



MINISTRY OF ENERGY AND MINERAL RESOURCES  
REPUBLIC OF INDONESIA  
DIRECTORATE GENERAL OF ELECTRICITY

# COUNTRY REPORT

## “ELECTRICITY SECTOR IN INDONESIA”

Presented by  
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at Energy Policy Training Course Japan International Cooperation Agency

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1

# GOVERNMENT REGULATION & POLICY

# MANAGEMENT OF ELECTRICITY SUPPLY IN INDONESIA

(Law No. 30/2009 on Electricity)

## AUTHORIZATION



STATE

GOVERNMENT  
REGIONAL  
GOVERNMENT

- Regulation, policy, standard
- Provides funding for:
  - ✓ Low income society
  - ✓ Development of electricity supply infrastructure in undeveloped regions
  - ✓ Development of electricity in remote and border areas
  - ✓ Development of rural electricity

## BUSINESS

ELECTRICITY BUSINESS LICENSE HOLDER



STATE-OWNED  
ENTERPRISE\*



REGION-OWNED  
ENTERPRISE\*\*



PRIVATE  
ENTITIES\*\*



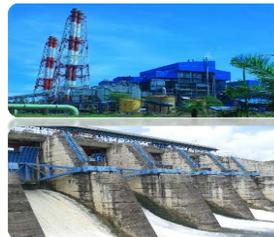
COOPERATIVES\*\*



SELF-RELIANT  
COMMUNITIES\*\*

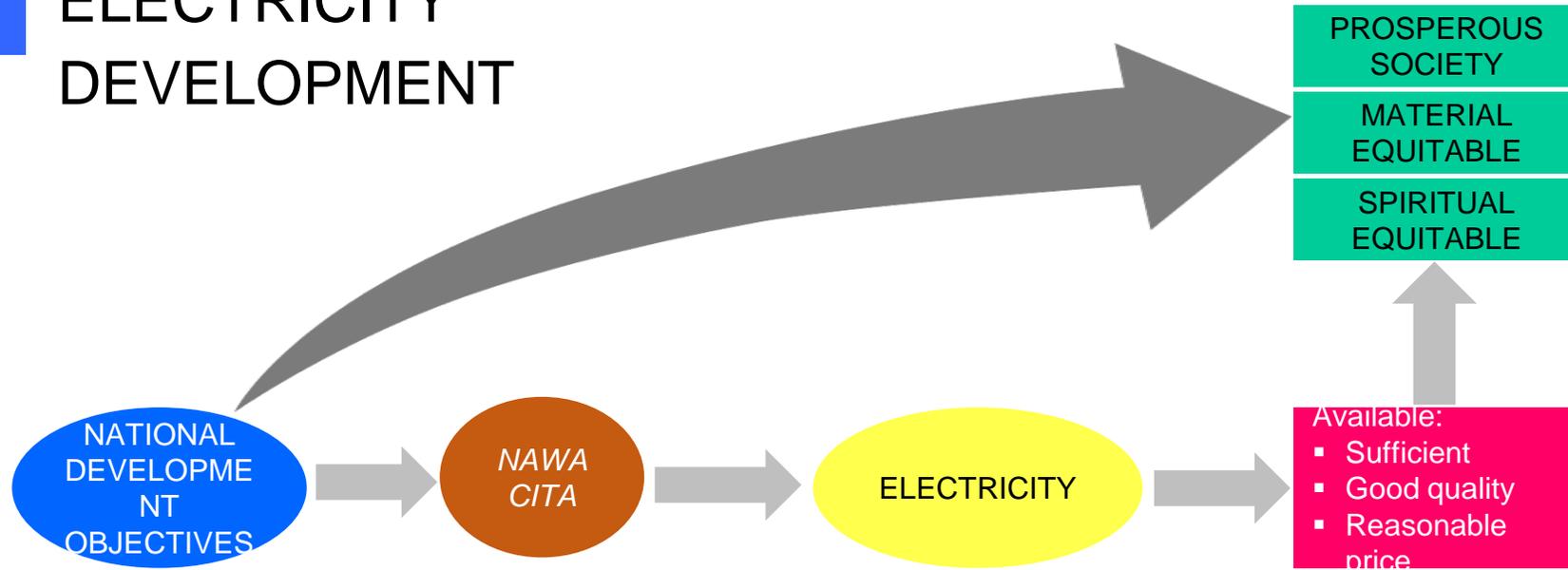
\* : First Priority

\*\* : Given the opportunity as integrated electricity business license organizer for not electrified areas

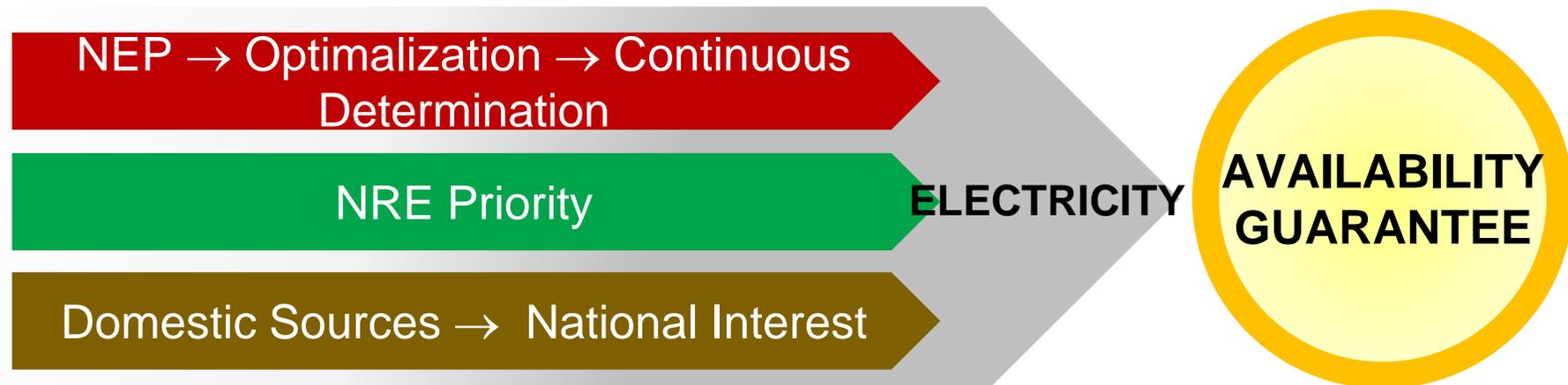


# GOVERNMENT POLICY ON ELECTRICITY SECTOR

## 1 ELECTRICITY DEVELOPMENT



## 2 UTILIZATION OF PRIMARY ENERGY



# LEGAL BASIS OF POWER SUPPLY PLANNING

**LAW 30/2007  
(ENERGY)**

**LAW 30/2009  
(ELECTRICITY)**

**GR 79/2014  
(NATIONAL ENERGY POLICY - KEN)**

- An energy management policy based on the principles of justice, sustainable, and environmentally-friendly in order to create energy independence and national energy security
- Prepared by the National Energy Council
- Stipulated by the Government after the approval of Parliament

**GR 14/2012  
jo GR 23/2014  
(Business Activities of Electricity  
Provision)**

**General Plan of National Energy  
(RUEN)**

- The central government policy on the national level energy management plan as an elaboration and the implementation plan of KEN using multi-sectoral approaches in order to achieve the target of KEN.
- Prepared by the Government and stipulated by National Energy Council

**General Plan of National Electricity  
(RUKN)**

- A plan for developing electricity supply system prepared by the central government which includes power generation, transmission and distribution required to meet national electricity needs.
- Prepared by the Minister based on KEN.
- Stipulated by the Minister after consultation with Parliament.

**Business Plan for Electricity Provision  
(RUPTL)**

- As a basis for implementing the electricity supply business for public interest
- Prepared by electricity business who has special business areas
- Prepared by taking into account the Electricity General Plan\*)
- Approved by the Minister/Governor in accordance with their authority.

**General Plan of Local Energy  
(RUED)**

Prepared by the local government based on RUEN and stipulated under the local regulation.

**General Plan of Local Electricity  
(RUKD)**

Prepared by the local government based on RUKN and stipulated by the Governor after consultation with Local Parliament.

# POLICY ON POWER GENERATION – DIRECTION OF DEVELOPMENT

(Based on Draft General Plan for National Electricity – RUKN 2015-2034)

**Directed to meet the growing electricity demand, increase reserves, and the fulfillment of reserve margin.**



**Coal-fired PP**

- **CFPP** can still be developed, however it should be prioritizing the use of environmentally sound technology and has a high efficiency (CCT/HELE) for the mature electricity system (i.e. Java-Bali system and Sumatera system).



**Gas-fired PP**

- The criteria used in the preparation of the power requirement is using deterministic methods in percentages, targeted power reserve of at least about 35% for a period of twenty years in the future, on the basis of Ability Power Net.



**NRE PP**

- **GFPP** and **Hydropower - pump storage** should be developed in order to meet peak load demand and to minimize or limited the utilization of diesel power plant during peak load period.
- **NRE-PP** will be developed in order not only to meet the growing electricity demand but also reducing CO2 emission level.



**Nuclear PP**

- **NPP** can be considered to be developed as the last option if NRE's target of 25% by 2025 cannot be achieved by considering high safety factor.

*Note:*

*CFPP : Coal Fired Power Plant*

*CCT : Clean Coal Technology*

*HELE : High Efficiency and Low Emission*

*GFPP : Gas Fired Power Plant*

*NRE-PP : New and Renewable Power Plant*

*NPP: Nuclear Power Plant*

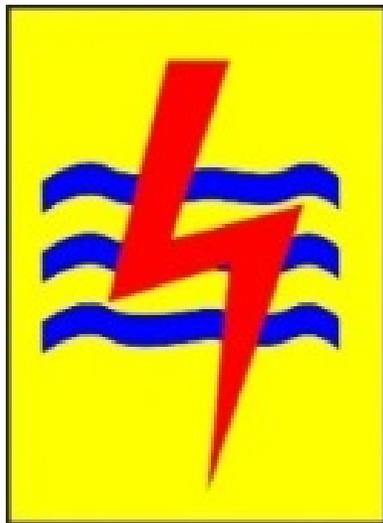
# POLICY ON POWER GENERATION – ACTORS FOR PIK

(Based on Presidential Regulation No. 4/2016)

## Provide greater participation for private participation in PIK.



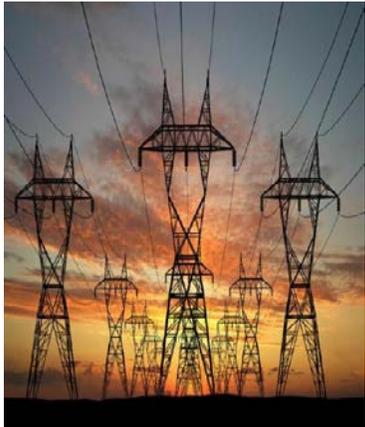
- Implementation of the accelerated development of electricity infrastructure (PIK) will be conducted by PLN through “self-management” in terms of:
  - PLN having financial capability for equity and source of low funding;
  - Construction risk is low;
  - Fuel supply is available;
  - Peaker power plant with the function is to control reliability of system operation; and/or
  - Isolated system development.
  
- Implementation of PIK can be conducted by PLN through “cooperation” with other electricity supplies in terms of:
  - The project needs a huge funding;
  - Construction risk is high;
  - The risk of fuel supply is high or do not have a secure supply of gas and/or infrastructure;
  - New and renewable power plants;
  - Expansion of existing power plant;
  - There is more than one developer who interested to develop power plant in the area.



# POLICY ON TRANSMISSION - DIRECTION OF DEVELOPMENT

(Based on Draft General Plan for National Electricity – RUKN 2015-2034)

**Directed to the growth of the electricity system, increasing system reliability and reducing constraints on the delivery of electricity to the system as well as evacuating electricity from new power plants.**



- In the upcoming 2-5 years, the transmission network development will be prioritized to deliver electricity from new power plants under the 35,000 MW program.
- 500 kV Transmission network in outside Jawa-Bali and Sumatera systems, HVDC and smart grid technologies are possible to be developed by considering the needs of the local electricity system, meet the system requirements, economic considerations and availability of the technology.
- Transmission network using under ground cable is possible to be implemented at certain places as long as meets technical and economic aspects.
- Additional transformer or new construction of substation should be prioritized when loading capacity of existing transformer or transformer capacity in existing substation has already reached 70% of total its capacity for outside Java-Bali system and 80% for the Java-Bali system.
- Back-up systems can be considered to increase the reliability of the electricity system.



# POLICY ON DISTRIBUTION – DIRECTION OF DEVELOPMENT

(Based on Draft General Plan for National Electricity – RUKN 2015-2034)

**Directed to anticipate the growth of electricity sales, maintaining the desired level of reliability and efficiency and improve service quality.**



- Isolated distribution network can be developed if the compliance to fulfil electricity needs through electricity integrated system is less or not efficient.
- Distribution network using under ground cable is possible to be implemented at certain places as long as meets technical and economic aspects.
- Distribution network using smart grid technology and submarine cable between the islands can be implemented as long as meet the system requirements and availability of technology.
- Micro grid can be considered developed in order to improve reliability and optimize the energy mix of generation in a remote area which is far from large electricity system.



# POLICY ON POWER SUPPLY– PLN'S PRIORITY

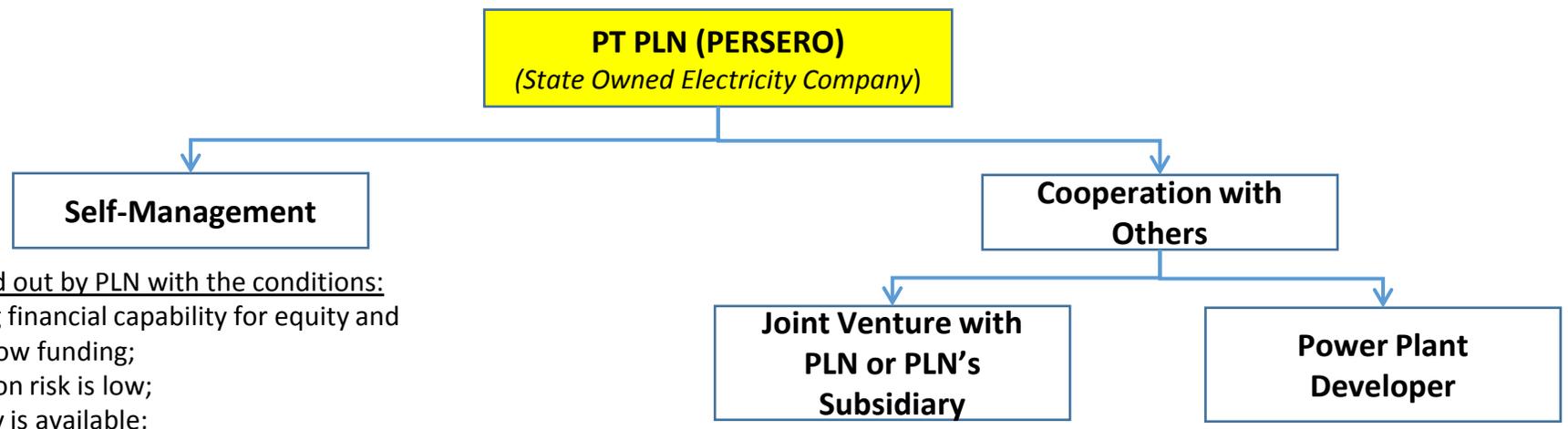
(Based on MEMR Decree No. 5899K/20/MEM/2016 on RUPTL PLN 2016-2025)

Construction of power plants can be carried out by PLN if having sufficient funding after the development of rural electrification, construction of transmission and distribution and substation have been implemented.

Funding capacity owned by PLN should be prioritized to:

- Implement the rural electrification program;
- Construct and strengthen transmission and distribution of electricity;
- Construct and strengthen substations;
- Construct Peaker power plant; and
- Construct power plants in remote areas.

- The regulation is emphasizes to solve some issues related to among others:
  - Primary Energy Source Supply
  - Renewable Energy Utilization
  - One stop service on permitting
  - Spatial solution
  - Land Use Facility
  - Alternative Dispute Resolution



It will be carried out by PLN with the conditions:

- PLN having financial capability for equity and source of low funding;
- Construction risk is low;
- Fuel supply is available;
- Peaker power plant with the function is to control reliability of system operation; and/or
- Isolated system development

It will be applied for

- Power plant; and/or
- Transmission

It can be done with domestic and/foreign company if this company:

- Providing funding to PLN; and/or
- Having energy that can be used by PLN.
- Technology transfer
- Enhancement of local content

Requirement:

- The share of PLN or the PLN's subsidiary company in the joint venture should be at least 51%.

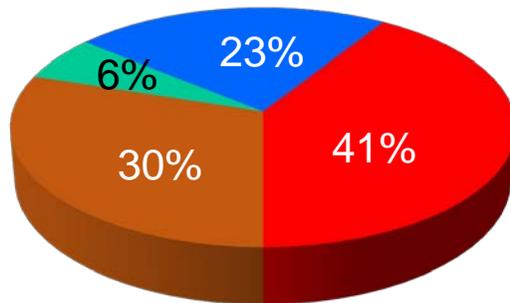
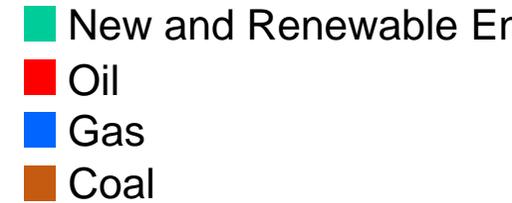
It will be offered to developer with the conditions:

- The project needs a huge funding;
- Construction risk is high;
- The risk of fuel supply is high or do not have a secure supply of gas and/or infrastructure;
- New and renewable power plants;
- Expansion of existing power plant;
- There is more than one developer who interested to develop power plant in the area.

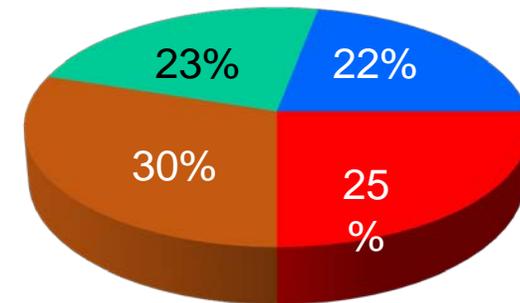
# POWER GENERATION ENERGY MIX POLICY

## PRIMARY ENERGY MIX

(National Energy Policy, GR No.79/2014)



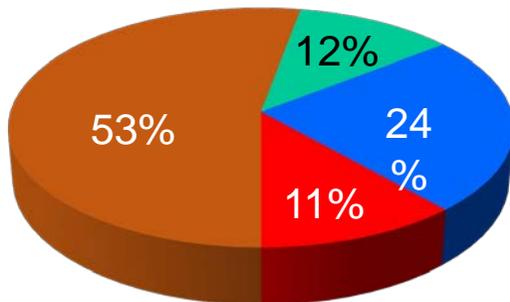
REALIZATION  
2013



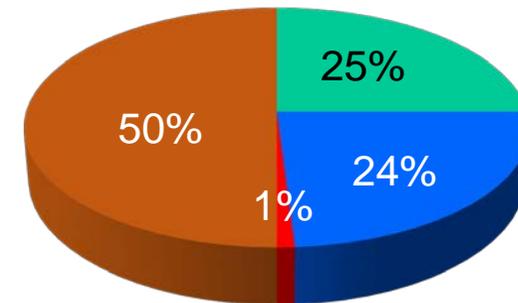
TARGET 2025

## ENERGY MIX OF POWER GENERATION

(Draft of RUKN 2015-2034)



REALIZATION  
2014



TARGET 2025

2

## NATIONAL ELECTRICITY CONDITION

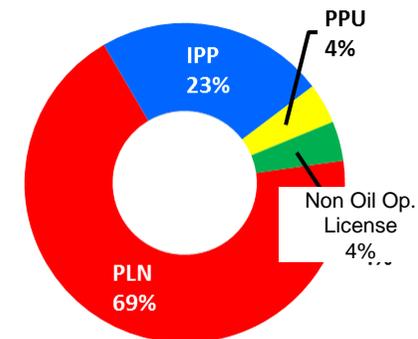
# GENERAL OVERVIEW

## INSTALLED CAPACITY

# 59.656 MW

PLN: 41.049 MW   IPP: 13.781 MW   PPU: 2.434 MW   Non Oil Op. License: 2.392 MW

## INSTALLED CAPACITY



## ELECTRICITY PRODUCTION

# 290 TWh

## ELECTRICITY CONSUMPTION

# 247 TWh

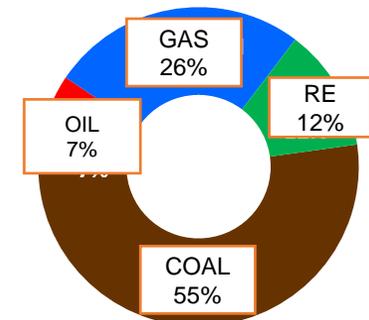
## ELECTRIFICATION RATIO

# 91.16 %

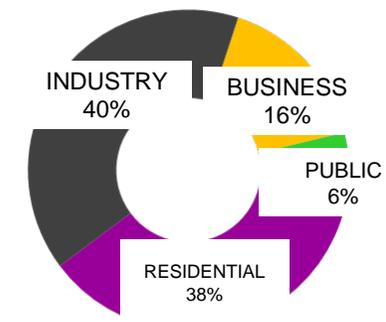
## kWh PER CAPITA

# 956 kWh

## ENERGY MIX \*)



## ELECTRICITY CONSUMPTION PER CUSTOMER GROUP\*)



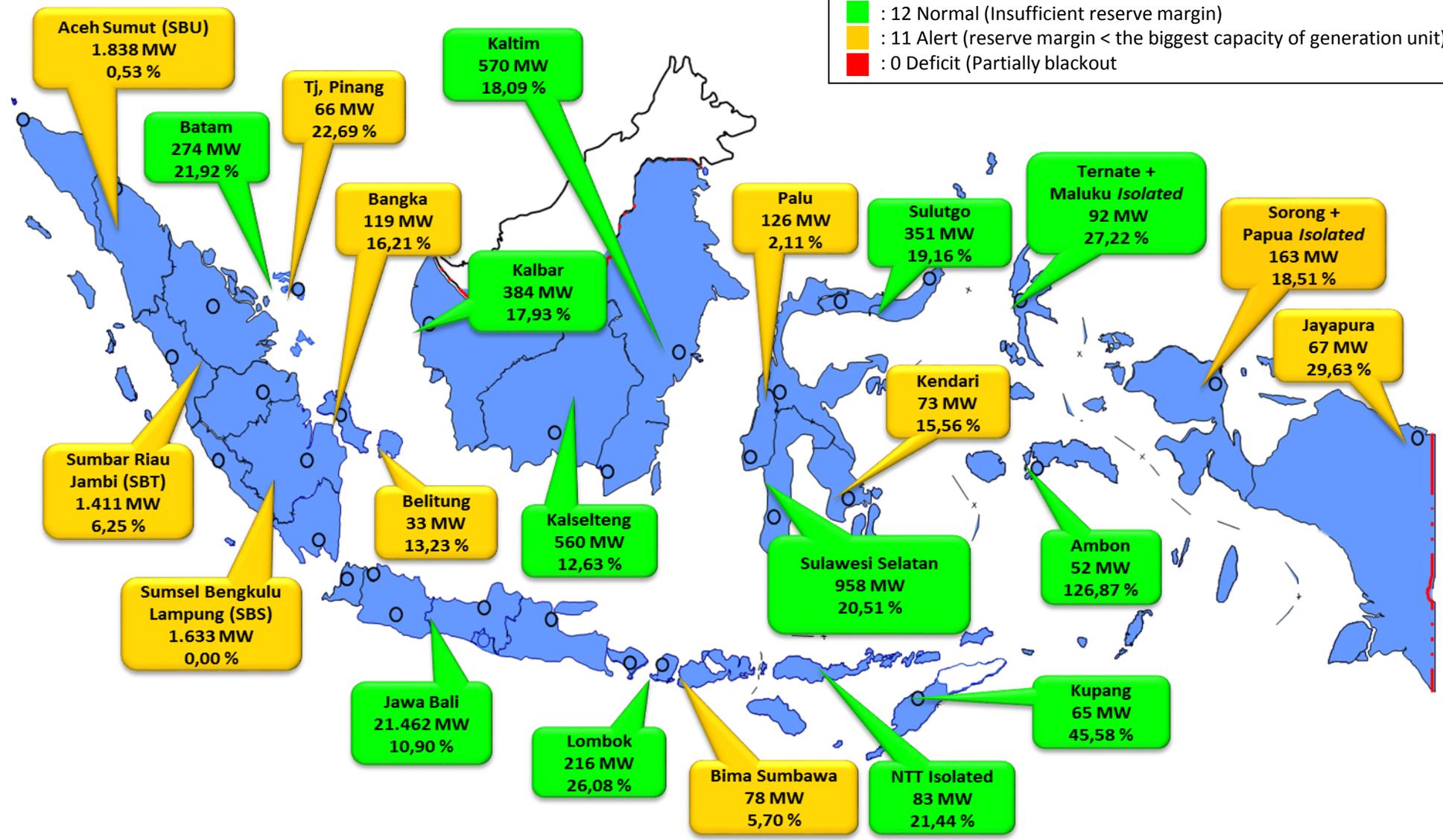
\*) Include Non-PLN

# CONDITIONS OF PLN'S POWER SUPPLY

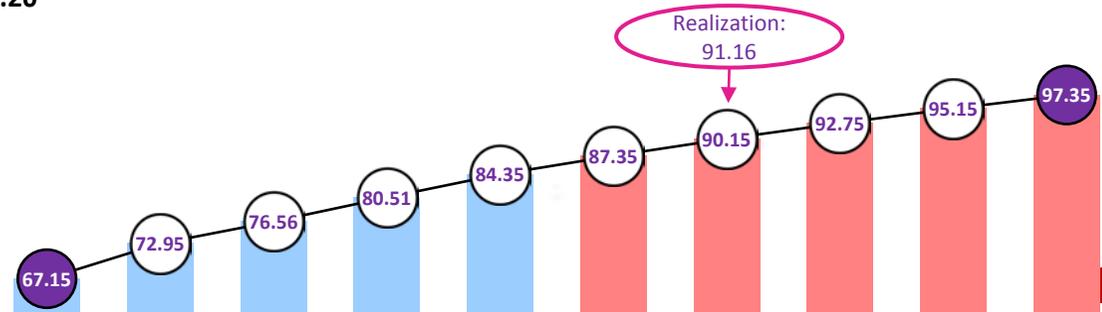
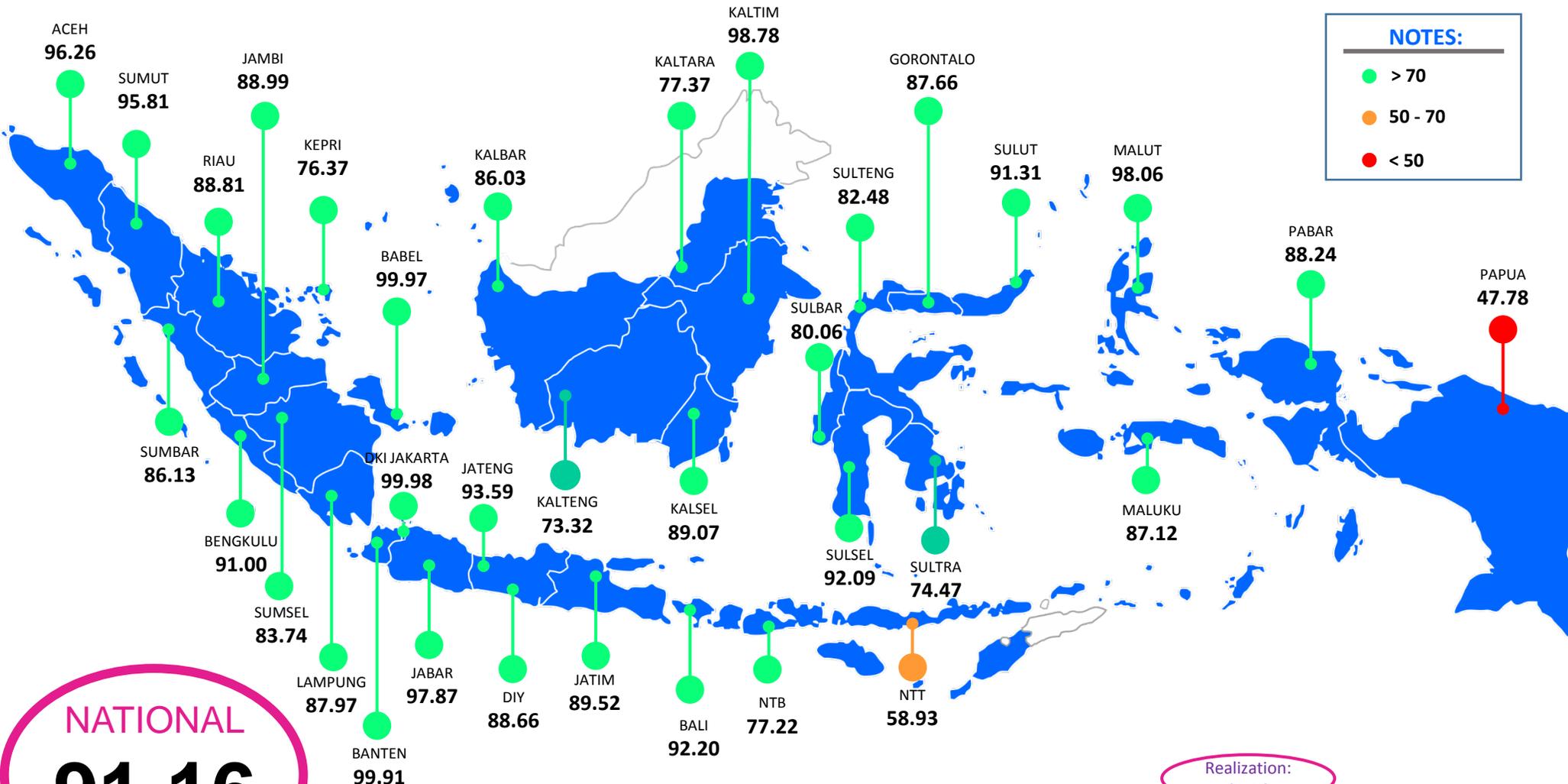
(BASED ON DAILY OPERATIONAL RESERVE – APRIL 16, 2017)

**STATUS:**

- : 12 Normal (Insufficient reserve margin)
- : 11 Alert (reserve margin < the biggest capacity of generation unit)
- : 0 Deficit (Partially blackout)



# ELECTRIFICATION RATIO 2016 (%)

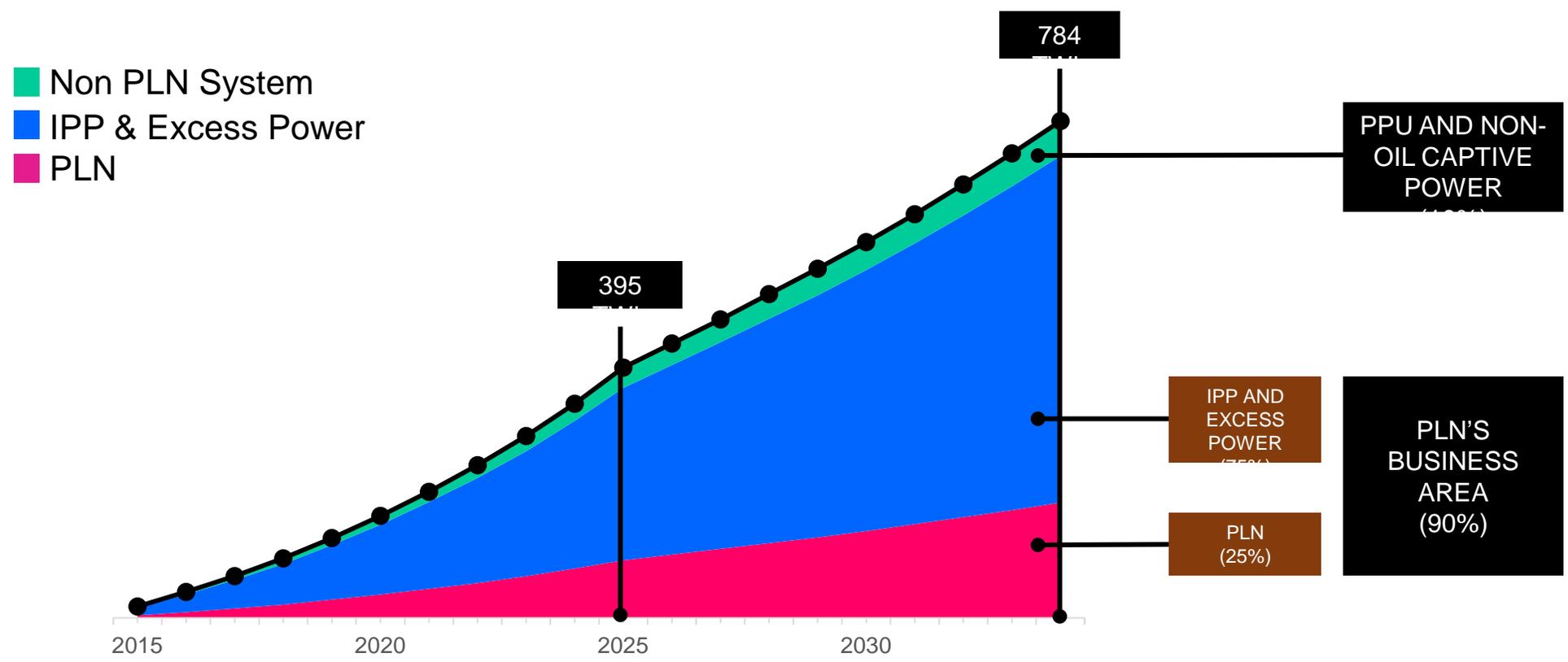


3

ELECTRICITY DEVELOPMENT PLAN

# POLICY FOR ADDITIONAL ELECTRICITY SUPPLY (2015-2034)

(Based on Draft General Plan for National Electricity (RUKN) 2015-2034)



	2015	2016	2017	2018	2019	2020	2025	2030	2034
ADDITIONAL OF NON PLN SYSTEM	2	4	6	8	11	14	32	44	55
ADDITIONAL OF IPP & EXCESS POWER	12	28	45	64	86	110	272	412	547
ADDITIONAL OF PLN	4	9	15	21	29	37	91	137	182
ADDITIONAL OF PLN SYSTEM	16	37	60	86	115	147	363	550	730
TOTAL ADDITIONAL (BASED ON 2014)	18	41	66	94	126	161	395	593	784

# FOREIGN DIRECT INVESTMENT PARTICIPATION

(Based on Presidential Regulation No. 44/2016)

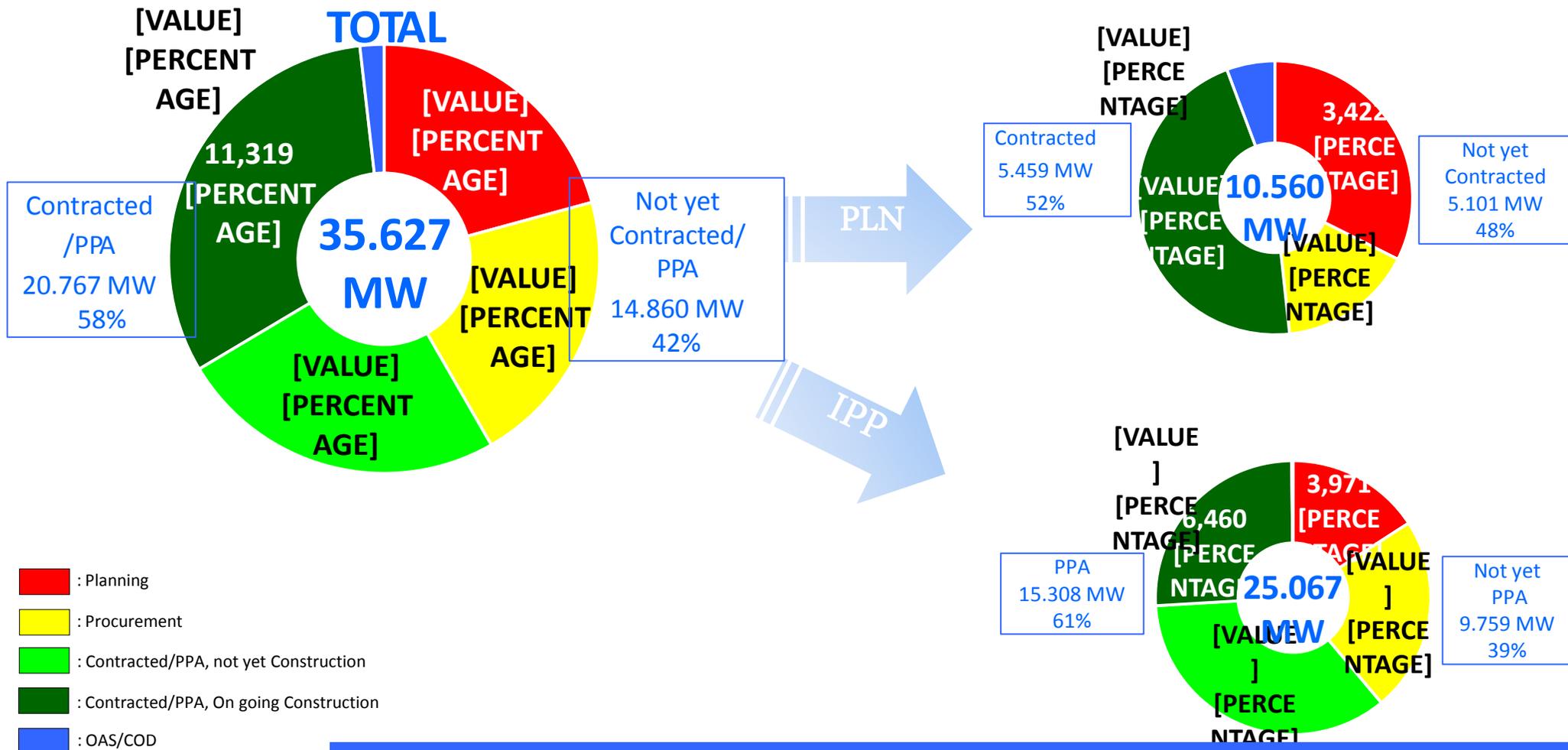
- **Power plant with the capacity less than 1 MW is dedicated 100% for domestic investment.**
- **Small scale of power plant with the capacity is 1 MW up to 10 MW, the maximum share of foreign direct investment (FDI) is 49%.**
- **Geothermal power plant with the capacity up to 10 MW, the maximum share of FDI is 67%.**
- **Power plant with the capacity above 10 MW, the maximum share of FDI is 95% (max. 100% if under PPP scheme during the concession period).**

4

ACCELERATION STRATEGY

# PROGRESS OF 35,000 MW PROGRAM

(MARCH 2017)

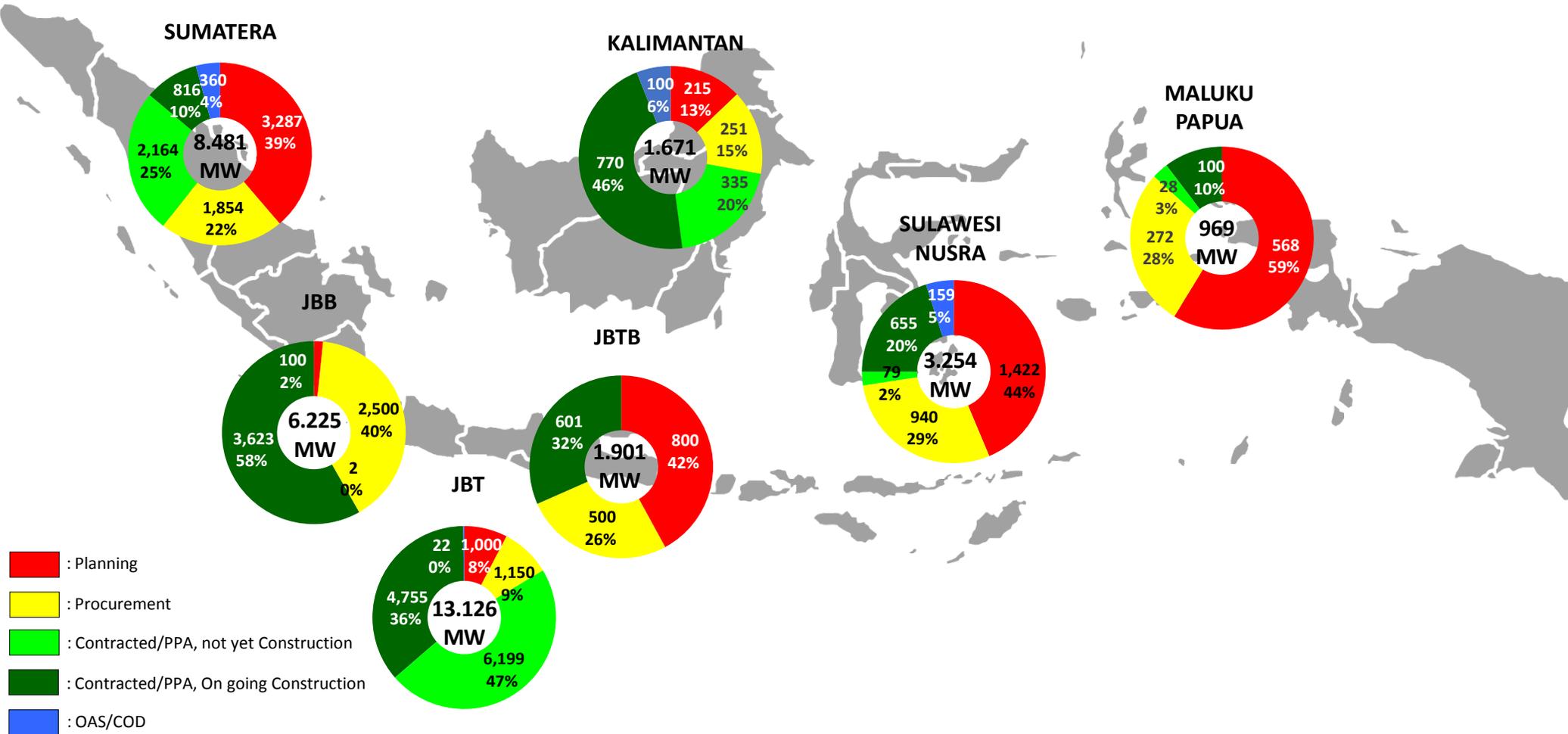


In addition, there are power generations that have been COD:

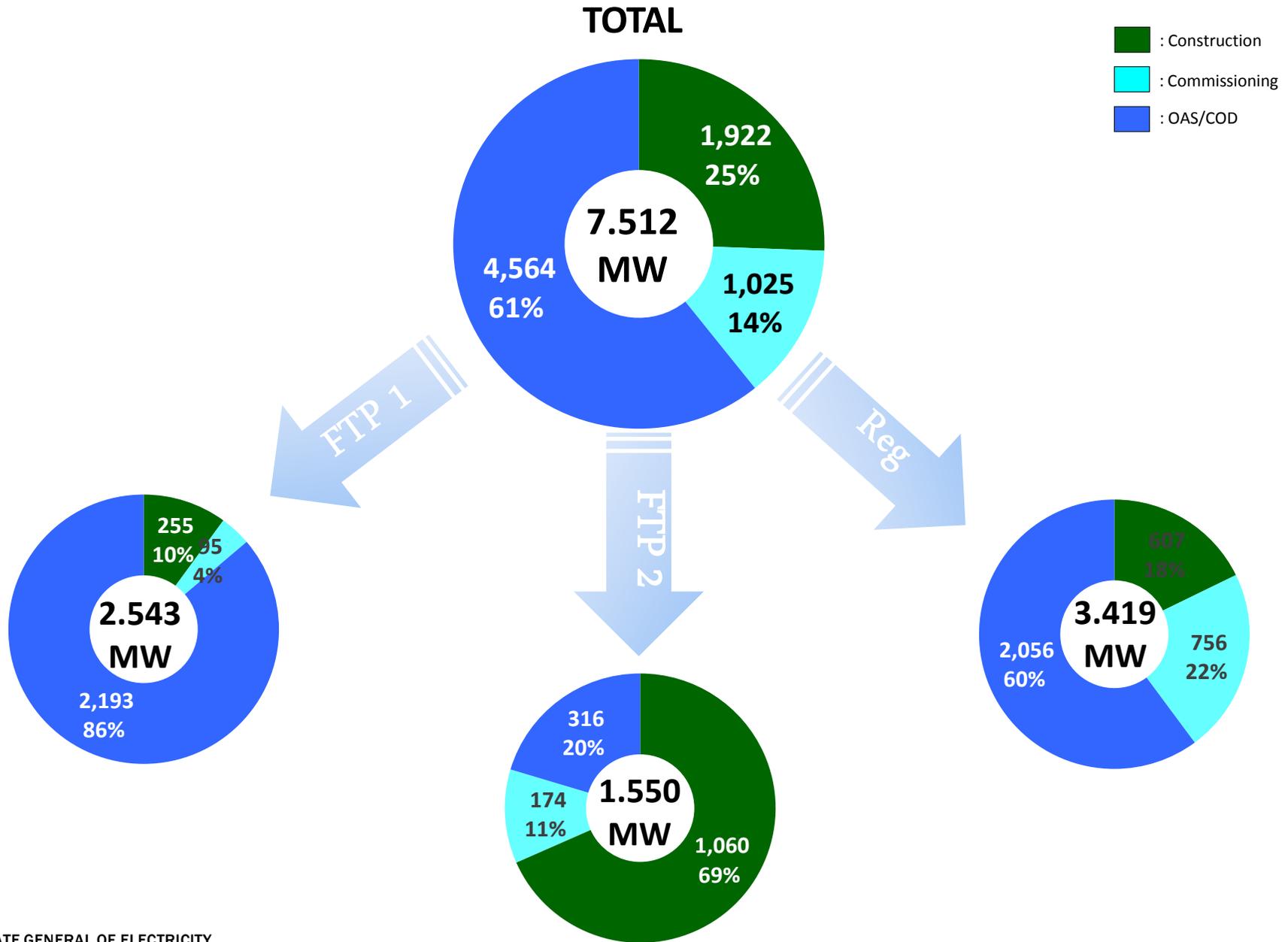
- DPP Outer Islands and the Border Region (68 MW)
- MVPP Amurang (120 MW)
- MVPP Kupang (60 MW)

There are also around of 0.8 GW of power generation under Regular projects which the original COD target is beyond 2019 but since the PPAs has been signed then the COD of those power generations might be accelerated in 2019 by considering the progress of the projects made by the developers.

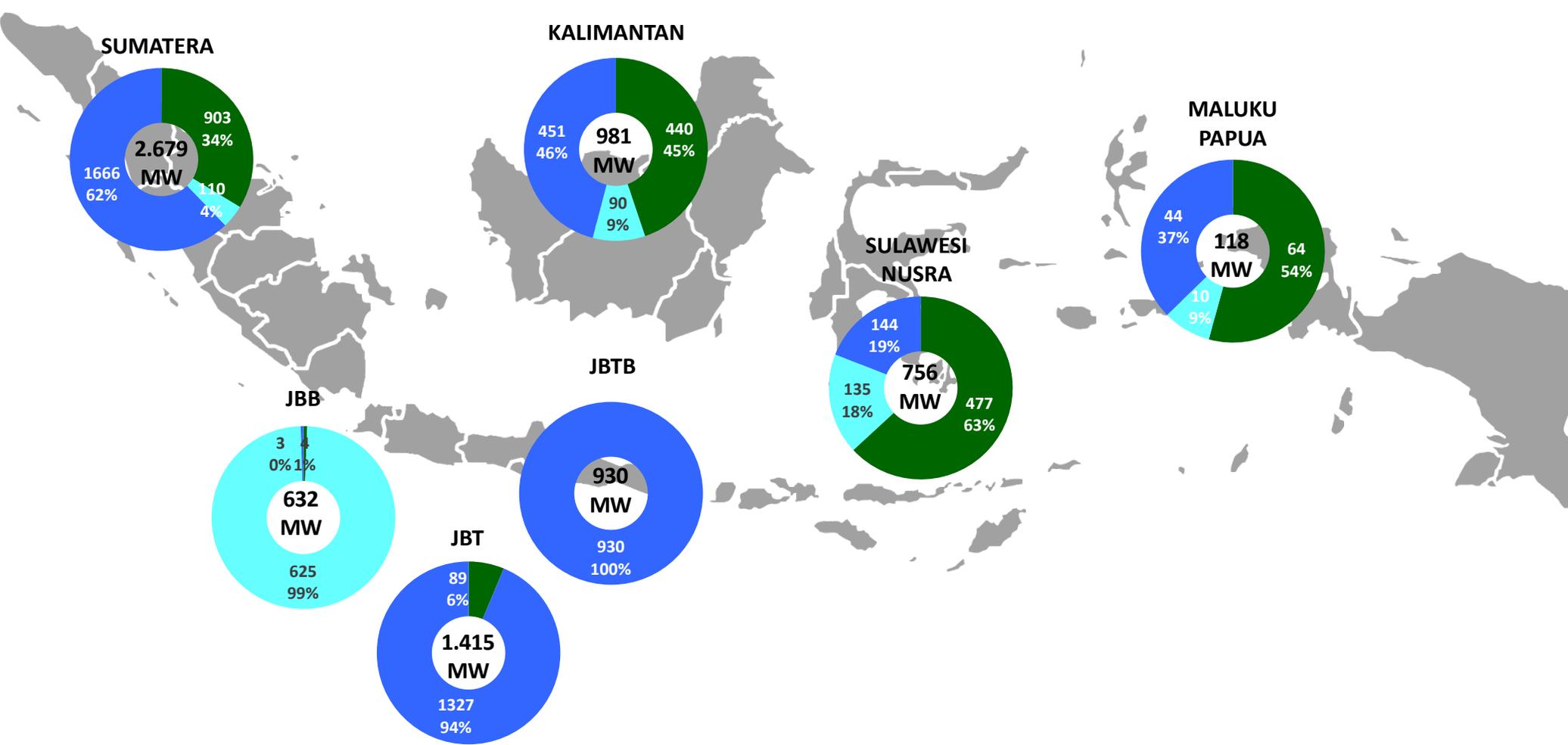
# PROGRESS OF 35,000 MW PROGRAM (MARCH 2017)



# PROGRESS OF 7,000 MW (MARCH 2017)

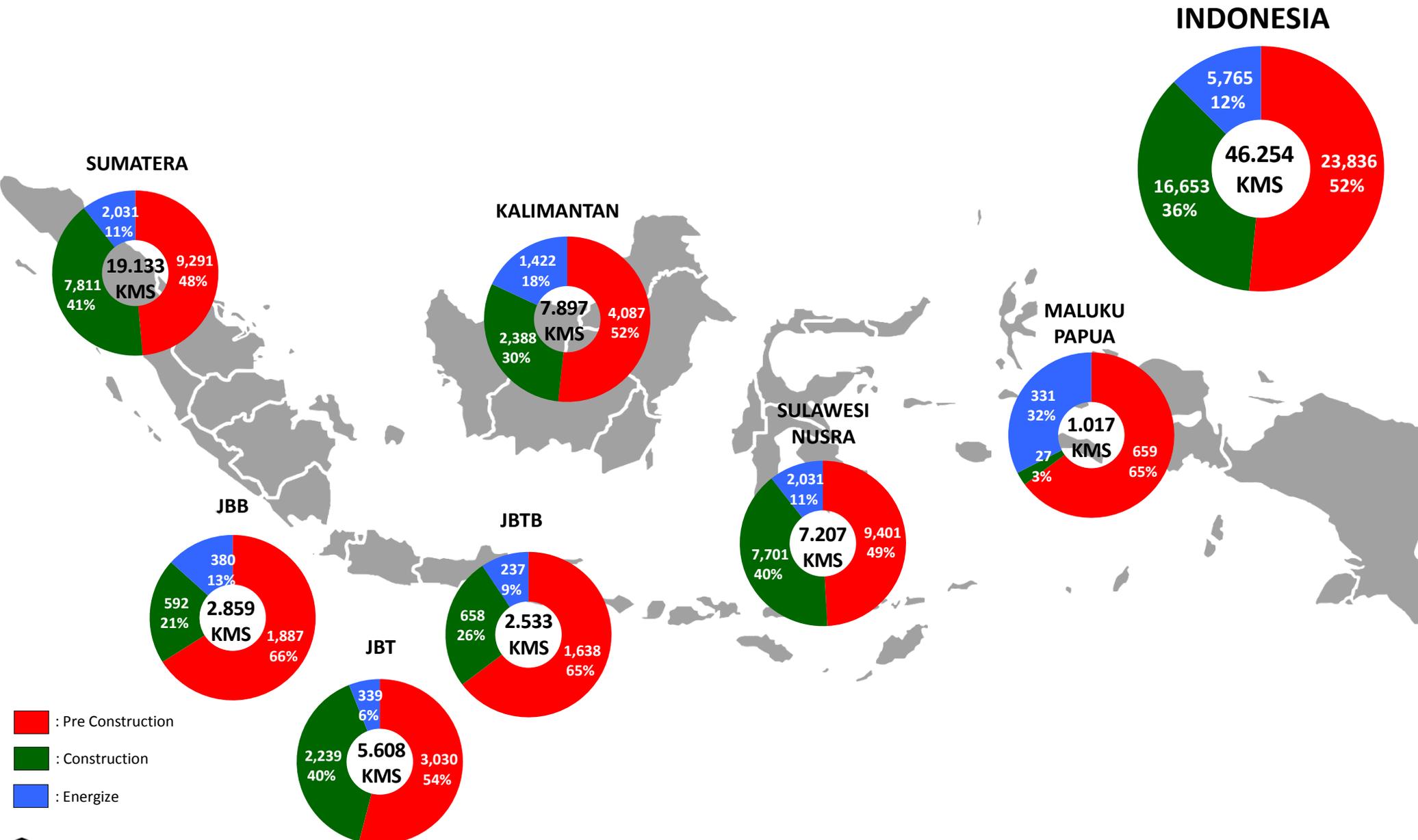


# PROGRESS OF 7,000 MW (MARCH 2017)

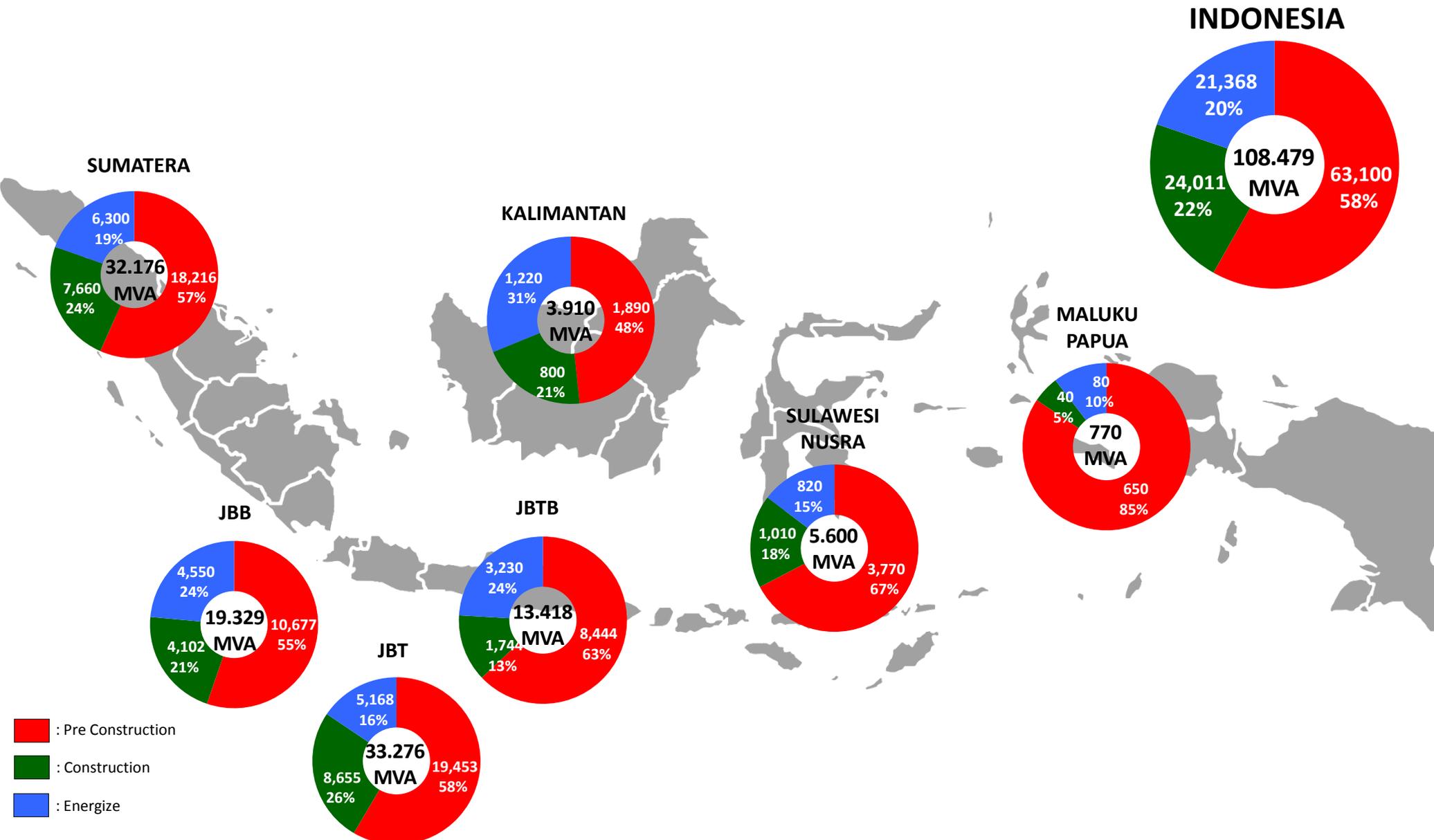


# TRANSMISSION LINES DEVELOPMENT PROGRESS

(MARCH 2017)



# SUBSTATION DEVELOPMENT PROGRESS (MARCH 2017)



5

## ACCELERATION STRATEGY

# POLICY FOR OVERCOMING OBSTACLES (LESSON LEARNT FROM PART I & II)

OBSTACLES	SOLUTION
Land Acquisition	Implement Law No 2/2012 and Presidential Regulation No. 4/2016
Price Negotiation	Electricity purchased by PLN from IPP and Excess Power is carried out based on ceiling electricity price does not need the approval from Minister of Energy and Mineral Resources (MEMR Regulation No.3/2015)
Procurement of power generation from IPP	Accelerate procurement process through “Direct Appointment & Direct Selection” for renewable energy, mine mouth, marginal gas, expansion, & excess power (MEMR Regulation No.3/2015)
Permitting process	Establish “One stop service on permitting (Pelayanan Terpadu Satu Pintu - PTSP)” at BKPM (MEMR Regulation No. 35/2014 & Presidential Regulation No. 4/2016), reducing number and time for issuing licenses from 52 licenses (923 days) to 22 licenses (256 days).
Developer & Contractor Performance	Conduct Due Delligence to the IPP developer and EPC contractor’s candidates, both from the technical and financial aspects which is carried out by <i>Independent Procurement Agent</i> (MEMR Regulation No.3/2015)
Project Management	Establish “Project Management Office (PMO)” & appoint “Independent Procurement Agent” (MEMR Reg. No. 3/2015)
Coordination Across Sectors	Establish a Working Team in Acceleration of Infrastructure Provision of Electricity (Coordinating Minister Decree No. 129/2015) which is formed by the Coordinating Minister for Economy Affairs as Chairman of Committee for the Acceleration of Infrastructure Provision Priority (KPPIP)
Government Guarantee, Regional spatial planning, and Legal Issue	<p>Presidential Regulation No.4 year 2016:</p> <ul style="list-style-type: none"> <li>• The government provides a guarantee of PLN's payment obligations to the lenders and guarantees of PLN's business feasibility to its financial obligations to the IPPs.</li> <li>• In the event that the project site is not in accordance with the regional spatial planning then the spatial planning can be changed in accordance with the legislation.</li> <li>• Administrative mistakes should be resolved by improving the administration and the state loss should be resolved by repayment of indemnification to the state.</li> </ul>



# THANK YOU

## DIRECTORATE GENERAL OF ELECTRICITY

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