Philippine Renewable Power Sector

Prospects and Challenges

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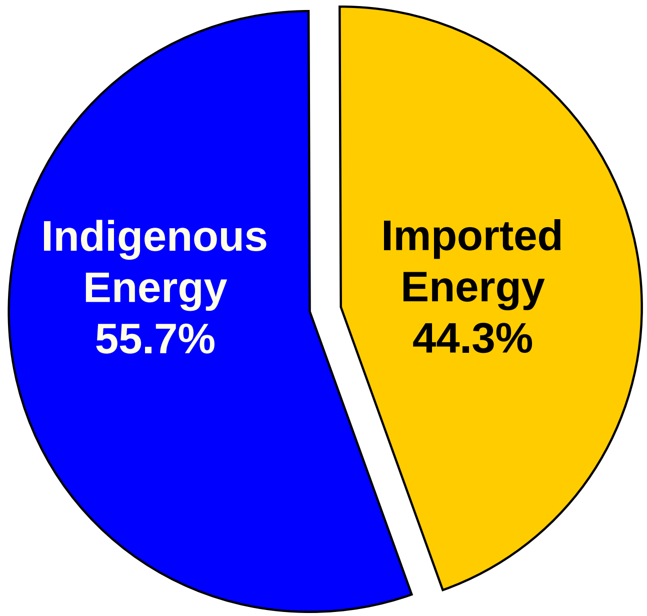
Philippines: Energy Supply Demand Profile

Energy Mix: Almost 60% indigenous

- Oil, 1.59%
- Coal, 4.55%
- Natural Gas, 7.69%
- Geothermal, 22.27%
- Hydro, 5.41%
- Biomass, 14.10%
- Wind / Solar, 0.01%
- CME, 0.08%

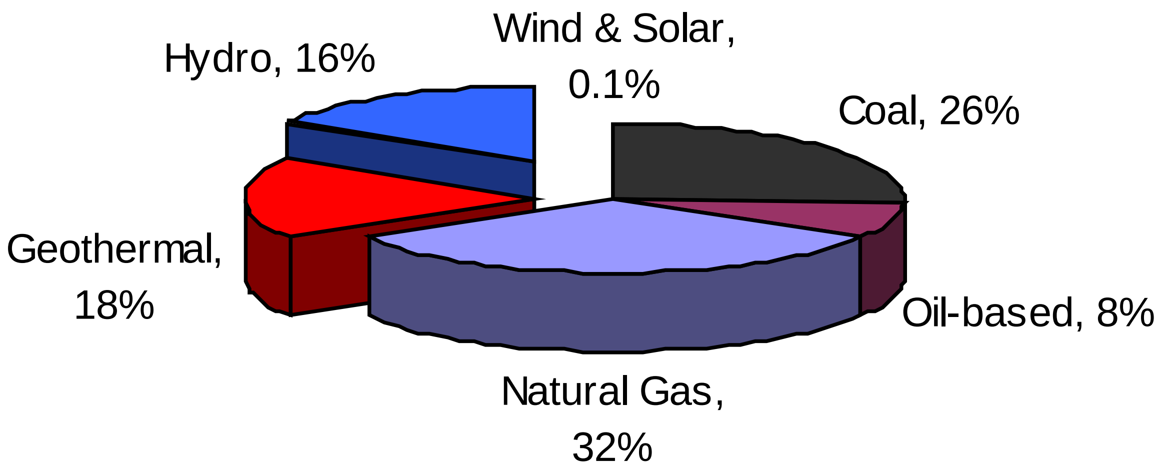


- Imported Oil, 39.96%
- Imported Coal, 10.34%
- Ethanol, 0.01%

Source of basic data: DOE

RE sources account for 42% of the country's total primary energy supply

Power Generation: RE has significant 34% share

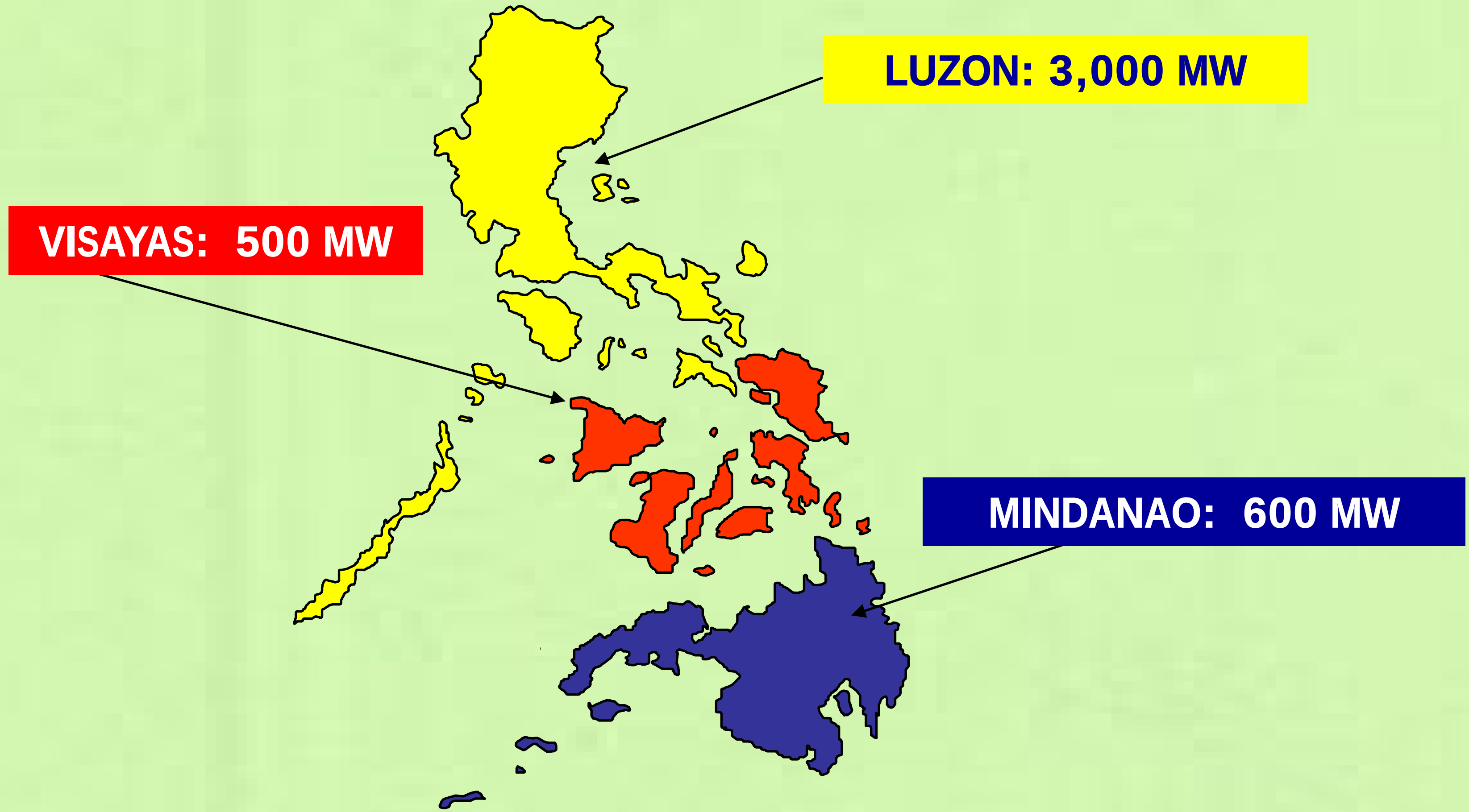


2008 Total Power Generated: 60,821 Gwh

Source of basic data: DOE

Geothermal and Hydro, biggest contribution to RE generation

Electricity Market: New investments needed



4,100 MW of new capacity needed by 2017

Choose the greener option...

Based on DOE PDP 2008 - 2017

Philippines: Leading the way to green growth

Biofuels Act of 2006: first in Southeast Asia

- **Major provisions**
  - 2% mandatory biodiesel blend implemented since 2009
  - 10% mandatory bioethanol blend to commence in February 2011
  - Fiscal incentives provided to biofuel investors;
- **A boost to investments**
  - Biodiesel capacity grew from 58 million liters in 2005 to almost 400 million liters per annum by end 2009
  - Bioethanol capacity building up
    - 30 million li/p.a. plant went on line in 2009

Renewable Energy Act: model RE Law according to UNEP

- **Comprehensive coverage**
  - Sectors:
    - biomass, solar, wind, geothermal, ocean
  - Activities:
    - exploration, development, commercialization

- **Major incentives**
  - Market devt mechanisms: **FIT and RPS**
  - Production: **7 Yrs Income Tax Holiday, Duty Exempt**
  - RE commercialization: **7 Yrs Income Tax Holiday, Duty Exempt**
  - Consumption: **Green Option, Net Metering, Zero VAT**
  - Biomass feedstock: **Duty Exemption**

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Institutional Structure: expansive participation

Department of Energy (DOE)

- **Lead government agency for RE**
  - RPS Rules promulgation, awarding of RE Service Contracts, formulation of National RE Plan, registration of RE players

National Renewable Energy Board (NREB)

- **Recommendatory and oversight body**
  - 15-man board composed of government and private sector reps
  - RPS, FIT Determination

Board of Investments (BOI)

- **Government body in-charge of incentives administration**

Energy Regulatory Commission (ERC)

- **Quasi-judicial body in charge of rates regulations and approval**
  - Feed in Tariff setting; green energy option regulatory framework; net metering pricing methodology

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RE Policy Framework: charting the path to green growth

- **Major Objectives:**
  - Double RE-based capacity within the next 20 years
  - Be the number one geothermal power producer in the world
  - Be the number one wind power producer in Southeast Asia
  - Be the solar cell manufacturing hub in ASEAN
  - Expand contribution of biomass, solar and ocean

REPF (2010 – 2030): in figures

RESOURCE	EXISTING CAPACITY in year 2008 (MW)	TARGET Capacity (MW)	TOTAL (MW) in 2030
Geothermal	1,958	1,070	3,028
Hydro	3,291	3,400	6,691
Wind	33	515	548
Solar	5	30	35
Biomass	68	200	268
Ocean	0	120	120
Total	5,355	5,335	10,835

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Moving towards accelerated development

Current RE activities 4.8% demand growth rate

Approval of RA 9513
2008

1

Policy is in place; salient provision of the law will spur Interest; activities on RE development is expected to accelerate

2-year development of RE database and enhancement of tech'l expertise of RE stakeholders

2010

2

Small capacity RE projects are added to the grid; big RE projects are in the pipeline

5-year continuing RE project packaging and Intensive promotional activities

2015

3

Emergence of ocean energy projects, e.g. OTEC, wave, marine and tidal

Diversification of RE resources; database preparation and Project packaging of emerging technologies

2020

4

Commercialization of ocean energy project options

Development Of ocean energy projects

2030

5

Double RE capacity (4.8% growth rate)

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Sustaining RE Growth Momentum in the Philippines

RE Act Progress Report

- **RE Act IRR issued on 25 May 2009**, one month ahead of deadline
- **National Renewable Energy Board convened**
  - Ongoing work: FIT, Net Metering, Green Energy Option and FIT
  - Target finalization of FIT: June 2010
  - Target finalization of RPS: third quarter of 2010
- **205 Renewable Energy Service Contracts issued as of end February 2010**
  - Potential capacity addition of over 2,500 MW
  - Potential investments of US$5 billion
- **Ongoing public consultation on FIT Rules, led by ERC**
- **Execution of Memorandum of Agreement between the DOE and BOI on RE projects registration and incentives availment**

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Challenges still ahead . . .

- Challenge of determining feed in tariffs for new renewables
- Challenge of integrating renewable power into grid operations
- Challenge of reducing red tape on promoting RE investments
- Challenge of creating a market for RE certificates
- Challenge of simplifying template documents

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ESMAP: accelerating RP's market transformation

- **Support through the Renewable Energy Market Transformation Initiative (REMTI)**
  - Development of a comprehensive policy implementation framework
  - Capacity building and support to ERC and NREB on:
    - Feed in tariff pricing / avoided costs
    - Comparative assessment of international practices
  - Capacity building and support to NGCP (grid operator) on:
    - transmission expansion to connect renewables and integrating renewables in the grid
    - maximum penetration of intermittent / non-dispatchable renewables.

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Additional Technical Assistance needed

- **Development of a Philippine Renewable Energy Resource Atlas** to encourage and accelerate large-scale investments in RE.
  - Detailed resource maps showing the Philippines' wind, hydro, geothermal, biomass, solar and ocean energy potential
  - Setting up of RE demonstration projects

- **Institutional capacity building for Transco / NGCP**
  - Maximum penetration of intermittent renewables (wind, solar)
  - Consultation with European grid operators on grid stability

- **Formulation of commercial frameworks / template documents:**
  - Renewable Energy Purchase Agreement (REPA) between RE developer and grid operator
  - Fuel Supply Agreement (for biomass and geothermal projects)

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Additional Technical Assistance needed

- **Establishment of a One-Stop-Action-Center for RE Investments** to simplify the registration process, promote greater transparency, ensure accessibility of incentives and reduce the cost of doing business.
  - One Stop Action Center Office set up
  - Development of RE Registration system

- **Future Registration and Trading of RE Certificates**
  - Training and capacity building for Wholesale Electricity Market Operator on setting up registry for RE Certificates

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THANK YOU!

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