



# Low Carbon Day

Low Carbon initiatives in  
Exploration: CCS

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The Repsol Commitment  
Net Zero Emissions  
by 2050



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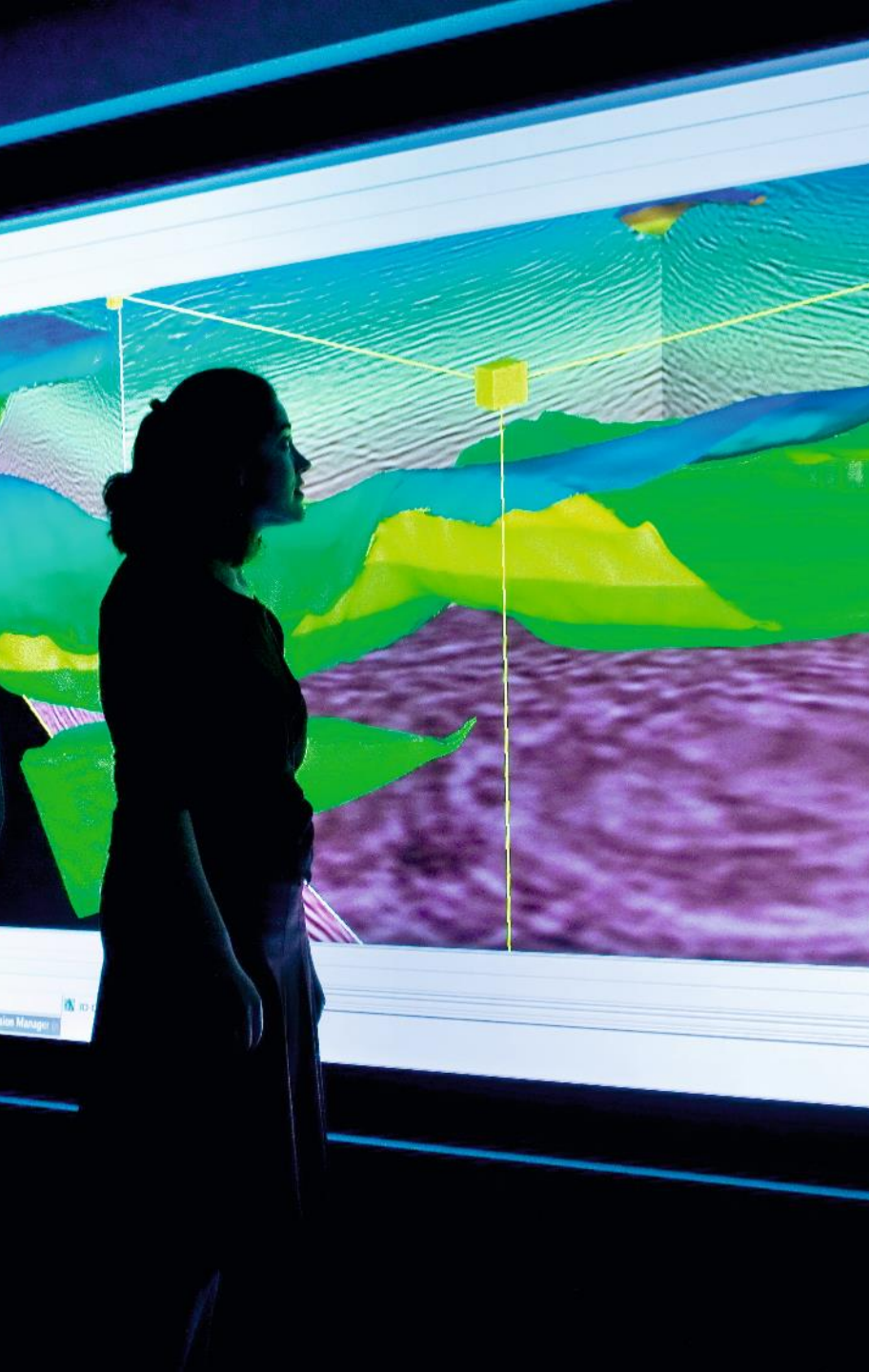
# 01.

## Our Starting Point



The Repsol Commitment  
Net Zero Emissions  
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## 01. Our Starting Point

# The Upstream Business in the Energy Transition context



Repsol: First O&G Company to announce Net Zero commitment by 2050



Decreasing capital employed in conventional O&G exploration activities and geographically concentrated (2021-2025 Strategic Plan)



Exploration personnel skill sets in conventional O&G exploration activities is being re-converted to Low Carbon Exploration initiatives aligned with our Net Zero ambitions:

- Carbon Capture & Storage (CCS) in the subsurface to abate CO<sub>2</sub> emissions
- Exploration for Geothermal Resources to boost low CO<sub>2</sub> energy generation (similar activity to (O&G Exploration)
- Hydrogen Storage to provide solution to buffer H<sub>2</sub> production through storage in saline cavities in the subsurface



The expertise of our G&G workforce will be source of Competitive Advantage in the Energy Transition



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# 02.

## Sakakemang Project



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## 02. Sakakemang Project

# Discovery & Appraisal

Sakakemang PSC:  
Kaliberau Dalam-2X Discovery (KBD-2X)



45% (Op.)

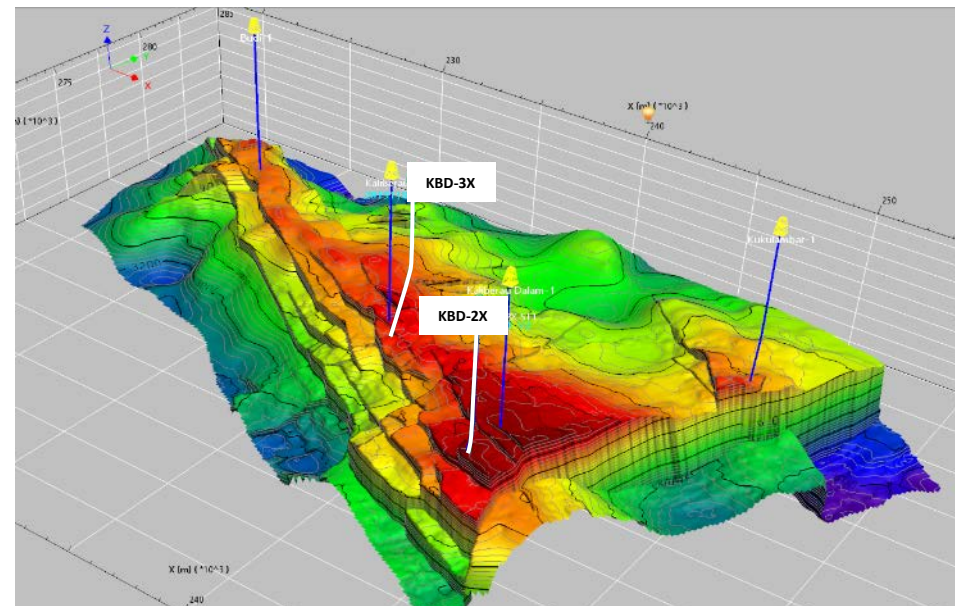


45%

MOECO

10%

- Kaliberau Dalam-2X discovery well: February 2019
- Largest Gas discovery in Indonesia in the last decade (>2 TCF)
- Gas with high CO<sub>2</sub> content (26%)
- New Greenfield Projects need to be Net Zero
- Appraisal campaign following the KBD-2X discovery:
  - KBD-3X appraisal well (2020-2021) – Completed
  - Long Duration Test (LDT) on KBD-2X discovery Pressure monitoring in KBD-3X (2021) – Ongoing
- Objectives of appraisal program: confirm the volumes associated to the discovery and confirm connectivity between KBD-2X & 3X
- Volumes of CO<sub>2</sub> directly related to discovered volumes of gas



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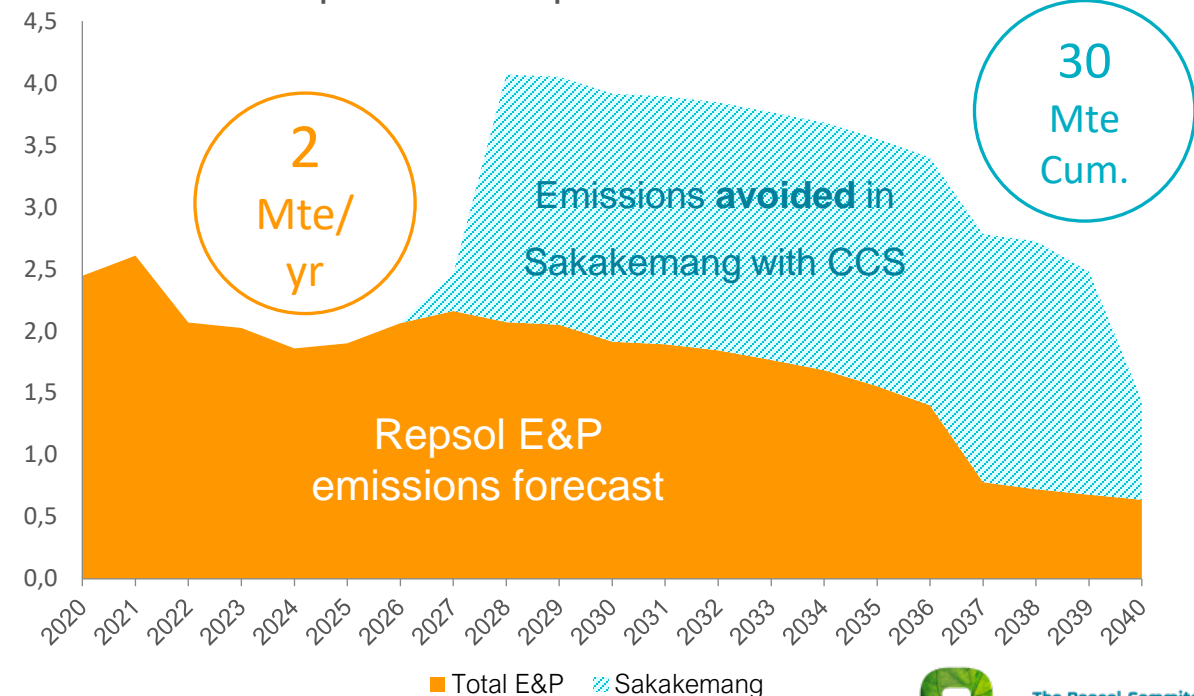
## 02. Sakakemang Project:

# CCS

- Development of a 2TCF gas discovery & simultaneous CCS
- First CCS project deployed by Repsol and First in Indonesia.
- Among largest CCS projects worldwide today (only 6 CCS projects operating).
- Storage will commence in 2027 and will be done in two depleted gas fields of Corridor PSC contract (Gelam & Dayun).
- Main Challenges:**
  - Regulatory Framework, but the MEMR in Indonesia has already created a Task Force with the objective to have CCS regulation in place by the end of 2021.
  - Financial: cost carried by partners, but captured & stored CO<sub>2</sub> could be subject of further trading.



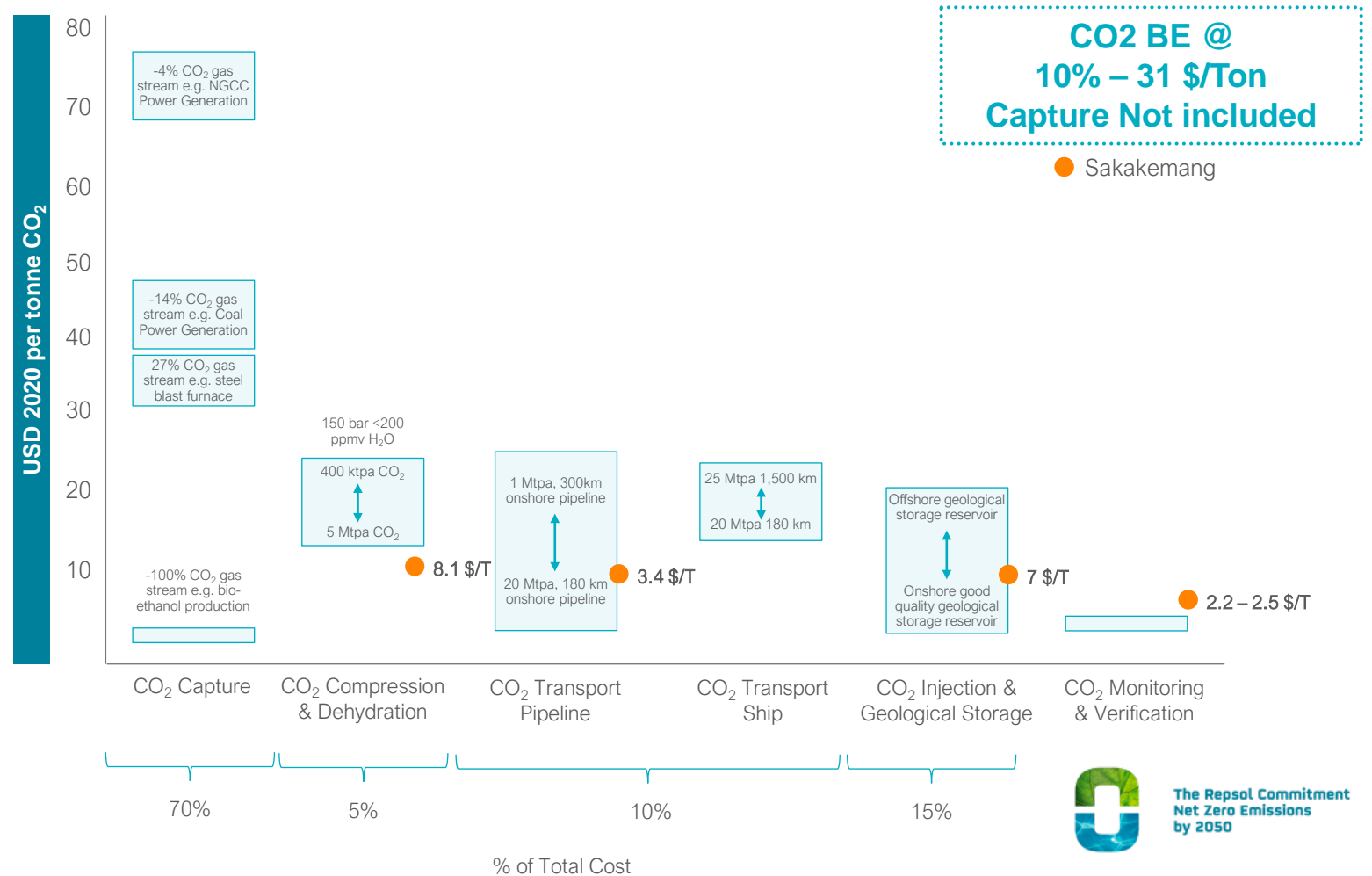
Repsol: Total Upstream emissions





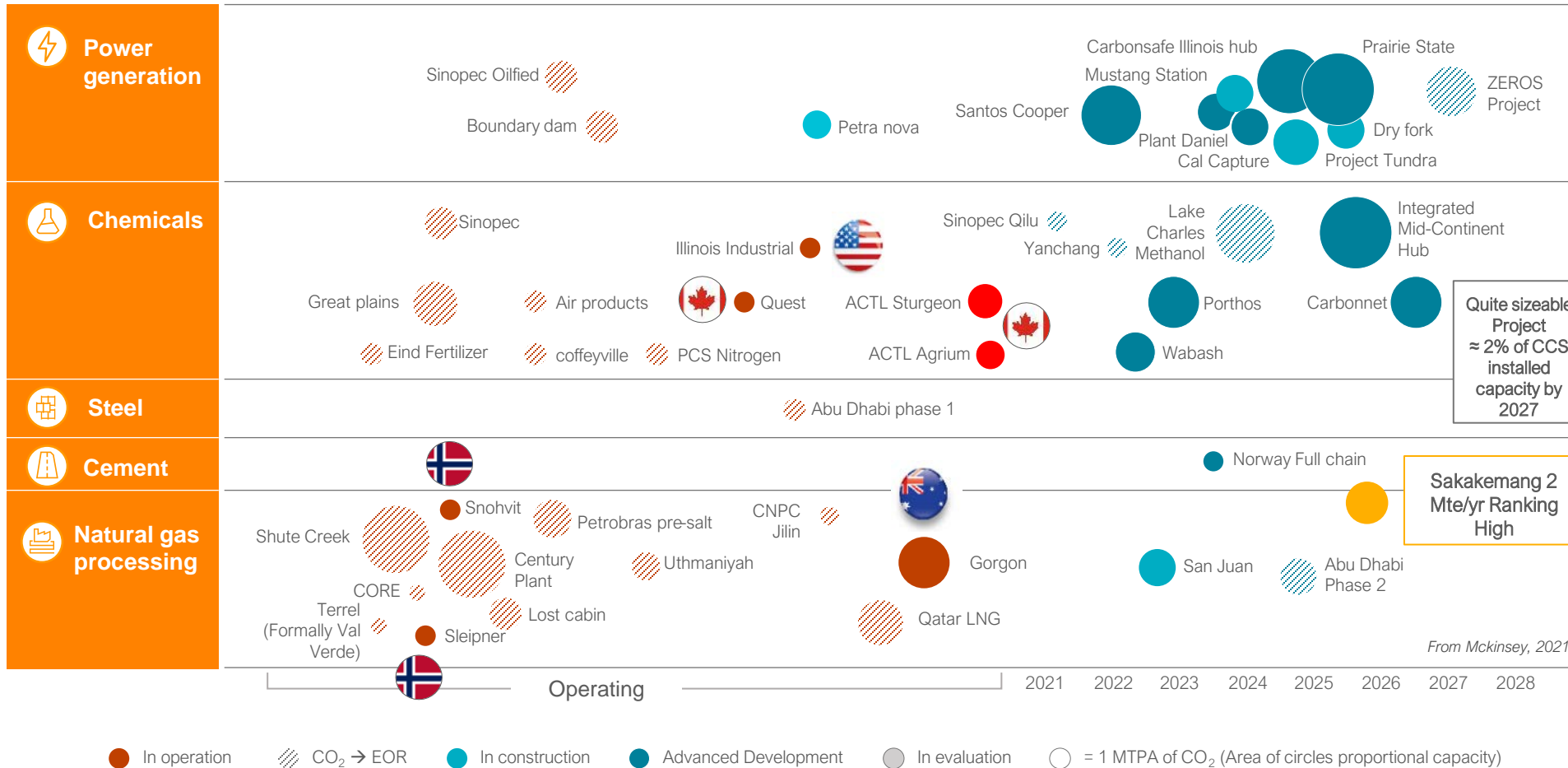
## 02. Sakakemang Project:

# CCS (Carbon Pricing)



## 02. Sakakemang Project:

# CCS worldwide benchmark



Quite sizeable Project  
 ≈ 2% of CCS installed capacity by 2027

Sakakemang 2 Mte/yr Ranking High

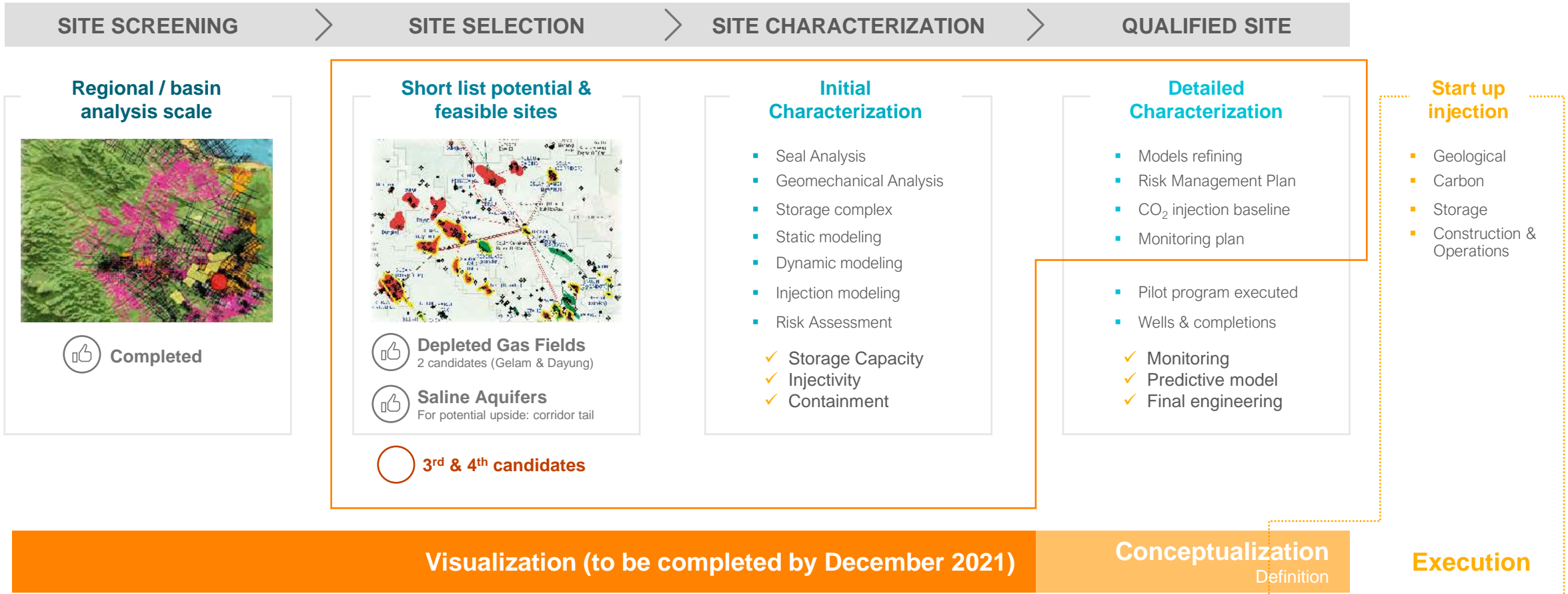
~40 Mte/ yr  
 ↓  
 ~110 Mte/ yr

Today only 6 true CCS projects worldwide



02. Sakakemang Project:

# CCS Technical Assessment







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