DIRECTORATE GENERAL OF ELECTRICITY
MINISTRY OF ENERGY AND MINERAL RESOURCE
REPUBLIC OF INDONESIA

Indonesian ETS Trial on Power Sector

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Director of Engineering and Environment of Electricity

"Panel 4: Leveraging carbon pricing in emerging economies' power sectors" on Wednesday 13 October 2021

the 21st IEA Annual Greenhouse Gas Emissions Trading Workshop with IETA (International Emissions Trading Association) and EPRI (Electric Power Research Institute)

October 13th 2021

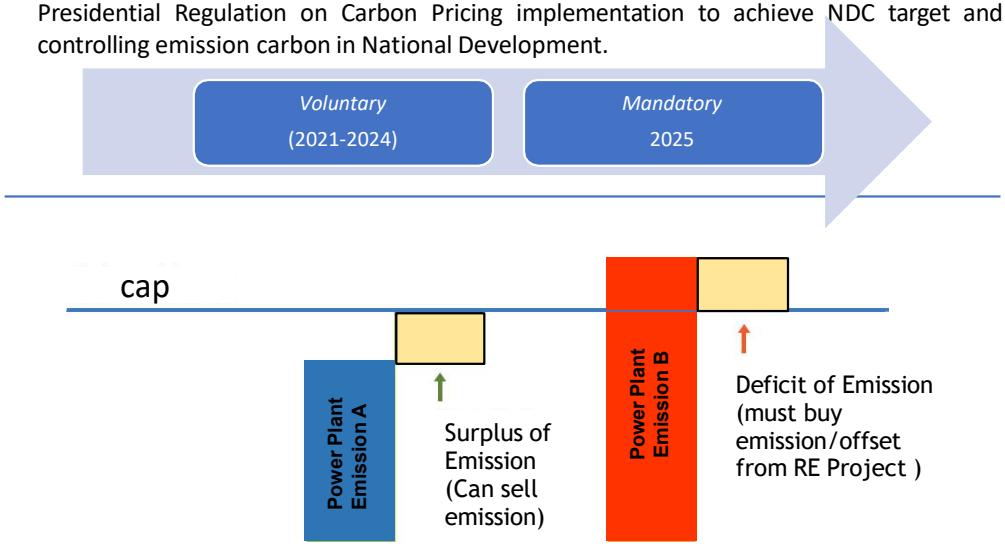


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GENERAL INFORMATION OF EMISSION TRADING SYSTEM (ETS) TRIAL IN POWER SECTOR

According to article 52 Government Regulation No. 46/2017 on Economic Instrument of Environment, emission trading must be implemented maximum in Nov, 2024. For preparing the mandatory ETS in 2024, starting this year Directorate General of Electricity conducting ETS trial (voluntary scheme). ETS trial will be accordance with draft of Presidential Regulation on Carbon Pricing implementation to achieve NDC target and controlling emission carbon in National Development.



Emission Trading System trial on power plants will be implemented through Cap & Trade and Offset

Cap The upper limit of GHG emissions allowed set by the Government

Trade Activities for selling and buying the allowances to meet the GHG emissions allowed

Offset Reductions in GHG emissions in one place that can be used to compensate for emissions elsewhere

ETS trial (voluntary scheme) is conducting through Subroto Award in Efficiency Energy in C Category, during March to September 2021 with scheme as follows:

GHG Emission Reporting → Trading/Offset → Judging → Subroto Award

Objectives of ETS trial are:

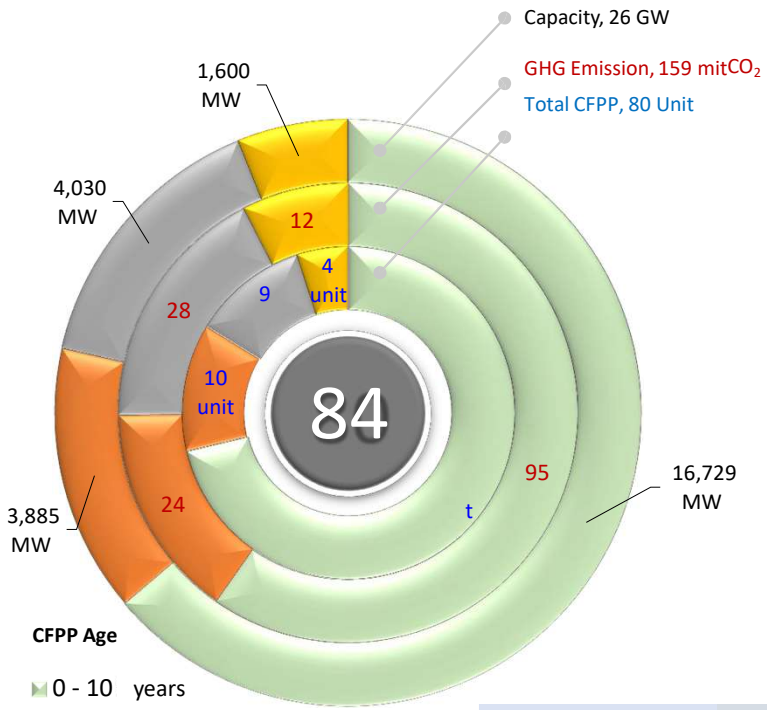
- Increasing GHG emission reduction to achieve NDC target
- Implementing of cap emission in CFPP
- Strengthening Measurement, Reporting and Verification in Inventory GHG emission
- Raising awareness in implementation of carbon pricing, especially in cap and trade, and offset

GHG emission cap in Coal Fired Power Plant (CFPP)

Power Plant	Installed Capacity (MW)	*Cap* (ton CO_2/MWh)
CFPP	X > 400	0,918
CFPP	100 ≤ X ≤ 400	1,013
Mine Mouth CFPP	100 ≤ X ≤ 400	1,094

- CFPP capacities distribution according to the MEMR Regulation No 9/2020 on the Efficiency of the Electricity Supply of PT PLN (Persero).
- The cap value based on the 2019 weighted average GHG emission intensity in each CFPP groups and considering the emission quota status.

84 UNITS CFPPS SCOPING OF CARBON PRICING PILOTING ON POWER SECTOR



75.5% of the total GHG emissions of Power Plants in Indonesia

Classification Of CFPP — **84**

OWNER:

54 Units of PLN Group
30 Units of IPP

TECHNOLOGY:

02 Units of Ultra-Supercritical
05 Units of Supercritical
57 Units of Subcritical pulvelrized coal combustion
20 Units of Subcritical fluidized bed combustion

LOCATION:

73 Units of regular CFPPs
11 Units of Minemouth

GRID:

47 Units are connected to Jamali grid
27 Units are connected to Sumatera grid
06 Units are connected to Sulselbar grid
04 Units are connected to Mahakam grid

Coal Calories:

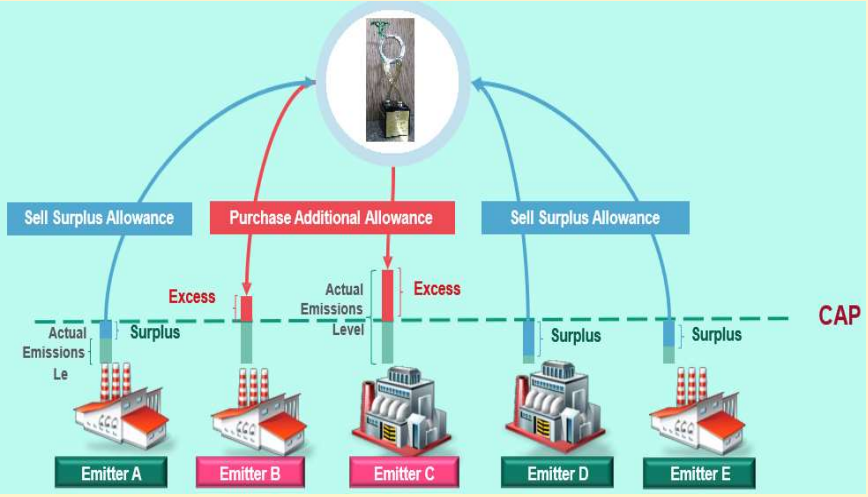
53 Units with low calorie coal (< 5000 kCal/kg)
27 Units with medium calorie coal (5100-6100 kCal/kg)
04 Units with high calorie coal (6100-7100 kCal/kg)

		TEKNOLOGY			Capacity			Emission Intensity	
Owner	Unit	Sub-PC	Sub-FCB	Super-Critical	> 400	100 s.d 400	Mulut Tambang	< CAP	> CAP
IPP	30	17	4	5	9	9	8	14	12
PLN	21	8	13	0	4	15	2	7	14
PJB	14	12	2	0	1	13	0	10	4
IP	19	18	0	1	5	14	0	14	5
Total	**84**	**55**	**19**	**6**	**19**	**51**	**10**	**45**	**35**

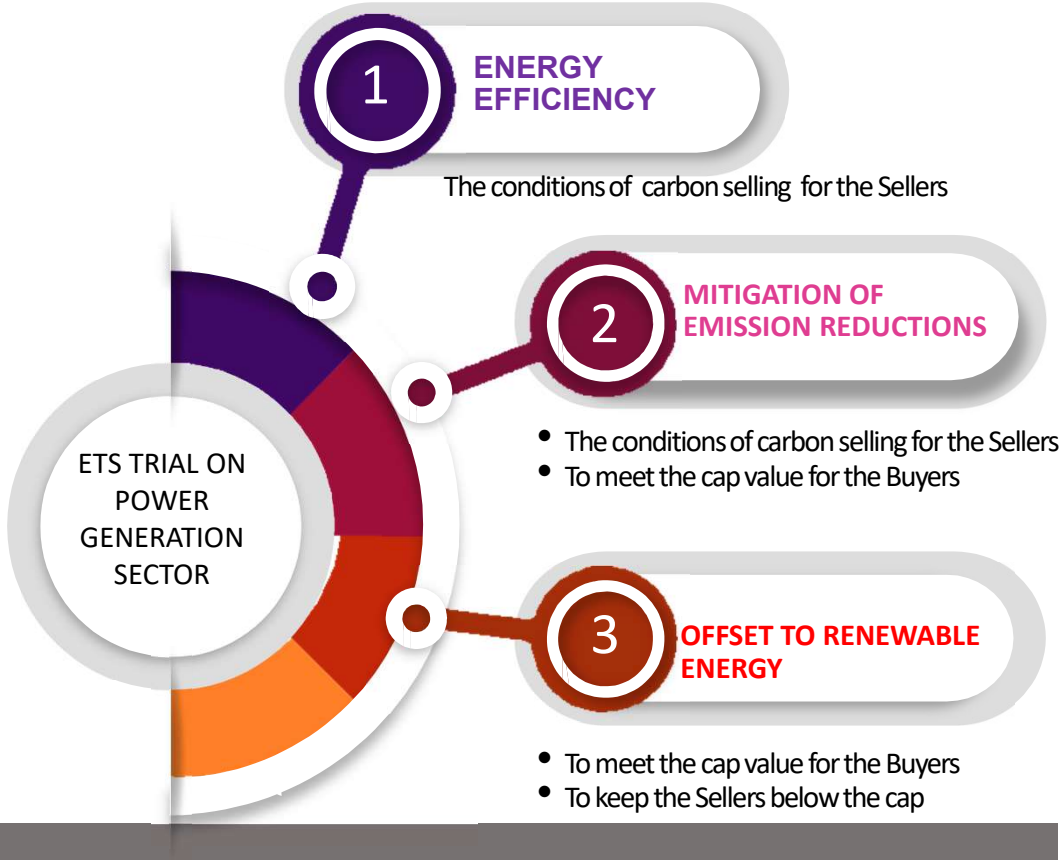
IE : Emission Intensity, gram/kWh
Sub-PC : Subcritical pulvelrized coal combustion
Sub-FCB : Subcritical fluidized bed combustion

4 COMPONENTS (TRADING, ENERGY EFFICIENCY, MITIGATION AND OFFSET TO RENEWABLE ENERGY) IN ETS TRIAL THROUGH PSBE 2021

TRADING



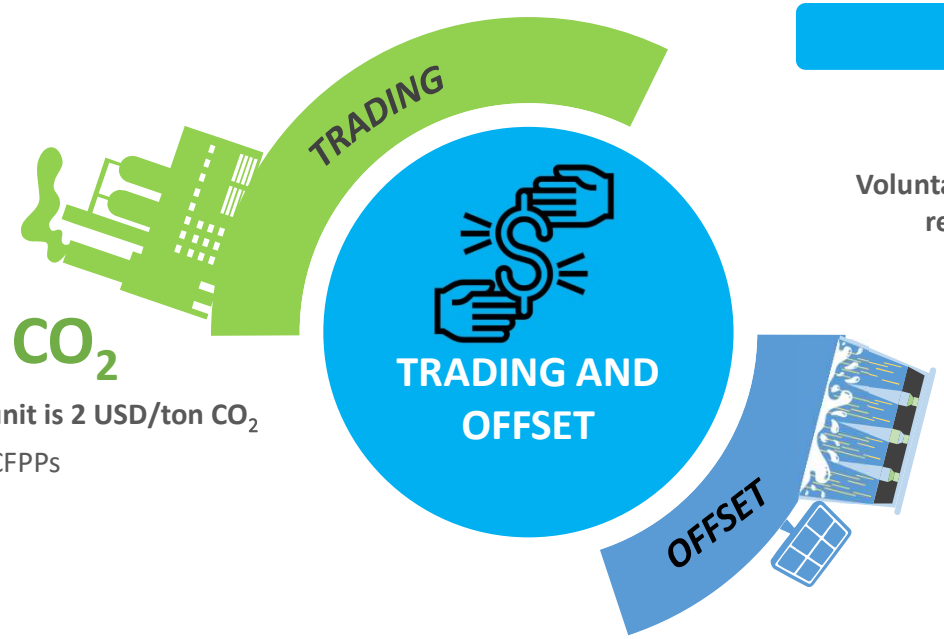
- Trading mechanism among CFPPS



INDONESIAN ETS TRIAL ON ENERGY SECTOR:

- To do trading among CFPPs (the Buyers and the Sellers) within 70% maximum of allowances (carbon units)
- To do Energy Efficiency and Mitigation of Emission Reductions for the Sellers as the conditions of carbon selling
- To do Renewable Energy Offset within 30% maximum of allowances (carbon units), as the emission compensations for the Buyers and to keep the Sellers are below the cap

RESUME OF ETS TRIAL THROUGH SUBROTO AWARDS IN 2021



Carbon Transfer

42,455.42 ton CO_2

The Carbon Price Average per unit is 2 USD/ton CO_2

Within 28 transactions among CFPPs

International Carbon Credits

4,500 ton CO_2

Voluntary Carbon Standard (VCS)/VERRA projectS retirement with Carbon Price 3 EUR/tonCO2

from Hydropower Plant of Renun, Sipansihaporas and Musi

Credit Carbon of SPPE*

21,131.8 ton CO_2

The Average of Carbon Price is IDR 4,000/tonCO2 or USD 35 cent/tonCO2

Indonesian Certificates are issued by MEMR from many renewable projects such as PLTS Cirata, PLTMH Ndungga, PLTA Orya, PLTMH Balla 2, PLTM Kalukku 1, PLTM Kalukku 2, PLTM Mikuasi, PLTM Sabilambo, PLTMHAndungBirudan PJUHE Paiton.

Investment Cost

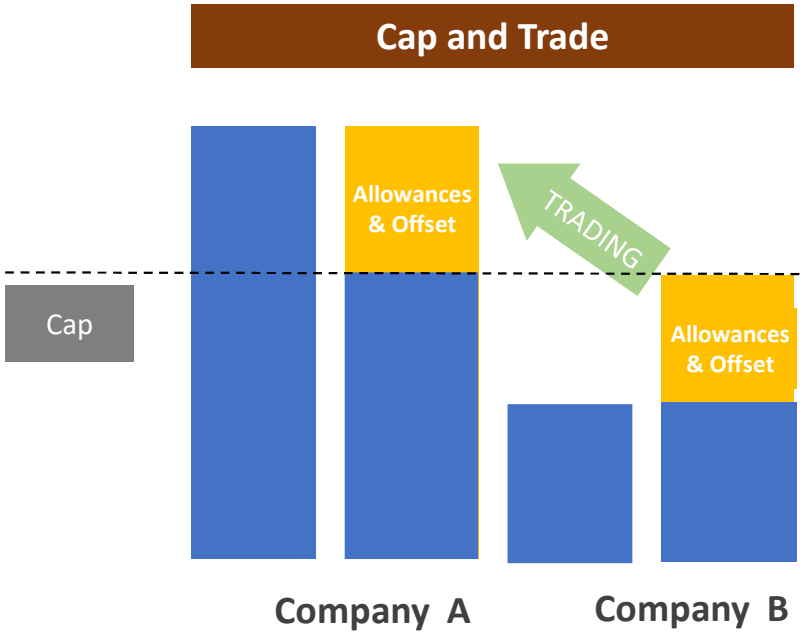
IDR 1.54 billions (USD 100,000)

IDR 1.227 Billions spend in trading and IDR 236 millions spend in offset

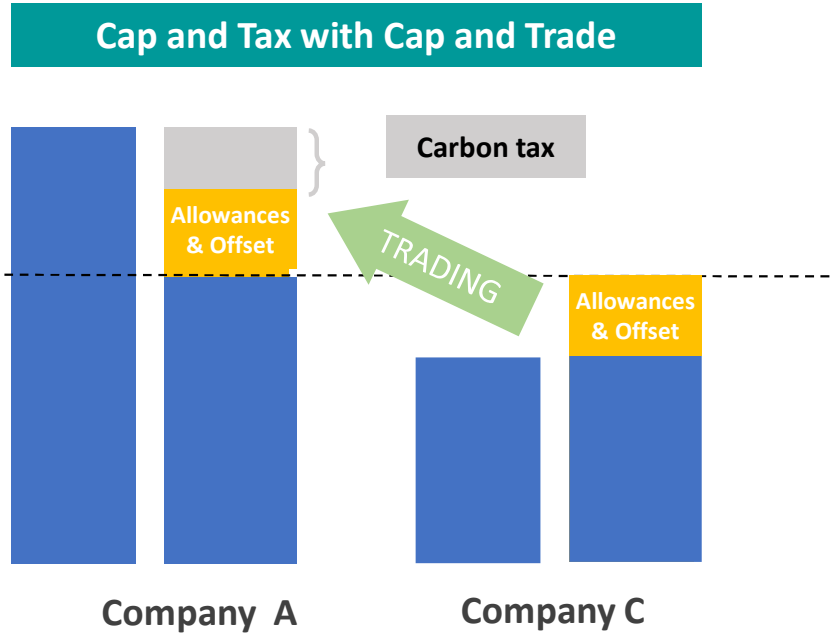
*SPPE = Sertifikat Pembukuan Penurunan Emisi
(Indonesian Emission Reductions Certificates are issued by MEMR only for ETS Trial on Power Generations)

CARBON TAX IMPLEMENTATION PLAN

- The Mechanism of Cap and Tax with Cap and Trade implementations (combination mechanism)



Entities are above on the cap, have to purchase allowances from Entities under the cap and make emission compensations to Renewable Energy (offset to Renewable Energy).



If those Entities can not meet the volume of carbon reductions by purchase allowance and Offset to Renewable Energy, those Entities **have to pay carbon tax**

Thank You

