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Net Zero Industry Act - CCS as a key enabler of the energy transition

François-Régis Mouton
20 September



NZIA - our reaction – In a nutshell

IOGP welcomes the recognition of CCS as ‘net-zero technologies’

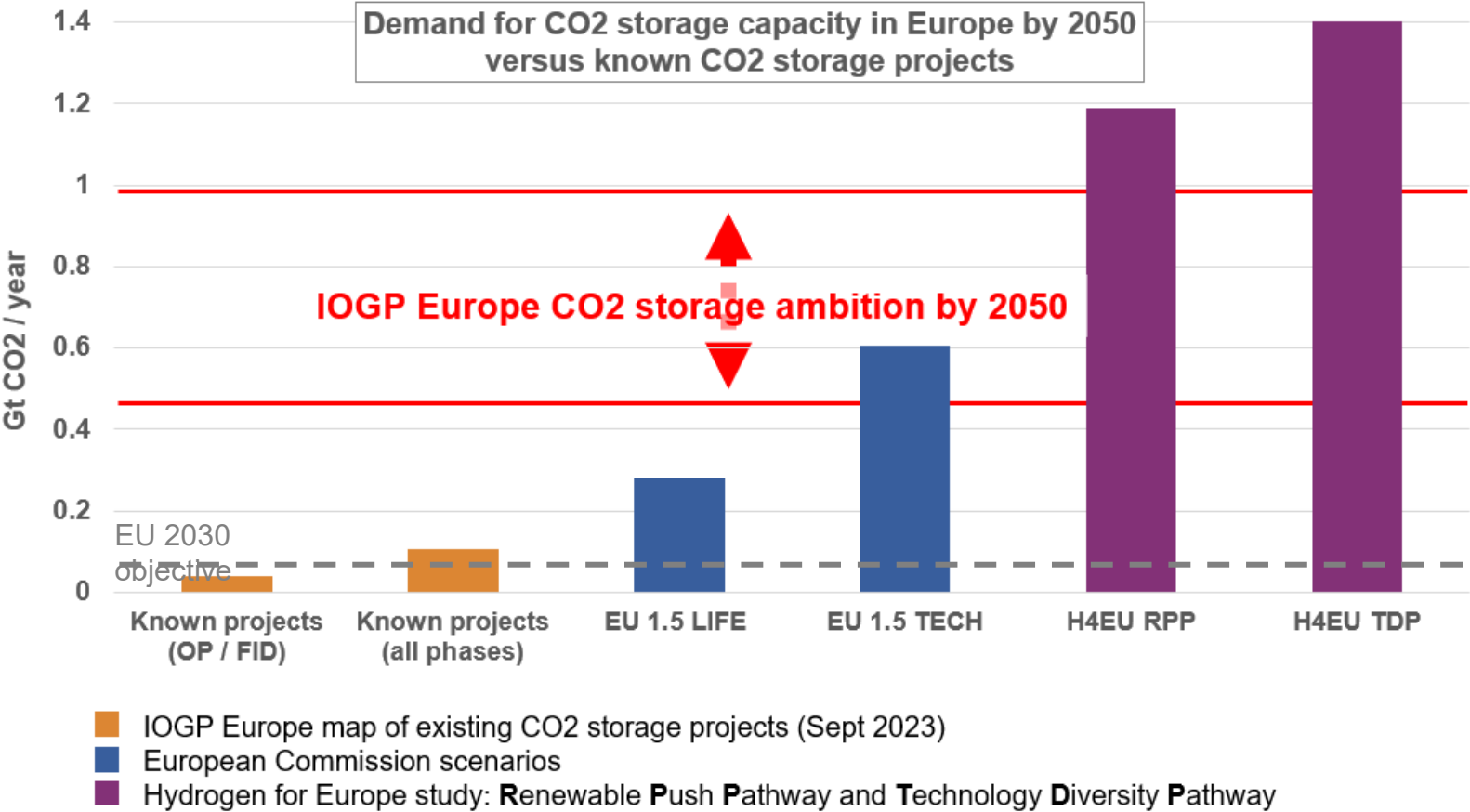


Reaching the 50 Mt CO₂ injection capacity objective will be very challenging without an enabling regulatory framework



And a business case is needed for all entities operating along the CCS value chain

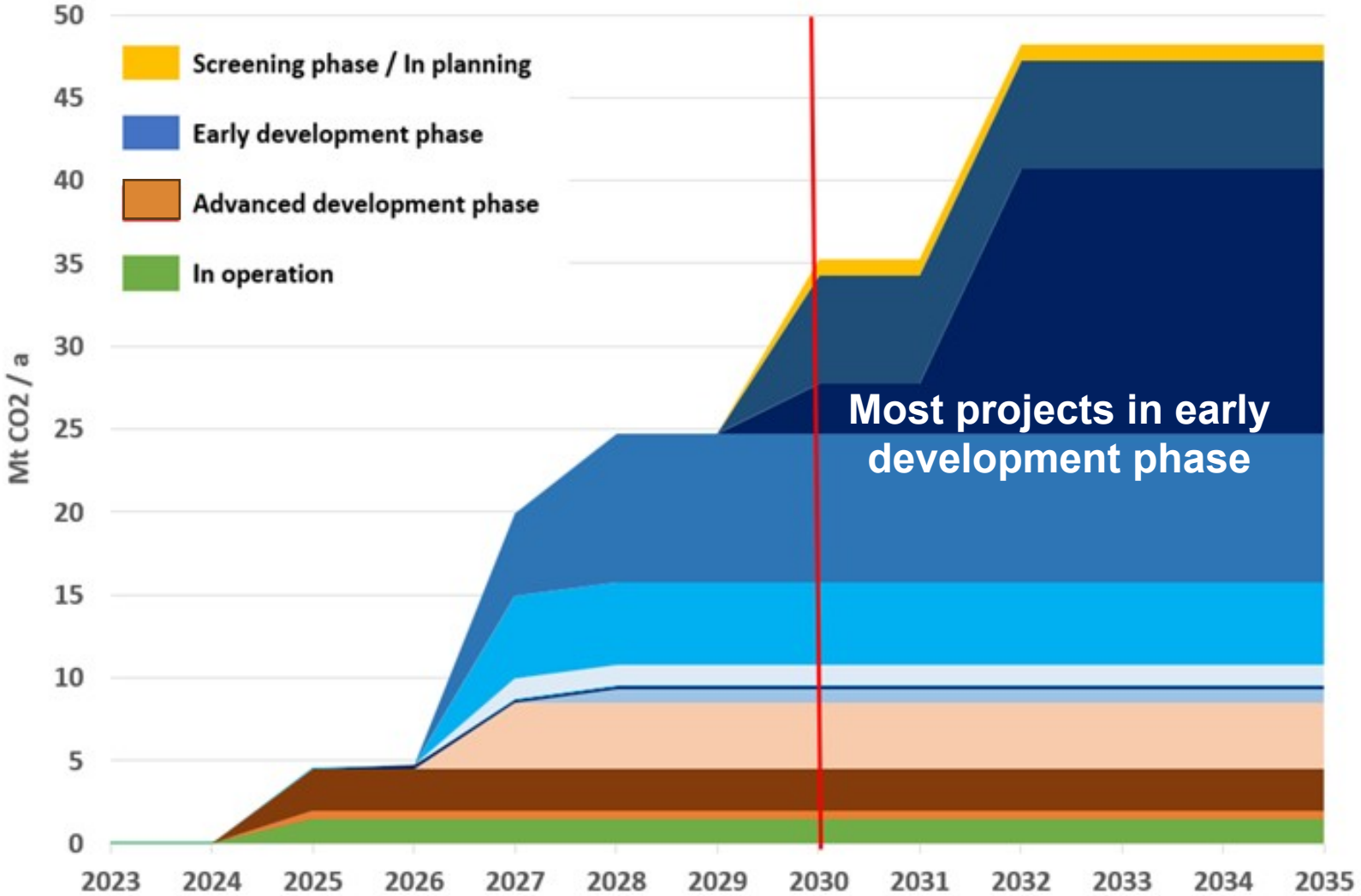
We aim higher!



➤ IOGP Europe member ambition to develop 0.5 to 1.0 Gt CO2/a storage injection capacity by 2050, subject to an enabling regulatory framework

35 Mt CO2 storage injection capacity in EU by 2030 if all known projects realized ... and on time

- France Pycasso
- Denmark Greensand (exp)
- Denmark Bifrost
- Netherlands L10 CCS
- Netherlands Aramis
- Greece Prinos CCS
- Croatia Bio refinery
- Croatia Petro Kutina
- Bulgaria ANRAV
- Italy Ravenna Hub
- Netherlands Porthos
- Denmark Stenlille
- Denmark Greensand



Overview of existing and planned CO₂ storage projects in Europe

BULGARIA

1. ANRAV (IF)

CROATIA

1. Petrokemija Kutina*
2. Bio-Refinery Project*
3. CCGeo (IF)
4. CO₂ EOR Project Croatia*

DENMARK

1. **Greensand***
2. Bifrost*
3. Stenlille demo CO₂-storage
4. Norne
5. Ruby

FRANCE

1. Pycasso*

GREECE

1. Prinos CCS

ICELAND

1. **Orca**
2. **Silverstone** (IF)
3. Coda Terminal (IF)
4. Mammoth

ITALY

1. Ravenna CCS*

THE NETHERLANDS

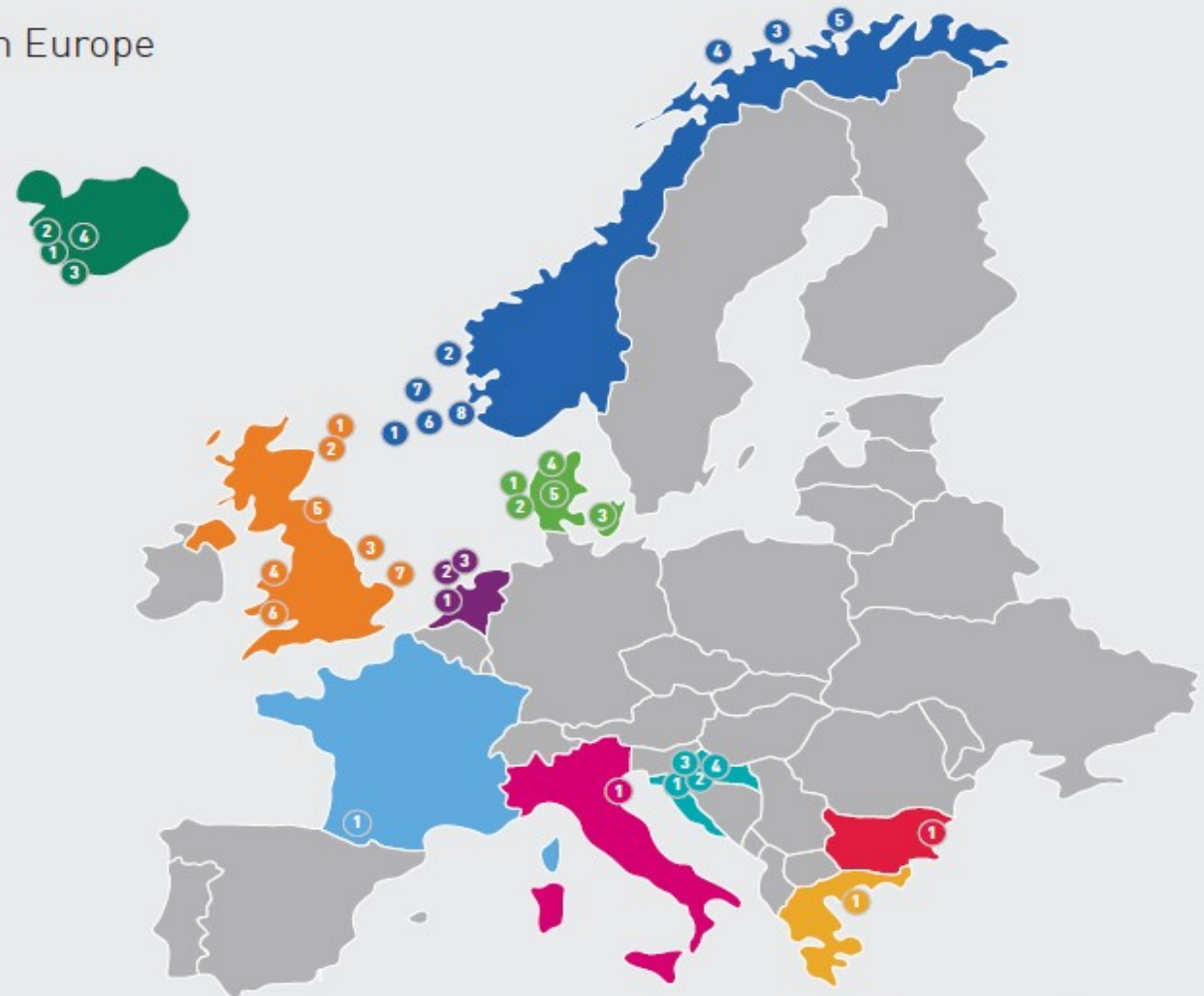
1. Porthos* (PCI)
2. Aramis* (PCI)
3. L10 CCS*

NORWAY

1. **Sleipner***
2. Longship (includes Northern Lights)* (PCI)
3. Barents Blue
4. **Snohvit***
5. Smeaheia*
6. Trudvang*
7. Luna*
8. Havstjerne*

UK

1. Acorn*
2. Caledonia Clean Energy
3. Zero Carbon Humber*
4. HyNet*
5. Net Zero Teesside*
6. South Wales Industrial Cluster
7. Bacton Thames Net Zero initiative*



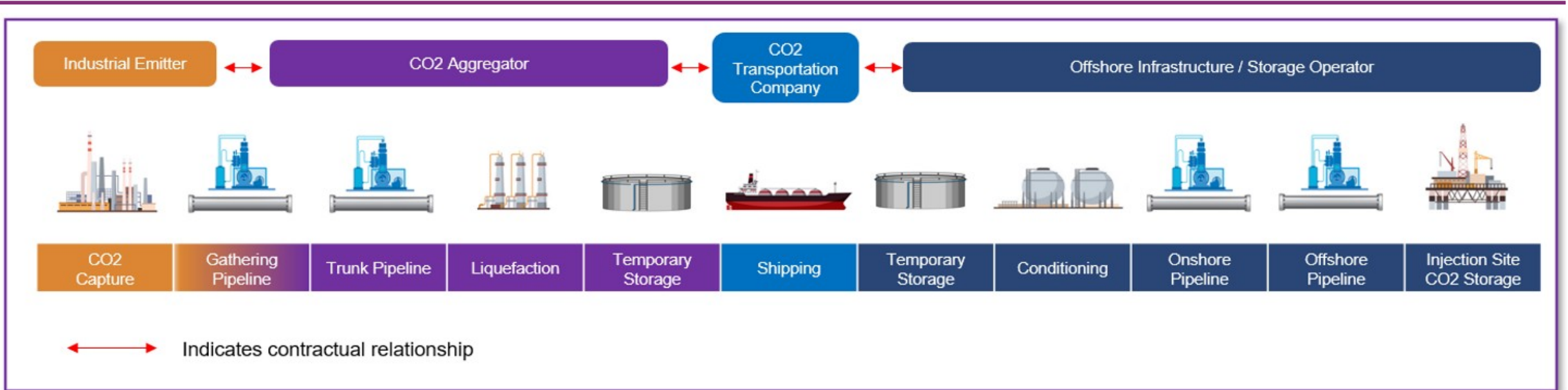
* Project where IOGP Members are involved
 Projects listed in **bold** are in operation
 (PCI) – Project of Common Interest
 (IF) – Project supported by the EU Innovation Fund

EU	16 projects - 35 MtCO ₂ /yr by 2030
Europe	35 projects - 105 MtCO ₂ /yr by 2030



➤ **Make CO₂ storage capacity developments in EEA and UK by obligated EU O&G entities count towards the 50 MtCO₂ CO₂ storage objective too (addition in Article 16)**

Complex and long CCS value chains with multiple entities



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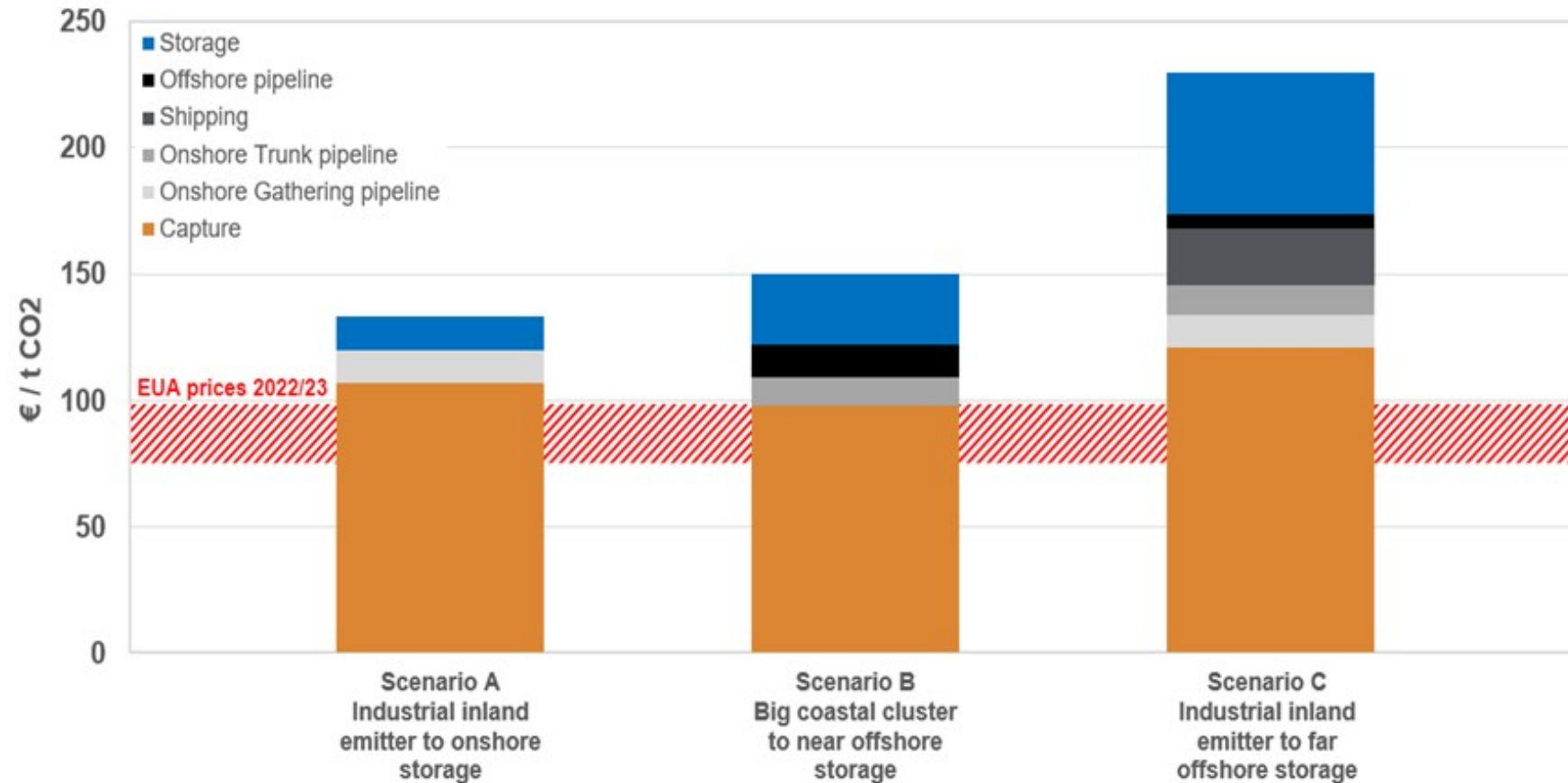
- Expand the scope of “net-zero strategy projects” beyond CO2 storage projects by including CO2 capture and CO2 infrastructure projects necessary to transport captured CO2 to CO2 storage sites (**amend Article 10**)

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- **Allow competent authorities approval of start-up delays:** many project milestones are outside control of CO2 storage project developers (**include in Article 18 (6)**)
- **Recognize need for long-term / back-to-back contracts between entities to underpin investment decisions**

Levelized cost of CCS value chains range from 130 to 230 €/t_{CO2}

3 scenarios based on Rystad Energy data



➤ **Current ETS allowances prices are insufficient for emitters to underpin CCS value chains**

Each segment of CCS value chain need targeted support

Key de-risking & funding mechanisms along the CCS value chain

- CCfDs
- Targeted funding
- Long term CO2 offtake contracts

- Government backed guarantees
- CO2 aggregators with public banking
- Long term back-to-back capacity bookings
- Regulated tariffs

- Targeted funding
- Long term store-or-pay contracts



Emitter
with capture



Transportation
infrastructure operators



Storage & offshore
infrastructure operators

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- **Introduce in Art. 18(6): Member States to take necessary measures, including needed funding and de-risking mechanisms (at least in initial build-up phase)**

How can the NZIA proposal be improved to reach the 50Mt CO₂ storage capacity objective faster?

- **Apply value chain approach:** expand scope of “net-zero strategy projects” to include **CO₂ capture and CO₂ infrastructure projects too => Article 16**
- **Expand geographical scope:** allow CO₂ storage developments **in EEA and UK** to count towards the 50 MtCO₂ storage objective => **Article 16**
- **Fully use potential of CCS to contribute to net-zero:** do not limit CO₂ storage to emissions from certain emitters only
- **Require dialogue between Competent Authorities and obligated O&G entities:** allow delayed start-ups if conditions outside control of project developers are not in place => **expand Article 18 (6)**
- **Expand Article 18(6): Member States / European Commission to facilitate projects by:**
 - **organizing tender rounds for exploration licenses** for geological structures suitable to store CO₂ (incl. saline aquifers)
 - **making available funding and de-risking incentives** (e.g. carbon contracts for difference for emitters)
 - **putting in place a fit-for-purpose framework for CCS:** standards, transportation access; CO₂ accounting rules, etc.



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