

Not rated

Green Energy

KTAs from Kadin Indonesia Green Energy Investment Dialogue

- PLN is finalizing its RUPTL draft, with a stronger renewable mix in place, accommodating c.70% of future installed capacity.
- A new initiative within RUPTL includes the construction of transmission lines to connect rural renewable source with electricity demand in cities.
- Danantara is eyeing an investment size of US\$20bn annually, and it will be looking for an investment partner to de-risk.

PLN's RUPTL Draft

PLN is finalizing its 10-year national electricity supply business plan (RUPTL) for the period of 2025-2034. In the upcoming draft, there is a significant change in renewable targets which are:

- Additional installed **capacity of 107GW**, of which 70% or c.75GW are renewables, **implying a 44% renewable mix by 2034, based on our calculation.** (vs. 2021-2030 additional installed **capacity of 40.6GW**, of which 52% are renewables, and a **renewable mix target of 23% by 2030**). The total investment is estimated to reach as high as US\$235bn.
- Focus on renewable capacity addition is from hydro power plants (PLTA), which only has an **installed capacity of c.5GW in 2020**, while **2034 target is set at +25GW** (vs. c.+5GW in RUPTL 2021-2030). Other than hydro, **wind power plants are planned to grow to 15GW by 2034** (RUPTL 2021-2030: no installed capacity)
- The main issue with renewable energy is location, as electricity demand in city center is far from the energy source. Thus, **the upcoming RUPTL will focus on constructing a green super grid transmission line**, which spans c.48 thousand km of transmission by 2034 and c.63 thousand km by 2040
- However, **building transmission lines comes with a challenge**, which is **a low rate of return and high cost of funds**. With an estimated **capex intensity of US\$35bn** for 63 thousand km, PLN is not capable of constructing and operating by itself. Thus, the involvement of PLN in KADIN is expected to be a first step to entice both local and foreign investors in the private and governmental sectors.

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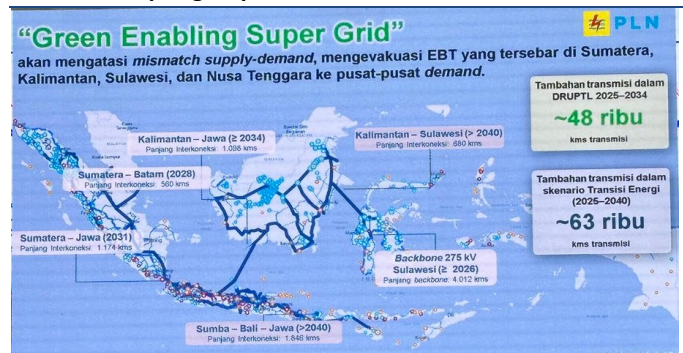
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Remarks on the future of investment (Danantara)

- Danantara is eyeing an investment size of US\$20bn annually, which could be leveraged up to US\$60-80bn to invest in key strategic projects. To manage its risk, Danantara will co-invest in projects with several different partners.

Exhibit 1. Super grid plan for transmission lines


Source: PLN

Exhibit 2. 2025-2040 RUPTL capex estimation

Projects (2025-2040) ¹	Capacity	Investment (2025-2040) (US\$bn)
Additional renewable baseload ²	~33 GW	83
Additional thermal baseload ³	~27 GW	31
Additional VRE ⁴ (Wind & Solar)	~42 GW	42
Battery Energy Storage System (BESS) ⁵	~32 GW	32
Nuclear ⁶	~5 GW	3
Transmission Lines & Substation	~63,000 km	35
End-to-end smart grid	5 regions, 38 province	9
Total Investment		235

Notes:

- Projects 2025-2040 are based on RUPTL 2025-2034 R2 and the updated Energy Transition Scenario 2025-2040.
- Hydro (25 GW), Geothermal (8.5 GW), Bioenergy (5 GW).
- Gas (21.3 GW), Coal (5 GW).
- Solar (20.7 GW), Rooftop PV (4 GW), Wind (14.5 GW).
- BESS capacity (32 GW) assumes a levelized cost of 4 USDc/kWh.
- Nuclear capacity (5.3 GW) assumes a levelized cost of 10 USDc/kWh.

Source: Company, BRIDS

Exhibit 3. 2020 installed capacity

Description	2020**		
	Owned	Leased	Excess Power/IPP/ Cooperation with Other IUPTL Holders
PLTA/PLTM	3,584.07	-	1,589.97
PLTA Pumped Storage			
PLTP	579.26	-	1,863.42
PLTBiomass	0.50	-	119.12
PLTSa			
PLTS	16.71	0.75	61.56
PLTBioFuel			130.60
PLTG	2,842.67	187.76	922.50
PLTGU	11,190.31		863.63
PLTMG	1,903.97	433.55	30.30
PLTD	3,369.89	729.06	284.00
PLTGB			
PLTU	18,615.63	90.00	11,454.50
PLTU Oil/Gas	1,585.00		
Import			
Subtotal	43,688.48	1,441.12	17,319.60
TOTAL			62,449.20

* Excludes power plants under development

** Realization as of December 2020

Source: Company, BRIDS

Exhibit 4. 2025-2034 RUPTL capacity addition plan

Energy Source	Capacity (GW)
Renewable Energy (RE) Total	~75 GW
- Wind	15 GW
- Solar	27 GW
- Battery Energy Storage System (BESS)	32 GWh
- Geothermal	7 GW
- Bioenergy	1 GW
- Hydropower	25 GW
Nuclear	5 GW
Gas	22 GW
Coal	5 GW
Total Additional Power Capacity (2025-2040)	~107 GW

Source: Company, BRIDS

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INVESTMENT RATING

BUY	Expected total return of 10% or more within a 12-month period
HOLD	Expected total return between -10% and 10% within a 12-month period
SELL	Expected total return of -10% or worse within a 12-month period

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