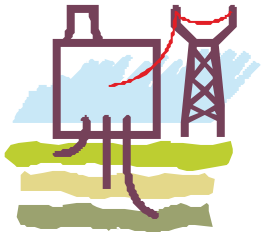


EU Demonstration Programme for CO₂ Capture and Storage (CCS)

ZEP's Proposal

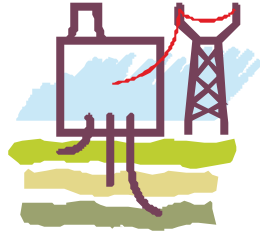


Pietro Barbucci

British – French Flame Days
Lille, 9th march 2009

What are we?

European Technology Platform for
Zero Emission Fossil Fuel Power Plants (ZEP)

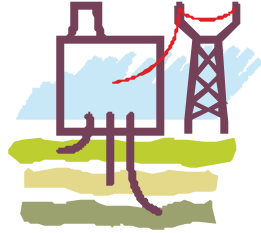


ETP Role:

define a strategic agenda for the development and deployment of technologies involving major economic or societal challenges.

- **Initiated by European Commission in 2005**
- **Unique and broad coalition of stakeholders:**
European utilities, petroleum companies, equipment suppliers, scientists, academics and environmental NGOs
- **200 people in 19 different countries contribute**
- **36 different companies/organisations represented on ZEP's board**

AGENDA



Climate Change and the Need for CCS

The Role of an EU CCS Demonstration Programme

EU Demonstration Programme Set-up

Conditions for Successful Implementation



The Impacts of Climate Change

↓
2°C
↑



Weather



Water



Food



Health



Ecosystem



Social

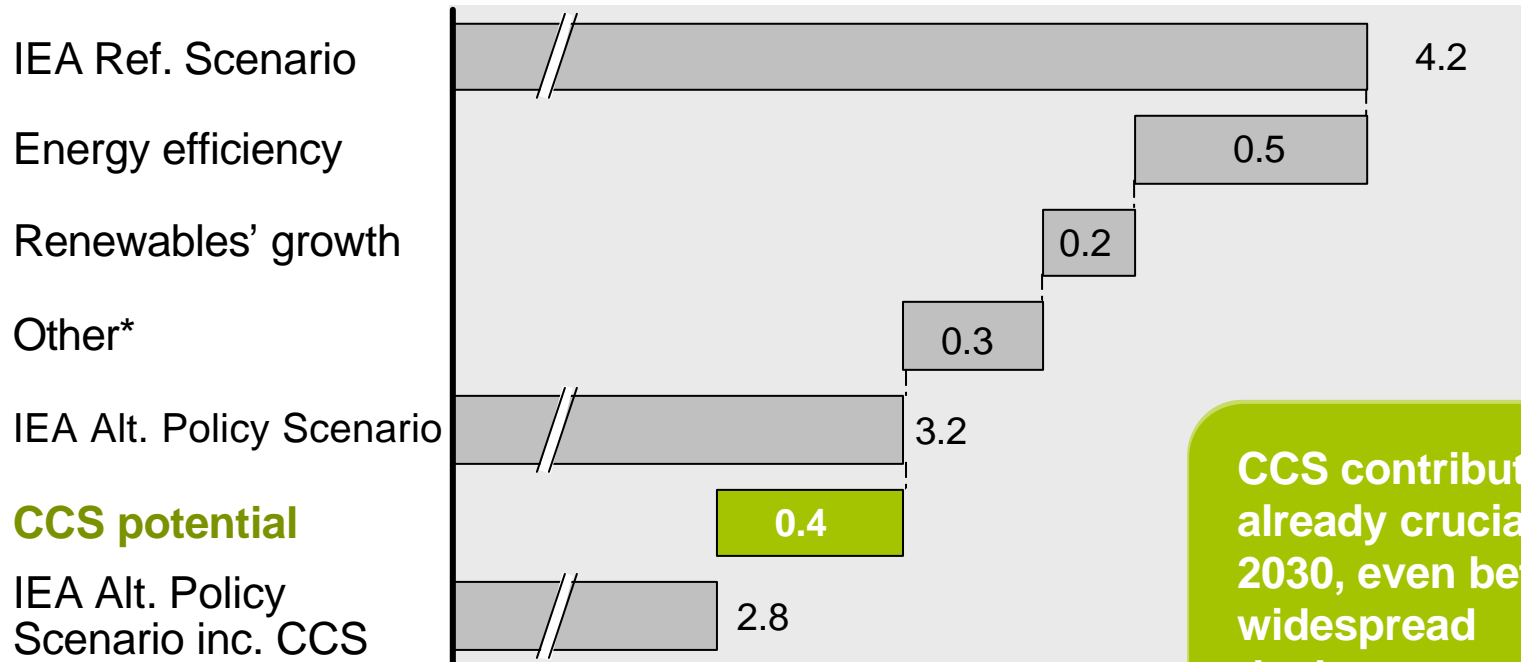


GDP

Need for 50% reduction in emissions by 2030 versus Business-as-usual

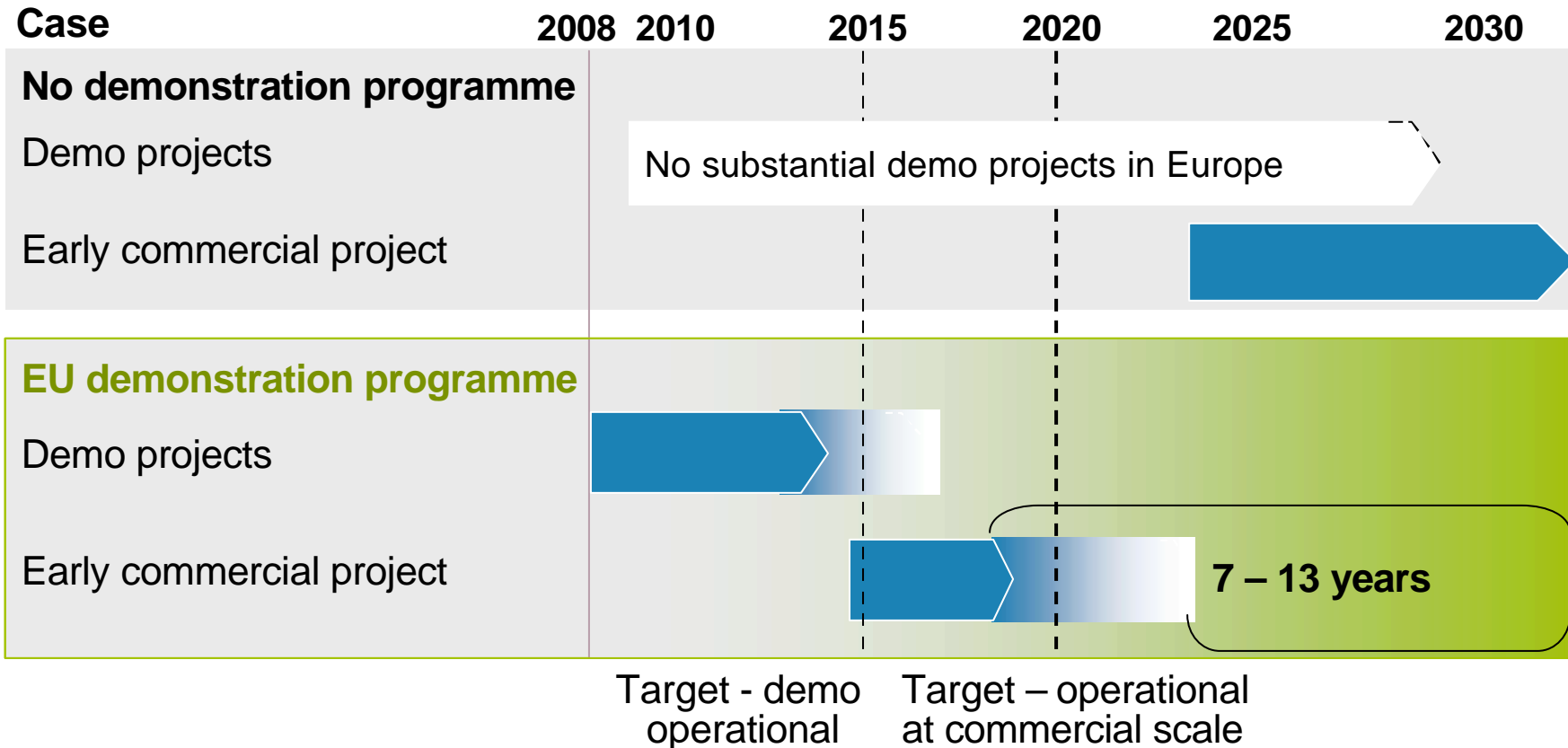
CCS is a Key Solution to Reaching Emission Reductions Targets

EU emissions, Gt CO₂/year, 2030



**CCS contribution
already crucial in
2030, even before
widespread
deployment**

An EU Demonstration Programme Gives CCS a ~10 Year Head-Start



The Focus and Benefits of an EU CCS Demonstration Programme

Objective:

Enable commercial availability of CCS by 2020

1

Validate technology



2

Bring down costs

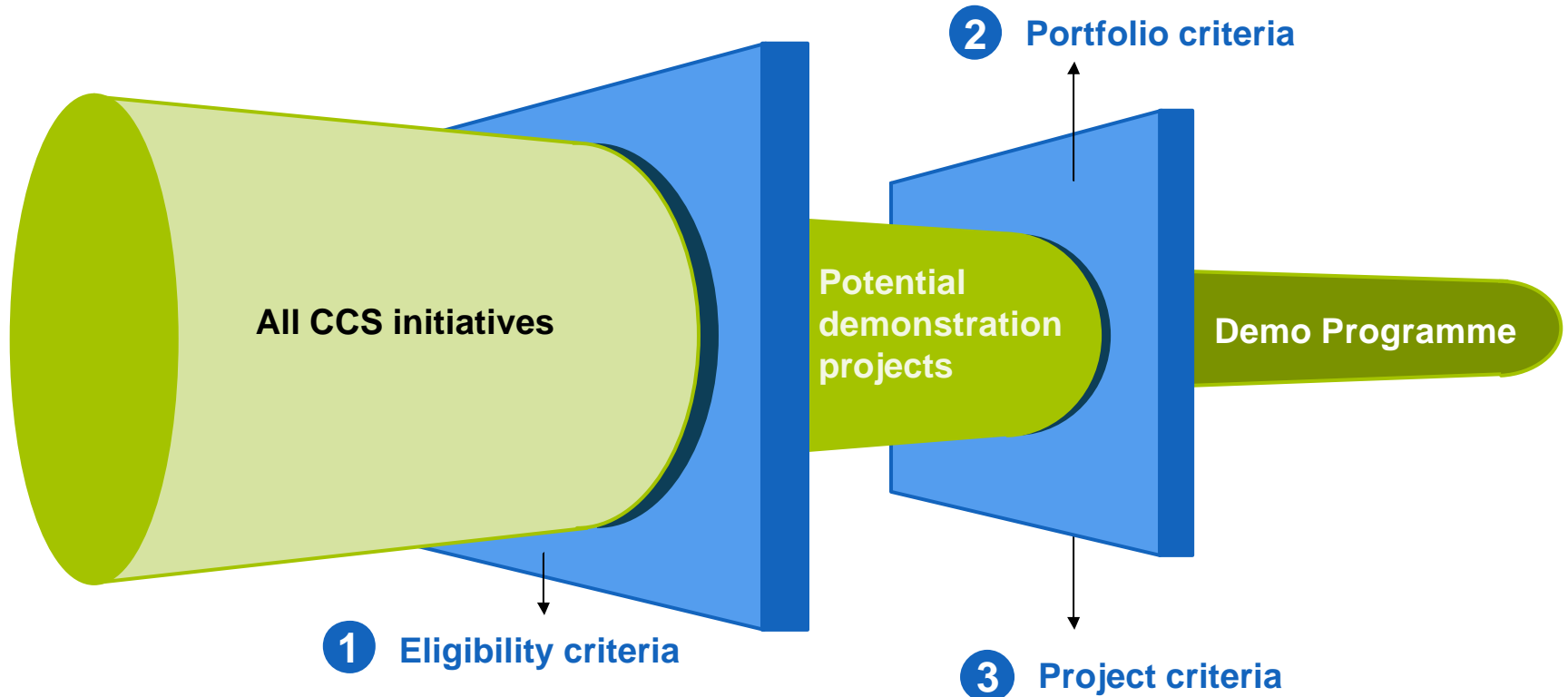


3

Contribute to public awareness of CCS



Selecting the Optimal Projects for an EU Demonstration Programme



To Achieve the Programme's Goals, the Portfolio Needs to Test...

Context: the portfolio should also ensure several non-technical elements

**Various
EMISSION
Sources**



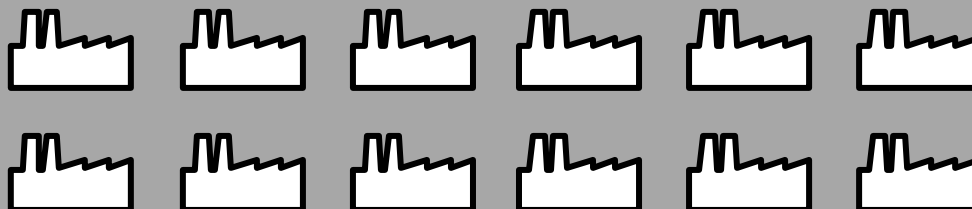
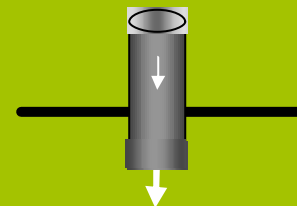
**Various
CAPTURE
Technologies**



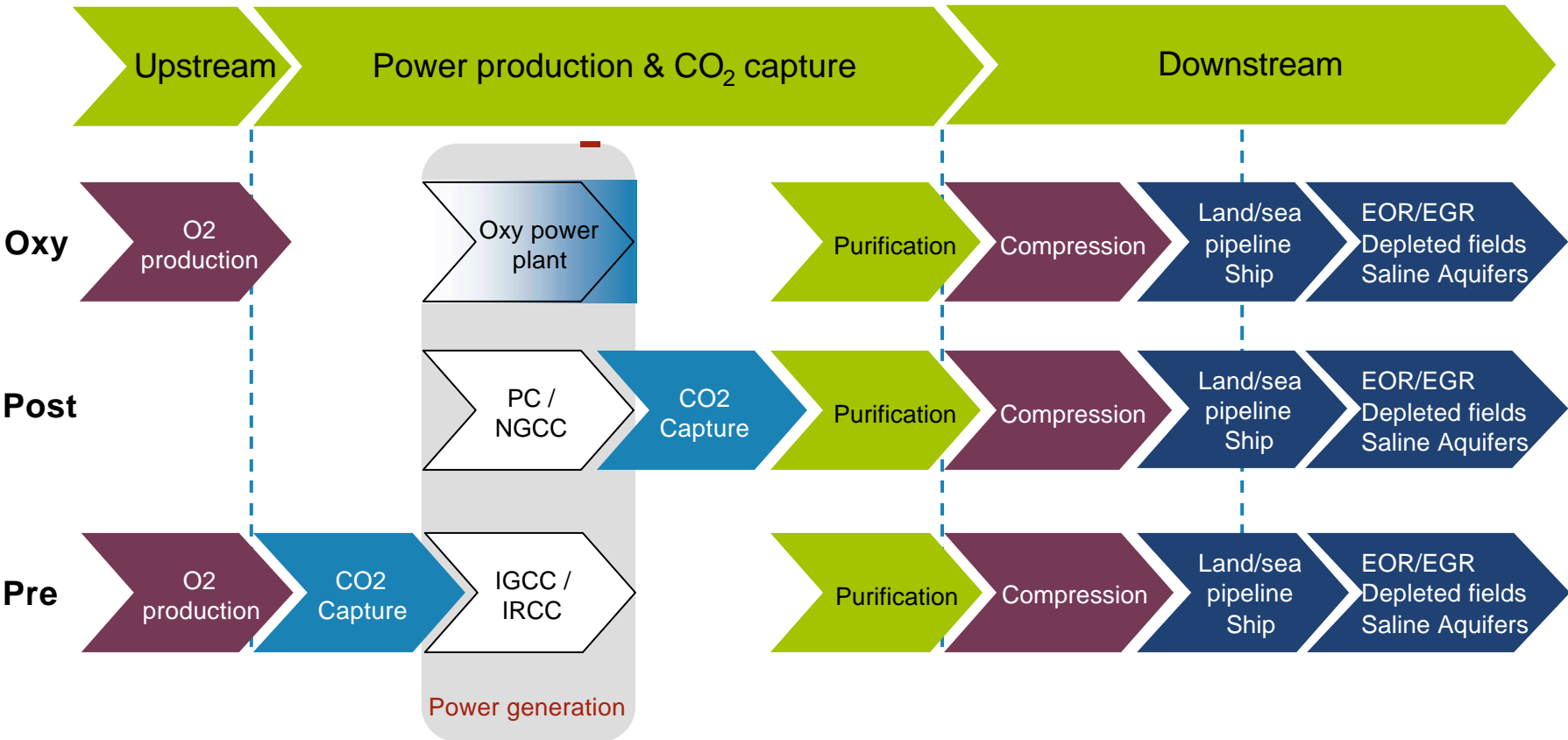
**Various
TRANSPORT
Modes**



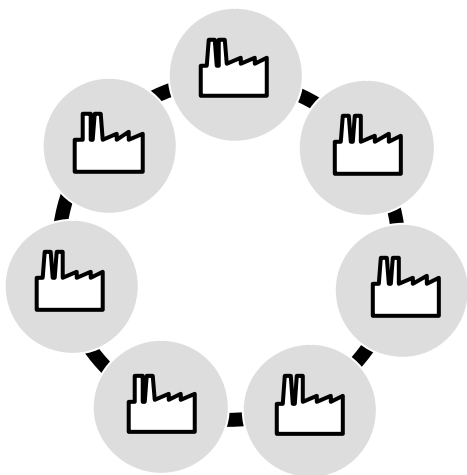
**Various
STORAGE
Settings**



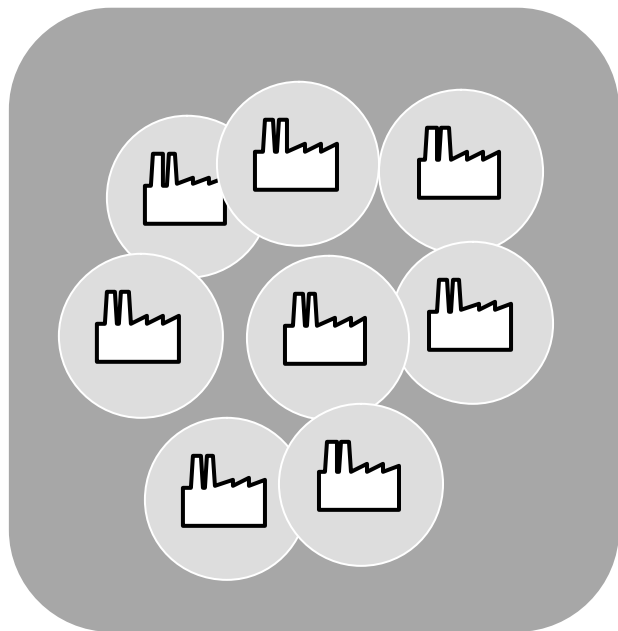
Overview of the Technology Blocks Along the CO₂ Capture, Transport and Storage Value Chains



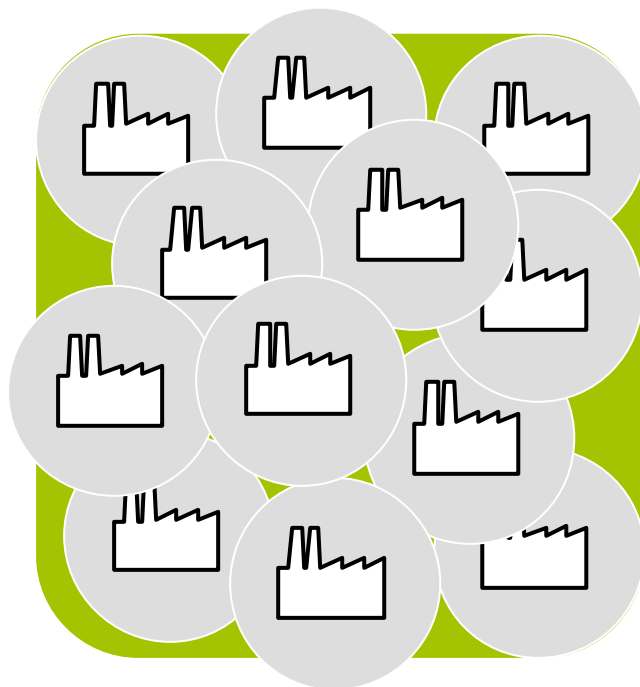
EU CCS Demonstration Programme = 10-12 Projects Required



In an ideal world, a theoretical minimum of 7 projects is needed to test all criteria



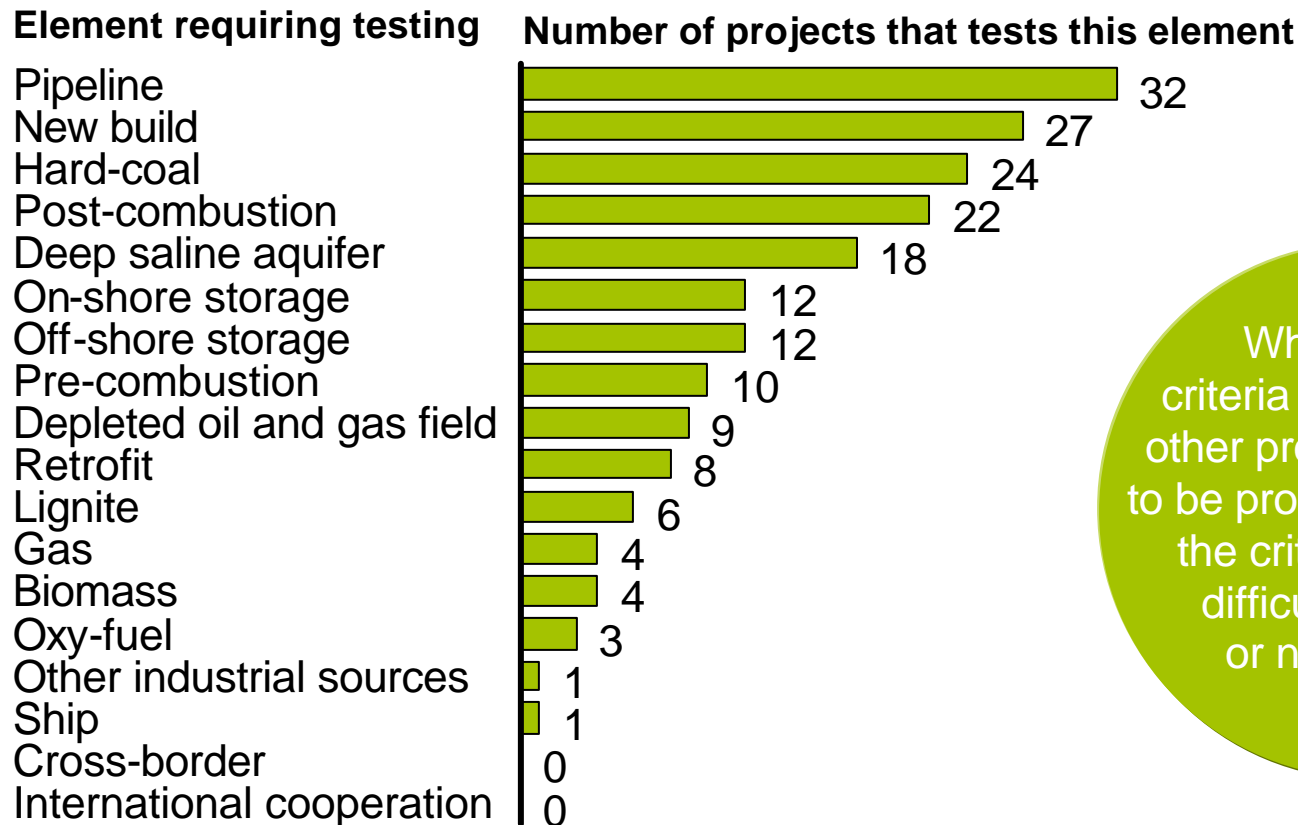
In reality, 8 projects are required to test the vast majority of the criteria



To test all criteria in reality, an estimated 2-4 additional projects are required, bringing the total to 10-12

34 EU Projects Announced, Ensuring Competition

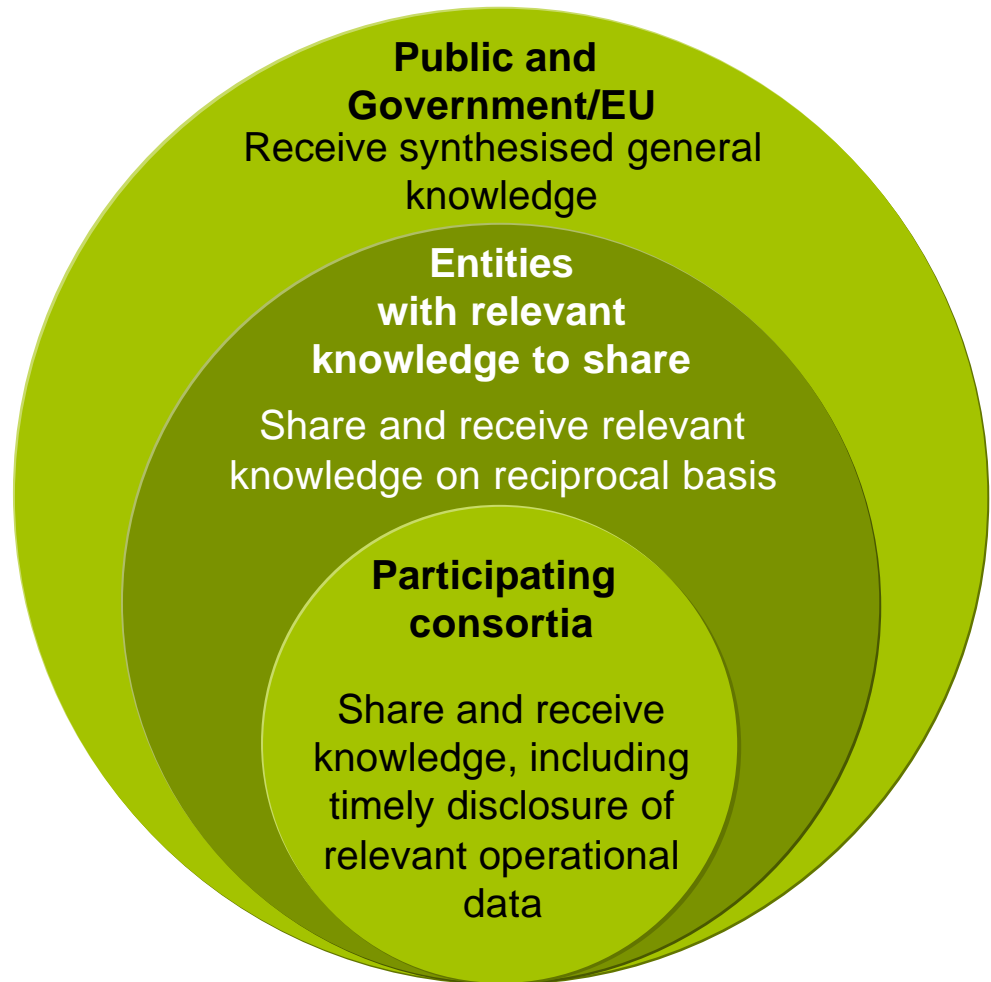
Though announced, these projects are awaiting further decisions on funding, legislation



When tender criteria are published, other projects are likely to be proposed that meet the criteria currently difficult to satisfy, or not satisfied at all

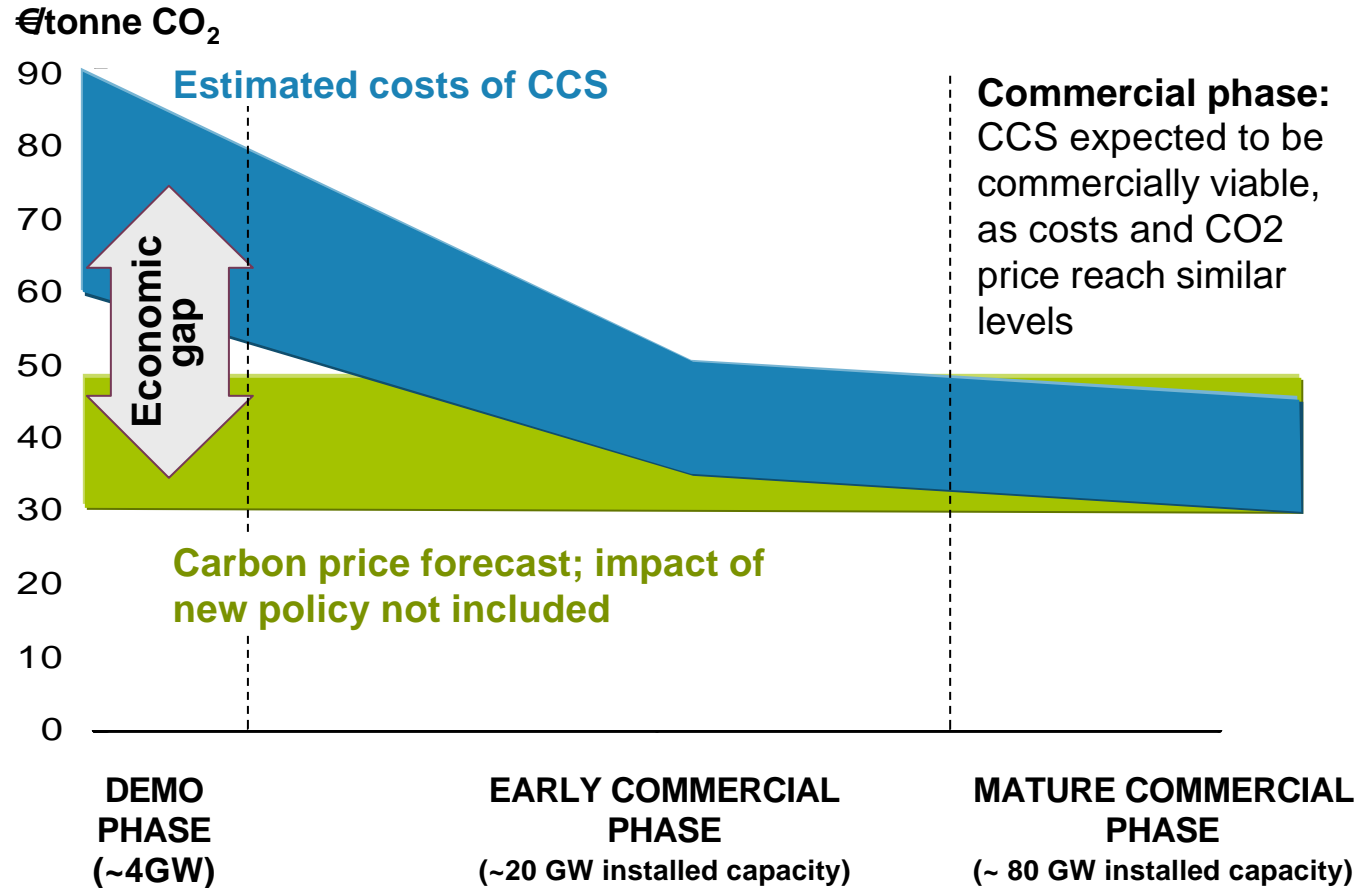
Maximising Global Knowledge Development and Sharing on CCS

Necessary and sufficient knowledge
needs to be developed and shared to achieve global implementation of CCS from 2020 onwards



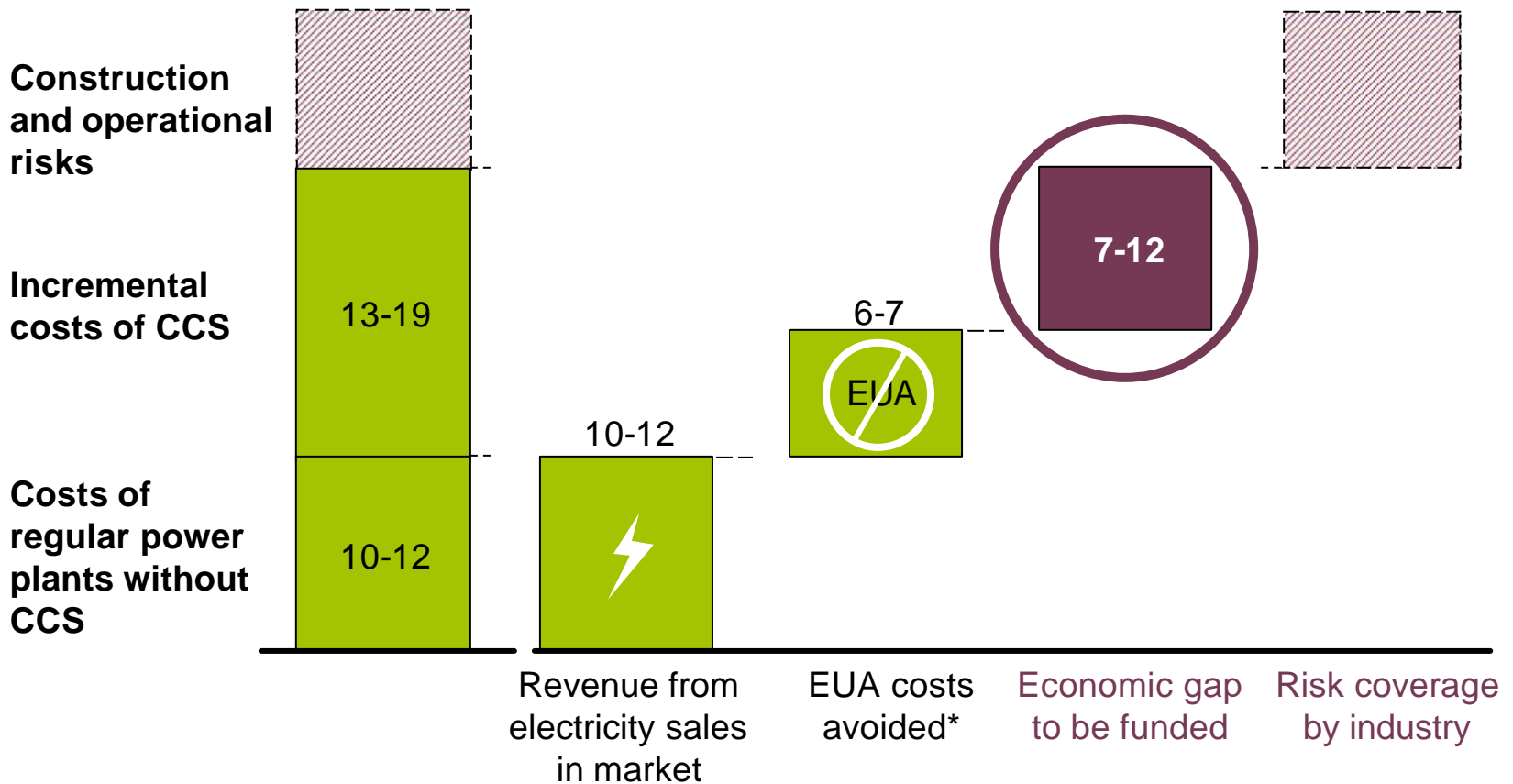
Demonstration Phase Requires Funding to Fill the Economic Gap

Demonstration phase:
CCS not economically viable. Public contribution necessary for some portion



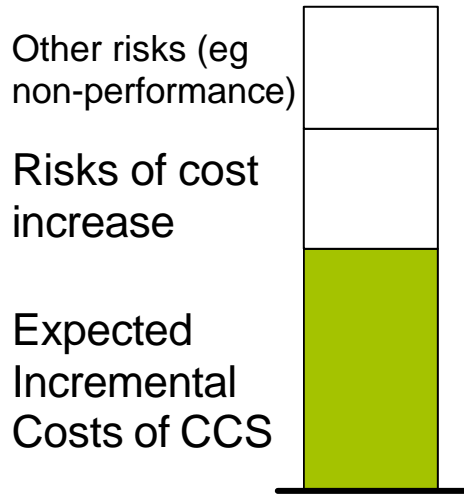
10-12 Demonstration Projects = €7 Billion - €12 Billion in Funding

Present value over lifetime, € billion



* ETS Emission Unit Allowances (EUAs), assumed to be at €35/tonne CO₂

Industry, Public to Jointly Share CCS Costs, Construction & Operational Risks



Proposed approach to covering costs and risks

1

Industry is prepared to cover the majority of the risks

- Given the innovative nature, risks are significantly higher than in a normal project
- Risks have a large potential downside and little upside (as gains from higher carbon price will be returned to the public)
- “No performance, no pay”
- Size of risks is similar to total expected costs

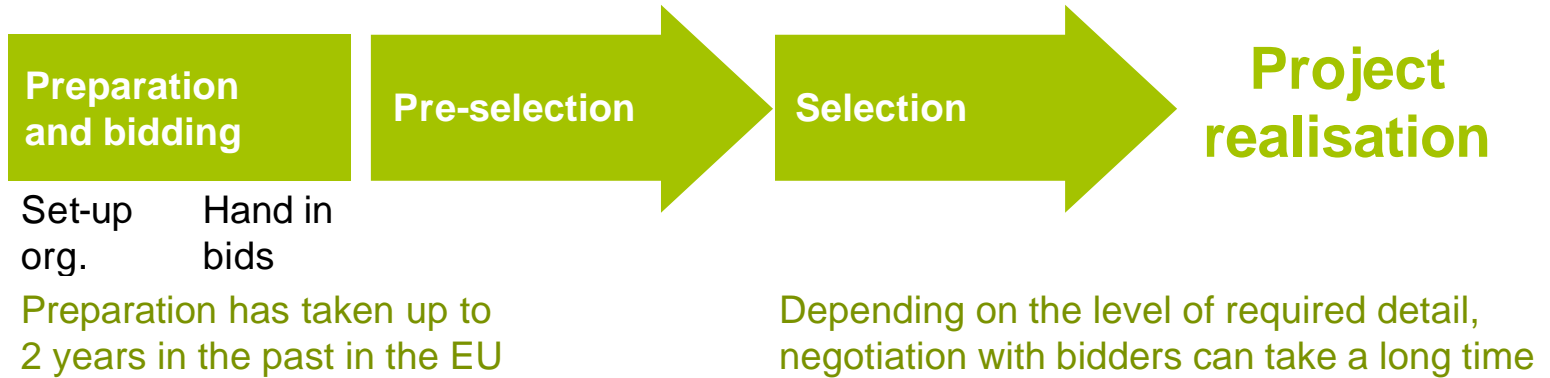
2

With industry bearing risks and the base costs of the power plant, public is asked to cover expected incremental costs of CCS

A competitive tender will:

- Define the risk to be carried by bidders
- Solicit maximum financial contribution from bidders

ZEP Seeks Engagement Toward Rapid Tendering Process



--
ZEP advice

- Shorten preparation as much as possible (requiring large political will)
- Pragmatic first round, to scale down number of bidders
- Example: 10-page “Expression of Interest” in recent Canadian tender
- Keep sufficient time for negotiation and selection

The exact organisation of the tender can be done in a number of ways and ZEP looks forward to engaging with Member States and the EC to find the most effective way, combining speed and quality

Conclusion

CCS will play a key role in combating climate change, as the single biggest abatement lever

An EU CCS Demonstration Programme is required to make CCS commercially viable by 2020

EU funding for a CCS Demonstration Programme will help make this happen!

Next steps

Delivery of 10 – 12 CCS demonstration plants by 2015 is an unprecedented challenge for EC and MS

Need to resolve:

1. Division of the 300 million allowances
2. Organisation of CCS demo project selection
3. Disbursing funding to projects
4. Project knowledge sharing

CCS demo operational start by 2015 means...

Completing comitology process this year

Selecting projects in 2010

Allocating funding by mid-2011