



# NOBIAN

December 2024



Salt | Essential Chemicals | Energy | Storage Caverns

- Our company
- key numbers

- Nobian has 3 salt production sites, 5 chlor-alkali plants, and 1 chloromethanes plant across 7 locations.
- Head office in Amersfoort and R&D centre in Enschede.

~1,600

People



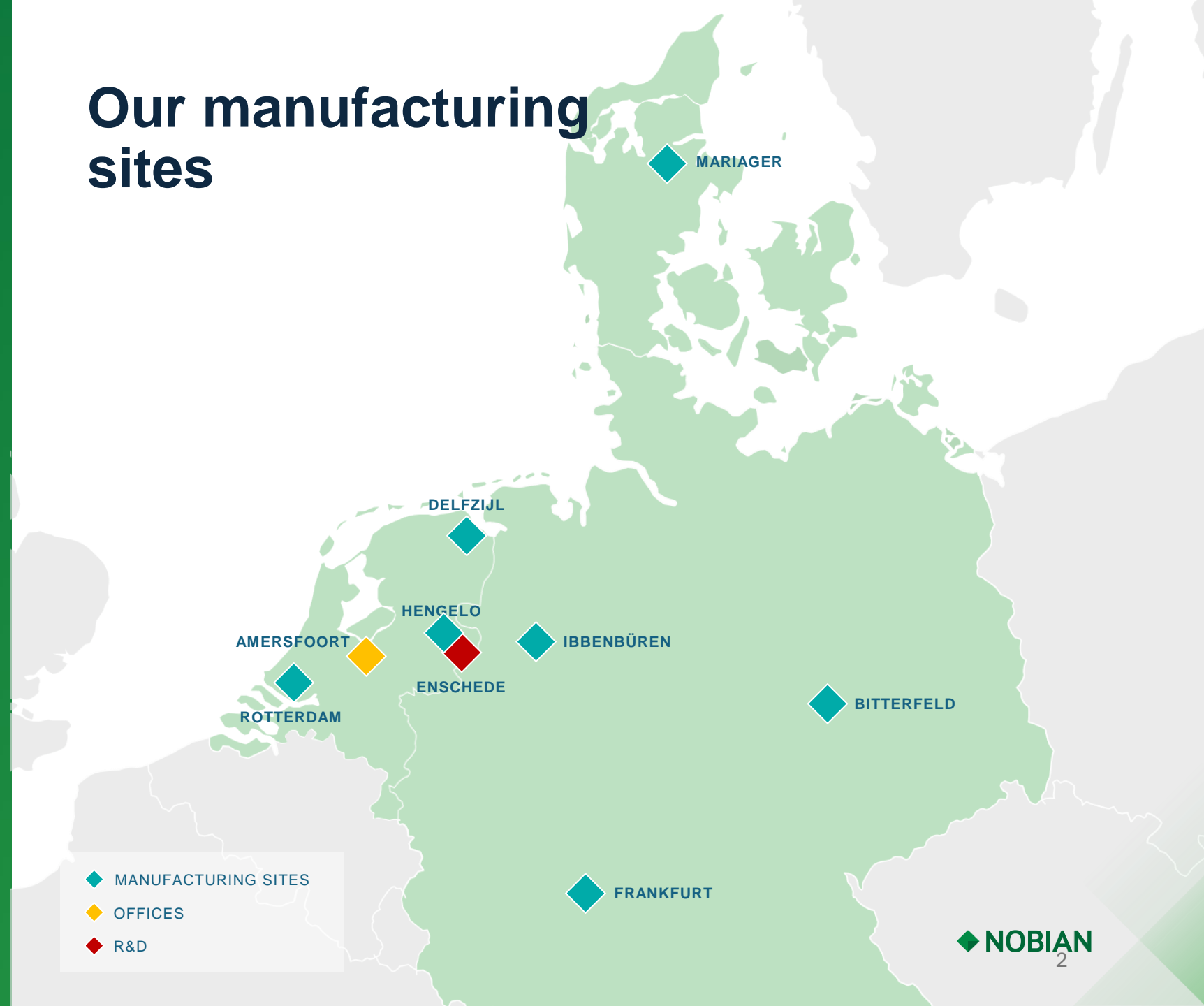
7

Manufacturing sites,  
1 innovation centre, 1 head office

~€1.5  
bln

Revenue

## Our manufacturing sites



# Our Value chain

delivers strategic independence of Europe for key materials.

Salt caverns to become cornerstone of hydrogen infrastructure.

**85%**

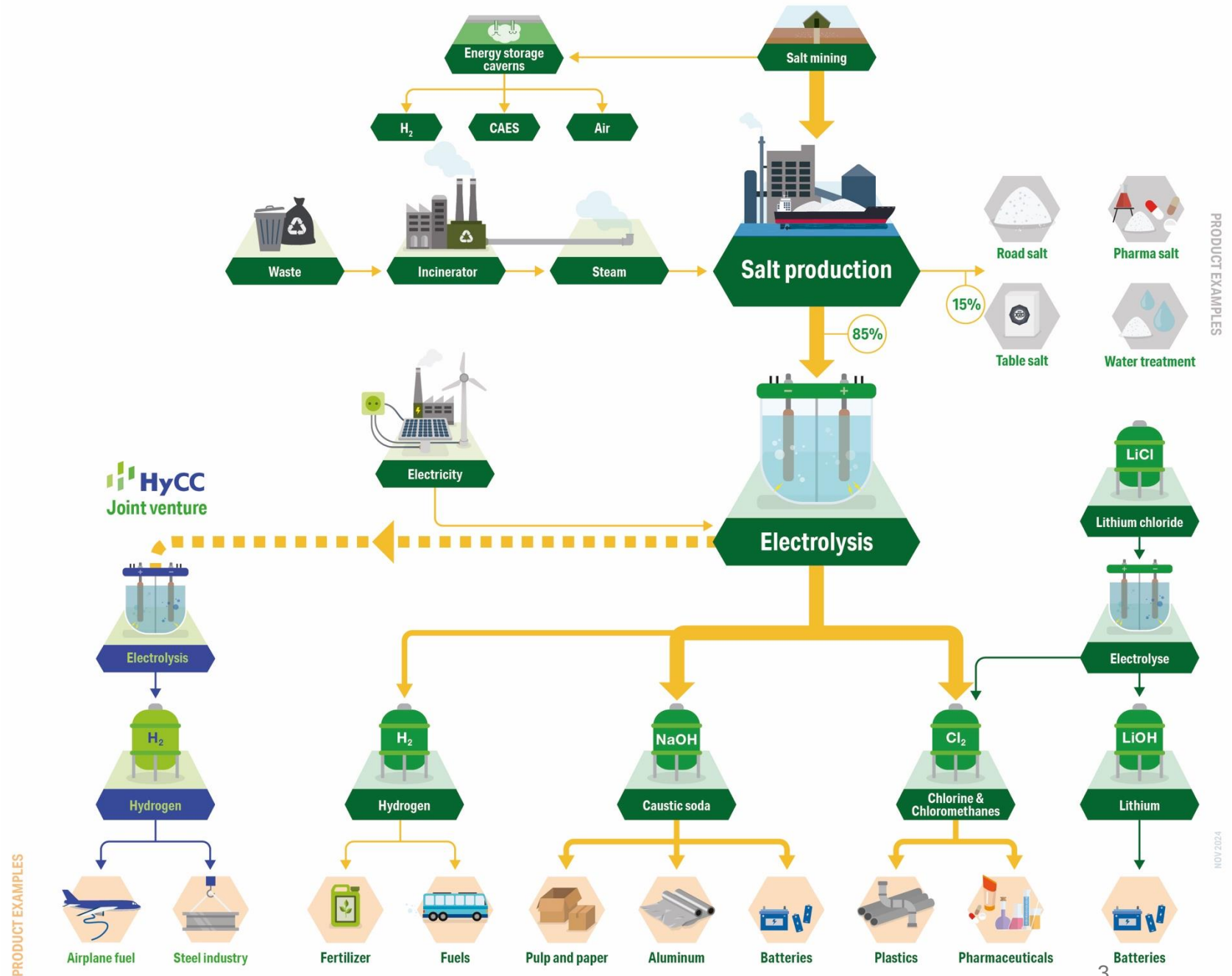
of Nobains salt is sold to the chemical industry

**40%**

of all products produced by the chemical industry is derived from salt.

**100%**

of the salt used in the Chlor alkali clusters Delfzijl, Rotterdam, Leverkusen, Rafnes, Tessenlo and Frankfurt is produced by Nobian.

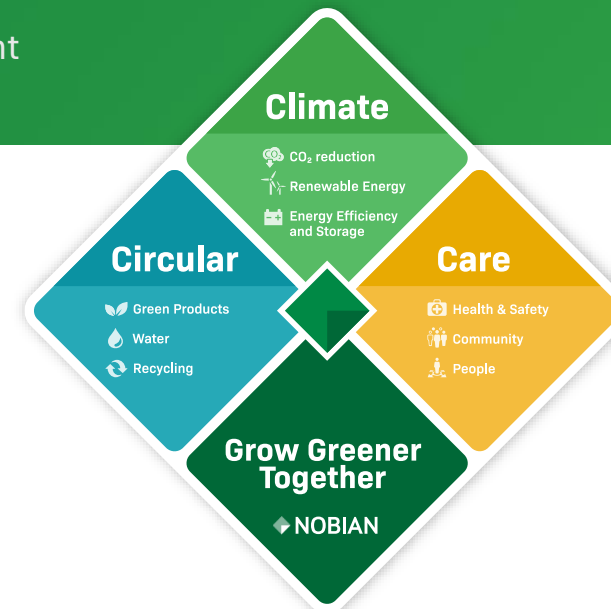


# Our sustainability approach

- Become one of the **most sustainable** chemical companies in Europe
- Be a **leading partner** in shaping the sustainable economy
- Deliver on our **climate targets** ahead of the Paris Agreement goals
- Help our customers to reduce their **carbon footprint** with our low carbon products
- Accelerate growth in **new and impactful** markets
- Build a solid **social pillar**: Including community and people engagement



Nobian awarded Platinum by EcoVadis  
 3<sup>rd</sup> year in a row  
 Top 1% performance



Targets for 2025: Carbon reduction by 25%, > 50% renewables  
 2040 target: Zero carbon, 100% renewables

# Maatwerkovereenkomst Nobian

## Naar nul CO<sub>2</sub> uitstoot in 2030, een versnelling van 10 jaar

### Versnelde verduurzaming met bewezen technologie - impactvolle projecten

#### A DELFZIJL EN HENGELO

2028



Elektrificatie van zoutproductie in **Delfzijl** met industriële warmtepomp



Elektrificatie van zoutproductie in **Hengelo** met industriële warmtepomp

#### B ROTTERDAM

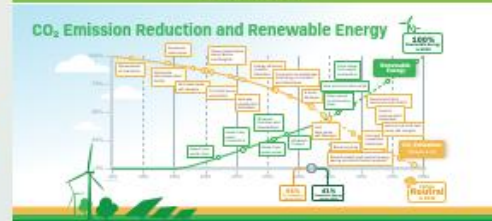
2027-2029



Reduceren van elektriciteitsgebruik chloor-alkali productie in **Rotterdam** met ca. 15%

#### C PORTFOLIO KLEINERE PROJECTEN

2023-2030\*



Portfolio van energie-efficiëntie maatregelen, o.a. **Delsalto circulair project (C)**

\*Gefaseerd

### Maatwerkondersteuning

Totale investering EUR 645 miljoen

Subsidie maatwerkondersteuning EUR 185 miljoen – Voor projecten A, B en C

Versnelde, voorspelbare en efficiënte vergunningverlening – Deskundigengroep ter ondersteuning van bevoegd gezag, betrokken overheden bewaken gezamenlijk de voortgang

### Besparingen & impact als gevolg van subsidie maatwerkondersteuning

Daarnaast extra besparingen door een portfolio van kleinere projecten zonder financiële ondersteuning binnen maatwerk

525 kton CO<sub>2</sub>

400 ton NO<sub>x</sub>

300 miljoen m<sup>3</sup> gas

1% van het Nederlandse gasverbruik, gelijk aan 250.000 huishoudens

135 GWh in Rotterdam.

Gelijk aan 50.000 huishoudens in Rotterdam en + 25 MW E-flex capaciteit op het net

1,7 miljoen m<sup>3</sup> water

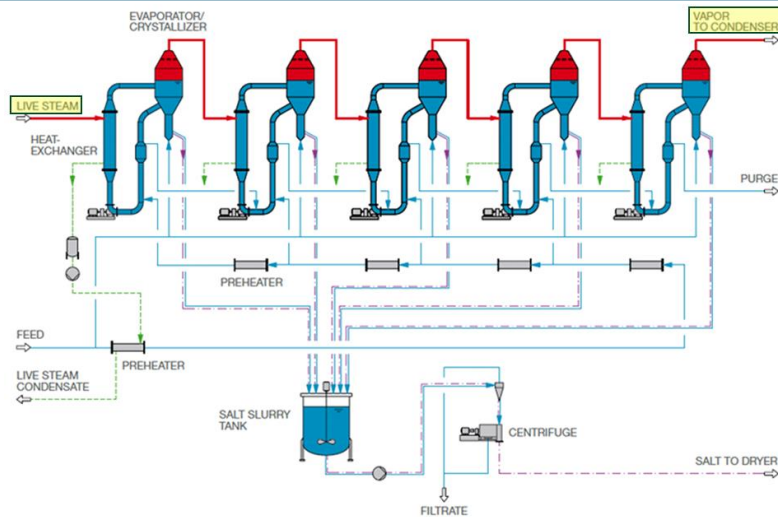
en 90 MW restwarmte in water

# Two proven technologies to produce salt

*MVR is most energy-efficient technology and does not require natural gas*

## Multi-Effect Evaporation (MEE)

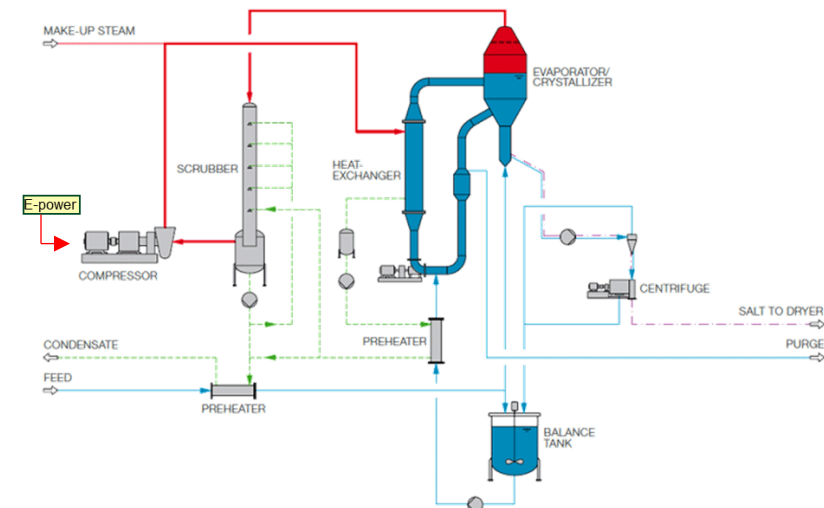
*~85% of Nobian's current capacity*



- ◆ **Steam-based process**, comparable with central heating (resulting in scope 1 CO<sub>2</sub> emissions when steam is derived from co-located gas-fueled combined heat-power plants, or scope 2 CO<sub>2</sub> emissions when using external steam)
- ◆ **Proven technology**; 4-6 crystallizer units<sup>1</sup>
- ◆ Capacity determined by **number of units** and crystallizer diameter
- ◆ **Medium energy efficiency** (~0.42-0.56 MWh/t of salt) – optimal operation when using ‘residual’ steam from biomass/waste incinerators
- ◆ **Cooling water** needed, significant **heat loss** to the environment

## Mechanical Vapor Recompression (MVR)

*~15% of Nobian's current capacity*



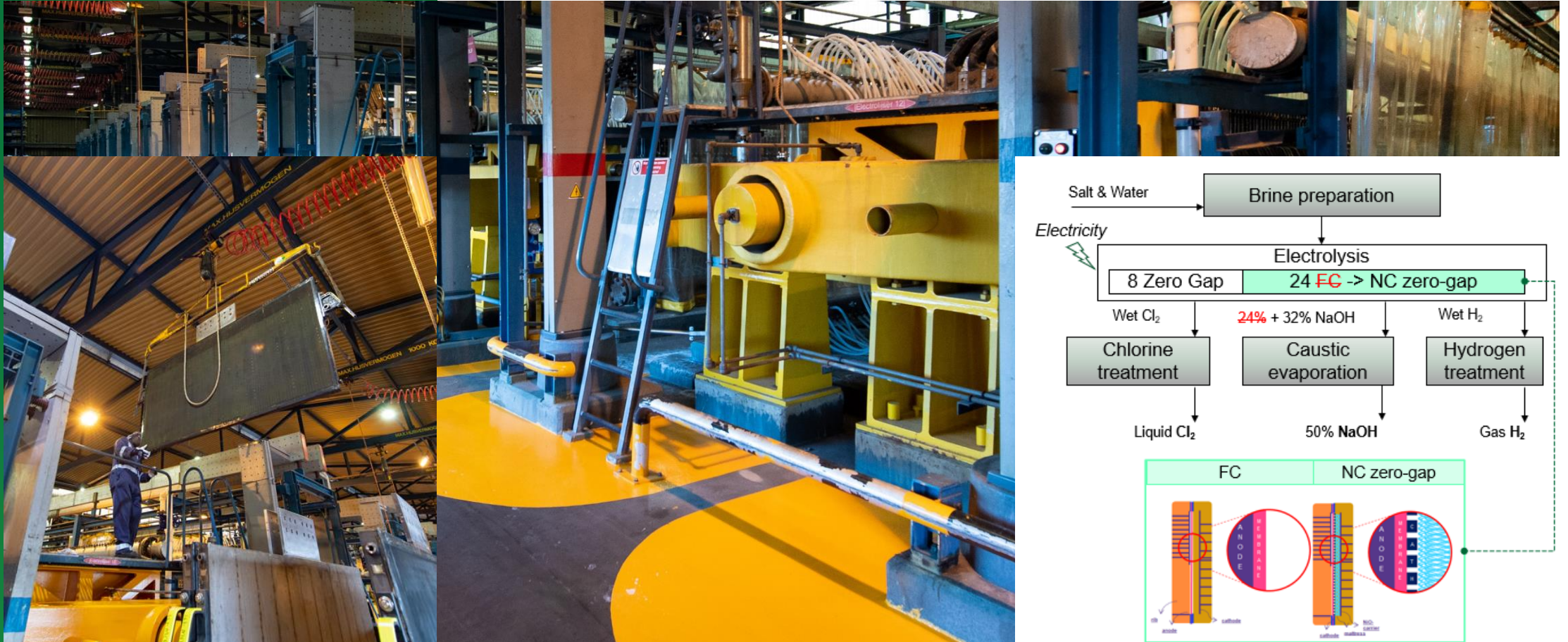
- ◆ **Electricity-based process**, comparable with heat pump (resulting in scope 2 CO<sub>2</sub> emissions unless renewable electricity is used)
- ◆ **Proven technology**: Recent Nobian investments use this technology (HGL 2006, DLZ 2010, MGR 2025)
- ◆ Capacity determined by **compressor size** and crystallizer diameter
- ◆ **High energy efficiency** (~0.15 MWh/t of salt, ~3-4x more efficient than MEE)
- ◆ **E-flex capability** (compressor turn down)
- ◆ **No cooling water** needed, **no heat loss** to environment

*Up- and downstream processes and equipment are the same for MEE and MVR (“drop-in technology”)*

1. Delfzijl 4 crystallizer units (“effects”), Mariager 6 crystallizer units (“effects”)

# Rotterdam

## Elektrolyzers – Zero Gap technologie





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[www.nobian.com](http://www.nobian.com)

[www.linkedin.com/company/nobian](https://www.linkedin.com/company/nobian)