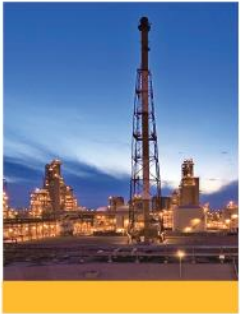




Dow Olefins, Aromatics and Alternatives



Industrial Symbiosis in the Delta

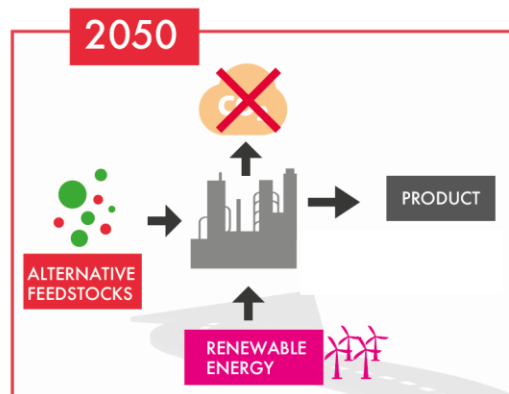
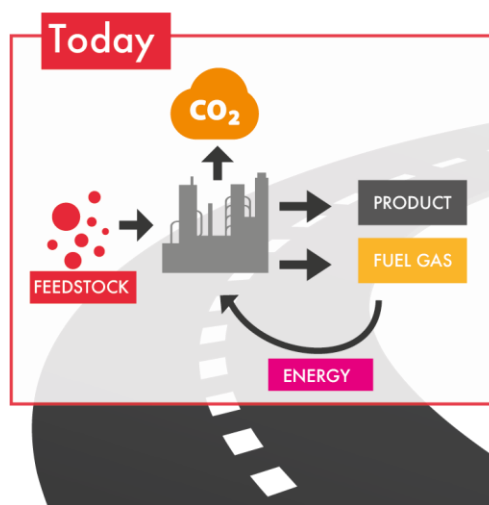
Matthijs Ruitenbeek

Senior Scientist Circular Economy & Carbon Management

Dow Benelux BV, The Netherlands

27-9-2018

Dow Benelux ambition



Dow's 2025 Sustainability Goals: Maximizing Economic, Environmental and Societal Value



Footprint

World-leading Operations Performance

Handprint

Product Solutions to World Challenges

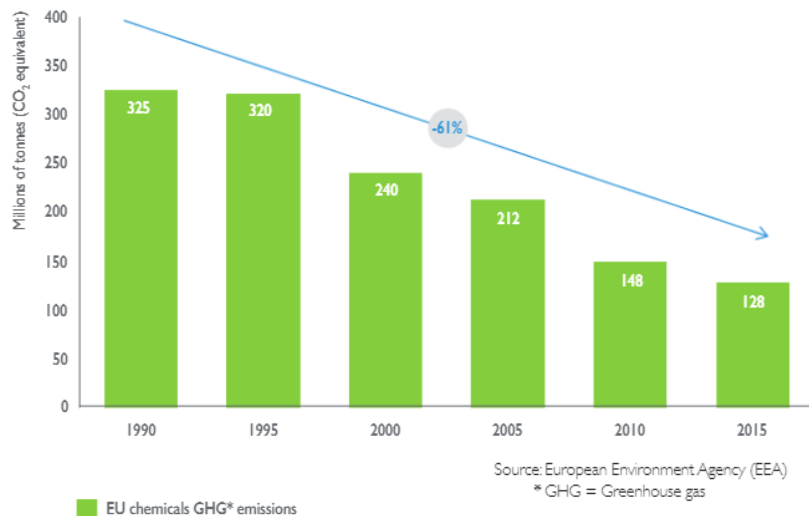
Blueprint

Dow's Thought Leadership and Actions

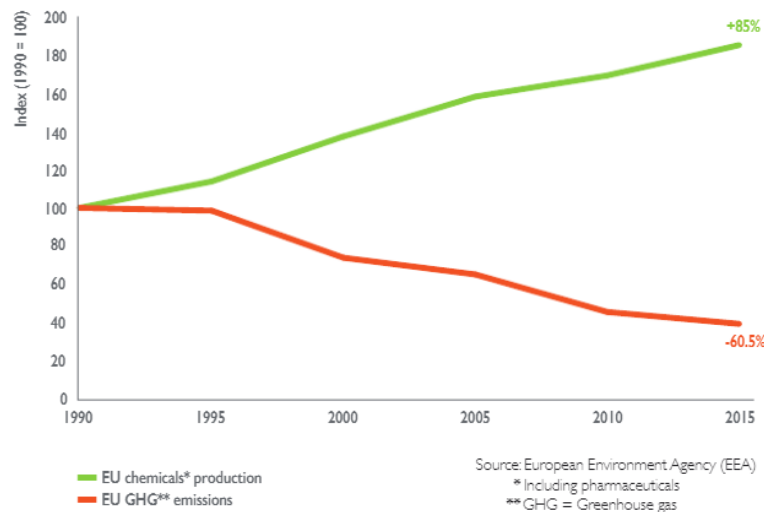


EU chemical industry

Total greenhouse gas emissions in the EU chemical industry



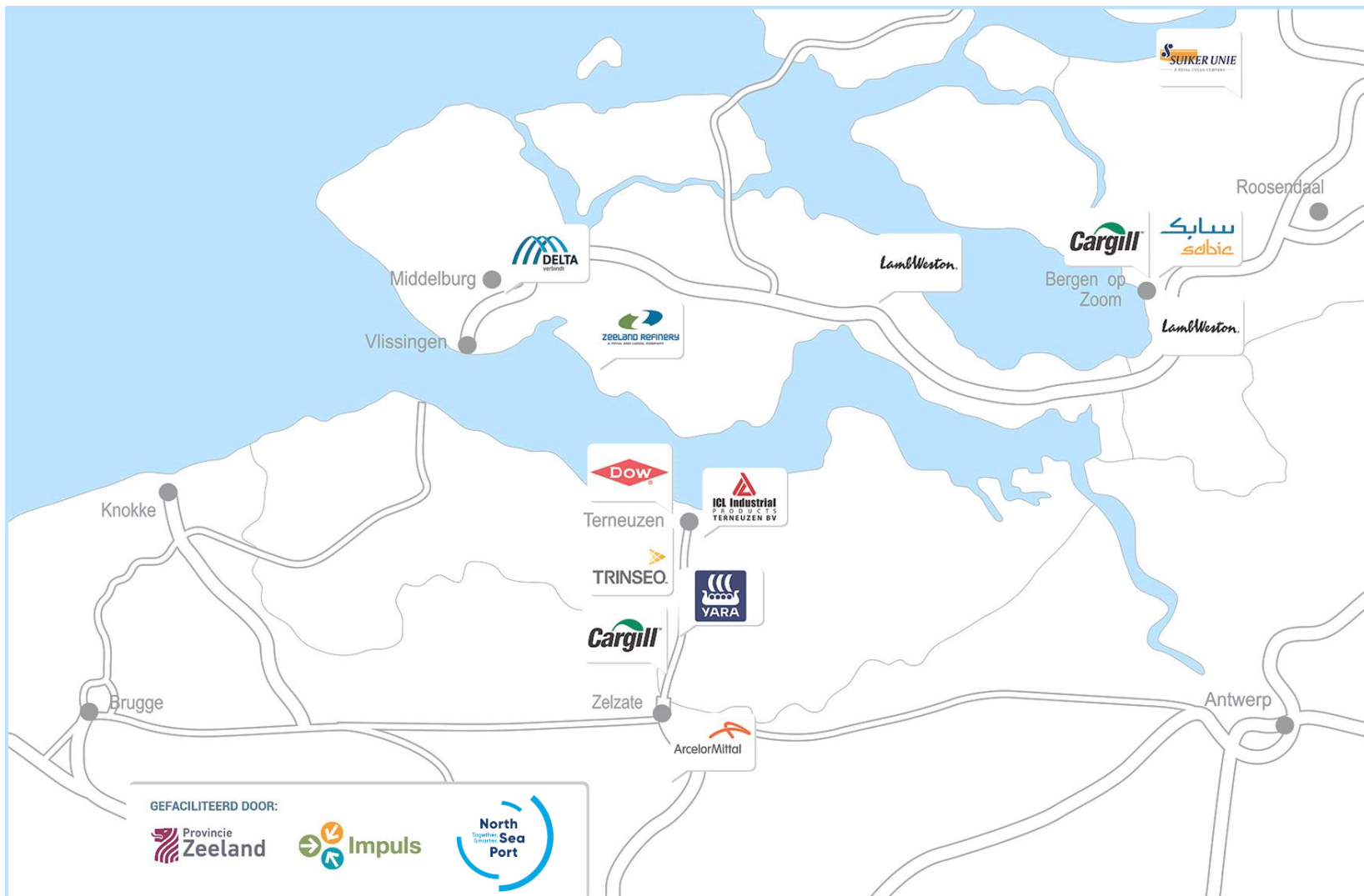
Greenhouse gas emissions and production



But incremental improvements will not get us 'in Paris'

$$(0,98)^{32} = 0,52$$

Smart Delta Resource Platform (2014)

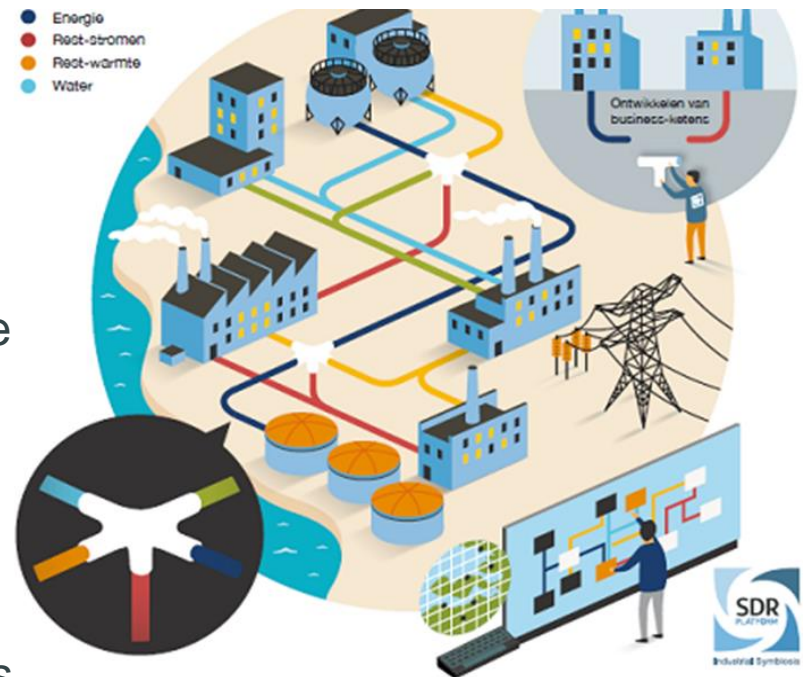


Objectives SDR

SDR aims to develop joint business cases for the exchange of energy and resources flows: **Industrial Symbiosis**

This:

- Improves the competitive position of the companies involved
- Strengthens the Delta region
- Reduces the energy and resource footprint, and thus contributes to the circular economy and climate objectives

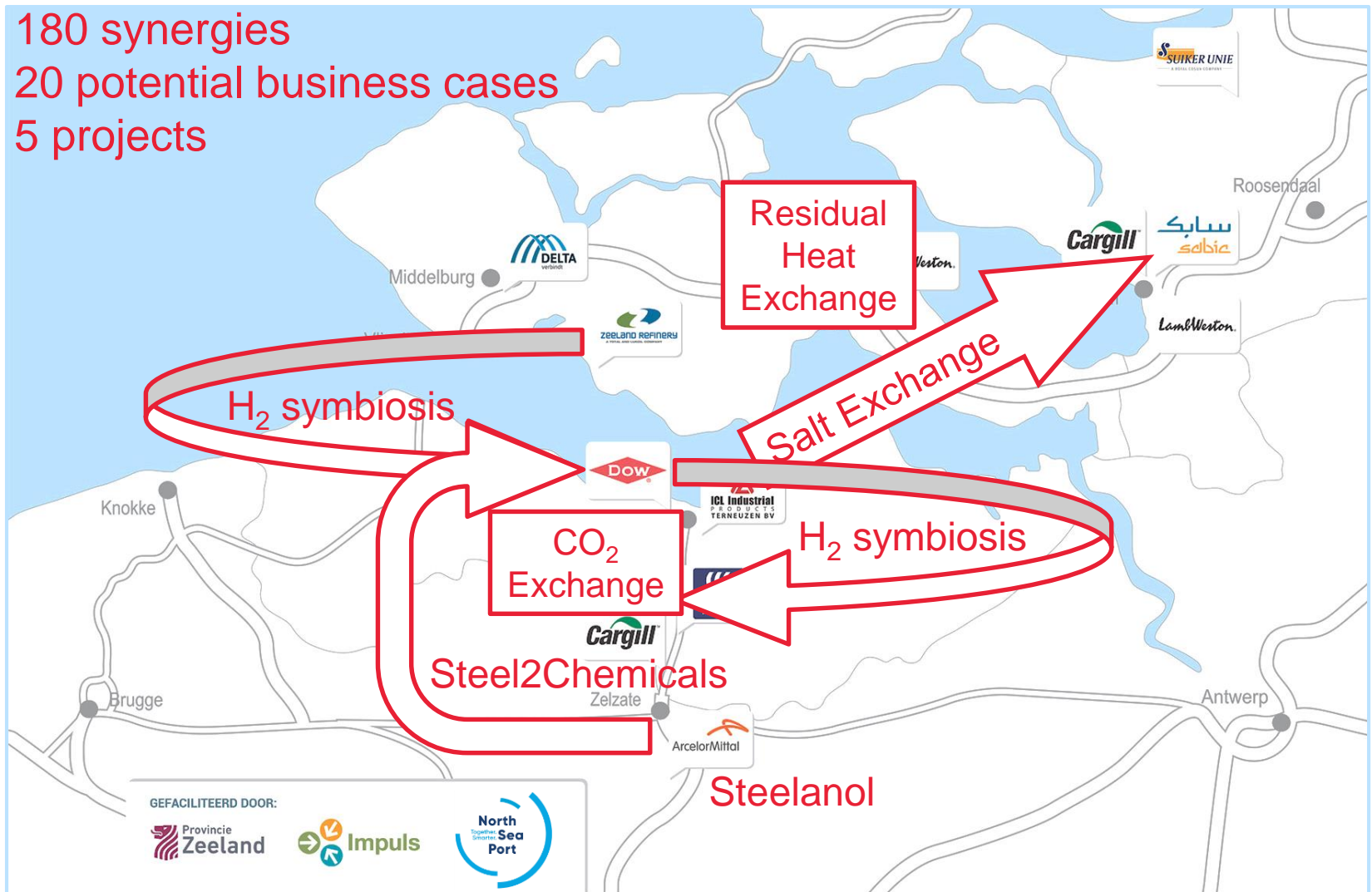


Smart Delta Resource Platform (SDR)

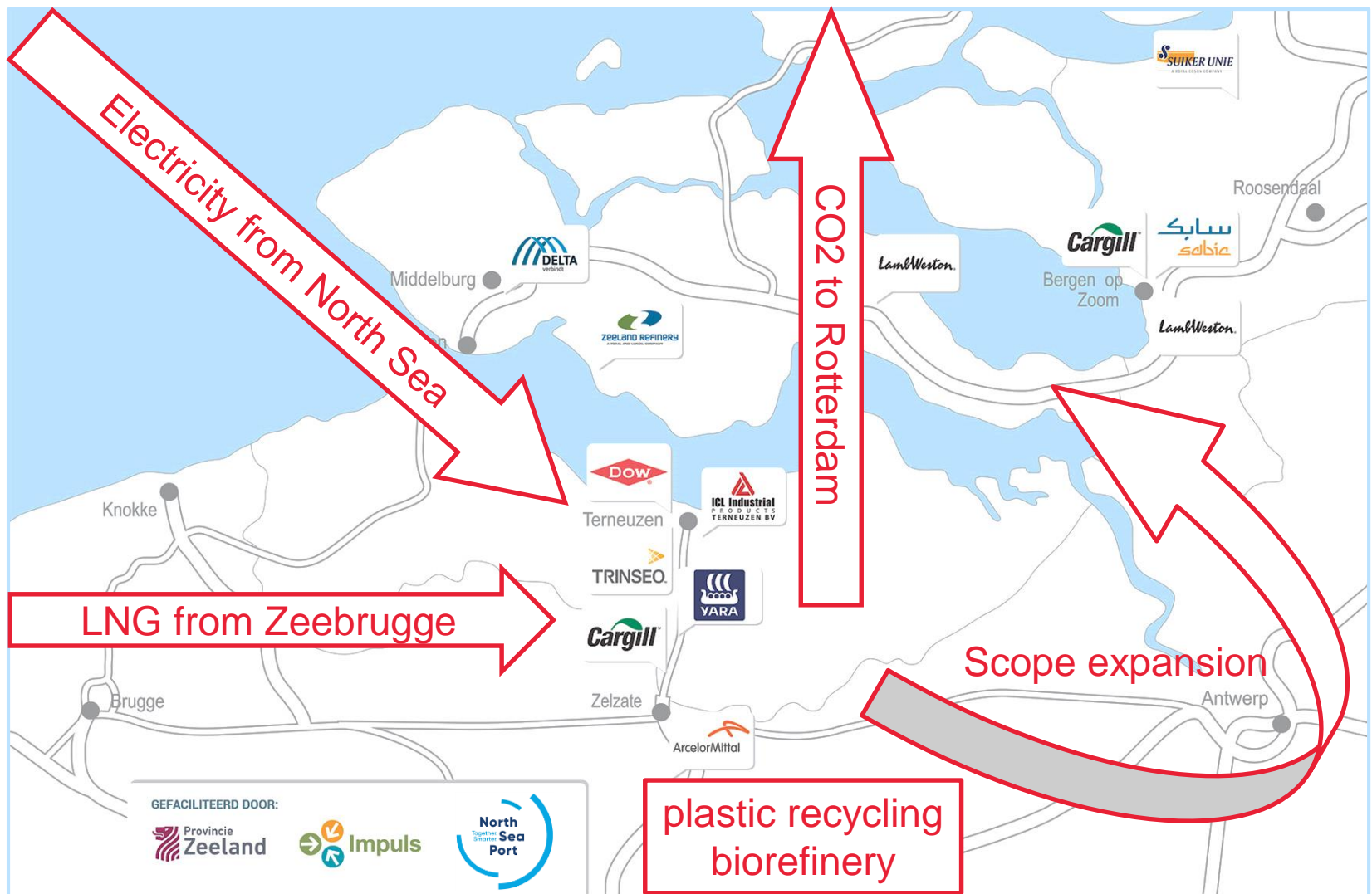
180 synergies

20 potential business cases

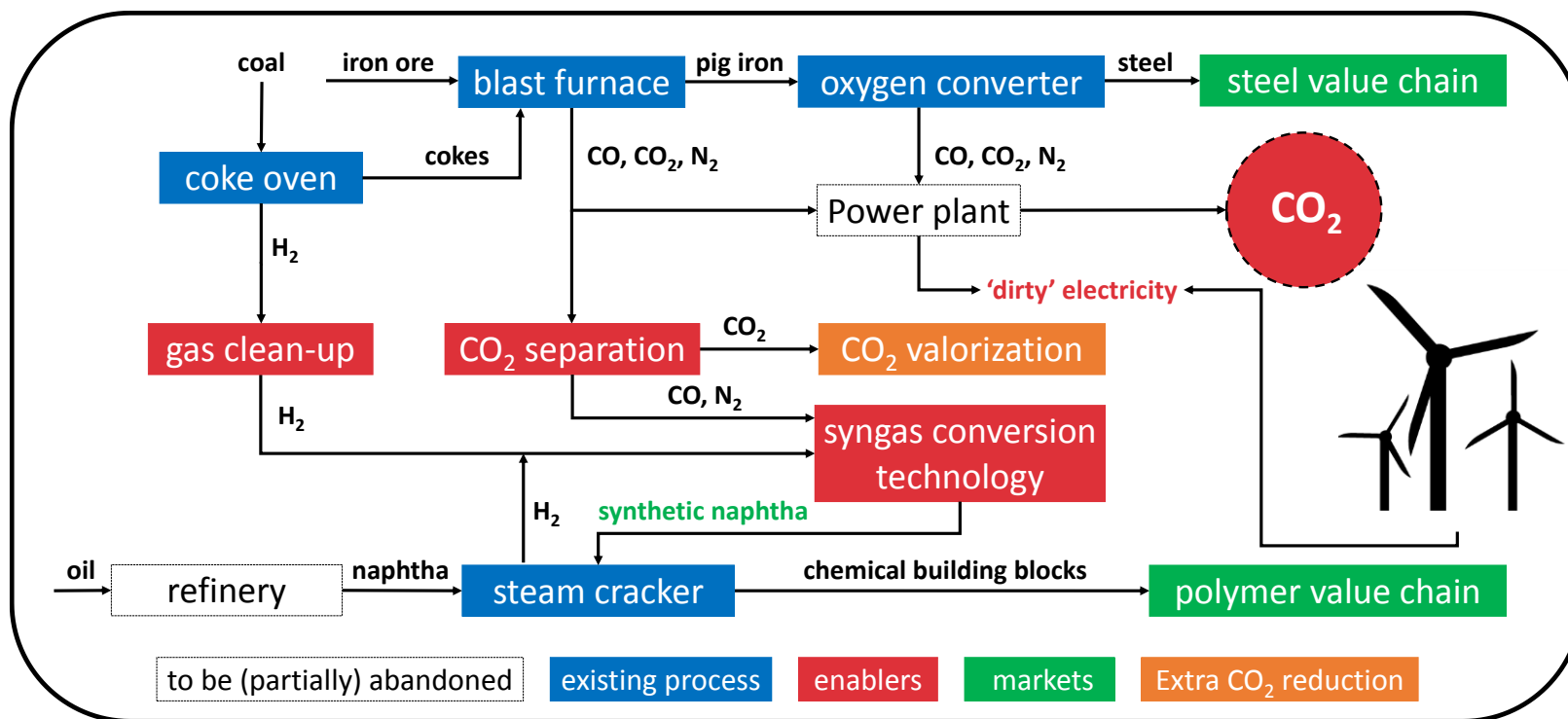
5 projects



Smart Delta Resource Platform (SDR)



Steel2Chemicals



 4 [Mijn nieuws](#) [Laatste nieuws](#) [Krant](#) [Dossiers](#) [Beurs](#) [Meer](#) 

DOWJ 26.562,05 --  [Abonneren](#) 

Hans Verbraeken 7 feb 17 [Tekst](#) [Krant](#)   

ONDERNEMEN

Arcelor en Dow lossen elkaars probleem op

Dow Benelux in Terneuzen gaat de afvalgassen van ArcelorMittal bij Gent gebruiken. Daar worden beide bedrijven beter van.

TATA STEEL AND DOW TO INVEST IN GREEN CHEMICALS

11 SEPTEMBER 2018



Tata Steel IJmuiden and Dow Benelux are building a pilot plant that uses waste gas from blast furnaces instead of petroleum to produce naphtha. Dow uses naphtha as a raw material for all kinds of chemical products.

The plant uses carbon monoxide, which is abundantly present in the waste gases from steel production. 'We first use part of it to produce hydrogen,' says transition manager Cock Pietersen of Tata Steel. This hydrogen is created by initiating a carbon monoxide and water reaction, during which CO₂ is released, 'but it does mean we don't have to use any extra natural gas to produce this hydrogen.' The idea is that AkzoNobel will build the hydrogen plant at the Hoogoven site in IJmuiden.

ARTIKELN

www.deingenieur.nl

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AANTREKKELIJK DIGITAAL AANBOD

12 NUMMERS VOOR € 69,-

KLIK HIER

■ (Steel2Chemicals) symbiosis challenges

- How to develop technology when the business case is not bright (yet)?
 - How to include environmental aspects in business models?
 - Access to EU co-funding (Horizon 2020) is not easy
 - Create attractive investment conditions for 1st of its kind (demo) plants
 - Unprofitable top finance
- Circular concepts are not (yet) favored in legislation
 - Renewable versus circular
 - End-of pipe solutions not acknowledged in ETS
- Cross-border, cross-industry carbon management is not easy
 - Who gets the credits? (envelop optimization might hurt one party)
 - Who invests in required infrastructure? (make the connections)
- How do we deal with growth? Should this be always climate neutral?



**Thank
You**

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www.smartdeltaresources.com/en

www.carbon2value.be

www.dowduurzaam.nl