Simple Low Operating Cost Multi-Pollutant Control System utilizing Sorbent/Catalyst Modules

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11th and 12th July, Strategies for Targeted Emission Reductions from The Indonesian Coal Fleet @the Ritz Carlton Hotel, in Jakarta.

WHO WE ARE

- Japan Carbon Frontier Organization established as Japan Coal Association in 1948
- We are founded by 150 national/international organizations
- We are promoting Japanese decarbonization technologies towards carbon newtrality such as:-
  - ammonia co-firing (or mono-firing) for existing coal fired plants
  - biomass co-firing (or mono-firing) for existing coal fired plants
  - CCUS
  - CO_2 reuse to Chemicals, Concrete/Coal ash mixture & carbonates
- We are promoting Japanese low emission technologies such as:-
  - FGD
  - Mercury Control

Background 1 – Mercury in Indonesia

■127 tons of mercury was released to air in Indonesia (2018).

■21% is coal related source (26.6t-Hg/yr).

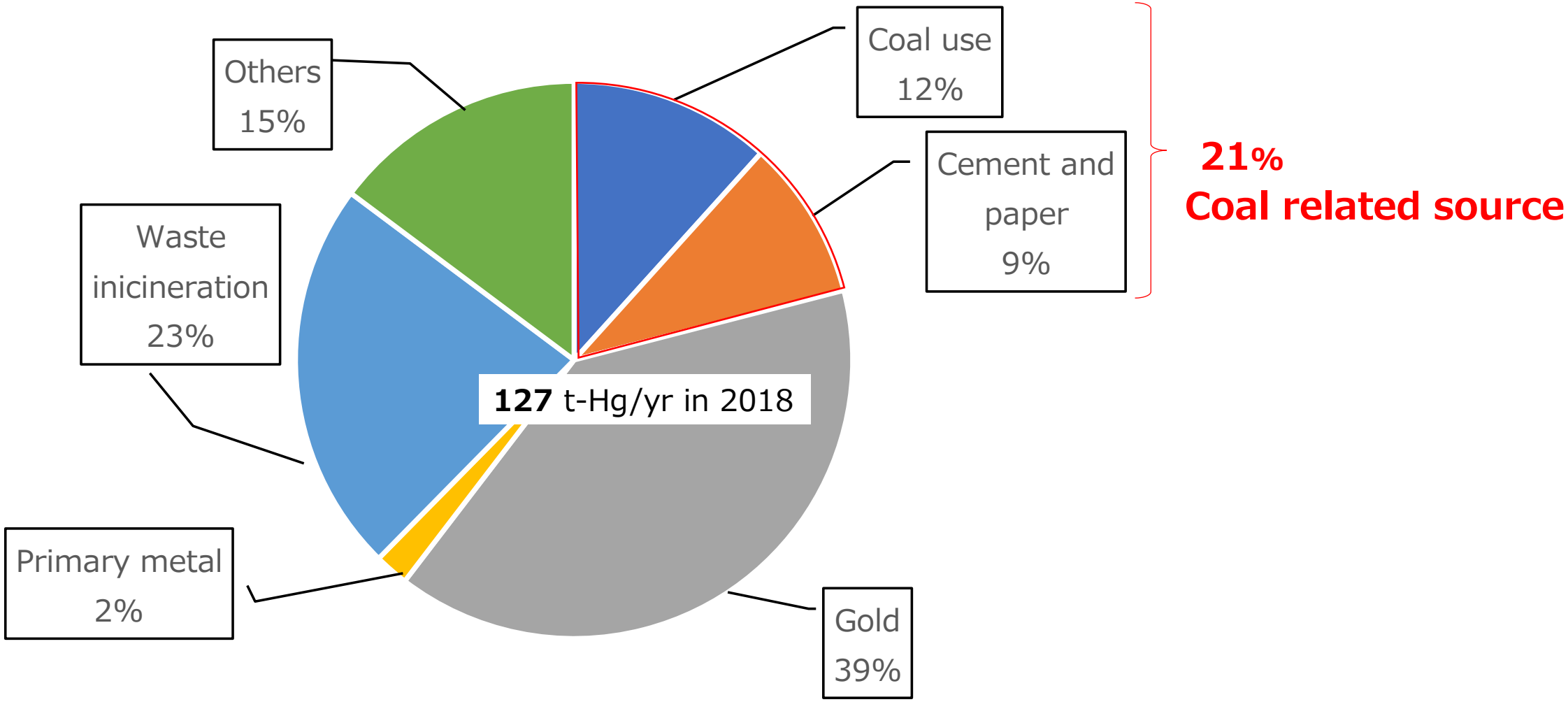
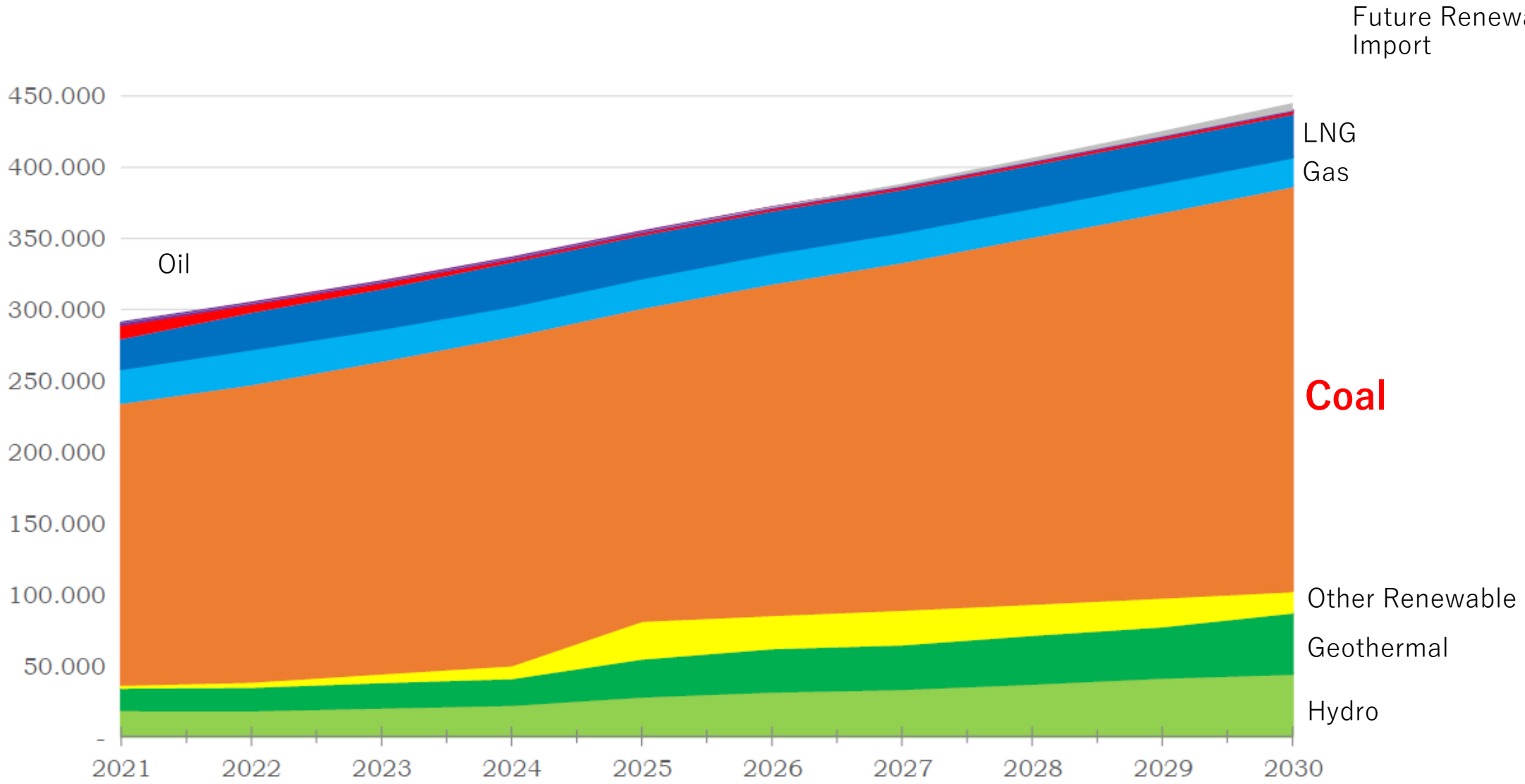


Fig. Estimated mercury release to air in Indonesia in 2018

(Estimated by using UNEP Toolkit Level 1)

SOURCE: Kania Dewi, ITB, Workshop on Effective Mercury Management in relation to Coal (2020)

Background 2 – Expected Electricity Demand in Indonesia



Purpose of Our Activity for Mercury Reduction

- Ministry of the Environment, Japan (MOEJ) has conducted technical cooperation since 2019 in order to meet targets set by Indonesian NAP on **mercury reduction from coal combustion**
- **The purpose of our support activity is to contribute to the NAP of coal sector by introducing Japan's approaches and technologies.**

環境省
Ministry of the Environment

Consultancy contract

Partnership

EX Research Institute Ltd.
Environmental and Regional Planning, Research and Consulting

J-COAL

Outline of Technical Cooperation in the past

- The MOEJ study team has conducted cooperation activities since 2019 in a stepwise manner.

1. Survey on situation of coal sector in Indonesia (2019)

- Conducted interviews on the following organizations to have a better understanding of the status and challenges of stakeholders.
  - Government (KLHK, ESDM and Kementerian Perindustrian)
  - Industrial association (APBI and APKI)
  - Individual company (PTBA, Arutmin, PLN and Indonesia Power)
  - Academia (ITB)
  - International organization (BCRC-SEA)
- Analyzed mercury contents of some coals produced in Indonesia and identified applicable emission reduction techniques.

2. Workshop for information exchange (Feb. 2020)

- Reported the outcomes of the above-mentioned survey and shared relevant Japan's experience, techniques and know-how with range of stakeholders in Indonesia.

3. Focus-Group Discussion (FGD) with PLN and its relevant companies (Dec. 2020)

- Held online information sharing session focusing solely on technical aspects with PLN and relevant companies that will be beneficial for their operation and practice.

From these activities, we found many things

Application of "Gore" FGD & Hg Technology

■ **KLHK No.15 2019** strengthened emission regulations and added mercury regulation.

Table:Comparison of old and new regulation values

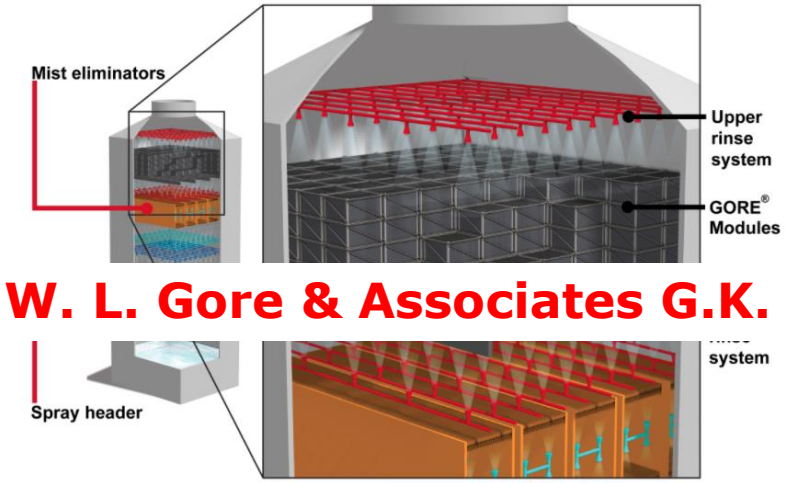
(mg/Nm³)	KLHK No.21 2008 (past)	KLHK No.15 2019 (current)	
		Existing	New
SO_2	750	**550**	**200**
NOx	850	550	200
PM	150	100	50
Hg	-	**0.03** (30μg/Nm³)	**0.03** (30μg/Nm³)

■ The installation of desulphurisation equipment, as a BAT, was considered to be an effective way to reduce both SO2 and Mercury from coal-fired power stations.

Table:Profile data of SO2 from CFPP and Percentage of reduction required

Plant	Unit #	SO2	Percentage of reduction required
Plant A	1	508.85-716.72	0-23.2%
	2	482.83-674.74	0-18.5%
Plant B	1	130.5-617.5	0-10.9%
	2	95.35-576.5	0-5.6%

suitable



SOURCE: Final Report MERCURY EMISSIONS FROM COAL-FIRED POWER PLANTS IN INDONESIA,UNEP GMP 2017

SOURCE: GORE Home page