

Decarbonation de l'industrie

Le role des reseaux H2 et CO2

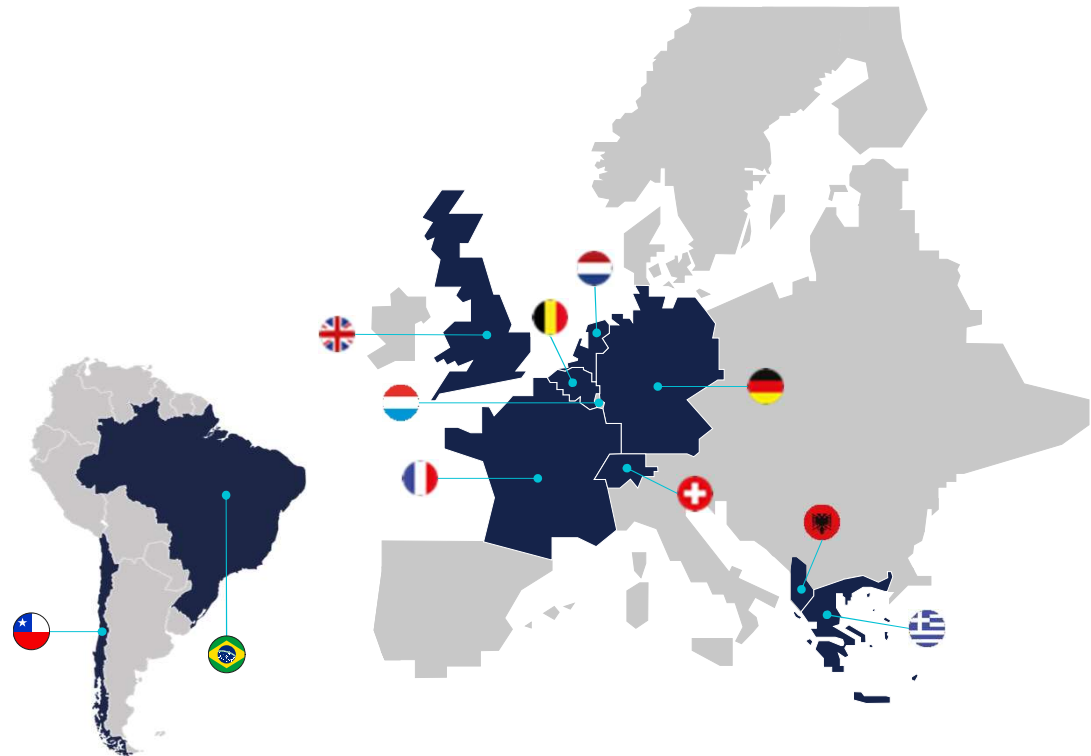


Who we are?

4 facts about Fluxys

- 1 Fully independent energy infrastructure partner headquartered in Belgium
- 2 Strong European presence with associated companies across Europe and entities in LatAm
- 3 A growing group of 1 300 employees
- 4 Purpose-driven company committed to building a greener energy future for the generations to come

shaping together a bright energy future



We ambition offering industry enough transmission capacity

30 TWh hydrogen

30

x

30

30 million tonnes of CO₂ per year

x

and all of this by 2030

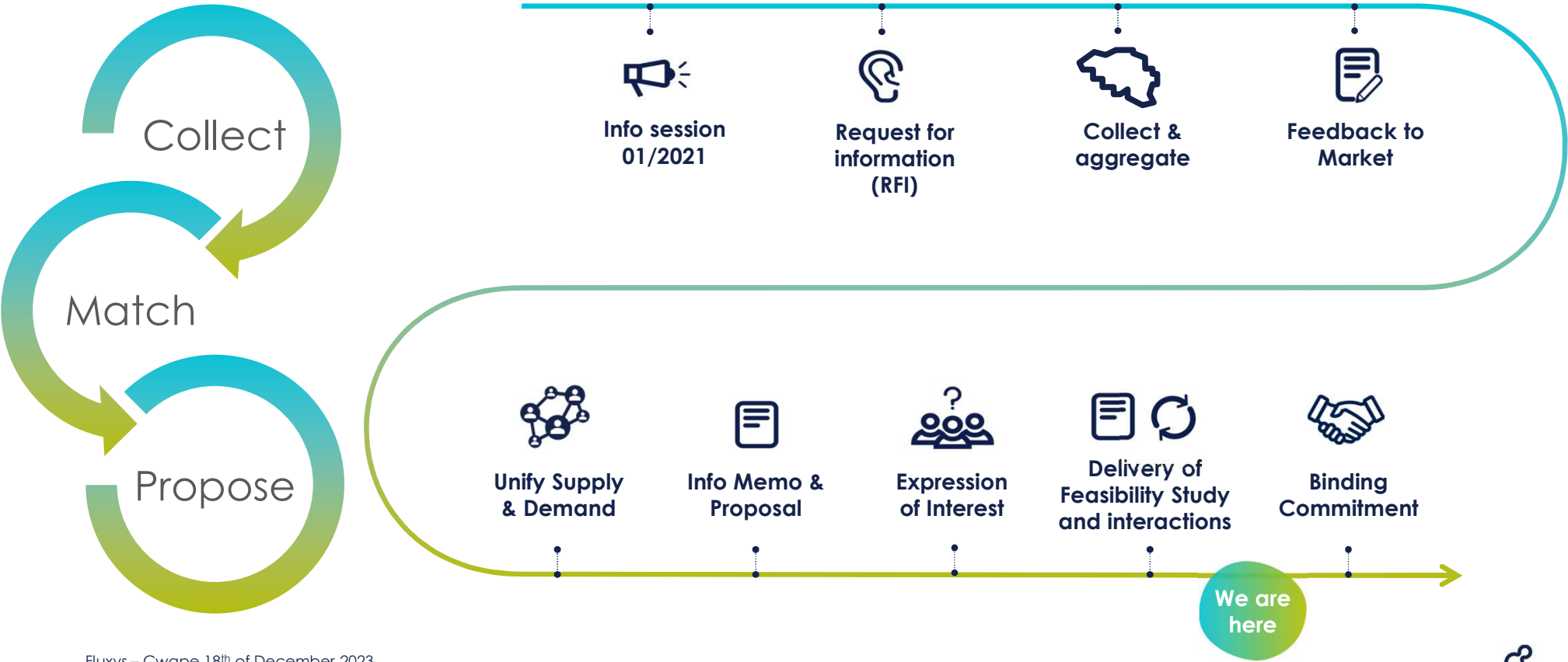
30





Hydrogen

Evolving from idea to offering specific infrastructure through commercial process



Feasibility of roll-out of the H2 network has been confirmed to and from the market

Feasibility study delivered at various customers in Ghent, Antwerp and Mons

- ✓ Technical feasibility confirmed for 25+ sites can be connected in Ghent / Antwerp / Mons
- ✓ Indicative Timeline
- ✓ Indicative tariff

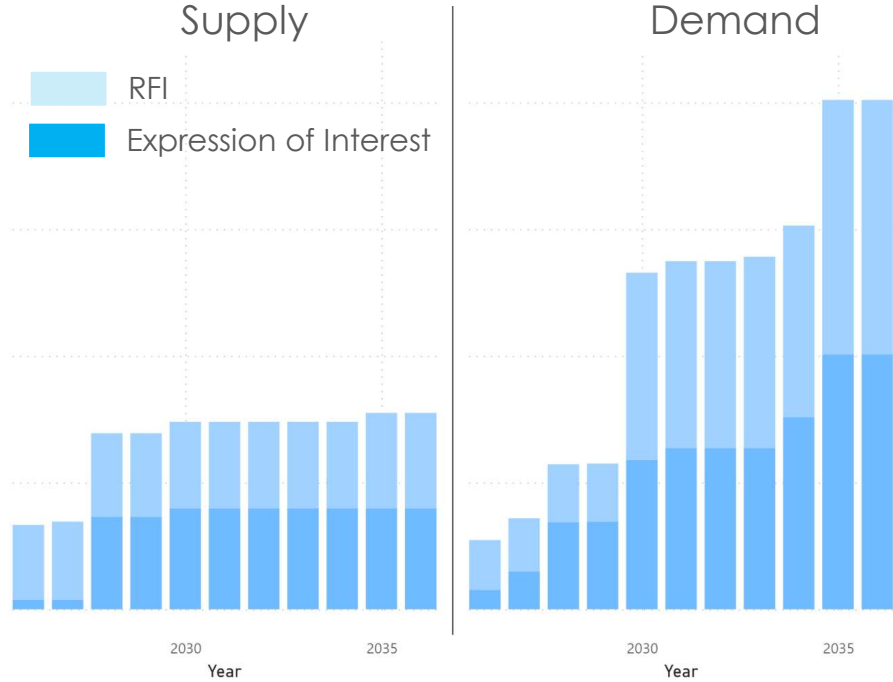


... Key Conclusions

- **Ghent - Antwerp:** market and project maturity align towards COD by mid 2026
- **Mons - Valenciennes:** market and project maturity align towards COD in 2028
- To **bridge supply demand** gap in Belgium, **pipeline interconnectivity** with adjacent countries **and terminal imports** are necessary
- **H2 demand driven market** depends on **commodity availability** and affordability. In a nascent market, different **support mechanisms** (EHB, CfD,...) and **different low-carbon production** modes will be needed



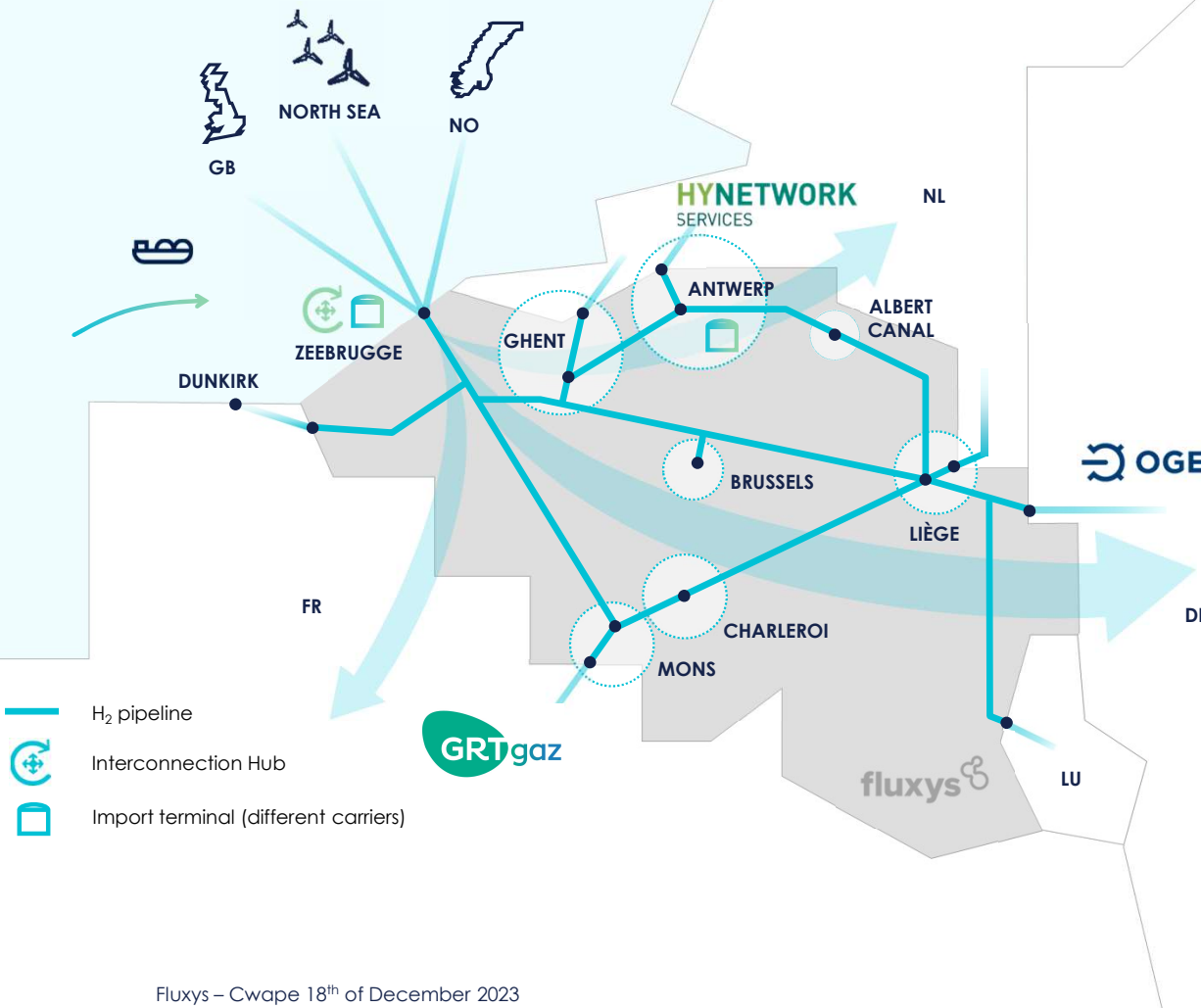
Market confirmed its interest for both H2



H2 – High interest across Belgium but with an imbalance between domestic production and domestic demand



Zoom into the Hydrogen network

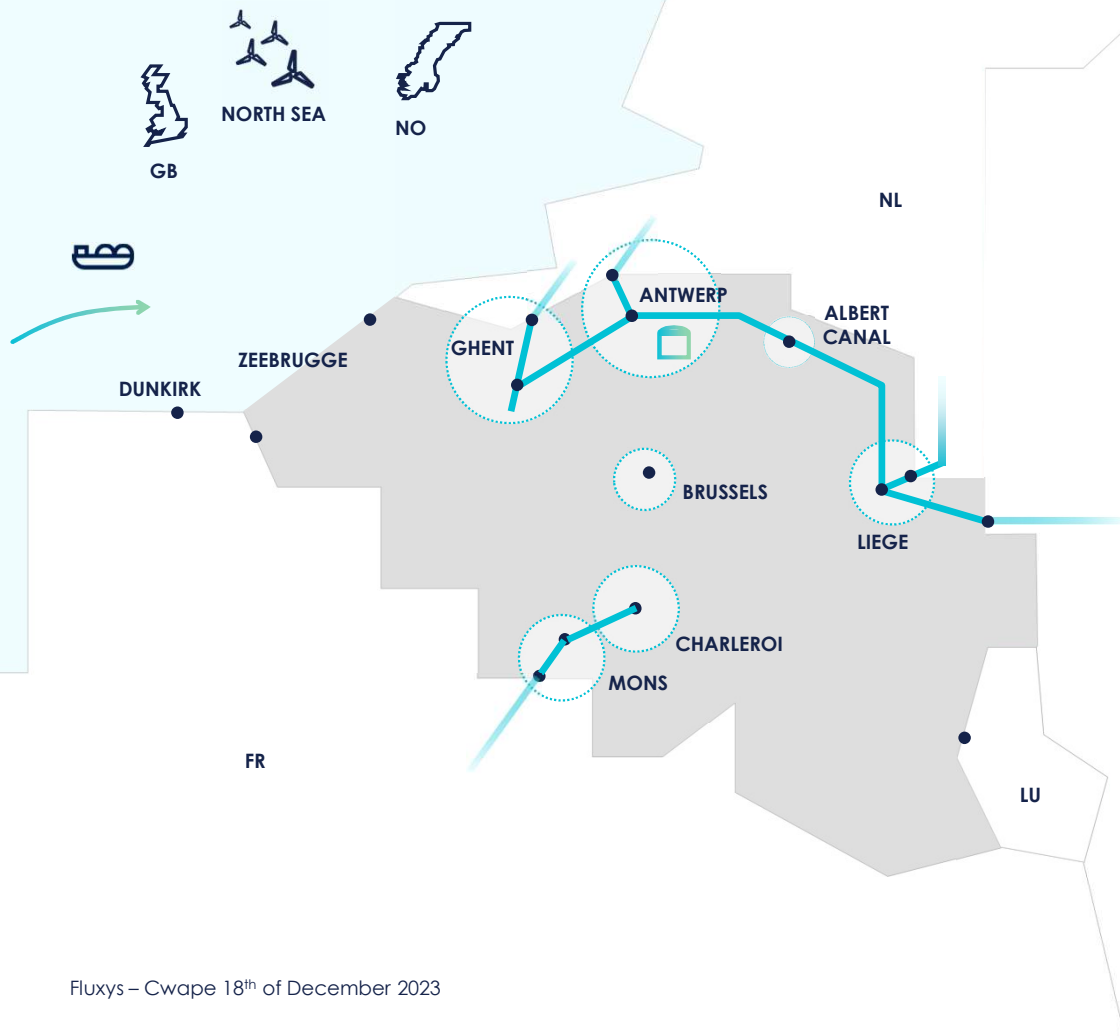


Multiple cross-border connections under development

- 
 Working with Hynetwork Services for connections Belgium – The Netherlands in 2027
- 
 Working with Open Grid Europe for Belgium – Germany hydrogen highway 2028
- 
 Working with GRTgaz for interconnection Belgium – France in 2028



Phased development – the Hydrogen network in 2028



North balancing zone

- Development of Ghent, Antwerp, the Albert Canal and Liege
- Connectivity towards the Netherlands in Gent – Zelzate in 2027, Geleen in 2028 and towards Germany in Eynatten in 2028

South balancing zone

- Development of Mons and Charleroi
- Connectivity towards France in Valenciennes in 2028

Interconnection with the Netherlands, France and Germany in 2028 in line with the Federal Hydrogen Strategy



EU/Belgium: H₂ regulatory framework



EC proposal
Hydrogen & Gas
market
decarbonization
package

Trilogues
start

Finalization EU
legislative process

Elections
EU and
federal &
regional
Belgium

Entry into force
(Regulations directly
binding - 2023/2024,
Directives to be transposed
by Member States - 2024)



Federal H₂ law
adopted in
Federal
parliament

Fluxys'
application
for HNO

Single HNO
appointment



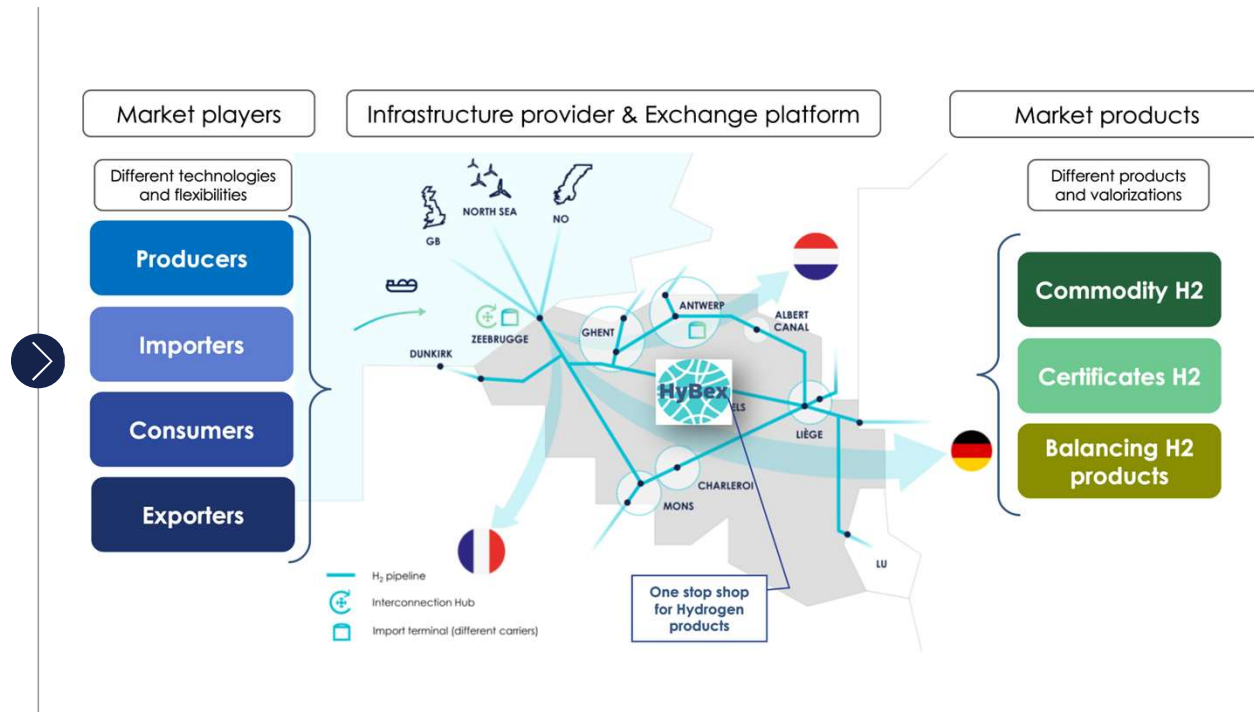
Fluxys is developing HyBEX, the H2 market platform to enable TPA

Well-functioning H2 backbone requires a non-discriminatory market platform that enables third party access

HyBEX project will develop such a market platform and test it at pilot scale, based on the following principles:

1. **Certification framework** for green and blue hydrogen
2. **Commercial balancing model** adapted to the expected physical behavior of the grid
3. **Trading hub** for trade of hydrogen (as a commodity) and the corresponding certificates and balancing products

Fluxys is driving HyBEX project with Port of Antwerp-Bruges and Hincio





CO2

Next steps CO₂ infrastructure for connectivity from Emitter to Exit Point



*depending on exit solution

** to be aligned with partners and commercial process of sequestration sites



Feasibility of the CO2 network has been confirmed with the market

Feasibility study delivered at various customers in Belgium

- ✓ Technical feasibility confirmed for 15+ sites can be connected to exit points
- ✓ Indicative Timeline shared
- ✓ Indicative tariff communicated



... Key Conclusions

- **Strong willingness of the industry** to move ahead with CCS solutions. First projects are maturing with support of subsidies. **Substantial volumes can be captured in Belgium.**
- **Commercial alignment on Timing and Volumes along the value chain** (from emitter's to sequestration's site) **are key** to ensure a **“fit-for-purpose” integrated value chain solution.**
- To have infrastructure ready by the requested COD of the Expression of Interests, Fluxys needs to pursue the detailed engineering & permitting of the backbone before finalisation of Connection & Transport Agreement. To do so, **Fluxys needs to share the risk** incurred through this development phase with emitters through an “Engineering Agreement”.
- Multiple exit points can co-exist with different timelines. **Commercial commitment required in 2024 for Antwerp@C and in 2025 for CO2 Highway Europe and Ghent Carbon Hub** to ensure that both the backbone and the exit solution are ready by their respective COD.

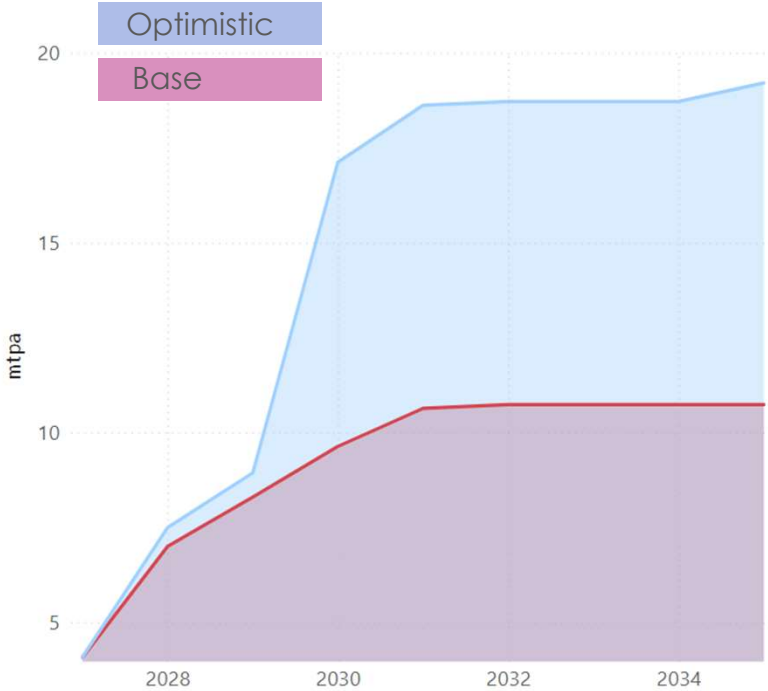


Large potential for CCUS in Belgium and its neighbours



Belgium ideally located as transit hub between core of **European emitters** and sequestration potential of the North Sea

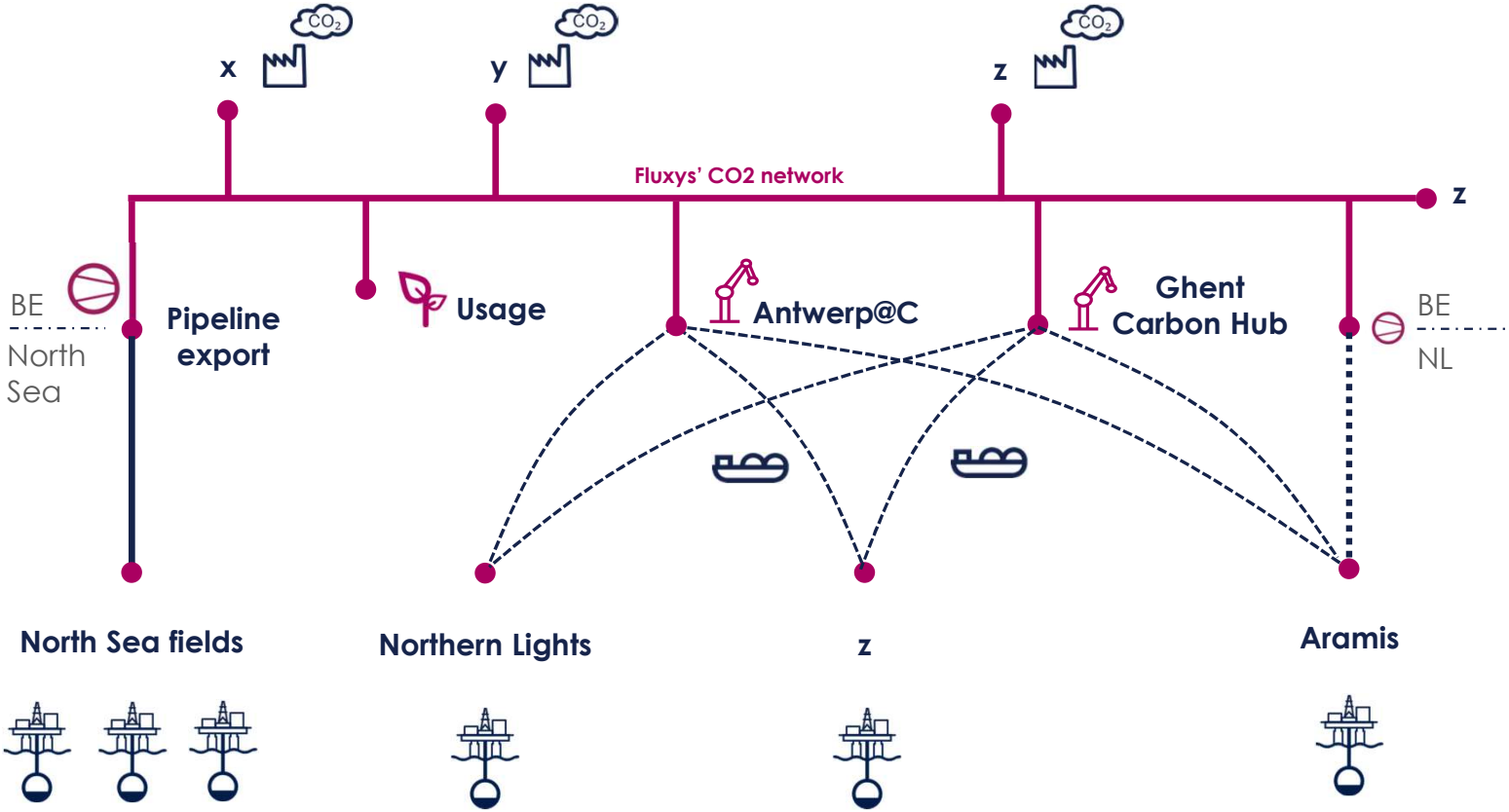
Fluxys – Cwape 18th of December 2023



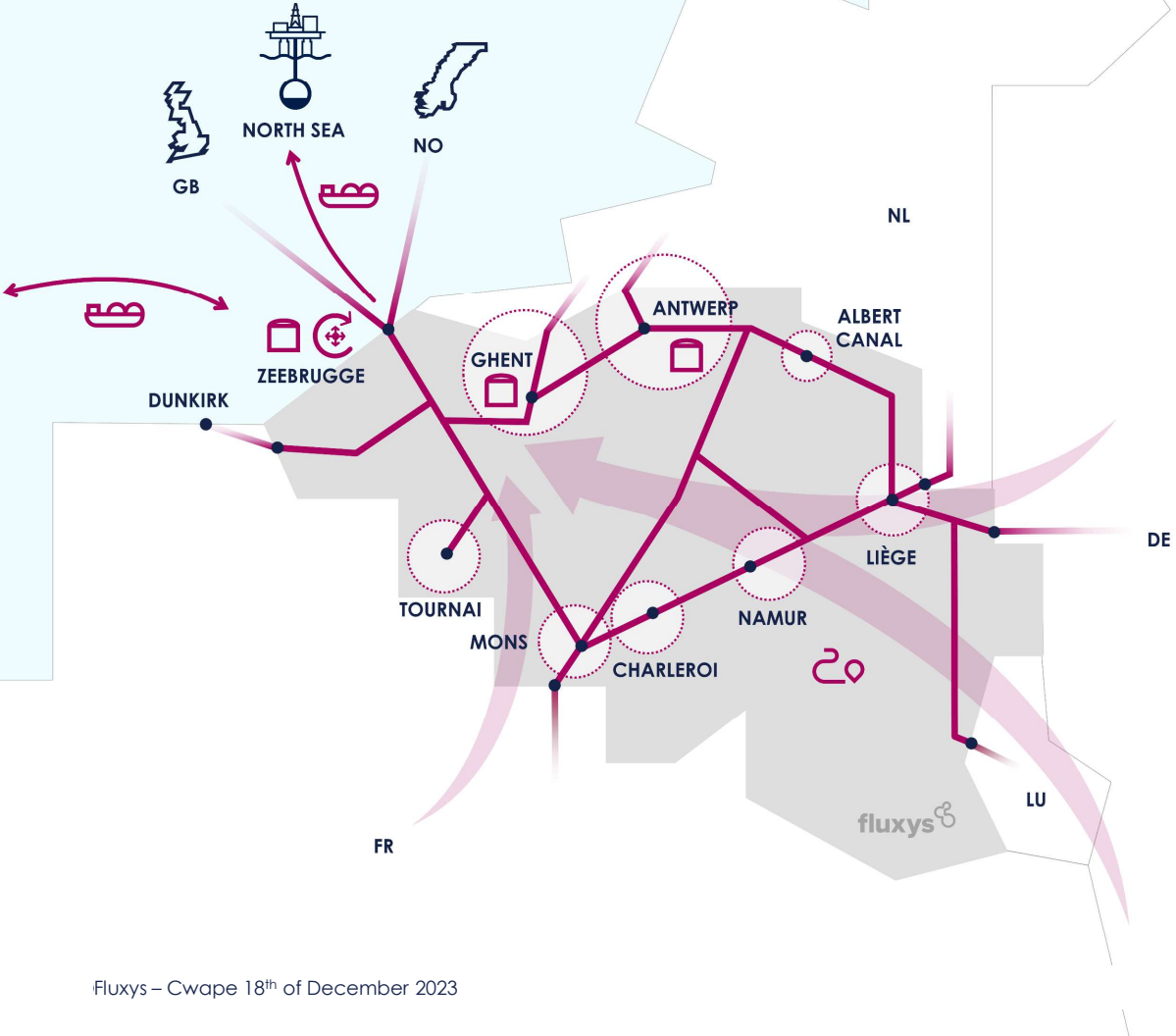
Strong market interest from **Belgian emitters** for carbon capture ambitions with a market upscale in 2030-32








Value Chain Overview



Fluxys CO₂ network



-  CO₂ pipeline
-  CO₂ terminal
-  CO₂ shipping
-  Interconnection hub
-  Intermodal

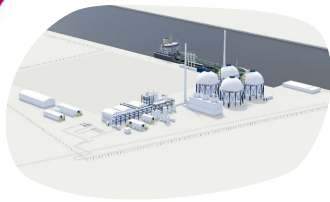


Multiple CO2 exit options: ensuring redundancy, competitiveness, and modularity



**Antwerp@C
Marine Terminal**

CEF
Works



- Partnership with Air Liquide

Concept:

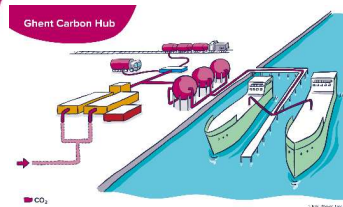
- 2,5 Mtpa + potential extension
- CO2 liquid buffer storage
- Loading facilities

Status: FEED ongoing
FID Phase 1 2024
COD Phase 1 2027



**Ghent Carbon Hub
Marine Terminal**

CEF
Study



- Collaboration with AMB & NSP

Concept:

- Up to 4 Mtpa
- CO2 liquid buffer storage
- Loading facilities

Status: feasibility study ongoing
FID 2025
COD 2028



**Zeebrugge CEA-Pipe
CO2 offshore pipeline**

Strong
PCI file



- Partnership with Equinor

Concept:

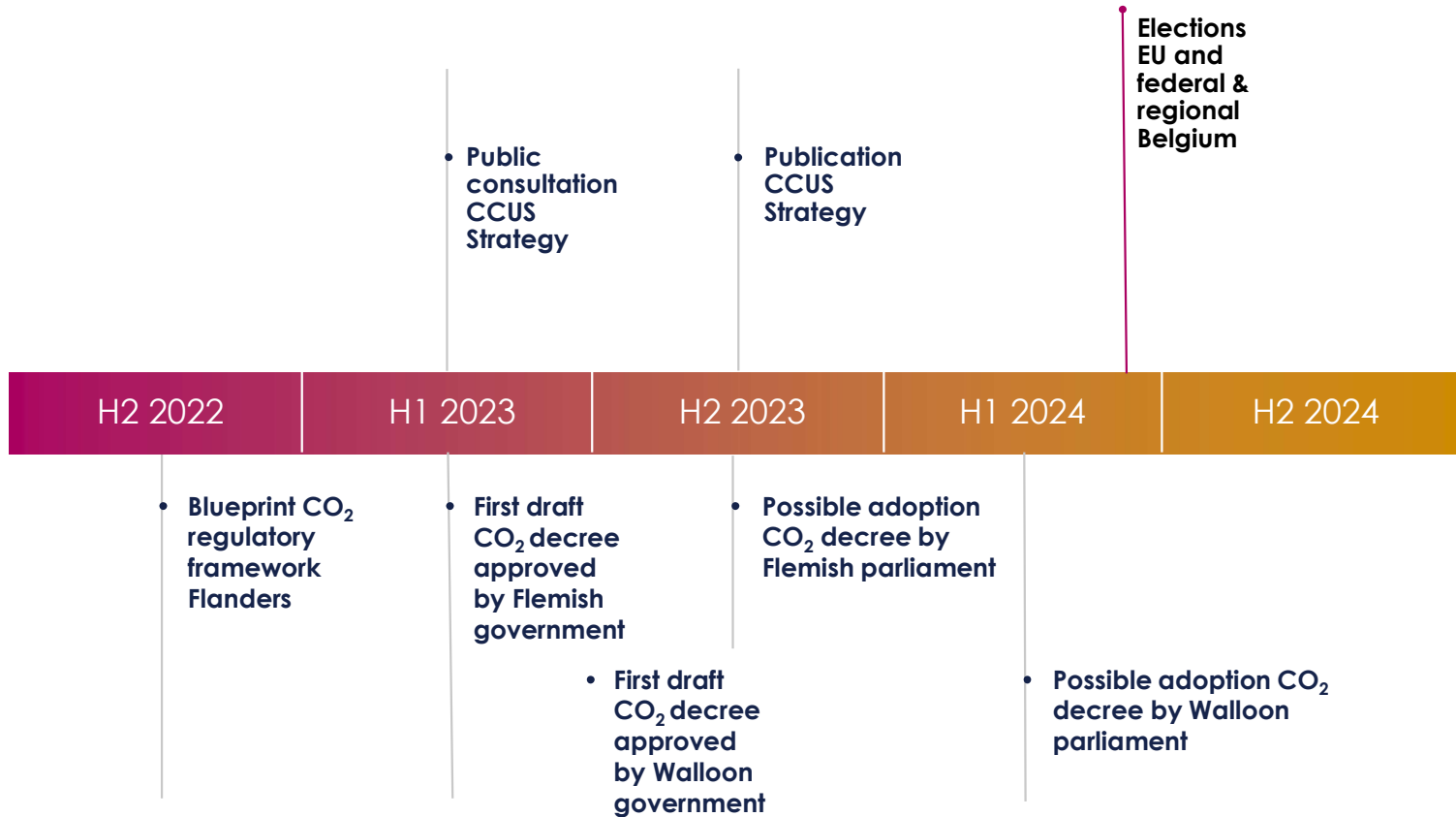
- 30 Mtpa
- Injection in dense phase
- Subsea pipeline to storage fields

Status: feasibility study ongoing
FID 2025
COD 2030



EU/Belgium: CO₂ regulatory framework

Expected soon



Q&A



shaping together
a bright energy
future