



PLN

Achieving the Indonesian NDC: *The Role of the Power Sector*

Asia Clean Energy Forum 2021

15 June 2021



Sistem Manajemen
Anti Penyuapan (SMAP)

PLTS Pulau Messa, Nusa Tenggara Timur

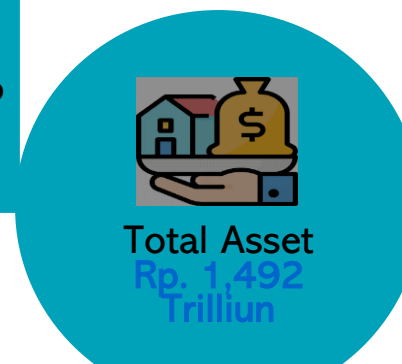
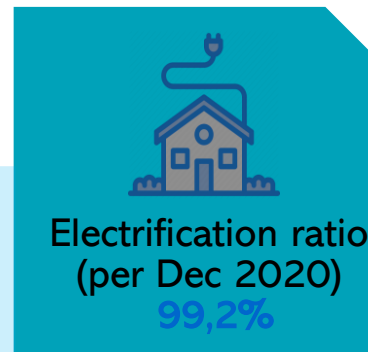
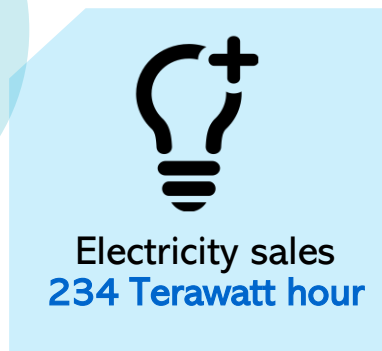
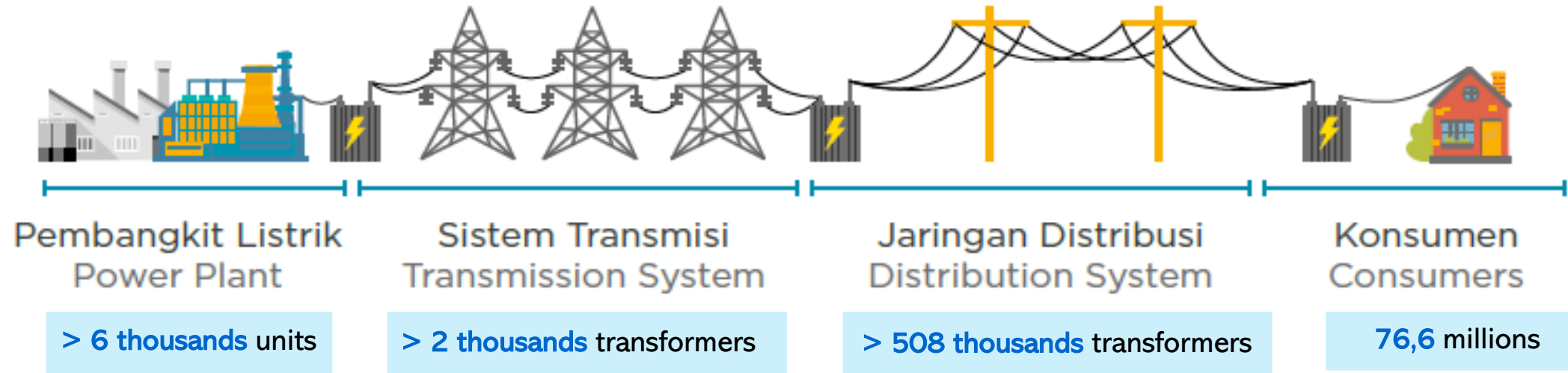
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Outline



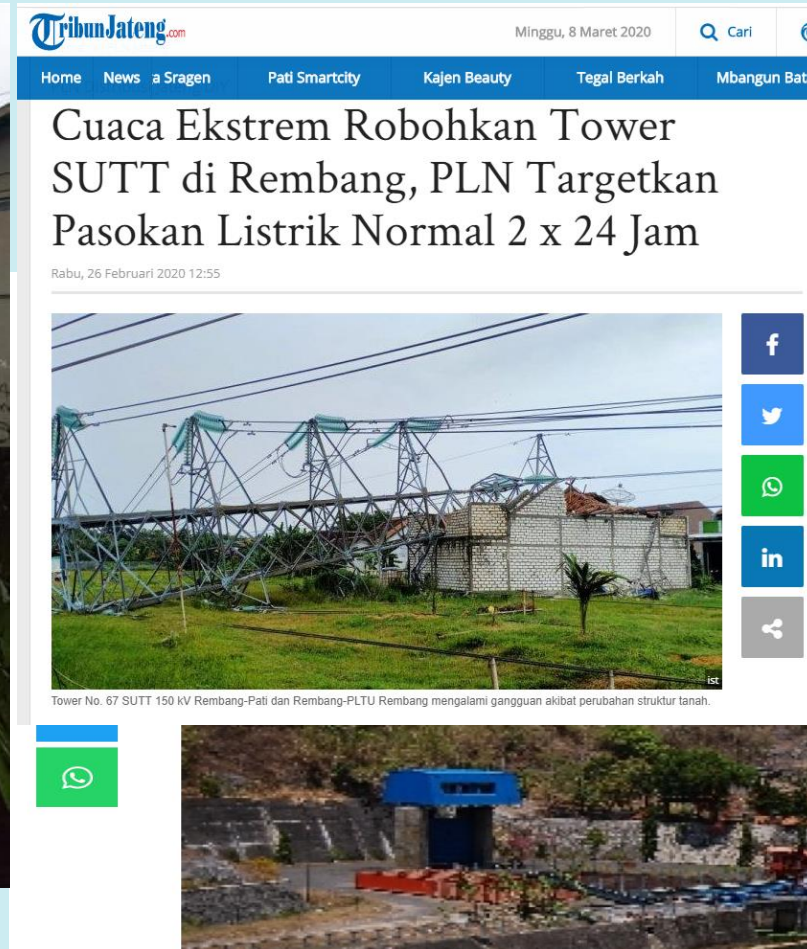
- Indonesian NDC
- Mitigation strategies and implementation
- Carbon pricing and Renewable Energy Certificate

About PLN



Climate change

A challenge for the power sector



Indonesia's Commitments



- Indonesia ratified Paris Agreement in 2016 and have submitted the **Nationally Determined Contributions (NDCs)**

Table 1. Projected BAU and emission reduction from each sector category

No	Sector	GHG Emission Level 2010*	GHG Emission Level 2030			GHG Emission Reduction				Annual Average Growth BAU (2010-2030)	Average Growth 2000-2012*
		MTon CO ₂ e	(MTon CO ₂ e)			(MTon CO ₂ e)		% of Total BaU			
			BaU	CM1	CM2	CM1	CM2	CM1	CM2		
1	Energy*	453.2	1,669	1,355	1,271	314	398	11%	14%	6.7%	4.50%
2	Waste	88	296	285	270	11	26	0.38%	1%	6.3%	4.00%
3	IPPU	36	69.6	66.85	66.35	2.75	3.25	0.10%	0.11%	3.4%	0.10%
4	Agriculture	110.5	119.66	110.39	115.86	9	4	0.32%	0.13%	0.4%	1.30%
5	Forestry**	647	714	217	64	497	650	17.2%	23%	0.5%	2.70%
	TOTAL	1,334	2,869	2,034	1,787	834	1,081	29%	38%	3.9%	3.20%

* Including fugitive

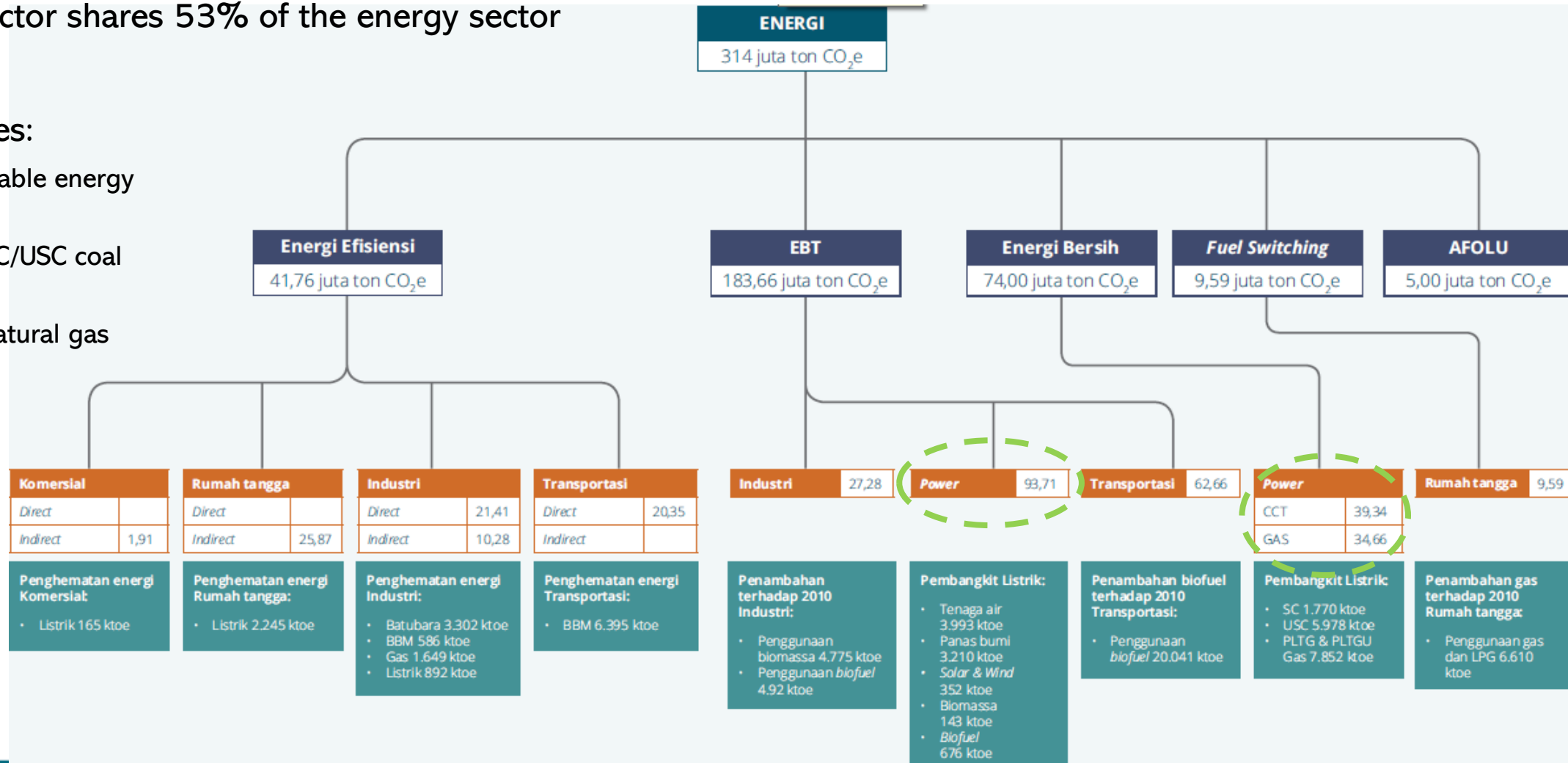
**Including peat fire

Notes: **CM1** = Counter Measure (*unconditional mitigation scenario*)
CM2 = Counter Measure (*conditional mitigation scenario*)

Indonesia's NDC roadmap - Mitigation



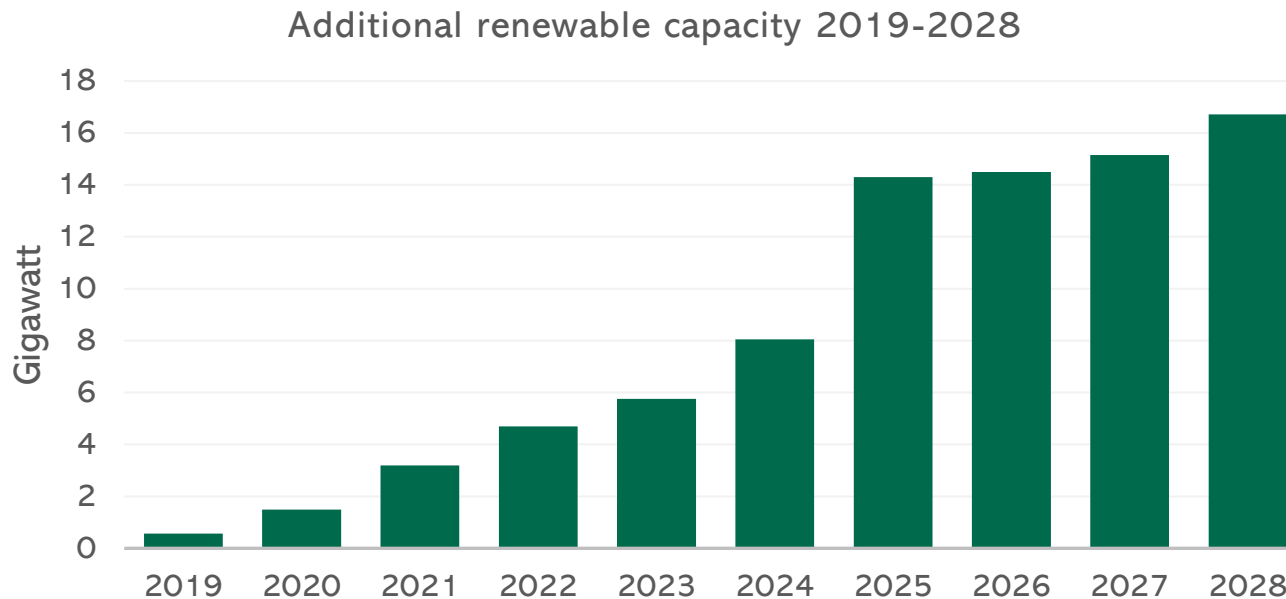
- The power sector shares 53% of the energy sector target
- Main strategies:
 - ✓ Increase renewable energy capacity
 - ✓ Utilization of SC/USC coal technology
 - ✓ Utilization of natural gas



GHG Mitigation Strategy

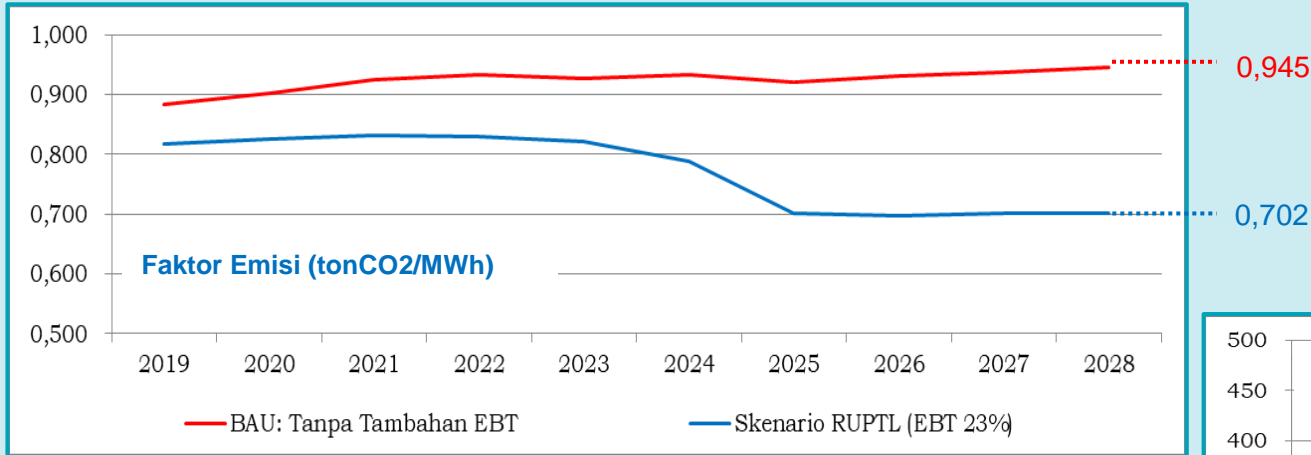
Power development plan 2019-2028

- Following the National Energy Policy mandate to increase the renewable energy mix up to 23% by 2025.
- Energy efficiency (SC/USC technology, heat recovery)
- Convert oil to biofuel/gas



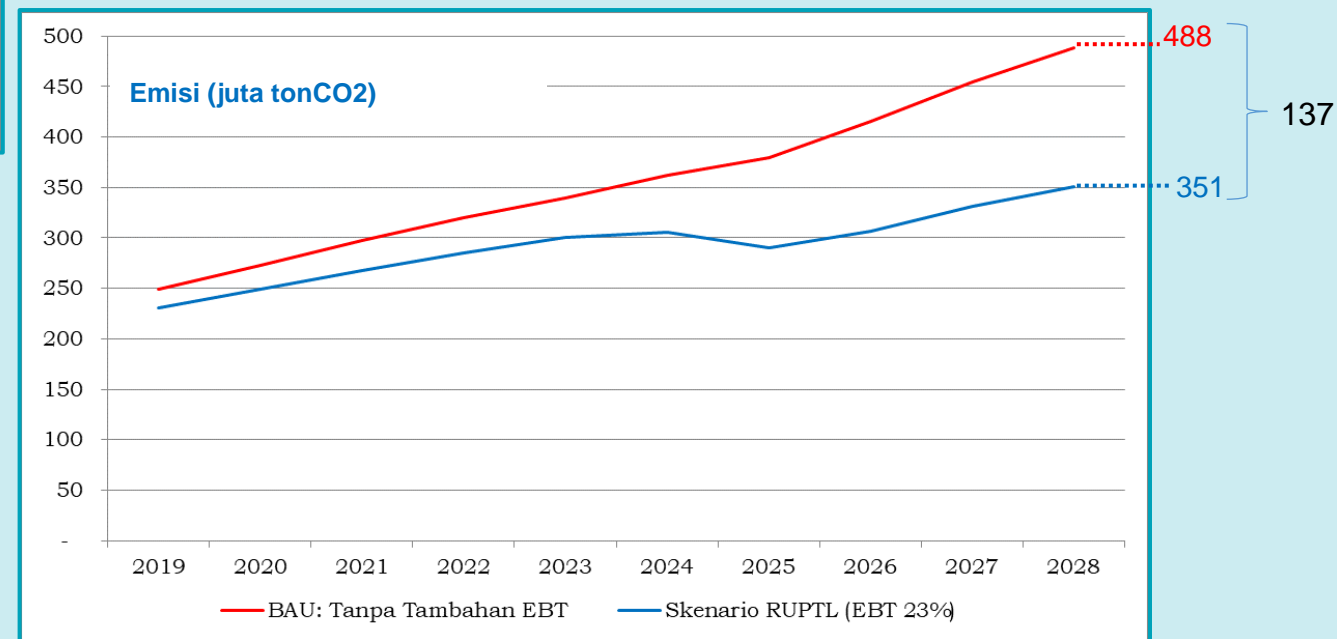
Projected Emission

Power development plan 2019-2028



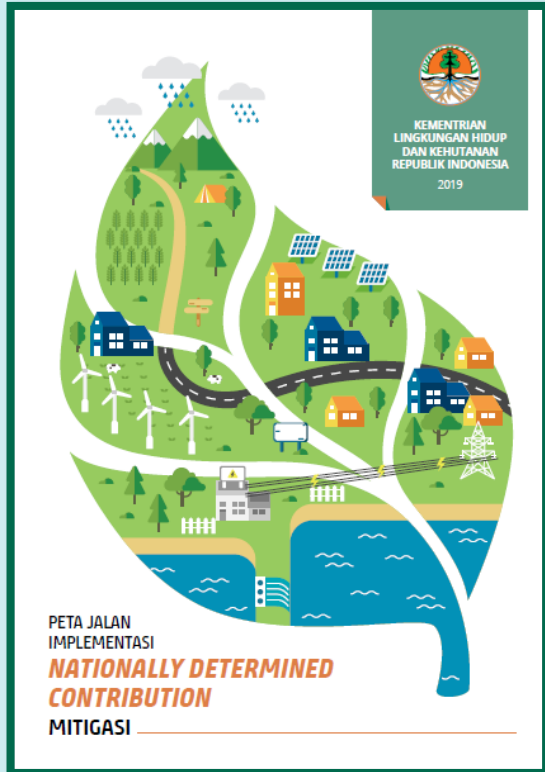
- A decline in emission intensity by 2028 from 0,945 ton CO₂/MWh in 2019 in BAU scenario to 0.702 tons CO₂/MWh

- CO₂ emissions in 2028 decreases from 488 million ton in the BAU scenario to 351 million tons



RUPTL vs NDC Roadmap

Renewable energy in the power development plan 2019-2028



- The Indonesian NDC uses RUPTL 2016-2025 as a reference
- The additional RE capacity 2020-2025 in the NDC roadmap is 293 MW higher than that in the RUPTL 2019-2028
- The NDC roadmap already considers IGCC as an option for cleaner coal power plants, while the RUPTL considers it as an option when it is commercially available
- RUPTL 2016-2025 has been updated while NDC remains the same

GHG Mitigation

Implementation in PLN

- GHG emissions' inventory
- Increase renewable capacity
- Fuel switching (oil to biofuel/gas, coal to biomass)
- Heat gas recovery (NGCC)
- Utilization of carbon pricing

- Develop corporate policy
- Partnership
- Campaign/increase awareness
- Mitigate the risks of climate change



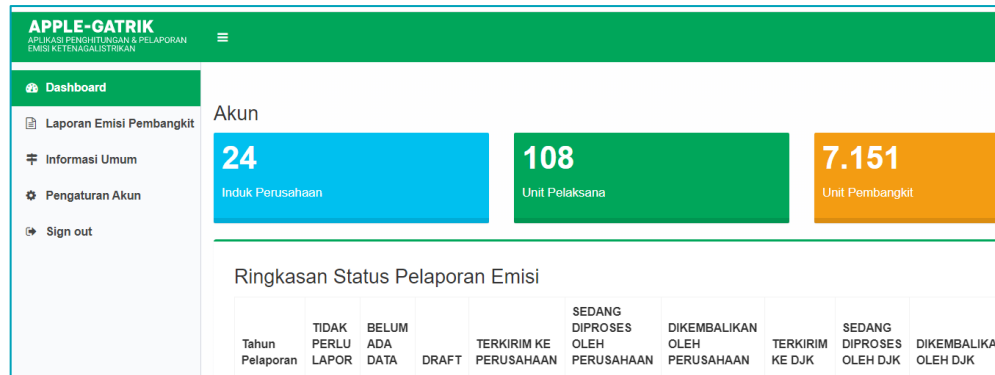
A promotional poster for an "Earth Day" event. At the top, logos for BUMI UNTUK INDONESIA, ECADIN ENERGY ACADEMY INDONESIA, and PLN are displayed. The main title "EARTH DAY" is in large, bold, green letters, with the subtitle "(Everyday is)" above it. Below the title is the slogan "Sayangi Bumi, Kurangi Jejak Karbon" and the event description "PLN & Energy Academy Indonesia Online Talkshow & Pengumuman Pemenang Photo Contest Hari Bumi". The poster features a grid of speakers: Opening Speech by Syofvi F Roekman (Direktur MSDM PLN); Ketnote Speech by Zulkifli Zaini (Direktur Utama PLN) and Laksmi Dewanthi (Dirjen Pengendalian Perubahan Iklim KLHK (tbc)); and a panel of Speakers including Nicholas Saputra (Aktor & Produser Film), Dr. Saleh Abdurrahman (Staff Ahli bid Lingkungan Hidup-Tata Ruang KESOM), Nana Firman (Outreach Director Greenfield Aktivis Lingkungan & Iklim), and Komang Parmita (EVP K3, Keamanan, dan Lingkungan PLN). The event date is "Kamis 22 April '21" from "09.00 s.d. 11.00 WIB". It is live on YouTube at "Energy Academy Indonesia". A QR code for registration is provided, along with the URL "http://tiny.cc/HariBumi_PLN" and "E-Certificate untuk Peserta". The bottom left features the "AKHLAK" logo and the tagline "#PowerBeyondGenerations". The bottom right shows the website "www.pln.co.id".

GHG Emission Monitoring

Calculate emission footprint



1 Monitor GHG emission from power plants



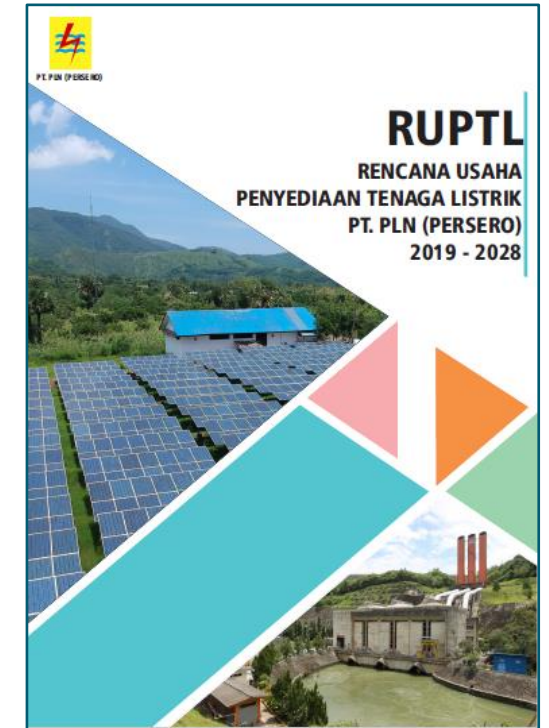
Report GHG inventory online, through APPLE-Gatrik and SIMPEL

2



Publish corporate's GHG inventory, through the Annual Sustainability Report

3



Simulate and publish a long-term GHG emission projection, embedded within the Power Development Plan

4

GHG Mitigation

PLN's Green Transformation



Increase the renewable capacity

2019
7,8 Gigawatt

2025
19,9 Gigawatt

Programs (2020-2025)

Implement the corporate
strategic planning 2019-2024
[5 Gigawatt]

Large scale renewables [3,6 Gigawatt]

- Renewable Energy Based Industry Development (REBID)
- Solar PV
- Geothermal

Green Boosters [3,5 Gigawatt]



Biomass co-
firing



Replace
diesel with
renewables



Utilize ex
mining land
for solar PV



Floating solar
PV

Carbon Pricing

Implementation in Indonesia



- Draft of Presidential Regulation on Carbon Pricing (Dec 2020), includes:
 - ✓ Carbon tax
 - ✓ Carbon trading
 - ✓ Result based payment
- The pilot phase of the National Emission Trading Scheme starts this year:
 - ✓ Emission cap has been determined
 - ✓ Covers coal power plants with 100 Megawatt capacity and above
 - ✓ Integrated into the Subroto Award scheme (participating power plants are evaluated based on their emission balance and participation in trading and offsetting)






Market-based Instrument

Carbon Credit



- Carbon credits help countries/companies to achieve their climate mitigation goals
- PLN develops clean energy project through CDM (compliance market) and VCS (voluntary market)
- As much as 8.2 million tons of carbon credits have been issued

Project portfolios



	Musi Hydropower https://registry.verra.org/app/projectDetail/VCS/487
	Sipansihaporas Hydropower https://registry.verra.org/app/projectDetail/VCS/486
	Renun Hydropower https://registry.verra.org/app/projectDetail/VCS/488




Carbon Offset

by Companies








This certificate verifies that

PT PJB UP PAITON


has compensated

1,000 tonnes of greenhouse gas emissions

by investing in South Pole's climate protection project:
Sipansihaporas Hydro Power Plant, Indonesia




Renat Heuberger
CEO, South Pole



Thank you for committing to bold climate action. Your contribution is not only a meaningful step towards mitigating climate change globally, but also changes lives for the better by contributing to the Sustainable Development Goals set out by the UN.

Retirement ID 3401-151905516-151906515-VCU-044-MER-ID-1-486-01012011-31122011-1
Certificate number C1907EN, 03.2021
Date 01.03.2021



This certificate is issued by South Pole. For more information about our services and more than 700 climate protection projects, please visit: southpole.com/projects.
The CO₂ emissions indicated on the certificate are compensated through investments in the above mentioned carbon offset projects based on international standards.



Certificate of Verified Carbon Unit (VCU) Retirement

Verra, in its capacity as administrator of the Verra Registry, does hereby certify that on 01 Mar 2021, 1,000 Verified Carbon Units (VCUs) were retired on behalf of:

—

Project name:

50 MW Sipansihaporas Hydro Power Plant, North Sumatra

VCU serial number:

3401-151905516-151906515-VCU-044-MER-ID-1-486-01012011-31122011-1

Additional Certifications:

Social Carbon

Additional details on this retirement can be found on the Verra Registry.



Powered by APX

Carbon Offset

by Activities



KOMANG PARMITA

has compensated

4.40

tonne(s) of CO₂ emissions



Thank you for committing to bold climate action. Your contribution is not only a meaningful contribution to climate change but also changes lives for the better by contributing to the Sustainable Development Goals set out by the UN.

Renat Heuberger CEO, South Pole



Issued by: South Pole
Certificate Number: 1602220104 Date: 09/10/2020



Certificate Number: 16189968975972

TANAKHIR FILMS

has compensated

22.20

tonne(s) of CO₂ emissions

By making a contribution to verified emission reduction projects, you demonstrate your commitment to climate action and UN Sustainable Development Goals.

Renat Heuberger CEO, South Pole



Issued by: South Pole Carbon Asset Management Ltd.

Date: 21/04/2021

Your contribution to our emission reduction projects is also a commitment to the following SDGs

Musi River Hydro

Renewable hydropower for the island of Sumatra

22.20 tCO₂

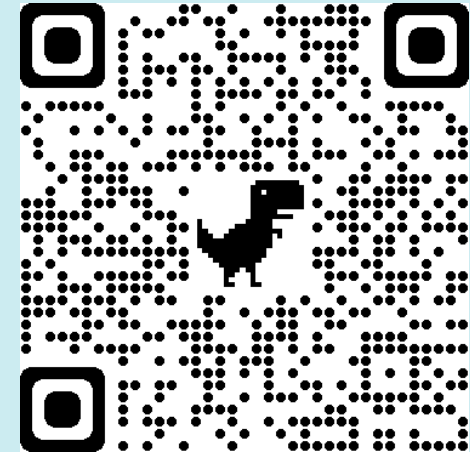


Market-based Instrument

Renewable Energy Certificate



- REC is a market-based instrument that represent **the property right of environmental benefits** of renewable electricity generation.
- RECs helps companies to **achieve their renewable energy targets** transparently while **supporting the development of renewable energy** in Indonesia.
- One REC unit represents one megawatt hour (MWh) of renewable electricity.
- PLN worked together with CEIA Indonesia as PLN's knowledge partner, in the development of this product.
- To assure that PLN's REC meets the international standard, PLN engages with APX Inc./TIGRs which provides the tracking system for REC's issuance.





TIGR Registry Certificate of Retirement

APX, Inc., in its capacity as operator and administrator of the TIGR Registry, hereby certifies that the following Renewable Energy Certificates ("RECs") have been retired in the TIGR Registry on behalf of:

Kamia Handayani
Total RECs Retired: 10

Retirement Reason Details: Meet Overall Sustainability Goals

Retirement Date: October 30, 2020

Sub-Account Name	Project Name	Project Type	TIGRs Serial Numbers	Quantity
Kamia Handayani	PLTP Kamojang	Geothermal Energy	TIGR-1160-ID-JB-07-2020-2223-11 to 20	10

Retiring TIGRs Account Holder: PT PLN (Persero)

The Tradable Instrument for Global Renewables (TIGR) Registry is an online platform purpose built to meet RE100 best practices guidelines and CDP standards for procuring and reporting purchases of renewable energy. The Registry is developed and managed by APX, leveraging more than 15 years of experience in environmental markets. For more information: www.apx.com



- REC offers a recognition of the REC property right
- The entire process are **verified and compliant** with RE100 best practices guidelines and CDP standards for procuring and reporting of renewable energy

Renewable Energy Markets™ Asia Awards

Congratulations to the six winners of the inaugural REM™ Asia Awards! The awards were presented on March 9, 2021 at the virtual REM Asia conference.

The winners are: Intel Corporation, PT PLN (Persero), PTT, RE100, Schneider Electric, and SP Group.



International Recognition

PLN's leadership on green energy procurement through REC service was recognized by the Renewable Energy Markets (REM) Asia Awards.



Thank you!

kamia.handayani@pln.co.id