Renewable Energy Development in the Philippines

By:

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Outline of Presentation

- Brief History of Renewable Energy Development in the Philippines
- Challenges and Barriers
- Enactment of Landmark Laws
- Policy Directions and Mechanisms
- Where are we now
- The Way Forward

Brief History

- Hydropower Development
  - Started in the early 1900's for electricity generation and non-power applications (e.g.,millings), in rural communities
  - Government initiated commercial development of hydropower resources thru the National Power Corporation and the National Electrification Administration
  - Promulgation of Republic Act No. 7156 which provided full private sector development of mini-hydropower resources (up to 10 MW) in 1991
  - Private Sector participation thru Build-Operate-Transfer Scheme of large hydropower projects in mid 1990's

Brief History

- Geothermal Power Generation
  - Government laid the foundation for commercial utilization of geothermal energy between 1952 to late 1960's thru studies and inventories of geothermal activities
  - Historic lighting of several electric bulbs on April 12, 1967 in Southern Luzon
  - First commercial geothermal power generation with a 3-MWe power plant in Negros Island in July 1977
  - By the end of 1983, a total of 896-Mwe of geothermal installed capacity was developed
  - Build-Operate-Transfer Legislation (Republic Act No. 6957) allowed private sector development of geothermal facilities

The 1.5 Mw Pilot Plant at Negros Occidental installed in 1977

Brief History

- Solar, Wind and Ocean Energy
  - Solar PV systems were introduced in the country in rural electrification program in late 1980's
  - Private sector exploration, development, utilization and commercialization for power generation and other uses was initiated under Executive Order No. 462, as amended by Executive Order No. 232 in mid-1990
  - First Wind Farm in Northern Luzon at 33 MW capacity was installed in 2005 (initially at 25 MW)
  - First grid-connected solar PV Farm at 1-MWe capacity was completed in 2008.

Challenges and Barriers

- High upfront and technology costs
- Non-competitiveness
- Non-viable markets
- Inaccessible Financial Packages
- Social Acceptability

To address these barriers, the Government promulgated landmark Laws to accelerate development of renewable energy resources.

Enactment of Landmark Laws

Republic Acts Nos.
(RA) 9367 and 9513

R. A. No. 9367: The Biofuels Act of 2006

Provide fiscal incentives and mandate the use of biofuel-blended gasoline and diesel fuels

BIODIESEL

- **2008 consumption of 91 million liters (CME)**
- **1% biodiesel blend sold in all gasoline stations**
- **2% biodiesel blend by Feb. 6, 2009**

BIOETHANOL

- **Actual production of 611,235 liters**
- **Start of 5% by total volume mandate on Feb. 6, 2009**

R. A. No. 9513: The Renewable Energy Act of 2008

Accelerate the development of the country's renewable energy resources by providing fiscal and non-fiscal incentives to private sector investors and equipment manufacturers / suppliers.

Policy Directions

- Accelerate the exploration and development of renewable energy resources
  - achieve energy self-reliance
    - to reduce the country's dependence on fossil fuels
    - minimize the country's exposure to price fluctuations
  - adoption of clean energy to mitigate climate change
  - promote socio-economic development in rural areas
- Increase the utilization of renewable energy by providing fiscal and non fiscal incentives;

Policy Mechanisms

- Lowering of investment costs
  - Fiscal Incentives
    - Income Tax Holiday and Low Income Tax Rate
    - Reduced Government Share
    - Duty-free Importation of Equipment and VAT-zero Rating
    - Tax Credit on Domestic Capital Equipment
    - Special Realty Tax Rate on Equipment and Machinery
    - Cash Incentive for Missionary Electrification
    - Exemption from Universal Charge
    - Payment of Transmission Charges
    - Tax Exemption on Carbon Credits

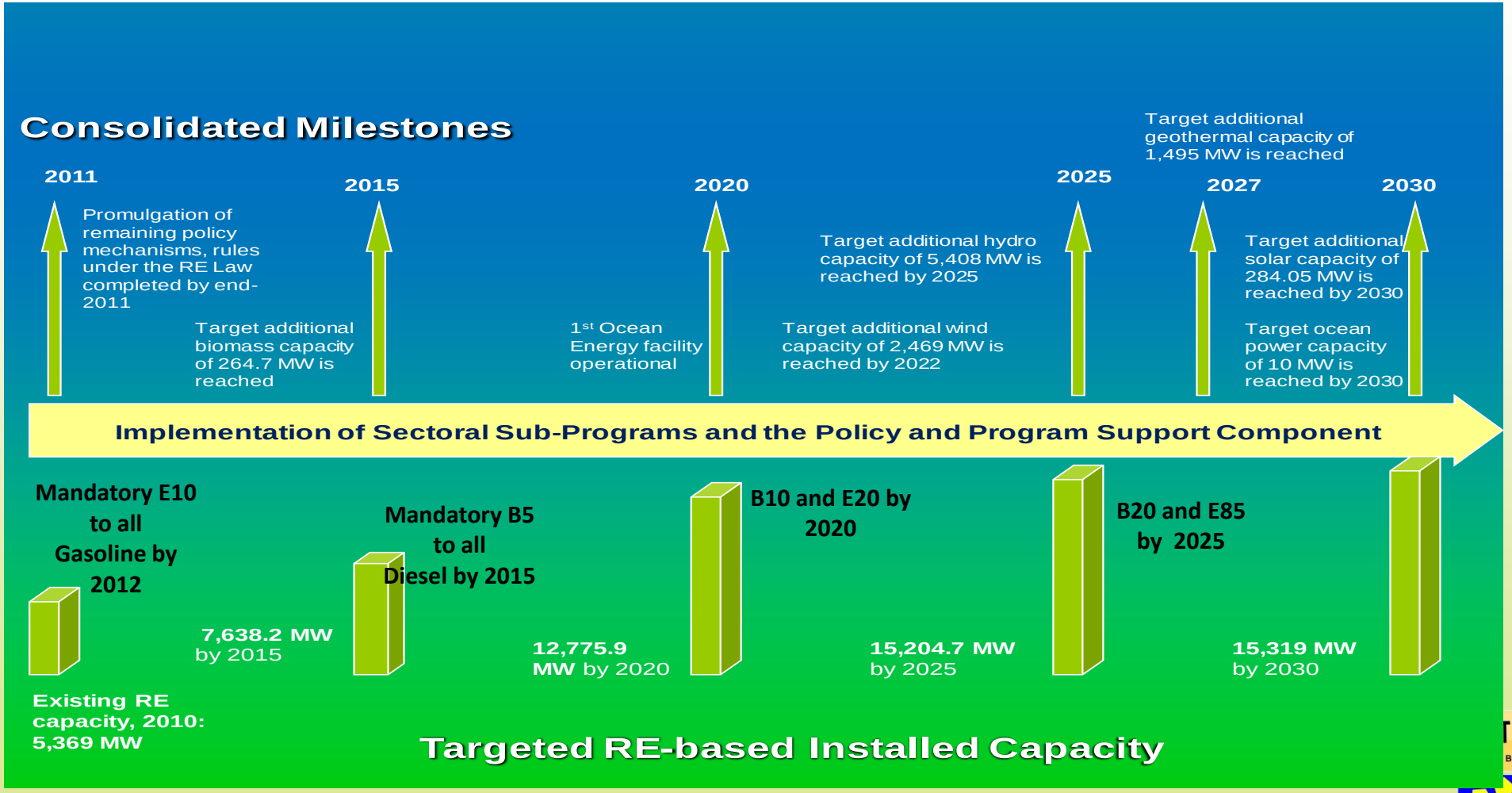
Policy Mechanisms

- Enhanced Competitiveness
  - Mandatory Utilization of RE Resources
    - Biofuels Mandate
    - Renewable Portfolio Standard (RPS)
    - Feed-In Tariff (FIT)
  - Provision of Interconnection / Ancillary Services
  - Other Market Options
    - Net Metering Concept
    - Green Energy Option

Renewable Energy Outlook, 2011 – 2030

under the

"National Renewable Energy Program"

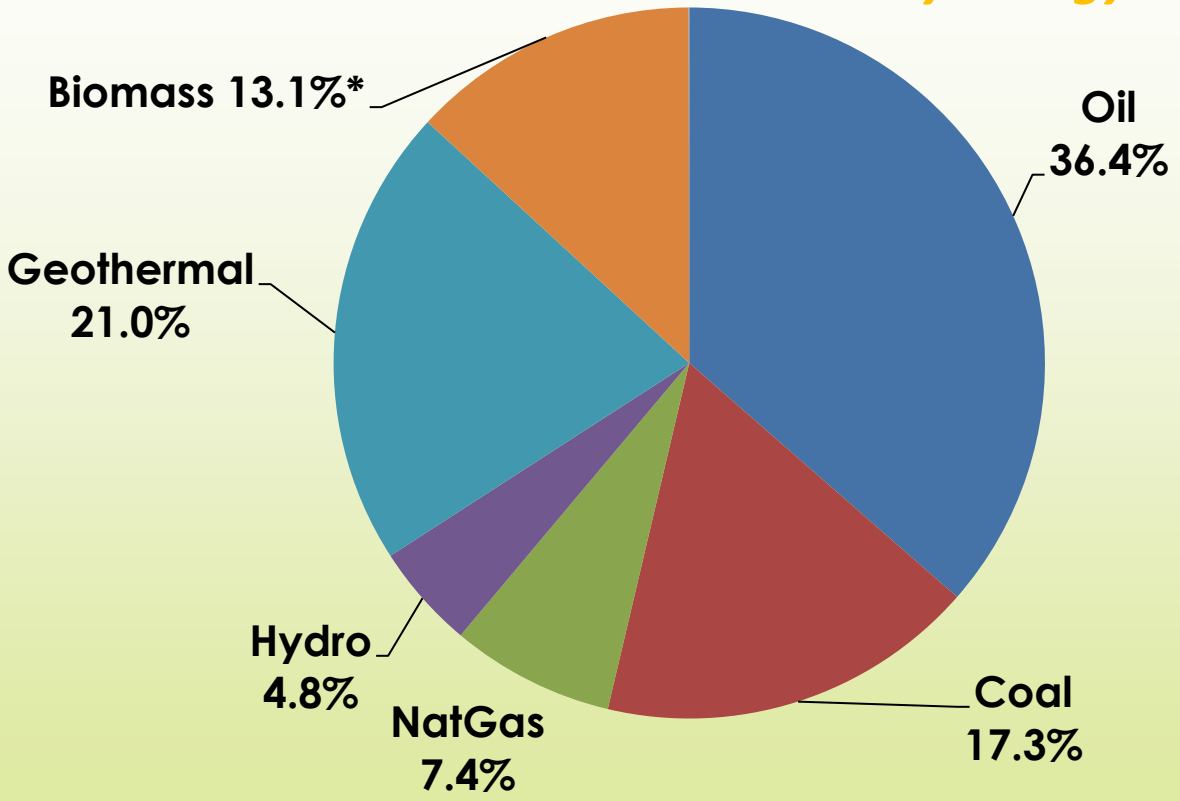


Note: The National Renewable Energy Program (NREP) is a live document and will be subjected to public consultations. Figures presented may change based on regular updates of the NREP.

Where are we now?

Diversified Energy Mix

2010 Primary Energy Mix



Total Energy = 40.73 MTOE

Shares

Self-Sufficiency = 57.5%
Green Energy = 46.3%
RE = 38.9%

Biomass Breakdown

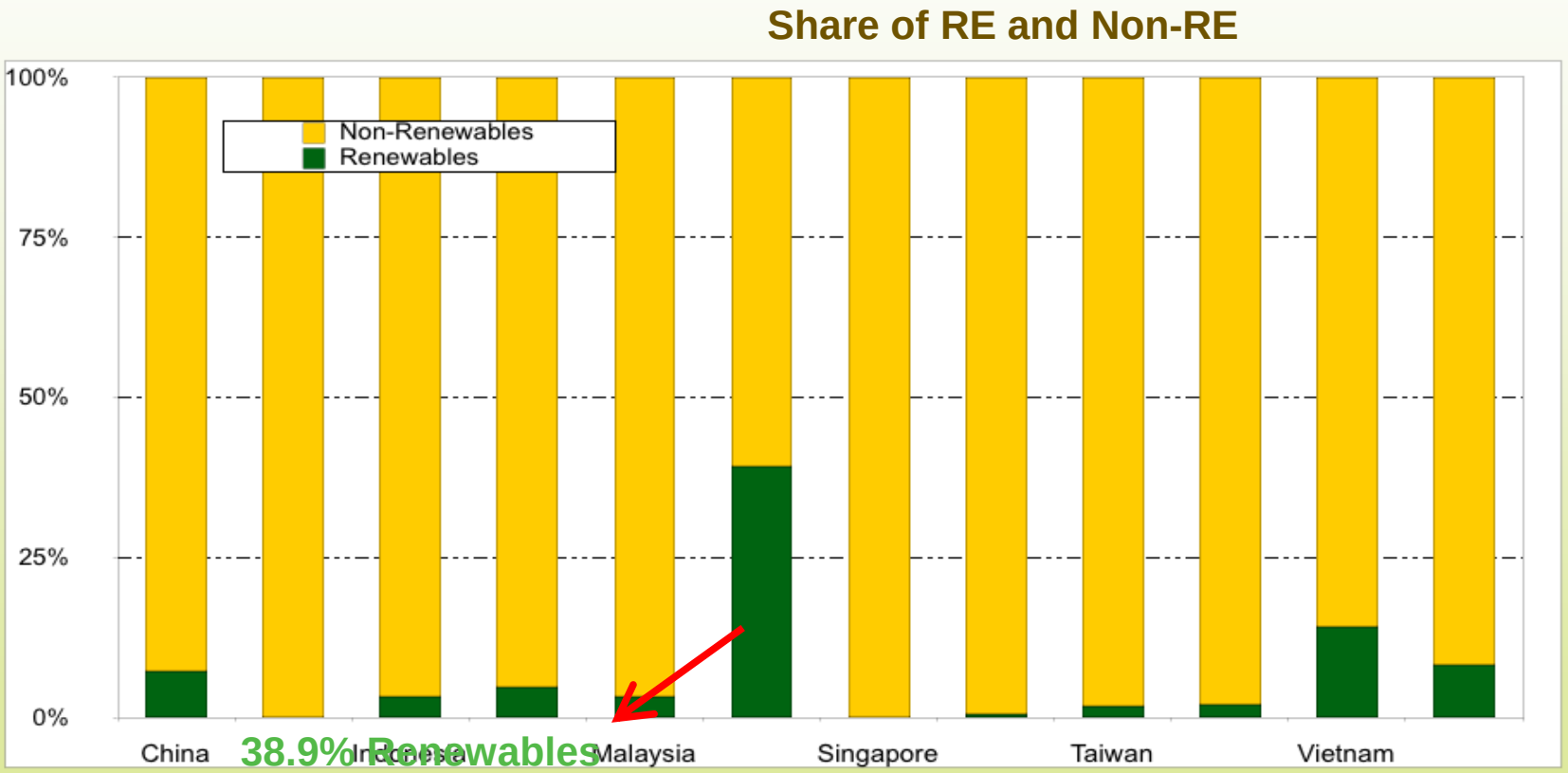
Industry = 27%
Residential = 67%
Commercial = 6%

Note:

a) Wind and Solar contribute 0.001% with total capacity of 39 MW

Where are we now?

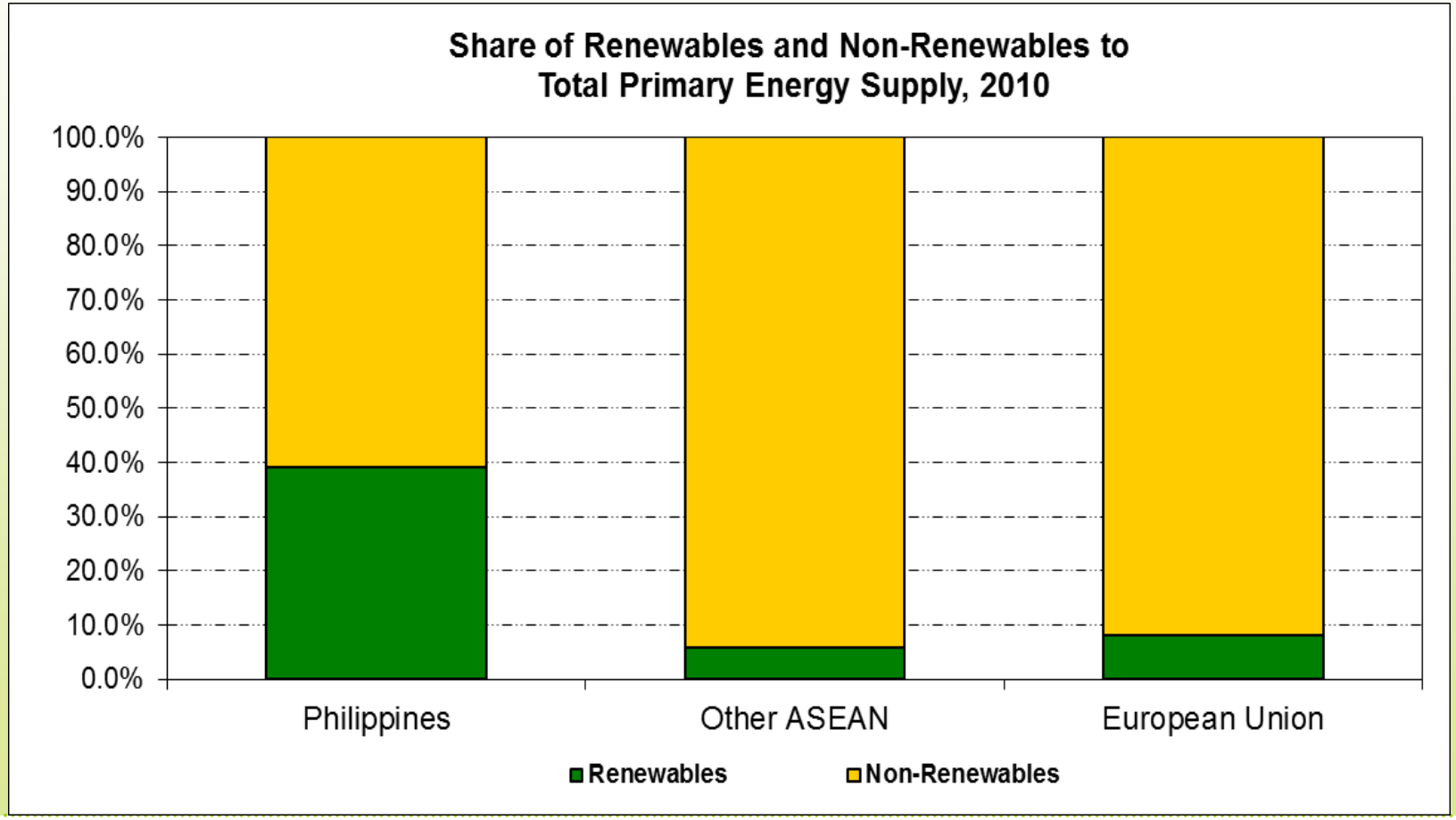
2010 Total Primary Energy Supply, in MTOE



Source: BP Statistical Review of World Energy, 2011

Where are we now?

RP vs Other Asean vs European Union



Where are we now?

SUMMARY OF PROJECTS (as of May 11, 2012)

AWARDED PROJECTS UNDER RENEWABLE ENERGY (RE) LAW

RESOURCES	AWARDED PROJECTS		POTENTIAL CAPACITY MW		INSTALLED CAPACITY MW	
	Grid-Use	Own-Use	Grid-Use	Own-Use	Grid-Use	Own-Use
Hydro Power	141		2,547.96		118.52	
Ocean Energy	3		5.00			
Geothermal	35		806.00		1,902.69	
Wind	55	1	1,738.00	0.006		
Solar	17	1	271.22	0.08		
Biomass	24	19	164.65	40.00	119.00	170.22
Sub-Total	**275**	**21**	**5,532.83**	**40.09**	**2,140.21**	**170.22**
TOTAL	**296**		**5,572.916**		**2,310.43**	

BIOFUELS REGISTRATION / ACCREDITATION

RESOURCES	No. of Companies	No. of Projects
Bioethanol	6	6
Biodiesel	9	9
Total	**15**	**15**

The Way Forward

SUMMARY OF PROJECTS (as of May 11, 2012)

PENDING APPLICATIONS UNDER RE LAW

RESOURCES	PENDING APPLICATIONS		POTENTIAL CAPACITY MW		INSTALLED CAPACITY MW	
	Grid-Use	Own-Use	Grid-Use	Own-Use	Grid-Use	Own-Use
Hydro Power	155		1,839.85			
Ocean Energy	2					
Geothermal	1		60.00		-	
Wind	18		286.00		33.00	
Solar	24	1	117.83	0.02		
Biomass	6	3	51.20	1.36		
Sub-Total	206	4	2,354.88	1.38	33.00	-
TOTAL	210		2,356.26		33.00	

The Way Forward

- Setting of Renewable Portfolio Standard (RPS) and Feed-In-Tariff (FIT) Rates
- Formulation of Guidelines on other RE Policy Mechanisms (Net Metering, Green Energy Option, etc.)
- Establish Energy Investment Coordinating Center and Linkages with other Government Regulatory Agencies
  - *NEDA PPP One-Stop-Shop (DTI / BOI / DOF / BIR, BOC)*
  - *DENR / EMB, FMB, LMB, NSWMC*
  - *NWRB / NCIP*
- Resource Inventory and Establishment of RE Database
- Capacity Building / Information, Education and Communication Campaigns
- Investment Missions / Business Meetings

Renewable Energy Targets: 2011 - 2030

Sector	Short Term	Medium Term	Long Term	Total
	2011-2015	**2016-2020**	**2021-2030**	
Geothermal	220 MW	1,100 MW	175 MW	1,495 MW
Hydropower	341.3 MW	3,161 MW	1,891.8 MW	5,394.1 MW
Biomass	276.7 MW	0	0	276.7 MW
Biofuels	•DC on E10 in 2011 •Mandatory E10 to all Gasoline by 2012 •PNS for B5 by 2014 •DC on B5 by 2015 •Mandatory B5 to all Diesel by 2015	•PNS for B20 & E85 by 2020 •DC on B10 and E20 by 2020	•DC on B20 and E85 by 2025	
Wind	200 MW	700 MW	1,445 MW	2,345 MW
Solar	50 MW	100 MW	200 MW	350 MW
Ocean Power	0	35.5	35	70.5
Total	**1,088 MW**	**5,096.5 MW**	**3,746.80 MW**	**9,931.3 MW**

MABUHAY

THANK YOU ! ! !

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