OVERVIEW OF RENEWABLE ENERGY POLICY IN ASEAN

RE Incentives Workshop

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One Community for Sustainable Energy

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REGIONAL TARGET ON CLEAN ENERGY

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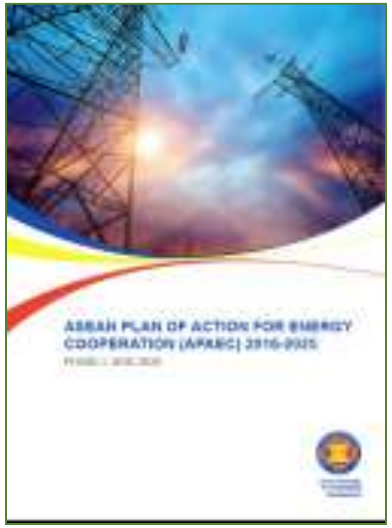
ASEAN Energy Blue Print: APAEC 2016-2025

“Enhancing Energy Connectivity and Market Integration in ASEAN to Achieve Energy Security, Accessibility, Affordability and Sustainability for All”



- ASEAN Power Grid
- Regional Energy Policy & Planning
- Energy Efficiency & Conservation
- Civilian Nuclear Energy
- Trans ASEAN Gas Pipeline
- Renewable Energy
- Coal & Clean Coal Technology

Increase % RE

Renewable Energy:
To increase the component of RE to **23%** by 2025 in ASEAN Energy Mix

Energy Efficiency & Conservation:
To reduce energy intensity (EI) by **20%** in 2020 based on 2005 level

Reduce EI

THE STUDY : ASEAN RE POLICIES

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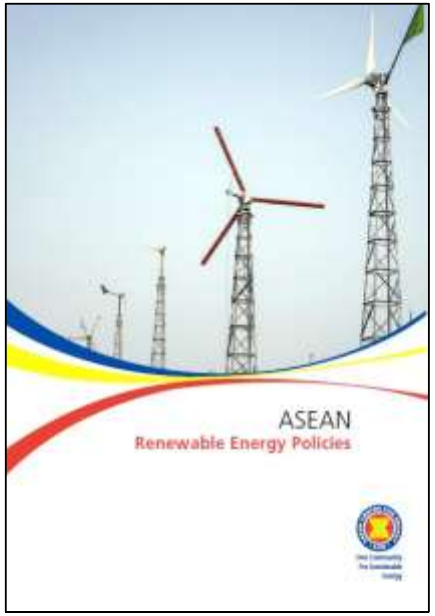

- Published in August 2016
- Review and update the renewable energy policies in 10 ASEAN Member States (AMS).
    - Focus on RE target, tariff, Incentives, Financing Support, Permit & License and Technical Issues
- Analyse the impact of renewable energy policies to renewable energy development in 10 AMS.
- Share information among AMS on RE policy and enhancing awareness on the RE Policy enforcement for boosting RE implementation.
- Provide conclusions & recommendations on future RE Policy development in AMS.

RE TARGET AND SELLING TARIFFS

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AMS	RE Target	Selling Tariffs
Brunei D	**10%** RE share in electricity capacity by 2035	**N/A**
Cambodia	**927 MW (2017)**	**N/A**
Indonesia	**23%** NRE share in energy mix by 2025	Geothermal; Solar; Biomass; Biogas; MSW; Hydro; Wind (2017)
Lao PDR	**30%** RE share in total energy consumptions by 2025	**N/A**
Malaysia	**2 GW (exclude large hydro) and 4 GW** RE installed capacity by 2030	Geothermal; Solar; Biomass; Biogas; Hydro
Myanmar	**27% Installed Capacity (2030)**	**N/A**
Philippines	**15 GW** installed capacity by 2030	Solar; Biomass; Hydro; Wind
Singapore	**350 MW** installed capacity of solar by 2020	Solar
Thailand	**30%** AE share in total energy consumption by 2036	Solar; Biomass; Biogas; WTE; Wind; Hydro
Vietnam	**21% Installed Capacity (2030)**	Biomass; Wind; WTE; Hydro; Solar (2017)

INCENTIVE AND FINANCING SUPPORT

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AMS	Incentive	Financing Support
Brunei D	**N/A**	**N/A**
Cambodia	**N/A**	grant assistance
Indonesia	tax exemption, accelerated depreciation, import duty exemption	lower interest rates
Lao PDR	import duty free and tax exemption	wide loan access
Malaysia	tax incentives and accelerated depreciation	collateral guarantee and lower interest rates
Myanmar	**N/A**	**N/A**
Philippines	tax exemption, import duty free and accelerated depreciation	preferential financial package
Singapore	tax exemption	grant assistance
Thailand	tax and import duty exemption	fund assistance
Vietnam	tax exemption and reduced land fee	grant assistance

PERMIT & LICENCE AND TECHNICAL ISSUE

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AMS	Permit & Licence	Technical Issue
Brunei D	**N/A**	**N/A**
Cambodia	Electricity Law 2001	Grid Code 2009 but specific for RE
Indonesia	One-Stop Service at Investment Coordinating Board	Guidelines for Connecting RE Generation by PLN
Lao PDR	needed socio-economic and environmental approval	> 15 MW of hydro
Malaysia	RE Act 2011 and 2013	SEDA Act 2011
Myanmar	**N/A**	**N/A**
Philippines	energy one-shared system	grid connection of wind and solar
Singapore	grid-connected solar systems of 1 MW or above	Handbook of Solar PV
Thailand	Energy Regulatory Commission	Codes of Practice for solar and biomass
Vietnam	Power Operation Licence	grid connection codes

RE POLICY VS RE DEVELOPMENT - THAILAND

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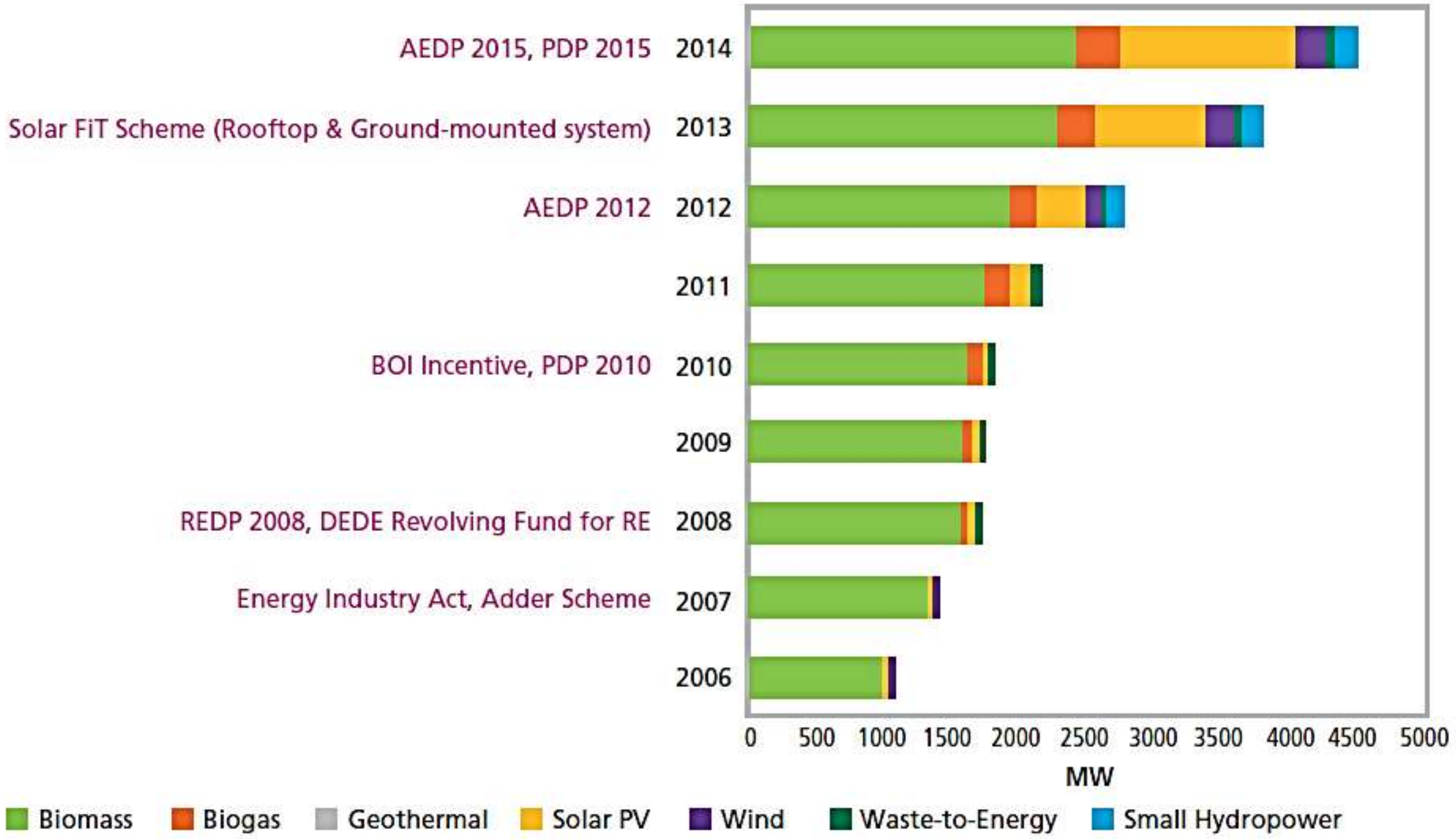

RE POLICY VS RE DEVELOPMENT - INDONESIA

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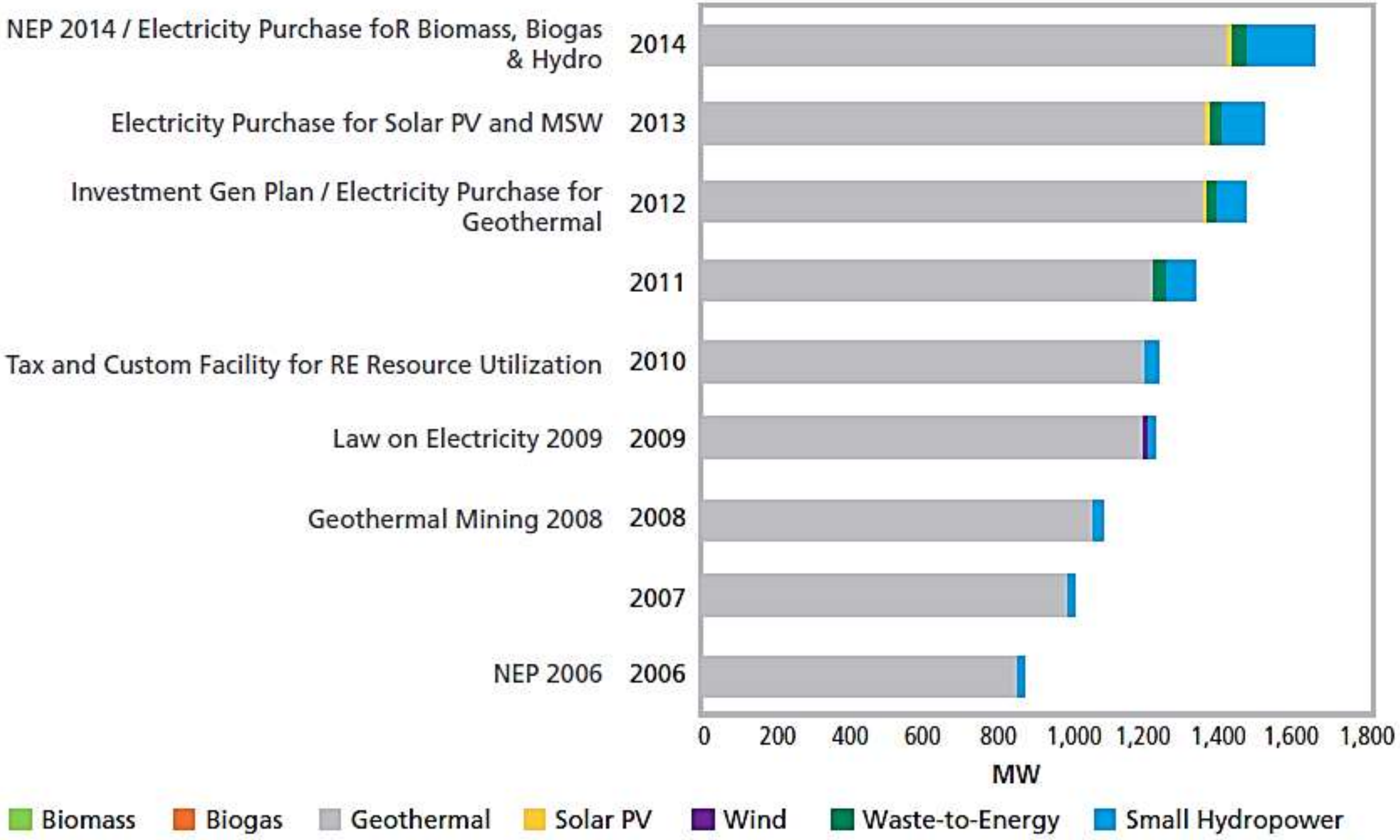

SUMMARY OF RE POLICY IMPACTS ON RE DEVELOPMENT

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	No. of Policy instruments used	RE dev. (MWe capacity) – 2014	Comments
Brunei	1	1	Very early stage of RE policy implementation
Cambodia	2	30.2	Very few policies implemented
Indonesia	5	2835.6	A mature range of policies covering a variety of technologies. Main focuses are biomass and geothermal due to availability.
Laos	2	80.9	Few RE specific policies implemented. Focus on hydro .
Malaysia	6	1276	Key policies have only recently been introduced (2011). Since 2011 RE implementation seems to be on the up.
Myanmar	0	34	Very few policies implemented
Philippines	6	2380	The largest proportion of RE is from old geothermal plants (1980s). Since the FiT introduction in 2010, RE implementation seems to have been stimulated.
Singapore	5	289.8	Mature range of policies with a focus on WTE and PV; however the lack of an attractive FiT seems to have hindered RE implementation
Thailand	6	4493.5	A mature range of policies covering a variety of technologies
Vietnam	6	2514.1	Hydro and wind power focused; policies for implementing other RE are recently promulgated

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CHALLENGES IN ANALYSING THE IMPACT OF RE POLICIES ON RE PROJECT DEVELOPMENT

Data gathering and updating

- Difficulty in searching/obtaining of RE policies.
- Multiple governing bodies producing RE policies.
- Several policy documents are only available in local language.
- All countries work in a different ways in regards to displaying their policies.
- Part of RE policy may be included in broader national energy/electrification policies

RE Policy Impact Analysis

- Time lapse between the implementation of the policy and the market reaction.
- Each country's policies are at different stages and level of maturity.
- Some countries have had RE policies for more than 20 years.
- Some have just developed their policies and others are still working on them.

RECOMMENDATION

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Entry Level Country Requirements

- Capacity building for:
  - Financial institutions/banks,
  - Technical specialists,
  - Local community/end-users.
- Demonstration projects.
- Tax/fiscal incentives for international investors.
- International donor funding programmes.
- Rural development and electrification.
- Data/experience exchange with similar and more advanced countries.

RECOMMENDATION

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Intermediate Level

- Resource mapping
- RE project site identification and mapping
- Specific technical training
- Set up of a RE fund
- Carbon taxes
- Private sector capacity building and training.

Advanced Level

- Realistic and appealing financial/tax incentives
- Detailed, technology specific and regularly updated FiT
- Set up of clear and straight forward permits and licences for RE generators.

Thank you.

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