Carbon Capture at Sävenäs WtE plant

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RENOVA IN NUMBERS

SALES RENOVA GROUP

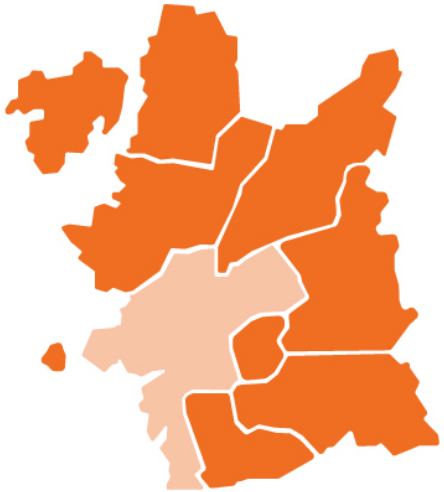
MSEK 2 168

NUMBERS OF EMPLOYEES

907

TREATED WASTE

1,24 MILLION TONNES
0,53 MILLION TONNES TO WTE

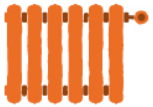


FLEET

317 HEAVY VEHICLES

100%
renewable fuel

ENERGY PRODUCED



1,54 TWh

DISTRIC HEATING

0,28 TWh

ELECTRICITY

RENOVA'S OWNERS

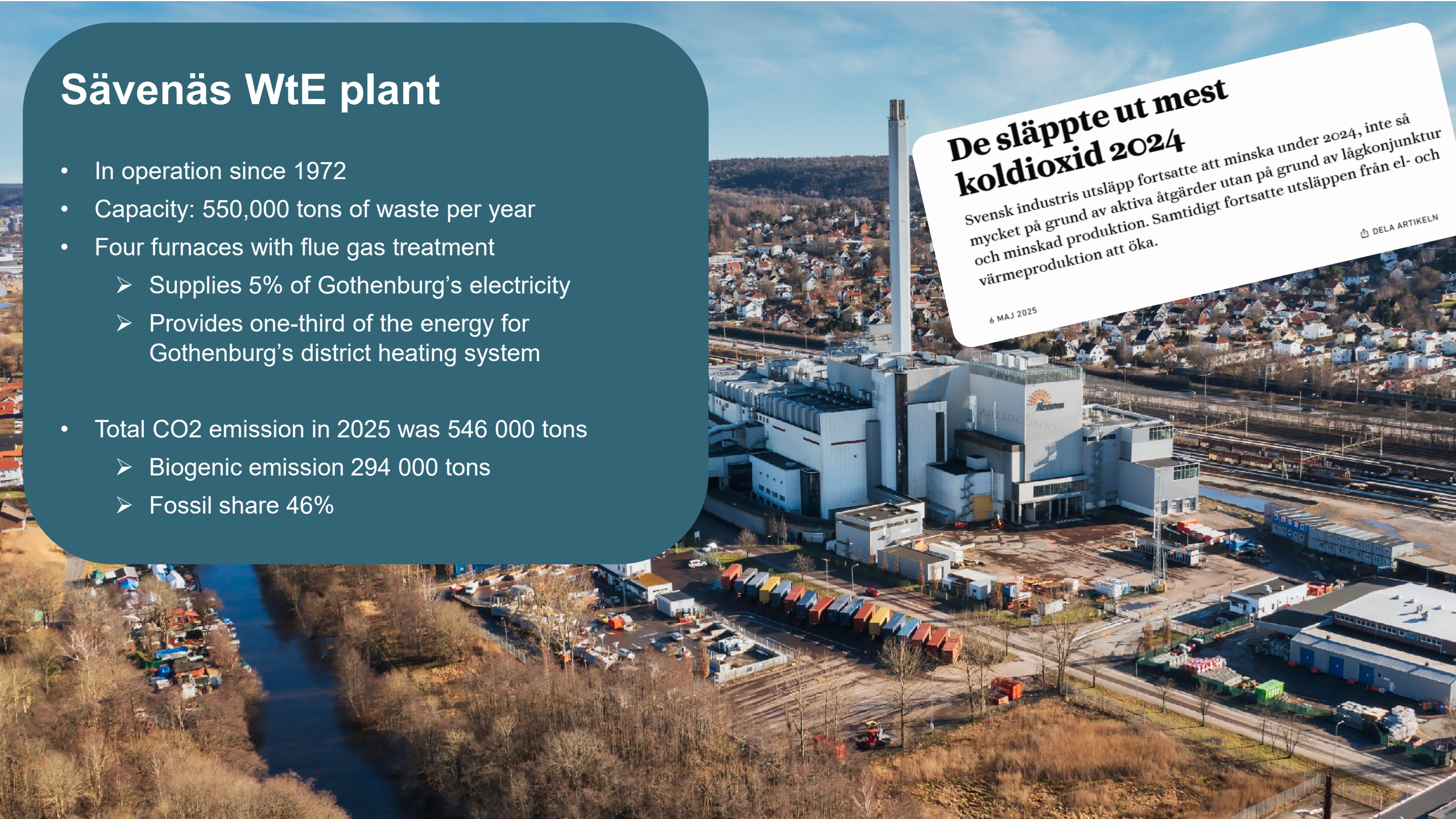
10 MUNICIPALITIES

Ale, Göteborg, Härryda, Kungälv, Lerum, Mölndal, Partille, Stenungsund, Tjörn, Öckerö

Sävenäs WtE plant

- In operation since 1972
- Capacity: 550,000 tons of waste per year
- Four furnaces with flue gas treatment
  - Supplies 5% of Gothenburg's electricity
  - Provides one-third of the energy for Gothenburg's district heating system

- Total CO2 emission in 2025 was 546 000 tons
  - Biogenic emission 294 000 tons
  - Fossil share 46%



Several climate goals for carbon neutrality is affecting Renovas strategy and CCS project time schedule

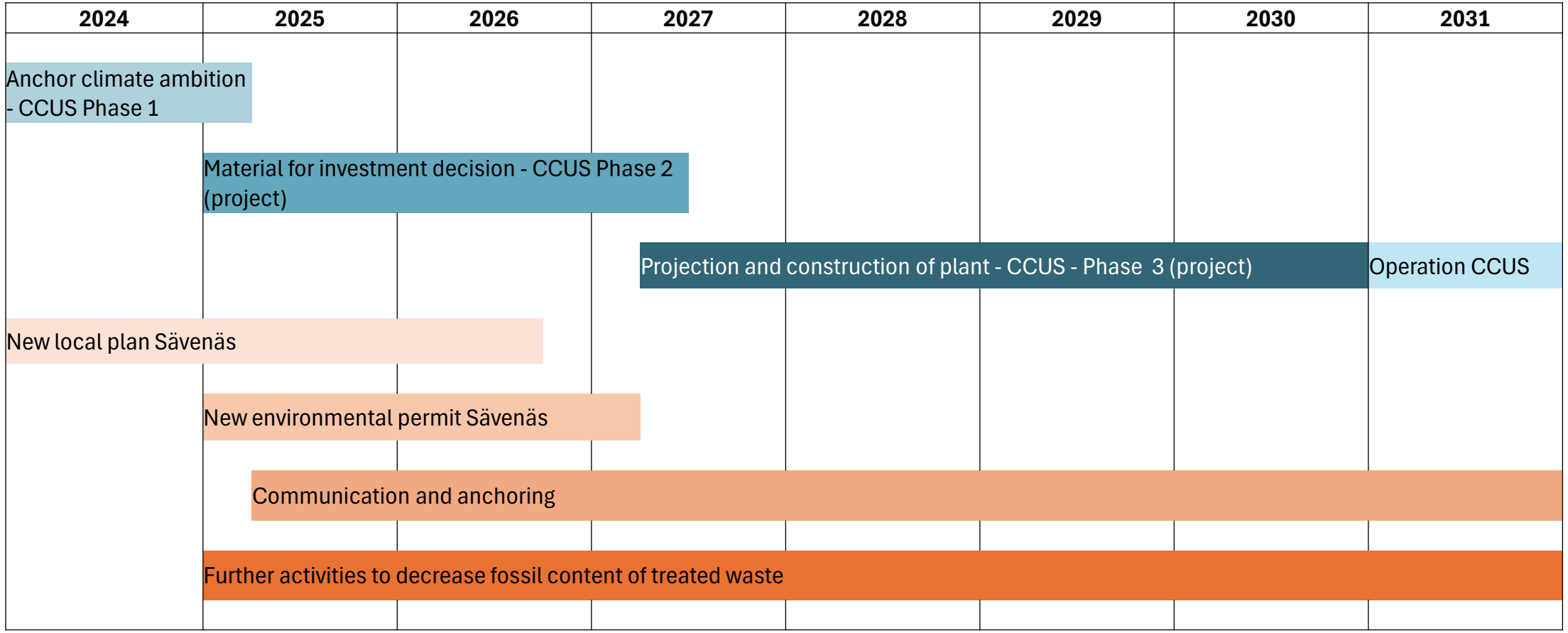
Climate-neutral **EU** by 2050. By 2045, **Sweden's** net greenhouse gas emissions to the atmosphere shall have ceased.

Gothenburg aims to reach a near-zero climate footprint by 2030.

Renova's ambition is to reduce its CO2 emissions to become climate neutral as soon as it is technically and economically feasible.

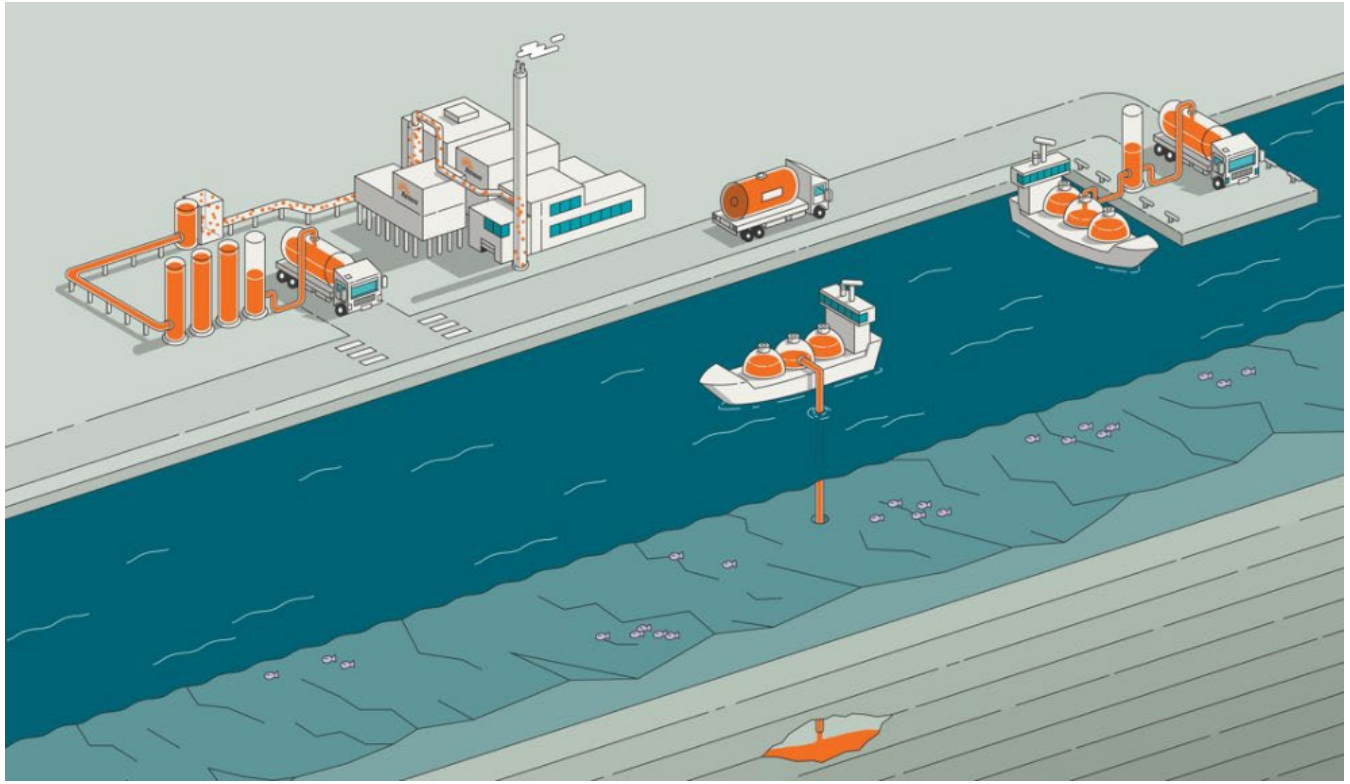
PROGRAM FOR CLIMATE NEUTRAL RENOVA

Start CCS commissioning in 2030



SÄVENÄS CCS PROJECT SCOPE

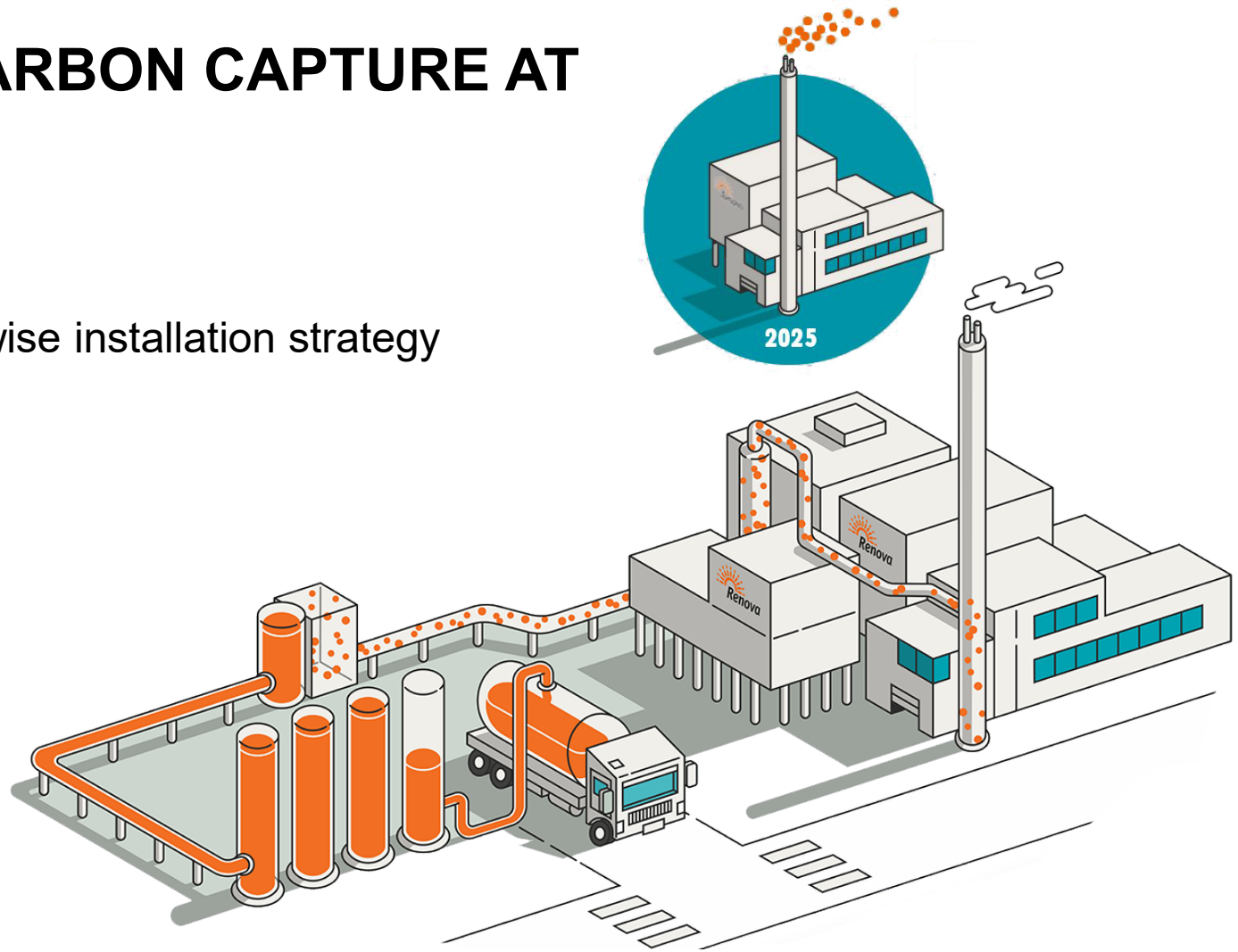
- Planning for step-wise installation of CCS
- Capture of CO_2 from one line followed by future scale-up
- Initial capacity 100 ktpa
- Amine-based capture technology
- Transportation to a CO2 hub or geological storage



TECHNICALLY FEASIBLE CARBON CAPTURE AT SÄVENÄS WTE

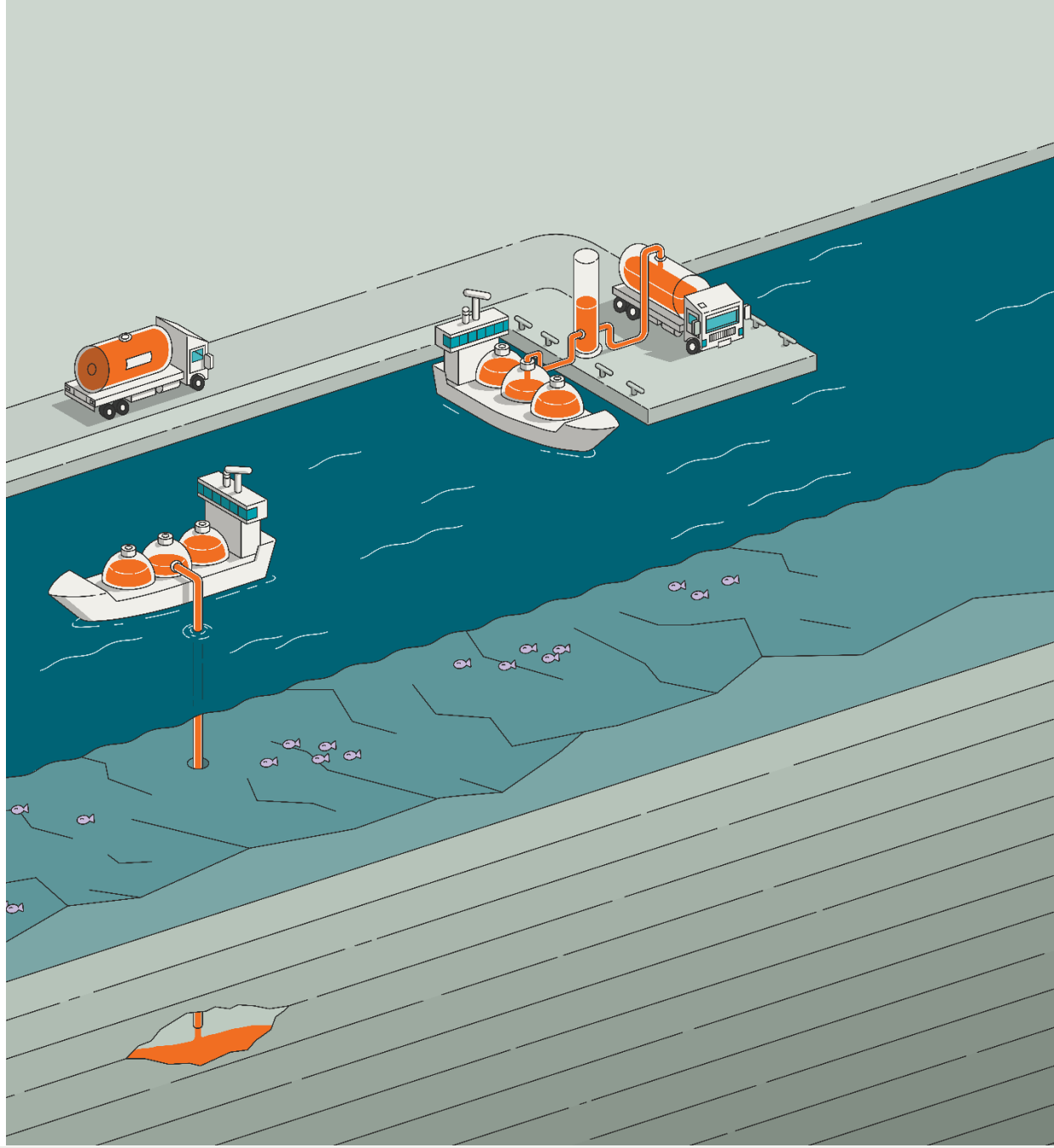
Technical aspects that inspired to a stepwise installation strategy

- Age of existing boilers
- Layout constraints
- Steam supply
- District heating production
- Benefits of scaling up



A FEASIBLE CO2 INFRASTRUCTURE

- Previous work with a CO2 hub in Gothenburg
- Time scheduling is (in general) difficult
- Utilize existing infrastructure to reach CO2 Hub or permanent storage site
- The CO2 infrastructure will develop and mature beyond 2030 as new emitters and storage sites realizes their projects
- Our first solution is not necessarily our final



ECONOMICALLY FEASIBLE

A financial model for CCS at a WtE considering the following:

- EU ETS
- Carbon dioxide removal (CDR)
- Governmental/EU funding
- Other

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