Energy Sector Management Assistance Program (ESMAP)

The World Bank

POLICY INCENTIVES AND REGULATORY FRAMEWORK
for RENEWABLE ENERGY

Evolving RE Support Policies in the Philippines for the Development of Renewable Energy

September 19, 2012

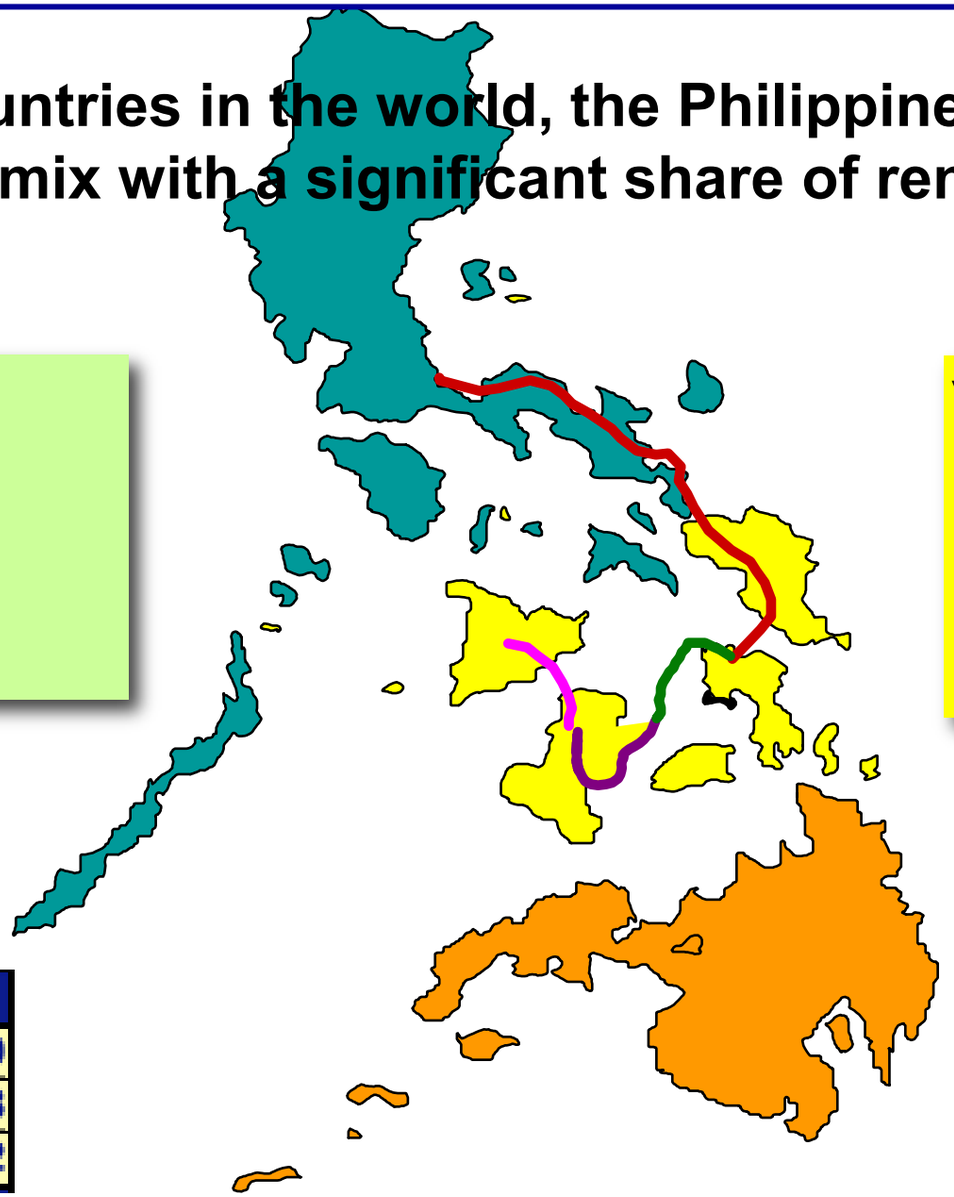
Washington DC

Archipelago country: 3 regions with different conditions and energy resources

Compared to other countries in the world, the Philippines has developed a diversified generation mix with a significant share of renewable energy.

Luzon

- Household electrification: 82%
- Per capita GDP: P14,670
- Poverty rate: 30.2%
- Share of PH economy: 65.9%



Visayas

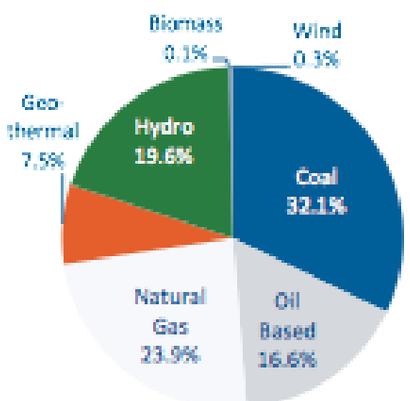
- Household electrification: 72%
- Per capita GDP: P11,281
- Poverty rate: 41.8%
- Share of PH economy: 16.5%

Distribution Utilities	
Electric Cooperatives	119
Private Dist. Utilities	18
LGUs	2

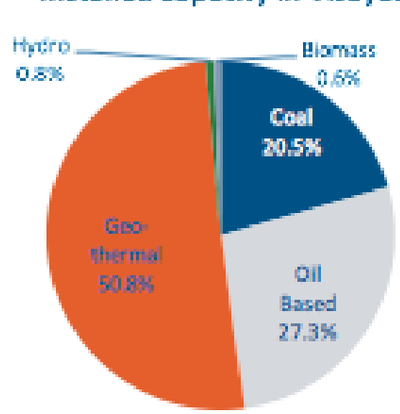
Mindanao

- Household electrification: 59%
- Per capita GDP: P10,383
- Poverty rate: 49.9%
- Share of PH economy: 17.6%

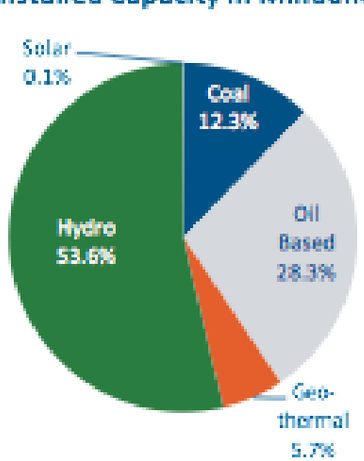
Installed Capacity in Luzon



Installed Capacity in Visayas



Installed Capacity in Mindanao



National Renewable Energy Program (2012-2030)

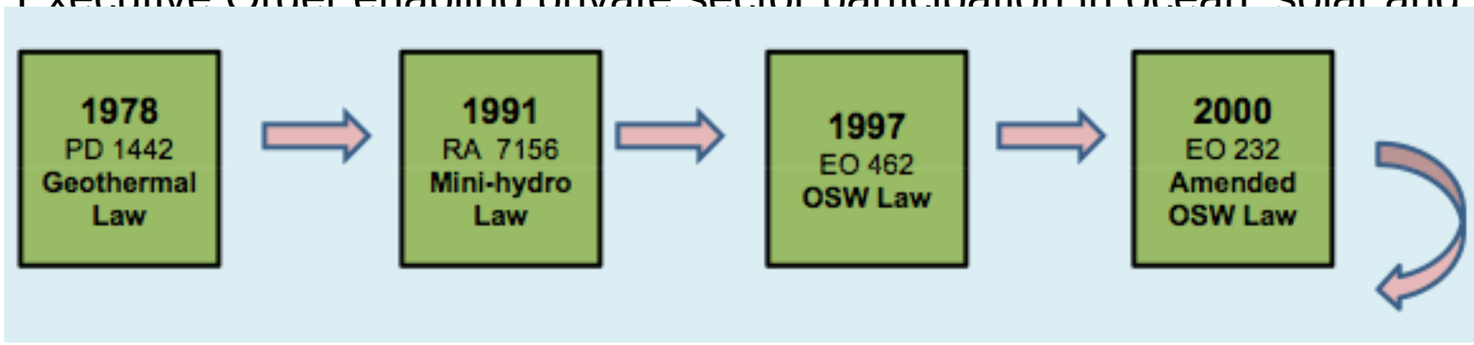
The development of renewable energy (RE) has been and continues to be one of the key components of the Philippines energy sector agenda, with the goal of achieving energy security / energy independence, benefit from available renewable resources, and provide clean energy to consumers.
In particular, government policies target RE to electrify remote and off grid areas, contributing to poverty alleviation.

- The NREP, prepared by the Department of Energy (DOE), is the official document that outlines the government's national targets for the development of total RE and per RE technology during the next two decades, with an ambitious goal: to double RE generation capacity by 2020, and triple by 2030, compared to 2010 baseline.
  - Double hydro by 2018.
- Implementation is facing challenges in agreeing short term targets, harmonization different support mechanisms, and finding a strategy for least cost RE growth.

Renewables	2010	2015	2020	2025	2030
Geothermal	1,966	2,186	3,286	3,381	3,461
Hydro	3,399	3,740	6,901	8,793	8,793
Biomass	38	315	315	315	315
Wind	33	1,081	1,936	2,378	2,378
Solar PV	1	270	275	280	285
Ocean	0	0	35.5	70.5	70.5
Total renew.	**5,437**	**7,592**	**12,749**	**15,218**	**15,303**

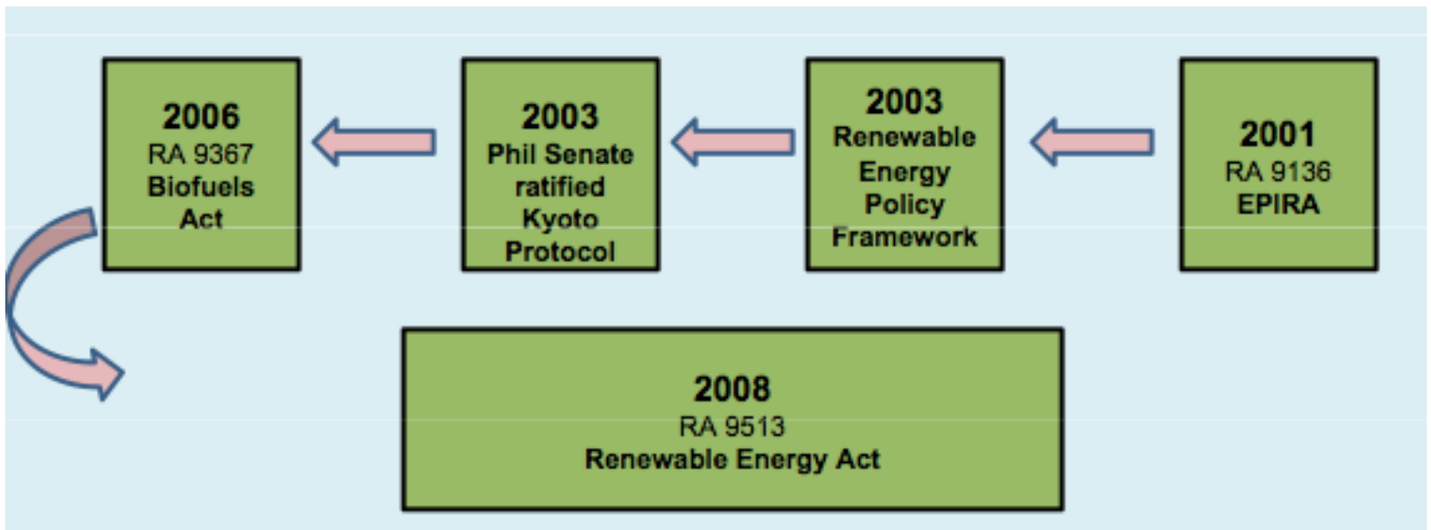
Evolving RE Support Policies, starting in 1970s (1/2)

- **Success of past policies lead to the development of geothermal (1,958 MW) and hydro (around 3,300 MW)**
- **Initial RE promotion policies were driven by 1970s oil crisis, and based on national power utility as Single Buyer and allowing private sector investment:**
  - Geothermal: creation of the Philippine National Oil Company – Energy Development Corporation (PNOC-EDC) on March 5, 1976, to develop indigenous resources for power generation; the Geothermal Law (1978), plus public and private investment transformed the country from 3 MW in 1977 to becoming the second largest geothermal power generator in the world.
  - 1991 Promotion of mini hydro
  - 1997 Executive Order enabling private sector participation in ocean, solar and wind (OSW)



- As from 2000s, the sector moved towards private sector investment and a **competitive energy sector** (EPIRA).
  - Sector activities were unbundled, government owned assets privatized (for transmission, the concession privatized) and a wholesale electricity market started commercial operation (2006). Open access retail competition expected by 2012.
    - The reform was successful in the privatization of government-owned hydro and EDC, as well as award through tenders of Independent Private Administrators for the energy of PPAs of BOTs / IPPs
    - All new generation is decided and invested by the private sector. In competitive market conditions, trend most new entry is coal fired generation (and some medium/small hydro, and brownfield geothermal)
    - Need for new policies and support mechanisms to continue to develop RE in a market - private sector environment

Evolving RE Support Policies, starting in 1970s (2/2)



- **Renewable Energy Act of 2008**

❑Legal and policy framework for RE (biomass, solar, wind, geothermal, ocean, hydro), and new institutions: National Renewable Energy Board (NREB) and Renewable Energy Management Bureau (REMB) as technical secretariat to develop and implement policies, plans and programs on RE in DOE

❑Broad menu of support mechanisms, including FIT, RPS and RECs, Net Metering and Green Energy Option

❑ Priority connection and dispatch for new renewable generation

❑ Tax holidays and exemptions

- **Philippine Energy Plan (PEP, 2009-2030)**

❑ By 2030, increase RE to represent 50% of generation mix and achieve 60% **energy self-sufficiency**,

- Increase development of RE resources
- Increase use of biofuels
- Enhance energy efficiency and conservation

- **Clean Technology Fund (CTF) $250 million allocation**

❑ National Investment plan: renewables, energy efficiency and environmentally sustainable transport

❑ The Bank is preparing IBRD-CTF project, to support renewable investment and improving efficiency in distribution (electricity cooperatives)

Institutions involved in RE policies and support mechanisms

DOE

- **Lead government agency for RE policies**
  - ❑ RPS Rules promulgation
  - ❑ Award RE Service Contracts
  - ❑ Formulation of National RE Plan

NREB

- **Advisory and oversight body**
  - ❑ Broad representation: 15-man board including government and private sector representatives
  - ❑ RPS quota
  - ❑ Propose FIT

BOI

- **Board of Investment**
  - ❑ In-charge of fiscal incentives administration

ERC

- **Energy regulator, in charge of tariff regulation and approval**
  - ❑ FIT Rules
  - ❑ Review of FIT proposal by NREB, and approve final FITs
  - ❑ Net metering regulation (connection and pricing)

Broad menu of RE support mechanisms

- **Non-fiscal support policies for on grid RE development combine market based mechanisms, with administrative price-based mechanism**
- **Administrative price based support mechanism, with cap to maximum MWs**

❑***Feed-in tariff (FITs)***: Emerging RE technologies considered still not market competitive (small run of river hydro, solar, wind, biomass and tidal/ocean) are eligible for FIT. FIT Rules were issued by the energy regulator (ERC) on July 2011, after consultation process. NREB proposed the first set of FITs (one per RE technology) based on costs of representative RE plant. After consultation and regulatory review, the FITs were approved by ERC (July 2012), to apply up to a specified RE technology cap to control impact on tariffs.

Renewable Tariffs in the Philippines					
27-Jul-12					
			51.923	1.244	1.237
	Years	Php/kWh	€/kWh	CAD/kWh	USD/kWh
Hydro	20	5.900	0.114	0.141	0.141
Biomass	20	6.630	0.128	0.159	0.158
Wind	20	8.530	0.164	0.204	0.203
Solar	20	9.680	0.186	0.232	0.231
Ocean (delayed)					
http://www.erc.gov.ph/new/07-27-2012_PR_ERC%20Approves%20Feed-in%20Tariffs%20Rates.html					

- **Market based mechanisms for competitive RE and for customer-driven RE**

❑***Renewable Portfolio Standard (RPS)***: NREB should set the minimum share of eligible RE generation, which cannot be less than incremental 1% of the annual energy demand over the next 10 years. The RPS Rules under consultation will establish the entities that will be subject to RPS quota obligation.

- A RE Registrar will be established in the PEMC (design under preparation) to issue, transfer/trade and track renewable energy certificates (RECs). Each liable entity should annually have sufficient RECs in its Registrar account to comply with RPS quota.
- In time, a Renewable Energy Market (REM) may be implemented in the company managing the wholesale electricity market, to facilitate the trading of RECs.

❑***Green energy option*** for customers to be able to buy RE freely

❑***Net-metering***: ERC should issue the interconnection agreement and pricing for net metering of RE embedded in the distribution grid.

Regulatory process: FITs Rules

- **Feed in Tariffs (FIT):**
- **NREB => ERC => FIT**

- Set per RE technology (and size)
- With regulatory cap (technology target) in compliance with the RPS target
  - When for a RE technology total MW benefiting of FIT reaches the technology target, FIT is reviewed
- Fixed
- Can be set by time of use
- Duration: 20 years
- Annual adjustment; Degression
- Subject to Review
- Initially based on cost of representative project
- Subject to Public Consultation

- **FIT All charge to recover incremental cost of FITs from consumers:**
- **NGCP => ERC => FIT All**

- Uniform Php/kWh charge
- Payable by all on-grid electricity consumers
- Annually calculated and set
- Based on year-ahead forecast: RE deliveries and total energy sales to consumer
- RE may opt to wheel to Grid and sell wholesale
- Fund administered by NGCP for payment of FIT to RE plants
- Working Capital
- Subject to Public Consultation

RPS Rules: Harmonizing RPS with FITs

- **The main principle is consistency between both policies and ensuring each complements the other but do not overlap.**

- RE plants eligible for RECs during 20 years (equivalent to FIT) to avoid discrimination between policies.
- The REC represents the RE attribute of energy generated by eligible RE plants. REC has a “compliance financial value” but not energy value.
- RECs can be unbundled from energy sales and traded separately, except for RECs resulting from FIT eligible RE and net metering:
  - RECs from FIT energy “belong” to the consumers that pay FIT All. Therefore, these RECs are allocated proportionally to suppliers/retailers that sell to consumers, for the purpose of avoiding cost of RPS compliance for supply provided by FIT eligible RE
  - RE Act establishes that RECs from net metering belong to the distribution utility to which the net metering RE is connected, and therefore should also be used for distributor RPS compliance.
- Under this approach all RE, including FIT RE generation, is allowed for RPS compliance.
- Given the share of hydro in RE mix and the variation of hydro between years, compliance grace period: if at the end of a year liable entity does no have sufficient RECs, can compensate the shortfall next year (if the liable entity is able to gather more REC than required for that year)
- Alternatives for managing the non compliance revenues:
  - Funds recycled to liable entities that complied (UK approach)
  - Allocated to pay FiT costs (the FIT-ALL Fund)
- Cost of compliance for distributors with regulated tariffs allowed full pass through of unbundled RECs and bundled RECs (RE contracts), excluding non compliance cost.

Next Steps

- **Amending the Grid Code for the connection and integration of variable RE (wind, solar).**

❑On going technical assistance to Grid Management Committee through ESMAP grant

- **Approval of RPS and initiate RE Registrar and issuing RECs.**

❑RPS Rules to start final round of consultations

❑Bank prepared a paper on conceptual design of RE Registrar

❑PEMC to draft RE Registrar rules and manuals (consultant support)

- **Pilot net metering.**

❑MERALCO (Manila distribution utility) assessing impact of net metering PV on distribution system, in particular as private distribution utilities have Performance Based Ratesetting (PBR) with quality and reliability indicators

❑**A review and decisions on tendering FIT eligible RE, as potential declared by investors (service contracts) is greater than RE technology cap.**

ESMAP: REMTI Program for the Philippines (FY10)

Assessment of the Renewable Market

Philippine Context

Adapting power sector reform, regulations and operational practices to scaling up renewables agenda

Mainstreaming of Renewable Energy

Elements

- Capacity Building
- Incentives Mechanisms: policies, rules and regulations
- Transmission expansion planning/Connection and integration of RE

Impact Assessment

Scenario Building

- Cost evaluation of scenarios of RE development
- Modeling consumer tariff impacts