Ministry of Energy and Mineral Resources

"Bioenergy in Indonesia: Rules and Implementations"

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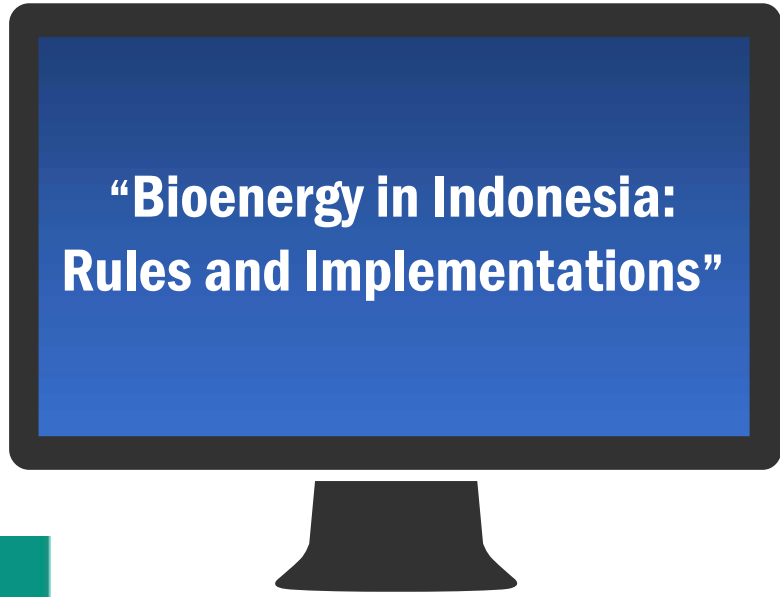
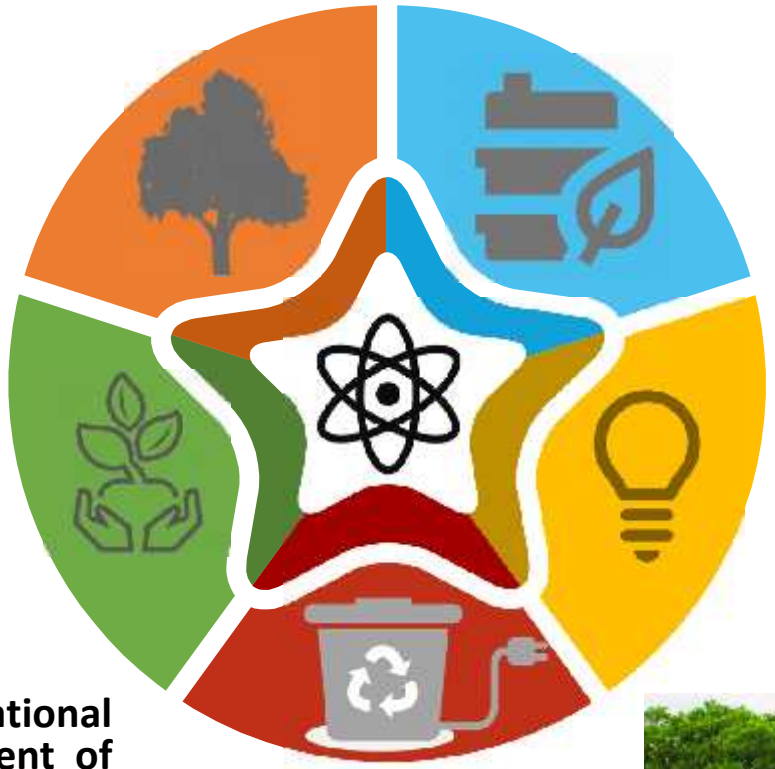


01

BIOENERGY PROGRAM & REGULATIONS

MAIN VISION IN BIOENERGY DEVELOPMENT

Increasing the sustainability supply of bioenergy feedstock through development of energy farms/forest



Increasing the use of biofuel as a fossil fuel substitution

Developing bioenergy based power plant (as based load)

Increasing contribution to national economy through development of bioenergy industries

Utilization of organic waste as source of energy

POLICIES AND REGULATIONS FOR BIOENERGY

01 **LAW NO. 30/2007**
On Energy.

02 **GOVERNMENT REGULATION NO. 79/2014**
on National Energy Policy

03 GOVERNMENT REGULATION NO. 24/2015
on Collection of Plantation Fund

04 PRESIDENTIAL REGULATION NO. 22/2017
on General Planning for National Energy.

06 **PRESIDENTIAL REGULATION NO. 35/2018**
on the Accelerated Construction of Waste-Processing Electrical-Energy Installations Based on Environmentally Friendly Technologies.

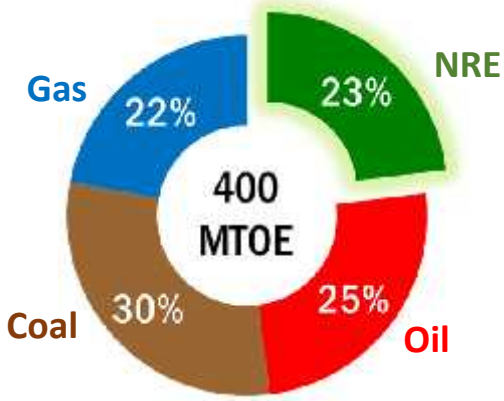
06 **PRESIDENTIAL REGULATION NO. 66/2018**
on Collection and Utilization of the Palm Oil Plantation Fund.

07 **MEMR REGULATION NO. 12/2015**
on Biofuel Supply, Utilization and Trading as An Alternative Fuels.

08 **MEMR REGULATION NO. 41/2018**
Provision and Utilization of Biodiesel in the Financing Framework of the Indonesian Oil Palm Estate Fund.

RENEWABLE ENERGY TARGET

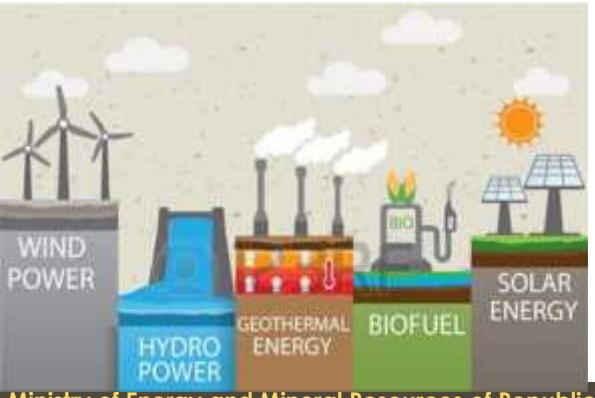
PRIMARY ENERGY MIX
@ 2025



Based On:

- Government Regulation No. 79/2014 on National Energy Policy
- Presidential Regulation No. 22/2017 on General Plan of National Energy

Bioenergi Power Plant 5.5 GW



23 % NRE → 92.2 MTOE

69.2 MTOE	Electricity 45.2 GW
23.0 MTOE	Biofuel 13.8 M KL
	Biomass 8.4 M ton
	Biogas 489.8 M M3
	CBM 46.0 MMSCFD

02

BIOENERGY for POWER GENERATION

BIOMASS POTENTIAL FOR ELECTRICITY

No	Potential	Sumatera	Kalimantan	Jamali	Nusa Tenggara	Sulawesi	Maluku	Papua	Total (Mwe)
1	Palm oil	8,812	3,384	60	-	323	-	75	12,654
2	Sugar cane	399	-	854	-	42	-	-	1,295
3	Rubber	1,918	862	-	-	-	-	-	2,781
4	Coconut	53	10	37	7	38	19	14	177
5	Rice husk	2,255	642	5,353	405	1,111	22	20	9,808
6	Corn	408	30	954	85	251	4	1	1,733
7	Cassava	110	7	120	18	12	2	1	271
8	Wood	1,212	44	14	19	21	4	21	1,335
9	Cow dung	96	16	296	53	65	5	4	535
10	MSW	326	66	1,527	48	74	11	14	2,066
Total potential		**15,588**	**5,062**	**9,215**	**636**	**1,937**	**67**	**151**	**32,654**

Based on MEMR survey 2013

ELECTRICITY TARIFF FOR BIOENERGY POWER PLANT

NO	BIOENERGY POWER PLANT	PURCHASING MECHANISM	TARIFF (Based on MEMR Regulation No. 50/2017)	
			Regional Electricity Generation Cost (Regional BPP) > Avarage of National Electricity Generation Cost (National BPP)	Regional Electricity Generation Cost (Regional BPP) < Avarage of National Electricity Generation Cost (National BPP)
1	Biomass (PLTBm)	Direct Selection	Maximum 85% x Regional BPP	Agreement between parties
2	Bogas (PLTBg)	Direct Selection	Maximum 85% x Regional BPP	Agreement between parties
3	MSW (PLTSa)	Direct Appointment (based on local government auctions)	Maximum 100% x Regional BPP	Agreement between parties (Apply for Sumatera, Java and Bali)

ELECTRICITY TARIFF FOR ACCELERATION PROJECT OF MSW POWER PLANT (Based On Presidential Regulation No. 35/2018)				
		PURCHASING MECHANISM	Capacity ≤ 20 MW	Capacity > 20 MW
4	MSW (PLTSa)	Direct Appointment (based on local government auctions)	US$ 13.35 cent / kWh	= 14.54 – (0.076 x contract capacity)

INSTALLED CAPACITY OF BIOENERGY POWER PLANT

TOTAL: 1857.5 MW

BIOENERGY POWER PLANT

ON GRID: 213.6 MW

- **EXCESS POWER: 163.4 MW**
- **IPP: 50.2 MW**

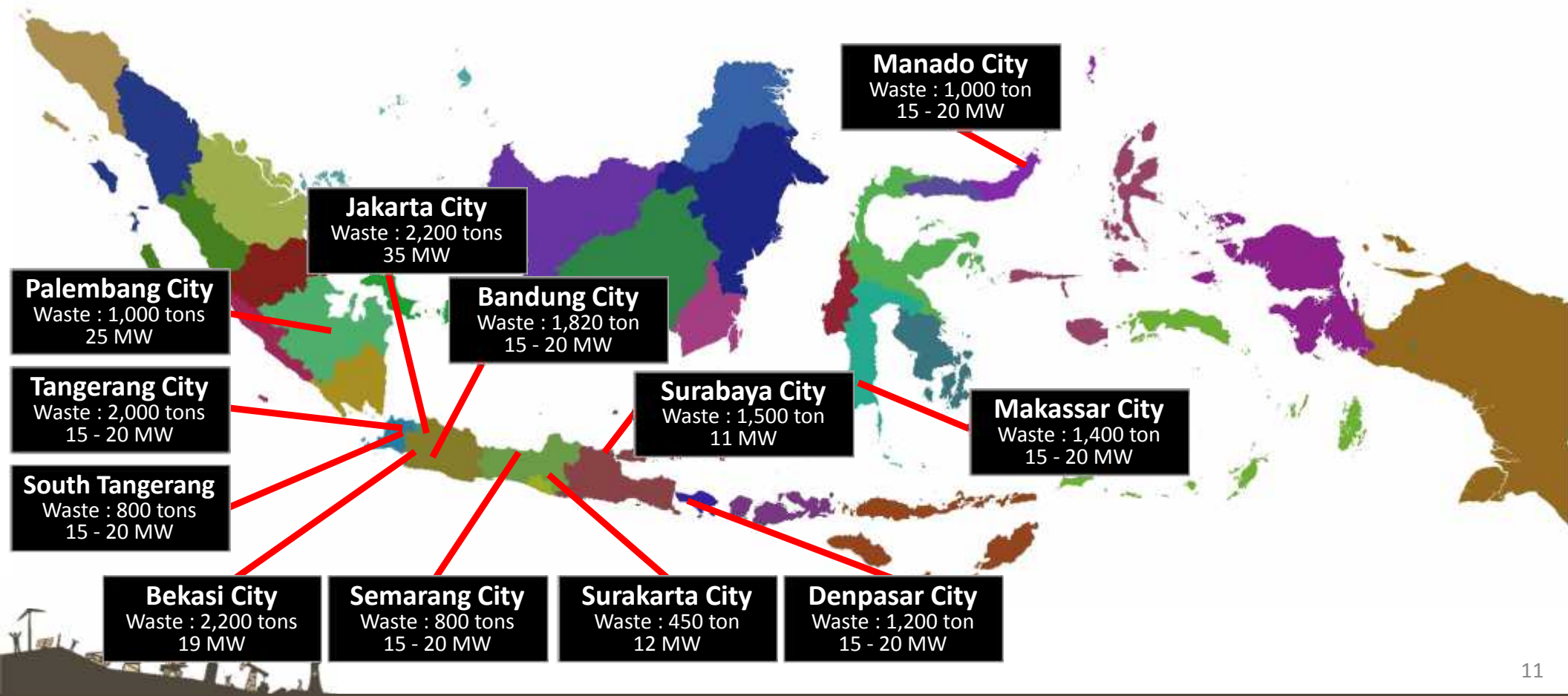
OFF GRID: 1643.9 MW

ON GRID: 213.6 MW

- **PALM WASTE: 139 MW**
- **POME: 22.8 MW**
- **BAGASSE: 7 MW**
- **OTHERS: 213.6 MW**

NO.	FEEDSTOCK / INDUSTRY	CAPACITY (MW)
1	PALM WASTE	460.9
2	POME	9
3	SUGAR CANE INDUSTRY	219
4	PULP & PAPER INDUSTRY	955
TOTAL		1643.9

LOCATION OF WASTE TO ENERGY ACCELERATION PROJECT



03

BIOFUEL DEVELOPMENT

Biofuel Blending Mandatory

Biodiesel Mandatory Roadmap				
Sectors	April 2015	Jan 2016	Jan 2020	Jan 2025
Micro Business, Fishery, Agriculture, Transportation and Public Services (PSO)	15%	20%	30%	30%
Transportation (Non PSO)	15%	20%	30%	30%
Industrial and Commercial Business	15%	20%	30%	30%
Electricity Generation	25%	30%	30%	30%

Bioethanol Mandatory Roadmap				
Sectors	April 2015	Jan 2016	Jan 2020	Jan 2025
Micro Business, Fishery, Agriculture, Transportation and Public Services (PSO)	1%	2%	5%	20%
Transportation (Non PSO)	2%	5%	10%	20%
Industrial and Commercial Business	2%	5%	10%	20%

Based on Ministry of Energy Mineral Resources Regulation No. 12/2015

B20 IMPLEMENTATION FOR PSO SECTORS

STARTED:
January 2016

B20 FOR PSO SECTORS ARE SUPPORTED BY:

1. Performance test
2. Incentive from CPO Fund
3. Sufficient production capacity
4. Quality/Quantity Monitoring
5. National standard

EXPANSION OF B20 IMPLEMENTATION

THE GOALS

- MAINTAIN THE CURRENT ACCOUNT DEFICIT
- SAVE FOREIGN EXCHANGE EXPENSES
- REDUCE DIESEL FUEL IMPORTS
- BOOST DOMESTIC BIODIESEL CONSUMPTION

THE MEASURES

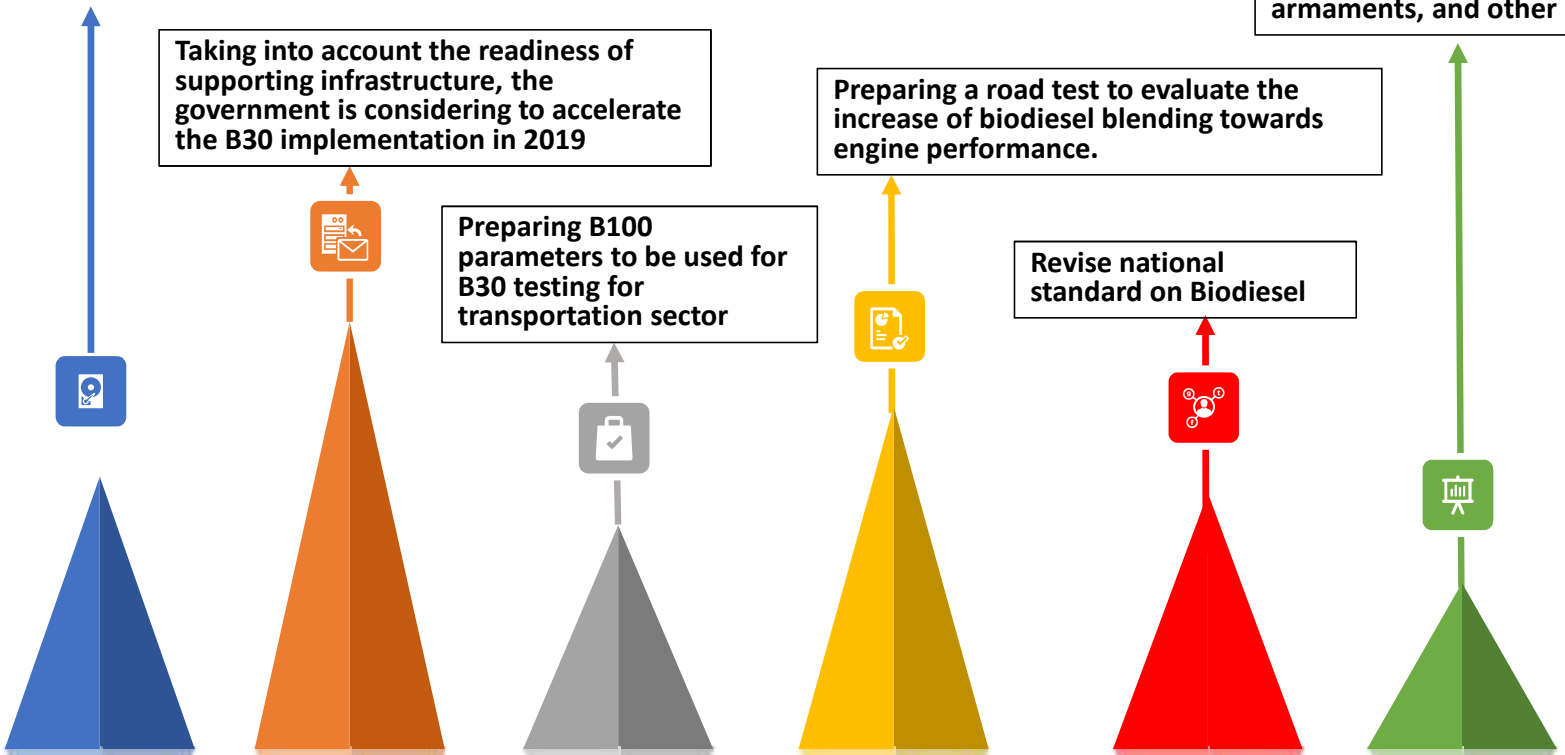
Expands the use of biodiesel to All related sectors

Started on 1st September 2018, all related sectors are compulsory to use B20 (PSO and Non-PSO sectors).

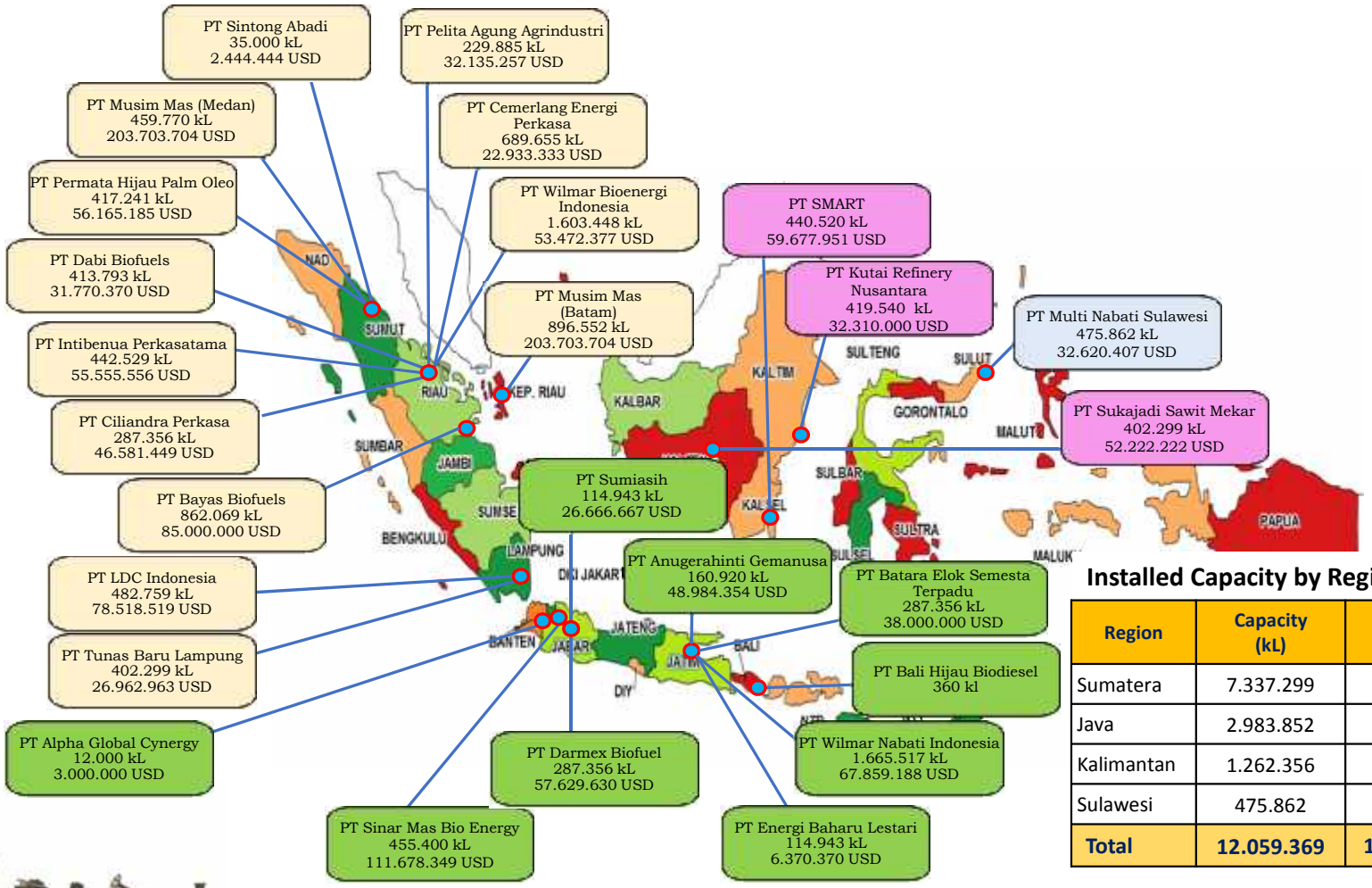
Widens the incentives to Non-PSO sectors

The CPO Fund will cover the price gap between biodiesel and petroleum-based diesel fuel.

B30 PREPARATION



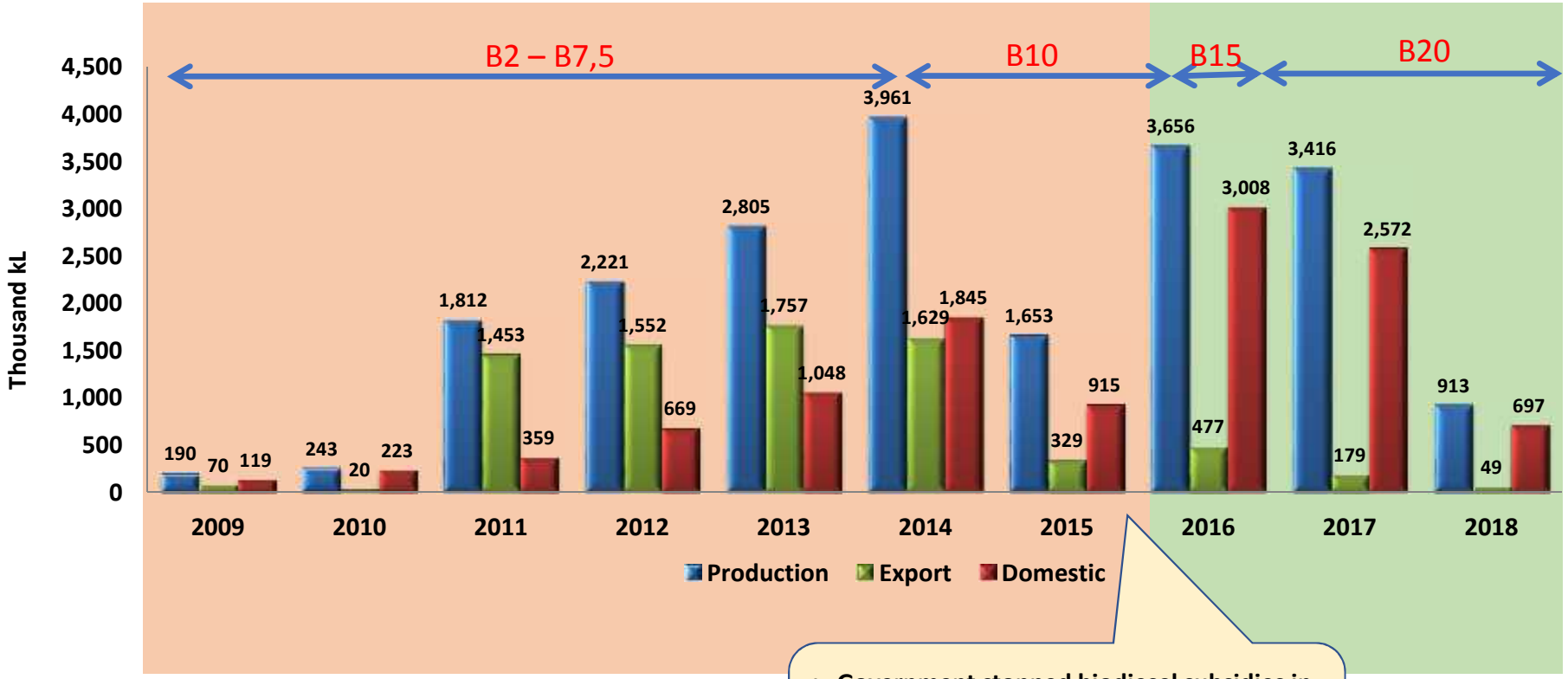
Distribution of Biodiesel Producers



Installed Capacity by Region

Region	Capacity (kL)	Investment (USD)
Sumatera	7.337.299	721.909.824
Java	2.983.852	353.818.187
Kalimantan	1.262.356	91.987.951
Sulawesi	475.862	32.620.407
Total	**12.059.369**	**1.200.336.369**

Biodiesel Utilization



- Government stopped biodiesel subsidies in the state budget revision in 2015
- Incentive from IECF for Palm Oil is effectively applied in August 2015

Remarks:

State budget subsidy

Incentives from IECF for Palm Oil

INDONESIAN BIODIESEL EXPORTS TO VARIOUS COUNTRIES

NO.	COUNTRY	VOLUME				
		2014	2015	2016	2017	2018
1	USA	199,362	220,854	371,926		
2	AUSTRALIA	49,657	4,905			
3	TAIWAN		100			
4	PERU		16,000			42,000
5	PANAMA		16,000			
6	SPAIN	104,165	28,000	23,000	130,992	205,844
7	UNITED KINGDOM			7		
8	BELGIUM			3		
9	ITALY			20,000	25,000	39,821
10	MALAYSIA	128,598			7,000	
11	SINGAPORE	70,250				
12	CHINA	850,777				50,200
13	PHILIPPHINE	60				
14	GIBRALTAR	14,499				
15	JAPAN	90				
16	VIETNAM				2	
17	INDIA					4,290
18	NETHERLAND					76,760
TOTAL (M3 TONS)		1,417,458	285,859	414,935	162,994	418,915
TOTAL (KL)		1,629,262	328,573	476,937	187,350	481,511

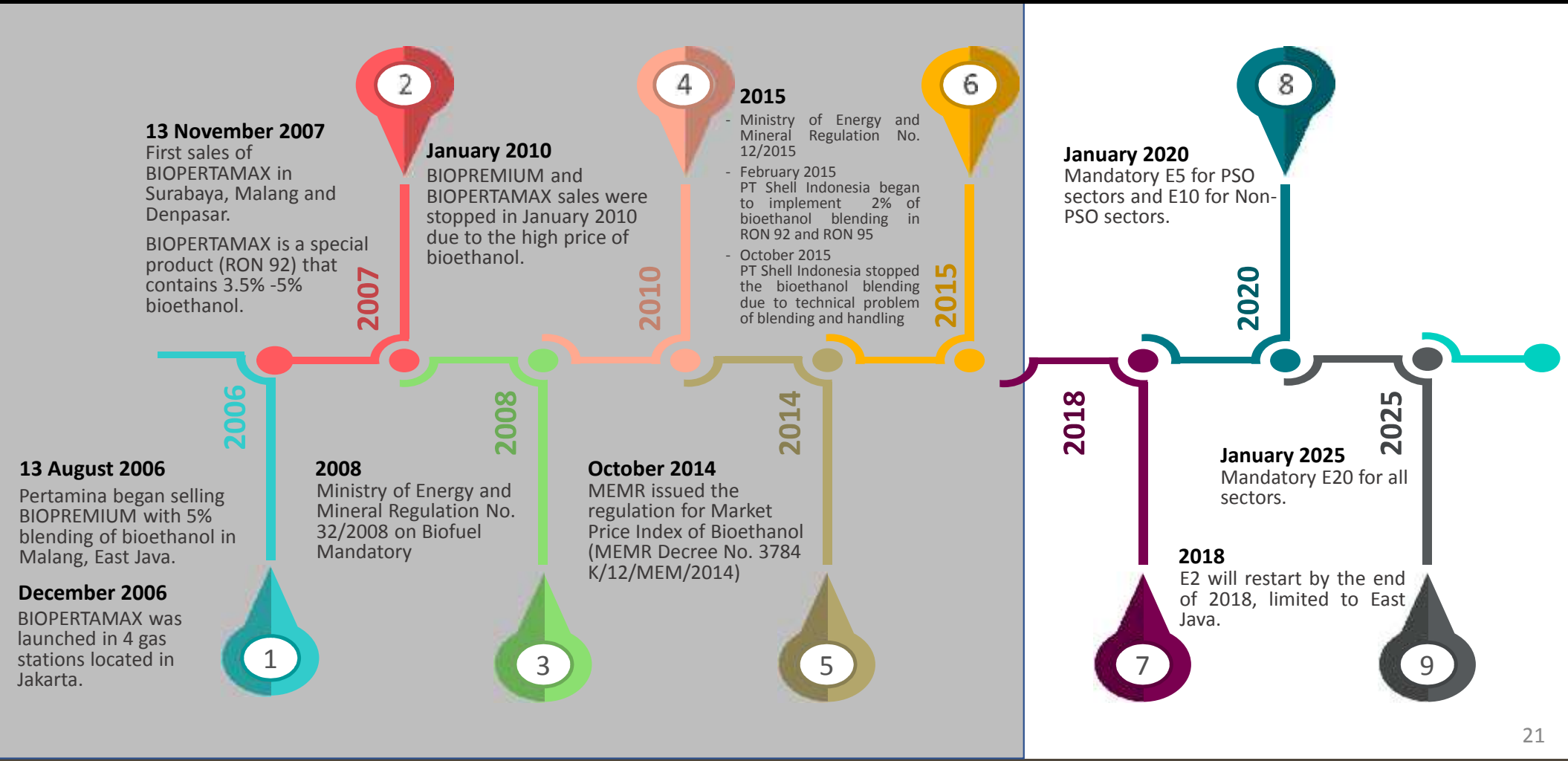
Indonesian Sustainable Palm Oil (ISPO)

The Indonesian Sustainable Palm Oil (ISPO) system is a policy adopted by the Ministry of Agriculture on behalf of the Government of Indonesia with the aim to improve the competitiveness of the Indonesian palm oil on the global market and contribute to the objective set by the President of the Republic of Indonesia to reduce greenhouse gases emissions and draw attention to environmental issues.

7 PRINCIPLES OF ISPO

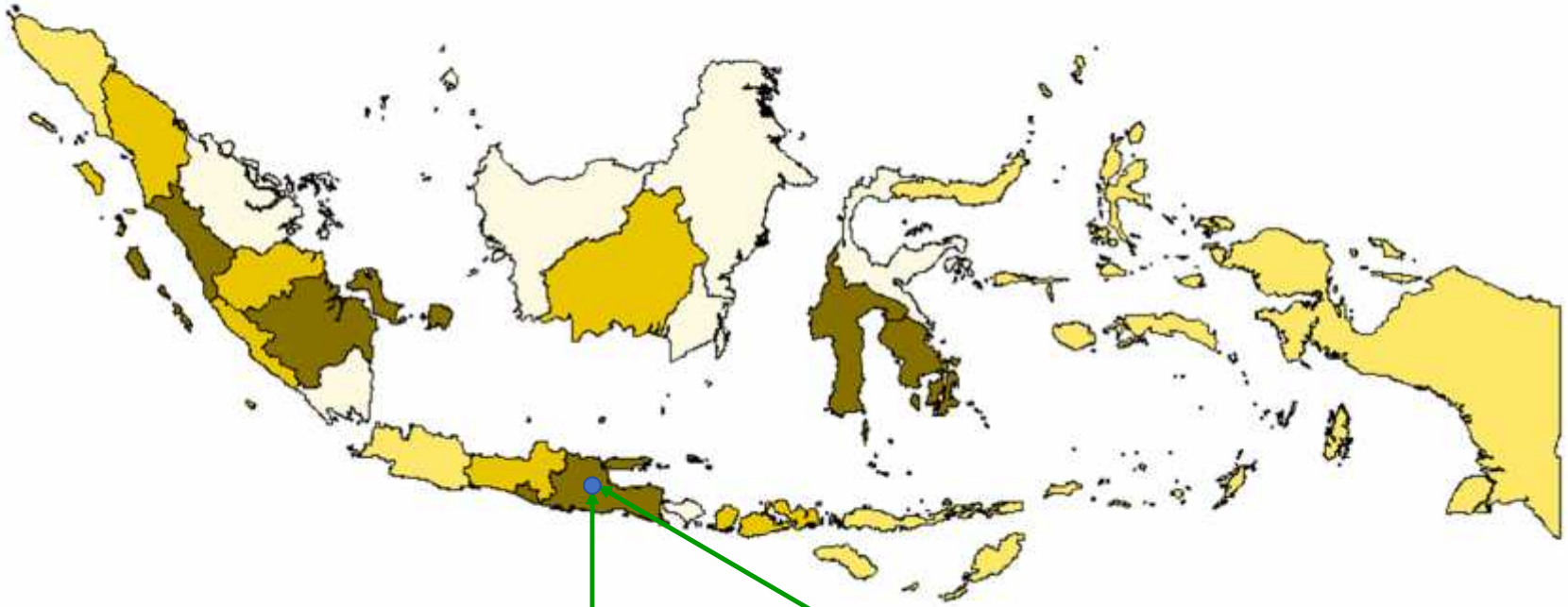
- According to the Ministry of Agriculture, as of August 2017, the number of oil palm plantations that have received ISPO certificates is 306 companies, 1 independent farmer cooperative and 1 group of plasma farmers.
- This is equivalent to 16.7% of the total area of national palm oil (11.9 million hectares) or 8.1 million tons of palm oil from a total of 35 million tons of national palm oil production.
- There are 350 companies in the certification process.

The Journey of Bioethanol Implementation



The National Existing Bioethanol Producers

Total Capacity: 40.000 kL/Year



04

CLOSING REMARKS

CONCLUSION

01 Create Market

- Biofuel Mandatory Program
- Require PT PLN (Persero) to buy electricity from RE source
- Accelerate Waste to Energy Program in 12 cities

02 Pricing Policy

- Regulates the selling price of electricity from renewable energy purchased by National Electricity Company;
- Regulate market price index for biofuel

03 Incentives

- Fiscal Incentives
- Non-Fiscal Incentives, including simplifying permits and procedures

04 R & D

- R&D on advanced biofuel/second generation of biofuel, including bioavtur;
- Collaborate with related stakeholder (Ministry of Environment and Forestry, Research and Development Agency of MEMR and others) to ensure the sustainability of feedstock

05 Standard and Specification

To maintain quality and protect consumers, government provides Standard for Biofuel, Biomass, Guidelines for Handling and Storing Biofuels (B100 & BXX) for domestic market.

THANK YOU