



Governing Rules in Renewable Energy Development

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Outline of Presentation

- I. Government Policy – National Renewable Energy Program
- II. Status of Renewable Energy Development
 - Where are we now
 - Existing and Updates of RE Policies and Programs
- III. Challenges
- IV. Way Forward



Government Policy

National Renewable Energy Program

- Increase RE-based capacity by 200% within the next 20 years (2011-2030)
- Increase non-power contribution of RE to the energy mix by 10 MMBFOE in the next ten years
 - Be the number one geothermal energy producer in the world (additional 1,495 MW)
 - Be the number one wind energy producer in Southeast Asia (up to 2,500 MW)
 - Double hydro capacity (additional 5,400 MW)
 - Expand contribution of:
 - biomass - 265 MW
 - solar - at least 280 MW
 - ocean energy – at least 10 MW

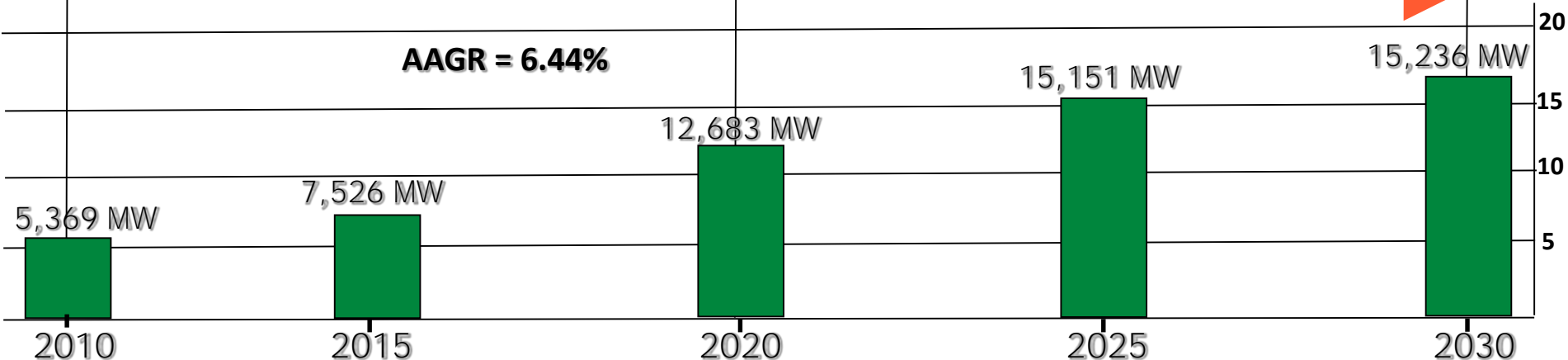


NREP ROADMAP (2010-2030)

- 2012 - Full implementation of RA 9513
- 2015 - Target additional biomass capacity of 277 MW is reached
- 2018 - Commissioning of the 1st OTEC facility
- 2020 - Solar grid parity is attained

- Target additional RE capacities are reached by:
 - 2022 - Wind : 2,345 MW
 - 2023 - Hydro : 5,398 MW
 - 2025 - Ocean : 75 MW
 - 2030 - Solar : 284 MW*
 - Geothermal : 1,495 MW
- 2025 - Wind grid parity is attained

IMPLEMENTATION OF NREP SECTORAL SUB-PROGRAMS



Note: The National Renewable Energy Program (NREP) is currently under review of NREB to reflect developments on RE sector and the DOE's issuances of new Installation targets.

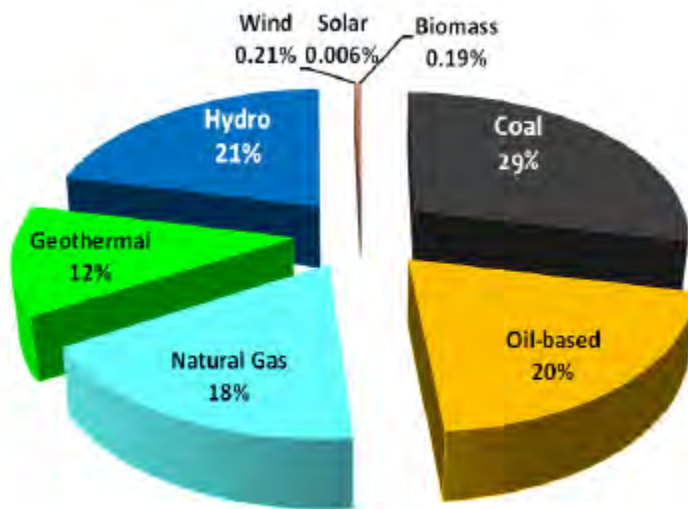
Source: Philippine Department of Energy/NREP



Where are we now?

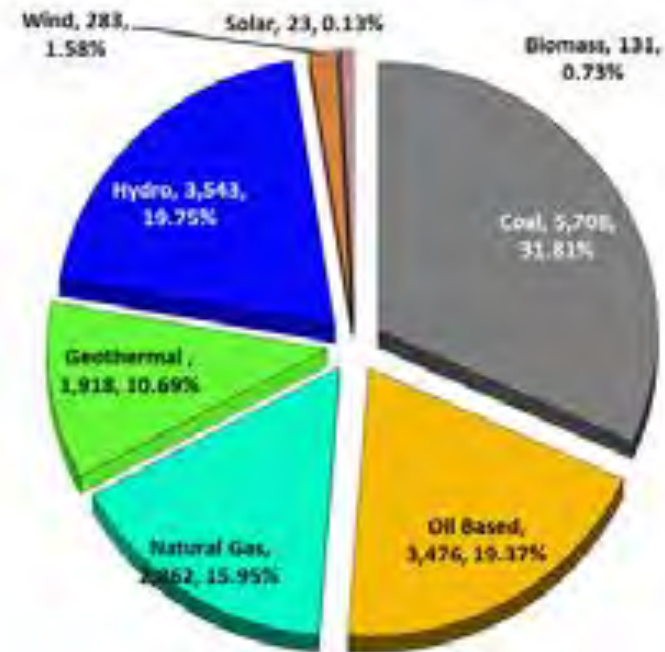
2010 and 2014 Total Installed Capacity Mix (MW)

2010



Total Installed Capacity = 15,881 MW
RE Capacity Share = 5,304.25 MW
% RE Share = 33.4 %

2014



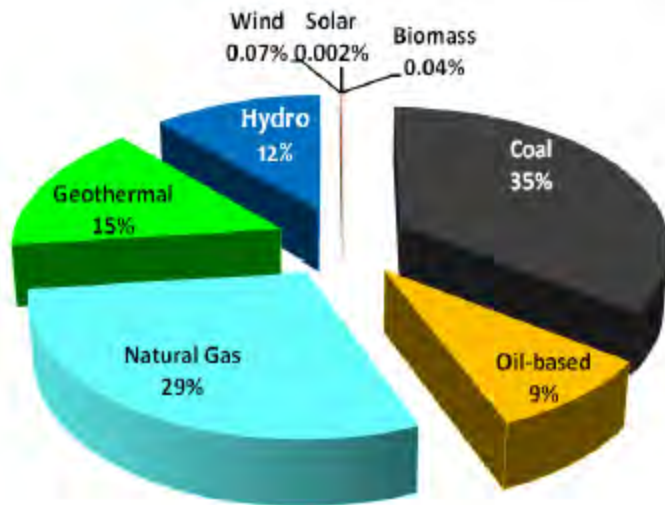
Total Installed Capacity = 17,944 MW
RE Capacity Share = 5,900 MW
% RE Share = 32.88 %



Where are we now?

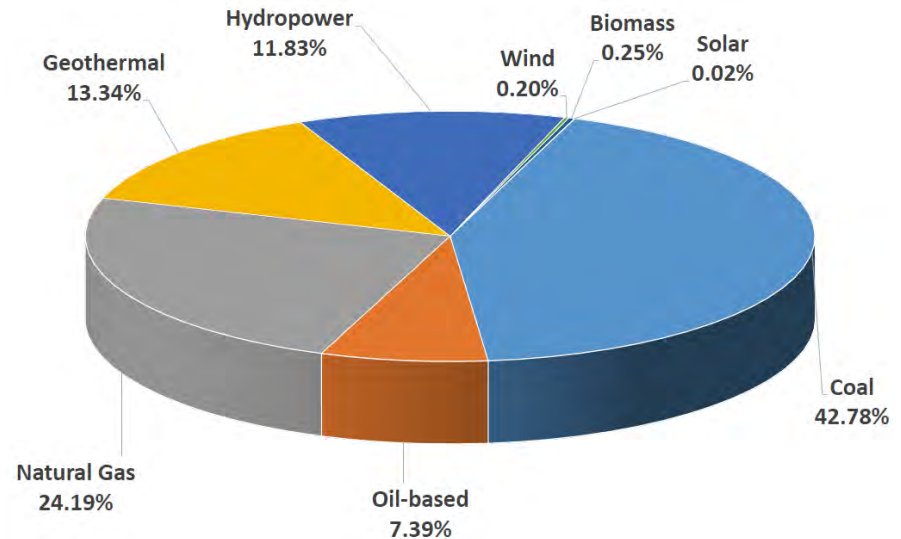
2010 and 2014 Total Generation Mix (GWh)

2010



Total Generation = 65,795 GWh
RE Generation Share = 17,830.4 GWh
% RE Share = 27.1%

2014



Total Generation = 77,261 GWh
RE Generation Share = 19,809.7 GWh
% RE Share = 25.64 %



RE SERVICE CONTRACT

- Grants exclusive right to explore, develop and utilize RE resources in the contract area.
- Modes of Awarding RESC and Certificates of Registration
- Milestone concept, two-stage development
- Auxiliary Permits and Clearances
- Template contracts per type of RE resource
- Only registered RE Developers can avail of incentives



Conversion to RESC System/Registration as RE Project

- Biofuel manufacturing plants under RA 9367
- Mini-Hydro projects under RA 7156
- Geothermal plants under PD1442
- Wind and solar under EO Nos. 462 and 232
- Own-use RE facilities
- Hybrid Energy systems (at least 10% RE)
- Privatized hydropower plants



Summary Renewable Energy Projects under RE Law (as of January 2016)

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	352	1	7,459.52	1.50	139.49	-
Ocean Energy	7	-	26.00	-	-	-
Geothermal	41	-	610.00	-	1,906.19	-
Wind	55	1	1,168.00	-	426.90	-
Solar	124	13	4,016.10	2.395	144.40	1.90
Biomass	38	25	212.08	3.92	241.27	166.18
Sub-Total	617	40	13,491.70	7.815	2,858.25	168.08
TOTAL	657		13,499.52		3,026.33	

BIOFUELS REGISTRATION / ACCREDITATION

RESOURCES	No. of Companies	No. of Projects
Bioethanol	10	10
Biodiesel	11	11
Total	21	21



Summary Renewable Energy Projects under RE Law (as of January 2016)

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	189	-	2,707.27	-	176.11	-
Ocean Energy	2	-	-	-	-	-
Geothermal	2	-	60.00	-	-	-
Wind	10	-	252.80	-	-	-
Solar	56	3	1,452.35	3.21	-	-
Biomass	7	-	89.50	-	31.80	-
Sub-Total	266	3	4,561.92	3.21	207.91	-
TOTAL	269		4,565.13		207.91	

* Under evaluation in various stages



Fiscal Incentives

- ITH for 7 years
- Reduced corporate tax rate (10%)
- Duty-free and Tax-free importation of RE equipment, machineries
- Priority connection/must dispatch
- 50% cash incentives from UC in missionary areas
- reduced government share (1%, 1.5%, exc. Biomass and micro-scale)
- Tax Credit on Domestic equipment and services



RE Potentials

- Geothermal – 1, 200 MW
- Hydropower – 10, 500 MW
- Wind resources – 76, 600 MW
- Micro-hydro – untapped
- Solar energy – high in tropical countries
- Ocean energy – 170,000 MW
- Biomass (bagasse only) – 235.7 MW



Existing and Updates on RE Policy Mechanisms

Renewable Portfolio Standard (RPS)

- Mandatory (percentage) utilization of RE generation system in on-grid systems
 - *For Department of Energy's finalization*

Feed-in-Tariff (FIT) System

Issued Regulations

- The FIT Rules was promulgated on August 12, 2010.
- The ERC approved the FIT Rates on July 27, 2012.
- ERC issued FIT Allowance (FIT-ALL) Payment and Collection Guidelines
- Amendment of DOE's installation target
 - The DOE issued a Certification to amend installation targets of Solar Energy Generation (50mw to 500mw) on April 30, 2014 and Wind Energy Generation (200mw to 400mw) on April 24, 2015
- ERC issued new FIT Rates for Solar (Php 8.69/Kwh, *Resolution No. 6, series of 2015*) and Wind (Php 7.40/Kwh, *Resolution No. 14, series of 2015*)



Existing and Updates on RE Policy Mechanisms

Feed-in-Tariff (FIT) issued Regulations

- A template was prescribe by ERC on it resolution no. 18 series of 2014 to adapt the Renewable Energy Payment Agreement (REPA) Template and the Renewable Energy Supply Agreement (RESA) Template.
- DOE issued List of guidelines for the Selection Process of Renewable Energy Projects Under Feed-In Tariff System and the Award of Certificate for Feed-In Tariff Eligibility



Existing and Updates on RE Policy Mechanisms

Feed-in-Tariff (FIT) Rates

RE Technology	Approved Rates (PHP/kWh)	Installation Target (MW)
Run-of-River Hydro	5.90	250
Biomass	6.63	250
Wind	8.53*	(with initial target of 200) 400**
Solar	8.69 *	(with initial target of 50) 500**

** Feed in Tariff (FIT) rates for solar was revised in April 2015 (resolution no. 6, series of 2015) from Php 9.68 to 8.69/kWh covering additional target of 450 MW and the second FIT rate for wind energy was issued by the ERC at Php 7.40/kWh covering additional target of 200MW under ERC Resolution No. 14, series of 2015.*

*** Amended targets for wind energy and solar power up to March 15, 2016.*



Feed-In Tariff Monitoring Board (as of March 2016)

RESOURCE	FOR NOMINATION / CONVERSION		WITH CERTIFICATE OF CONFIRMATION OF COMMERCIALITY		WITH CERTIFICATE OF ENDORSEMENT TO ERC	
	NO. OF PROJECTS	CAPACITY (MW)	NO. OF PROJECTS	CAPACITY (MW)	NO. OF PROJECTS	CAPACITY (MW)
HYDRO		-	66	610.93	4	26.60
WIND	7	1,023.55	5	431.00	6	393.90
SOLAR	18	681.30	25	732.37	11	292.07
BIOMASS			4	24.37	11	94.25
TOTAL	25	1,704.85	100	1,798.67	32	806.82



Existing and Updates on RE Policy Mechanisms

Net-Metering Rules and Interconnection Standards

- Connection / sale of customers' RE generation to the grid
 - The ERC approved the Net Metering Rules last May 27, 2013
 - Monitored capacity addition were 1.984.41 MWp

Renewable Portfolio Standards (RPS) for Missionary Areas

- Mandated minimum percentage of RE generation
 - For NREB's finalization

Green Energy Option Program

- End-users' option to purchase electricity from RE facilities (open access)
 - For Department of Energy's finalization



Other Existing Policy and Program Support

- **Establishment of the Energy Virtual One-Shared System (EVOSS)**
 - For transparent handling and processing of service contracts issued by the DOE.
 - Streamlining the facilitation of RE applications
 - Fostering strong private-public sector partnership
- **DOE Department Order No. DO2013-10-0018** Adopting The Revised Evaluation Process Flow And Timelines Of Renewable Energy Service Contracts (RESC) And Mandating The Adoption Of The Milestone Approach
- DOE issued a **Department Order No. 2013-12-0019**, Strengthening the Management and Operations of the Affiliated Renewable Energy Centers (ARECs) – **22 Centers established**
- **DOE's Household Electrification Program (HEP)- 968 KW** as of 2015
 - **Department Circular No. DC2014-09-0018**, Prescribing the Policies for the Implementation of the Household Electrification Program and Creating the Household Unified strategic Electrification (house) Team for the Purpose of Achieving the Country's Total Electrification Goals



Other Existing Policy and Program Support

- DOE also issued a **Department Circular No. 2015-07-0014** prescribing the policy for maintaining the share of 30% of RE resources in the country's installed capacity through the wholistic implementation of the pertinent provisions of Republic Act No. 9513 or the RE Act on the Feed-in-Tariff (FIT) System, priority and must dispatch, among others.
- **ERC Resolution No. 07, Series of 2013**, A Resolution Adopting and Approving Addendum to Amendment No. 1 of the Philippine Grid Code (PGC) Establishing the Connection and Operation Requirements for Variable Renewable Energy (VRE) Generating Facilities.
- ERC also resolves that the **Battery Energy Storage System (BESS)** be classified as a new source of Frequency Control Ancillary Services (FCAS), particularly as contingency reserve (primary reserve) and Frequency regulation (secondary reserve).
- Conducted **Open and Competitive Selection Process (OCSP)** for a total of seventeen (17) prospect areas for hydropower were offered, with corresponding 733.4 MW resources potential. While, four (4) prospect areas were offered for geothermal, with a total of 134 MW estimated capacity.



Other Existing Policy and Program Support

RE Resource Assessment

Hydropower Potential Sites- JICA resource inventory result

- 1,413 Sites with potential capacity of 20,599.05 MW
 - Out of the 1,413 Sites, 188 sites is located in Mindanao with a potential capacity of 912.13 MW.

USAID Biomass Resource Inventory Result

- 4,446.54 MWe Potential Power Generation Capacity net of Competing uses (MW)
- 17.26 MtCO₂ Potential GHG emission reduction (tCO₂)

On-going detailed resource assessment of selected Low Enthalpy Geothermal Areas

Detailed Wind Resource Assessment Project launched last February 20, 2015



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	<ul style="list-style-type: none"> •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 	<ul style="list-style-type: none"> •PNS for B20 & E85 by 2020 •DC on B10 and E20 by 2020 	<ul style="list-style-type: none"> •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 (Aspirational target 1,528 MW)
Ocean Power	0	35.5	35	70.5
Total	1,088 MW	5,096 MW	3,746.80 MW	9,931.3 MW



Challenges

- Awareness and social acceptance
- Streamlining of Administrative Process
- Full implementation of Policy Mechanisms under the RE Law



The Way Forward

- **Full implementation of the Renewable Energy Act**
 - *Finalization / Approval of Guidelines on other RE Policy Mechanisms (Renewable Portfolio Standard (RPS), Green Energy Option, etc.)*
 - *Establish Energy Investment Coordinating Center and Linkages with other Government Regulatory Agencies*
 - *Resource Inventory and Establishment of RE Database*
 - *Capacity Building / Information, Education and Communication Campaigns*



Thank you ! ! !

