

Putting PLN's Net Zero Ambition into Context The Numbers Will Need to Add Up

Elrika Hamdi, Energy Finance Analyst Putra Adhiguna, Energy Finance Analyst

25 June 2021



Institute for Energy Economics and Financial Analysis IEEFA.org

A Snapshot of IEEFA



... the Americas, Europe, and Africa ...



PLN's Announcement in a Parliamentary Hearing 27th May 2021





MEMR's Press Release

4th June 2021

Scenario 1

Indonesia's Electricity Production 2021–2060 (TWh)



Scenario 2



Existing Steam Power Plants (PLTU) Capacity Age and Additional Plans



Includes 1GW of legacy steam power plants running on oil or gas. Source: RUPTL, MEMR, PLN.

This is not an early retirement plan for coal.

All coal plants are still on track to operate for their forecast economic/contractual life.



Coal Power Plants Project Pipeline

The 35 GW coal power programme will largely stay on track.

- Despite the looming over-capacity in Java-Bali grid and Sumatera grid
- Around 16 GW of NEW coal capacity will come online between 2021 and 2030 (1.7 GW of which are still "under further discussion")

Jawa Barat Jawa Tengah Jawa Tengah Aceh Aceh Aceh Jambi Jawa Tengara Jawa Tenggara Timur Jawa Tenggara Te			Capacity (MW)	COD year
Image: Section of the section of th	0 IPP	Indo Raya Tenaga (Indonesia Power, Barito Pacific)	2,000	2025/2
Jawa Barat Jawa Barat Jawa Tengah Jawa Ten	a Lontar Exp PLN		315	2021
Jawa Tengah Image: Constraint of the sector of the sec	P2) aka Cirebon Unit 2 IPP	Cirebon Electric Power	1,000	2022
Jawa Tengah Aceh Sumut Jambi J	4 (FTP2) PLN		1,000	2029
Jawa Tengah Jawa Tengah (PP Aceh Sumut Jambi Ja	P2) aka Tanjung Jati A IPP	Tanjung Jati Power Co, Bakrie Power (B&Brothers Tbk, YTL Corp)	1,320	2025/2
Aceh Jawa Tengah (PP Aceh Meulaboh aka N Sumut PLTU MT Jambi: Jambi PLTU MT Jambi: Jambi PLTU MT Jambi: Sumatera Selatan MT Sumsel-1 Uni Kalimantan Barat MT Sumsel-3 Uni Kalimantan Tengah MT Sumsel-1 Uni Kalimantan Tengah MT Kalselteng 3 Kalimantan Selatan MT Kalselteng 2 Unit Kalimantan Utara Malinau Unit 1 Sulawesi Utara Malinau Unit 1 Sulawesi Selatan Sulut 3 Unit 1 Sulawesi Tengah Sulbagut 1 Unit 1-2 Nusa Tenggara Barat Sumatera Selatan Nusa Tenggara Timur Acen Matambu Unit 1-2 Musa Tenggara Ti	ka Tanjung Jati B Unit 5-6 IPP	Bhumi Jati Power (Sumitomo, Kansai, United Tractors (Astra))	2,000	2021
Sumut Image: sector of the	P) aka Batang IPP	Bhimasena Power Ind (J-Power, Adaro Power, Itochu)	1,900	2021
Jambi Jambi Jambi Sumatera Selatan Kalimantan Barat Kalimantan Timur Kalimantan Tengah Kalimantan Tengah Kalimantan Utara Kalimantan Utara Kalimantan Utara Sulawesi Utara Sulawesi Selatan Sulawesi Tenggara Sulawesi Tenggara Su	agan Raya Unit 3-4 IPP	Meulaboh Power Gen (PP Energi, China Datang Ovs., Sumberdaya)	400	2023
Jambi	KWil	lus Operating Areas Cooperation (Kerjasama Wilayah Usaha)	300	2023
Sumatera Selatan Image: Control of the second s	L Unit 1-2 IPP	Putra Indotenaga - PLN BB	600	2027
Sumatera Selatan Image: Sumatera Selatan Image: Sumatera Su	2 Unit 1-2 IPP	Pembangkitan Perkasa Daya	600	2026
Kalimantan Barat MT Sumbagsel 1 Kalimantan Timur MT Sumbagsel 1 Kalimantan Timur MT Sumbagsel 1 Kalimantan Tengah MT Kalselteng 3 Kalimantan Selatan MT Kalselteng 2 Kalimantan Utara MT Kalselteng 2 Sulawesi Utara MT Kalselteng 2 Sulawesi Selatan MT Sulbagut 1 Sulawesi Tengah MT Sulbagsel 1 Sulawesi Tenggara MT Kalselteng 2 Musa Tenggara Barat MT Sumbagsel 1 Nusa Tenggara Timur MT Kalselteng 2 Musa Tenggara Timur Ma Kalselteng 2 Musa Tenggara Timur Ma Kalselteng 2 Musa Tenggara Timur<	t 1-2 IPP	Shenhua Guohua Lion Power Ind (Shenhua, Lion Energy)	600	2023
Kalimantan Barat Parit Baru (FTP1 Kalimantan Timur MT Kalselteng 3 Kalimantan Tengah MT Kalselteng 3 Kalimantan Selatan MT Kalselteng 2 Unit Kalimantan Utara Kalimantan Utara Sulawesi Utara MT Kalselteng 2 Unit Sulawesi Selatan Sulut 3 Unit 1 Sulawesi Tenggara Sulbagut 1 Unit 1-2 Sulawesi Tenggara Sulbagua Unit 1-2 Nusa Tenggara Timur Maina Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2 Nusa Tenggara Timur Atarubua Unit 1-2 Musa Tenggara Timur Atarubua Unit 1-2	it 1-2 IPP	Huadian Bukit Asam Power (Bukit Asam, China Huadian)	1200	2022
Kalimantan Barat Bengkayang (FTF Kalimantan Timur MT Kalselteng 3 Kalimantan Tengah MT Kalselteng 2 Kalimantan Selatan Kalselteng 2 Kalimantan Utara Kalselteng 2 Sulawesi Utara MT Kalselteng 2 Sulawesi Utara Sulbagut 1 Sulawesi Selatan Sulbagut 1 Sulawesi Tenggara Sulbagsel Unit 1-2 Sulawesi Tenggara Sulbagus 2 Nusa Tenggara Timur Kate Ndao Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2 Nusa Tenggara Timur Alor Unit 1-2	Unit 1-2 IPP	Sumbagsel Energi (Sakti) Perwali	300	2024
Kalimantan Timur Bengkayang (FTF Kalimantan Tengah MT Kalselteng 3 Kalimantan Selatan MT Kalselteng 2 Unit Kalimantan Utara Kalimantan Utara Sulawesi Utara Malinau Unit 1 Sulawesi Utara Sulut 3 Unit 1 Sulawesi Selatan Sulut 3 Unit 1 Sulawesi Tenggara Sulbagut 1 Unit 1 Sulawesi Tenggara Sulbagut 1 Unit 1 Sulawesi Tenggara Timur Sulawa 2 Unit 1 Kalimantan Utara Sulbagut 1 Unit 1 Sulawesi Selatan Sulbagut 1 Unit 1 Sulawesi Tenggara Sulbagut 1 Unit 1 Sulawesi Tenggara Timur Rote Ndao Unit 1 Musa Tenggara Timur Atambua Unit 1 Musa Tenggara Timur Alor Unit 1	Unit 1-2 PLN	1	100	2022
Kalimantan Tengah MT Kalselteng 3 Kalimantan Selatan MT Kalselteng 2 Kalimantan Utara Kalselteng 2 Kalimantan Utara Malinau Unit 1 Kalimantan Utara Malinau Unit 1 Sulawesi Utara Sulut 3 Gorontalo Sulut 3 Sulawesi Selatan Sulbagut 1 Sulawesi Tenggara Bau-Bau Unit 1-2 Sulawesi Tenggara Bau-Bau Unit 1-2 Nusa Tenggara Timur Malinau Unit 1-2 Nusa Tenggara Timur Alarmuta 1-2 Musa Tenggara Timur Alarmuta 1-2	1) Unit 1-2 aka Pantai Kura2 PLN	1 I	55	2022
Kalimantan Tengah Sampit Unit 1-2 Kalimantan Selatan Kalselteng 2 Unit Kalimantan Utara Kalselteng 2 Unit Kalimantan Utara Malinau Unit 1 Kalimantan Utara Sulut 3 Unit 1 Sulawesi Utara Sulut 3 Unit 1 Gorontalo Sulut 3 Unit 1 Sulawesi Selatan Sulbagut 1 Unit 1-2 Sulawesi Tenggara Bau-Bau Unit 1-2 Nusa Tenggara Barat Sumbawa 2 Unit Nusa Tenggara Timur Atambua Unit 1-2	it 1-2 IPP	[?]	14	2023
Kalimantan Selatan Sampit Unit 1.2 Kalimantan Utara Kalselteng 2 Unit Kalimantan Utara Malinau Unit 1 Kalimantan Utara Sulut 3 Unit 1 Sulawesi Utara Sulut 3 Unit 1 Sulawesi Utara Sulut 1 Unit 1 Gorontalo Sulbagut 1 Unit 1 Sulawesi Selatan Barru 2 (1x100M) Sulawesi Tenggara Sulbagsel Unit 1-2 Sulawesi Tenggara Sulbagsel Unit 1-2 Nusa Tenggara Barat Bima Unit 1-2 (F Nusa Tenggara Timur Atambua Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2	Unit 1-2 IPP	PJBInvest - PLN BB	200	2024/
Kalimantan Selatan Kotabaru Unit 1 Kalimantan Utara Malinau Unit 1 Kalimantan Utara Sulut 3 Unit 1 Sulawesi Utara Sulut 3 Unit 1 Gorontalo Sulbagut 1 Unit 1 Sulawesi Selatan Sulbagut 1 Unit 1 Sulawesi Tenggara Bau-Bau Unit 1-2 Sulawesi Tenggara Barat Lombok Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2 Nusa Tenggara Timur Alor Unit 1-2	PLN	u	50	2023
Kalimantan Utara Kotabaru Unit 1 Kalimantan Utara Malinau Unit 1 Sulawesi Utara Sulut 3 Unit 1 Gorontalo Sulbagul 1 Unit 1 Sulawesi Selatan Sulbagul 1 Unit 1 Sulawesi Tengah Palu 3 Unit 1 Sulawesi Tenggara Sulbagsel Unit 1 Sulawesi Tenggara Sulbagsel Unit 1 Nusa Tenggara Barat Sumbawa 2 Unit 1 Nusa Tenggara Timur Rote Ndao Unit 1 Nusa Tenggara Timur Alarubua Unit 1	1-2 PLN	1	200	2022
Kalimantan Utara Tanjung Selor Ur Sulawesi Utara Sulut 3 Unit 1 Gorontalo Sulut 3 Unit 1 Gorontalo Sulbagut 1 Unit 1 Sulawesi Selatan Barru 2 (1x100M Sulawesi Tenggara Sulbagsel Unit 1-2 Sulawesi Tenggara Sulbagsel Unit 1-2 Nusa Tenggara Timur Sumbawa 2 Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2 Nusa Tenggara Timur Alar Unit 1-2 Alar Unit 1-2 Alar Unit 1-2 Alar Unit 1-2 Alar Unit 1-2	PLN	1 I	14	2023
Sulawesi Utara Image: Constraint of the second se	PLN	1 I	6	202
Sulawesi Utara Image: Constant of the second se	it 1 PLN	1 I	14	2021
Sulut 1 Unit 1 Gorontalo Sulawesi Selatan Sulawesi Tengah Sulawesi Tenggara Sulawesi Tenggara Barat Nusa Tenggara Timur Nusa Tenggara Timur Sulawesi Tenggara Timur	IPP	Minahasa Cahaya Lestari (Toba Bara S, Sinohydro Corp)	50	202
Gorontalo Sulbagut 1 Unit 1 Sulawesi Selatan Barru 2 (1x100M) Sulawesi Tengah Palu 3 Unit 1 -2 Sulawesi Tenggara Sulbagsel Unit 1- Sulawesi Tenggara Barat Sulbagara Unit 1-2 Nusa Tenggara Barat Sulbagara Unit 1-2 (F Nusa Tenggara Timur Sulbagara Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2	PLN	l	6	202
Sulawesi Selatan Barru 2 (1x100M Sulawesi Tengah Palu 3 Unit 1 -2 Sulawesi Tenggara Sulbagsel Unit 1 -2 Sulawesi Tenggara Bau-Bau Unit 1 -2 Nusa Tenggara Barat Lombok Unit 1 -2 (F Nusa Tenggara Timur Sulbagsel Unit 1 -2 Nusa Tenggara Timur Atambua Unit 1 -2 Nusa Tenggara Timur Atambua Unit 1 -2 Nusa Tenggara Timur Atambua Unit 1 -2	PLN	u	100	2023/
Sulawesi Tengah Sulawesi Tenggara Sulawesi Tenggara Nusa Tenggara Barat Nusa Tenggara Timur Nusa Tenggara Timur Sulawesi Tenggara Timur Sulawesi Tenggara Barat Sulawesi Tenggara Sulawesi S	-2 IPP	Gorontalo Listrik Perdana (TBS, Toba S, Shanghai Electric PC)	100	202
Sulawesi Tenggara Sulawesi Tenggara Sulawesi Tenggara Sulawesi Tenggara Sulawesi Tenggara Subagsel Unit 1-2 Lombok Unit 1-2 Lombok 2 Unit 1 Sumbawa 2 Unit 1-2 Sumbawa 2 Unit 1- Rote Ndao Unit 1- Timor 1 Unit 1-2 Alor Unit 1-2	IW) PLN	1 · · · · · · · · · · · · · · · · · · ·	100	202
Sulawesi Tenggara Bau-Bau Unit 1-2 Nusa Tenggara Barat Lombok Unit 1-2 (F Nusa Tenggara Timur Sumbawa 2 Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2	PLN	4	100	202
Sulawesi Tenggara Bau-Bau Unit 1-2 Nusa Tenggara Barat Lombok Unit 1-2 (F Nusa Tenggara Timur Sumbawa 2 Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2 Nusa Tenggara Timur Atambua Unit 1-2	2 PLN		400	2023/
Nusa Tenggara Barat Nusa Tenggara Barat Nusa Tenggara Timur Nusa Tenggara Timur Nusa Tenggara Timur Nusa Tenggara Timur		[?] - Note that this unit is different from Bau-Bau PLN units	30	2023/
Nusa Tenggara Barat Bima Unit 1-2 (F Sumbawa 2 Unit Atambua Unit 1- Rote Ndao Unit 1- Timor 1 Unit 1-2	(FTP 2) PLN	4	100	2021/
Bima Unit 1-2 (F Sumbawa 2 Unit Atambua Unit 1- Rote Ndao Unit 1- Timor 1 Unit 1-2 Alor Unit 1-2	-2 PLN	4	100	2023/
Nusa Tenggara Timur Atambua Unit 1- Rote Ndao Unit 1- Timor 1 Unit 1-2	(P 1) PLN	4	20	202
Nusa Tenggara Timur Timor 1 Unit 1-2 Alor Unit 1-2	,	PLN (Previously unallocated in RUPTL2019)	100	2023/
Nusa Tenggara Timur Timor 1 Unit 1-2 Alor Unit 1-2	4 PLN		24	203
Timor 1 Unit 1-2	-2 PLN	4	6	2022/
Alor Unit 1-2	PLN	J	100	2022/
Maluku Ambon-Waai (FT	PLN	۱	6	2022/
AIIDUI-Waal (II	P1) Unit 1-2* PLN	N		
Sofifi Unit 1-2	PLN	I	6	202
Maluku Utara	Timur (Haltim) Unit 1-4 PLN		200	
Papua Nabire - Kalibob	· · · ·		14	
Papua Barat Sorong [Ex Timik			28	203



Coal Plants Still in Financing Stage Status According to PLN Annual Report 2020

Province	Plant Name	Plant Name	Ownership	Capacity (MW)	COD
	PLTU MT Jambi-1 Unit 1	IPP	PLN Subsidiary (PT Putra Indotenaga & PLN BB)	300	2027
la web:	PLTU MT Jambi-1 Unit 2	IPP	PLN Subsidiary (PT Putra Indotenaga & PLN BB)	300	2027
Jambi PLTU MT Jambi-2 Unit 1		IPP	PT Pembangkitan Perkasa Daya	300	2026
	PLTU MT Jambi-2 Unit 2	IPP	PT Pembangkitan Perkasa Daya	300	2026
Cauth Coursetons	MT Sumbagsel 1 Unit 1	IPP	PT Sumbagsel Energi (Sakti) Perwali	150	2024
South Sumatera	MT Sumbagsel 1 Unit 2	IPP	PT Sumbagsel Energi (Sakti) Perwali	150	2024
	Indramayu Unit 4 (FTP2)	PLN		1,000	2029
	PLTU Jawa-3 (FTP2) Unit 1	IPP	Bakrie Power (B&Brothers Tbk 20%, YTL Corporation 80%)	660	2025
West Java	aka Tanjung Jati A				
	PLTU Jawa-3 (FTP2) Unit 2	IPP	Bakrie Power (B&Brothers Tbk 20%, YTL Corporation 80%)	660	2026
	aka Tanjung Jati A				
0	MT Kalselteng 3 Unit 1	IPP	PLN Subsidiary (PT PJBInvest & PLN BB)	100	2024
Central Kalimantan	MT Kalselteng 3 Unit 2	IPP	PLN Subsidiary (PT PJBInvest & PLN BB)	100	2025
South Kalimantan	MT Kalselteng 5 Unit 1	IPP	PLN Subsidiary (PT PJBInvest & PLN BB)	100	2025
			TOTAL	4,120	

The 35 GW coal power programme will largely stay on track.

- 4.1 GW out the 16 GW were still under 'Financing Stage' according to PLN Annual Report 2020

 meaning it HAS NOT reached financial close
- 2 projects were from the FTP-2 program : PLTU Jawa-3 / Tanjung Jati A and PLTU Indramayu
- Most of the projects are IPP owned



First Phase 2030 1 GW Potential Retirement Are Long Overdue



The first phase of PLN's 1 GW retirement planned for 2030 are *very old* plants.

They would have been in service for 50-60 years by then.

What are the steps that PLN has taken to prepare for these decommissioning plans, including the environmental remediation?



Small Coal Plants Cancellation List

Region	Name	Capacity	Capacity (MW)		Status	IEEFA Remarks
Sumatera	PLTU Tembilahan	2x5.5	11	IPP	Cancelled	Already changed to Substation (GI) in RUPTL 2019
Sumatera	PLTU Kuala Tungkal	2x7	14	PLN	Cancelled	Already changed to Substation (GI) in RUPTL 2019
Sumatera	PLTU Ipuh Seblat	2x3	6	PLN	Cancelled	Already changed to Substation (GI) in RUPTL 2019
Sumatera	PLTU Bengkalis	2x10	20	PLN	Cancelled	Already changed to Substation (GI) in RUPTL 2019
Kalimantan	PLTU Tarakan	2x7	14	PLN	Cancelled	Already changed to Gas Engine Units (PLTMG) in RUPTL 2019
Kalimantan	PLTU Kuala Pambuang	2x3	6	PLN	Cancelled	Already changed to Substation (GI) in RUPTL 2019
Kalimantan	PLTU Bontok	2x7	14	PLN	Cancelled	Already changed to Substation (GI) in RUPTL 2019
Sulawesi	PLTU Raha	2x3	6	PLN	Cancelled	Already changed to Substation (GI) in RUPTL 2019
Sulawesi	PLTU Bau-Bau	2x10	20	PLN	Cancelled	New cancellation
Sulawesi	PLTU Wangi-Wangi	2x3	6	PLN	Cancelled	Already changed to Diesel Units(PLTD) in RUPTL 2019
Maluku & Papua	PLTU Ambon-FTP1	2x15	30	PLN	Cancelled	New cancellation
Maluku & Papua	PLTU Jayapura	2x15	30	PLN	Cancelled	Already changed to Mobile Power Plant (MPP) in RUPTL 2019

10 out 12 'troubled' small coal plants that were targeted for cancellation were actually cancelled *two years* ago in 2019 RUPTL.



Different PLN and MEMR 2060 Net Zero Scenarios (TWh)



MEMR's and PLN's Net Zero Emission (NZE) scenarios are based on different assumptions.

- Different electricity growth projection
- Different approaches in the use of technologies solar, wind, nuclear, gas/gasified fuel, and biomass



Major changes but little emphasis in announcements

Province	Plants Name	Capacity (MW)	DRUPTL 2021 Total Modified (MW)	Ownership	Notes
Banten	Jawa-5	1000	1,660	PLN Subsidiary (majority owned by PT Indonesia Power)	"unclear info. Jawa 5 was tendered in 2016, and annuled in 2017. PU then deided Jawa-5 will be built by PT IP and Its JV consortium. But here plan dissapered in 2018 RVIT-1, and reappear in 2019 RVIT-1. plan was for 2:1000 MW in 2016, and later on reduced to 1000 MW 2019 RUPTL. In DRUPTL 2021 the plan is postponed according to system's needs
	Banten unallocated	660		Unallocated	Stated as postponed according to system's needs
North Sumatera	Sumut-2 Unit 1 &2	600	600	PLN Subsidiary (majority owned by PT PJB Investasi, minority PT Gamma Energi Negeri	Stated as postponed according to system's needs
Riau	Riau-1 Mine Mouth	600	600	PLN Subsidiary (51% PJB Investasi & PLN Batubara; 49% Samantaka batubara (BlackGold & China Huadian))	Stated as postponed according to system's needs
Riau Islandsi (Excl. Batam)	Bintan Unit 1 & 2	200	200	PLN	Changed to Baseload Power
Bangka Belitung	Bangka 1-A Unit 1 & 2	100	130	PLN	Changed to Baseload Power
bungka bentang	Belitung 2 Unit 1 & 2	30	150	PLN	Changed to Baseload Power
	Banyuasin Unit 1 & 2	240		IPP (*Oceanwide)	Stated as postponed according to system's needs
South Sumatera	Sumsel Mine Mouth (expansion)	me (v,vv) follow (v,vv) follow (v,vv)	890	IPP (not signed)	Stated as postponed according to system's needs
	Sumsel 6 Mine Mouth	300		IPP (not signed)	Stated as postponed according to system's needs
Lampung	Lampung extension	300	300	PLN	Stated as postponed according to system's needs
	Kalbar 2	200		PLN	Changed to Baseload Renewables
West Kalimantan	Kalbar 3	200	414	PLN	Changed to Gas or Steam Gas
	Ketapang (ex- Timika)	14		PLN	Shifted to Papua
	Kaltim 3 Mine Mouth Unit 1 & 2	200		PLN subsidiary (Putra Indo Tenaga & PLN Batu Bara)	To be replaced with renewables
East Kalimantan	Kaltim 5 Mine Mouth Unit 1 & 2	200	414	PLN subsidiary (Putra Indo Tenaga & PLN Batu Bara)	To be replaced with renewables
	Berau (ex-Timika) Unit 1 & 2	14		PLN	Shifted to Papua
Central Kalimantan	Kalselteng 4 Unit 1 & 2	200	200	PLN subsidiary (PT PJB Investasi - PLN Batu Bara)	To be replaced with renewables
South Kalimantan	kalselteng 5	200	100	PLN subsidiary (PT PJB Investasi - PLN Batu Bara)	Capacity was 200 MW in R19, but then 100 MW was delisted from R21 and planned to be replaced with renewables
North Sulawesi	Sulbagut 3 Unit 1 & 2	100	300	PLN	Changed to Baseload Power
North Sulawesi	Sulbagut 2 Unit 1 & 2	200	300	PLN	Stated as postponed according to system's needs
Central Sulawesi	Tolitoli Unit 1 & 2	50	50	PLN	Stated as postponed according to system's needs
	Sulbagsel 2 Unit 1 & 2	400		PLN	Stated as postponed according to system's needs
Southeast Sulawesi	Bau-bau 2 Unit 1 & 2	30	430	PLN	Changed to Baseload Renewables
	Lombok 3 Unit 1 & 2	100		PLN	To be replaced with renewables
West Nusa Tenggara	Lombok 4 Unit 1 & 2		200	PLN	To be replaced with renewables
East Nusa Tenggara	Timor 2	50	50	PLN	To be replaced with renewables
Maluku	Ambon			PLN	To be replaced with renewables
Papua	Jayapura 2		100	PLN	To be replaced with renewables
	Jayapura 3			PLN	Stated as postponed according to system's needs
Papua Barat	Sorong 3			PLN	To be replaced with renewables
TOTAL		6,838	6,688		

6.8 GW of NEW coal power "modifications" or "postponed" in the DRUPTL 2021

Changed to renewable baseload, shifted to other sources of generation or postponed until further notice.

Almost all of the scrapped coal plants affect projects that are owned by PLN's directly or indirectly via one of PLN's fully-owned subsidiaries

PLN's and MEMR's announcements have not drawn more attention to this initiative

Proportion of Renewables vs Fossil Fuel in 2019 RUPTL and 2021 DRUPTL

Concretion	RUPTL 20	019-2028	DRUPTL 2021-2030		
Generation	(MW)	%	(MW)	%	
New & Renewables	16,762	30%	19,899	48%	
Fossil Fuel	39,633	70%	21,069	52%	

Proportion of renewables is higher in DRUPTL 2021 as compared to the 2019 RUPTL. BUT higher share comes from the sharp decline in new fossil fuel capacity instead of sharp increase in the renewables itself.



PLN's Electricity Growth Projection







Biomass, Hydro, and Geothermal updates

Rapid increase in biomass co-firing, large scale hydro and geothermal are the chosen shortcut to reach the Paris Agreement target in 2025

- Large hydro remains crucial
- New Renewable Energy Based Industry Development (REBID) \rightarrow 6-9 GW of hydro in Kayan river
- Large hydro are well-known with unstated risks including construction risk, environmental risk, and operational risk



- Unrealistic geothermal development target updated
- Although there seemed to be different targets from PLN vs MEMR
- Meanwhile biomass is considered as the fast-track to reach 2025 target (from less than 1% to 6% in 2025)
- PLN sees biomass as less capital intensive, and the risk of price setting is pushed onto the suppliers and the government.



MEMR Power Generation Capacity Scenarios (GW)



Placing a big bet on novel technologies while downplaying proven options for the Net Zero target – Biomass, gasification and carbon capture instead of solar and wind.

- HUGE ambition on biomass capacity
 - Approximately 250 GW of biomass in 2060 means 1.4 billion ton/year of biomass aka more than 200 times the biomass capacity of the US!
- IGCC + CCS neither are economically proven technology. IGCC = gasification of fuel (from coal?? Or biomass??)





Solar Power Additions (MW)



Placing a big bet on novel technologies while downplaying proven options for the Net Zero target – Biomass, gasification and carbon capture instead of solar and wind.

- Solar and wind power still being on the back burner
- PLN's current plan to increase solar power is still far from ambitious:
 - 612 MW of floating solar on existing dams (to be combined with hydro power)
 - 435.5 MW on ex-mining sites
 - 112.5 MW of utility scale solar on PLN's existing site
 - Small hybrid solar power in micro-grids on isolated islands
 - 1000 MW of rooftop solar a program endorsed by MEMR and Indonesian solar energy associations



Diesel Conversion plan

Converting 2 GW of diesel power plants into renewables in isolated places.

- 5200 units of diesel gensets in 2130 locations
- To be replaced by renewables + storage
- First phase 200 locations for 265 MW

Diesel Units Locations Spread Around Indonesia





Bringing the Ambition into Reality – PLN Annual Report Says it All

PLN's increased operating profit in					
FY2020 was mainly a result of a huge					
drop in fuel expenses, mostly from oil					
and gas.					

- PLN saved IDR 30 trillion from fuel cost alone
- Due to :
 - Sharp drop in oil prices
 - New gov support to cap gas price
 - Reduction in fuel volume as demand declined in 2020

Fuel Expenses	2020	2019	Cost Reduction (IDR)	%
Fuel oils				
High speed diesel	13,831,217	20,637,756	(6,806,539)	-33%
Fuel marine oil	797,241	2,378,592	(1,581,351)	-66%
Industrial diesel	584	2,313	(1,729)	-75%
Others	1,168,555	1,710,712	(542,157)	-32%
Subtotal	15,797,597	24,729,373	(8,931,776)	-36%
Non-oil fuels				
Coal	46,158,057	49,397,601	(3,239,544)	-7%
Natural gas	40,040,431	58,054,184	(18,013,753)	-31%
Geothermal	3,540,237	3,406,242	133,995	4%
Water	346,831	222,372	124,459	56%
Subtotal	90,085,556	111,080,399	(20,994,843)	-19%
Lubricants	121,132	274,710	(153,578)	-56%
TOTAL	106,004,285	136,084,482	(30,080,197)	-22%
Volume	2020	2019	Vol Reduction	%
Fuel oils (kilo liter)	2,669,946	3,118,762	(448,816)	-14%
Coal (tonnes)	66,683,392	67,008,829	(325,437)	-0.5%
Natural gas (MMSCF)	378,246	479,776	(101,531)	-21%
TOTAL				





Bringing the Ambition into Reality – PLN Annual Report Says it All

Implementing changes in the accounting standard of SFAS 73, would have created a different financial result.

- But PLN is exempted from implementing SFAS 73 on its PPAs and ESCs
- Exemption by issuance of OJK Regulation no 6/2017
- What this means:
 - If PPAs and ESCs were treated as finance leases, PLN's lease liabilities would increase by an estimate of 1,314% from IDR 18.5 trillion to IDR 261.4 trillion. Simultaneously, PLN's assets will increase by 12% and its equities will be much lower as unappropriated retained earnings drop by IDR 54.1 trillion.
 - The changes in accounting treatment would have lowered PLN's net profit significantly from IDR 5.9 trillion to IDR 990 billion in 2020.
 - If PPAs and ESCs are treated as finance leases, PLN's purchased electricity expense would have declined by 91.6%, but at the same time, PLN's finance cost (interest expense) would have increased by 170.8%, bringing the finance cost from IDR 27.4 trillion to IDR 74.2 trillion.

PLN Consolidated Profit and Loss Statement

	Year	2019	2020	2020 with SFAS 73
	Currency	IDR	IDR	IDR
Revenues				
Sale of electricity		276,061,925	274,898,464	274,898,464
Customer connection fees		6,934,597	312,725	312,725
Others		2,644,067	4,311,826	4,311,826
Total Revenues		285,640,589	279,523,015	279,523,015
Operating Expenses				
Fuel and lubricants		136,084,482	106,014,285	135,363,422
Purchased electricity		83,563,991	98,651,604	8,320,866
Lease		3,617,376	3,101,334	3,299,327
Maintenance		22,328,178	21,940,509	29,487,013
Personnel		25,908,771	24,965,707	24,965,707
Depreciation		35,318,071	36,662,917	44,856,604
Rights-of-use assets depreciation			2,479,663	2,479,663
Others		8,620,069	7,192,146	7,192,146
Total Operating Expenses		315,440,938	301,008,165	255,964,748
Operating Loss Before Subsidy		(29,800,349)	(21,485,150)	23,558,267
Government's electricity subsidy		51,711,774	47,988,114	47,988,114
Compensation Income		22,253,517	17,904,508	17,904,508
Operating Income After Subsidy		44,164,942	44,407,472	89,450,889
Other income -net		(3,667,666)	1,916,966	1,916,815
Gain (loss) on foreign exchange - net		9,486,326	(7,742,152)	
Financial income		755,103	1,125,519	1,125,519
Financial cost		(24,619,495)	(27,415,886)	(74,231,203
Income (Loss) Before Tax		26,119,210	12,291,919	8,419,696
Tax Benefit (Expenses)		(21,797,080)	(6,298,491)	(7,429,185
Income for The Year		4,322,130	5,993,428	990,511



PLN Consolidated Balance Sheet

Implementing changes in the accounting standard of SFAS 73, would have created a different financial result.

What this means:

- This means that there is approximately IDR 242.9 trillion of PLN's long-term liabilities that are currently not recorded on its books (off-balance sheet).
- The changes in treatment for leases would have created a much higher debt to equity ratio for PLN from 0.69 to 0.99, a level that might ring an alert to some lenders depending on its existing bank covenants.

Year	2019	2020	2020 with PSAK 73
Currency	IDR	IDR	IDR
Assets			
Non-current Assets			
Property, Plant, and equipment	1,400,685,118	1,401,888,487	1,573,980,560
Right-of-use assets		31,193,985	31,193,985
Investment properties	5,283,708	5,408,572	5,408,572
Investments in associates	3,868,060	14,112,585	14,112,585
Investments in joint ventures	6,432,705		
Prepaid taxes		8,898,076	8,898,076
Deferred tax assets	2,215,963	195,290	195,290
Receivables from related parties	951,643	975,149	975,149
Restricted cash in banks and time deposits	5,980,703	5,882,934	5,882,934
Other receivables	824,545	1,295,416	1,295,416
Receivables from government		17,275,490	17,275,490
Other non-current assets	7,445,895	4,780,480	4,780,480
Total Non-current Assets	1,433,688,340	1,491,906,464	1,663,998,537
Current Assets			
Cash and cash equivalents	46,598,783	54,735,434	54,735,434
Short-terms investments	334,153	366,708	366,708
Trade receivables from:			
Related parties	819,836	731,817	731,817
Third parties	24,310,702	20,546,599	20,546,599
Receivables on electricity subsidy	-	819,067	819,067
Compensation Receivable			
Other receivables	47,451,084	1,746,344	1,746,344
Inventories	12,934,233	10,277,289	10,277,289
Prepaid taxes	17,634,137	7,287,693	7,287,693
Prepaid expenses and advances	1,206,785	640,881	640,881
Receivables from related parties	4,719	1,486	1,486
Other current assets	72,241		-
Total Current Assets	151,366,673	97,153,318	97,153,318
Total Assets	1,585,055,013	1,589,059,782	1,761,151,855



PLN Consolidated Balance Sheet

Implementing changes in the accounting standard of SFAS 73, would have created a different financial result.

- Once this exemption expires, key stakeholders need to realize there will be a sudden change in PLN's financial position that could potentially affect financial metrics and PLN's leverage to accessing debt
- Credit Rating Agencies (CRAs) such as Moody's are well-aware of the conditions. They have long been adjusting PLN's financial metrics.
- PLN's stand-alone BCA is non-investment grade (Ba2 Ba3 in the past 4 years), but its final rating receives a 3-4 notch upgrade due to very high support from the gov.

Year	2019	2020	2020 with PSAK 73
Currency	IDR	IDR	IDR
Assets			
Non-current Assets			
Property, Plant, and equipment	1,400,685,118	1,401,888,487	1,573,980,560
Right-of-use assets		31,193,985	31,193,985
Investment properties	5,283,708	5,408,572	5,408,572
Investments in associates	3,868,060	14,112,585	14,112,585
Investments in joint ventures	6,432,705		
Prepaid taxes		8,898,076	8,898,076
Deferred tax assets	2,215,963	195,290	195,290
Receivables from related parties	951,643	975,149	975,149
Restricted cash in banks and time deposits	5,980,703	5,882,934	5,882,934
Other receivables	824,545	1,295,416	1,295,416
Receivables from government		17,275,490	17,275,490
Other non-current assets	7,445,895	4,780,480	4,780,480
Total Non-current Assets	1,433,688,340	1,491,906,464	1,663,998,537
Current Assets			
Cash and cash equivalents	46,598,783	54,735,434	54,735,434
Short-terms investments	334,153	366,708	366,708
Trade receivables from:			
Related parties	819,836	731,817	731,817
Third parties	24,310,702	20,546,599	20,546,599
Receivables on electricity subsidy	-	819,067	819,067
Compensation Receivable			
Other receivables	47,451,084	1,746,344	1,746,344
Inventories	12,934,233	10,277,289	10,277,289
Prepaid taxes	17,634,137	7,287,693	7,287,693
Prepaid expenses and advances	1,206,785	640,881	640,881
Receivables from related parties	4,719	1,486	1,486
Other current assets	72,241	· ·	-
Total Current Assets	151,366,673	97,153,318	97,153,318
Total Assets	1,585,055,013	1,589,059,782	1,761,151,855



Institute for Energy Economics and Financial Analysis IEEFA.org

Year	2019	2020	2020 with SFAS 73	Year	2019	2020	2020 with SFAS 73
Currency	IDR	IDR	IDR	Currency	IDR	IDR	IDR
Liabilities and Equity				Non-current Liabilities			
Equity				Deferred tax liabilities - net	28,121,540	31,746,600	16,235,838
Equity attributable to owners of the	Parent			Long-term liabilities - net of current	portion		
Capital stock - par value of Rp 1 per				Two-step loans	35,251,741	35,617,153	35,617,153
	Share			Government and non-bank govern	4,359,569	3,649,146	3,649,146
Authorized - 439,000,000 shares				Lease liabilities	11,569,377	14,035,913	249,387,044
and 204,000,000 shares as of Dec				Bank loans	184,023,820	154,489,751	154,489,751
31, 2017 and 2016				Bonds payable and sukuk ijara	174,292,298	192,850,308	192,850,308
Subscribed and paid-up				Electricity purchase payable	6,431,448	6,097,857	5,400,483
109,826,526 shares and				KIK-EBA loans	1,354,642	655,772	655,772
109,826,526 shares as of 31st				Payable to related parties	92	9,432	9,432
Dec 2018 and 2017, respectively	115,181,002	135,342,182	135,342,182	Employee benefits liabilities	50,838,258	54,609,453	54,609,453
Additional paid-in capital	9,919,958	5,216,571	5,216,571	Deferred revenues		5,644,472	5,644,472
· ·	5,515,558	5,210,571	5,210,571	Other payables	133,662	182,093	182,093
Stock subscription from				Total Non Current Liabilities	496,376,447	499,587,950	718,730,945
Government in issuance process	10,528,230						
Retained earnings:				Current Liabilities			
Appropriated	60,334,896	64,657,026	64,657,026	Trade payables			
Unappropriated	70,997,731	71,928,554	17,784,360	Related parties	11,814,735	8,505,191	8,002,261
Other comprehensive income	661,509,952	661,734,097	661,734,097	Third parties	40,188,048	30,643,364	28,510,400
Equity attributable to owners of the	928,471,769	938,878,430	884,734,236	Taxes payable	2,383,288	1,747,279	1,747,279
Non-controlling interests	908,644	934,162	934,162	Accrued expenses	16,754,640	7,449,309	9,590,411
Total Equity	929,380,413	939,812,592	885,668,398	Customers' security deposits	14,235,879	14,802,396	14,802,396
	-,,	,- ,=		Project cost payable	150,664	153,983	153,983
				Deferred revenue	1,049,231	1,617,725	1,617,725
				Derivative liabilities		327,544	327,544



3,062,879

2,416,967

12,059,933

18,816,957

14,970,000

406,495

871,177

8,500,782

30,895,322

Current maturities of long-term liabilities

Gov and non-bank gov financial ir

Bonds payable and sukuk ijara

Electricity purchase payable

Employee benefits liabilities

TOTAL EQUITY AND LIABILITIES

2,725,805

1,998,476

2,540,107

21,693,338

6,946,478

399,458

586,620

5,232,467

30,598,919

159,298,153

655,674,600

1,585,055,013

0.71

3,062,879

2,416,967

4,450,390

18,816,957

14,970,000

427,974

871,177

8,500,782

30,895,322

Two-step loans

Lease liabilities

KIK - EBA loans

Other payables

Debt to Equity Ratio

Total Liabilities

Total Current Liabilities

Bank loans

Bringing the Ambition into Reality – PLN Annual Report Says it All

A Screenshot of PLN's Annual Report 2020

LAPORAN LABA RUGI DAN PENGHASILAN KOMPREHENSIF LAIN KONSOLIDASIAN UNTUK TAHUN YANG BERAKHIR 31 DESEMBER 2020 DAN 2019 (Disajikan dalam jutaan Rupiah, kecuali dinyatakan lain)

. . . .

CONSOLIDATED STATEMENTS OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME FOR THE YEARS ENDED DECEMBER 31, 2020 AND 2019 (Expressed in millions of Rupiah, unless otherwise stated)

	Catatan/ Notes	2020	2019	
PENDAPATAN USAHA				REVENUE
Penjualan tenaga listrik	37	274,898,464	276,061,925	Sale of electricity
Penyambungan pelanggan	23	312,725	6,934,597	Customer connection fees
Subsidi listrik Pemerintah	38	47,988,114	51,711,774	Government electricity subsidy
Pendapatan kompensasi	16	17,904,508	22,253,517	Compensation income
Lain-lain	39 _	4,311,826	2,644,067	Others
Jumlah Pendapatan Usaha	-	345,415,637	359,605,880	Total Revenue
BEBAN USAHA				OPERATING EXPENSES
Bahan bakar dan pelumas	40	106,014,285	136,084,482	Fuel and lubricants
Pembelian tenaga listrik	41	98,651,604	83,563,991	Purchased electricity
Sewa	42	3,101,334	3,617,376	Leases
Pemeliharaan	43	21,940,509	22,328,178	Maintenance
Kepegawaian	44	24,965,707	25,908,771	Personnel
				Property, plant and equipment
Penyusutan aset tetap	6	36,662,917	35,318,071	depreciation
Penyusutan aset hak-guna	7	2,479,663	-	Right-of-use assets depreciation
Lain-lain	45	7,192,146	8,620,069	Others
Jumlah Beban Usaha	-	301,008,165	315,440,938	Total Operating Expenses
LABA USAHA	1	44,407,472	44,164,942	OPERATING PROFIT
Penghasilan/(beban) lain-lain - bersih (Kerugian)/keuntungan	47	1,916,966	(3,667,666)	Other income/(expenses) - net (Loss)/gain on foreign
kurs mata uang asing - bersih		(7,742,152)	9,486,326	exchange - net
Penghasilan keuangan		1,125,519	755,103	Finance income
Beban keuangan	46	(27,415,886)	(24,619,495)	Finance costs
LABA SEBELUM PAJAK	_	12,291,919	26,119,210	PROFIT BEFORE TAX
BEBAN PAJAK	48	(6,298,491)	(21,797,080)	INCOME TAX EXPENSE
LABA TAHUN BERJALAN		5.993.428	4.322.130	PROFIT FOR THE YEAR

3_

Repositioning of subsidy and compensation income - from previously accounted below the operating margin to now considered at par with PLN's revenue.

- Subsidy and compensation payment from the government is viewed as recurring instead of one-off items
- Any chance for full-cost recovery without subsidy?



What to Look For?

- Coherent and realistic targets between MEMR and PLN
- Coal demand and pricing trends in the run-up 2030. Watch out on the export quota!
- Has the renewable energy (RE) potential been explored to the fullest? Wind (both onshore and offshore) and ocean energy VS ICGG + CCS?
- Focus attention on the un-needed coal plants which remain in the plan but could potentially be scrapped – especially those that have NOT REACHED financial close.
 - Request clarity on deadlines Is the deadline for initiating construction, reaching financial close, or putting the unit into operation?
 - Ask for transparency on the current status for each unit in the pipeline bear in mind that 'under construction' can have a very liquid meaning.
 - Critically examine the drawbacks for adding more plants in already-congested grids be mindful of increasing subsidy and compensation payment these are taxpayers' monies.



THANK YOU

