Coordinating Ministry for Economic Affairs
Republic of Indonesia

GoI's Policy on Renewable Energy Development

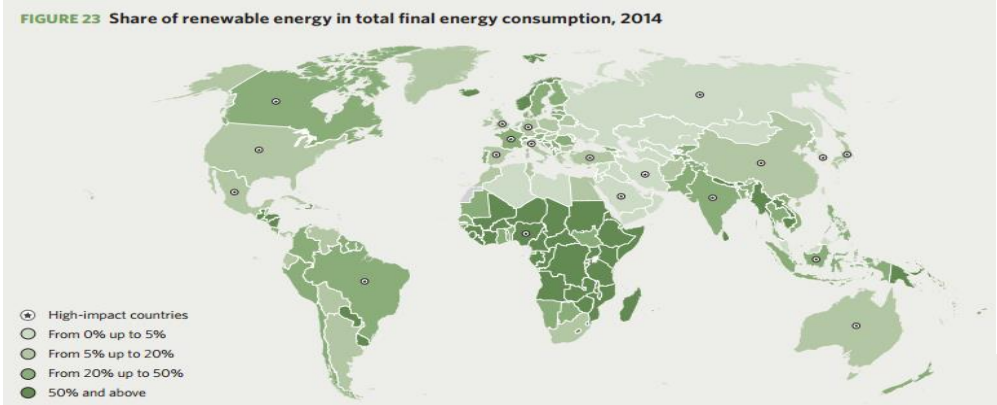
October 24, 2017

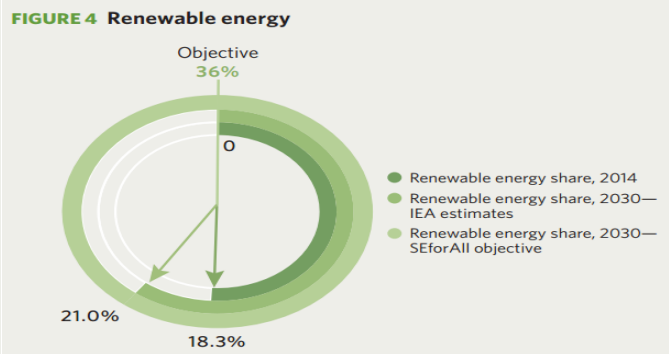
Outline

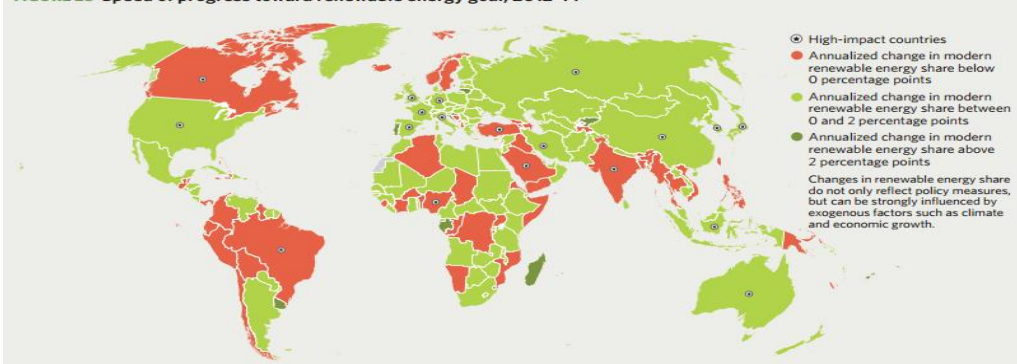
1. Renewable Energy General Overview
2. Renewable Energy Policy Development in Indonesia
3. Challenges and Follow Up Measures

Renewable Energy
General Overview

Global Achievement on Renewable Energy





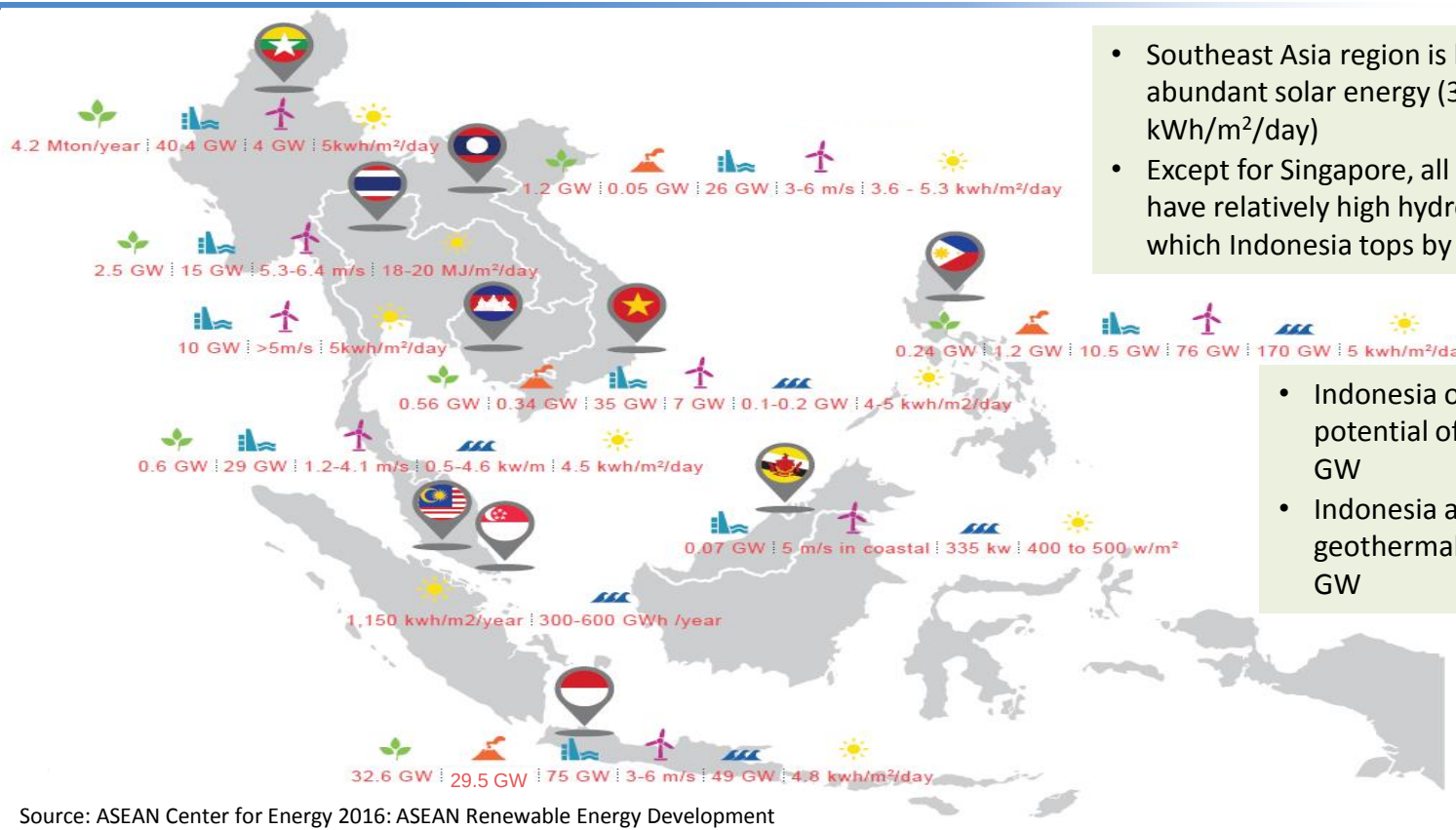


In 2014, global renewable energy proportion slightly increased to 18.3%.

The biggest challenge is there are only a small number of countries which successfully made significant progress toward global renewable energy goal (36% in 2030).

Source: Global Tracking Framework 2017- Progress Toward Sustainable Energy

ASEAN Countries' Renewable Energy Potential (2014)

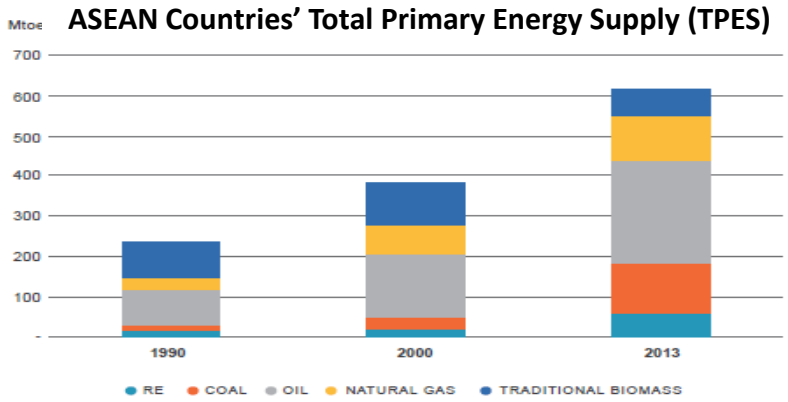


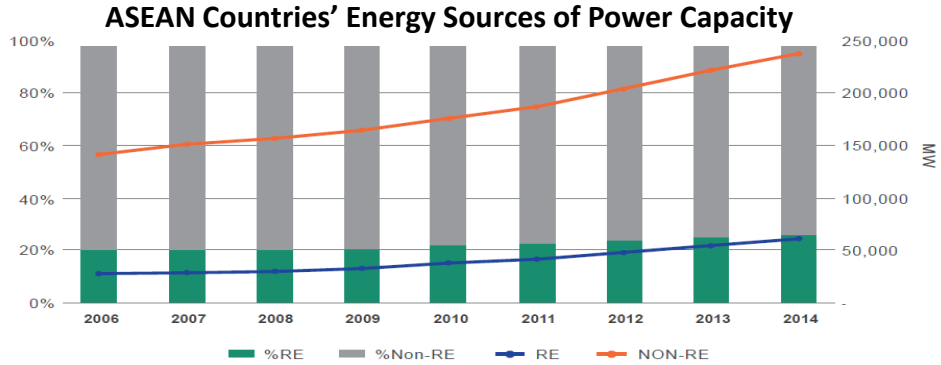
- Southeast Asia region is blessed with abundant solar energy (3.6 to 5.3 kWh/m^2/day)
- Except for Singapore, all ASEAN countries have relatively high hydropower potential, which Indonesia tops by 75 GW

- Indonesia owns the biggest potential of biomass with 32.6 GW
- Indonesia also has the biggest geothermal potential with 29.5 GW

Source: ASEAN Center for Energy 2016: ASEAN Renewable Energy Development

ASEAN's Regional Achievement on Renewable Energy





Source: ASEAN Center for Energy 2016: ASEAN Renewable Energy Development

- ASEAN energy mix still relies heavily on fossil fuels (oil, coal, and natural gas)
- In 2013, 9.1% of ASEAN total primary energy supplied by different RE sources and the remainder supplied by traditional biomass
- The role of RE in TPES has been significantly increasing from 18 Mtoe in 2000 to 56 Mtoe in 2013
- The contributions of RE sources in 2014 were from hydro (81%); biomass (7%); geothermal (6%); solar (3%) and other RE sources (3%)
- Vietnam had increased renewable power capacity up to 12 GW in 2006-2014, much higher than average of other countries about 1.76 GW

Indonesia's Renewable Energy Potential

Hydro, Mini/Micro Hydro
Potential: 75 GW
Utilized: 5.29 GW ***(7.07%)***

Solar
Potential: 207.08 GWp
Utilized: 0.09 GWp ***(0.04%)***

Wind
Potential: 60.6 GW
Utilized: 1.1 MWp ***(0.02%)***

Geothermal
Potential: 12.3 GW (Resources), 17.2 GW (Reserve)
Utilized: 1.64 GW ***(5.6%)***

Bioenergy/Biomass
Potential: 32.6 GW
Utilized: 1.78 GW ***(5.5%)***

Tidal/Wave
Potential: 17.9 GW
Utilized: 0 GW ***(0%)***

Source: DG NRE and Energy Conservation MEMR

TOTAL RE POTENTIAL: 443.2 GW
UTILIZED: 8.8 GW (2%)

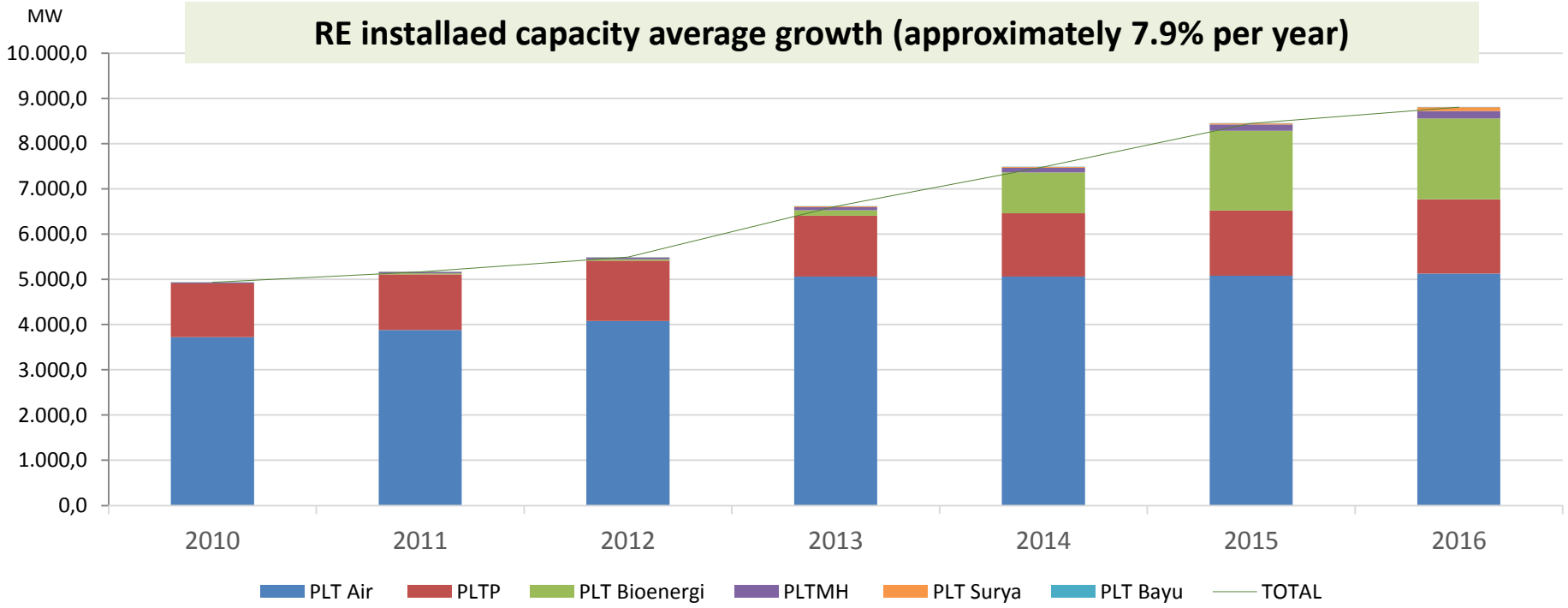
FOSSIL ENERGY

Proven reserve:
- Oil : 3.6 billion barrel
- Gas : 100.3 TSCF
- Coal : 7.2 billion tonnes

Production:
- Oil : 288 million barrel
- Gas : 2.97 TSCF
- Coal : 434 million tonnes

Expected to be run out in:
- Oil : **13 years**
- Gas : **34 years**
- Coal : **16 years**

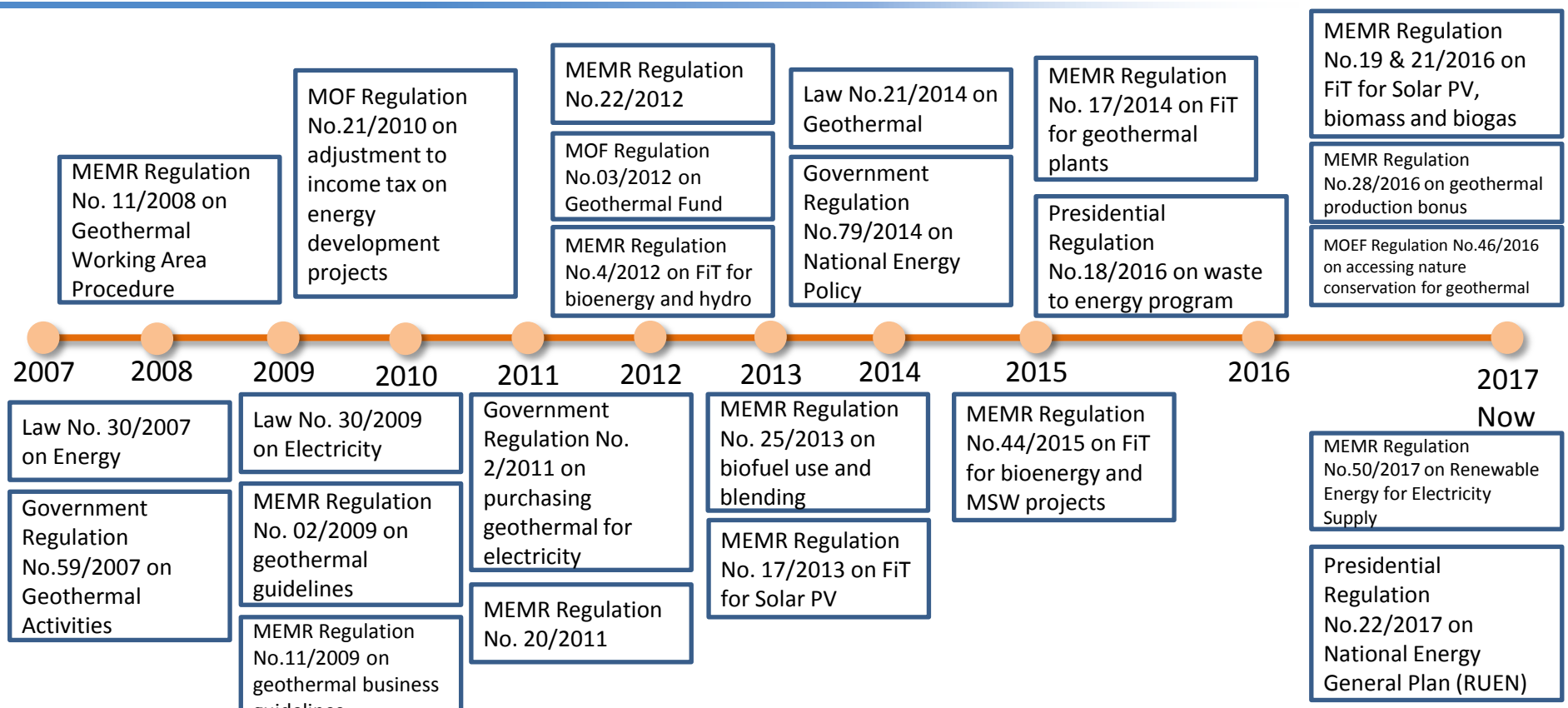
Indonesia's Current Installed Capacity



Source: DG NRE and Energy Conservation MEMR

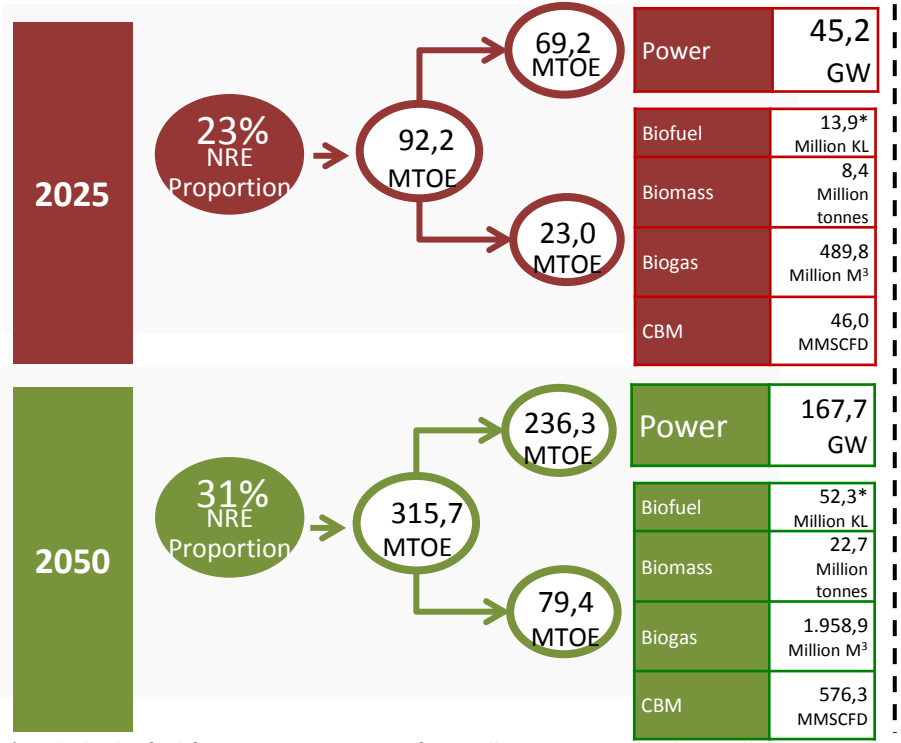
Renewable Energy Policy Development in Indonesia

Renewable Energy Policy Development in Indonesia



New and Renewable Energy Target

PROGRAM



* Excludes biofuel for power generation of 0.7 million KL in 2025 and 1.2 million KL in 2050

ACTIVITY

1. Building NRE Power Plant:

Type of PP(MW)	2025	2050
Geothermal	7.239	17.546
Hydro	20.960	45.379
Bioenergy	5.532	26.123
Solar	6.379	45.000
Wind	1.807	28.607
Other NRE	3.128	6.383

(MEMR)

2. Form new NRE managing body **(MSOE)**
3. Allocating feed-in tariff subsidy for NRE Power Plants **(MEMR)**
4. Gradually provide 4 million hectares of land to meet the need for biofuel raw materials to produce 15.6 million kl of biofuel **(MAASP)**
5. Prepare the roadmap for priority plant species of biofuel raw materials and prepare the plant seeds by maintaining food security **(MoA)**
6. Meet the minimum biofuel production target of 15.6 million kl in 2025 and 54.2 million kl in 2050 **(MEMR)**
7. Develop roadmap for biogas development and meet production target of 47.4 mmscfd by 2025 **(MEMR)**
8. Assign BUMN/BLU to develop PLTP **(MEMR)**
9. Assign a state-owned enterprise for the production and purchase of biofuel **(MEMR)**
10. Strengthening R&D in NRE sector **(MRTHE)**
11. Preparing geothermal and water resources spots in conservation and protected forest areas **(MoEF)**
12. Develop guidelines to encourage potential energy subsidies from Local Governments **(MoHA)**

Source: DG NRE and Energy Conservation MEMR

Nationally Determined Contribution (NDC) on Energy Sector

- Ratification of Paris Agreement through Law No. 16/2016, promulgated October 25, 2016
- The endorsement document was submitted to UNFCCC on November 6, 2016
- NDC Indonesia (29% mitigation by 2030)
- Unconditional Target (own capability): 314 Million Tonnes CO2 (11%)

Item	Cost (Trillion IDR)		Emission Reduction (Million Tonnes CO2)	
NRE for Electric Power	1445	26.3%	156.6	49.9%
NRE for Other Purpose	84	1.5%	13.8	4.4%
High Efficiency Power Plant	3854	70.1%	31.8	10.1%
Energy Conservation	92	1.7%	96.3	30.7%
Fuel Switching	17	0.3%	10.0	3.2%
Land Reclamation	4	0.1%	5.5	1.7%
Total	**5496**		**314.0**	

Source: DG NRE and Energy Conservation MEMR

35.000 MW + 7.000 MW Projects 2016-2019 (as in PT PLN's RUPTL)

NO	TYPE OF POWER PLANT	35 GW PROGRAM	7 GW PROGRAM	TOTAL CAPACITY 2016-2019 (MW)	% CAPACITY
		CAPACITY (MW)	CAPACITY (MW)		
1	Hydro PP	454,0	200,0	654,0	1,52
2	Wind PP	180,0	0	180,0	0,42
3	Biomassa PP	30,0	0	30,0	0,07
4	Gas PP	2.043,0	0	2.043,0	4,74
5	Steam Gas PP	7.485,0	30,0	7.515,0	17,42
6	Steam Gas/Machine Gas PP	2.150,0	0	2.150,0	4,98
7	Micro Hydro PP	475,0	74,13	549,13	1,27
8	Machine Gas PP	1.330,0	539,0	1.869,0	4,33
9	Geothermal PP	725,0	650,0	1.375,0	3,19
10	Solar PP	2,0	0	2,0	0,00
11	Coal PP	19.713,0	6018,5	25.732,0	59,65
12	Pump Storage	1.040,0	0	1.040,0	2,41
Total (MW)		**35.627**	**7.512**	**43.139**	**100**

Source: DG NRE and Energy Conservation MEMR

NRE Capacity

3.830 MW (9%)

Challenges and Follow Up Measures

NRE Development Challenges

- Setting NRE not as an alternative
- The importance of technology innovation
- The importance of partnership, i.e. for *Capacity Building*
- Business model and attractive incentives
- Network interconnection system

All Parties Required to be Actively Participating in NRE Development

GOVERNMENT

- Develop regulations and policies
- Facilitator
- Provide coaching and supervision
- Implementing the NRE development program
- Dissemination of NRE program information

BUSINESS

- Conduct NRE exploitation
- Produce NRE
- Contribute to state revenues and economic activities

ACADEMICS

- Developing R & D sector
- Technology innovation (reverse engineering - reducing dependence on foreigners)
- Recommendation of technical regulations / standards
- Capacity building

COMMUNITY

- Encourage the NRE utilization
- As beneficiaries, contribute in maintaining the sustainability NRE
- Contribute to dissemination of information on NRE utilization

Follow Up Measures on Renewable Energy in Indonesia

With the trend of RE growth in the last 5 years, government needs strategic measure and program, as follow:

1. Socialization to have same level of perception with other stakeholders in developing RE
2. Promoting priority development, such as:
   - Short term (1-3 years): promoting bioenergy power plant, solar pv power plant, and wind power plant;
   - Long term (4-7 years): promoting geothermal power plant, and hydro power plant
3. Providing transmission line, using state budget and/or PLN's budget
4. Providing incentive and ease of doing business for RE project
5. Implementing MEMR Regulation No.50/2017

Coordinating Ministry for Economic Affairs
Republic of Indonesia

Thank You