



MINISTRY OF ENERGY AND MINERAL RESOURCES OF THE REPUBLIC OF INDONESIA
DIRECTORATE GENERAL OF NEW, RENEWABLE ENERGY AND ENERGY CONSERVATION



INDONESIA BIOFUEL DEVELOPMENT

Biomass Conversion Technology for Transport

Delivered By:

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Regional Workshop on Overcoming Critical Bottlenecks to Accelerate Renewable Energy Deployment in ASEAN+6 Countries
Bangkok, Thailand, 14-15 June 2016





OUTLINE

- I. NATIONAL ENERGY POLICY**
- II. POLICY AND IMPLEMENTATION OF BIOFUEL
MANDATORY PROGRAM**
- III. IMPLEMENTATION OF B-20**
- IV. GOV SUPPORT, CHALLENGING ISSUES, AND MOVE
FORWARD**



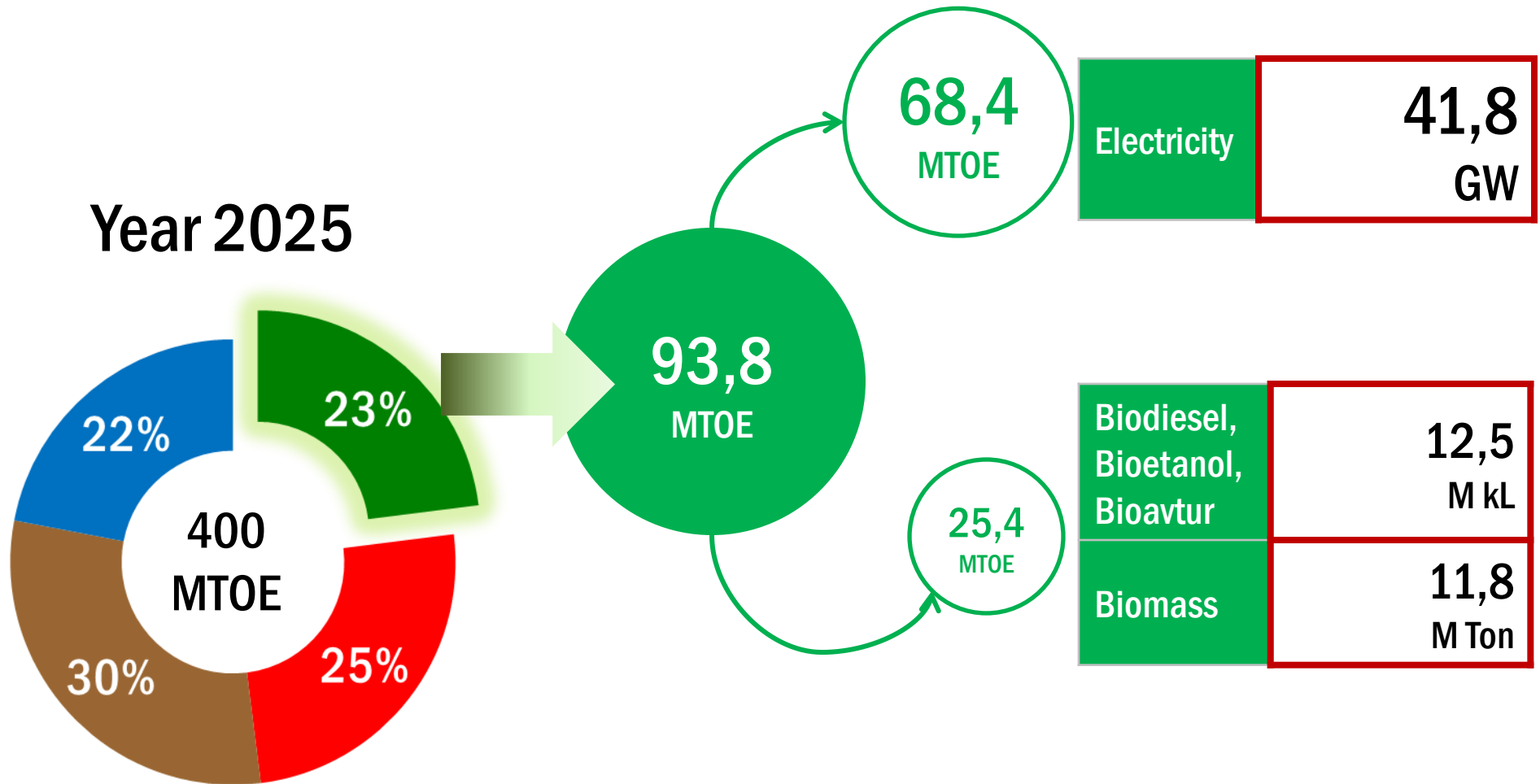
I. POLICY FOR ENERGY DEVELOPMENT



NRE Supply refer to **National Energy Policy**

NRE Supply 2025

Year 2025



NREEC Development Policy



1. Improve the installed capacity of power generation /energy production;

Energy growth around 8% per year; require any additional capacity to meet energy demand; through geothermal and hydro.



2. Improve the access to modern energy for isolated area from PLN's grid, particularly the remote areas and small island;

On going program: electricity/rural energy with microhydro, solar, biomass, biogas.



3. Reduce Fuel/electricity subsidies (energy) Diesel → Solar, Microhydro, Biomass, Biodiesel;

Diesel substitution with renewable energy could reduce subsidies.



4. Reduce greenhouse gas emissions;

Efficiency improvement and utilization of new and renewable energy will minimize greenhouse gas emissions.

5. Energy saving

Saving 1 kWh is cheaper and easier than generate 1 kWh.



II. POLICY AND IMPLEMENTATION OF BIOFUEL MANDATORY PROGRAM





LEGAL BASIC: Mandatory BBN (BIOFUEL) TYPE OF BIODIESEL

Constitution No. 39/2014
Plantation

Constitution No. 30/2007
Energy

Government Regulation No. 24/2015
Plantation Fund Accumulation

Government Regulation No. 79/2014
National Energy Policy

President Regulation No. 61/2015
Accumulation and Usage of Palm Tree Plantation Fund
Manager



Upstream



Ministry of Finance

Ministry of Trade



Downstream

**Ministry of Energy and Mineral
Resources**

**Ministry of Finance Regulation No
133/PMK.01/2015 Year 2015**
Tarif of Palm Tree Plantation

**Ministry of Trade Regulation No.
54/2015**
Verification of Palm Oil, CPO and
processing results of CPO

MEMR Regulation No. 12/2015
3rd amandement of MEMR Regulation No 32/2008
concerning on Provision, Utilization, and Procedures
of Commerce of Biofuel as Other Fuel

**Ministry of Finance Regulation No
113/PMK.01/2015 Year 2015**
Public Service Board of Palm Tree
Plantation Fund Manager

Ministry of Trade Regulation No. 748/2015
Determination Verifier of CPO

MEMR Regulation No. 29/2015
concerning on Provision and Utilization of Biofuel of
Biodiesel with financial support by Indonesian Estate
Crop Fund (IECF) for Palm Oil

**Ministry of Finance Regulation No
136/PMK.010/2015 Year 2015**
Determination of Export Goods

**Indonesia Estate Crop Fund
for Palm Oil be established**

MEMR Decree No. 3239/2015
Market Price Index of Biofuel

**Director General for New Energy, Renewable and
Energy Conservation Decree No. 723K/10/DJE/2013**
Spesification of Biodiesel



BIOFUEL MANDATORY PROGRAMME

FOSSIL FUEL SUBSTITUTION POLICY DIRECTION → BIOFUEL POLICY

BIOFUEL DOMESTIC USAGE MANDATORY POLICY

MINISTRY OF ENERGY AND MINERAL RESOURCES REGULATION NO. 32 YEAR 2008 REVISED TO NO. 12 YEAR 2015

Biofuel usage mandatory for fossil fuel substitutions on transportation, industry, and electricity generation as a percentage to fossil fuel consumption (domestic market creation for biofuel)



Reducing fossil fuel consumption and import → replace by biofuel
increasing value added economy through development of biofuel industry that based locally

PRODUCTION

- Biodiesel industry production capacity : 9 million KL/year



DISTRIBUTION AND BLENDING

- Utilization 20% biodiesel (B-20) mixed by diesel fuel starting on 2016
- Distributed by all fuel distributor including PT. Pertamina as state-owned enterprises which is largest biofuel off-taker



MECHANISM

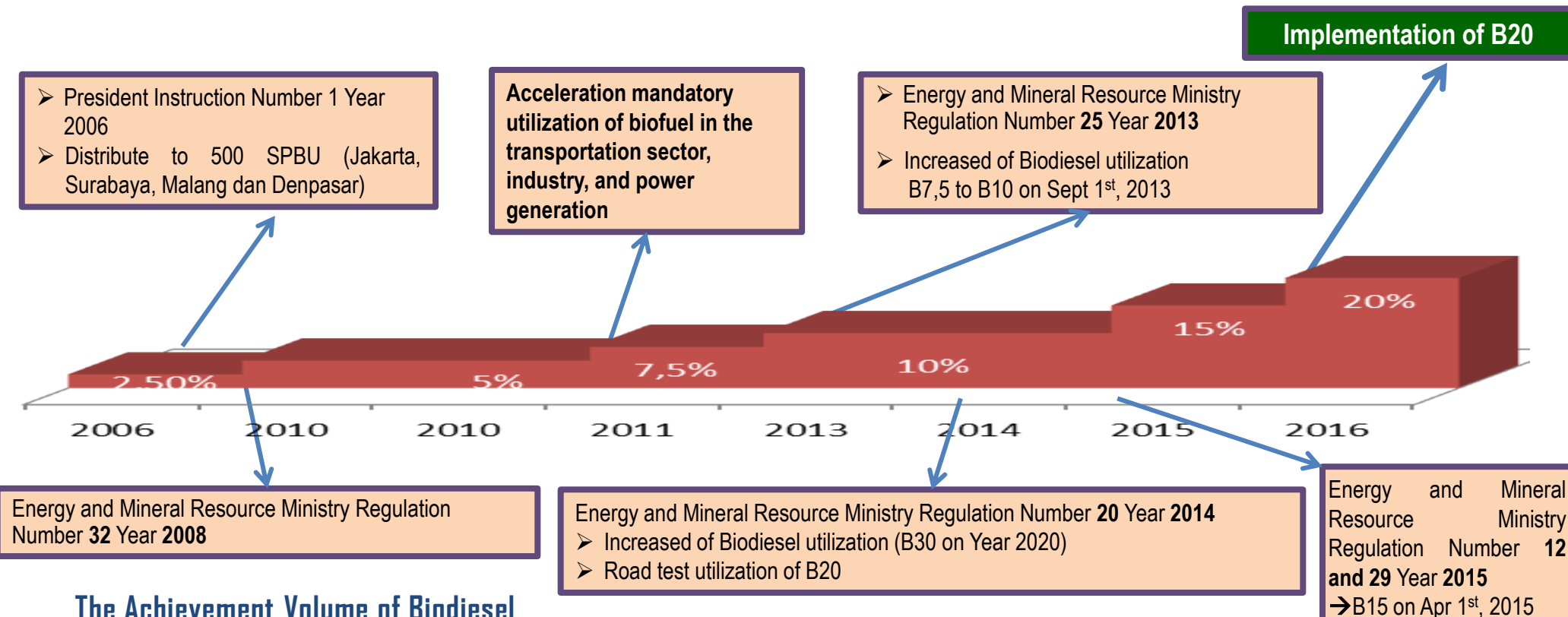
- Government provides Plantation Fund from Palm Oil industry to cover the disparity between the price of diesel and blending biofuel in diesel (Biodiesel 20%)



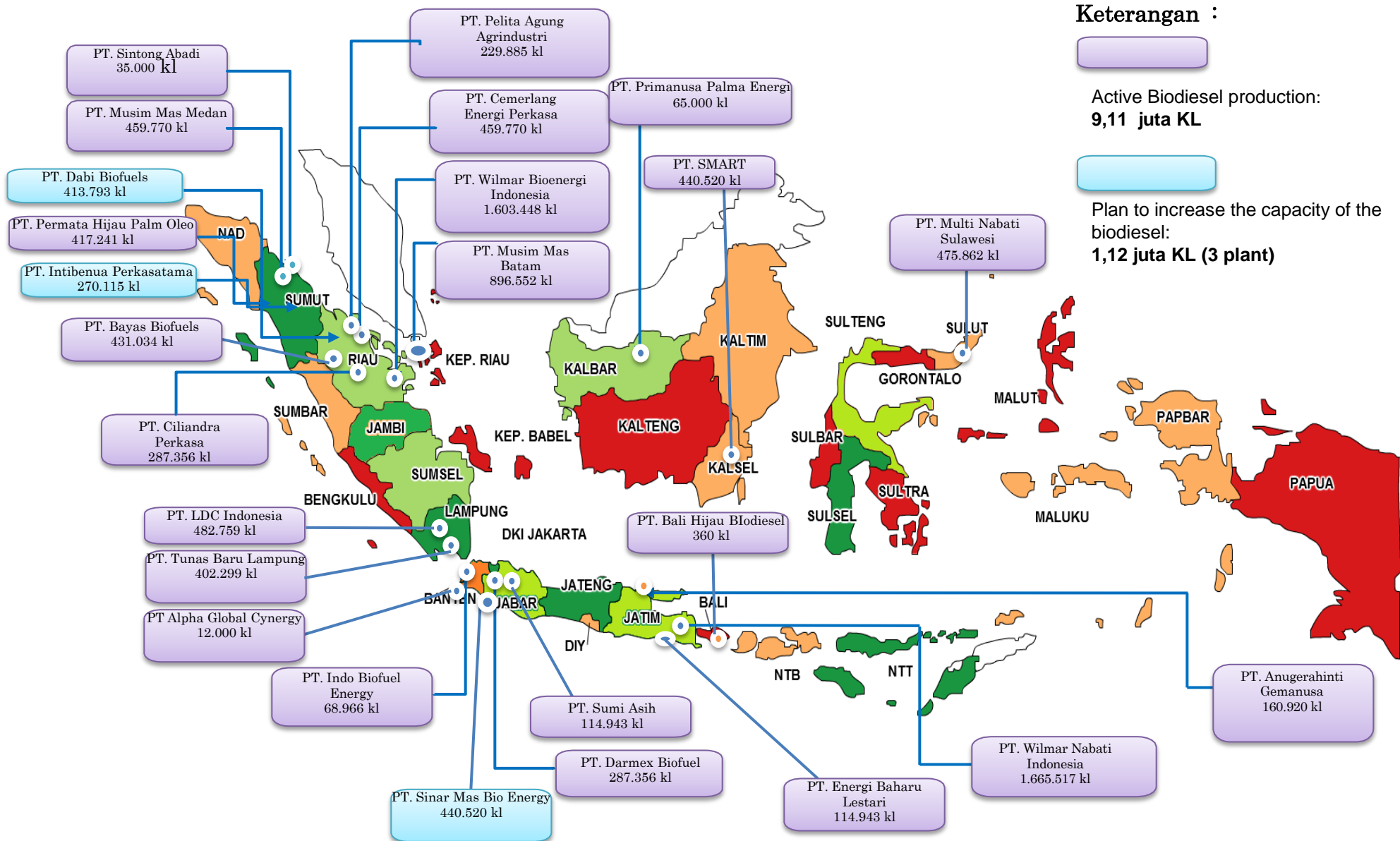
BIOFUEL MANDATORY ROADMAP: BIODIESEL (MEMR REG No.12/2015)

ROADMAP BIODIESEL (Minimum)

Sektor	April 2015	January 2016	January 2020	January 2025
Micro business, Fishery Business, Agriculture Business, Transportation and Public Services (PSO)	15%	20%	30%	30%
Transportation Non PSO	15%	20%	30%	30%
Industrial and Commercial	15%	20%	30%	30%
Electricity Generation	25%	30%	30%	30%



Current Biodiesel Plant





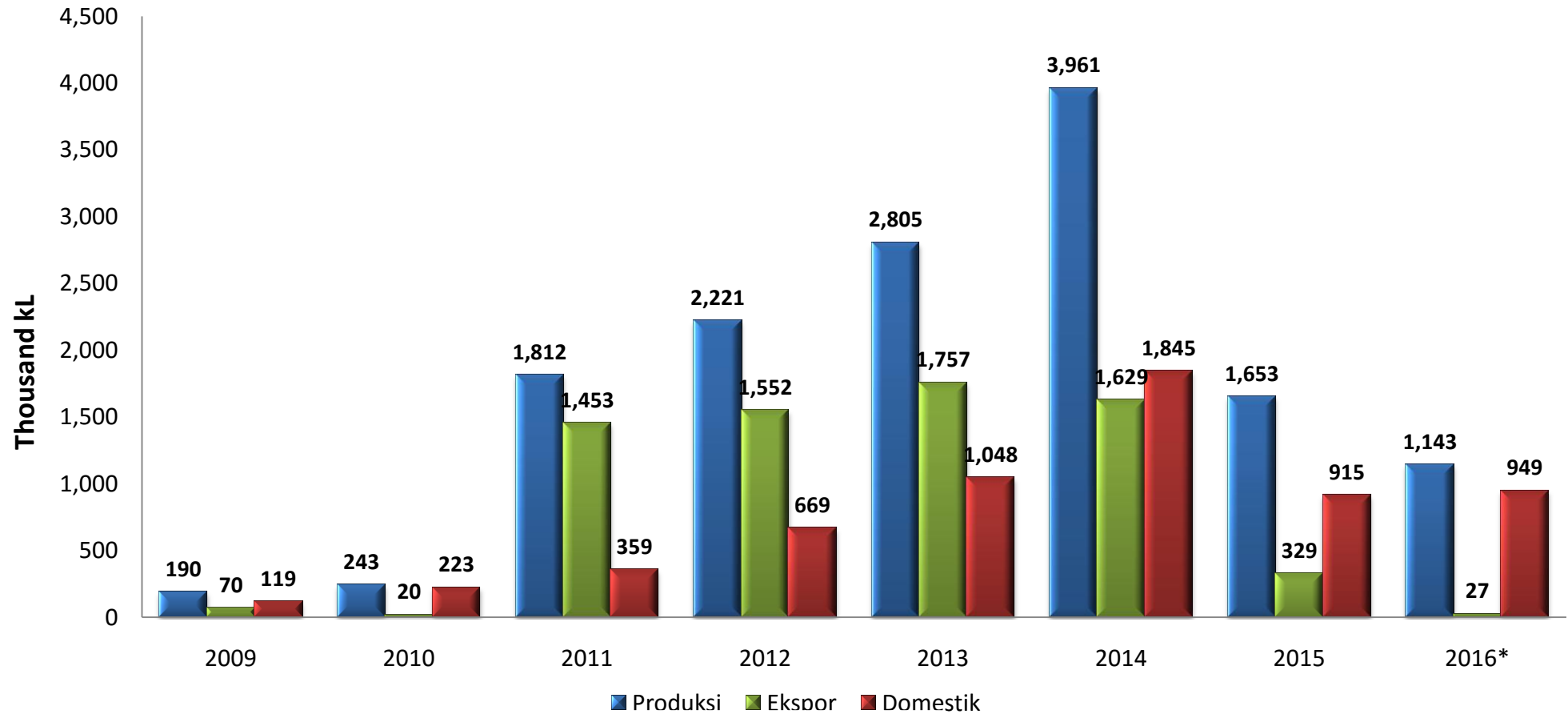
PRODUCTION OF BIODIESEL (up to March 2016)

B2 – B7,5

B10

B15

B20



Total Installed Capacity of Biodiesel :
9,11 Million KL



III. IMPLEMENTATION OF B-20



The Acceleration of **Biofuels Mandatory**

Starting on 1st January 2026, The Government has **implemented B20**:

1. has carried out **performance test** and test drive and road show,
2. has been available a funds **financing to support** mandatory biodiesel B20 (from Indonesian Estate Crop Fund),
 - a. Indonesia Estate Crop Fund for Palm Oil is a governmental unit under Ministry of Finance of which mandates are to collecting, administering, managing, saving and distributing The Palm Oil Estate Fund (The Fund).
 - b. The Fund is collected from levy on both processed and crude palm oil.
3. have been available including **standard quality** (national standard for biodiesel) and regulatory sanctions,
4. has been provided a budget for **monitoring the quality/quantity** of blending, and verification mechanisms annually,
5. has been available a biodiesel producers with **sufficient production capacity**.





Performance road test for B-20 implementation



1. Before the implementation of B20 (2014), MEMR, GAIKINDO (Automotive Manufacturere Association), APROBI (Biofuel Producer Association), BPPT (Gov Reseach Agency), BPDPKS (IECF), Pertamina (Oil Company) and ITB (University), assessing the readiness of existing diesel vehicles currently on the durability of diesel motors, up to 40,000 km.
2. Participants Test: Toyota; Mitsubishi and Chevrolet.
3. One of them proactively continue the endurance test engine performance to mileage of 100,000 km. [100,000 km \approx 3-year warranty period]
4. On the different shceme, performance test also applied to heavy vehicle, marine, and military vehicle



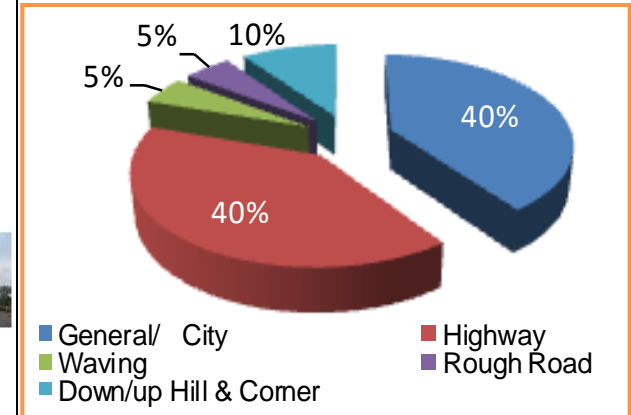


1. Route of road test

Lokasi → DKI Jakarta, Banten & West Jawa



2. Road condition



3. Method

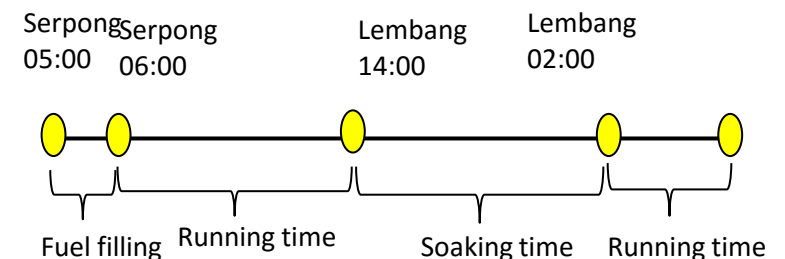
Comparing the two types of the same vehicle, filled with different fuel B0 and B20. Be treated with the same conditions.

Furthermore, compared to the performance and emissions of each vehicle.

Loop Test

Lembang	Serpong ~ JORR ~ Jagorawi ~ Puncak ~ Cianjur ~ Padalarang ~ Cileunyi ~ Padaleunyi ~ Pasteur ~ Lembang	Rest in lembang at night (Soaking 7 hours) fill fuel up in Lembang
BPPT Serpong	Lembang ~ Subang ~ Cikampek ~ Palimanan ~ Cikampek ~ Karawang ~ Cibitung ~ JORR ~ Serpong	Fill fuel up in Serpong basecamp
Total 1 lap circle ± 500 km for 1 day (24 hours)		

Polakron





Result of Road Performance Test

For testing diesel fuel vehicle by comparing the B0 and B20, up to 100,000 km mileage:

1. Generally up to 100,000 km, no significant problems occur due to the use of B20 fuel.
2. Performance of B20 fuel vehicles no significant changes (the same tendency as vehicle fuel B0).
3. Exhaust emissions of CO, NOx and HC of B20 lower than B0, while particulate and opacity (black smoke) tend to be similar.

Component Rating



B0

B20

B0

B20



- ✓ Ring piston is not jammed
- ✓ Not found wear (wear)
- ✓ Carbon crust is relatively same



Fuel System Test Conducted by Toyota and Denso in Japan



DENSO Headquarter, Japan



TOYOTA Headquarter, Japan

The test result 



IV. GOV SUPPORT, CHALLENGING ISSUES, AND MOVE FORWARD





GOVERNMENT SUPPORT

1. Guarantee domestic market through mandatory policy of the implementation of biofuel utilization gradually.
2. Provide incentives (Fiscal Incentives), such as:
 - a. Government Borne VAT (Value added Tax);
 - b. Income tax incentives for new investment in the biofuels industry;
 - c. Exemption import duty for RE appliances
 - d. Loan interest subsidy for the development of biofuel crops.
3. Ease in licensing.
4. Develop integrated biofuel management system.
5. R&D on advanced biofuel/second generation of biofuel, e.g. green diesel, bioavtur.
6. Implement quality control system for biofuel in order to maintain the quality of biofuel meet the national standard.
7. Coordination with the automotive manufacture industries in order to synchronize its machines specification comply with national policy and regulation related to implementation of biofuel (biodiesel blending in diesel fuel).
8. Pricing for biofuel, including market price index for biofuel and provide funding mechanism from IECF Palm oil for Public Service Obligation (to cover the disparity between biodiesel price and diesel price).



CHALLENGING ISSUES AND MOVE FORWARD



Sustainability of feedstock including volume and pricing



Readiness of automotive and heavy equipment industries

Biofuel production, logistic, and its supporting facilities to eastern part on Indonesia

Biofuel Price against Petroleum Price

Moving forward after B-20 by implemented Green Diesel and also preparing implementation of Bio jet fuel





THANK YOU
FOR YOUR KIND ATTENTION

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BIOFUEL MANDATORY ROADMAP: MEMR Regulation Number 12/2015

BIODIESEL (Minimum)

Sector	April 2015	Januari 2016	Januari 2020	Januari 2025
Micro business, Fishery Business, Agriculture Business, Transportation and Public Services (PSO)	15%	20%	30%	30%
Transportation Non PSO	15%	20%	30%	30%
Industrial and Commercial	15%	20%	30%	30%
Electricity Generation	25%	30%	30%	30%

BIOETANOL (Minimum)

Sector	April 2015	Januari 2016	Januari 2020	Januari 2025
Micro business, Fishery Business, Agriculture Business, Transportation and Public Services (PSO)	1%	2%	5%	20%
Transportation Non PSO	2%	5%	10%	20%
Industrial and Commercial	2%	5%	10%	20%
Electricity Generation	-	-	-	-

PURE VEGETABLE OIL (Minimum)

Sektor		April 2015	Januari 2016	Januari 2020	Januari 2025
Industrial and Transportation (Low and Medium Speed Engine)	Industrial	10%	20%	20%	20%
	Water Transportation	10%	20%	20%	20%
Aviation		-	2%	3%	5%
Electricity Generation		15%	20%	20%	20%