



PLN

# EFFORTS PLAN IN ACHIEVING THE NEW RENEWABLE ENERGY MIX TARGET BY 2025

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PT PLN (Persero)



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# The Development of NRE Power Plant in Achieving Energy Mix Target



2020



Total Capacity  
63 GW



Renewable Energy Capacity  
7,9 GW



Energy Mix  
EBT 13.7%



2025



Total Capacity  
74 GW

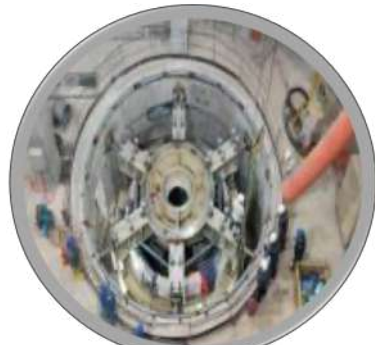


Renewable Energy Capacity  
± 17 GW



Energy Mix  
EBT 23%

## Potential NRE Development 2021-2030



Hydro 7 GW;  
Mini Hydro 1 GW,



Geothermal  
3,5 GW

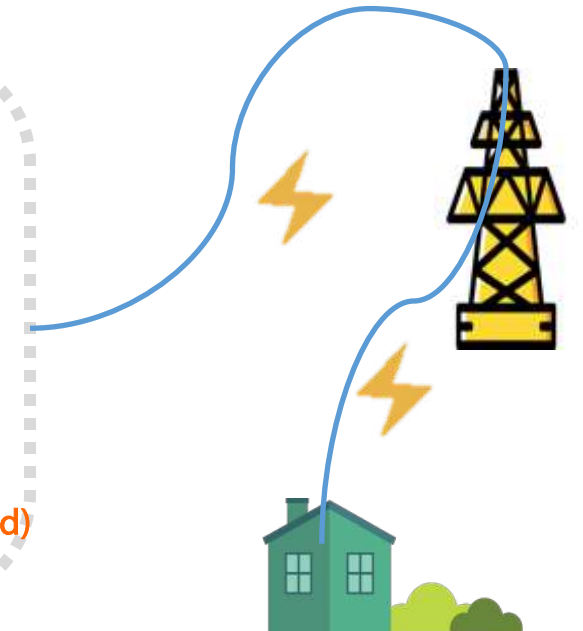


VRE (PV & Wind)  
3 GW



Bio Energy  
0,6 GW

Others (baseload)  
1 GW

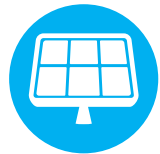




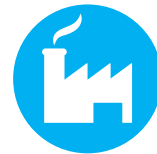
# Development Strategy of Renewable Energy

PLN commitment in supporting Government target for 23% Renewable Energy mix in 2025 is delivered in PLN Transformation program

*“Renewable energy development is not merely the fulfillment of government target, but it is a responsibility for the next generation of Indonesia”*



Development of Plant in consideration with the balance of electricity supply and demand, potential of local resource, reliability, sustainability, energy security, and the economy



Accelerate the development of RE in the deficit locations and Diesel dependent regions in order to reduce oil usage subsequently reduce the production cost



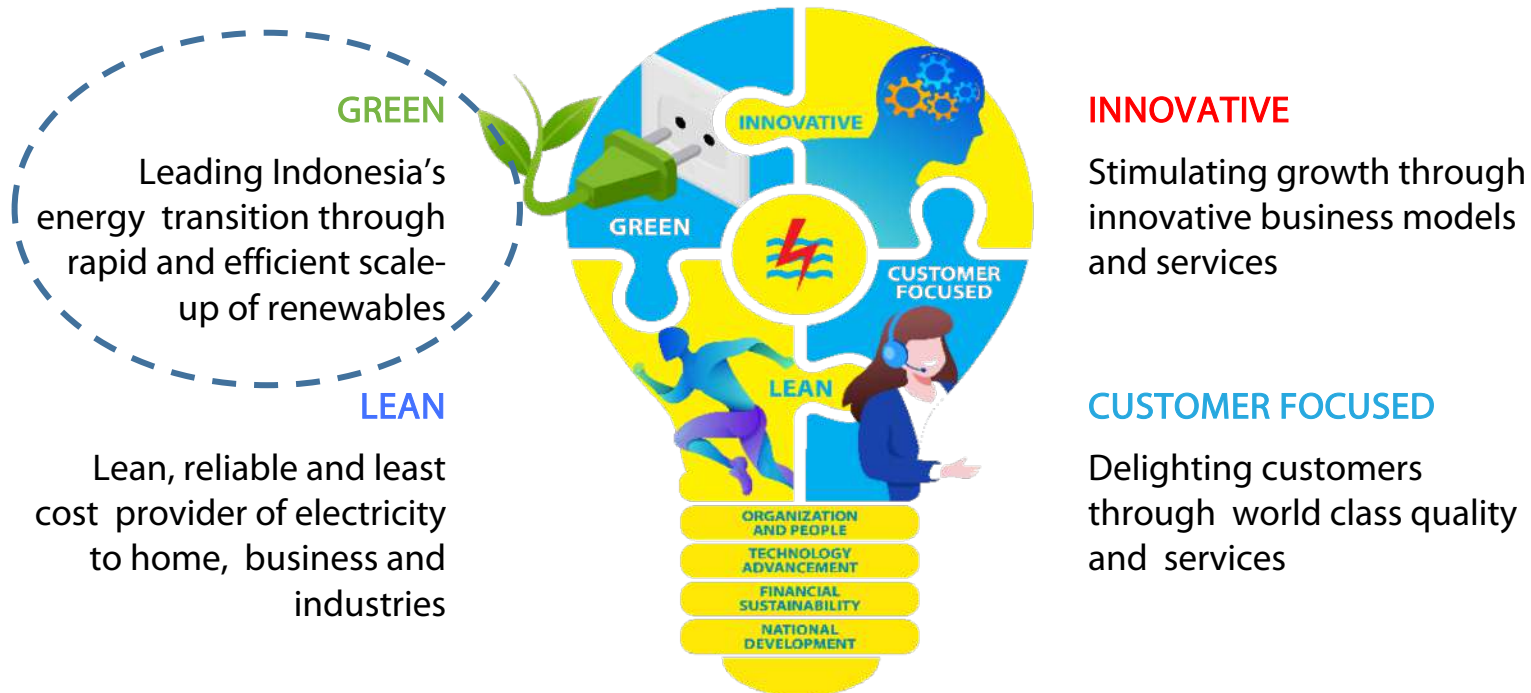
In the big Reserve Margin System, it's important to balance the supply and demand. In order to maintain the balance, PLN requires support from government and stakeholders to grow the investment climate in particular for industry sector in order to increase electricity demand and economic growth

# NRE Development Through the PLN Transformation Program



PLN has launched the PLN transformation program in early 2020, with 4 objectives, which are "Green, Innovative, Customer Focused, and Lean". It is a fundamental step for PLN in supporting the development of NRE which is announced in the Green pillar.

Electricity champion of South-East Asia and #1 customer choice for energy solutions



## GREEN

Leading Indonesia's energy transition through rapid and efficient scale-up of renewables

## LEAN

Lean, reliable and least cost provider of electricity to home, business and industries

## INNOVATIVE

Stimulating growth through innovative business models and services

## CUSTOMER FOCUSED

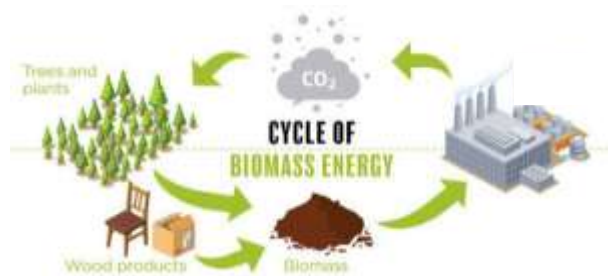
Delighting customers through world class quality and services



- 20 breakthroughs
- ~1000 initiatives
- ~500 Initiative owners & change agents

## Green Booster Program

### a) Co-Firing-Biomass



Co-Firing Biomass on Coal Fired Power Plant (CFPP) as substitution of (1-5%) coal fuel will contribute to achieve NRE mix target 23% in 2025.

Several benefits: optimizing of existing Power Plant; utilizing biomass or waste as fuel for CFPP without developing new plant; community development

It has been implemented in 13 CFPP locations owned by PLN and other 40 CFPP locations in trials.

### b) Diesel Conversion to RE



As one of PLN's commitments in achieving RE mix of 23% in 2025, that will be accomplished by Diesel Power Plant (DPP) conversion to Renewable Energy.

Total PLN's Diesel Power Plant spread over 2,130 locations all over Indonesia. The implementation is carried out in stages, the 1st stage will be in 200 locations.

### c) Multipurpose Dam Hydro



One of the innovative collaborations of PLN and Ministry of Public Works (PUPR) that uses existing reservoirs/ dams which has multipurpose: irrigation while generating electricity.

There are 6 mini hydro power plant locations in PUPR's dam that are in progress.

## ➤ Large Scale Program

### a) Hydro - REBID



PLN supports investment opportunities in Indonesia by providing electrical energy from NRE Power Plant for industry under the Renewable Energy Based Industry Development (REBID) scheme.

Large-scale hydropower development shall take into account supply demand, system conditions, and economics.

### b) Large Scale Solar



PLN and its subsidiary are overseeing the development of the largest floating solar power plants in Southeast Asia and several other large-scale solar power plants.

PJB-Masdar develop the Floating PV 145 MWac at Cirata, West Jawa, which will be operational in 2022

### c) Geothermal



- Potential of geothermal power in Indonesia is one of the biggest in the world, 28,5 GW while the utilization is only 2 GW.
- Synergy between SoE as well as private sector is needed to encourage the development of geothermal power plant

# Challenges of Developing RE Plants



## • NRE Power Plants are Intermittent and Site Specific

### 1. Effect on system stability for Variable RE power plants that requires additional investment both on the side of PLN and the developer:

- Automatic Generation Control, Precise Forecasting Generation, Automatic Dispatch System, SCADA system upgrading,
- Additional spin reserve capacity (as a back up)
- Grid code enforcement

b. Resources for hydro power are located in remote areas, which requires additional investment to supply electricity to load centers

It is necessary to harmonize supply & demand in order to accelerate the addition of new power plants. Readiness is not only on the side of power generation but also on the side of demand growth

## • Balancing of Supply & Demand

- Optimization of local support in order to meet with government regulation (Ministry of Industry).
- The need for synchronization of funding with local content policies.

## • Optimization of Local support

The need for funding with attractive and competitive schemes from investors and other funding institutions (lender) for the development of NREs.

## • Funding

# How To Work Together In Developing NRE Power Plant



## Policies & Procurement Mechanism

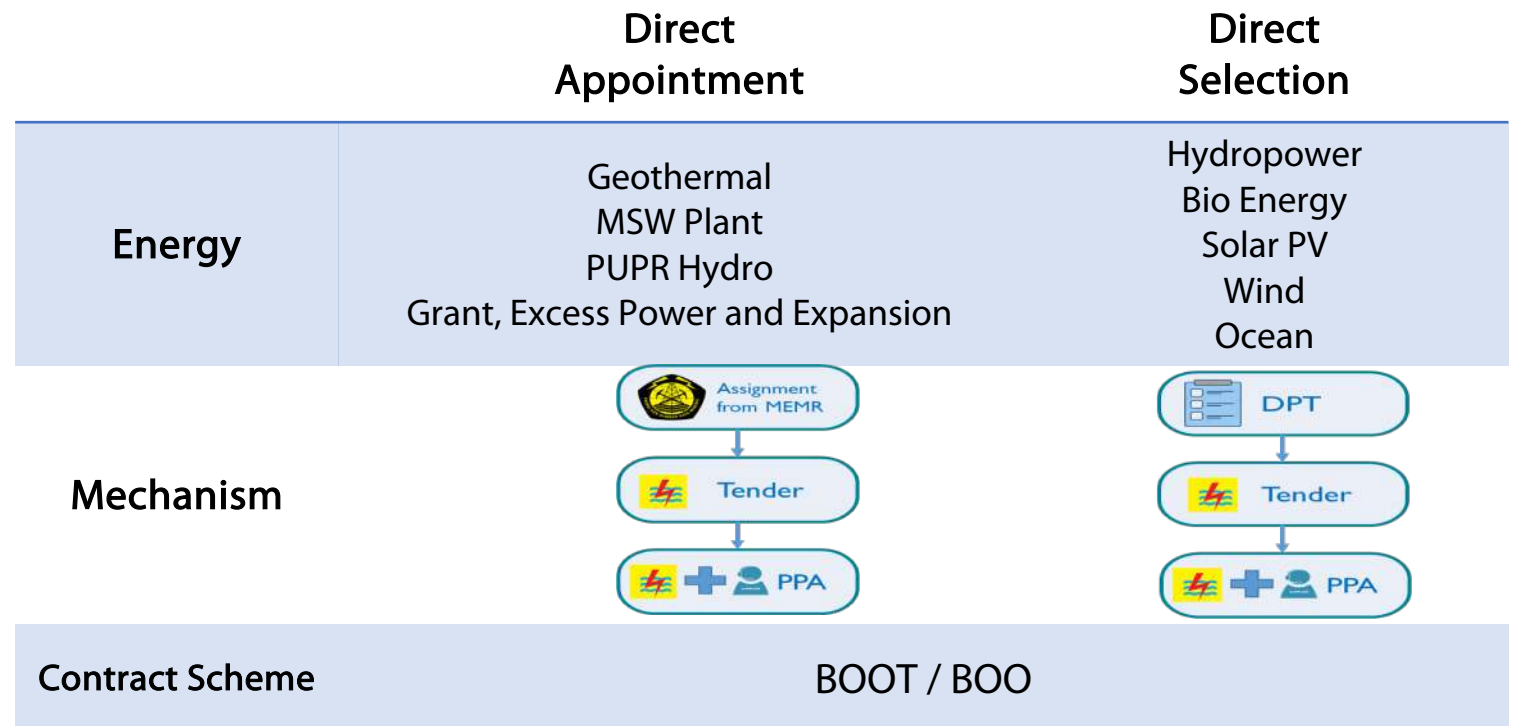


### ➤ EPC Scheme (owned by PLN)

Financing options (e.g, equity, bonds, loan, ECA etc.)

### ➤ IPP Scheme ( e.g refer to regulations MEMR 04/2020, for electricity sales of RE )

- The development can be carried out with EPC scheme for the PLN Project or IPP scheme.
- Policies, development provisions The procurement mechanism follows the applicable regulations, currently for the sale of EBT electricity according to PERMEN No. 4/2020 & PLN procurement provisions.
- Other policies / related Government Regulations e.g: Regulations on the use of TKDN; Environmental regulations related to AMDAL / UKL UPL; Relevant regulations according to the type of generator.





# Multiplier Effects " PLN's Green Transformation Program"



PLN's GREEN Transformation Program



Renewable Energy Power Plant

'Multiplier Effect'

Clean Energy



Emission Reduction

Economy



Affordable Energy



Reducing Fuel Imports

Electrification



National Energy Security

Other Benefit



Utilization of PV Land for Plantation



Infrastructure development



Creating Local Industries & jobs



Increase Electrification Ratio → Residential, Public Service



Creating demand :  
 - Telecommunication  
 - Tourism  
 - Fishery



Thank You