



DIRECTORATE GENERAL OF OIL AND GAS
MINISTRY OF ENERGY AND MINERAL RESOURCES



The 3rd ASIA CCUS NETWORK FORUM

CCS/CCUS in Indonesia

Directorate General of Oil and Gas, MEMR Indonesia



ASEAN
INDONESIA
2023

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Directorate of Oil and Gas Engineering and Environment

Hiroshima, September 27th 2023

Roles of CCS/CCUS in Indonesia

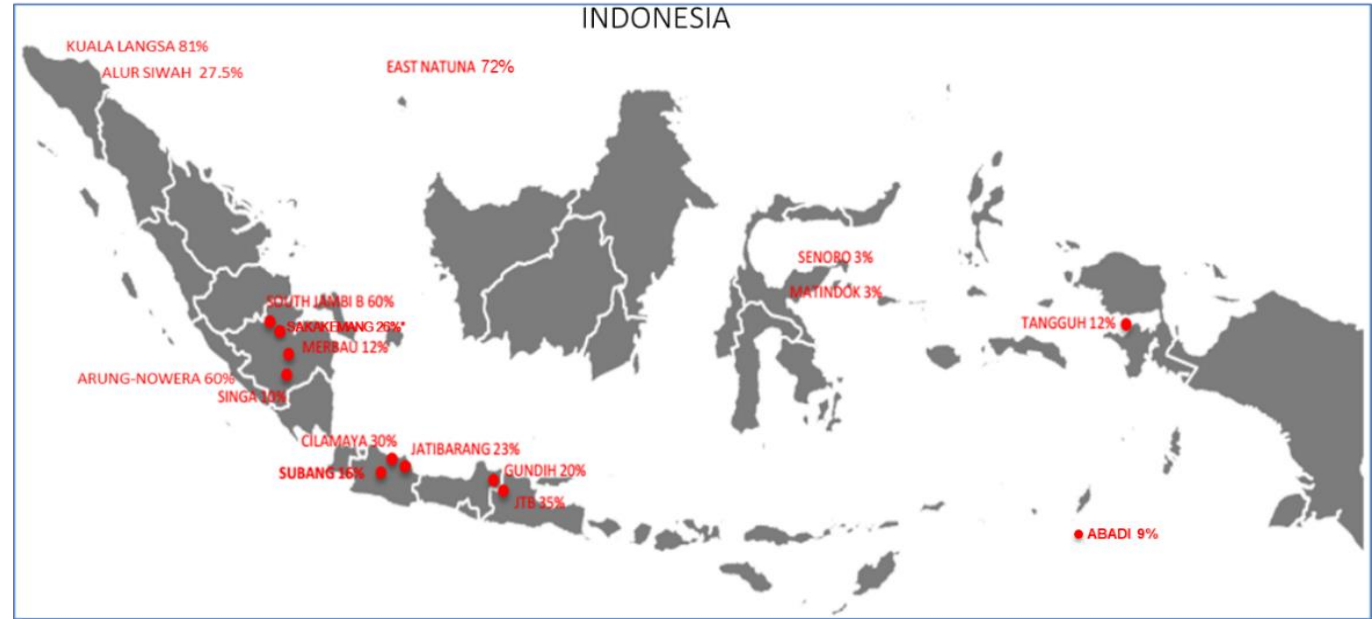
Increase Oil & Gas Production (EOR/EGR)

CCUS as enabler

Develop of Oil & Gas Field with High CO2 Content

Emission Reduction

Enabling production from high CO₂ Fields



CCUS play a critical role in supporting national goals: oil and gas production target, gas field development to support energy transition and accelerate emission reduction to achieve **Net Zero Emission**.



Indonesia's CCS/CCUS Journey

CCS Study Started
Gundih CCS Study by ITB in collaboration Japan Institutions and other international agencies

2012

**National CoE
CCS/CCUS**
Establishment of
National CoE CCS/CCUS
- ITB and Lemigas

2017

**Ministerial Regulation
No. 2/2023**
Implementation of
CCS/CCUS in Upstream
Oil and Gas

2023

**Presidential Regulation
(on progress)**
Formulating Regulation
to support CCS Hub
Development

2023

Any Support
Policy/
Regulation/
Guideline

CCS/CCUS Project Development






Tangguh – Gundih – Sakakemang – Abadi – other projects





CCS Hub



MEMR Regulation No. 2 of 2023 on CCS/CCUS in Upstream Oil & Gas

“Focus on CCS or CCUS (EOR/EGR/ECBM) in Oil and Gas Working Area”

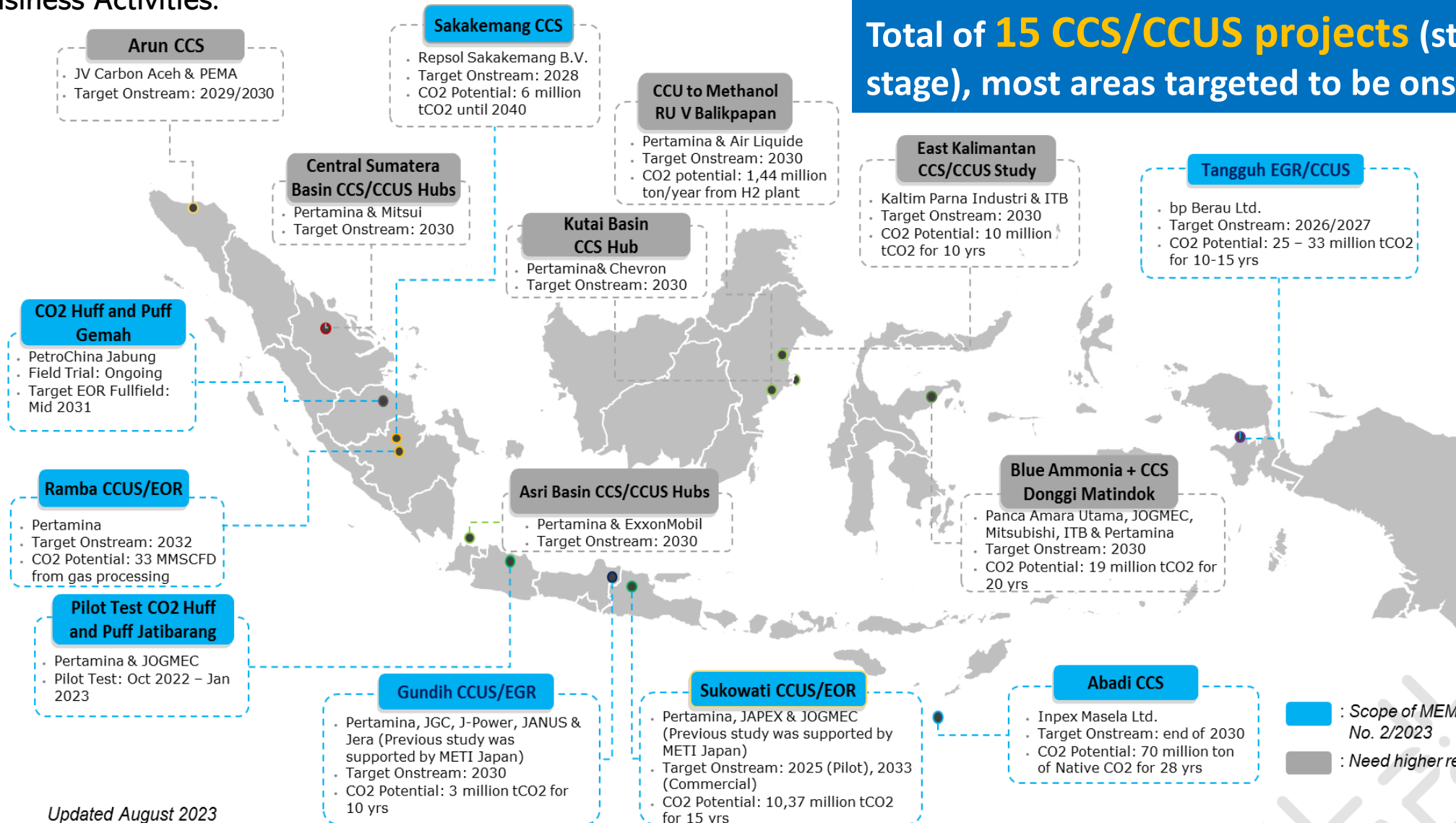
SCOPE		CCS/CCUS		
				
CAPTURE	TRANSPORT	INJECTION	STORAGE	UTILIZATION <small>(for CCUS)</small>
<ul style="list-style-type: none"> • Emission from Upstream O&G • Emission from Other Industries (for CCUS) • Direct Air Capture (DAC) 	<ul style="list-style-type: none"> • Pipeline • Trucking • Shipping • Other Technologies 	<ul style="list-style-type: none"> • Injection into Injection Target Zone • In the Exploitation period 	<ul style="list-style-type: none"> • O&G Reservoir • Non-Conventional O&G Reservoir • Saline Aquifers • Coal layer for the CBM activity 	<ul style="list-style-type: none"> • Enhanced Oil Recovery (EOR) • Enhanced Gas Recovery (EGR) • Enhanced CBM Recovery (ECBM)

Technical Aspects	Business Scenario	Legal Aspects	Economic Aspects
			
<ul style="list-style-type: none"> • Capture, Transport, Injection, Storage and Monitoring, Measurement, Reporting & Verification (Monitoring and MRV) • Based on the referenced standard, good engineering practices and site 	<ul style="list-style-type: none"> • Based on Production Sharing Contract in the Oil and Gas Working Area • Sources of CO₂ not only from oil and gas but also from other industries (for CCUS) through B to B with Oil and Gas Contractor 	<ul style="list-style-type: none"> • Proposal of CCS/CCUS as part of Plan of Development (POD) • Monitoring liability until 10 years after injection closure • Provisions regarding the Transfer of Responsibility, etc 	<ul style="list-style-type: none"> • Potential 3rd party's funding • Potential CCS/CCUS Monetization based on applicable regulation

CCS/CCUS IMPLEMENTATION PLAN IN INDONESIA

The Government has issued Minister of EMR Regulation No. 2/2023 on the Implementation of CCS/CCUS in Upstream Oil and Gas Business Activities.

Total of **15 CCS/CCUS projects** (study/ preparation stage), most areas targeted to be onstream by 2030



Updated August 2023

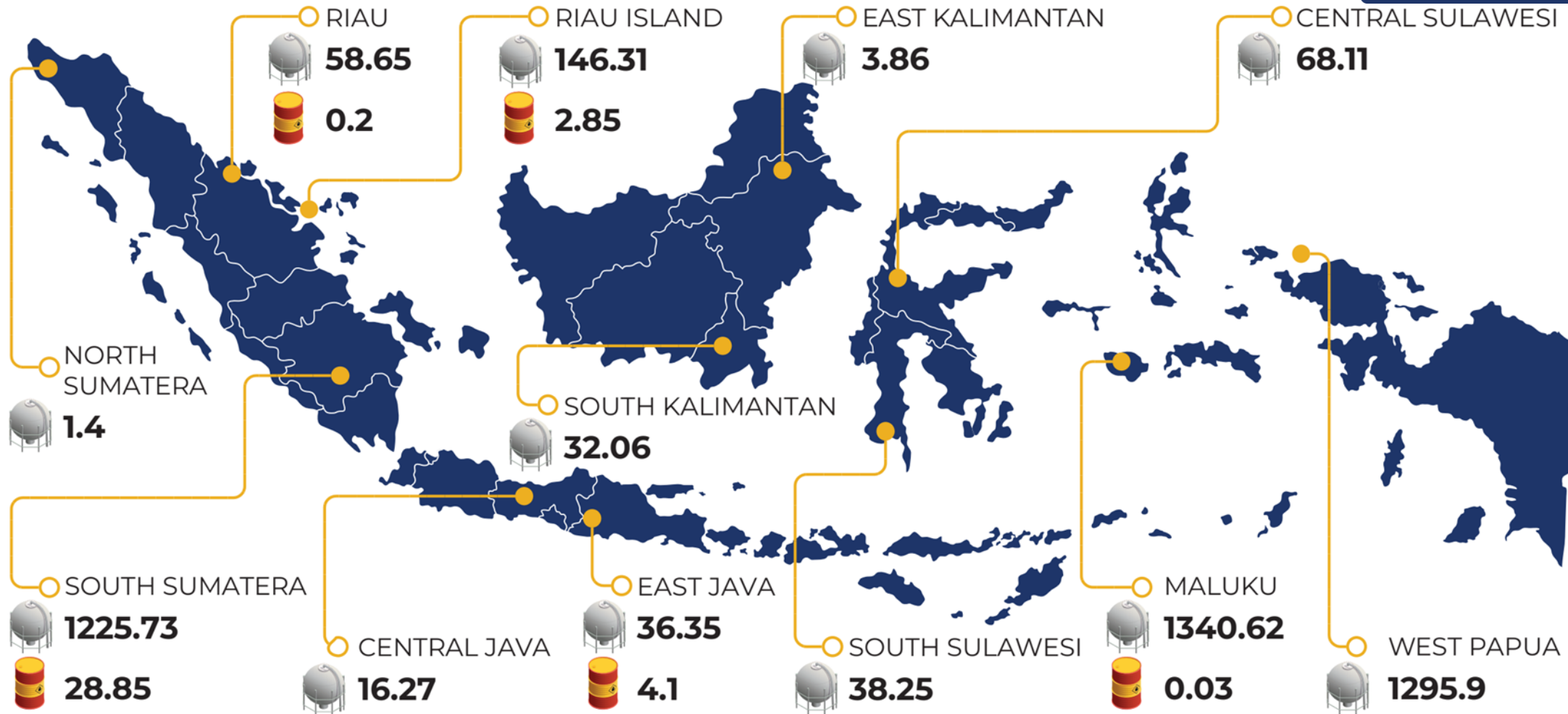


Potential CO2 Storage Capacity in Indonesia

In Oil and Gas Reservoir

TOTAL 103 FIELDS WITH CO₂ STORAGE CAPACITY

4,310.74 MtCO₂



*ON GOING LEMIGAS STUDY AS OF JULY, 12TH 2023

 OIL RESERVOIR
17.23 MtCO₂

 GAS RESERVOIR
4,293.51 MtCO₂



Issues

Cost

Cross-border

- *How to treat the CO₂, CO₂ Specification, risk of leakage and the responsibility*

MRV

- *Robust and Internationally Recognized Methodology*

Capacity Building

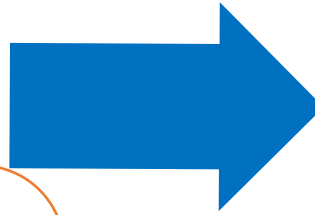
- *Technical, Monitoring, Safety, Economic, Carbon Trading, Regulatory Framework*

Current and Future Legal and Regulatory Framework

Current Status

(MEMR Regulation No. 2 of 2023)

- Limited on CCS/CCUS in O&G Working Area only,
- Only conducted by O&G Contractor, based on Upstream O&G Business Mechanism (Production Sharing Contract & Gross Split)
- Open for CO₂ sources from outside upstream O&G (for CCUS)



Future regulation & policy

- Enabling CCS outside of the O&G Working Area.
- Opens up investment opportunities through 2 schemes: (1) **Cooperation Contract** for CCS in Oil and Gas Working Areas; or (2) **Exploration Permit and Storage Operation Permit** for CCS in the Carbon Storage Permit Area.
- Enabling CCS with CO₂ sources from **other industries**.
- Enabling **Cross-border CCS**.

DG Oil and Gas MEMR in collaboration with related Ministries is currently working on the first regulation for CCS outside oil and gas working area to support emission reduction from other industries.





DIREKTORAT JENDERAL MINYAK DAN GAS BUMI
KEMENTERIAN ENERGI DAN SUMBER DAYA MINERAL



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