PHILIPPINE ENERGY PLAN

2003-2012

DEPARTMENT OF ENERGY

OUTLINE OF THE PRESENTATION

- Energy Plan Framework
- Energy Supply-Demand Outlook
- Power Development Plan
- Sectoral Plans
- Rural Electrification Program
- Investment OpportunitieS
- Financial Requirements

PHILIPPINE ENERGY PLAN FRAMEWORK

MACRO-ECONOMIC GOALS

Economic growth

Poverty alleviation

Market-based industry

ENERGY SECTOR GOALS

Stable and secure energy supply

Wider access to energy supply

Fair and reasonable energy prices

Clean and efficient energy fuels and infrastructures

Enhanced consumer welfare and protection

Technology transfer and manpower development

Job creation from energy activities

STRATEGIES

Increase energy self-sufficiency level
Intensify the development, exploration and use of indigenous energy
Diversify energy sources/fuels

Accelerate rural electrification in coordination with other agencies
Promote decentralized energy facilities

Implement the provisions of EPIRA
Monitor and review sector pricing policies to ensure transparency
Improve system efficiency

Promote energy efficiency and conservation programs
Promote the wide-scale use of RE and other alternative clean fuels and technologies
Ensure compliance with environmental standards

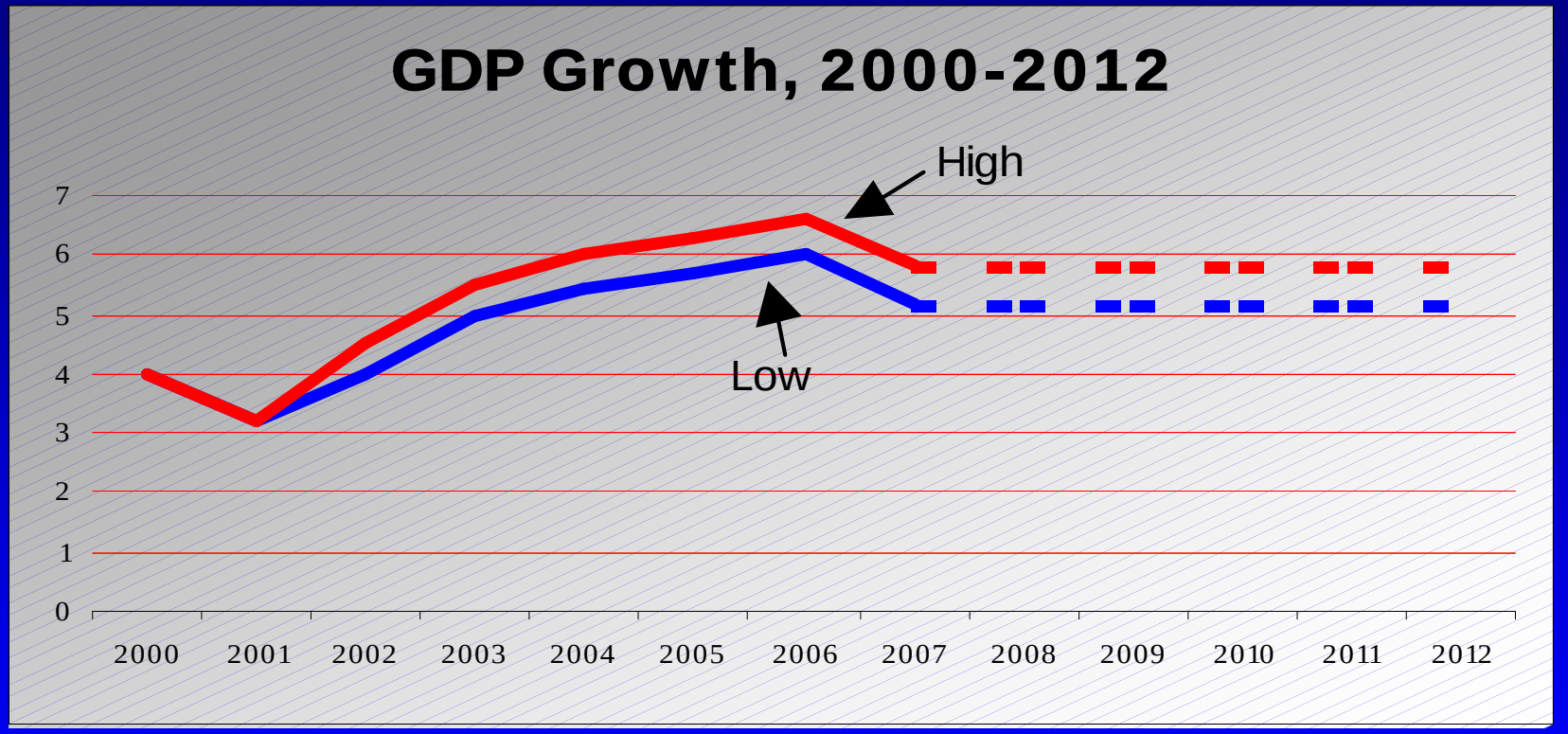
Ensure effective oil industry self-regulation mechanisms
Empower consumers through various programs such as information/tri-media campaigns, fora and trainings

Facilitate the adoption of state-of art technology and develop experts in energy-related matters

Promote investments and livelihood activities in energy projects
Encourage employment in localities where electrification, construction of energy-related facilities and indigenous energy development are being undertaken
Pursue joint ventures with other countries

ENERGY SUPPLY-DEMAND OUTLOOK

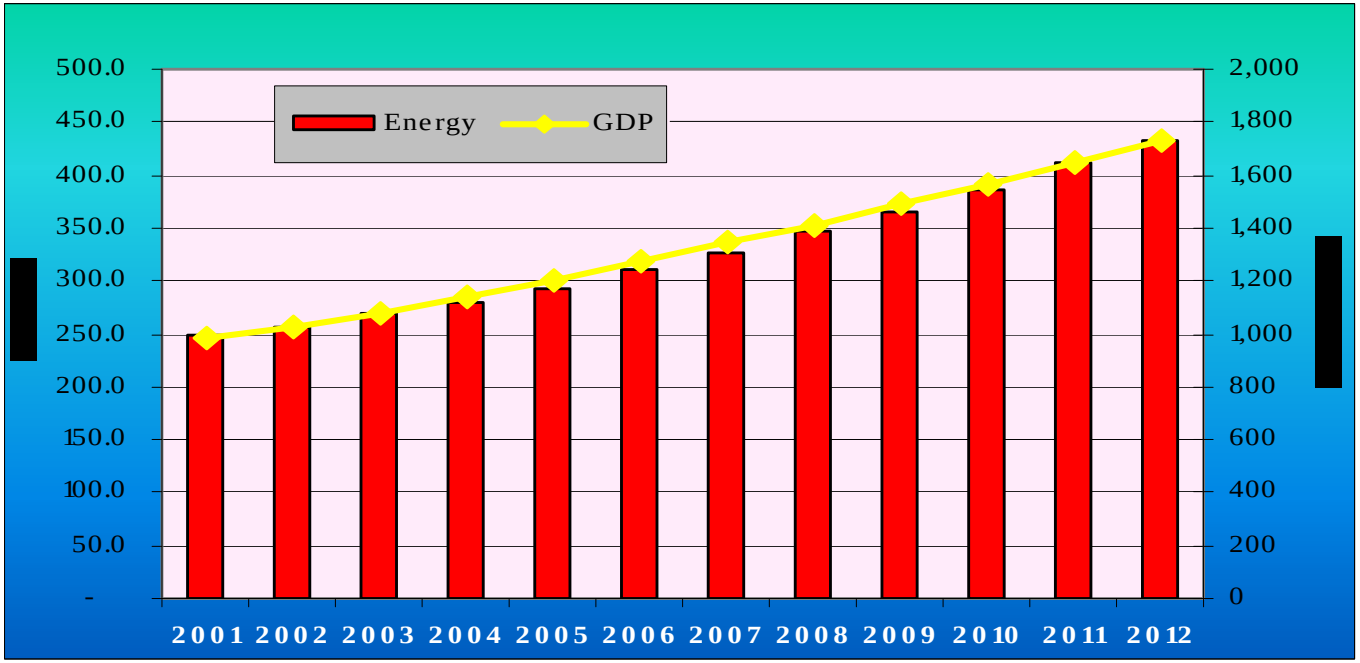
ENERGY SUPPLY-DEMAND OUTLOOK
MACRO-ECONOMIC PARAMETERS



Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Low	4.0	3.2	4.0	5.0	5.4	5.7	6.0	5.2	5.2	5.2	5.2	5.2	5.2
High	4.0	3.2	4.5	5.5	6.0	6.3	6.6	5.8	5.8	5.8	5.8	5.8	5.8

ENERGY SUPPLY-DEMAND OUTLOOK
ENERGY DEMAND

GDP vs. Total Energy



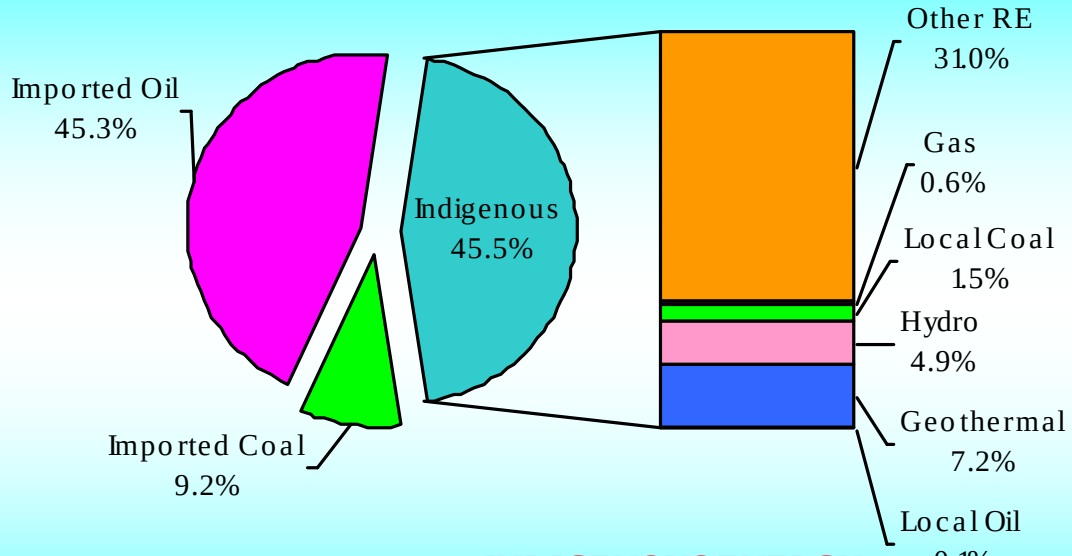
GROWTH (%)

Years	GDP	Energy							
		Total	Oil	Gas	Coal	Hydro	Geo	Other RE	Others*
2003-2007	5.6	5.0	5.7	7.9	7.6	5.9	1.7	2.8	30.0
2008-2012	5.2	5.8	5.6	1.2	0.4	0.1	0.0	2.7	62.3
2003-2012	5.4	5.5	5.8	5.0	4.0	2.7	0.7	2.8	65.3

** Beginning 2005 only; "Others" refer to energy inputs for power generation to be supplied by yet undetermined fuel sources.*

ENERGY SUPPLY-DEMAND OUTLOOK
ENERGY DEMAND

TOTAL PRIMARY ENERGY MIX, in MMBFOE



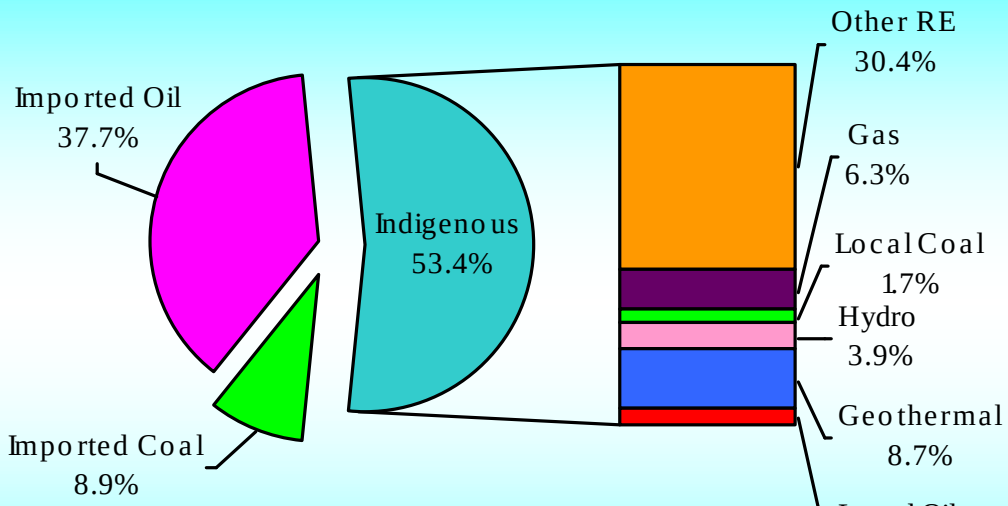
IMPORTED ENERGY
135.4 MMBFOE

INDIGENOUS ENERGY
113.0 MMBFOE
Self-sufficiency - 45.5%
Forex savings - 2,653Mn USD

ENERGY SUPPLY-DEMAND OUTLOOK
ENERGY DEMAND

TOTAL PRIMARY ENERGY MIX, in MMBFOE

Base Case



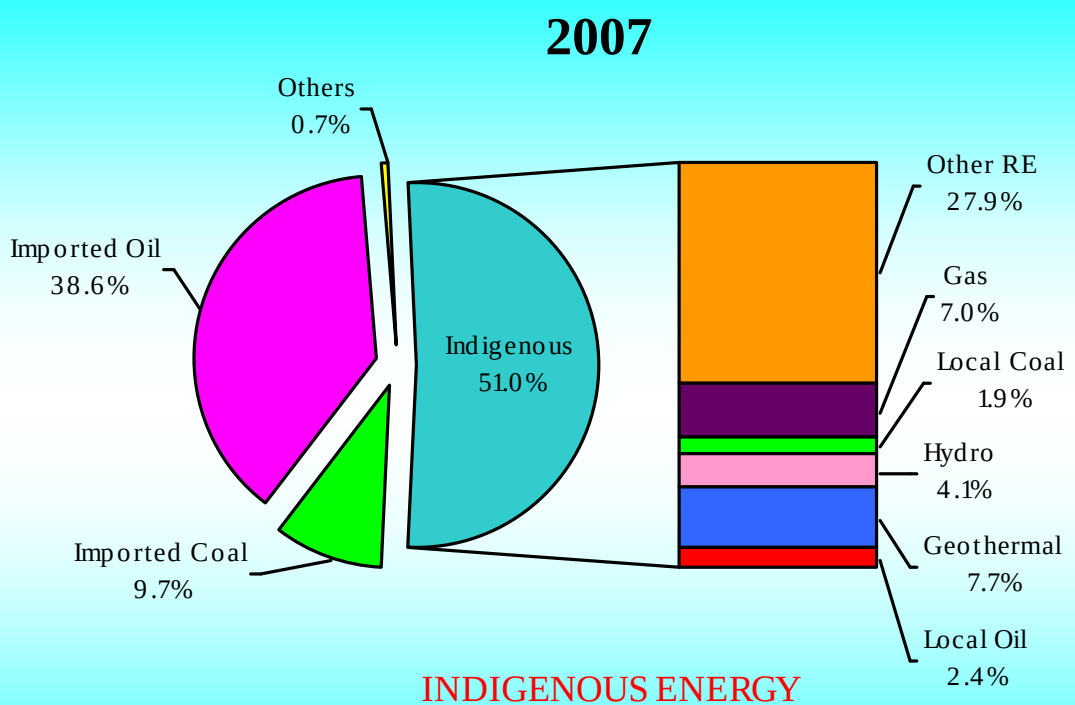
IMPORTED ENERGY
124.9 MMBFOE

INDIGENOUS ENERGY
143.3 MMBFOE
Self-sufficiency - 53.4%
Forex savings - 3,583Mn USD

ENERGY SUPPLY-DEMAND OUTLOOK
ENERGY DEMAND

TOTAL PRIMARY ENERGY MIX, in MMBFOE

Base Case



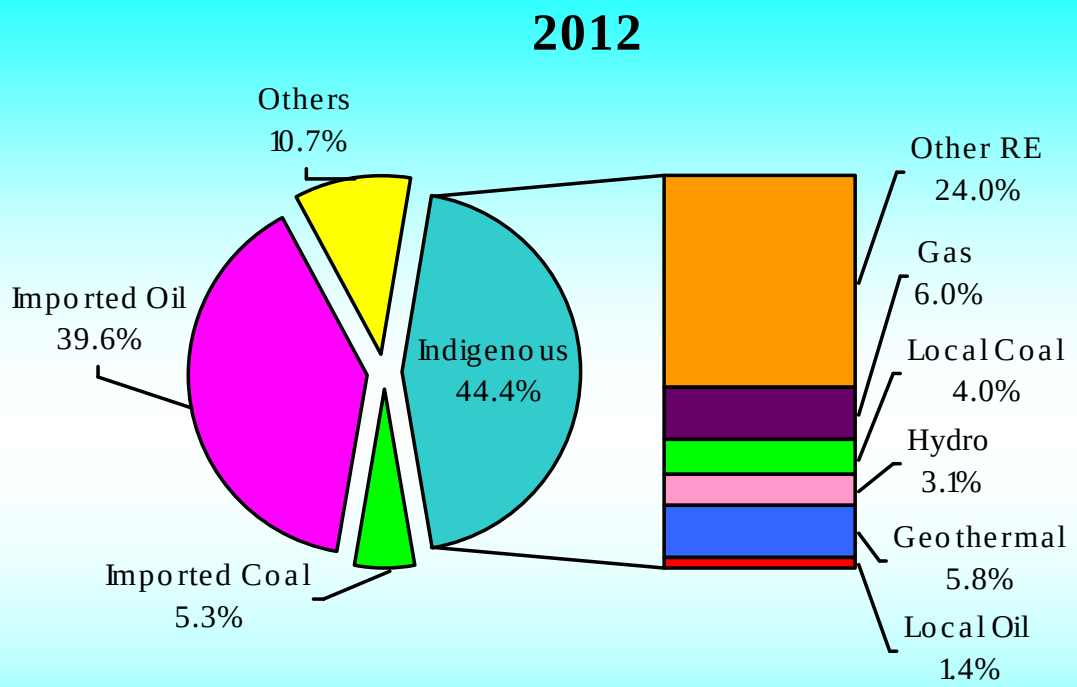
IMPORTED ENERGY
157.6 MMBFOE

INDIGENOUS ENERGY
166.7 MMBFOE
Self-sufficiency - 51.0%
Forex savings - 4,168Mn USD

ENERGY SUPPLY-DEMAND OUTLOOK
ENERGY DEMAND

TOTAL PRIMARY ENERGY MIX, in MMBFOE

Base Case



IMPORTED ENERGY
194.4 MMBFOE

INDIGENOUS ENERGY
192.4 MMBFOE
Self-sufficiency - 44.4%
Forex savings - 4,810Mn USD

ENERGY SUPPLY-DEMAND OUTLOOK
ENERGY SUPPLY

INDIGENOUS ENERGY SUPPLY

In MMBFOE, 2003-2007

	2003	2004	2005	2006	2007	Growth Rate 2003-2007
Natural Gas	16.86	19.39	20.65	21.67	22.84	7.88
Oil	6.35	17.60	15.96	13.09	7.91	5.65
Geothermal	23.53	24.96	25.09	25.15	25.16	1.69
Other RE	81.50	84.31	86.70	89.03	91.14	2.83
Coal	4.50	5.13	5.62	6.26	6.30	8.78
Hydro	10.57	11.52	13.24	13.27	13.31	5.93
TOTAL	143.31	162.91	167.26	168.47	166.66	

ENERGY SUPPLY-DEMAND OUTLOOK
ENERGY SUPPLY

INDIGENOUS ENERGY SUPPLY

In MMBFOE, 2003-2012

	Actual		Average		Growth Rate
	2001	2002	2003-2007	2008-2012	2003-2012
Natural Gas	1.46	11.92	20.28	21.90	5.02
Oil	0.32	2.19	12.18	6.88	(0.54)
Geothermal	18.0	21.41	24.97	24.78	0.75
Other RE	77.13	79.02	92.85	86.54	2.75
Coal	3.84	4.43	8.92	5.56	16.29
Hydro	12.25	10.35	12.91	12.38	2.71

TOTAL	113.00	129.32

ENERGY SUPPLY-DEMAND OUTLOOK
ENERGY SUPPLY

ENERGY RESOURCE POTENTIALS

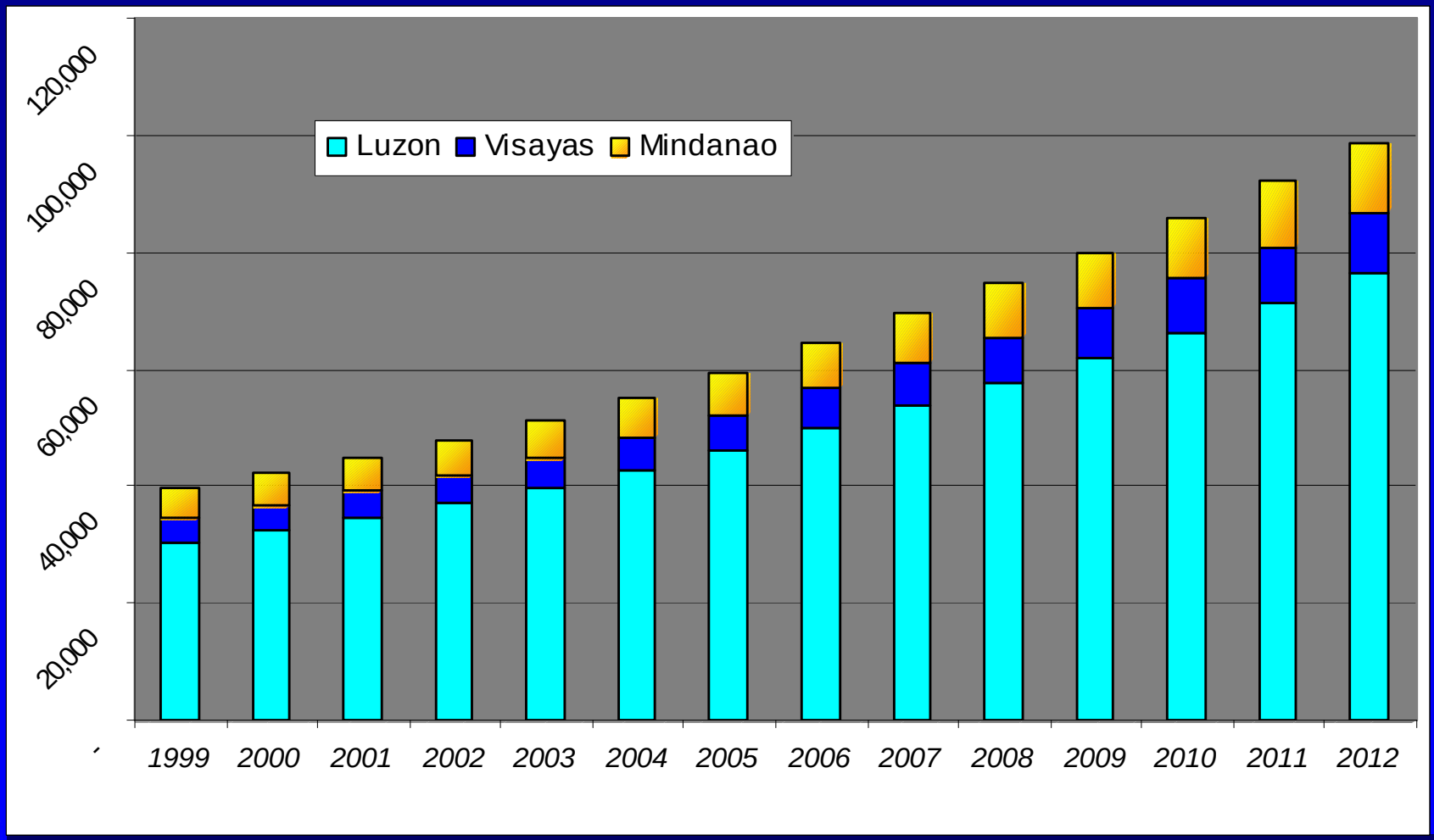
	OIL (MMBO)	CONDENSATE (MMBC)	GAS (BCF)	GEOTHERMAL (MW)	COAL (MMMT)	HYDRO (MW)
LUZON						
Region I						374.28
Region II				160.00	336.00	1,174.34
Region III				200.00		104.75
CAR				590.00		2,849.50
Region IV-A				437.20	2.01	1,223.11
Region IV-B	3,005.93 - 3,045.87	59.19 - 98.19	2,996.02 - 8,346.30	40.00	100.00	268.89
Region V	2,372.50			898.20	16.50	56.92
TOTAL	5,378.43 - 5,418.37	-	-	2,325.40	454.51	6,051.79
VISAYAS						
Region VI				228.00	554.50	350.89
Region VII	1,105.00		2.00	324.00	165.00	67.57
Region VIII				1,117.90	27.00	74.55
TOTAL	1,105.00		2.00	1,669.90	746.50	493.01
MINDANAO						
Region IX				115.00	46.00	60.82
Region X				40.00	50.00	958.40
Region XI	54.18 - 521.30		60.60 - 1,107.40	90.00	450.00	259.64
Region XII	54.18 - 521.30		60.60 - 1,107.40	241.50	300.30	719.69
CARAGA				55.00	209.00	288.09
ARMM	1,545.00		6,749.00		108.00	232.65
TOTAL	1,599.18 - 2,066.30		6,870.20 - 8,963.80	541.50	1,163.30	2,519.29

POWER DEVELOPMENT PLAN

POWER DEVELOPMENT PROJECTIONS

ELECTRICITY SALES FORECAST

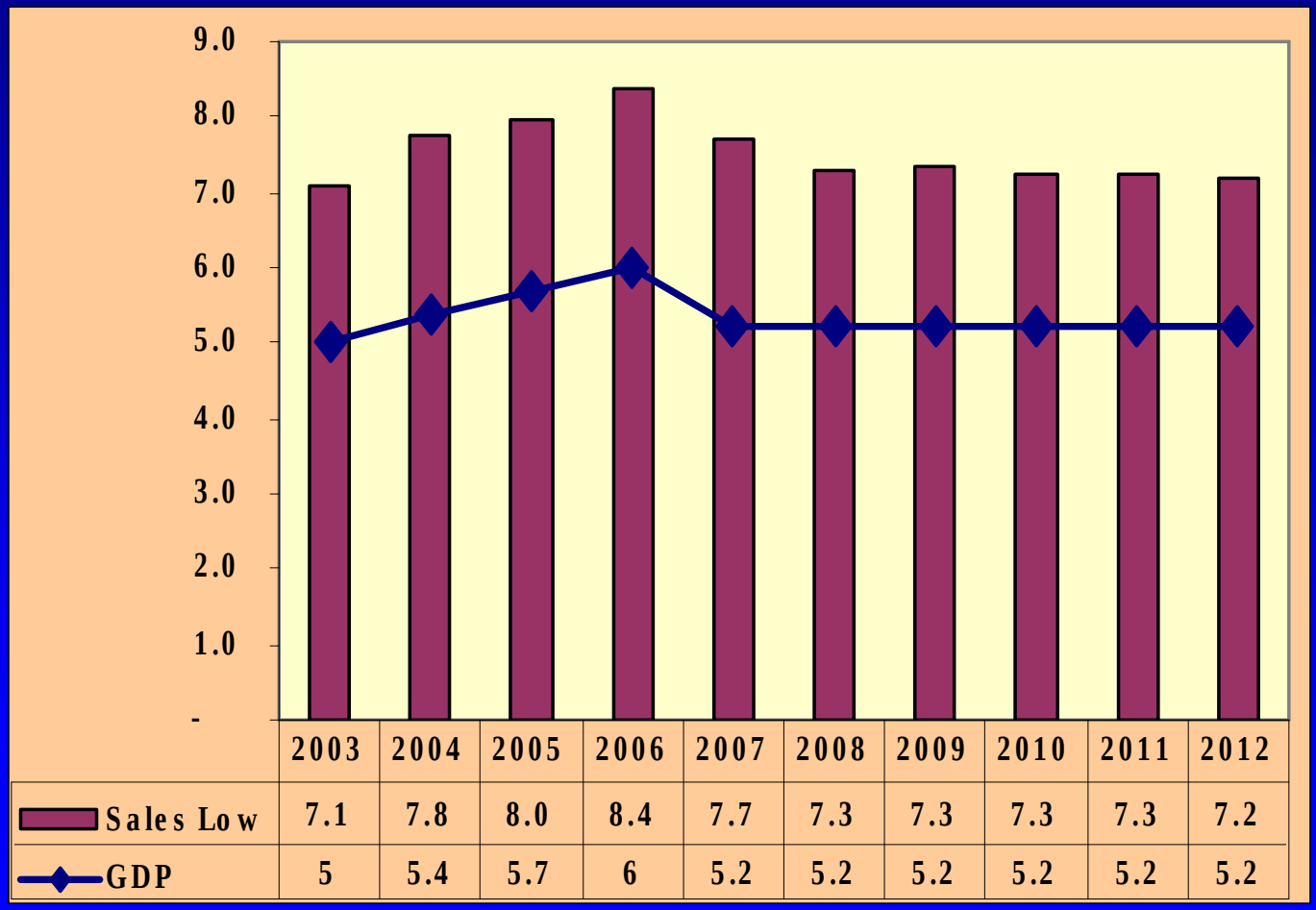
In GWh, Base Case



POWER DEVELOPMENT PROJECTIONS

GDP vs. ELECTRICITY SALES FORECAST

Base Case (Growth Rates)

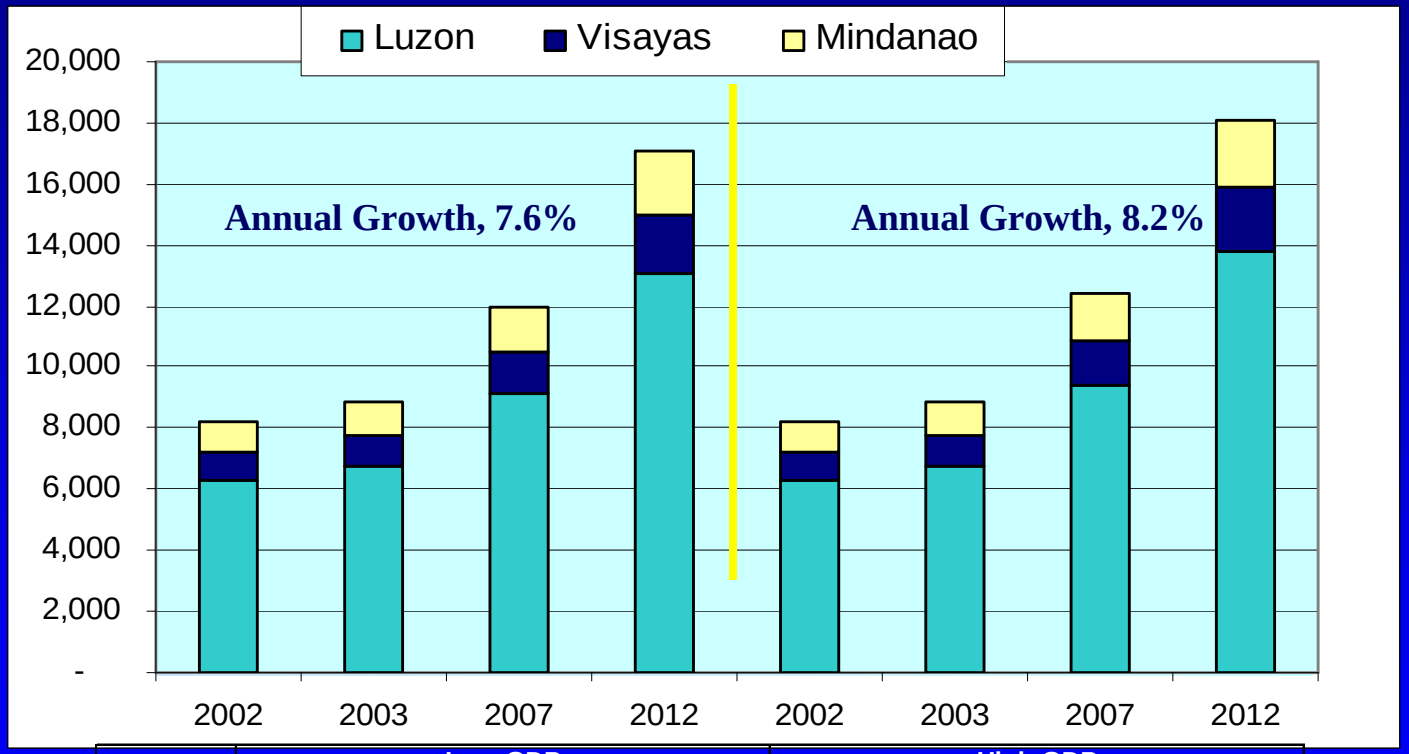


	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Sales Low	7.1	7.8	8.0	8.4	7.7	7.3	7.3	7.3	7.3	7.2
GDP	5	5.4	5.7	6	5.2	5.2	5.2	5.2	5.2	5.2

POWER DEVELOPMENT PROJECTIONS

SYSTEM PEAK DEMAND FORECAST

In MW

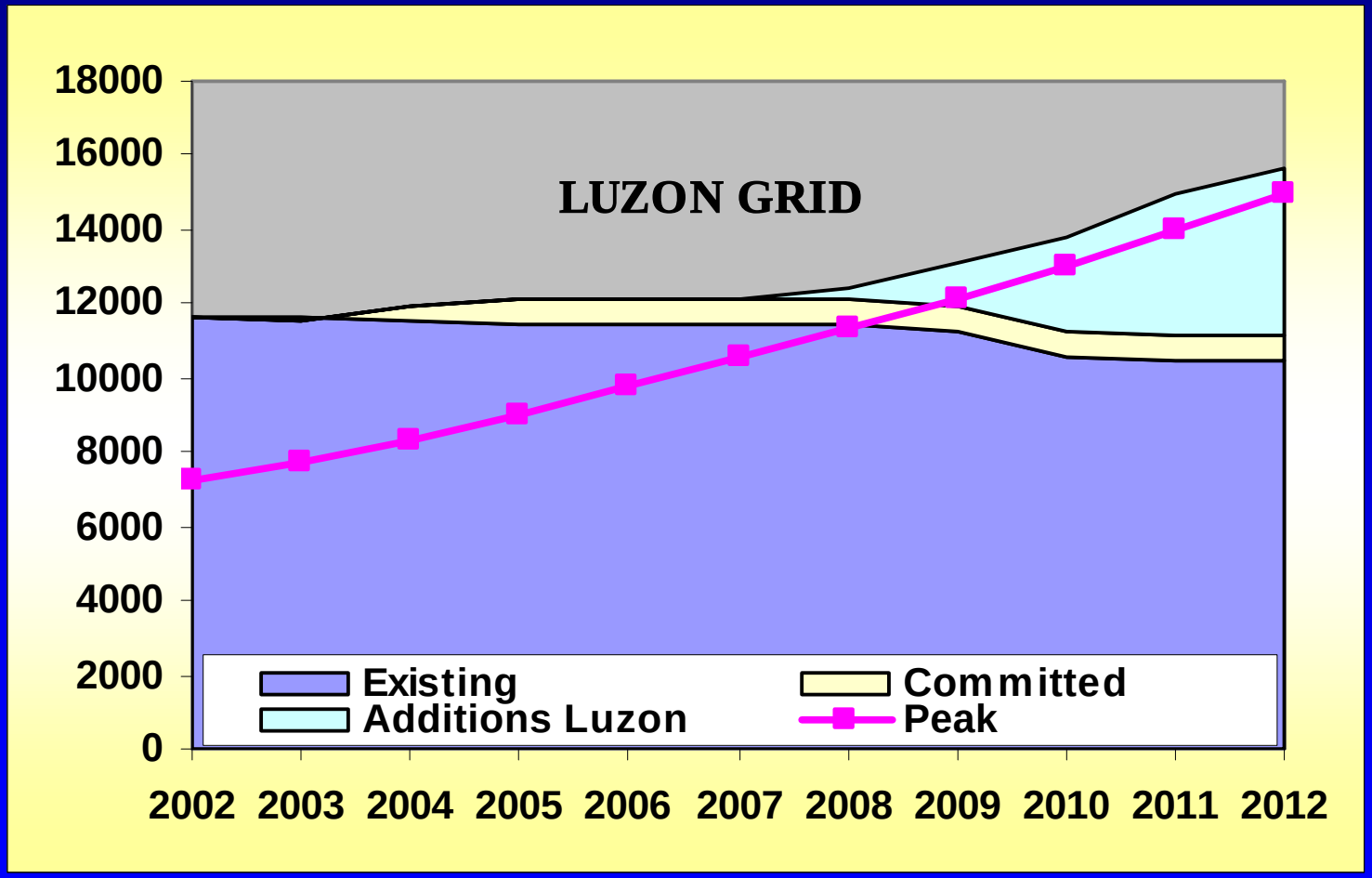


	Low GDP				High GDP			
	2002	2003	2007	2012	2002	2003	2007	2012
Luzon	6,308	6,752	9,161	13,034	6,308	6,788	9,438	13,815
Visayas	941	1,007	1,377	1,958	941	1,014	1,428	2,106
Mindanao	1,000	1,074	1,459	2,041	1,000	1,081	1,512	2,186

POWER DEVELOPMENT PROJECTIONS

SUPPLY-DEMAND PROFILE (Existing & Committed)

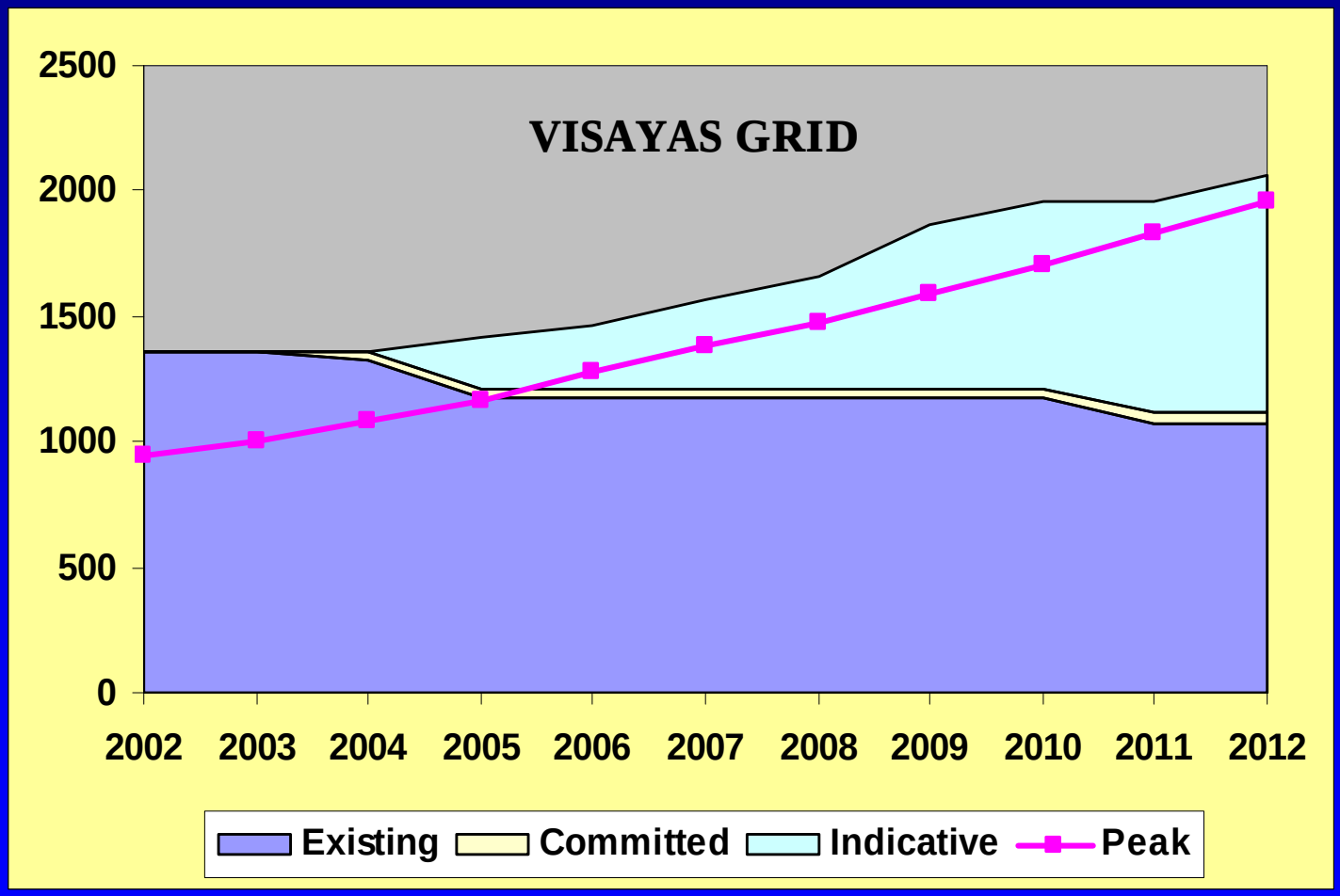
In MW, Base Case



POWER DEVELOPMENT PROJECTIONS

SUPPLY-DEMAND PROFILE (Existing & Committed)

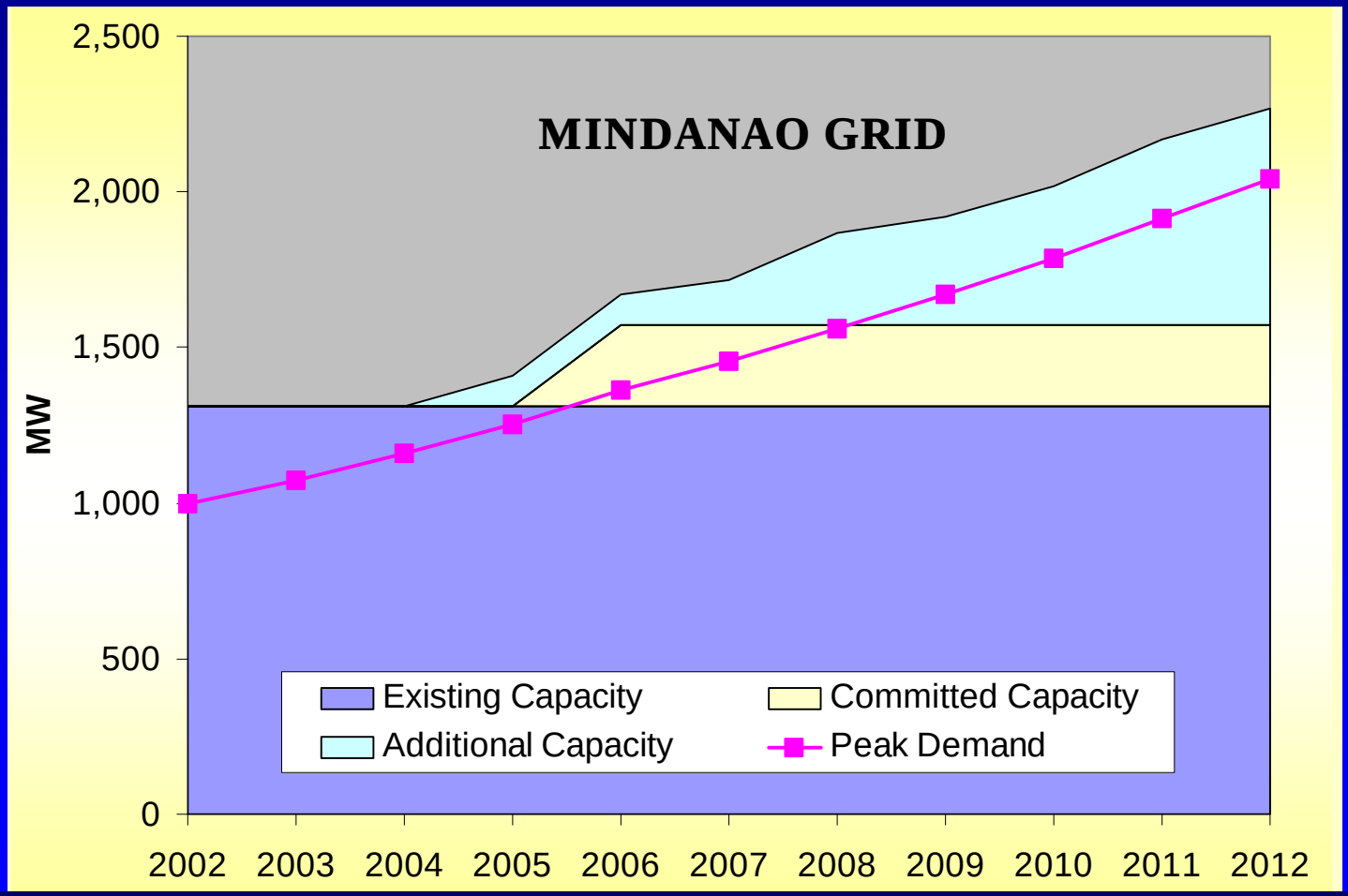
In MW, Base Case



POWER DEVELOPMENT PROJECTIONS

SUPPLY-DEMAND PROFILE (Existing & Committed)

In MW, Base Case

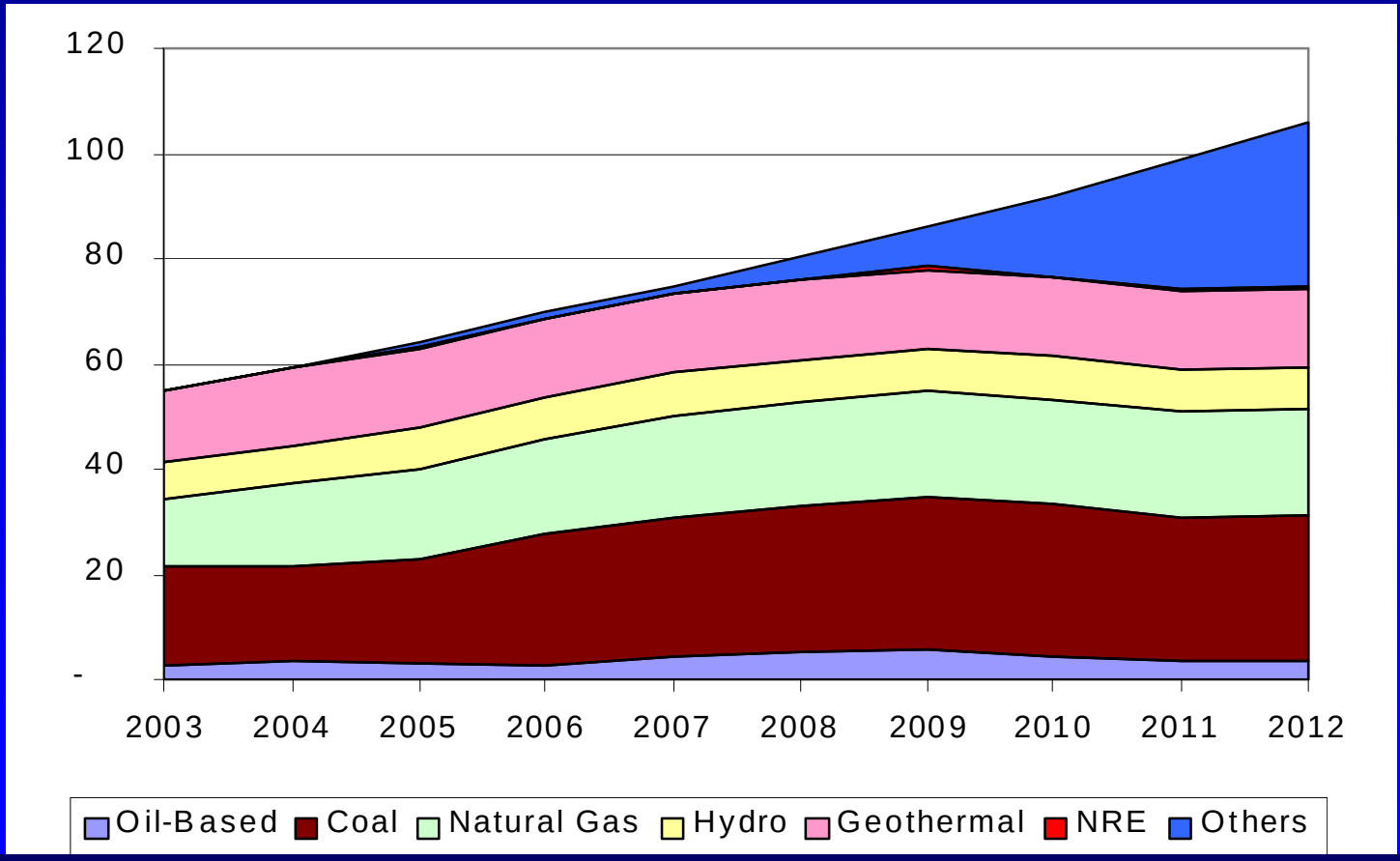


POWER DEVELOPMENT PROJECTIONS

POWER GENERATION FORECAST

Total Philippines, In TWh

Base Case



POWER DEVELOPMENT
GENERATION

CAPACITY ADDITIONS
Total Philippines, in MW
Base Case

Year	Committed	Indicative		
		Baseload	Intermediate	Peaking
2004	455			
2005	345		300	
2006	200		50	
2007		150		
2008		250	300	
2009		150	700	300
2010		800	300	450
2011		1,150	300	
2012		800		150
Total	**1,000**	**3,300**	**1,950**	**900**

POWER DEVELOPMENT
GENERATION

POWER PLANT LINE-UP

In MW, Base Case

YEAR	LUZON			VISAYAS			MINDANAO			PHIL.
	PLANT ADDITION	MW. CAP	INST. MW	PLANT ADDITION	MW CAP	INST MW	PLANT ADDITION	MW CAP	INST MW	CUM. TOTAL
2003			0			0			0	0
2004	Kalayaan 3&4	350	345	Uprating of Leyte-Bohol Inter.		40			0	385
	PNOC_EDC Wind	40		from 35 MW to 100 MW						
	Transfer of Hopewell GT			Mambucal Geo	40					
	to Mindanao (70 MW)	(70)								
	Northwind	25								
2005	San Roque Hydro	345	690	Uprating of Leyte-Cebu Inter.		240	Hopewell GT from Luzon	70	170	1,100
				from 200 MW to 400 MW			Midrange Plant	100		
				Panay Midrange	150					
				Negros Midrange	50					
2006			690	Panay Midrange	50	290	Mindanao Coal	200	370	1,350
2007			690	Panay Baseload	100	390	Baseload Plant	50	420	1,500
2008	Midrange	300	990	Cebu Baseload	50	490	Baseload Plant	150	570	2,050
				Negros Baseload	50					
2009	Midrange	600	1,890	Cebu Baseload	50	690	Baseload Plant	50	620	3,200
	Peaking	300		Panay Baseload	50					
				Bohol Midrange	100					
2010	Baseload Plant	600	3,240	Cebu Baseload	100	790	Baseload Plant	100	720	4,750
	Midrange	300								
	Peaking	450								
2011	Baseload Plant	900	4,440	Cebu Baseload	50	890	Baseload Plant	150	870	6,200
	Midrange	300		Negros Baseload	50					
2012	Baseload Plant	600	5,190	Cebu Baseload	50	990	Baseload Plant	100	970	7,150
	Peaking	150		Panay Baseload	50					

Note: Transfer of Hopewell Gt (70 MW) from Luzon to Mindanao in 2005

Committed Plants

Interconnection

Indicative Plants

POWER DEVELOPMENT
GENERATION

LIST OF AVAILABLE INDIGENOUS RESOURCES FOR ADDITIONAL GENERATION CAPACITIES
IN MW, 2003-2012

PLANTS	LUZON	VISAYAS	MINDANAO	PHILIPPINES
Geothermal	380	700	120	1,200
NRE	585	50	-	635
Coal	380	400	400	1,180
Hydro	1,661	94	806	2,567
TOTAL	3,006	1,244	1,326	5,582

POWER DEVELOPMENT
GENERATION

COMMITTED PROJECTS AND PLANTS FOR RETIREMENT

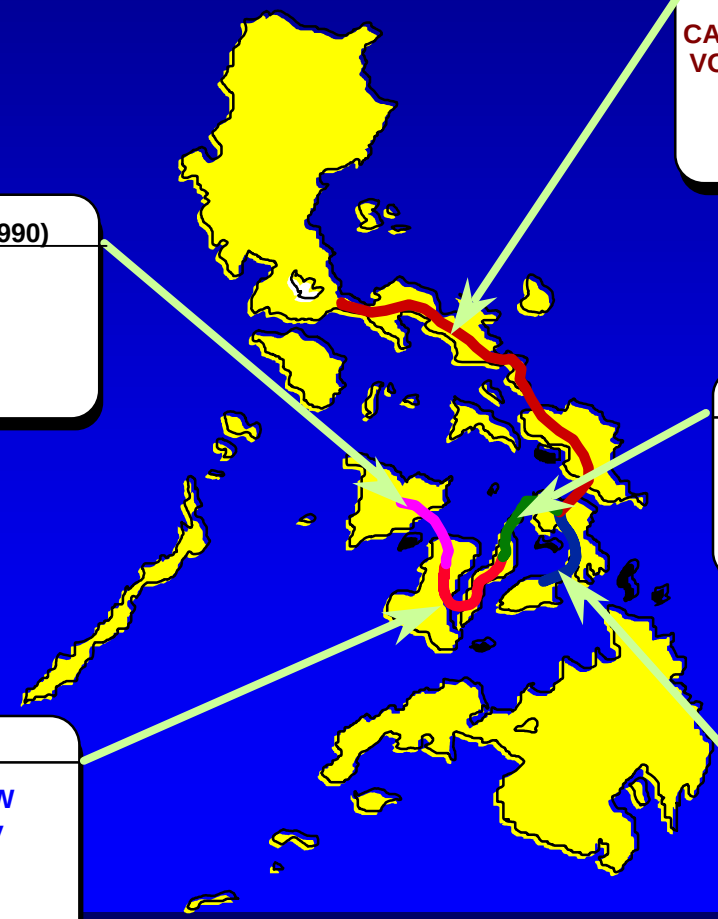
COMMITTED PROJECTS			
PLANT	**TYPE**	**INSTALLED CAP. (MW)**	**YEAR**
LUZON			
Wind Power	Wind	40	2004
Kalayaan 3&4	Hydro	350	2004
Northwind Power	Wind	25	2004
San Roque	Hydro	345	2005
VISAYAS			
Northern Negros Geo	Geothermal	40	2004
MINDANAO			
Mindanao Coal - 2 units x 100 MW	Coal	200	2006
TOTAL		1,000	

PLANT RETIREMENT			
PLANT	**TYPE**	**MW**	**YEAR**
LUZON			
Hopewell GT	Gas Turbine	210	2009
Malaya 1	Oil Thermal	300	2010
Malaya 2	Oil Thermal	350	2010
VISAYAS			
Panay DPP I	Diesel	36.5	2004
Bohol DPP*	Diesel	22	2005
Power Barge (101-104)	Diesel	128	2005
Cebu Land-based GT	Diesel	55	2011
Cebu Diesel I	Diesel	43.8	2011
TOTAL		935.3	

Note:
* Retirement is contingent upon completion of Ormoc-Maasin 138kV Double Circuit line which is also contingent to the completion of Leyte-Bohol uprating (stage 2).

POWER DEVELOPMENT
TRANSMISSION

INTERCONNECTION PROJECTS



LEYTE-LUZON (1998)
CAPACITY : 440 MW
VOLTAGE : ± 350 HVDC
OHL : 420 KM
CABLE : 23 KM
COST : 8,808 M

NEGROS-PANAY (1990)
CAPACITY : 100 MW
VOLTAGE : 138 KV
OHL : 167 KM
CABLE : 18 KM
COST : P 430 M

LEYTE-CEBU (1997-2004)
CAPACITY : 400MW
VOLTAGE : 230 KV
OHL : 330 KM
CABLE : 32+32 KM
COST : P4,071 M + P4,862M

NEGROS-CEBU (1993)
CAPACITY : 100 MW
VOLTAGE : 138 KV
O H L : 84 KM
CABLE : 16 KM
COST : P 408 M

LEYTE-BOHOL (2004)
CAPACITY : 100 MW
VOLTAGE : 138 KV
O H L : 180 KM
CABLE : 18 KM
COST : P2,290M+625M

POWER DEVELOPMENT
DEVELOPMENTS IN EPIRA

- **NPC Privatization**
  - **JCPC issued Resolution No. 2002-1 on March 13, 2002 endorsing the privatization of TRANSCO**

- **Wholesale Electricity Spot Market (WESM)**
  - **Rules promulgated on June 28, 2002**
  - **Completed the IT system specifications for the WESM for a competitive electricity market**

POWER DEVELOPMENT
DEVELOPMENTS IN EPIRA

- **NPC Privatization**
  - JCPC issued Resolution No. 2002-1 on March 13, 2002 endorsing the privatization of TRANSCO
- **Wholesale Electricity Spot Market (WESM)**
  - Rules promulgated on June 28, 2002
  - Completed the IT system specifications for the WESM for a competitive electricity market
  - Next step is the procurement of the Market and Management System (MMS) software and hardware necessary to operationalize electricity trading within the envisioned WESM

POWER DEVELOPMENT
DEVELOPMENTS IN EPIRA

- **Energy Regulatory Commission (ERC)**
  - Promulgated Grid Code/Distribution Code last December 19, 2001
  - Issued Resolution No. 2002-02 on June 3, 2002 for the implementation of P0.40 per KWh reduction in the Power Purchase Cost Adjustment (PPCA) of NPC
  - Issued Order on NPC unbundled rates on June 26, 2002
  - Hearings on other rate unbundling applications are on-going

- **IPP Contracts**
  - Renegotiation of 5 IPPs contracts (PSALM and DOJ), 22 contracts with financial issues (DOE and PSALM), 2 contracts with policy issues (NEDA and PSALM) and 6 contracts with no financial nor legal issues

PGMA's 10-POINT PLAN TO REDUCE ELECTRICITY RATES

POWER DEVELOPMENT
PGMA's 10-POINT PLAN

1. Reflect true cost of service in the rates
   - Billing statements should be transparent
   - Tariffs should be unbundled
2. Introduce "Declining Block Rate" structure
   - This mechanism seeks to stimulate activity and electricity demand by providing incentives and discounts initially to large end-users
   - The Special Program to Enhance Electricity Demand (SPEED) was launched by the Department, through the NPC, to provide discounts to large end-users

POWER DEVELOPMENT
PGMA's 10-POINT PLAN

3. Optimize Utilization Mix of NPC Plants

- This program aims to achieve a utilization mix that will provide the least blended power cost
- To achieve this, an Independent systems review of Luzon Grid will be conducted
- The NPC will redeploy and relocate power barges and land-based generation plants from Luzon to other areas where they may be needed
- The NPC shall likewise maintain sensible reserve capacities and alleviate transmission constraints

POWER DEVELOPMENT
PGMA's 10-POINT PLAN

4. Accelerate Operation of WESM

- As an initial step to accelerate the operation of WESM, the NPC shall undertake the horizontal unbundling of its generation assets into individual groupings to decentralize dispatch and pricing discretion
- Next step will be to appoint an independent "IPP Administrator" for each IPP Genco plant

5. Accelerate Implementation of Open Access

- Implementation of open access will enable consumers to enjoy the benefits of a competitive generation market
- As EPIRA provide certain preconditions before open access could be declared, some issues should be addressed first

POWER DEVELOPMENT
PGMA's 10-POINT PLAN

6. Promote efficient performance of distribution utilities

   - To effectuate transition from "cost plus" orientation to "cost efficient" regime, transparent and competitive procurement of supplies, services and materials should be encouraged
   - By end 2003, a transition from the traditional RORB methodology to a performance-based methodology is envisioned to be adopted by the ERC

POWER DEVELOPMENT
PGMA's 10-POINT PLAN

7. Strengthen and consolidate electric cooperatives

- Several initiatives including the consolidation and ailing ECs, the entry of the private sector through the execution of Investment Management Contracts (IMC) and other similar arrangements and reform efforts will allow the strengthening of ECs

8. Review IPP contracts and reduce stranded costs

- Efforts are now focused on reducing stranded contract costs through the realignment of fixed and variable costs, reduction of minimum energy off-take and the non-renewal of soon-to-expire contracts

POWER DEVELOPMENT
PGMA's 10-POINT PLAN

9. Explore financial engineering methods

- to reduce the burden of the remaining stranded costs on the consumers without unduly affecting the current condition of the restructuring efforts and pro-people priorities, PSALM will pursue refinancing of stranded costs

10. Enhance ERC's institutional capability

- Promote greater market competition through transparency of rules and strict enforcement of law on anti-competition policies
- Ensure a reasonable price of electricity by establishing and enforcing a methodology for setting transmission and distribution wheeling rates and retail rates

SECTORAL PLANS

GEOTHERMAL

SECTORAL PLANS
GEOTHERMAL

CHALLENGES AND GAPS

- **Investment incentives**
  - Fiscal incentives should be geared towards attracting investors and increasing the development of geothermal resources within the restructured electric power industry environment.

- **Environmental and socio-cultural concerns**
  - With the passage of NIPAS and IPRA laws, geothermal development must be harmonized with environmental and socio-cultural concerns.

- **Non-power applications**
  - Possible non-power applications of geothermal energy should be determined to maximize its utilization.

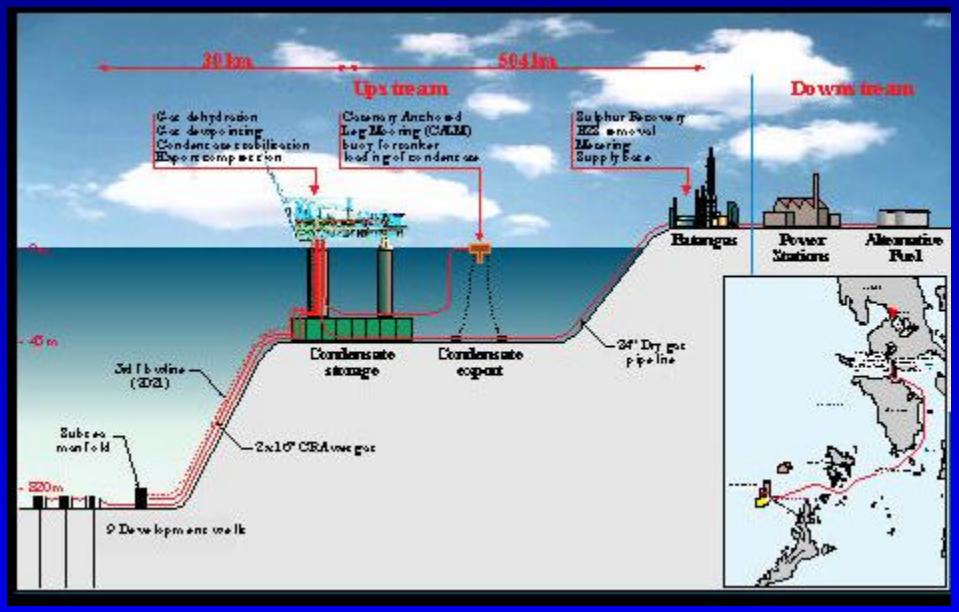
SECTORAL PLANS
GEOTHERMAL

PROGRAMS AND PROJECTS

- **Improvement of incentive packages**
  - Incentive packages will be enhanced to attract the private sector in developing geothermal energy.

- **Maximum utilization of geothermal for non-power application**
  - The promotion of non-power application such as multi-crop dryer in Leyte and Manito, Albay and the promotion of hot spring areas for possible spa resort development shall be pursued.

- **Promotion geothermal resource as a socially acceptable resource**
  - Public awareness campaigns will be conducted to increase acceptability and compatibility of geothermal projects and harmonize it with environmental and social concerns.



UPSTREAM OIL AND GAS

SECTORAL PLANS
UPSTREAM OIL and GAS

CHALLENGES AND GAPS

- **Enhancement of investment incentives in petroleum exploration**
  - Given the intensive capital requirements and prospectivity level of petroleum basins, there is a need to revisit the fiscal incentive regime for oil and gas exploration projects.
- **Improvement of petroleum prospectivity of sedimentary basins**
  - Due to lack of sufficient geological and geophysical data and studies, Philippine sedimentary basins are perceived by international oil companies as too risky to explore.
- **Strengthening of DOE capability**
  - A need to strengthen technical and financial capability to effectively evaluate and monitor all upstream oil and gas exploration activities

SECTORAL PLANS
UPSTREAM OIL AND GAS

PROGRAMS AND PROJECTS

- **Enhancement of investment incentives in petroleum exploration**
  - Study the possibility of using the "bidding round system" in awarding exploration contracts
  - Re-evaluate the current Service contract regime
- **Philippine petroleum prospectivity enhancement and investment promotion**
  - The Philippine Petroleum Exploration Investment Promotion (PhilPRO) project will promote the results of PhilPRA project to interested oil companies through international roadshows
  - Conduct of multi-client or non-exclusive seismic survey
- **Technical capability enhancement**
  - The Petroleum Development Administration project will conduct institutional capacity-building of the DOE

DOWNSTREAM OIL

SECTORAL PLANS
DOWNSTREAM OIL

CHALLENGES AND GAPS

- **Meeting demand**
  - The improvement in economic activities in the country will result in increased demand for petroleum products. Meeting the required quantity and quality should be a major consideration for the industry

- **Increasing investments**
  - Key issues that need to be addressed include proposals to change the basic regulatory framework for the sector, coordination with local executives with regard to initiatives that affect the activities and/or entry of downstream facilities and low refining margins due to excess refining capacity in the region

SECTORAL PLANS
DOWNSTREAM OIL

- **Improving enforcement mechanisms**
  - The proliferation of unfair trade practices such as petroleum product smuggling, product adulteration and underfilling of LPG cylinders continues to challenge the government in coming up with policies that will enable industry activities to thrive in a fair market environment.

- **Improving public perception**
  - Key issues and concerns such as pricing of petroleum products and unfair trade practices result in a continuing negative impact on oil downstream industry deregulation.

SECTORAL PLANS
DOWNSTREAM OIL

PROGRAMS AND PROJECTS

- **Improvement in oil quantity and quality and price monitoring**
  - Future oil demand in terms of volume and quality requirements shall be met. A major concern is the stringent fuel quality requirements of the CAA to reduce sources of air pollution. Other programs include alternative fuels development, clean fuels and technologies development, fuel quality standards review and formulation of oil contingency plan.
- **Revisit of sustainable incentives**
  - The DOE shall review and rationalize petroleum taxes to attract more investments.

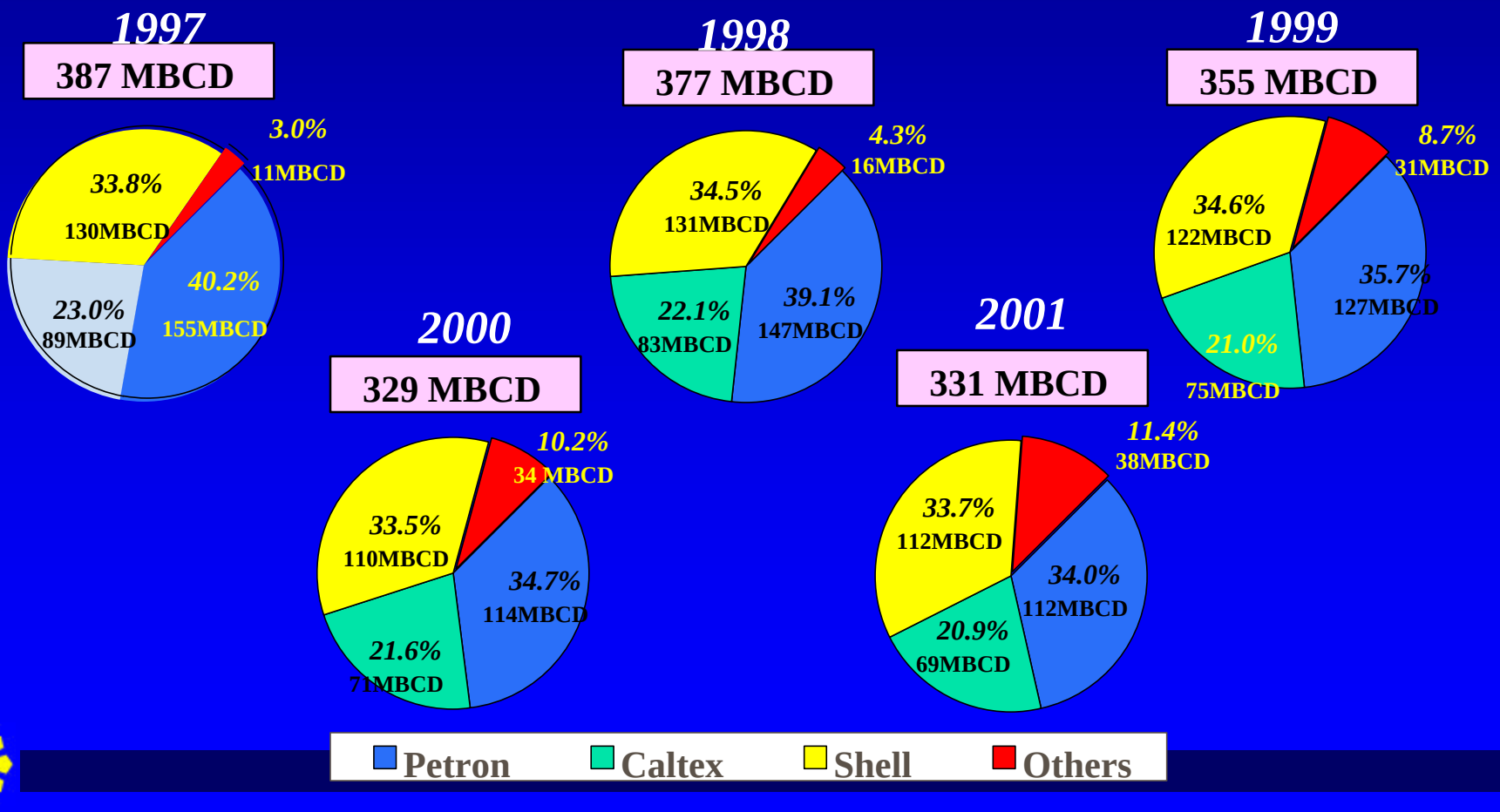
SECTORAL PLANS
DOWNSTREAM OIL

- **Enhancement of environment for retail competition**
  - R.A. 8479 provides for a training and loan program which involves management and skills training. Government shall assist by providing medium- to long-term loans with low interest rates to increase independent retail outlets, thereby enhancing competition.
- **Improvement of enforcement mechanisms**
  - To ensure the effective implementation of the oil deregulation program, programs on fuel additive registration, database system upgrade and similar programs shall be initiated and strengthened.
  - Disputes in the industry shall be aggressively resolved and the incidence of unfair trade practices shall be minimized.

SECTORAL PLANS
DOWNSTREAM OIL

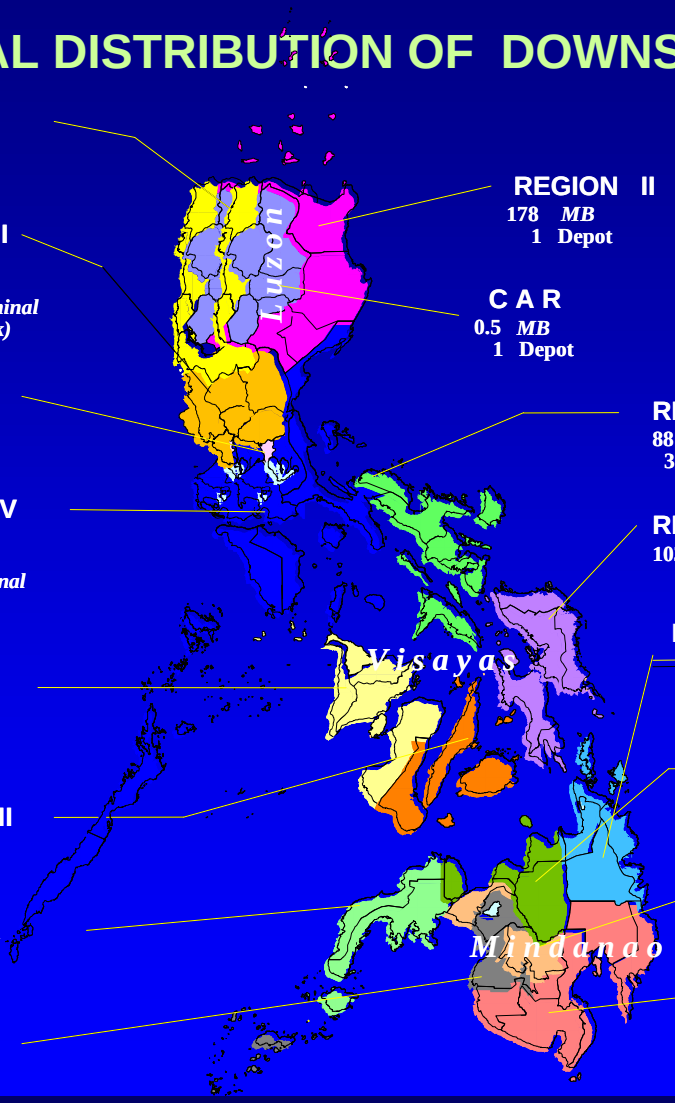
DEVELOPMENTS IN THE OIL DOWNSTREAM SECTOR

MARKET SHARE



SECTORAL PLANS
DOWNSTREAM OIL

REGIONAL DISTRIBUTION OF DOWNSTREAM OIL FACILITIES



REGION I
491 *MB*
5 Depots

REGION II
178 *MB*
1 Depot

REGION III
1,270 *MB*
9 Depots
2 *I/E Terminal (Subic & Clark)*

C A R
0.5 *MB*
1 Depot

N C R
2,188 *MB*
21 Depot

REGION V
88 *MB*
3 Depots

REGION IV
688 *MB*
11 Depots
1 *I/E Terminal (SGEI)*

REGION VIII
103 *MB*
7 Depots

REGION XIII
(CARAGA)
89 *MB*
3 Depots
3 Depots

REGION VI
383 *MB*
10 Depots

REGION X
358 *MB*
9 Depots

REGION VII
876 *MB*
15 Depots

REGION XI
633 *MB*
8 Depots

REGION IX
161 *MB*
4 Depots

REGION XII
189 *MB*
4 Depots

A R M M
58 *MB*
2 Depot

TOTAL COUNTRY STORAGE		
DEPOTS	No.	CAPACITIES (MB)
Majors	76	5,960
Others	38	1,792
TOTAL	114	7,753
IMPORT/EXPORT TERMINALS		
Subic - Olongapo	1	2,420
Clark - Pampanga	1	386
SGEI - Tabangao, Batangas	1	506
TOTAL	3	3,313
REFINERY (Crudes & Products)		
Petron- Limay, Bataan		9,542
Caltex - Bauan, Batangas		4,716
Shell - Tabangao, Batangas		5,514
TOTAL		19,772

DOWNSTREAM NATURAL GAS

SECTORAL PLANS
DOWNSTREAM NATURAL GAS

CHALLENGES AND GAPS

- **Promotion of expanded use of natural gas**
  - The sector shall need to strongly promote the expanded use of natural gas as an alternative fuel for power and non-power applications

- **Establishment of natural gas infrastructure**
  - A physical transmission and distribution infrastructure and an integrated legal and regulatory framework are critical for an emerging natural gas industry

SECTORAL PLANS
DOWNSTREAM NATURAL GAS

PROGRAMS AND PROJECTS

- **Natural Gas Infrastructure**
  - Gas-fired power plants
  - Pipeline networks
  - Trans-ASEAN Gas Pipeline

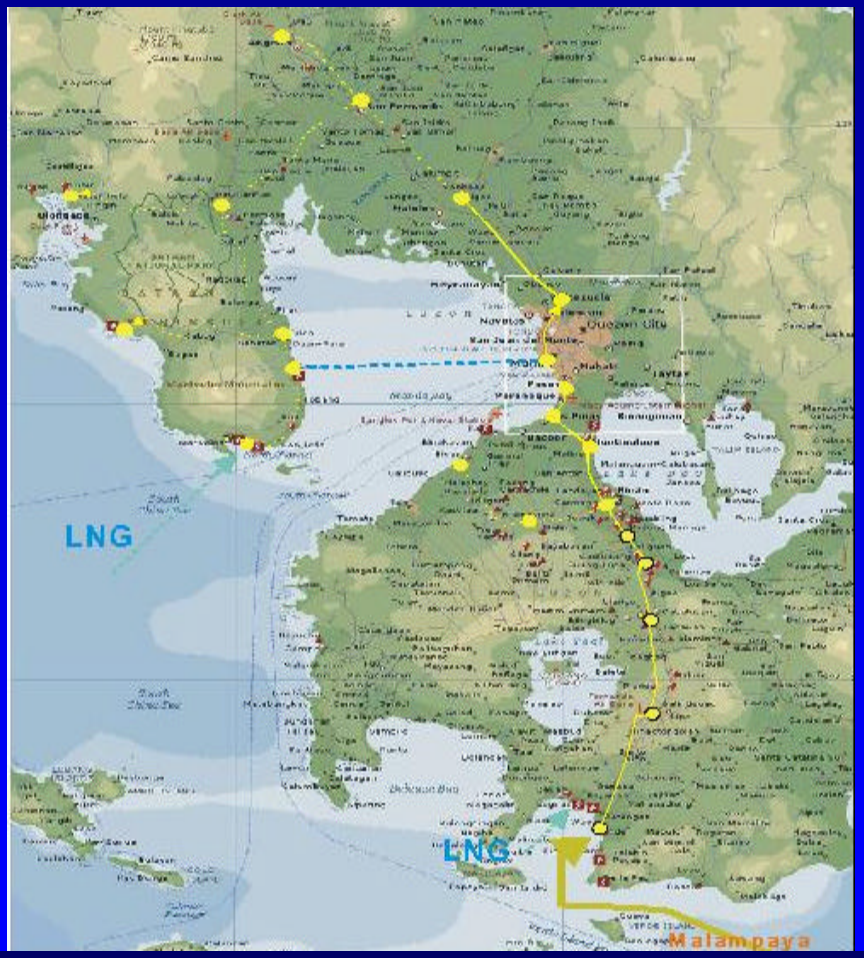
- **Development of non-power applications**
  - Pursue alternative uses for natural gas in industrial and transport sectors

SECTORAL PLANS
DOWNSTREAM NATURAL GAS

DEVELOPMENTS IN THE NATURAL GAS INDUSTRY

Natural Gas Pipeline Networks

- Batangas-Manila (BatMan 1)
- Bataan-Manila (BatMan 2)
- Sucat-Malaya (SuMal)
- Distribution Networks



SECTORAL PLANS
DOWNSTREAM NATURAL GAS

Limay 620 MW oil plant Conversion

LNG import terminal & 1000 MW CCGT , 2006

Hopewell 310 MW oil plant Conversion

Tegen 200 MW oil plant Conversion

Santa Rita, San Lorenzo 1500 MW, 2002

Sucat 500MW, 2006

Malaya 500+ MW 2006

Ilijan 1200 MW, 2002

POTENTIAL POWER PLANTS FOR CONVERSION TO NATURAL GAS

DEPARTMENT OF ENERGY

COAL UPSTREAM AND DOWNSTREAM

SECTORAL PLANS
COAL UPSTREAM AND DOWNSTREAM

CHALLENGES AND GAPS

- **Availability/Development of ready market**
  - Coal end-users opt for imported coal because local coal does not consistently match quality and specification requirements.

- **Improvement in mining technology**
  - The low production output of coal producers is due to difficult mining conditions which have contributed to unstable supply.

SECTORAL PLANS
COAL UPSTREAM AND DOWNSTREAM

- **Socio-Political issues**

  - The peace and order problem in some areas has forced contractors to cease operations and delay coal exploration activities.

  - The misimpression of some local residents about coal mining's effect on the environment delays the issuance of pertinent documents necessary for the commencement of operations.

SECTORAL PLANS
COAL UPSTREAM AND DOWNSTREAM

PROGRAMS AND PROJECTS

- **Enhancement of investments in mine-mouth coal power plants**
  - A study will be undertaken to determine the feasibility in putting up a mine-mouth coal-fired power plants using clean coal technology in particular locations where the coal reserves warrant.

- **Promotion of alternative uses of indigenous coal**
  - Alternative uses for local coal shall be pursued such as coal briquettes, horticulture and industrial paints.

SECTORAL PLANS
COAL UPSTREAM AND DOWNSTREAM

- **Intensification of small-scale coal mining program**
  - Enhance the delineation of potential small-scale coal mining areas which could be offered to rural communities to generate more employment opportunities

- **Development of market for local coal**
  - Conduct pre-feasibility studies on establishment of mine-mouth power plants using clean coal technology

- **Improvement in mining technology**
  - Determine applicability of appropriate mining methods to increase mine productivity

HYDRO

SECTORAL PLANS
HYDROPOWER

CHALLENGES AND GAPS

- **Socio-environmental concerns**
  - there is a considerable resistance in developing hydro projects due to the potential for upstream flooding, destruction of agricultural areas and animal habitats and disruption of communities in the affected areas

- **Type of development**
  - Re-orientation and refocusing of type of development will result to a more responsive hydropower development.

- **Commercialization of hydropower technology**
  - Fabrication of mini- and micro-hydro turbines shall be encouraged for large-scale use.

SECTORAL PLANS
HYDROPOWER

PROGRAMS AND PROJECTS

- **Enhancement of public acceptance**
  - includes involving all stakeholders in the decision-making prior to the implementation of hydropower projects

- **Formulation of a comprehensive hydropower program**
  - Promote the run-of-river scheme

- **Commercialization of hydropower technology through the following measures**
  - Creation of hydropower database
  - Pursuit of technical cooperation with other countries
  - Rehabilitation program for existing hydropower plants

RENEWABLE ENERGY

SECTORAL PLANS
RENEWABLE ENERGY

CHALLENGES AND GAPS

- **Creation of a commercially viable environment**
  - there is a need to reform and rationalize incentives in building a friendly environment for NRE development
- **Optimal use of other renewable energy potential**
  - NRE in the Philippines remains to be an underutilized resource with tremendous potential.
- **Technology transfer**
  - Any promotion of NRE would need adequate information and training programs.

SECTORAL PLANS
RENEWABLE ENERGY

PROGRAMS AND PROJECTS

- **Creation of a commercially viable environment**
  - Renewable Energy Law which aims to further promote the development, utilization and commercialization of other renewable energy
  - several projects will be implemented to further demonstrate the viability of other renewable energy
- **Optimal use of other renewable energy potential**
  - other renewable energy will be utilized to electrify remote barangays
- **Technology transfer**
  - other renewable energy will be utilized to electrify remote barangays

ENERGY EFFICIENCY

SECTORAL PLANS
ENERGY EFFICIENCY

CHALLENGES AND GAPS

- **Market transformation**
  - There is a need for a market transformation, with the DOE's overall energy efficiency programs serving as catalyst, where market players and consumers place a higher premium on energy efficiency strategies, technologies, products and services.

- **Consumer awareness and protection**
  - There is a need to uplift consumer awareness on the patented pecuniary and environmental gains through energy efficiency and protect them from rising cost of energy.

SECTORAL PLANS
ENERGY EFFICIENCY

PROGRAMS AND PROJECTS

- **Creation of a market that is more responsive and receptive to energy efficiency needs and technology trends**
  - Integrate energy efficiency into market in the form of strategies, approaches and viable measures that will result in actual savings
- **Empowerment of consumers to better access tools to sustainable growth via energy efficiency**
  - Conduct education and information dissemination activities on energy efficiency strategies, technologies, products and services
  - Strengthen consumer protection by ensuring that energy products and services in the market comply with energy efficiency standards

ENERGY - ENVIRONMENTAL MANAGEMENT

SECTORAL PLANS
ENERGY-ENVIRONMENTAL MANAGEMENT

CHALLENGES AND GAPS

- **Balancing development activities with environmental protection**
  - Growth in energy demand and utilization continues to affect the well being of the environment. A balance in energy activities and environmental protection initiatives and efforts is a challenge for policy makers.

- **Enforcement mechanisms for monitoring and compliance with environmental laws and regulations**
  - There is a need to forge stronger inter-agency collaboration with respect to energy-environmental issues to fully monitor and enforce compliance with environmental laws, rules and standards.

SECTORAL PLANS
ENERGY-ENVIRONMENTAL MANAGEMENT

- **Social acceptability**

  - The acceptability of energy projects due to environmental concerns attached to them, remains an issue to contend with. The concerns of stakeholders including the affected communities should be fully acknowledged and all relevant issues should be resolved and matched with corresponding mitigating or enhancement measures.

SECTORAL PLANS
ENERGY-ENVIRONMENTAL MANAGEMENT

PROGRAMS AND PROJECTS

- **Improvement in environmental monitoring system**
  - The DOE shall step up the conduct of regular environmental monitoring of the energy industries and development projects to ensure compliance with national standards and conditions stated in ECCs.
- **Conduct of information education campaign (IEC)**
  - Conduct IEC activities in communities hosting energy projects as a complementary initiative to attain social acceptability of energy projects
- **Strengthening of linkages with stakeholders**
  - The DOE shall address issues on social acceptability through the active involvement of stakeholders in the planning stage of an energy project

ALTERNATIVE FUELS

SECTORAL PLANS
ALTERNATIVE FUELS

CHALLENGES AND GAPS

- **Cost competitiveness with traditional fuels and technologies**
  - Alternative fuels and technologies tend to be capital intensive. There is no policy that exempts alternative fuels and alternative fuel systems from tax.

- **Fuel supply availability, reliability and infrastructure**
  - There is a lack of infrastructure facilities to support refueling for alternative fuel vehicles
  - Consumers have to be assured of a stable and sufficient supply to encourage them to switch to alternative fuels.

SECTORAL PLANS
ALTERNATIVE FUELS

- **Public acceptance**
  - Government and private sector initiatives on alternative fuels and fuel systems may have demonstrated that such technologies are technically feasible for local applications. However, public perception on safety, fuel handling and storage, efficiency and performance has yet to be addressed.

SECTORAL PLANS
ALTERNATIVE FUELS

PROGRAMS AND PROJECTS

- **Formulation of appropriate incentives**
  - Undertake detailed studies to determine the optimal use of incentives to spur adoption of alternative fuels and technologies
- **Development of infrastructures**
  - Attract investments in necessary infrastructures and other related facilities
- **Conduct of research and development**
  - Undertake research and development and pursue pilot projects to speed up market entry of alternative fuels

SECTORAL PLANS
ALTERNATIVE FUELS

- **Conduct of information education and communication campaigns**
  - Conduct intensive public education and information campaigns to induce awareness on the benefits of alternative fuels and technologies

- **Development of standards**
  - Develop standards for alternative fuels and fuel systems, especially on fuel composition, safety, installation, conversion, assembly, operation and maintenance

RURAL ELECTRIFICATION PROGRAM

SECTORAL PLANS
RURAL ELECTRIFICATION

CHALLENGES AND GAPS

- **Fund sourcing**
  - The huge budgetary requirement for the implementation of the 'O-Ilaw' Program' remains as the primary concern of the program participants.
- **Strengthening of linkages with stakeholders**
  - There is a need for a more aggressive coordinative effort among the stakeholders due to the difficulty in providing electricity services to the remote and far-flung barangays
- **Sustainability and socio-economic impact**
  - Access to electricity service is often the least of the priority development concerns in remote barangays. High service costs due to low loads and load densities in rural areas have been exacerbated by inefficiencies of some ECs.

SECTORAL PLANS
RURAL ELECTRIFICATION

- **Logistic-related issues**
  - Politicization of the reform agenda has hampered implementation of known solutions in accordance with sound commercial principles. This has been compounded by political pressures to shift targets, particularly grid extensions, to sparsely populated and remote areas causing some financial distress to some ECs.

SECTORAL PLANS
RURAL ELECTRIFICATION

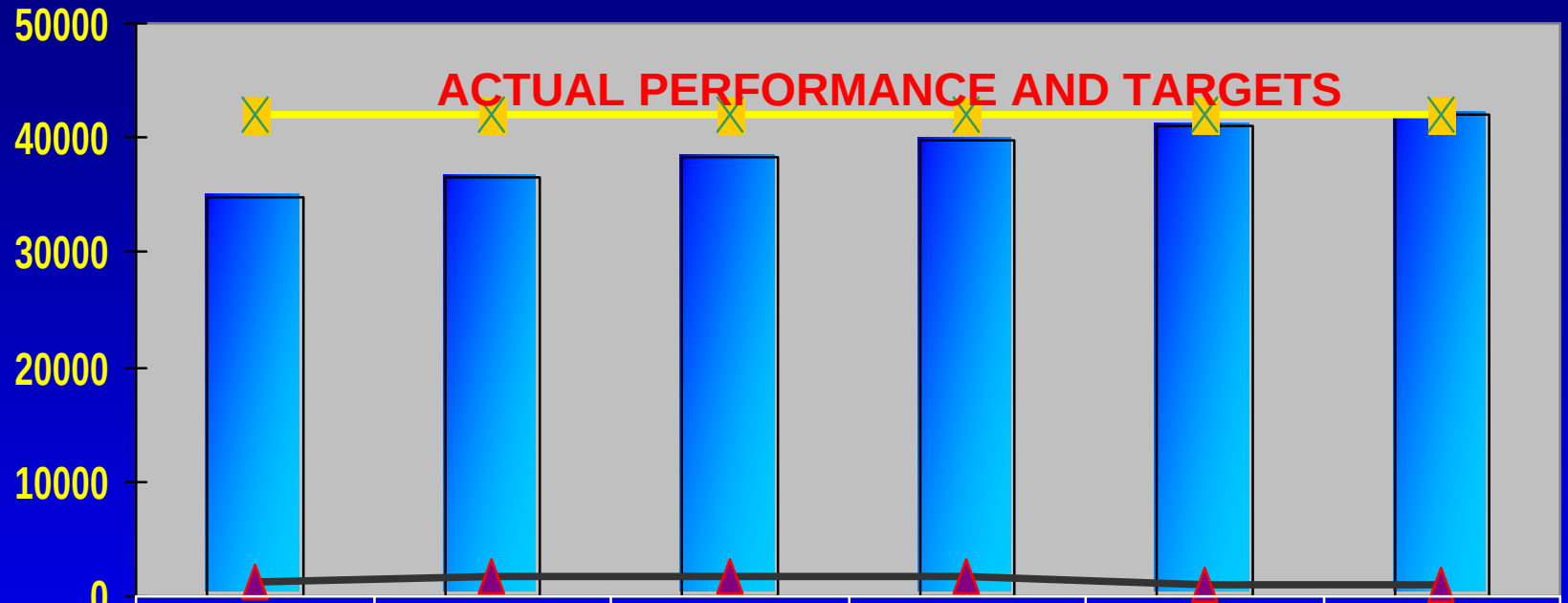
PROGRAMS AND PROJECTS

- **Enhancement of private sector participation**
  - Encourage greater participation from non-government groups such as private companies, business associations, civil society groups and other interest groups in the financing and implementation of electrification projects
- **Obtainment of grants from financial institutions**
  - Seek assistance from financial institutions in promoting and implementing NRE projects for off-grid electrification

SECTORAL PLANS
RURAL ELECTRIFICATION

- **Development of cooperative efforts with beneficiaries and local government units**
  - Establish in-depth linkages with target beneficiaries, LGUs and NGOs.
  - Ensure acceptability and foster a greater sense of ownership by beneficiaries of energization projects through social preparation, promotion and training
- **Development of livelihood and financial assistance program**
  - Provide livelihood and financial assistance to sustain the government's electrification program
- **Institutionalization and streamlining of government procedures**
  - Define electrification targets through firm policies and procedures and provide the necessary framework for such efforts

SECTORAL PLANS
RURAL ELECTRIFICATION



	2001	2002	2003	2004	2005	2006
Cumulative	34900	36536	38200	39900	40995	41995
Targets	1253	1636	1664	1700	1095	1000
Total	41995	41995	41995	41995	41995	41995
ELEC. LEVEL, %	**83.1**	**87.0**	**91.0**	**95.0**	**97.6**	**100.0**

SECTORAL PLANS
RURAL ELECTRIFICATION

STATUS OF BARANGAY ENERGIZATION SUMMARY
(EC Coverage), as of June 30, 2002

REGION	BARANGAYS			
	COVERAGE	TOTAL TO DATE	PERCENTAGE	UNENERGIZED
I	3,035	3,002	99%	33
II	2,375	2,047	86%	328
CAR	1,108	952	86%	156
III	2,096	2,053	98%	43
IV	3,513	3,182	91%	331
V	3,408	2,762	81%	646
TOTAL LUZON	**15,535**	**13,998**	**90%**	**1,537**
VI	3,869	3,294	85%	575
VII	2,715	2,456	88%	259
VIII	4,388	3,433	78%	955
TOTAL VISAYAS	**10,972**	**9,183**	**84%**	**1,789**
IX	1,861	1,139	61%	722
X	1,842	1,571	85%	271
XI	895	750	84%	145
XII	1,023	749	73%	274
ARMM	2,641	1,406	53%	1,235
CARAGA	1,306	1,156	89%	150
TOTAL MINDANAO	**9,568**	**6,771**	**71%**	**2,797**
TOTAL PHILIPPINES	**36,075**	**29,952**	**83%**	**6,123**

INVESTMENT OPPORTUNITIES

INVESTMENT OPPORTUNITIES

Business Opportunities - Privatization

- Privatization of NPC
  - TRANSCO Concession
  - GENCO Sale
- Long-Term Debt Financing for new GENCOs

Business Opportunities – Oil and Gas

- Gas Pipeline Financing
- Exploration and development of natural gas sites adjacent to the Malampaya deepwater project infrastructures pursuant to the Window of Opportunity Program
- Exploration/Development of petroleum basins

INVESTMENT OPPORTUNITIES

Business Opportunities - Others

- Green and brown-field development of natural gas plants
- Further development of geothermal resources
- Development of New and Renewable Energy resources