

Delivering on the NetZero Society



Swiss Re Institute: Hydrogen as a Game Changer in Energy Transition


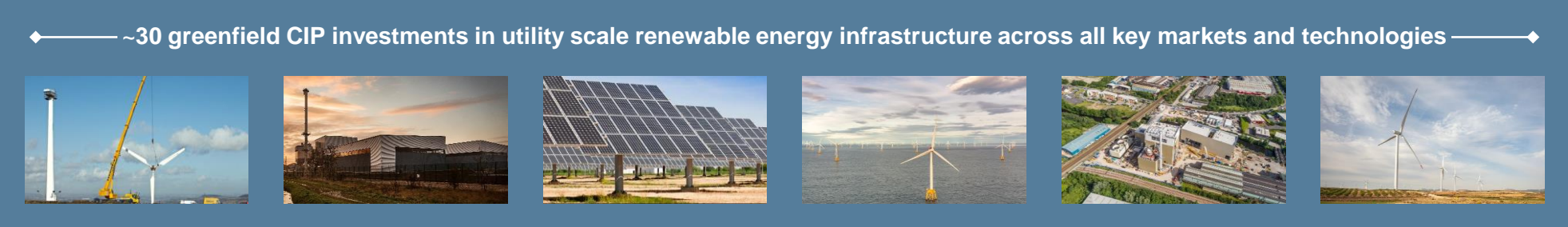
Uffe Winther

8 September 2022




CIP is one of the world's leading investors in greenfield projects, specialising in renewable energy infrastructure

Copenhagen Infrastructure Partners (CIP) at a glance




EUR ~18 billion AUM
across nine funds since inception in 2012



+80 GW greenfield projects
in development and +10 GW in construction or operation



Climate & ESG leader
'dark green' funds under SFDR and responsible for reducing ~9.5m tons of CO₂e p.a.¹



Innovator & industry pioneer
First movers in offshore wind and Power-to-X and in new markets (e.g., US, APAC)



Global organisation with local presence
in all key markets and 9 offices across Europe, US and APAC



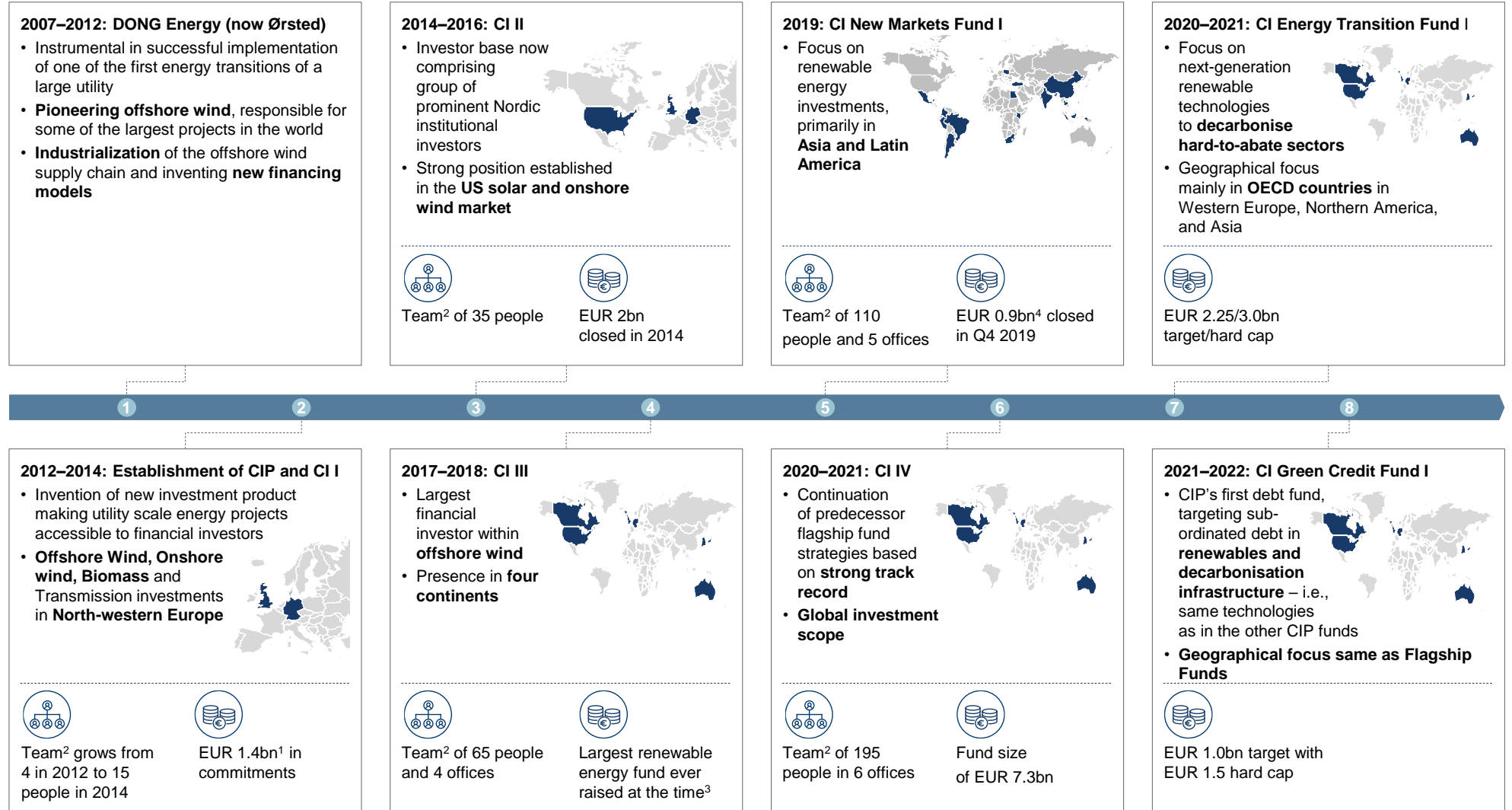
Integrated platform with large investment team
delivering a unique mix of industrial, energy and financial expertise

Notes: 1) Calculated based on CIP projects currently in operation or under construction

The history of CIP

Energy infra focus and successful expansion across geographies and technologies based on industrial heritage

Key CIP milestones

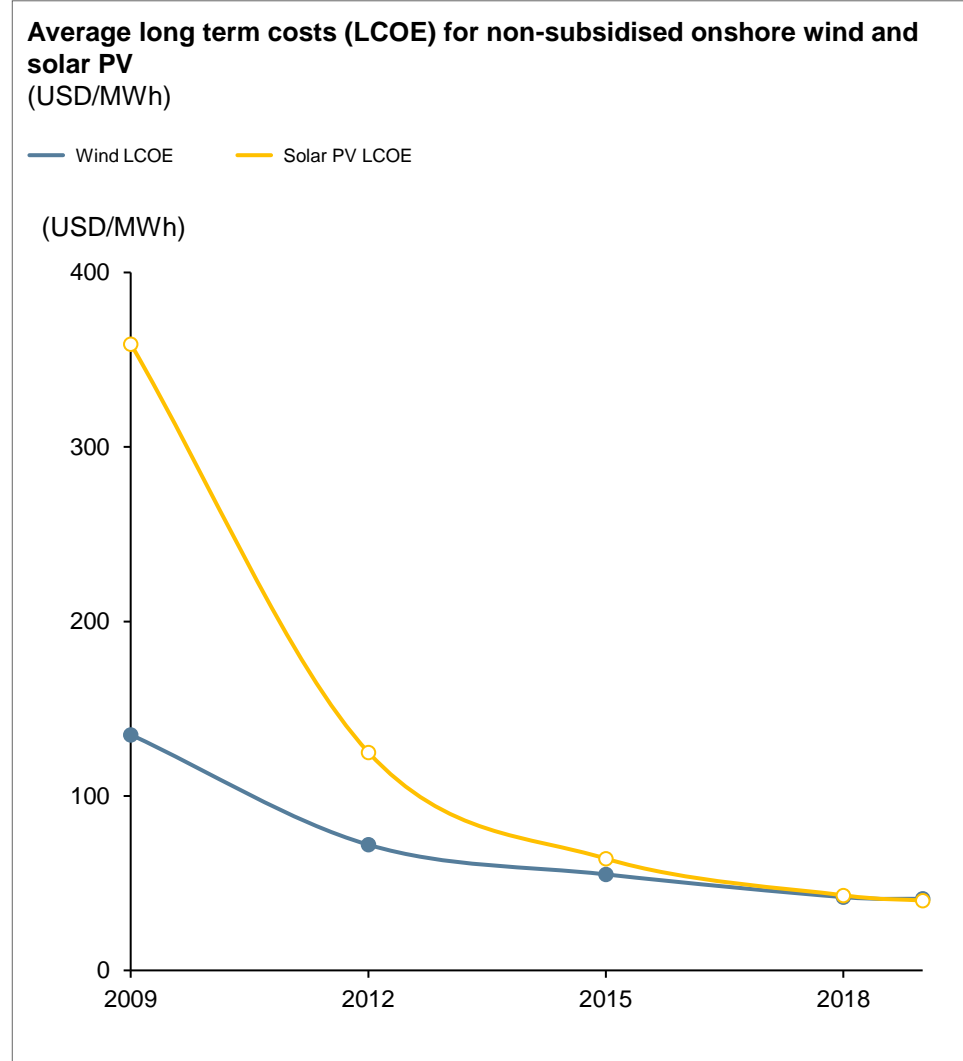


Notes: 1) Including CI Artemis (appendix fund to CI I); 2) Headcount including student assistants, i.e., not FTE; 3) Source: Infrastructure Investor, PEI Media; 4) USD 1.0bn; 5) Bloomberg NEF, February 2020

Source: CIP

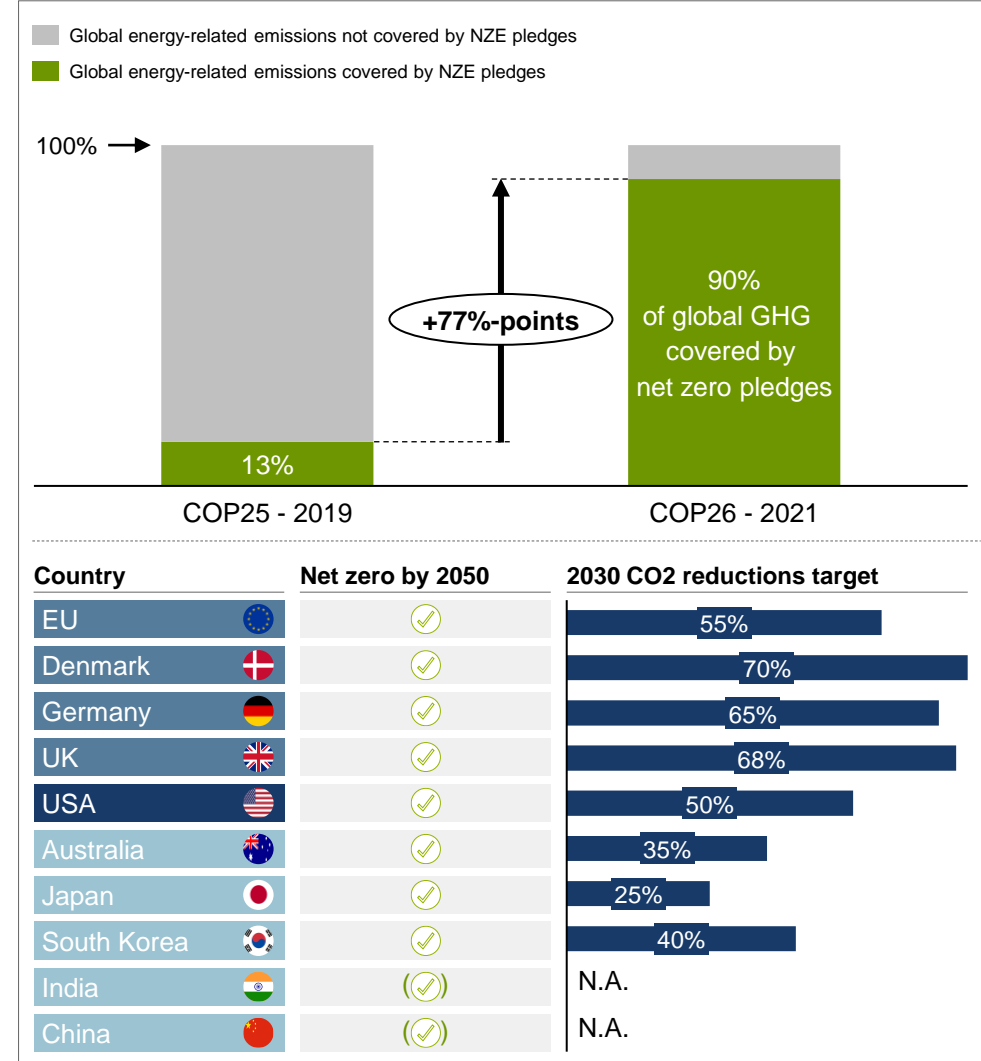
Technological progress and unprecedented global net zero commitments

Renewable energy costs have decreased significantly



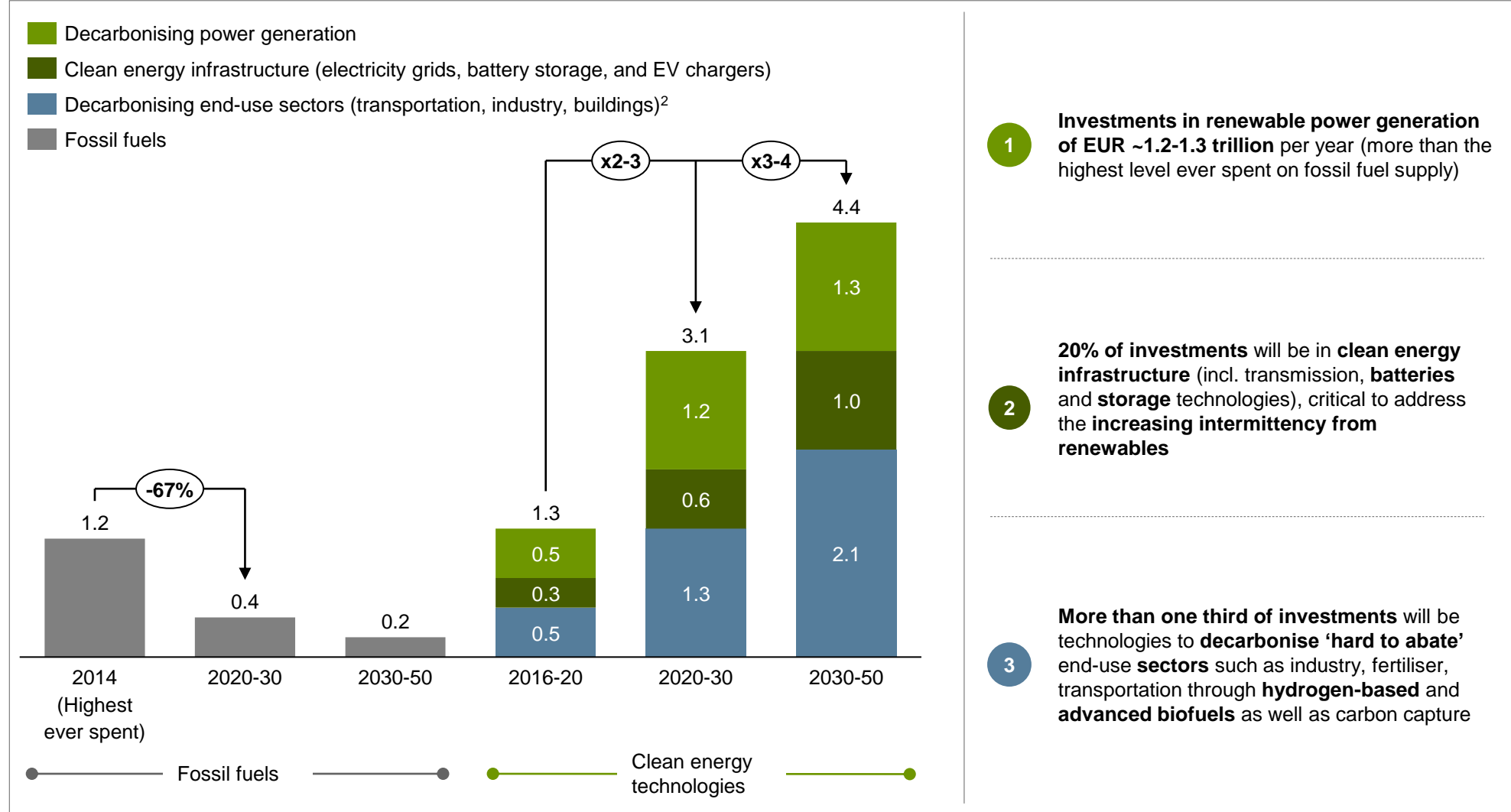
Source: International Energy Agency (2021), Net Zero by 2050, IEA, Paris, CIP analysis

Share of global energy-related emissions covered by net zero pledges (%)



The energy transition requires a significant ramp-up in investments

Estimated global average annual energy investment needs to reach net zero (in USD trillion, 2019)



1 Investments in renewable power generation of EUR ~1.2-1.3 trillion per year (more than the highest level ever spent on fossil fuel supply)

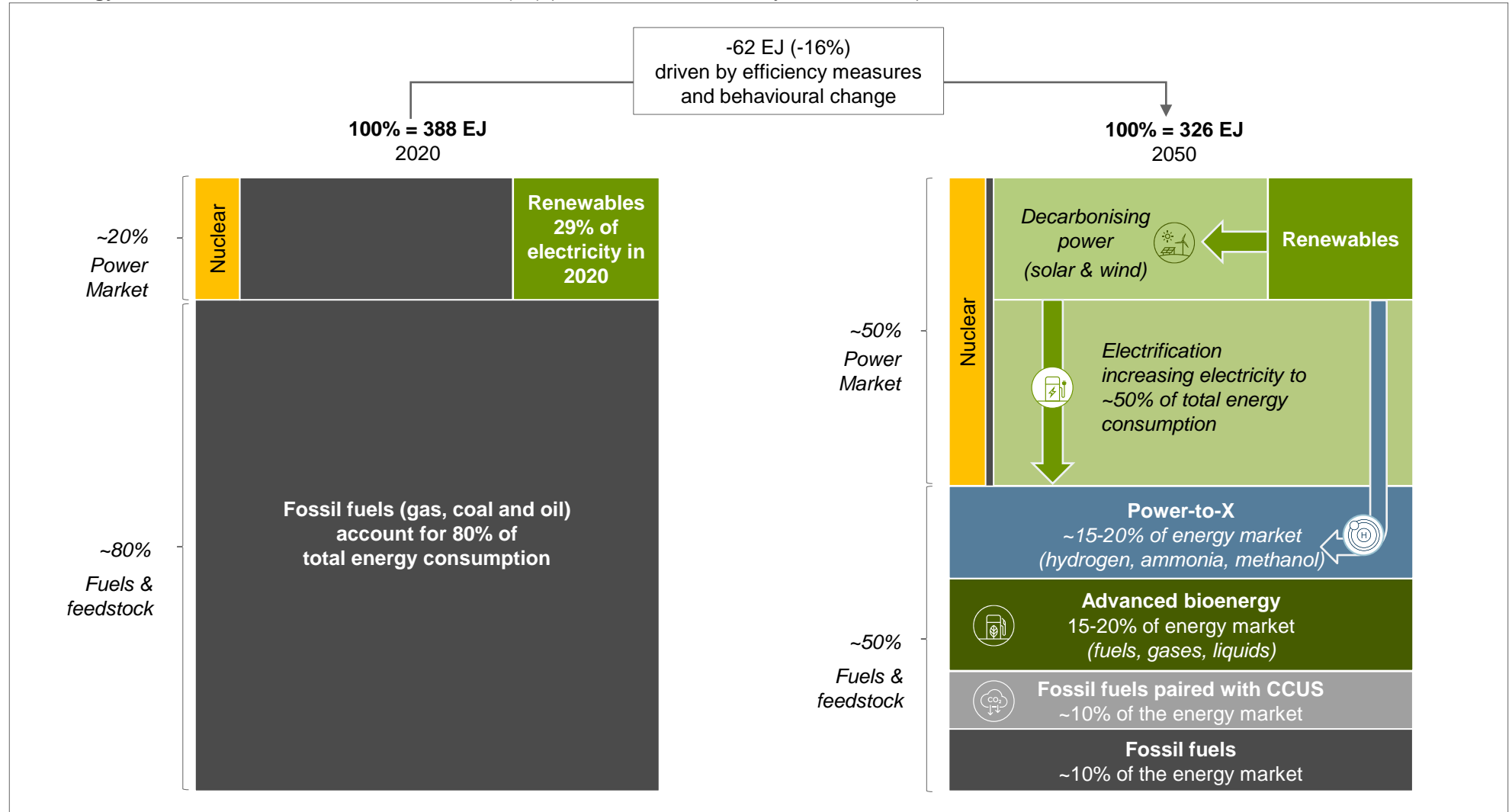
2 20% of investments will be in clean energy infrastructure (incl. transmission, batteries and storage technologies), critical to address the increasing intermittency from renewables

3 More than one third of investments will be technologies to decarbonise 'hard to abate' end-use sectors such as industry, fertiliser, transportation through hydrogen-based and advanced biofuels as well as carbon capture

The energy transition is driven by five main decarbonisation technologies

- Clean hydrogen will an important building block

The energy transition to net zero from 2020 to 2050 (EJ) (Based on IEA net zero by 2050 scenario)

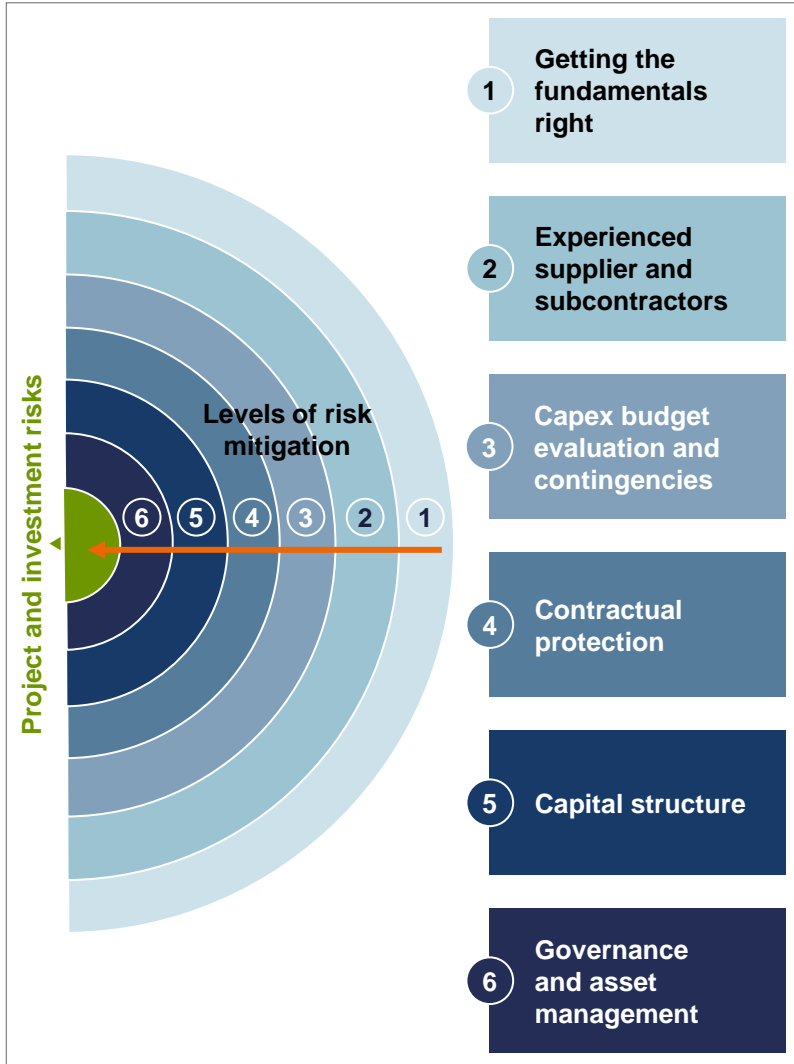


Source: International Energy Agency (2021), Net Zero by 2050, IEA, Paris

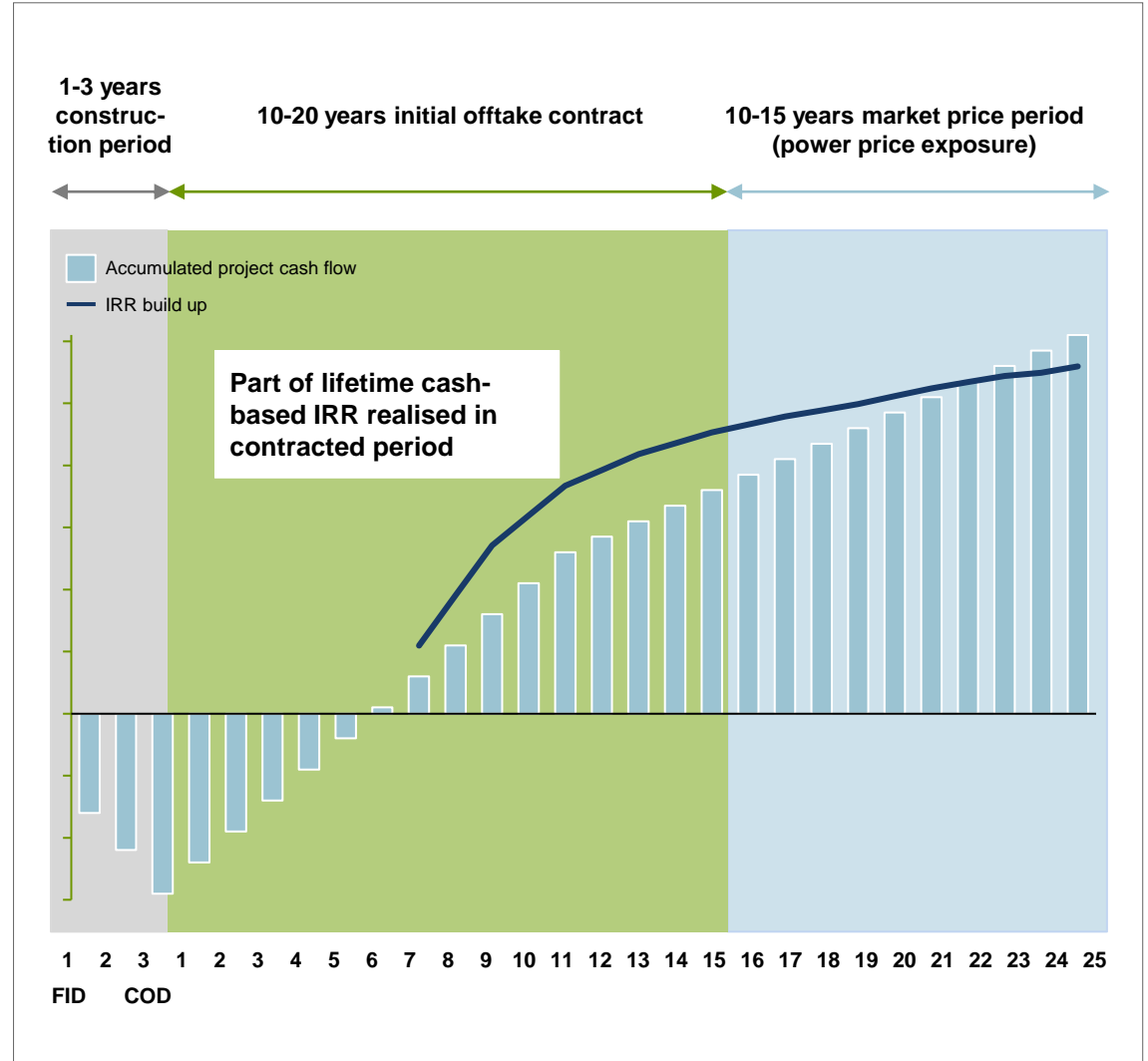
Investment criteria and approach

Investments are de-risked before FID

Typical levels of risk mitigation prior to project Financial Close

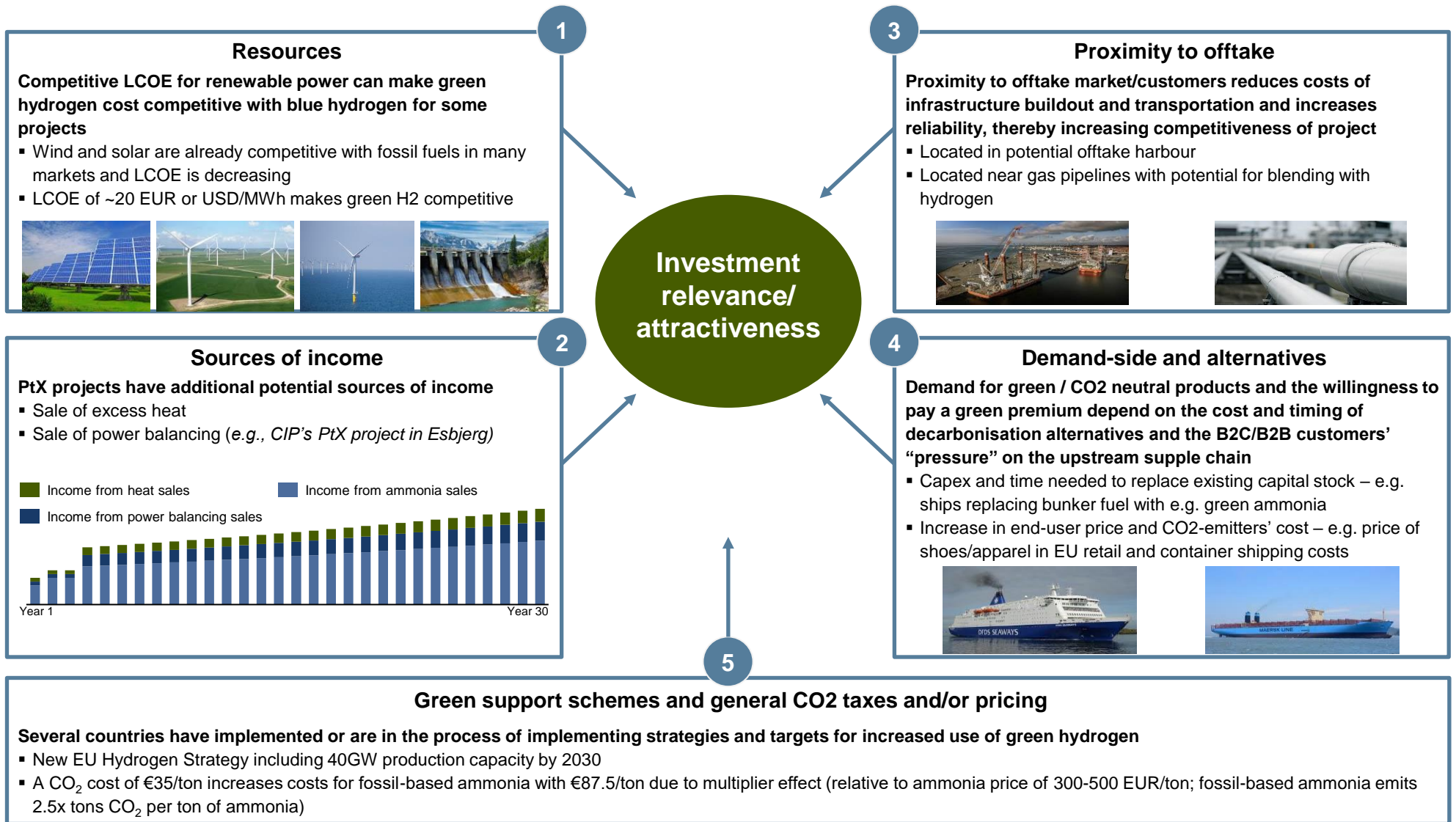


Typical unlevered cash flow profile and IRR build up for a contracted project



Key factors for the relevance of PtX as an investment case

- While low-cost renewable energy is key, carbon taxation and emissions controls will be needed for the transition to take place

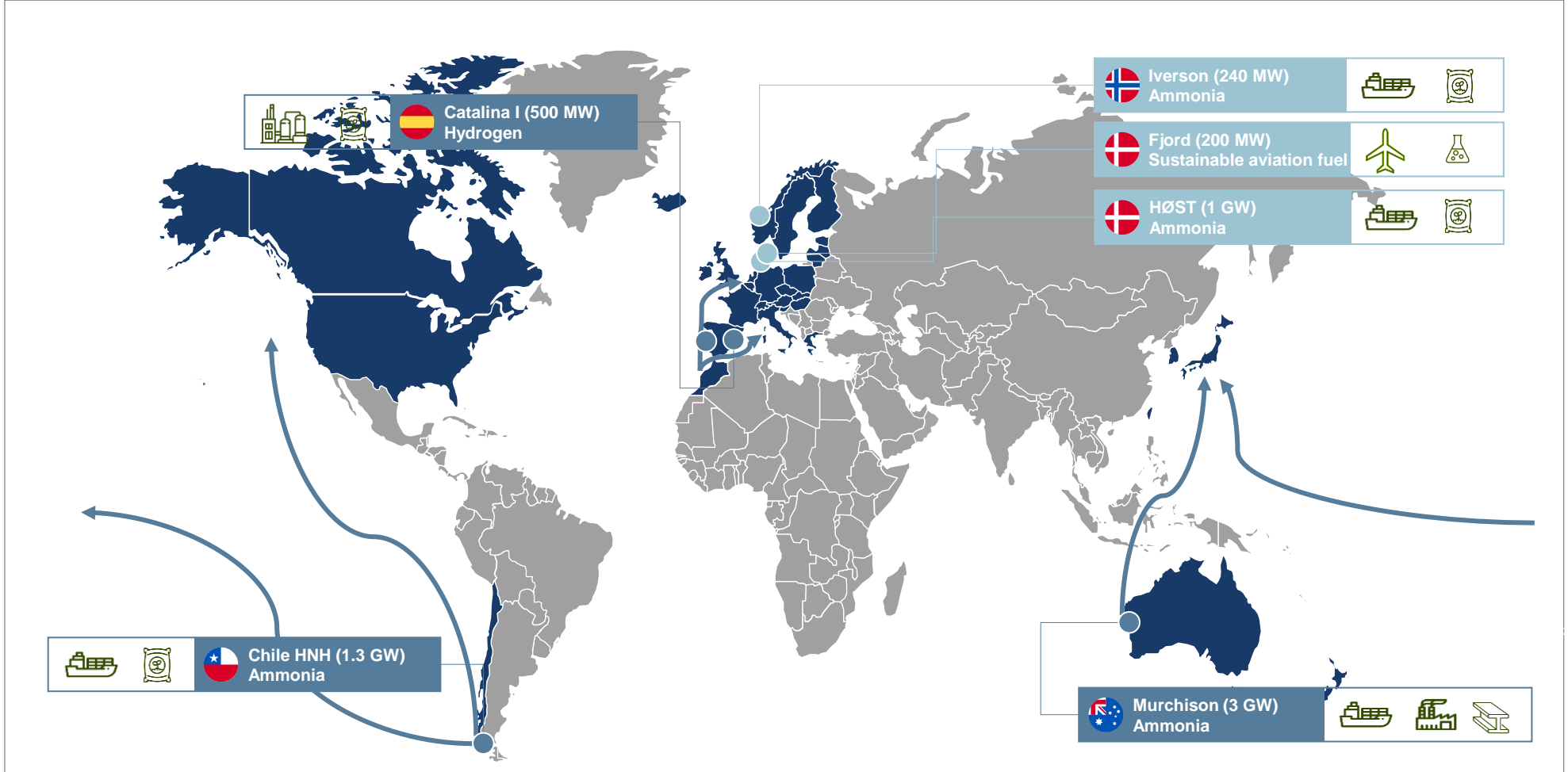


CIP global portfolio of Power-to-X projects

Selected PtX projects

Geographical overview of CI ETF I projects (electrolysis capacity)

● PtX only
 ● PtX + renewable power production
 Markets relevant for CI ETF I
 ● Project leads

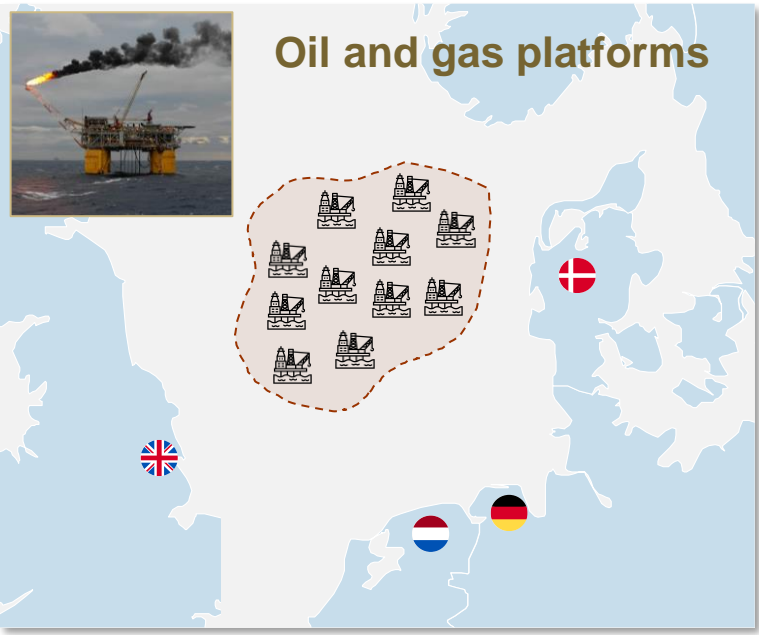


Potential offtake market: Fertilizers Marine fuels Power plant Iron & steel Refineries Chemical Aviation

Intermittent energy production requires coupling with flexible energy consumption

- PtX is a flexible consumer that can help balance supply and demand. New infrastructure like energy islands will be needed

The 'old' energy world in the North Sea

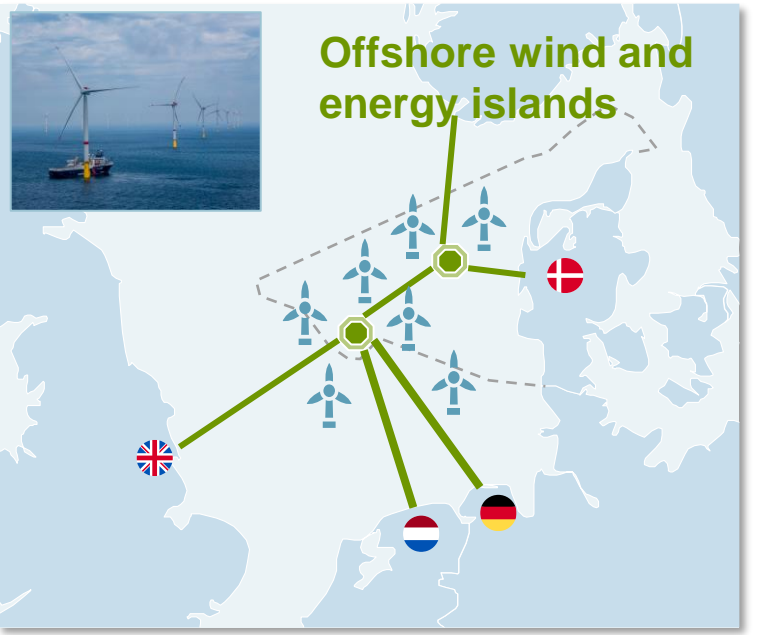


Oil and gas platforms

Old energy world in the North Sea (oil / gas extraction)

- ✓ Not critical infrastructure
- ✓ Owned by private actors
- ✓ Designed by private actors
- ✓ Subject to general framework conditions
- ✓ Significant government income

The 'new' energy world in the North Sea



Offshore wind and energy islands

New energy world (offshore wind and energy islands)

- ✓ Not critical infrastructure (hydrogen)
- ✓ Owned by private actors
- ✓ Designed by private actors
- ✓ Subject to general framework conditions
- ✓ Significant government income

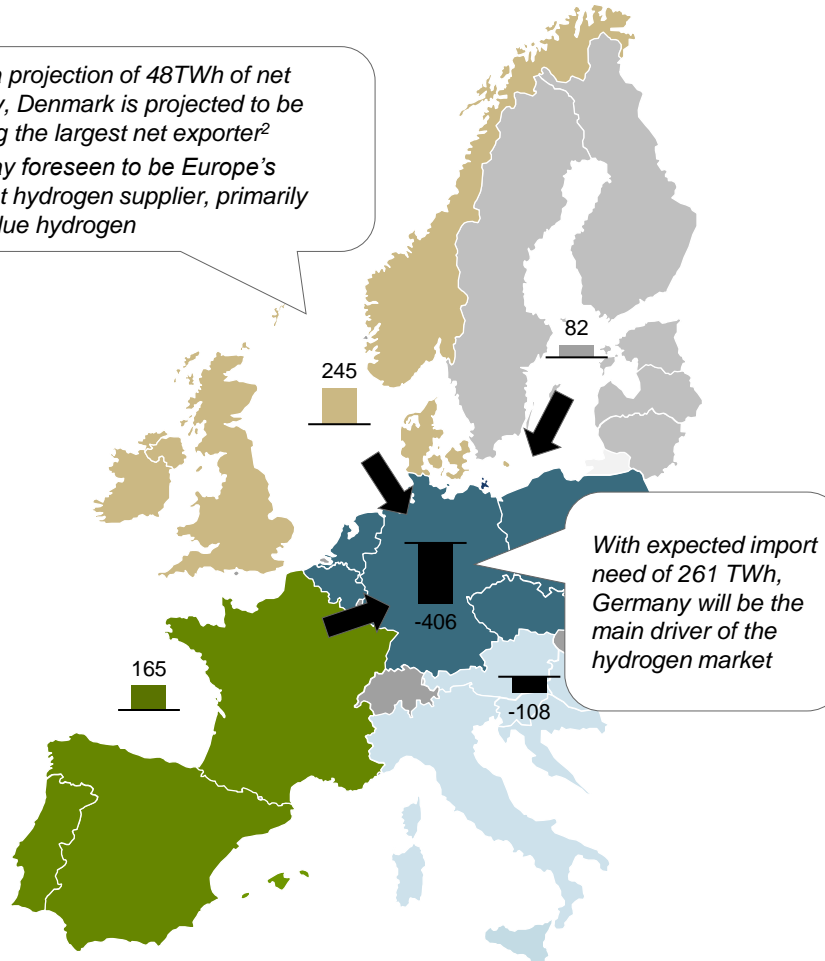
The export case: Denmark as a green hydrogen exporter

Renewable build-out, hydrogen infrastructure, and clear framework conditions are needed

Three regions will deliver European supply for the continent

European Hydrogen Backbone regional net supply 2040 (TWh)¹

With a projection of 48TWh of net supply, Denmark is projected to be among the largest net exporter²
Norway foreseen to be Europe's largest hydrogen supplier, primarily with blue hydrogen



Action to realise the potential is needed now

The potential for green hydrogen is evident, but key enabling initiatives are needed now to realise the potential

Three key elements, where action is needed to enable investment decisions:



Access to green electricity

Renewable build-out onshore and offshore. Offshore build-out will be needed to provide sufficient scale



Access to hydrogen infrastructure

Dedicated hydrogen pipeline from production area to demand centres necessary to ensure path to offtake



Clear regulatory framework and political backing

Political vision supporting green hydrogen and visibility on applicable regulation, incl. a cost reflective tariff scheme

[1] EUROPEAN HYDROGEN BACKBONE: Five hydrogen supply corridors for Europe in 2030, May 2022. Net supply represents excess supply after subtracting demand.

2. Largest European exporters: Norway (134 TWh), Spain (68 TWh), Denmark (48 TWh)

Q&A

