PHILIPPINE POWER DEVELOPMENT PLAN

Philippine Energy Plan (PEP) 2008 – 2030

Public Consultation Series

A Presentation by

Electric Power Industry Management Bureau

Cebu City Sports Club, Cebu Business Park

18 July 2008

Outline of Presentation

- Power Supply and Demand Situation
- Power Generation and Transmission Projects
- Power Sector Reforms
- Expanded Rural Electrification Program

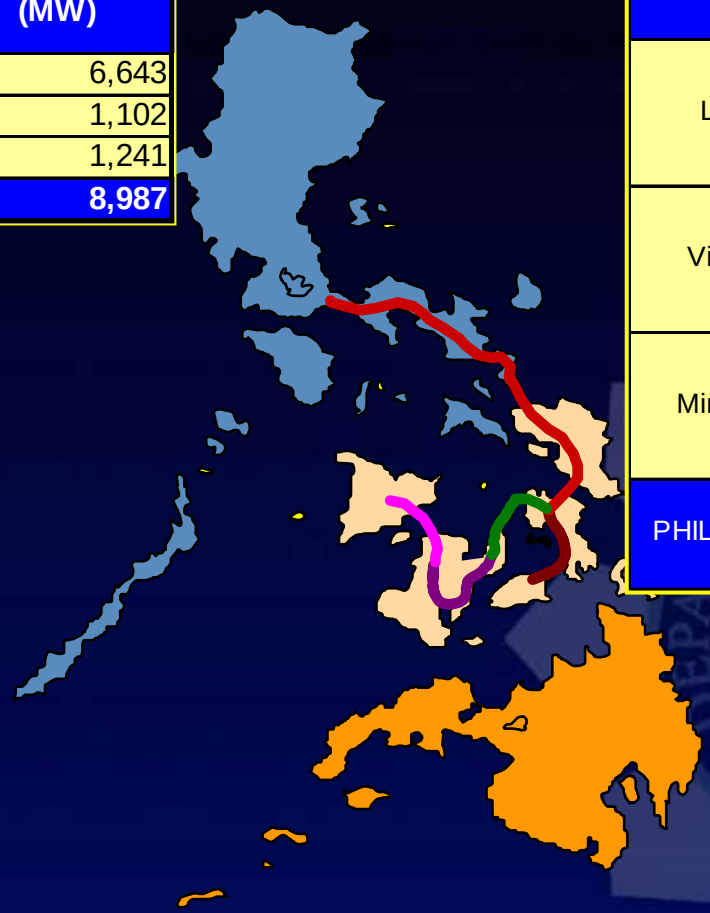
Power Supply and Demand Situation

Power Sector Situationer

2007 Power Generation and Transmission, PHILIPPINES

Grid	Installed Capacity (MW)	Dep. Capacity (MW)	Peak Demand (MW)
Luzon	12,172	10,029	6,643
Visayas	1,832	1,475	1,102
Mindanao	1,933	1,682	1,241
Total	**15,937**	**13,186**	**8,987**

PLANT	PHILIPPINES	
	Installed (MW)	% Share
Coal	4,213	26.4
Natural Gas	2,834	17.8
Geothermal	1,958	12.3
Hydro	3,289	20.6
Oil Based	3,616	22.7
Wind	25	0.2
Solar	1	0.0
TOTAL	**15,937**	100



GRID	Type of DUs	Total DUs
Luzon	ECs	55
	PIOUs	9
	LGUOUs	5
	Sub-Total	*69*
Visayas	ECs	31
	PIOUs	4
	LGUOUs	2
	Sub-Total	*37*
Mindanao	ECs	33
	PIOUs	4
	LGUOUs	1
	Sub-Total	*38*
PHILIPPINES	ECs	***119***
	PIOUs	***17***
	LGUOUs	***8***

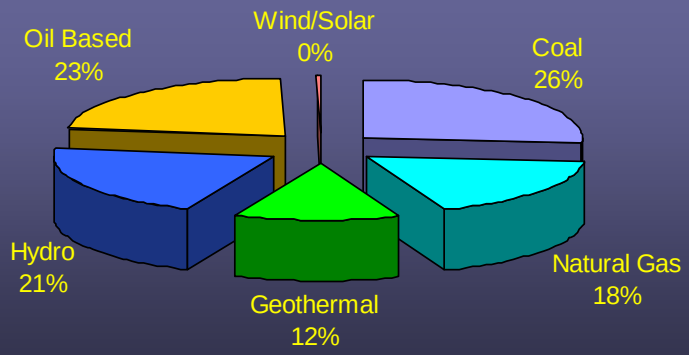
Interconnection

- **Leyte-Luzon (440 MW)**
- **Leyte-Cebu (400 MW)**
- **Cebu-Negros (100 MW)**
- **Negros – Panay (100 MW)**
- **Leyte-Bohol (100 MW)**

Power Sector Situationer

2007 Grid Capacity and Generation, PHILIPPINES

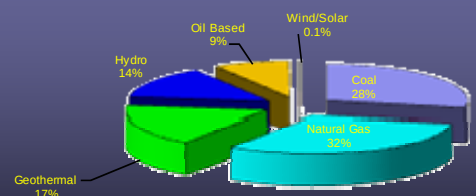
Rated Capacity



15,937 MW

Capacity Mix

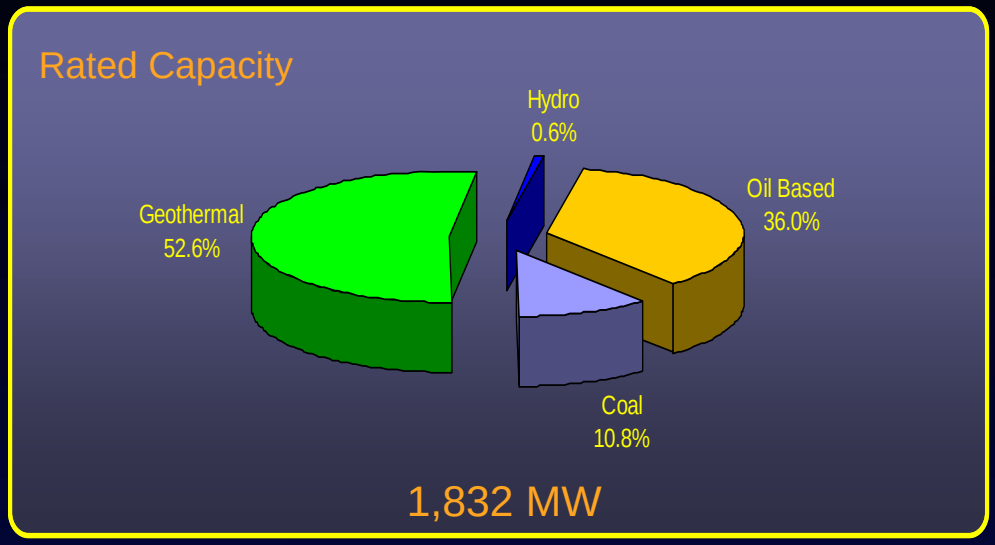
Generation Mix



59,612 GWh

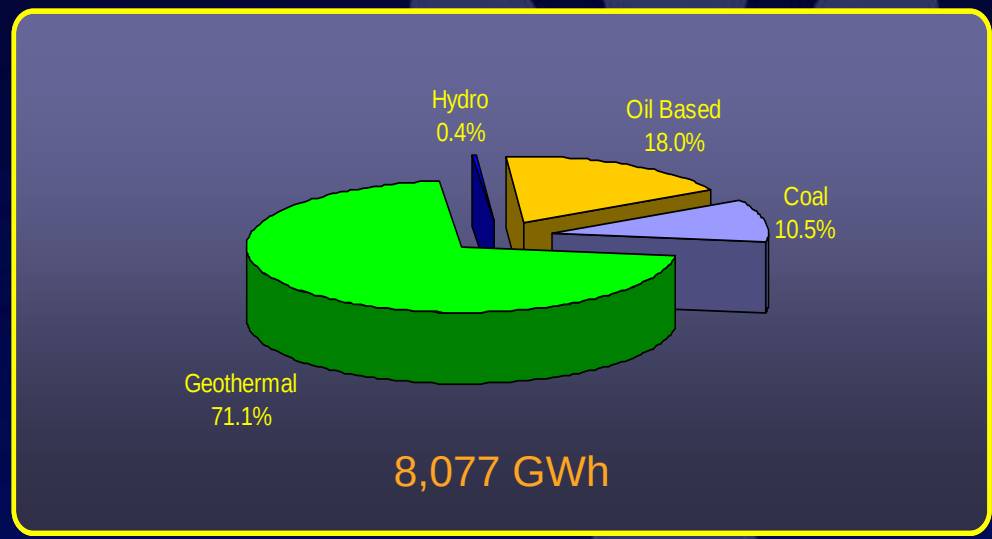
Power Sector Situationer

2007 Grid Capacity and Generation, VISAYAS



Capacity Mix

Generation Mix



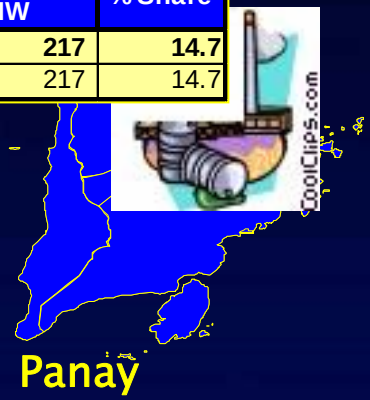
Note: Excluding SPUG generation

Power Sector Situationer

VISAYAS Dependable Capacity per Sub-Grid, Dec. 2007

Sub-grid	Dependable Cap. (MW)	% Share
Cebu	377	25.5
Negros	190	12.9
Panay	217	14.7
Bohol	24	1.6
Leyte-Samar	667	45.2
Total Visayas	**1,475**	**100**

Sub-grid	Dependable, MW	% Share
PANAY	**217**	**14.7**
Oil-based	217	14.7

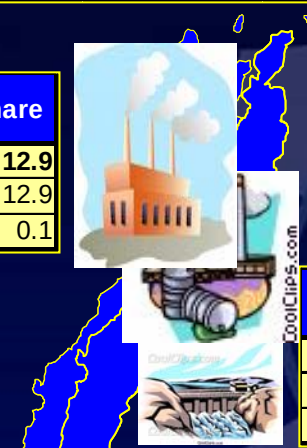


Panay

Sub-grid	Dependable, MW	% Share
NEGROS	**190**	**12.9**
Geothermal	190	12.9
Hydro	0.8	0.1

Negros

Sub-grid	Dependable, MW	% Share
CEBU	**377**	**25.5**
Coal	155	10.5
Oil-based	219	14.9
Hydro	2	0.1



Cebu

Sub-grid	Dependable, MW	% Share
LEYTE-SAMAR	**667**	**45.2**
Geothermal	665	45.1
Hydro	2	0.1

Leyte-Samar

Sub-grid	Dependable, MW	% Share
BOHOL	**24**	**1.6**
Oil-based	18	1.2
Hydro	6	0.4

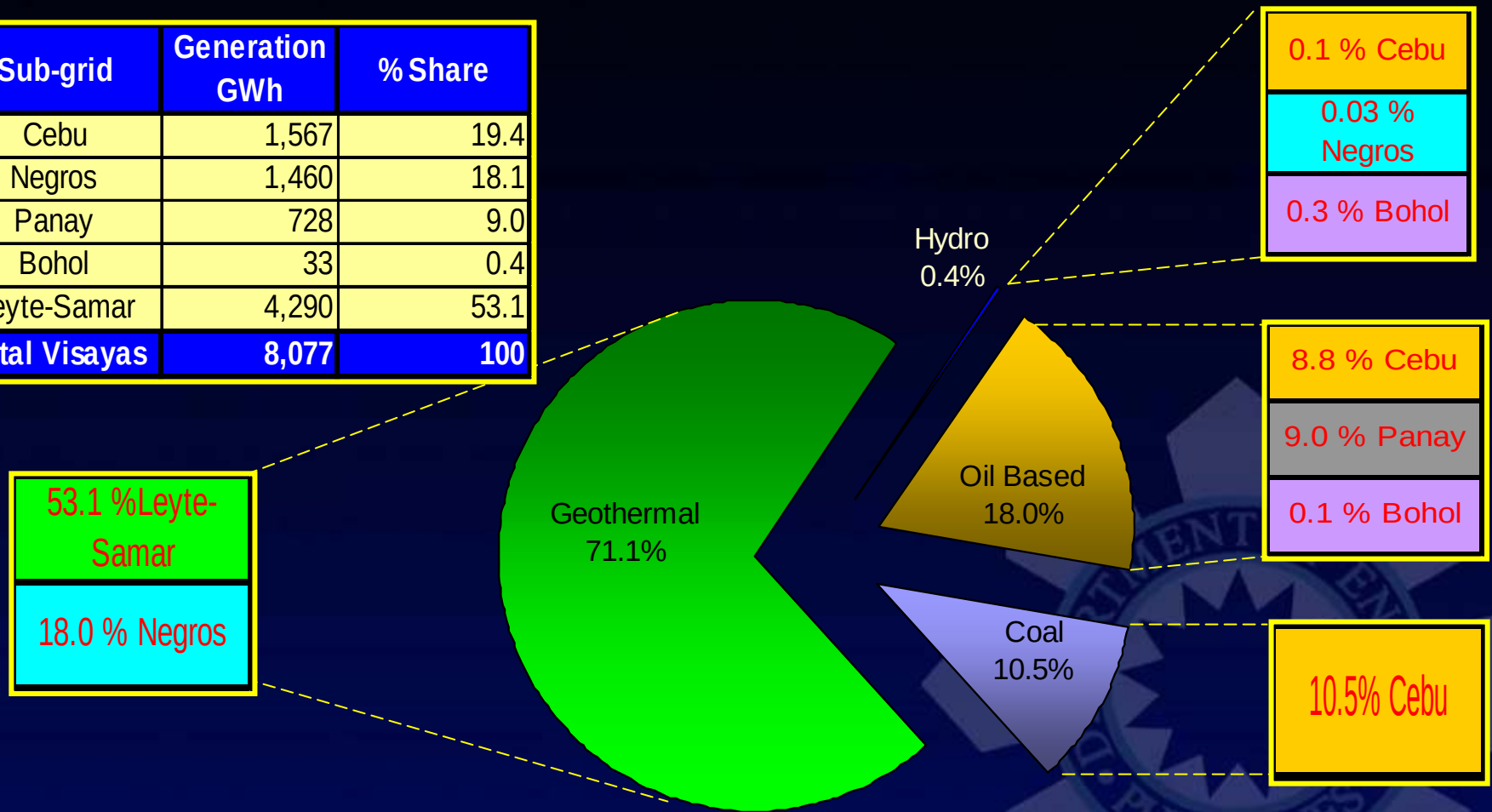
Bohol

Note: Assuming all power plants are in operation.

Power Sector Situationer

2007 Generation Share per Sub-Grid, VISAYAS

Sub-grid	Generation GWh	% Share
Cebu	1,567	19.4
Negros	1,460	18.1
Panay	728	9.0
Bohol	33	0.4
Leyte-Samar	4,290	53.1
Total Visayas	**8,077**	**100**



Note: Excluding SPUG generation

Power Sector Situationer

2007 Dependable Generating Capacity and Demand VISAYAS

Sub-grid	Dep. Capacity (MW)	Non-Coincident Peak (MW)*	Rated (MW)
Cebu	377	512	(135)
Negros	190	221	(31)
Panay	217	201	16
Bohol	24	51	(27)
Leyte-Samar	667	194	473
Total Visayas	**1,475**	**1,168**	**307**

Note: Assuming all power plants are in operation.
****2007 Non-Coincident Peak***

Power Sector Situationer

VISAYAS Generating Capacity and Demand, June 2008

at Maximum Peak Demand

Sub-grid	Dependable Cap. (MW)	Max Peak (MW)	Reserve	
			Low Dependable Capacity	High Dependable Capacity
Cebu	207-297	515	(308)	(218)
Negros	161-171	204	(42)	(32)
Panay	122-173	195	(74)	(22)
Bohol	19-21	49	(30)	(28)
Leyte-Samar	550-575	189	361	386
Total Visayas	**1103 -1210**	**1,089**	**14**	**121**

at Weekdays Average Peak Demand

Sub-grid	Dependable Cap. (MW)	Average Weekdays Peak (MW)	Reserve	
			Low Dependable Capacity	High Dependable Capacity
Cebu	207-297	482	(275)	(185)
Negros	161-171	197	(36)	(26)
Panay	122-173	167	(45)	6
Bohol	19-21	47	(28)	(26)
Leyte-Samar	550-575	177	373	398
Total Visayas	**1103 -1210**	**1,037**	**66**	**172**

Source of Data: TransCO Visayas System Operation
Non-Coincident peak

Visayas Demand Forecast

PDP 2008 – 2017

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Historical	1025	1037	1066	1102										
2006 PDP Update				1214	1289	1364	1448	1536	1632	1737	1850			
2008 PDP				1102	1177	1231	1285	1343	1403	1464	1534	1608	1687	1770

Note: Historical Peak based on TransCo System Peak not including embedded generator

Visayas Power Plant Line up

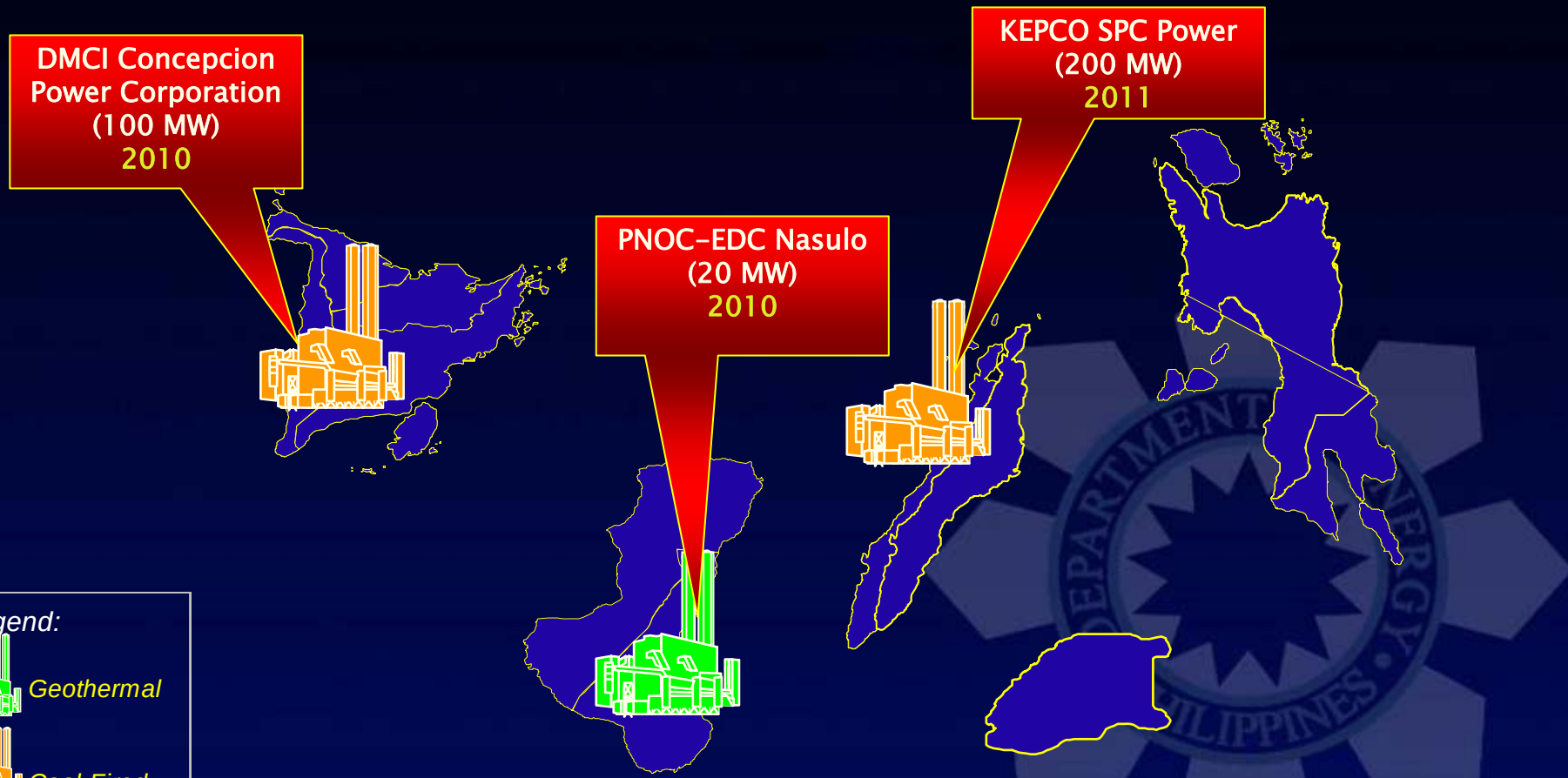
PDP 2008 – 2017

PDP 2008 - 2017			
Year	Power Plant	Projected Capacity Addition (MW)	Commulative Capacity Addition (MW)
2008	Peaking Plant	50	50
2009	Peaking Plant	100	150
2010	Nasulo Geo	20	170
	DMCI Coal	100	270
2011	Kepco Coal	200	470
2012			470
2013	Baseload Plant	50	520
2014	Baseload Plant	50	570
2015	Baseload Plant	50	620
2016	Baseload Plant	50	670
2017	Baseload Plant	150	820
Committed Projects		320	
Capacity Addition Requirements		500	
Total Committed & Capacity Add.		820	

Power Generation and Transmission Projects

Committed Power Projects

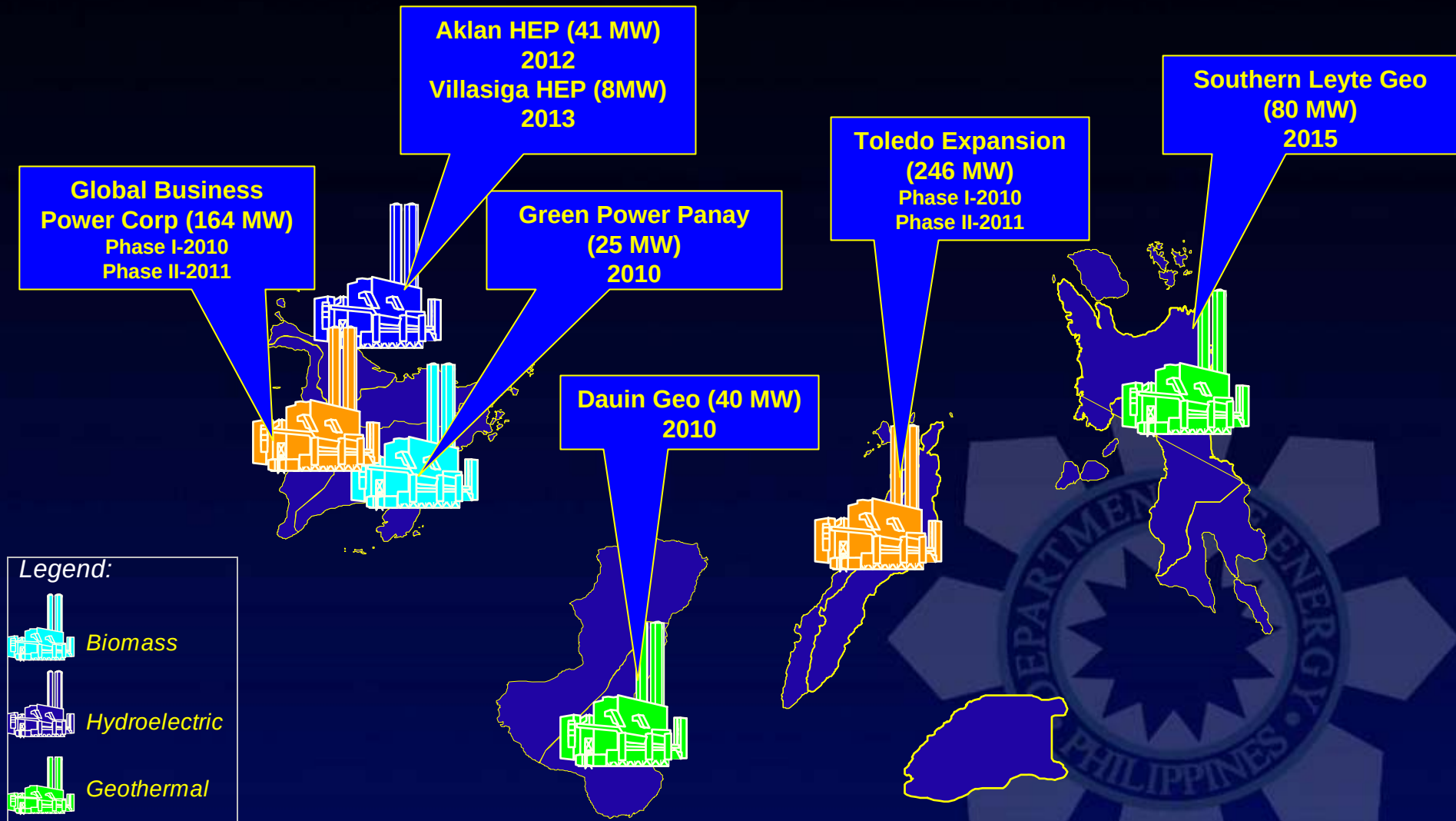
Visayas Grid



Note: Committed power projects are those which already have financial closing

Indicative Power Projects

Visayas Grid



Note: Indicative power projects are those which are at different stages of project developments prior to financial closing.

VISAYAS TRANSMISSION PROJECTS

ON-GOING

NEGROS-PANAY INTERCONNECTION
Phase 1: 35kms, 138KV T/L
San SS: 50 MVA
Phase 2: 49 kms, 138KV T/L
(Mar-2010)

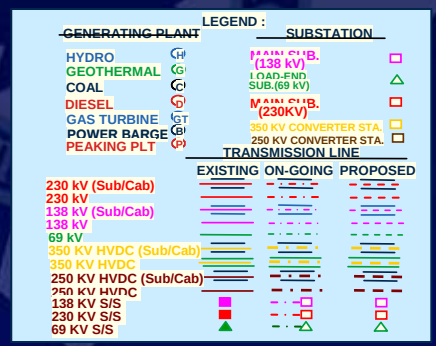
– The project will double the transfer capacity in the islands of Negros and Panay from 100 MW to 200 MW. It will optimize the utilization of geothermal power from Palinpinon and Leyte

WRIGHT-CALBAYOG 138 KV T/L
OHTL: 65 kms, 138KV
Calbayog: 50 MVA X'mer
(DEC-2009)

– The project will boost the reliability of lines in Samar and optimize the utilization of available geothermal power sources in Leyte.

CEBU-NEGROS INTERCONNECTION
OHTL: 108 kms, 138 KV
35 kms, 69 KV
Sub-Cable: 17.8 kms, 138KV
(Jul -2008)

- The uprating project will essentially double (from 100 MW to 200 MW) the power interchange between major islands in Visayas.



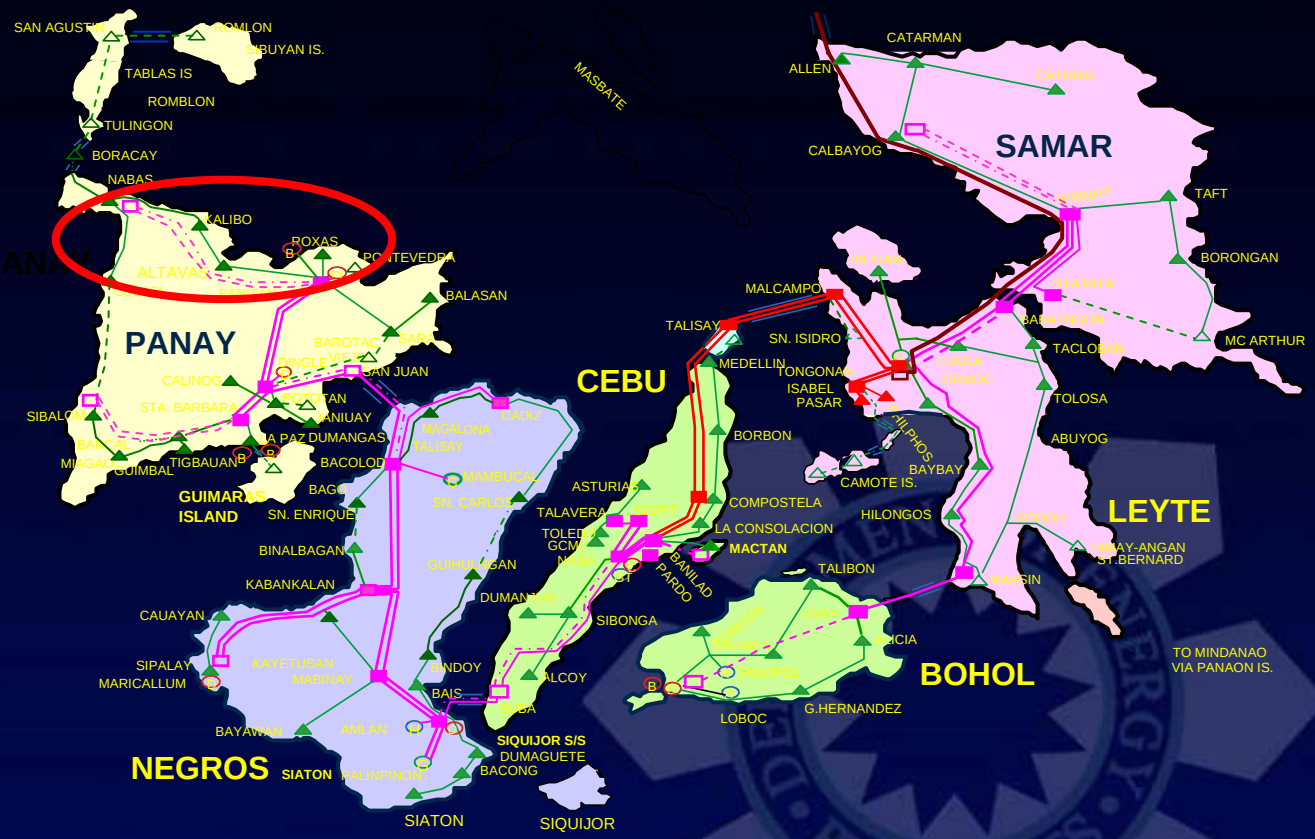
PRIORITY TRANSMISSION PROJECTS

Northern Panay Backbone Project

Project Location: Panay

Grid to be Served: Visayas

- Will extend the existing transmission backbone towards the northern part of Panay
- Will improve power delivery and ensure system integrity during system contingencies in order to meet expanding economic activities and greater number of consumers
- Scope: Panitan-Nabas 138 KV T/L
- Caticlan S/S: 2x50 MVA



INVESTMENT REQUIREMENT	:	**PhP 1,370 M**
FINANCING SOURCE	:	Calyon/TransCo **CAPEX**
TARGET COMPLETION	:	December **2009**

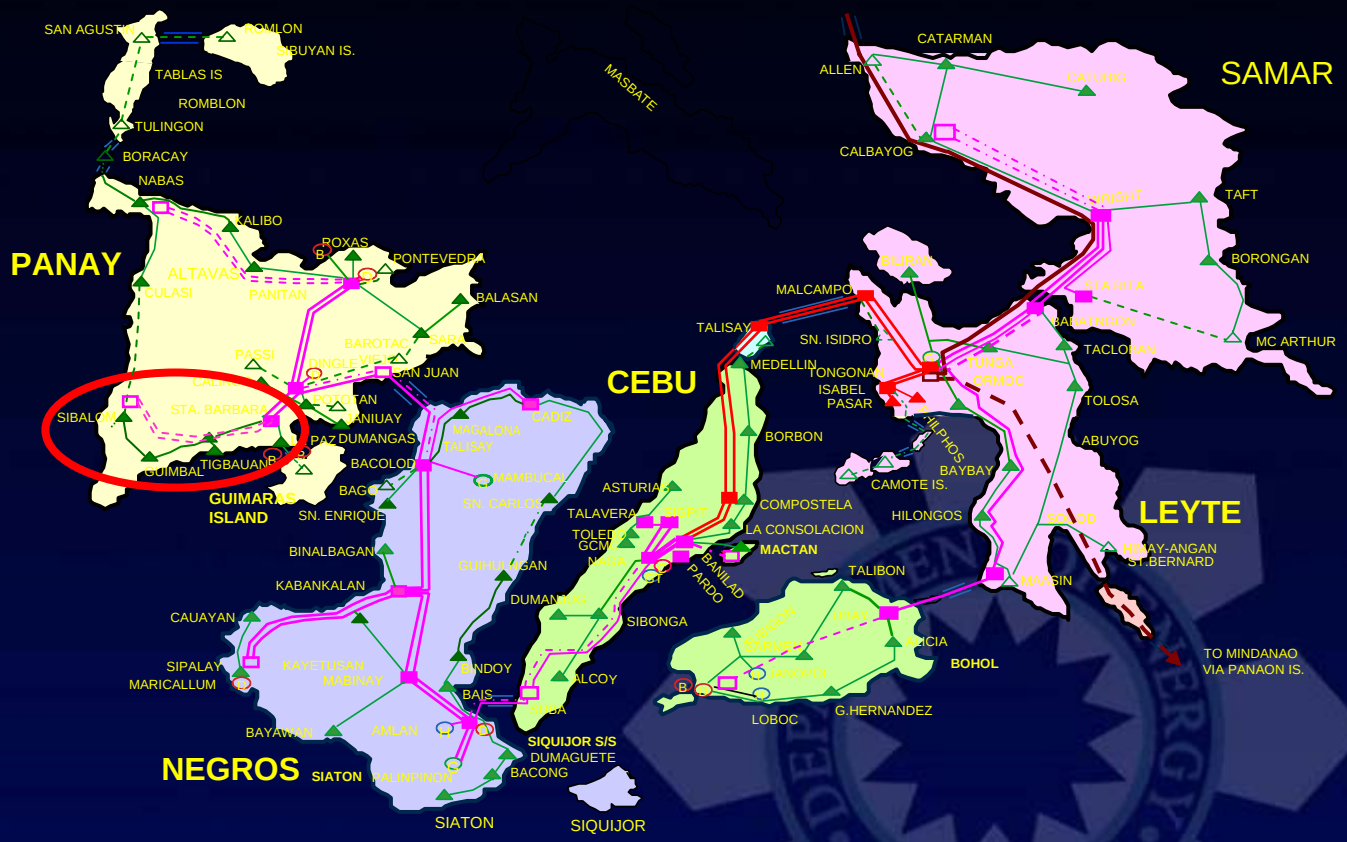
PRIORITY TRANSMISSION PROJECTS

Southern Panay Backbone Project

Project Location: Panay

Grid to be Served: Visayas

- Will extend the existing transmission backbone towards the southern part of Panay
- Will ensure the continuous flow of power and system integrity during system contingencies
- Scope: Sta. Barbara-Sibalom 138 KV T/L
- Sibalom S/S: 2x50 MVA



INVESTMENT REQUIREMENT : **PhP 1,884 M**

FINANCING SOURCE : **TransCo CAPEX**

TARGET COMPLETION : Mar **2010**

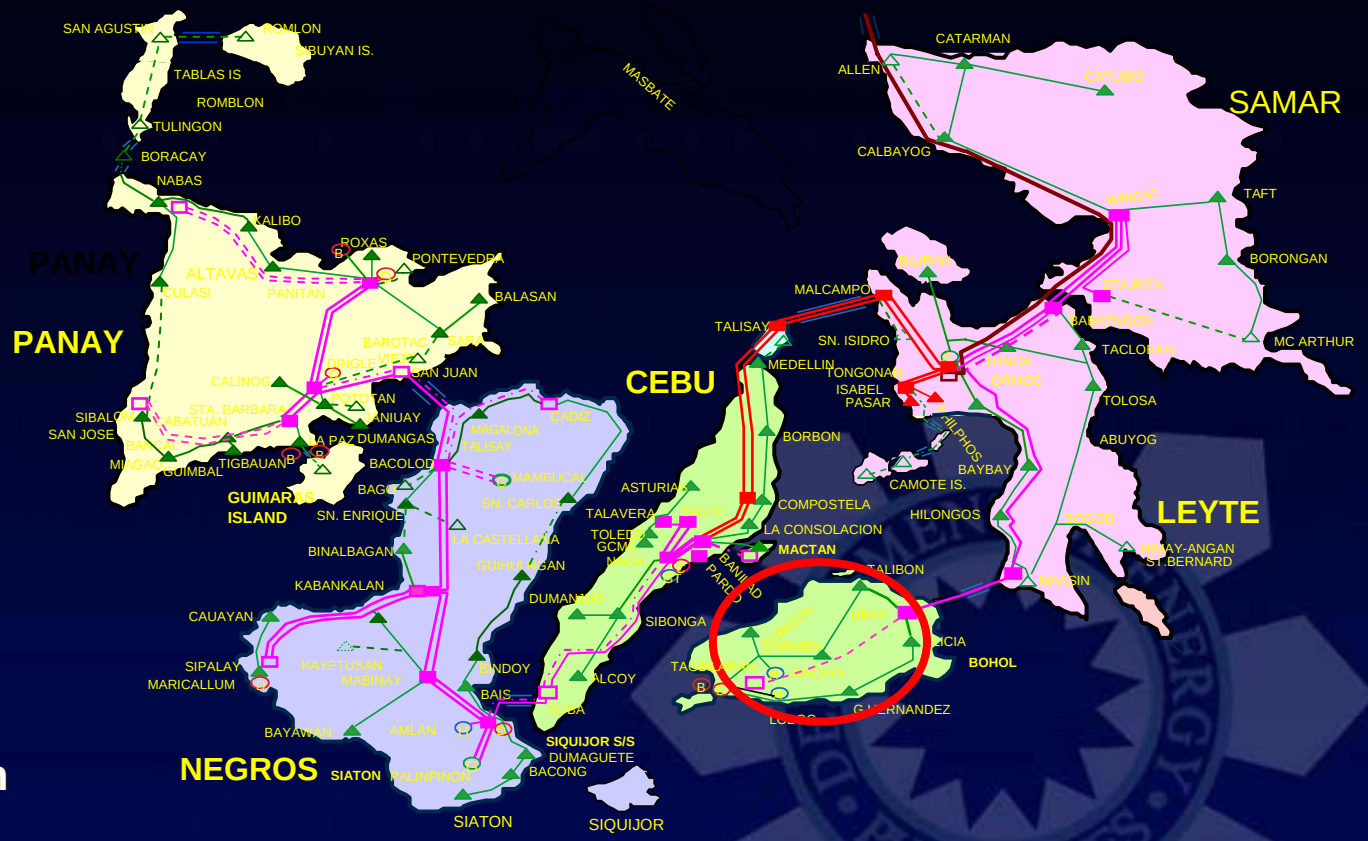
PRIORITY TRANSMISSION PROJECTS

Bohol Backbone Project Stage 1

Project Location: Bohol

Grid to be Served: Visayas

- Intended to upgrade (138 KV T/L system) of Bohol grid to spur the economic activities of the island
- Installation of 138 KV T/L from Ubay to Tagbilaran
- Installation of 100 MVA SS at Tagbilaran



INVESTMENT REQUIREMENT	:	**PhP 1,387 M**
FINANCING SOURCE	:	**TransCo CAPEX**
TARGET COMPLETION	:	**Aug 2011**

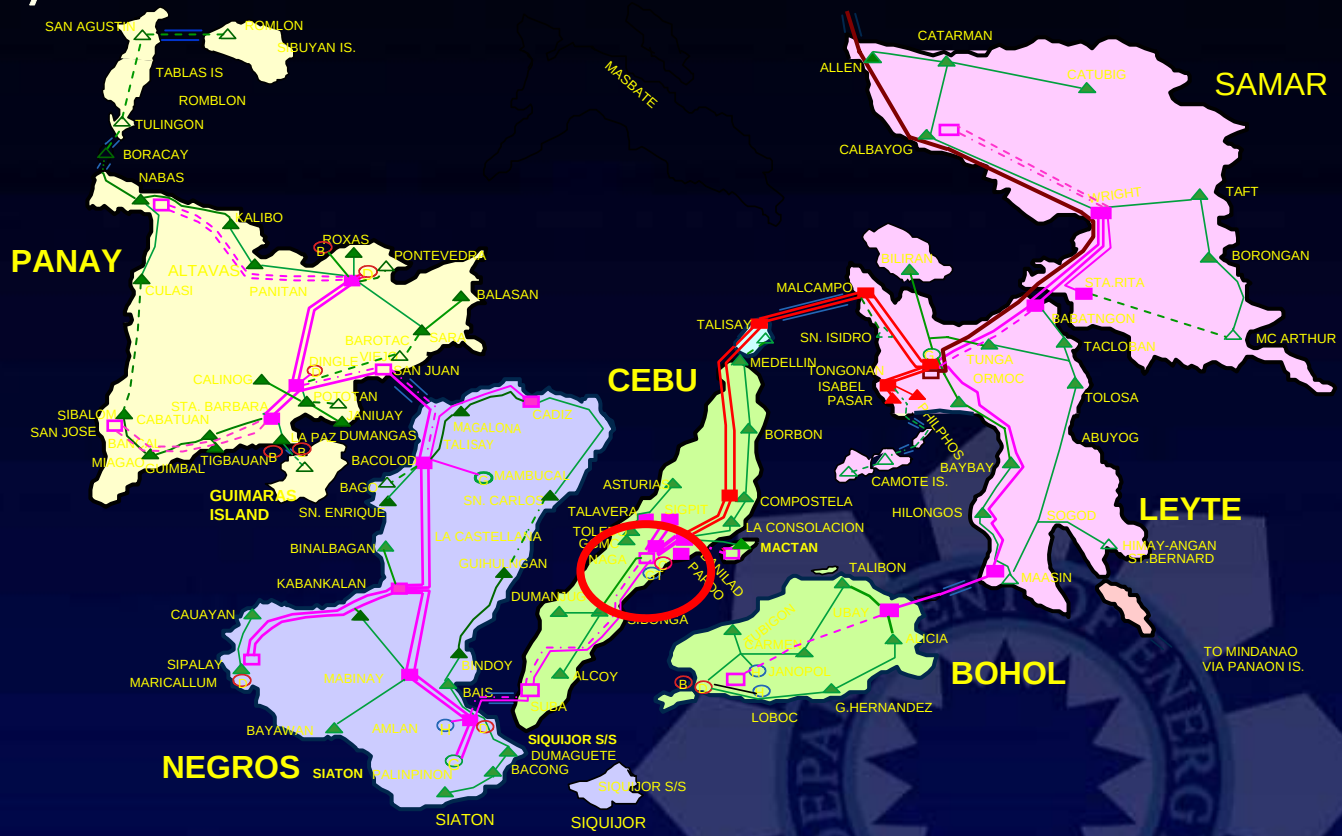
PRIORITY TRANSMISSION PROJECTS

New Naga Substation Project

Project Location: Cebu

Grid to be Served: Visayas

- Intended to enhance the reliability of Cebu grid and will address the separation of assets of TransCo's and NPC's facilities
- Proposed connection of 200 MW KepCo Coal Plant
- Consists of 1x50 MVA S/S & 16-138 KV PCB.



INVESTMENT REQUIREMENT : **PhP 1,126 M**

FINANCING SOURCE : **TransCo CAPEX**

TARGET COMPLETION : Aug **2010**

Power Sector Reforms Update

Objectives of Power Sector Reforms

- Competition in the generation and supply sectors
- Efficiency in the transmission and distribution sectors

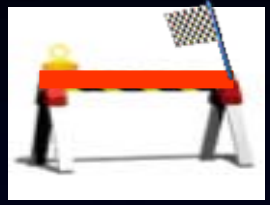
REFORM BREAKTHROUGHS

Status of EPIRA Implementation

Moving Towards A Competitive Power Market

Unbundling

Rates are Structured and Unbundled.



Complied with.

Cross-Subsidy Removal

Inter-Grid Sept. 2002
Intra-Grid Oct. 2005
Inter-Class Oct. 2005

Complied with.

WESM

- Luzon Commercial Operation in June 2006
- On-going assessment and preparation for WESM Visayas launch

Complied with.

Privatization

- Privatization level at 49% out of the 70% required
- TransCo Concessionaire Awarded
- By end-2008: To offer 2,107 MW
- By end-2009: To offer 1,461 MW
- By 2010: To offer 235.2 MW
- IPP Administrator tender by 4Q 2008

On-going.

Open Access and Retail Competition

REFORM BREAKTHROUGHS

Status of EPIRA Implementation

- **Successfully implemented Private Sector Participation (PSP) Program in remote and off-grid areas**
  - **SPUG PSP: Out of the 14 First Wave Areas: 8 have New Private Providers (NPPs), 3 on-going selection and 3 have yet to decide**
  - **QTP Program: On-going preparation for accreditation of first QTP applicant**
- **Sold subtransmission assets at P2.5Bn covering 1,845 circuit-kms. of lines and 16,947 structures**

Proposed Measures to Power Sector Challenges

Challenge – How to encourage Private Investments

- EPIRA no longer allows NPC to put up new power plants or incur new obligations with Independent Power Producers (IPPs)
  - New generating plants must be built by the private sector
  - Leaders and stakeholders of Negros and Panay must actively support and encourage private sector investment in the required power plants in these areas

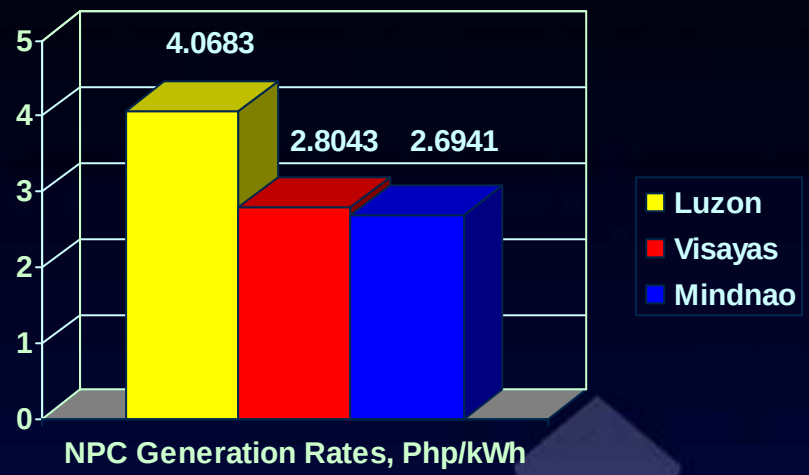
Measures

- Distribution Utilities to firm up their power supply requirements at cost effective rates
- Environmental review of the prospective power plants should be done according to Philippine Laws within a reasonable period of time
- Voluntary energy conservation by consumers

Proposed Measures to Power Sector Challenges

Challenge

Existing grid rate in the Visayas is not that attractive for private sector to invest in new power plants



Measure

Provide justifiable and commercially viable power rates for private investments

Proposed Measures to Power Sector Challenges

Challenge

- Remove the barriers to entry of renewable energy in the grid

Measures

- Pursue accelerated passage of Renewable Energy Bill
- Distribution Utilities to establish a least cost portfolio of power supply contracts including renewable energy options
- Integrate environmental costs in the power rate regulation methodology

Expanded Rural Electrification Program

Barangay Electrification Situationer

(As of 30 June 2008)

LUZON

20,090
--------- = 98.05%
20,489

399

Unelectrified Barangays

VISAYAS

11,231
--------- = 98.14%
11,444

213

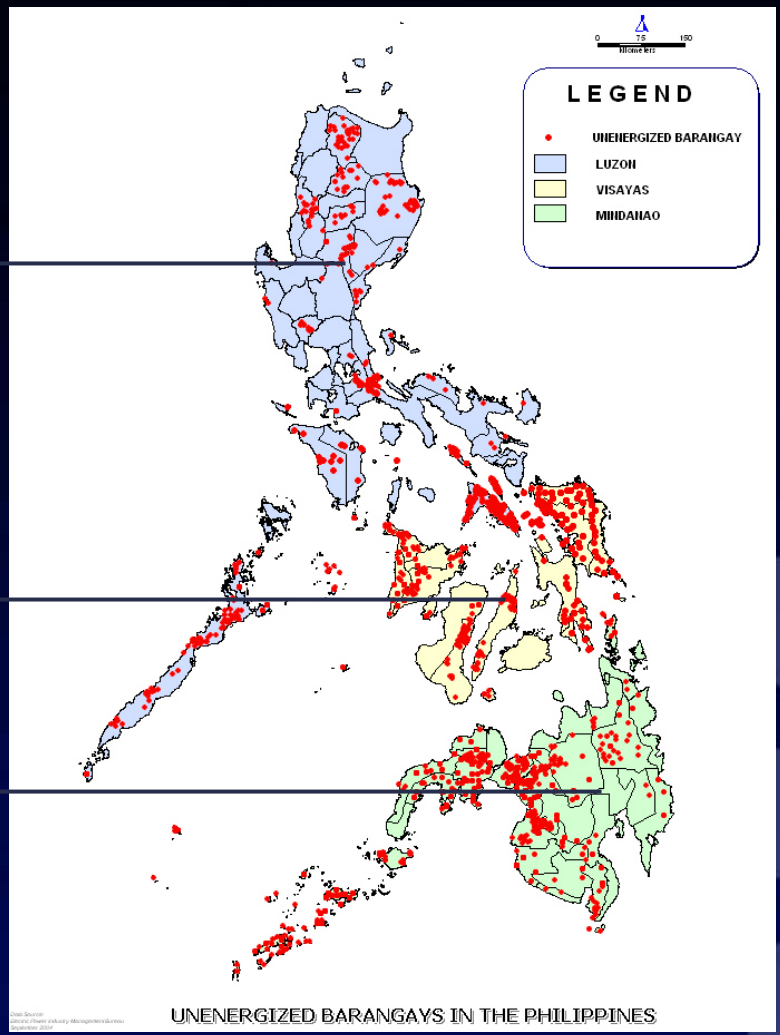
Unelectrified Barangays

MINDANAO

9,377
--------- = 93.33%
10,047

670

Unelectrified Barangays



PHILIPPINES

40,698
--------- = 96.95%
41,980

41,980
Potential Barangays
Based on 2005 NCSO

1,282

Unelectrified Barangays

Barangay Electrification Situationer

(As of 30 June 2008)

Region	Potential Barangays	Electrified Barangays	Unelectrified Barangays	Electrification Level (%)
CAR	1,176	1,127	49	95.83%
I	3,265	3,264	1	99.97%
II	2,311	2,231	80	96.54%
III	3,102	3,097	5	99.84%
IV-A	4,011	3,947	64	98.40%
IV-B	1,458	1,409	49	96.64%
V	3,471	3,320	151	95.65%
NCR	1,695	1,695	-	100.00%
SUB-TOTAL (LUZON)	*20,489*	*20,090*	399	98.05%
VI	4,051	4,024	27	99.33%
VII	3,003	3,002	1	99.97%
VIII	4,390	4,205	185	95.79%
SUB-TOTAL (VISAYAS)	*11,444*	*11,231*	213	98.14%
IX	1,904	1,799	105	94.49%
X	2,020	1,934	86	95.74%
XI	1,160	1,157	3	99.74%
XII	1,194	1,134	60	94.97%
ARMM	2,459	2,065	394	83.98%
CARAGA	1,310	1,288	22	98.32%
SUBTOTAL (MINDANAO)	*10,047*	*9,377*	670	93.33%
TOTAL (PHILIPPINES)	41,980	40,698	1,282	96.95%

Expanded Rural Electrification Program

Objectives

- Achieve 100% barangays electrification by 2009 and 90% household electrification by 2017
- Support the Government's efforts to alleviate poverty
- Increase and accelerate access to electricity services

Expanded Rural Electrification Program
Challenges

- Majority of the remaining unenergized barangays are remote and dispersed
- Remaining unelectrified barangays are considered last miles – difficult to electrify, requiring extensive resources, time and effort
- Significant number of barangays have implementation issues, e.g. peace and order, security problems, uninhabited, etc.

Expanded Rural Electrification Program

Plans, Programs and Projects, 2008-2009

- DOE to energize 516 barangays to be funded under BEP, ER 1-94, RAES and SC 38
- NEA will energize 365 barangays under its Subsidy Program to Electric Cooperatives
- NPC-SPUG to energize 68 barangays through the PRES Project
- Private sector will energize 325 barangays
- Remaining 9 barangays will be energized through the DAR-SPOTS
- DOE to open up business opportunities for DUs in solar home system electrification

Daghang Salamat!!!

www.doe.gov.ph