Geothermal Energy Development in the Philippines

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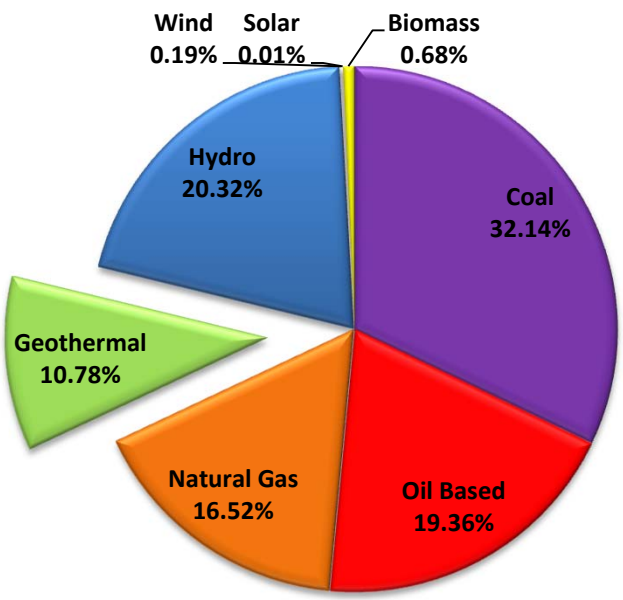
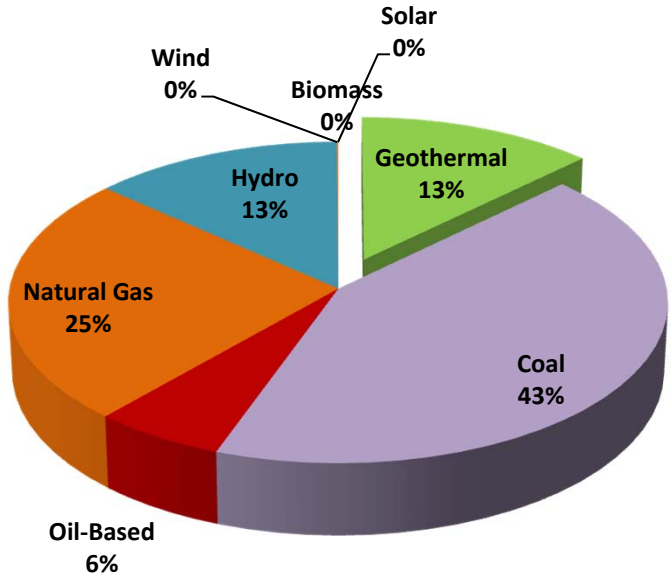
Philippine Power Sector Situationer

2013 INSTALLED CAPACITY



17,325 MW

2013 POWER MIX



75,265,842 MW

BRIGHT NOW!
DO RIGHT. BE BRIGHT.

Republic Act No. 9513: The Renewable Energy Law

AN ACT PROMOTING THE DEVELOPMENT, UTILIZATION AND COMMERCIALIZATION OF RENEWABLE ENERGY RESOURCES AND FOR OTHER PURPOSES

Coverage: **BIOMASS, GEOTHERMAL, SOLAR, HYDRO, OCEAN, WIND**

INCENTIVES:

- 7 years Income Tax Holiday (ITH)
- 10 year Duty-free Importation of RE Machinery, Equipment and Materials
- 1.5% Special Realty Tax Rates on Equipment and Machinery
- 7 year Net Operating Loss Carry-Over
- 10 % Corporate Tax Rate after ITH
- Accelerated Depreciation
- Zero Percent Value-Added Tax Rate
- Cash Incentive of Renewable Energy Developers for Missionary Electrification
- Tax Exemption of Carbon Credits
- 100% Tax Credit on Domestic Capital Equipment and Services
- Exemption from the Universal Charge
- Payment of Transmission Charge
- Hybrid and Cogeneration Systems

Geothermal Energy Situation

- Geothermal
  - A total of (9) nine GRESCs under Open and Competitive Selection Process (OCSP), five GREOCs/GOCs and 22 GRESCs/GSCs under Direct Negotiation for frontier areas and seven conversions of Geothermal Service Contracts under P.D. 1442 into GRESCs under R.A. 9513 were signed.
  - To date, the country has *43 GRESCs/GSCs*, seven (7) of which are producing fields with total installed capacity of 1,868 MW, while the remaining are under pre-development/exploration. Among the major islands, Visayas has the highest installed capacity with 915 MW. Luzon has 844 MW and Mindanao has 108 MW of geothermal energy.
  - Estimated geothermal potential is approximately 4,407 MW.

Note:

GRESC – Geothermal RE Service Contract/
GSC – Geothermal Service Contract

GREOC – Geothermal RE Operating Contract/
GOC – Geothermal Operating Contract

ROADMAP for the EXPLORATION, DEVELOPMENT and UTILIZATION of GEOTHERMAL RESOURCES IN THE PHILIPPINES (2013-2030)

Establishment of RPS and FIT

2013

2015
Installation of additional 50 MW
New Areas - 20 MW
Expansion - 30 MW
Generation - 350.4 GWh
Employment -85 (full time)
Investment - ~ PhP11,250 MM

2020
Installation of additional 1,180 MW
New Areas - 1,050 MW
Expansion - 130 MW
Generation - 8,269.44 GWh
Employment - 2,006 (full time)
Investment - ~ PhP265,500MM

2025
Installation of additional 155 MW
New Areas - 90 MW
Expansion - 65 MW
Generation - 1,086.24 GWh
Employment - 263 (full time)
Investment - ~PhP34,875 MM

2030
Installation of additional 80 MW
New Areas - 20 MW
Expansion - 60 MW
Generation - 526.6 GWh
Employment - 136 (full time)
Investment - ~ PhP 18,000MM

1 2 3 4 5

Installed Capacity 1,848 MW

Implementation of Detailed Assessment of Low-Enthalpy Geothermal Resources Project

Drafting of policy/ guidelines for the direct use of small-scale geothermal energy

Feasibility of Small-Scale Geothermal Energy

Research/study on the steam/electricity pricing of geothermal resource to determine true cost of steam production

Research/Study on Enhanced Geothermal System (EGS) and Geothermal Heat Pump

Feasibility Study of Enhanced Geothermal System (EGS), Binary Technology, Utilization of Acidic Reservoir and Geothermal Heat Pump

Optimization and Improvement of Geothermal Power Plant Efficiency and Energy Conversion

Establishment of Geothermal Training Center

VISION:
Increase of 75% in geothermal capacity by 2030

Encourage Service Contractors to undertake expansion and full utilization or optimization of the geothermal projects

Study and promotion of nonpower application/cascaded use of geothermal energy for development

IEC campaign to address the following issues: environmental permits and approval of SLUP, FLAG, TCP; protected areas; LGUs and NCIP/IPs social acceptability and harmonization with other government agencies' policies

Continued improvement of database and networking for better data access of both internal and external clients

Continued exploration in identified, underexplored, unexplored resource assessment of geothermal areas (high and low temperature/enthalpy)

BRIGHT NOW! DO RIGHT. BE BRIGHT.

Challenges

1. *Technology* – utilization of young geothermal systems, limited permeability, cascaded use and low-enthalpy areas.
2. *Environmental* – exploration and development of resources within protected areas.
3. *Socio-cultural* – exploration and development of resources where there are Indigenous Community concerns and Local Government Unit concerns.
4. *Policy* – Feed-in-Tariff (FIT) for emerging technology and approval of Renewable Portfolio Standard (RPS).

Government Initiatives:

1. Open and Competitive Selection Process (OSCP) – an investment promotion campaign in which prospect areas are offered and bid-out to private investors.
2. The Implementation of a reduced timeline for GSC applications for frontier areas.
3. Continuous Integrated resource assessment of Low-enthalpy geothermal areas and inventory of geothermal resources.
4. Active coordination with other Government Agencies for the harmonization of relevant policies and programs.

The Way Forward

- Formulation of guidelines for the direct use of small-scale geothermal energy
- Capacity Building / Information, Education and Communication Campaigns
- Establishment of Geothermal Training Center in coordination with RE Stakeholders
- Continuous study on the exploration, development and feasibility of low enthalpy, acidic reservoir and EGS-candidate areas.

THANK YOU!

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