Gas Supply Planning for Power Generation

- Gas Indonesia Summit 2019 -

Prepared by
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PT PLN (Persero)

Proper Emas 2018
PLTU Paiton & PLTDG Pesanggaran

July 2019

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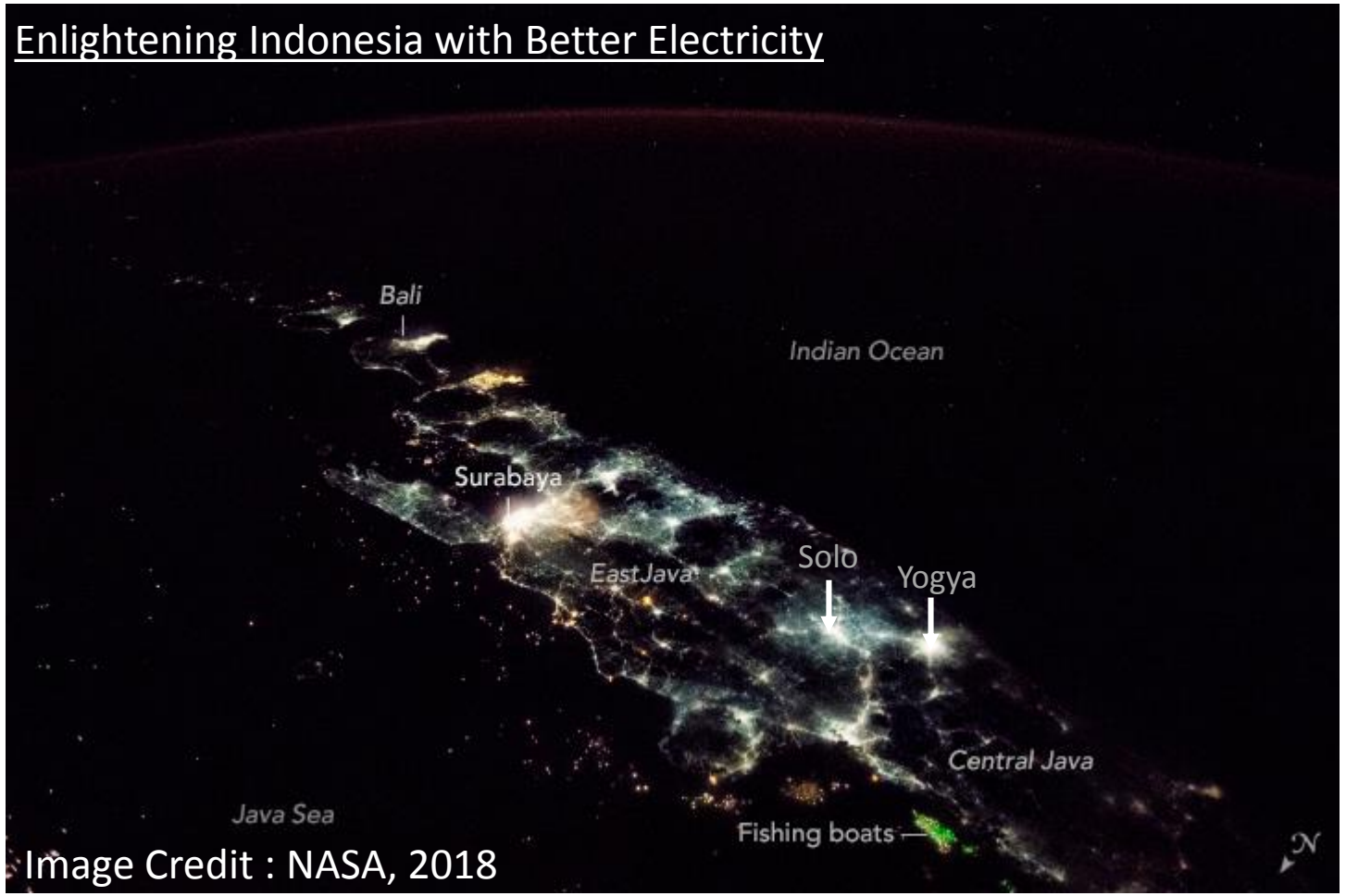


RUPTL 2019-2028

Electricity Growth

6,42%

RUPTL 2018-2027:
6,86%

Additional Power Plant

56.395 MW

RUPTL 2018-2027:
56.024 MW

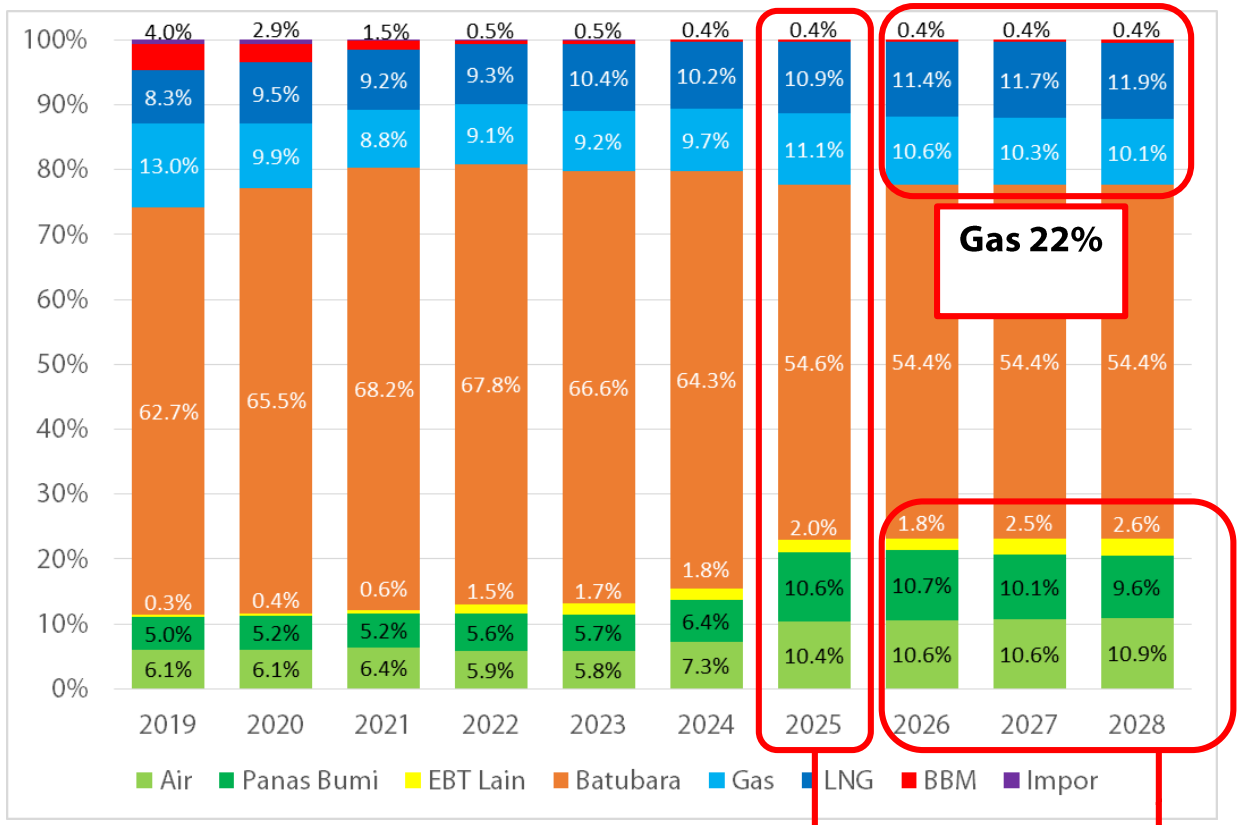
Gas Portion in Fuel Mix

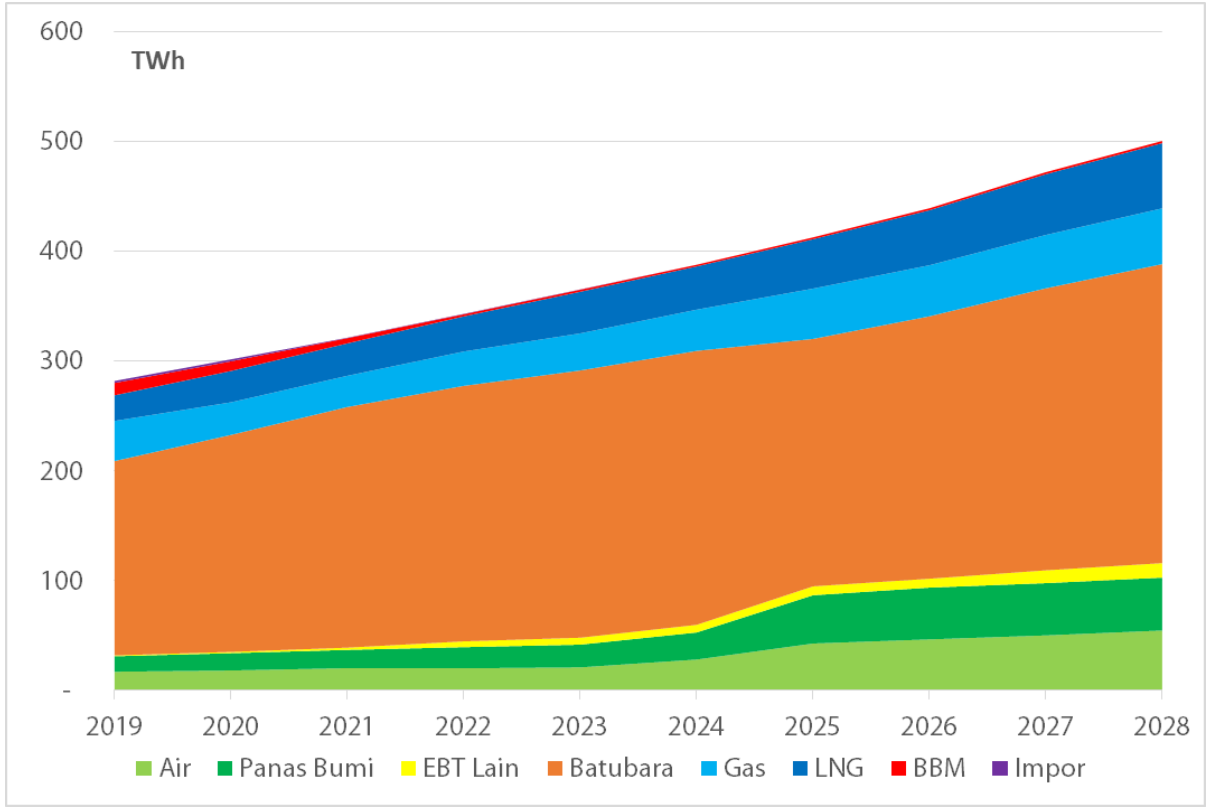
22,0%

RUPTL 2018-2027:
22,2 %

As mandated by the National Energy Policy, natural gas utilization by power sector is targeted at least 22% of total electricity produced in 2025.

Energy Mix Projection (2019-2028)



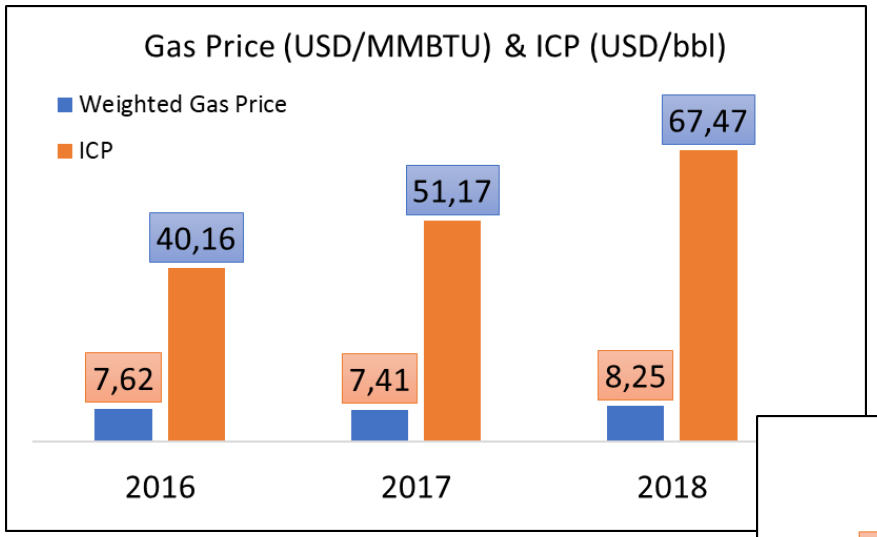


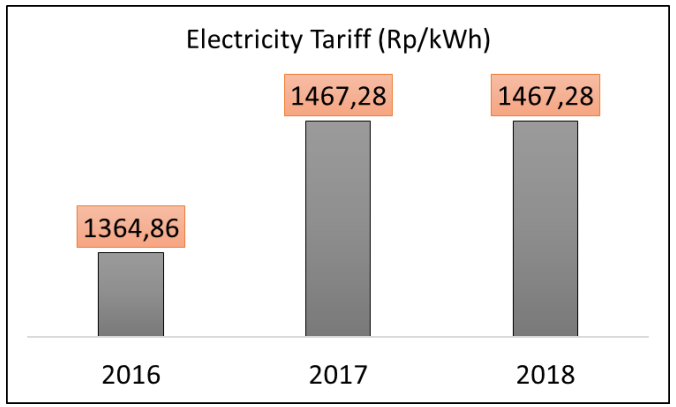
Energy	RUPTL 2018-2027	RUPTL 2019-2028
RE	23,0%	23,0%
Gas	22,2%	22,0%
Coal	54,4%	54,6%
Diesel	0,4%	0,4%
Total	100%	100%

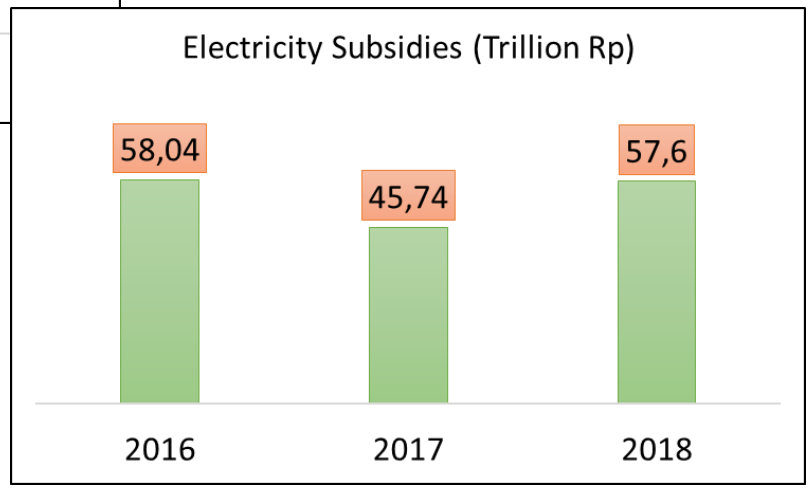
Energy Mix Target in 2025

Renewable Energy 23,2%

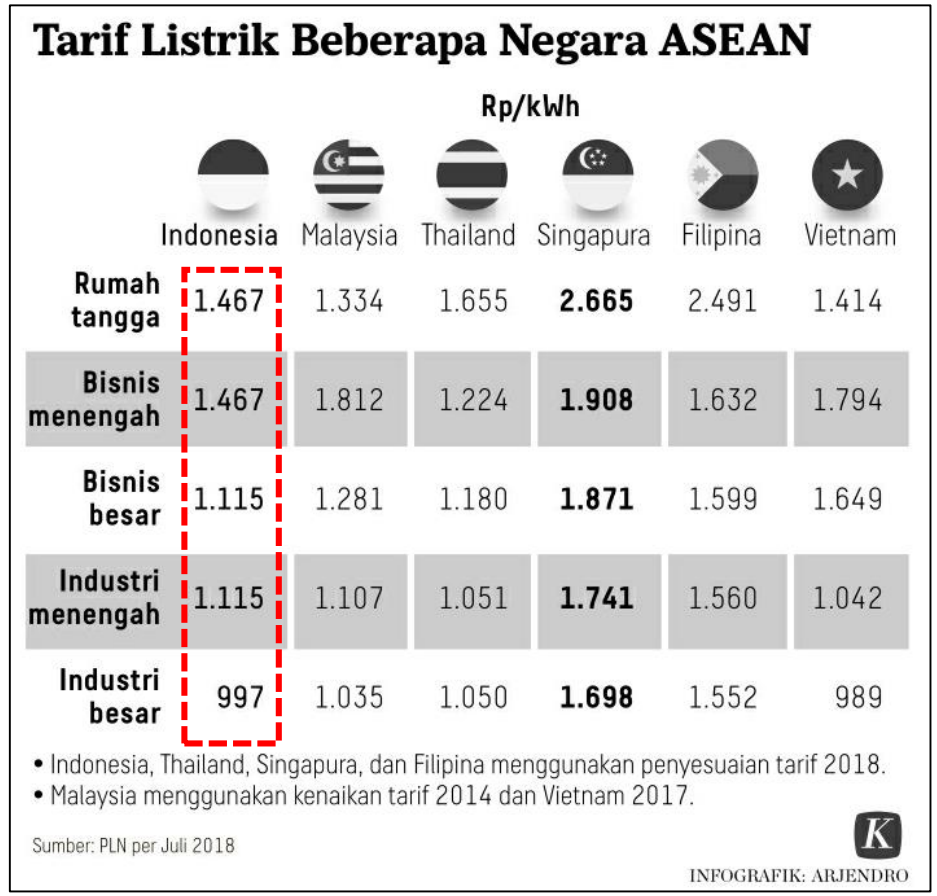
Electricity Tariff at Affordable Price







Gas Expense :
2016 = Rp 51,08 Trillion
2017 = Rp 47,60 Trillion
2018 = Rp 55,24 Trillion



Tarif Listrik Beberapa Negara ASEAN

Rp/kWh

	Indonesia	Malaysia	Thailand	Singapura	Filipina	Vietnam
Rumah tangga	1.467	1.334	1.655	**2.665**	2.491	1.414
Bisnis menengah	1.467	1.812	1.224	**1.908**	1.632	1.794
Bisnis besar	1.115	1.281	1.180	**1.871**	1.599	1.649
Industri menengah	1.115	1.107	1.051	**1.741**	1.560	1.042
Industri besar	997	1.035	1.050	**1.698**	1.552	989

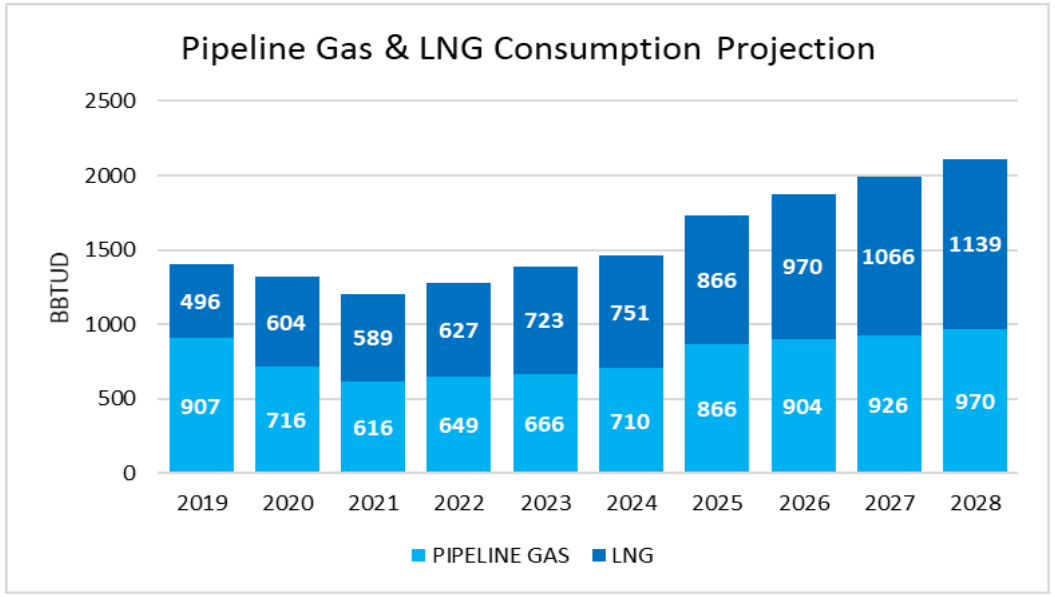
• Indonesia, Thailand, Singapura, dan Filipina menggunakan penyesuaian tarif 2018.
• Malaysia menggunakan kenaikan tarif 2014 dan Vietnam 2017.

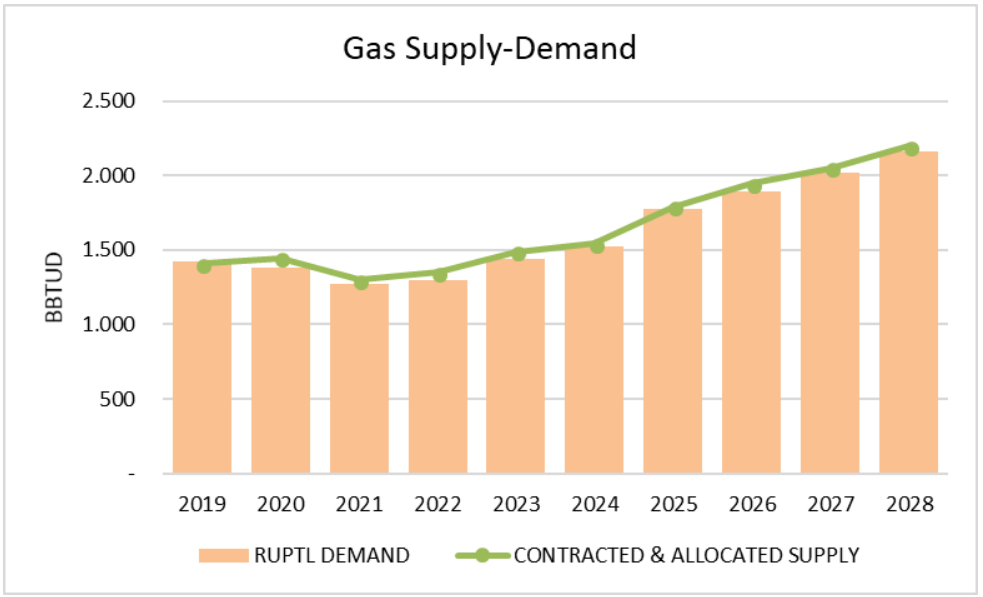
Sumber: PLN per Juli 2018

INFOGRAFIK: ARJENDRO

Amid the fluctuations in ICP prices that affect the price of LNG used by PLN,
PLN remains not to raise electricity rates, keeping at affordable prices.

Gas Utilization Projections for Electricity (RUPTL 2019-2028)

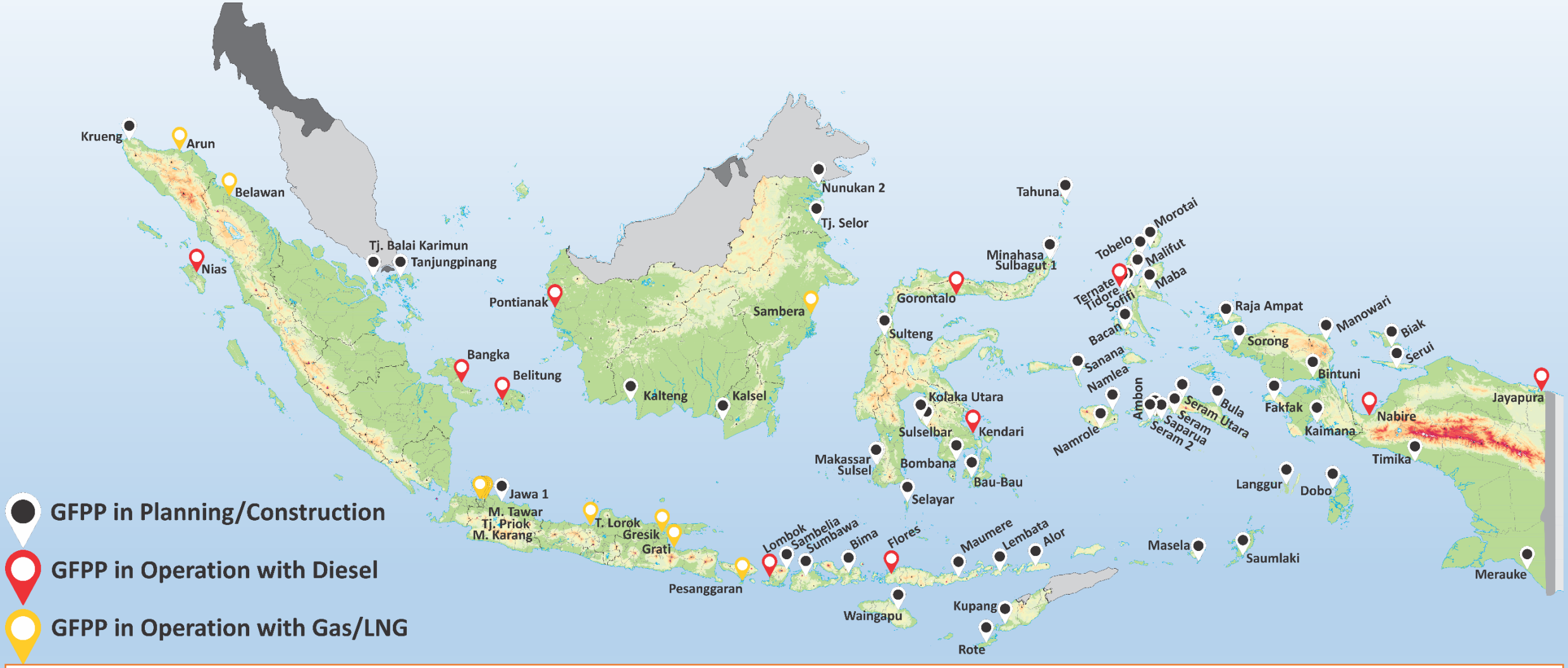




Current Gas Receiving Facilities utilized by PLN :
- FSRU Jawa Barat (operated by NR)
- FSRU Lampung (operated by PGN LNG)
- Arun LNG Terminal (operated by PAG)
- Benoa LNG Terminal (operated by PEL)
- LNG Trucking Semberah (operated by PTGN)
- CNGs in Several Power Plant

Next PLN's Gas Receiving Facilities will be prepared by
- Direct Assignment to PLN GG
- Open Tender for Power Generations include Gas Infrastructure (Bundling)
- SOE's Cooperation

LNG for Gas Fired Power Plants (RUPTL 2019-2028)



With most of the new fired gas power plants planned are located in the scattered area with small capacity and far from gas sources, PLN designed LNG supply with Hub & Spoke/Milk Run logistic scheme to provide an affordable and reliable LNG supply to Power Plants. Gas distribution for most clusters are small scale LNG logistics.

Key Issues in PLN's Gas/LNG Utilization

ISSUES / CHALLENGES

- Government Regulations/Policy
- Uncertainty in Sub Surface Cond. & Gas Dispatch
- Non Owned Dedicated Facility
- Shallow Water
- Logistics Scheme
- Limited SSLNG Terminal
- Wide Swing Supply
- Upward/Downward Quantity Tolerance
- Acceptable IRR, TOP
- Merit Order to Dispatch, CF
- Gas Price, BPP/Cost of Electricity

PLN's Gas Supply Strategy in the Aim of Providing Reliable and Affordable Electricity Supply in Indonesia :

Security of Supply

- Secure the gas supply both in long term and short term (quantity, quality and reliability).

→ Long term LNG SPA, own and operate dedicated gas/LNG infrastructure.

Flexibility of Supply

- Provide flexibility in nominating and distribute the gas/LNG supply to easily adapt with the change of power plant operation.

→ Direct agreement with PSC contractor with multi destination scheme.

Cost Efficiency

- Achieve cost efficiencies both in energy price, transportation within gas supply chain.

→ Getting competitive gas/LNG supply contract and also efficient infrastructure cost.

PLN

Thank You