

# “Accelerating climate technology transfer in key industries through market mechanisms”



NDE Germany Webinar as part of „Fostering green recovery through climate technologies: How the private sector and market mechanisms can accelerate technology transfer”

27.05.2020 | Dr. Hans-Jörn Weddige, Group Coordinator Energy, Climate and Environmental Policies

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thyssenkrupp

# We have defined clear climate goals at thyssenkrupp



2030

-30% Scope 1 & 2

approved

-16% Scope 3

2050  
KLIMANEUTRAL  
CLIMATE NEUTRAL



Scope 1 & 2 & 3



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?

?

?

Marketing claim or actual Climate Action?



# Clear paths at tk Steel Europe

## 2018 The world premiere

The concept: CO<sub>2</sub> is turned into a raw material. In September 2018 thyssenkrupp produced methanol from steel mill gases in the Technical Center Carbon2Chem® in Duisburg for the first time.

## From 2020 The industrialization

The pilot plant produces continuously chemicals from steel mill gases arising in the Duisburg steel mill.

## From 2019 The test

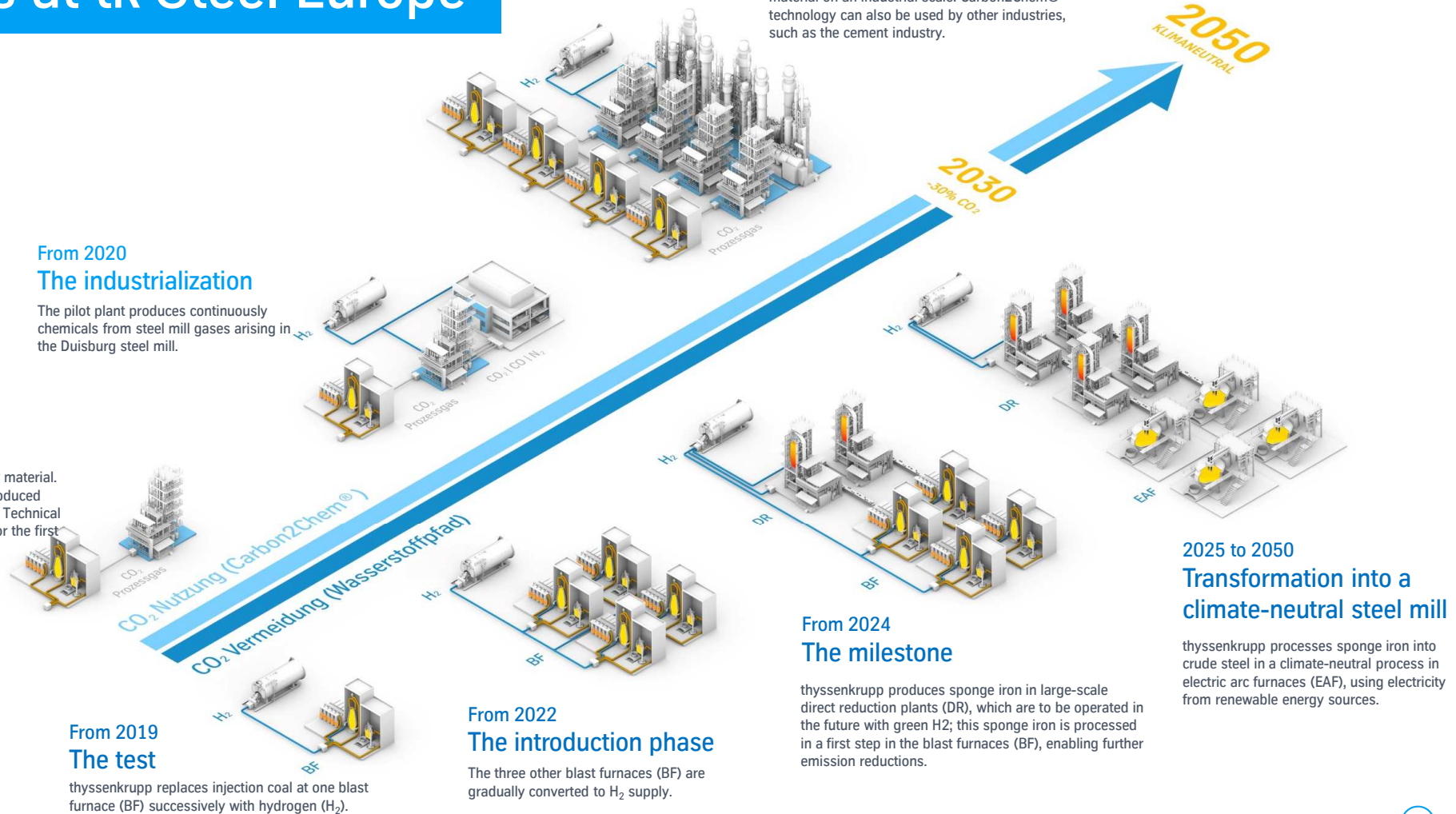
thyssenkrupp replaces injection coal at one blast furnace (BF) successively with hydrogen (H<sub>2</sub>).

## From 2022 The introduction phase

The three other blast furnaces (BF) are gradually converted to H<sub>2</sub> supply.

## From 2025 The breakthrough

In a large-scale plant, CO<sub>2</sub> is used as a raw material on an industrial scale. Carbon2Chem® technology can also be used by other industries, such as the cement industry.



## 2025 to 2050 Transformation into a climate-neutral steel mill

thyssenkrupp processes sponge iron into crude steel in a climate-neutral process in electric arc furnaces (EAF), using electricity from renewable energy sources.



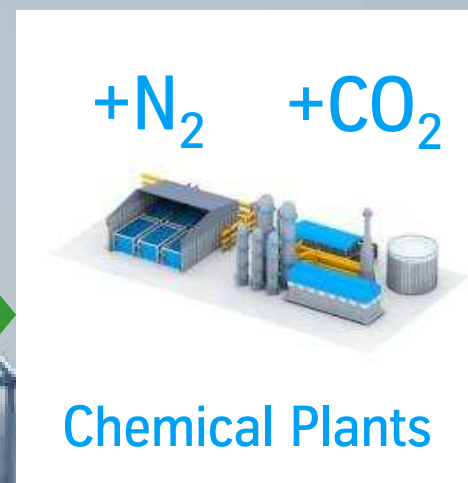
# Conversion of „green“ electrons into „green“ molecules



Green  
electrons



Green H<sub>2</sub>

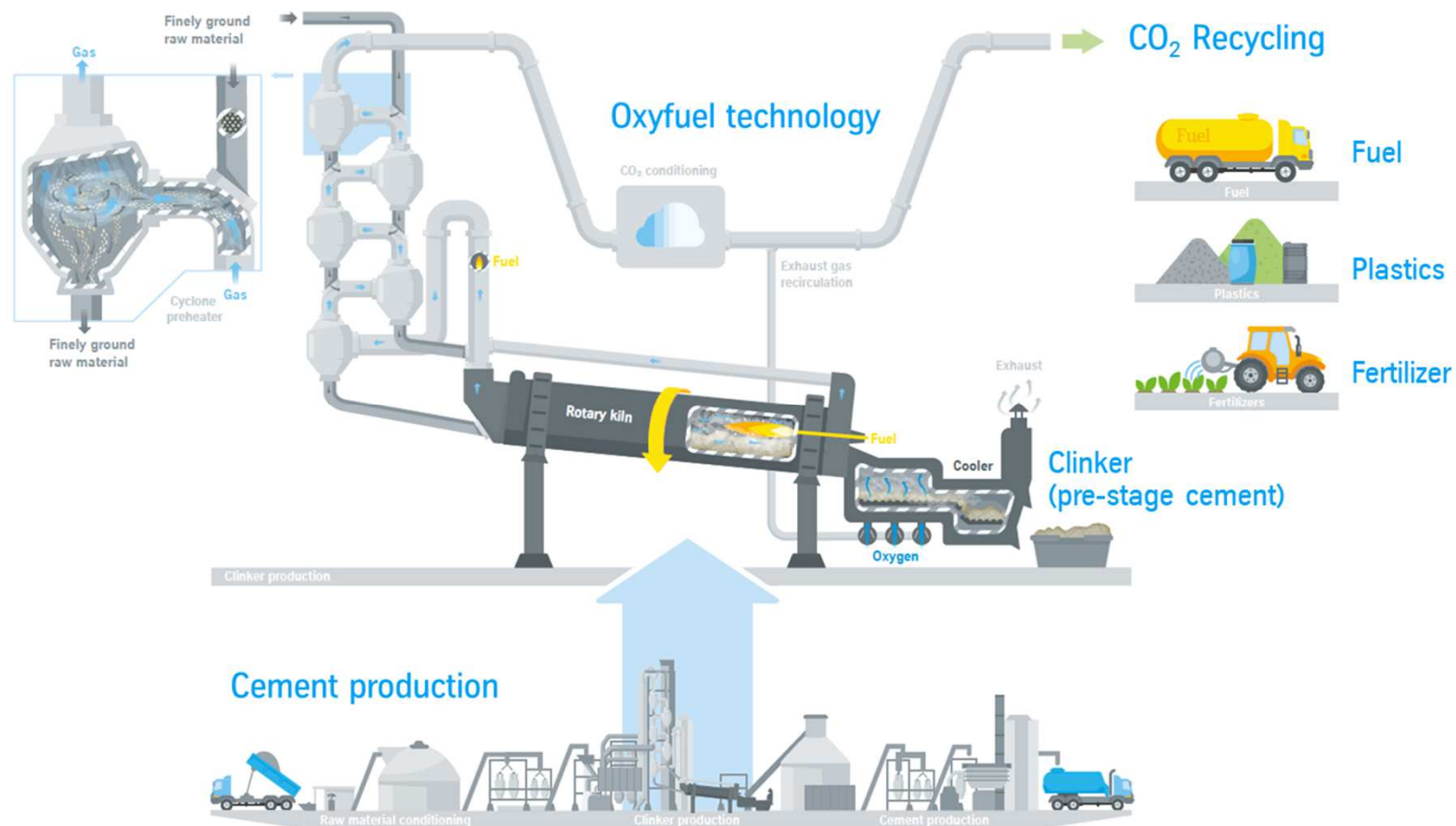


Green Molecules: Hydrogen, Ammonia, Methanol, Methane, etc.





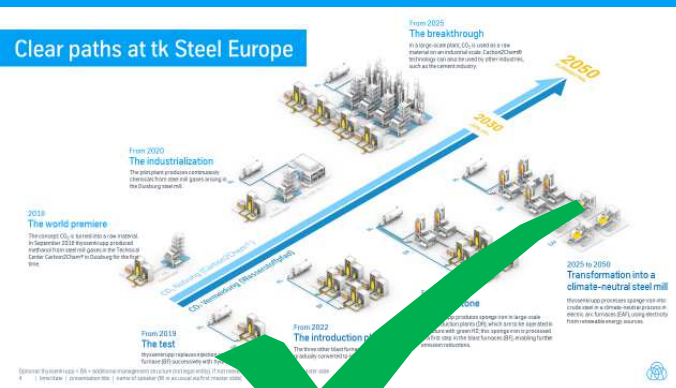
# OxyFuel as a sustainable solution for cement



We have defined clear climate goals at thyssenkrupp



### Clear paths at tk Steel Europe



### Conversion of „green“ electrons into „green“ molecules



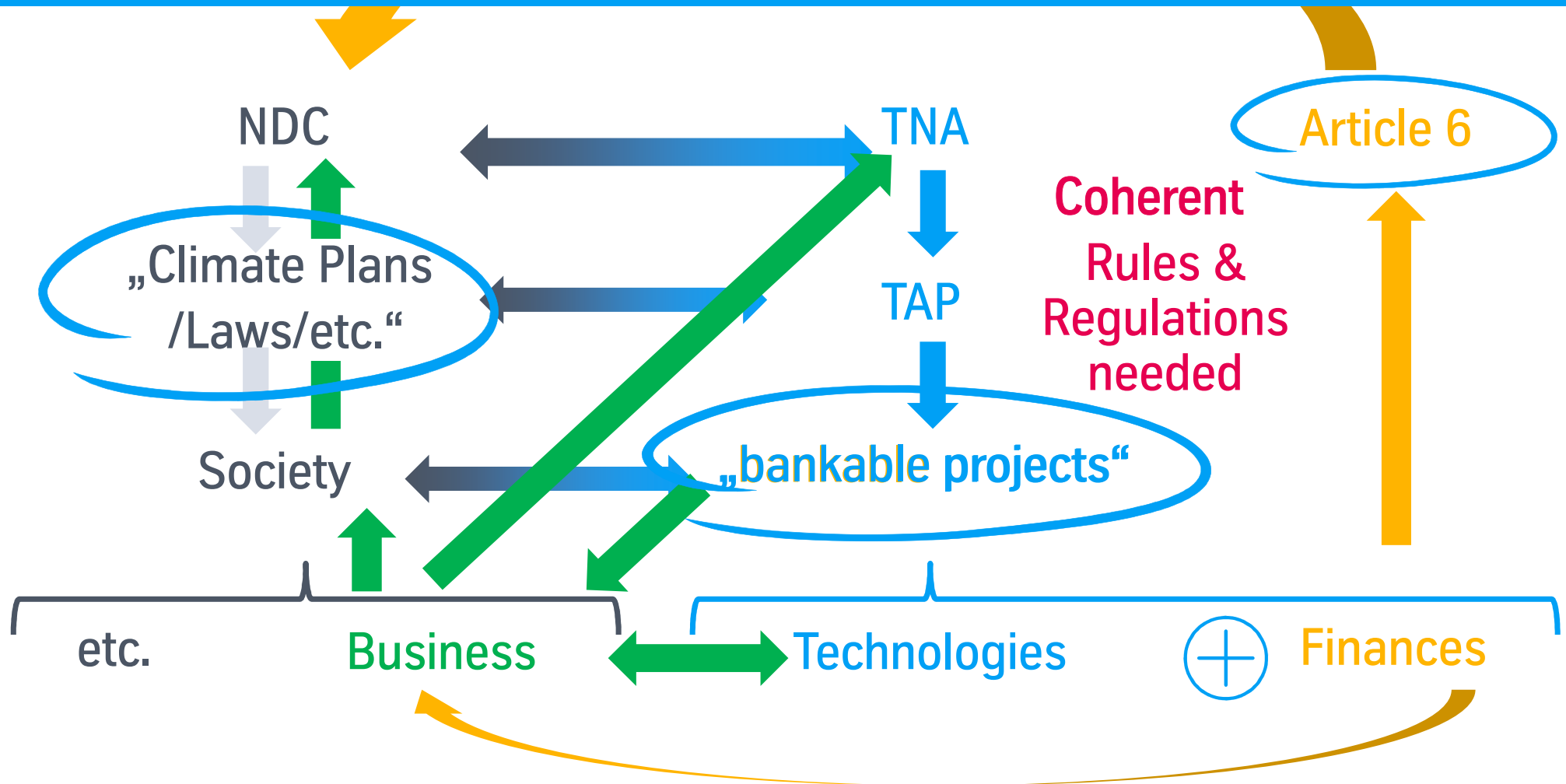
### OxyFuel as a sustainable solution for cement



Technological solutions exist and are being already used – but how to diffuse them into the markets?



## Mechanisms of technology diffusion and accelerating Climate Action





# Some Observations from reality

1

## Article 6 Paris Agreement

- Excellent idea – but hinges on regulations, implementation and use
- Rulebook missing!!!

2

## EU ETS & Article 6

- Both systems completely separated
- No transfer or use of certificates from UNFCCC foreseen by EU ETS as of now (CDM stalled in 2012)

3

## Performance standards

- Completely different approach: regulation instead of markets – but can be combined
- Baseline discussion in Article 6, national standards, etc.

4

## Import versus Export View

- Tendencies for Protectionism – both ways! Need to maintain multilateralism, but not blindly.
- Climate protection only works with a global view and global Climate Action!

5

## Technology transfer

- Technology is mostly not an R&D, but an implementation issue. Much is commercially available.
- Adequate financing is key to technology transfer, avoiding lock-in and speeding-up Climate Action



# Discussion points

- thyssenkrupp is committed to its ambitious Climate goals and initiated clear Climate Action across Scope 1, 2 and 3
  - still active in developing and deploying next generation Climate Action, both in production and product portfolio
- For initial steps most technologies exist and are commercially available, but need to be diffused into the markets
- Climate remains a global issue – including competitiveness
- Bottlenecks are more in Climate Finance than in Climate Technologies, and Climate Opportunities are distributed very unevenly throughout – need global exchange mechanisms (“markets”)
- UNFCCC instruments such as NDCs and TNAs are essential for setting targets and ambition – and showing pathways to achieve them (no point in ambitious goals without realistic plans how to reach them)
- Article 6 can provide the framework if adequate rules are developed. NDCs can ensure additional (!) physical mitigation.
- Lock-in effects can be avoided if Climate Benefit becomes a monetarized tradable good with a market ensuring a revenue.
- Key focus must be on demand, not supply





Thank you

for your kind attention

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Technology, Innovation and Sustainability

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