



Towards a CO<sub>2</sub> neutral economy in the port of Ghent

# CARBON CAPTURE & UTILISATION

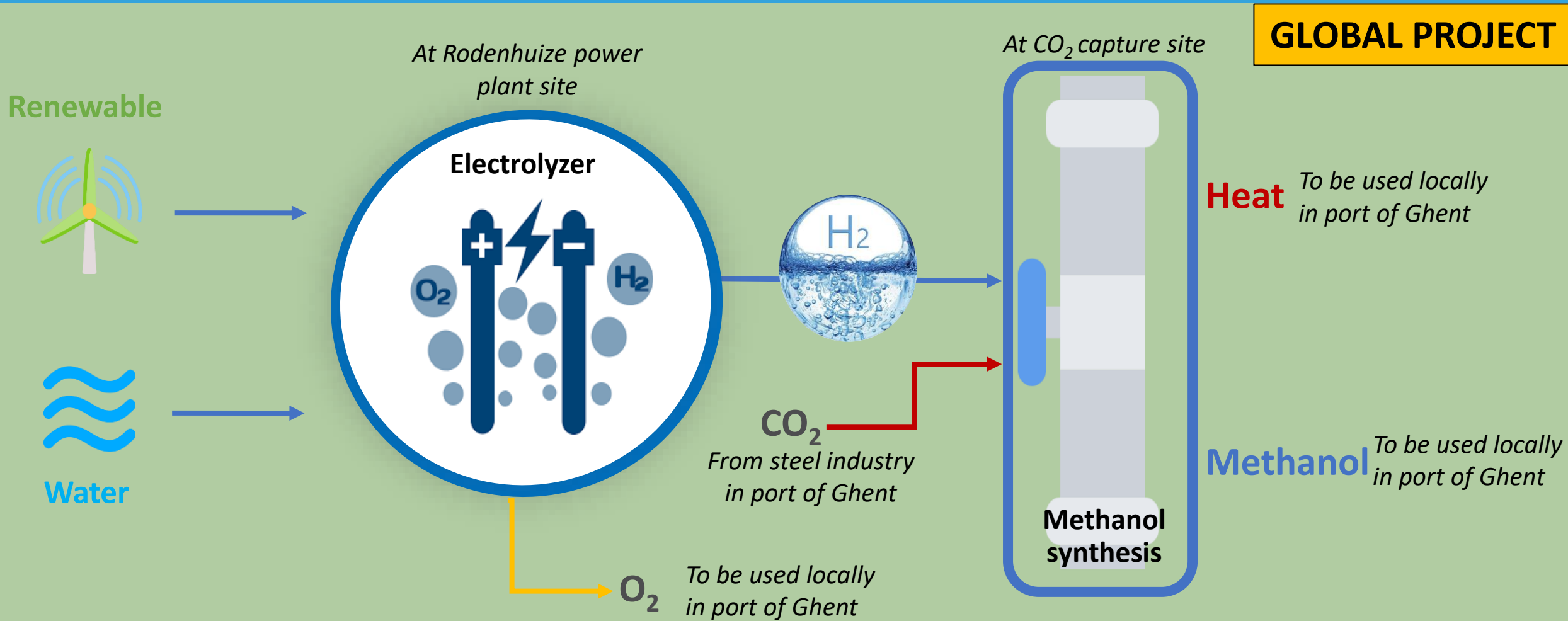
from waste to raw material

# CCU HUB IN GHENT: A COMPLETE AND DYNAMIC PARTNERSHIP



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# CCU HUB IN GHENT: INTEGRATED CIRCULAR ECONOMY



## GLOBAL PROJECT:

- 300MW electrolyser: using 1800GWh/y of renewable electricity; producing 35000 tons/y of green hydrogen
- CO<sub>2</sub> from steel industry: up to 257000 tons/y
- Producing green methanol: about 187000 tons/y

# CCU HUB IN GHENT: THE METHANOL DEMO PROJECT

## DEMO PROJECT

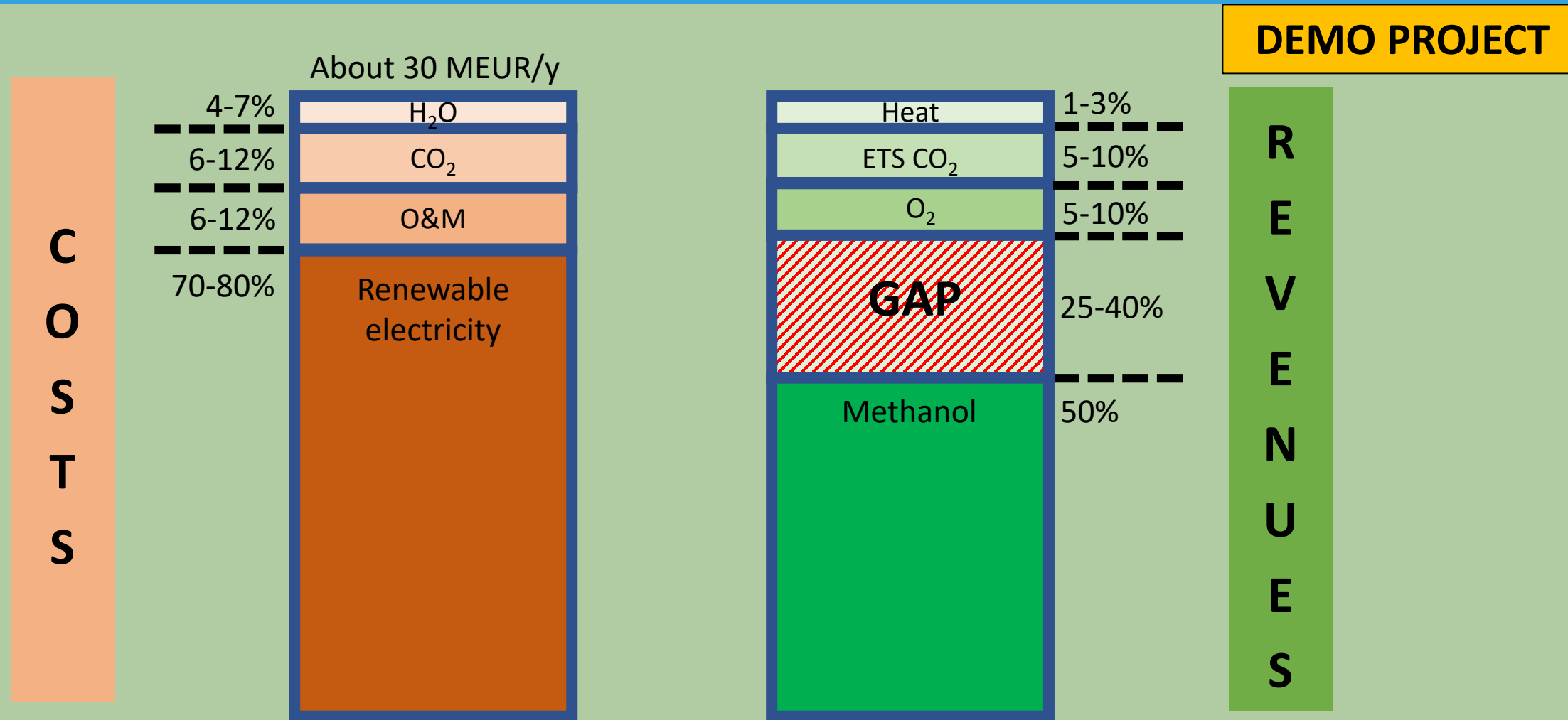
### DESCRIPTION:

- 63MW electrolyser: using about 440 GWh/y of (new) renewable electricity; producing about 8600 tons/y of green hydrogen
- Locally “produced” CO<sub>2</sub>: about 63000 tons/y will be used
- Producing green methanol: about 46000 tons/y

### COMMENTS:

- All installations to be constructed at Rodenhuize power plant site
- CO<sub>2</sub> can come from local industrial processes, local steel industry or on-site air capture
- Innovation through a combination of:
  - *Large scale water electrolysis plant*
  - *Large scale methanol synthesis plant*
  - *Local use of the green methanol: circular economy*
  - *Produced green methanol will be used by local companies to greenify further their biofuel production*

# CCU HUB IN GHENT: THE METHANOL DEMO PROJECT



- Capex: about 70-80 MEUR, to be confirmed by binding offers from suppliers
- Gap of about 5-10 MEUR/year to cover operating costs; to be compensated by a combination of (1) premium for green methanol fuel, (2) increase in ETS CO<sub>2</sub> valorisation, (3) project assistance
- + Need for capex subsidies to reimburse (part of) the investment

# CCU HUB IN GHENT: FUTURE TIMELINE

|  |  |
|--|--|
| <b>Step 1: DEMO project of 63MWe</b>   | <b>2023</b>  |
| ▪ Producing green methanol   |  |
| <b>Step 2: Scaling up to about 300MWe</b>  | <b>2027</b>  |
| ▪ Producing green methanol, ammonia, methylamines, formic acid,...                                 |  |
| <b>Step 3: Preparing large scale infrastructure</b>  | <b>2030</b>  |
| ▪ Related to CO/CO <sub>2</sub> /H <sub>2</sub> /O <sub>2</sub> /...                               |  |
|  | Financial support from Innovation Fund / Moonshot Program Flanders |
| <b>Step 4: Ready to produce</b>  | <b>2040</b>  |
| ▪ Innovative products s.a. fatty acids, esters, proteins, etc... from H <sub>2</sub> and excess CO |  |
| ▪ Grid services in a local environment accessible for multiple companies                           |  |
|  | Self supporting business   |

# CCU HUB IN GENT: INTEGRATED CIRCULAR ECONOMY

GLOBAL PROJECT

