mindanao	
	Reference Case	High-Demand Case	Reference Case	High-Demand Case	Reference Case	High-Demand Case
2006	6,728	6,768	1,154	1,153	1,293	1,319
2007	6,981	7,070	1,214	1,236	1,363	1,408
2008	7,252	7,386	1,289	1,328	1,440	1,505
2009	7,552	7,715	1,364	1,401	1,525	1,612
2010	7,878	8,059	1,448	1,479	1,620	1,730
2011	8,225	8,419	1,536	1,562	1,725	1,841
2012	8,596	8,795	1,632	1,650	1,841	1,957
2013	8,990	9,187	1,737	1,745	1,969	2,082
2014	9,397	9,597	1,850	1,846	2,112	2,216
AAGR (%)	4.0	4.3	5.7	6.0	6.0	6.5

SUPPLY DEMAND PROFILE

This section provides information on the dependable capacity, required capacity, and committed and indicative power projects in Luzon, Visayas and Mindanao for the planning period 2006-2014 (Figures 1-3).

Dependable capacity refers to the maximum capacity a power plant can sustain over a specified period modified for seasonal limitation less the capacity required for station service and auxiliaries. It changes due to various factors affecting the actual operational conditions of the power plants. Because of this limitation, allowances for the planned/scheduled outage rate, forced outage rate, de-rating, water inflow of hydro plants, and other conditions were considered in the calculation of the power supply demand outlook. Such procedure allows to reflect the real dependable capacity of the power system.

Required capacity represents the amount of generating capacity required to meet the demand including the required reserve margin of 23.4 percent. On the other hand, the additional or indicative capacity required is based on the results of generation planning software simulations.

Reserve pertains to the extra generating capability that an electric utility needs above and beyond the peak demand level required to supply to meet the demand. Reserve margin is the difference between the dependable capacity of a utility system and the anticipated peak load for a specified period. The reserve margin (RM) approved by the Energy Regulatory Commission (ERC) in Luzon and Visayas is 23.4 percent, composition of which is 2.8 percent for load following and frequency regulation, and 10.3 percent each for spinning and back-up reserves. For Mindanao, the ERC-approved RM is 21.0 percent, of which 2.8 percent is load following, 9.1 percent is spinning reserve and, additional 9.1 percent for back-up reserve.

Total Philippines

The country's aggregate dependable capacity in 2005 was 13,595 MW. By 2006, it is expected to reach 13,805 MW. For the next ten years, a total of 3,917.3 MW capacities are to be added in the system to meet the country's power requirements (Table 6). Of this, 517.3 MW will come from committed power projects whereas the 3,400 MW will be supplied by indicative power projects.

Table 6. SYSTEM CAPACITY ADDITIONS, 2006-2014

Year	Luzon			Visayas			Mindanao		
	Plants	Capacity MW	Cum. Total MW	Plants	Capacity MW	Cum. Total MW	Plants	Capacity MW	Cum. Total MW
2006							Mindanao Coal-Fired Thermal Power Plant	210	210
2007				Northern Negros Geothermal	49	49			210
2008	<i>North Luzon Wind Power Project, Phase1 (NLWPP1)</i>	30	30.0			49			210
	<i>Northwind Project Phase II</i>	8.25	38.3						210
2009			38.3	KEPCO CFBC Coal-Fired Power Plant	200	249	<i>Peaking Plant</i>	100	310
	<i>Peaking Plant</i>	150.0	188.3	Nasulo Geothermal Project	20	269	<i>Baseload Plant</i>	100	410
2011	<i>Peaking Plant</i>	150.0	638.3	<i>Peaking Plant</i>	200	469	<i>Baseload Plant</i>	150	560
	<i>Midrange Plant</i>	300.0							
2012	<i>Peaking Plant</i>	150.0	1088.3	<i>Peaking Plant</i>	100	569	<i>Baseload Plant</i>	150	710
	<i>Midrange Plant</i>	300.0							
2013	<i>Midrange Plant</i>	600.0	1688.3	<i>Peaking Plant</i>	150	719	<i>Baseload Plant</i>	150	860
2014	<i>Midrange Plant</i>	300.0	1988.3	<i>Peaking Plant</i>	50	869	<i>Baseload Plant</i>	200	1,060
				<i>Baseload</i>	100				
	Total Committed Plants		38.3			269			210
	Total Indicative Plants		1,950			600			850
	Total Capacity		1,988.3			869			1,060
Total Committed Plants				517.3					
Total Indicative Plants				3,400					
Total Capacity				3,917.3					

To date, there are 14 indicative projects with a total capacity of 2,534 MW (Table 7). The three projects to be located in Luzon will have a combined capacity of 1,750 MW. The six potential projects in Visayas will have a total capacity of 390 MW while the five indicative projects in Mindanao will yield 394 MW.

Table 7. INDICATIVE POWER PROJECTS, 2006-2014

Indicative Project	Rated Capacity (MW)	Location	Proponent	Commissioning Date
LUZON				
San Gabriel Power Plant	550	Batangas	First Gen Holdings Corp and BG Consolidated Corp.	2009
Ilijan Expansion	600	Batangas	KEPCO Ilijan	2009
Coal Fired Power Plant	600	Bataan	GN Power	2010
Sub-total	1,750			
VISAYAS				
Toledo Power Expansion	100	Cebu	Global Business Power Corp	2009
Coal Fired Plant	100	Panay	DMCI Energy resources Limited Inc.	
Talisay Bioenergy	25	Negros Occidental	PNOC-Private Sector Joint venture	2009
Cabalian Geothermal	100	Southern Leyte	PNOC-EDC	2010
Dauin Geothermal	40	Negros Oriental	PNOC-EDC	2010
Villasiga HEP	25	Antique	International Fusion Construction Development Co.	2013
Sub-total	390			
MINDANAO				
Tagoloan Hydro	68	Bukidnon	HEDCOR	2008
Sibulan Hydro	46	Sta Cruz, Davao del Sur	HEDCOR	2009
Mindanao 3 Geo	50	North Cotabato	PNOC-EDC	2010
Minergy Expansion	30	Cagayan de Oro	CEPALCO	2010
Sultan Kudarat Coal	200	Sultan Kudarat	MG Mining and Energy Corp.	2012
Sub-total	394			

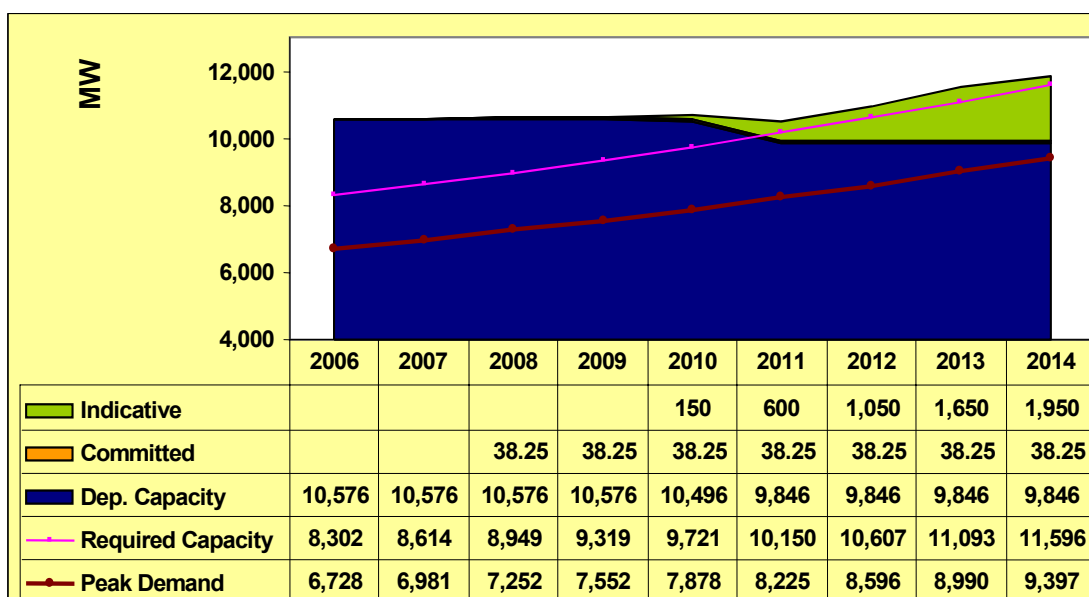
Luzon Grid

In 2005, aggregate dependable capacity of all existing power generating facilities stood at 10,596 MW. By 2006, the aggregate dependable capacity is projected to decrease by 20 MW in view of the shutdown of the Makban Geothermal Power Plant (Figure 1). The targeted restoration of said power plant is targeted in 2010. The generation capacity information came from the owners of existing power generating facilities and from the operator of the power grid. On the other hand, the required capacity of 8,302 MW in 2006 is expected to rise to 9,319 MW in 2009 and to 11,596 MW in 2014.

As what has been projected in the PDP 2006 Update, a total of 1,989 MW of new generating capacities are still required in the Luzon grid, 38.3 MW are committed power projects and 1,950 MW are indicative power projects. Of these, 150 MW peaking plant will be required in 2010 and an additional 450 MW peaking and mid-range power plants by 2011. For the succeeding years, 450 MW peaking and mid-range power plants in 2012, 600 MW midrange power plant in 2013 and 300 MW

midrange power plant in 2014. The following capacity requirements will be needed to provide new additional power sources.

Figure 1. SUPPLY-DEMAND OUTLOOK FOR LUZON



However, if no additional capacity is made, the critical period will be in 2010/2011 during which the reserve level is expected to fall than the minimum reserve level.

Committed projects: There are two major changes in the list of committed projects cited in the PDP 2006 Update. First is the addition of the Northwind Power Corporation's 8.25 MW capacity in 2008. Second is the reduction in the capacity of the PNOC-EDC's North Luzon Wind Power Project (NLWPP) Phase 1 from 40 MW to 30 MW and the extension of its completion date from 2007 to 2008.

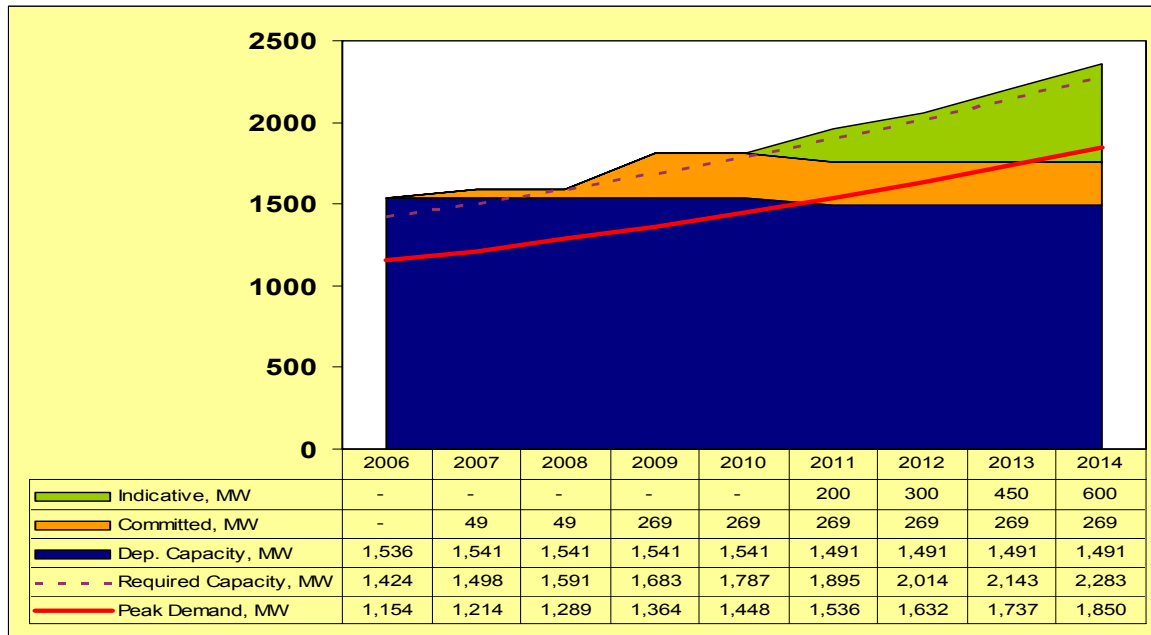
Plant retirement: The retirement schedule will remain as is in the PDP 2006 Update. The 210 MW Hopewell Gas Turbine Power Plant will retire in 2009 and the 650 MW Malaya Thermal Power Plants 1 and 2 in 2010.

Visayas Grid

As of end 2006, the projected aggregate dependable capacity is 1,536 MW (Figure 2). In terms of required capacity, about 1,424 MW are needed in 2006, 1,683 MW in 2009 and 2,283 MW in 2014. Following the PDP 2006 Update projections, a total of 869 MW of new generating capacities are still required to meet the growing demand for the period 2006-2014. Of this, 269 MW will be provided from already committed power projects and 600 MW from indicative power projects. To meet the capacity requirements, 200-MW peaking plant in 2011, three more peaking plants with capacities of 100 MW, 150 MW and 50 MW in 2012 to 2014, and a 100 MW baseload power plant in 2014 are to be commissioned.

If no capacity additions are made in 2011, the reserve margin will fall below the required 23.4 percent. Furthermore, if commissioning of the committed projects is delayed, the critical period will be in 2009. Meanwhile, the supply demand outlook assumes that the uprating of the transmission projects among the sub-grids are completed on-schedule.

Figure 2. SUPPLY-DEMAND OUTLOOK FOR VISAYAS



Committed projects: The commissioning of all the eight units of Pinamucan Diesel Power Plant (Pinamucan DPP) were completed in July 2006. PNOC-EDC's 49 MW Northern Negros Geothermal Project is expected to be commissioned by the 1st quarter of 2007. However, the commissioning of both KEPCO's 200 MW Coal Fired Thermal Plant in Cebu and PNOC-EDC's 20 MW Nasulo Geothermal Project in Negros was moved to 2009. Timely completion of these two projects is very crucial, as further delay in completion will cause power shortages in 2009.

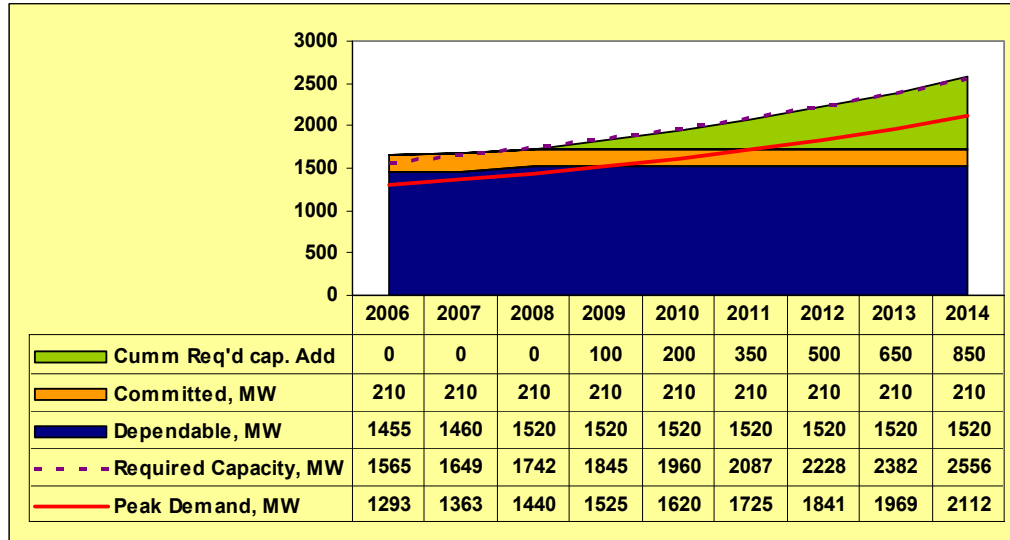
Plant retirement: Panay Diesel Power Plant 1 (PDPP 1) with a capacity of 36.5 MW and the 55 MW Land Based Gas Turbine 1 (LBGT 1) are scheduled for retirement in 2007 and in 2011, respectively. Meanwhile, transferring of power barges to Mindanao is no longer considered.

Mindanao Grid

By end 2006, the aggregate dependable capacity, including the embedded generating units of private distribution utilities is estimated at 1,492 MW. By excluding the embedded generators, the aggregate dependable capacity is projected at 1,455 MW (Figure 3). In the next ten years, the required capacity is projected to increase to 2,556 MW. To meet these power requirements, a total of 1,060 MW capacity additions will be made, of which 210 MW are from committed power projects and 850 MW from indicative power projects. These indicative power projects needed to contribute to the system includes: 100 MW peaking plant in 2009; 100 MW baseload power plant in 2010; 150 MW baseload power plant each from 2011 to 2013; and another baseload power plant with 200 MW capacity in 2014.

The capacity requirements have been adjusted since the required capacity of 50 MW peaking power plant in 2006 and 200 MW baseload power plant in 2008 identified in the PDP 2006 Update are no longer feasible considering the lead time in the construction of said power plants. Thus, total indicative capacity required to meet the demand beginning 2009 is projected at 850 MW.

Figure 3. SUPPLY-DEMAND OUTLOOK FOR MINDANAO



Committed Projects: There were three committed projects identified in the PDP 2006 Update. These are the 210 MW Mindanao Coal-Fired Thermal Power Plant (CFTPP), Mt. Apo Geothermal Optimization, and the transfer of two power barges from the Visayas. The first unit (105 MW) of the Mindanao CFTPP owned by the STEAG State Power, Inc. started its commercial operation in October 2006. The second unit is expected to become operational before the end of the year. The PNOC-EDC's 20 MW Mt. Apo Optimization Project was removed from the list of committed projects. The 24 MW PB 104 was transferred to Holcim, Davao but the relocation of the second power barge from Visayas was deferred until such time that power supply in the Visayas region has stabilized.

As a result of these developments, the committed projects in Mindanao decreased by 44 MW. Nevertheless, the Balo-i Flood Control Project of NPC, which will optimize the capacity of Agus II Hydroelectric Plant (HEP) in 2008 will offset the reduction in the committed capacity. This project is expected to increase generation output of the Agus II HEP by 60 MW.

In effect, the entry of the Mindanao CFTPP and the optimization of Agus II HEP will stabilize the power supply in Mindanao for the next two years.

Plant Retirement: For the next ten years, there are no power plants scheduled for retirement in the Mindanao Grid.

TRANSMISSION DEVELOPMENT PLAN

Two major projects were completed in 2006. The Panay Island – Boracay Island 69 kV Interconnection Project, which was completed in April 2006, will reinforce the existing submarine cable in Caticlan and will accommodate the projected increase demand in Boracay Island. The San Roque Associated Transmission Line and Substation Project, completed in June 2006, will meet the N-1 contingency requirement since the 345 MW San Roque Hydro Plant is currently served by a single circuit 230 KV line.

Details of these projects and other transmission projects in the Luzon, Visayas and Mindanao grids can be found in the 2006 TDP.

Luzon Grid

Several new projects were added in the list of on-going and proposed projects of TransCo. The Hermosa-Balintawak 230 kV Transmission Line Relocation Project is a new on-going project targeted for completion by October 2007. It involves the relocation of portion of Hermosa-Balintawak 230 kV transmission line along the North Luzon Expressway parallel to the viaduct stretching from San Simon to Pulilan exits.

The proposed projects include the following: (1) the Luzon-Mindoro Interconnection Project, targeted for completion by October 2007, will provide the island of Mindoro with a more stable and reliable source of electricity from the main grid; (2) the Mexico-Balintawak Reconductoring Project intended to prevent overloading of Mexico-Balintawak line during N-1 condition once the Mariveles 600 MW CFTPP comes on-line in 2012; (3) the San Jose 500 kV Reconfiguration Project which involves the reconfiguration of San Jose 500 kV Gas Insulated Switchgear (GIS) substation from ring bus to breaker- and-half targeted to reduce risk of split-bus during outage of any outgoing liner; and (4) the San Jose Balintawak Transmission Line Upgrade which entails the construction of the third line of the 18.5 kilometer-long San Jose-Balintawak 230 kV transmission line designed to increase its transfer capacity to prevent overloading due to tripping of one of the San Jose-Balintawak circuits at peak conditions in 2007 during dry season while the Bataan CCPP is not on-line.

Visayas Grid

Two new projects proposed in the 2005 TDP are now in the implementation stage. These projects are as follows: (1) the Negros-Panay Interconnection Upgrading Project which aims to increase the power transfer capacity of the existing facility and to optimize the utilization of power from Palinpinon Geothermal Power Plants; and (2) the Northern Panay Backbone Project which is envisioned to augment the existing transmission backbone to meet generation capacity addition.

In addition, four new projects previously planned for implementation by a concessionaire, were approved by ERC for construction by TransCo. These projects include: (1) the Bohol Backbone Project intended to prevent overloading of Ubay-Trinidad 69 kV line during outage of Ubay-Alicia 69 kV line; (2) the New Naga Substation Project which is aimed to provide a termination point for the Cebu-Negros Upgrading Project; (3) the Power Circuit Breaker Replacement Project which is intended to replace antiquated power circuit breakers; and (4) the Southern Panay Backbone Project intended to avert the overloading problem of the Sta. Barbara-Sibalom 69 kV transmission line and the Sta. Barbara substation.

Mindanao Grid

In the Mindanao grid, four projects introduced as new projects in the 2005 TDP, are now being implemented by TransCo. These projects consist of: (1) the Abaga-Kirahon 230kV Transmission Line aimed to provide additional transmission corridor to the Agus Hydro Complex and to serve as an initial step in developing a higher transmission highway from the north to south of the grid to meet the increasing demand in Davao; (2) the Gen. Santos-Tacurong Transmission intended to replace the existing 138 KV single circuit woodpole structures with a double circuit, steel tower transmission line; (3) the Kirahon-Maramag 230 kV Transmission Line aimed to complete the Mindanao 230 KV Transmission Backbone linking the northern and southern Mindanao; and (4) the Maramag-Bunawan 230 KV Transmission Line intended to extend the Abaga-Kirahon 230 KV and to form part of the proposed Mindanao 230 KV Transmission Line backbone aimed to strengthen the existing transmission system.

In terms of proposed projects, five new projects were added in TransCo's list namely: (1) the Tacurong-Nuling 138 kV Transmission Project which aims to provide a new 138 kV single circuit, steel tower transmission corridor from North Maguindanao to North Cotabato and to complete the looping of the transmission network in South Western Mindanao Area; (2) the Mindanao Mobile Transformer Project will provide the much-needed operational flexibility to the Mindanao Grid and will ensure that power is available anytime and anywhere; (3) the Power Circuit Breaker Replacement Project, targeted for completion by July 2010, will replace old power circuit breakers in a number of substation across the Mindanao Grid; (4) the Mindanao Reliability Compliance Project will involve the provision of N-1 security to a number of 138kV transmission lines in the Mindanao Grid; and (5) the Aurora-Polanco 138kV Transmission Line Project will ensure a continuous and reliable power supply in Dipolog City and in adjacent load centers.

INVESTMENT REQUIREMENTS

In summary, the total investment requirements of the country for power generation projects amount to PhP 227.2 billion. Of these, 22.0 percent or PhP 51.1 billion are already committed by private proponents while the rest (PhP 176.1 billion) remains to be infused through private sector participation.

Luzon Grid

The Luzon grid will require a total investment worth PhP 75.5 billion (Table 8). A large portion of this investment, about PhP 71.0 billion, is needed in the indicative projects whereas the committed projects will require PhP 4.5 billion.

Table 8. INVESTMENT REQUIREMENTS FOR LUZON POWER GENERATION, 2006-2014

Projects	MW	Year	US\$/KW	MM US\$	MMP	Local			Forex		
						Total	Gov't	Private	Total	Gov't	Private
Noth Luzon Wind Power Project Phase I	30	2008	2,104	63	3,472	694	694		2,777	2,777	
Northwind Project Phase II	8.25	2008	2,230	18	1,012	202	202		810		810
Indicative Plants	1,950			1,292	71,033	14,207		14,207	56,826		56,826
Total	1,988.3			1,373	75,516	15,103	897	14,207	60,413	2,777	57,636
Indicative Capacity	MW	Year	US\$/KW	MM US\$	MMP	Local			Forex		
						Total	Gov't	Private	Total	Gov't	Private
Peaking Plant	150	2010	370	56	3053	611		611	2,442		2,442
Peaking Plant	150	2011	370	56	3053	611		611	2,442		2,442
Midrange Plant	300	2011	750	225	12375	2475		2,475	9,900		9,900
Peaking Plant	150	2012	370	56	3053	611		611	2,442		2,442
Midrange Plant	300	2012	750	225	12375	2475		2,475	9,900		9,900
Midrange Plant	600	2013	750	450	24750	4950		4,950	19,800		19,800
Midrange Plant	300	2014	750	225	12375	2475		2,475	9,900		9,900
Total	1,950			1,292	71,033	14,207		14,207	56,826		56,826

Visayas Grid

For the next ten years, about PhP 52.1 billion capital investments in power generation will be needed to provide sustainable and reliable supply of electricity in the Visayas (Table 9). More than half of this amount (PhP 29.8 billion) represents capital requirements for committed projects and about 43.0 percent (PhP 22.3 billion) is the estimated cost of indicative projects.

Table 9. INVESTMENT REQUIREMENTS FOR VISAYAS POWER GENERATION, 2006-2014

Projects	MW	Year	US\$/KW	MM US\$	MMP	Local			Forex		
						Total	Gov't	Private	Total	Gov't	Private
Northern Negros Geo	49	2007	2,908	142	7,836	1,567		1,567	6,269		6,269
KEPCO Coal	200	2009	1,750	350	19,250	3,850		3,850	15,400		15,400
PNOC-Nasulo Geo	20	2009	2,480	50	2,728	546		546	2,182	2,182	
<i>Indicative Plants</i>	600			406	22,330	4,466		4,466	17,864		17,864
Total	869			948	52,144	10,429		10,429	41,715	2,182	39,533
Indicative Capacity	MW	Year	US\$/KW	MM US\$	MMP	Local			Forex		
						Total	Gov't	Private	Total	Gov't	Private
Peaking Plant	200	2011	370	74	4,070	814		814	3,256		3,256
Peaking Plant	100	2012	370	37	2,035	407		407	1,628		1,628
Peaking Plant	150	2013	370	56	3,053	611		611	2,442		2,442
Peaking Plant	50	2014	510	26	1,403	281		281	1,122		1,122
Baseload Plant	100	2014	2,140	214	11,770	2,354		2,354	9,416		9,416
Total	600			406	22,330	4,466		4,466	17,864		17,864

Mindanao Grid

With the planned capacity additions in the Mindanao grid, about PhP 99.5 billion is required to finance the much-needed capital investments (Table 10). The construction of the Mindanao CFTPP alone entails a total of PhP 16.8 billion whereas the indicative projects, composed mostly of baseload power plants, will require about PhP 82.7 billion.

Table 10. INVESTMENT REQUIREMENTS FOR MINDANAO POWER GENERATION, 2006-2014

Projects	MW	Year	US\$/KW	MM US\$	MMP	Local			Forex		
						Total	Gov't	Private	Total	Gov't	Private
Mindanao Coal	210	2,006	1,452	305	16,775	3,355		3,355	13,420		13,420
<i>Indicative Plants</i>	850			1,504	82,720	16,544		16,544	66,176		66,176
Total	1,060			1,809	99,495	19,899		19,899	79,596		79,596
Indicative Capacity	MW	Year	US\$/KW	MM US\$	MMP	Local			Forex		
						Total	Gov't	Private	Total	Gov't	Private
Peaking Plant	100	2009	370	37	2,035	407		407	1,628		1,628
Baseload Plant	100	2010	2,140	214	11,770	2,354		2,354	9,416		9,416
Baseload Plant	150	2011	2,140	321	17,655	3,531		3,531	14,124		14,124
Baseload Plant	150	2012	2,140	321	17,655	3,531		3,531	14,124		14,124
Baseload Plant	150	2013	2,140	321	17,655	3,531		3,531	14,124		14,124
Baseload Plant	200	2014	1,450	290	15,950	3,190		3,190	12,760		12,760
Total	850			1,504	82,720	16,544		16,544	66,176		66,176