

tkUCE - Virtual Capital Market Day

The Capital Market Day will be recorded

A replay will be available on our website (IR section) after the event

The presentations will be available on the website (IR section) as well

Interactive audio Q&A session

You already received detailed instructions with technical details:

- If you would like to ask a question, please indicate via the “raise hand” function
 - Please state your name and company, when you are called
-

Please mute your computer after having asked a question



tkUCE - An attractive scale business



Examining strategic options for the optimal development of tkUCE going forward – **IPO preferred option** for value crystallization and capital market access



A technology leader in water electrolysis – set to benefit from the strong demand for green hydrogen production technology



Existing global organization that continues to grow with strong partners



Promising pipeline of several large-scale projects



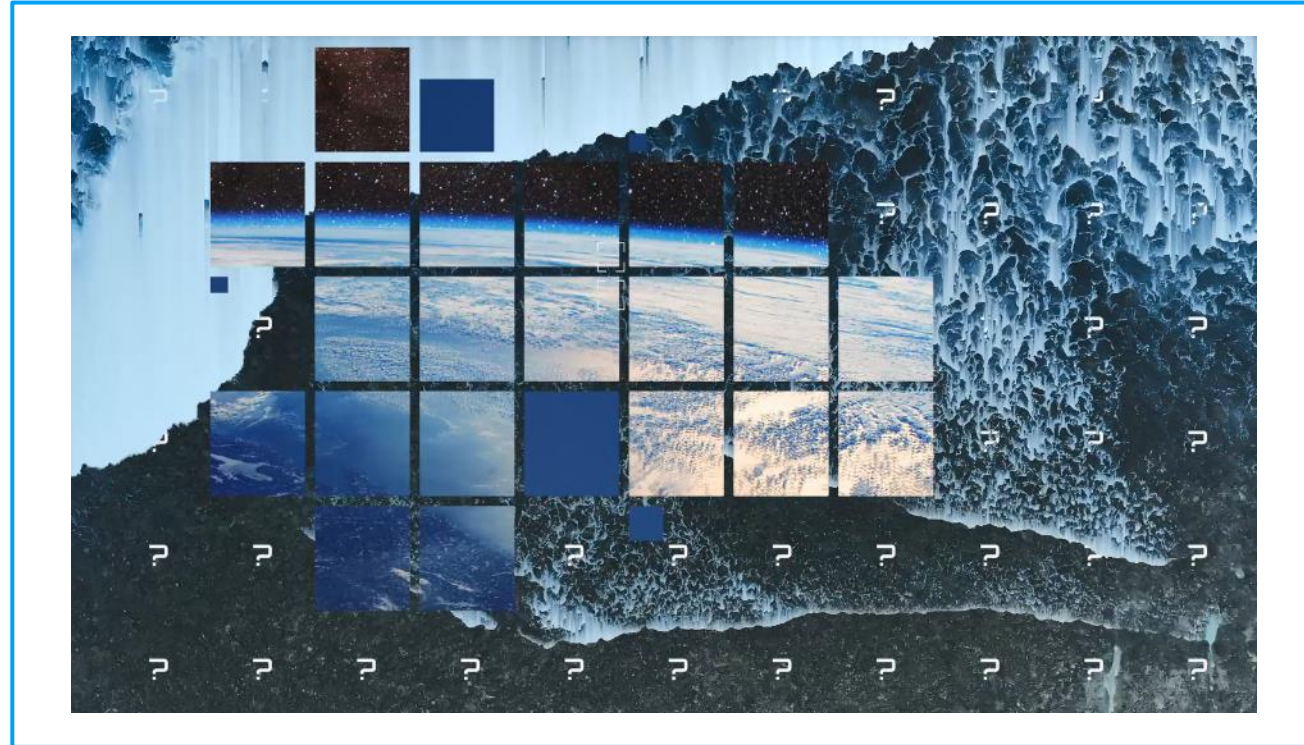
Strong management team that has developed tkUCE into an industry leading player



Key to tk's investment case – **tk will continue to hold a majority** shareholding and support tkUCE's growth journey



Video | thyssenkrupp nucera introduction



thyssenkrupp nucera

A technology leader in hydrogen (H₂)

Capital Market Day

January 13, 2022



We need to save the global climate



Food & water



Renewable energy



Clean air



Healthy planet



thyssenkrupp
NUCERA

Purpose:
We shape the new era.

Vision:
#1 provider for hydrogen and
chlorine technologies.

Mission:
With passion for innovation, we
enable our customers to make
superior electrolysis products and
minimize the CO₂ footprint.



thyssenkrupp
nucera

Today's presenters



Denis Krude
CEO

- CEO of thyssenkrupp nucera since 2016
- 25+ years of industry and 19 years of electrolysis experience
- With thyssenkrupp since 1998



Dr. Arno Pfannschmidt
CFO

- CFO of thyssenkrupp nucera since 2014
- 25+ years of industry and 7 years of electrolysis experience
- With thyssenkrupp since 1993



Fulvio Federico
CTO

- 25+ years of industry and electrolysis experience
- thyssenkrupp nucera CTO since 2017, joined in 2015
- Held leading positions in the electrochemical industry
- Project experience from basic concepts to industrialization



Dr. Christoph Noeres
Head of Green Hydrogen

- Head of Energy Storage and Hydrogen since January 2020
- 19+ years' experience in chemical engineering, five years in R&D and 14 in projects for the chlorine & electrolysis industry
- With thyssenkrupp since 2001



Dr. Roland Beckmann
Head of Chlor-Alkali

- Headed the thyssenkrupp Electrolysis Project Execution Department since 2014
- 25+ years of industry and 20 years of electrolysis experience
- With thyssenkrupp since 1997



Dr. Ulf Steffen Bäumer
Head of Innovation Center /
Service & Digitalisation

- 15+ years of industry experience
- Responsible for the development of electrolysis cell technologies, service business and digitalization
- With thyssenkrupp since 2004

Capital Market Day agenda

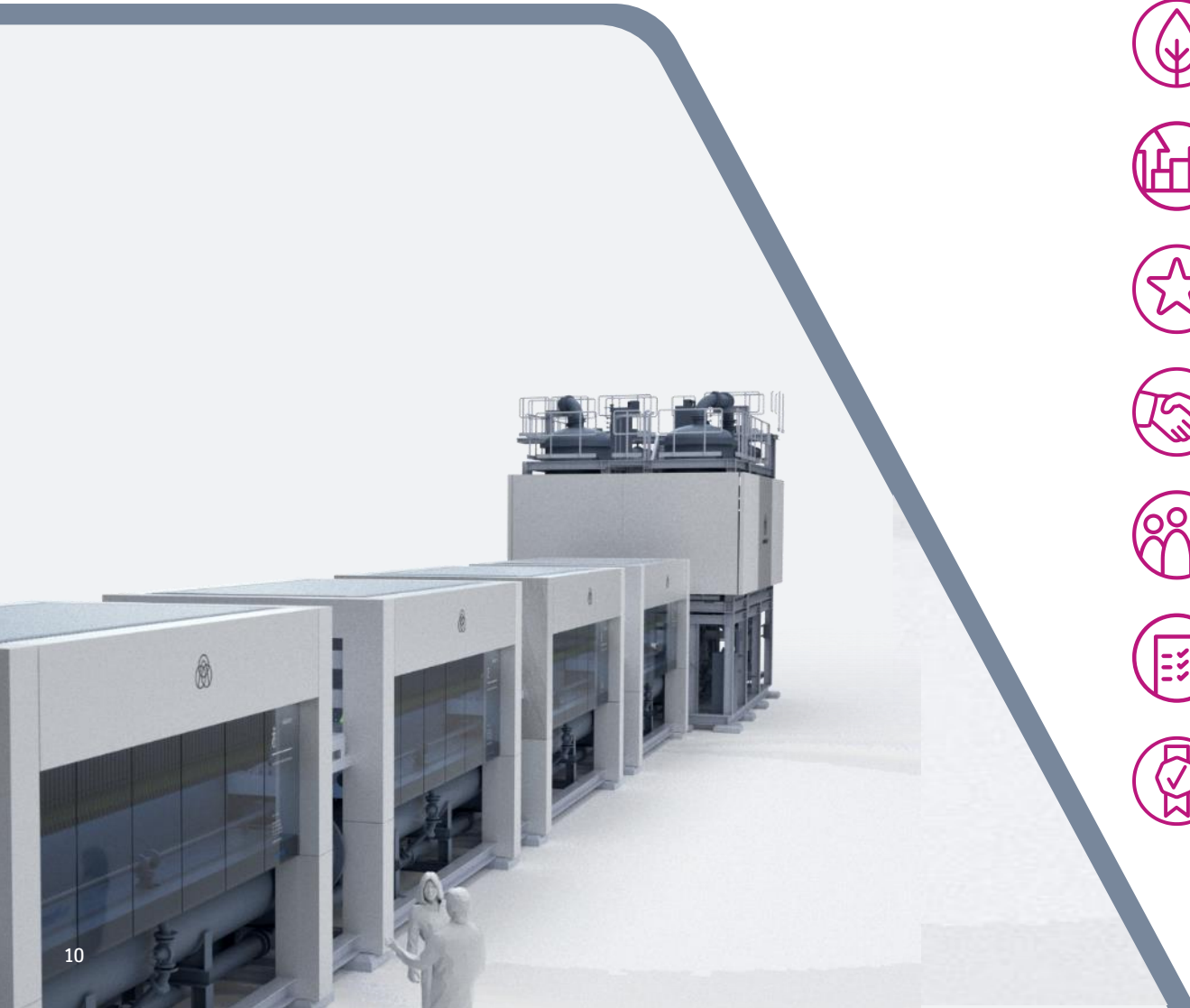
	Topic	Speaker
1	Introduction to thyssenkrupp nucera	Denis Krude
2	Business Model & Corporate Strategy	Denis Krude
3	The Hydrogen Reality	Christoph Noeres
4	Alkaline Water Electrolysis Technology	Christoph Noeres
	Q&A and Break	
5	The Chlor-Alkali Market	Roland Beckmann
6	Chlor-Alkali Technology – the DNA for AWE	Roland Beckmann
7	Innovation Leadership	Fulvio Federico
8	Technology Service and Digitalization	Ulf Bäumer
	Q&A and Break	
9	Manufacturing Strategy	Fulvio Federico
10	Environment, Social, Governance	Denis Krude
11	Financial Section	Arno Pfannschmidt
	Wrap-up and Q&A	Denis Krude

1. Introduction to thyssenkrupp nucera

Denis Krude

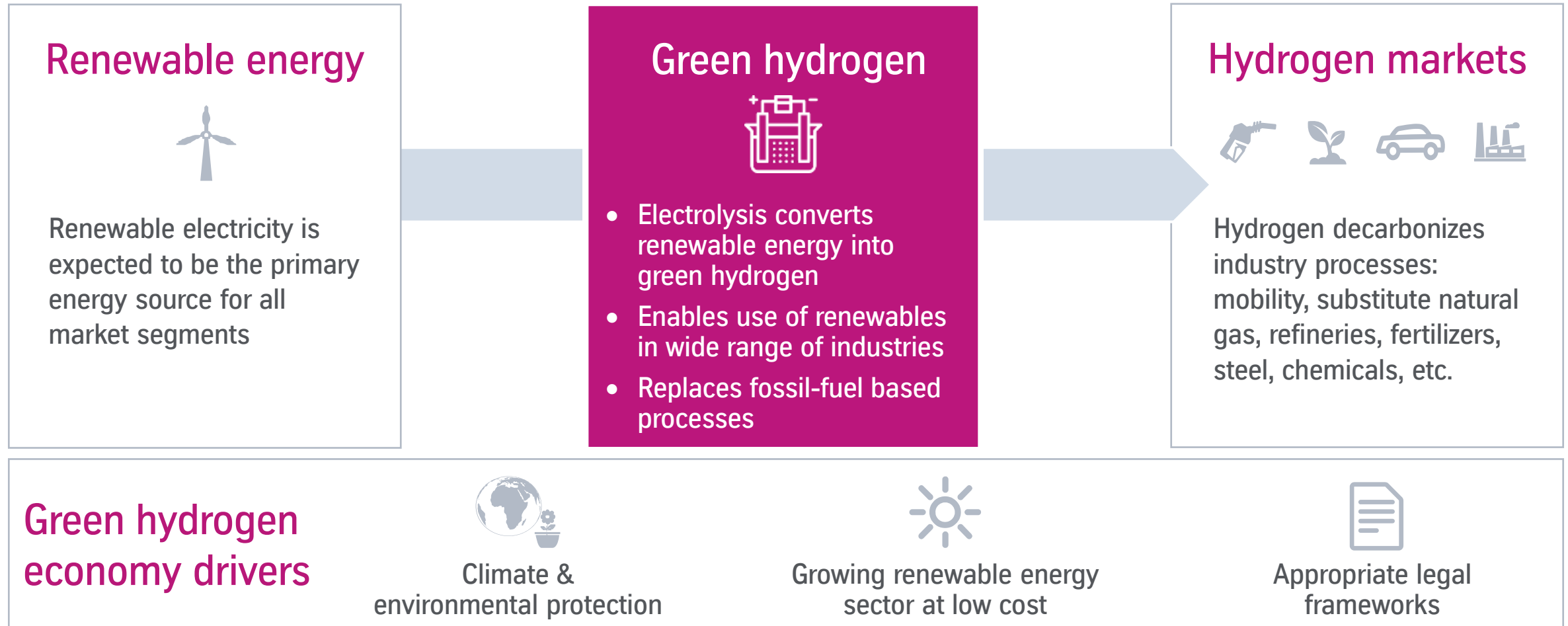


Creating the global leader of Alkaline Water Electrolysis



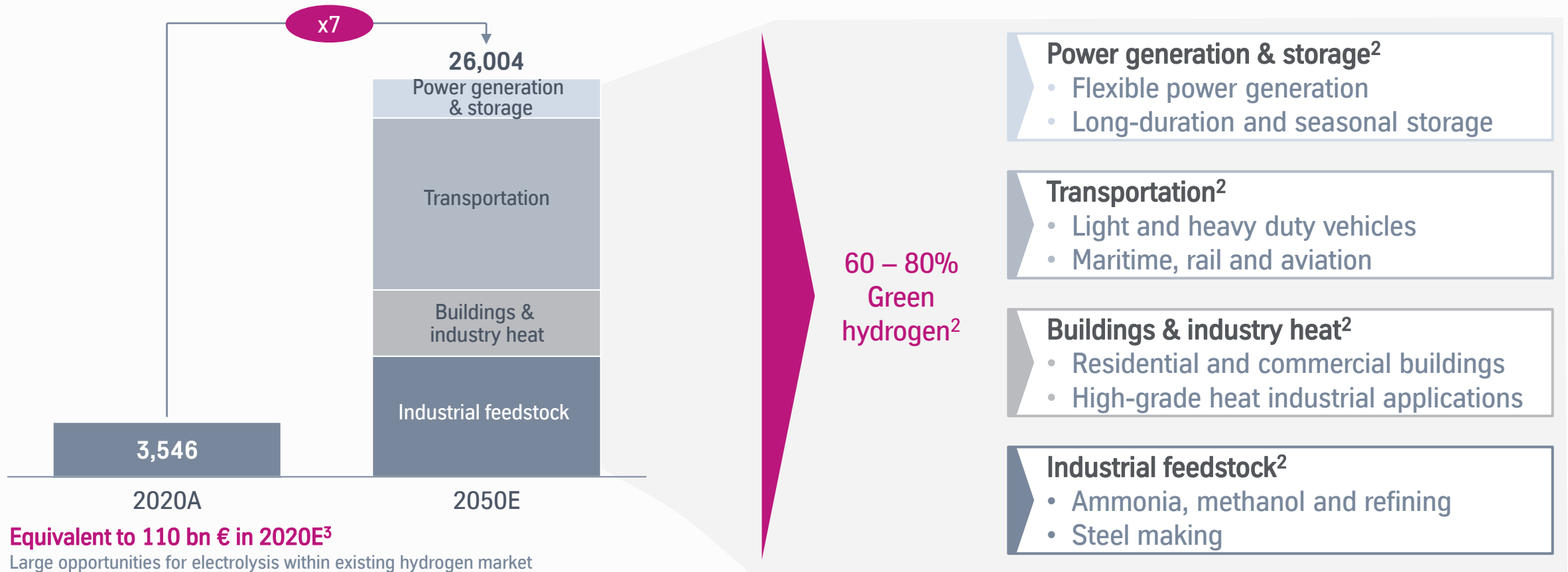
-  Enabler for industries to decarbonize
-  High growth water electrolysis market
-  A technology leader in the industrial scale electrolysis
-  Global organization with reputable partners
-  Highly experienced management team
-  High value-add aftermarket and life cycle service offering
-  Fast growing AWE order backlog proves validity

Electrolysis connects the renewable energy sector with a wide range of industries and enables industry decarbonization



Large existing and high growth hydrogen market will further accelerate

Estimated global hydrogen demand by segment by 2050 (TWh¹ p.a.)²

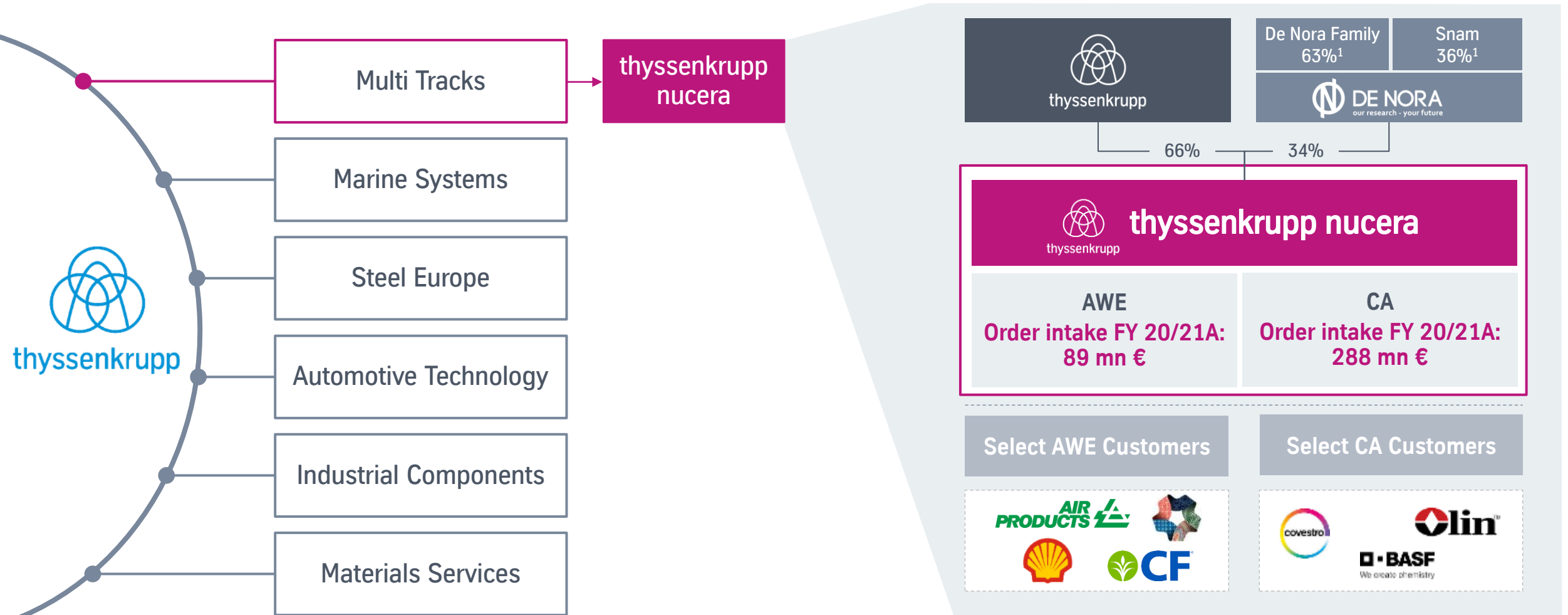


1. Energy content of 1kg of hydrogen equal to 141.9 MJ (HHV) = 39.4 kWh
Worth \$201 Billion by 2025, February 16, 2021

2. Source: Hydrogen Council in collaboration with McKinsey & Company, Hydrogen for Net Zero Report, November 2021

3. Source: Bloomberg News, Hydrogen Generation Market

We are the Alkaline Water Electrolysis (AWE) and Chlor-Alkali (CA) technology provider globally



1. De Nora shareholding structure – De Nora Family 63.1%, Snam 35.6%, Cordusio Fiduciary (Board Members and Management) 1.2%

Building on a leading global organization with a network close to customers...



Experienced management with strong track record leading an...



CEO
Denis Krude



CFO
Dr. Arno
Pfannschmidt



CTO
Fulvio Federico



Head of Green Hydrogen
Dr. Christoph
Noeres



Head of Chlor-Alkali
Dr. Roland
Beckmann



Head of Service & Innovation Center
Dr. Ulf Steffen
Bäumer

Management structure

Current global headcount of > 400 (ongoing expansion)

6 local organizations operating in regional markets

Dortmund

Tokyo & Okayama

Shanghai

Houston

Milan

Riyadh & Perth¹



...organization that is worldwide close to its customers



thyssenkrupp
nucera locations

Industrie De Nora partner

tk plant technology partner

1. Newly established office

... thyssenkrupp nucera has started to scale-up the organization

Footprint



- New offices
- Existing offices

- Expansion of existing offices in capacity and capabilities
- Establishment of **new offices** in **Australia** and **Saudi Arabia**

Rapidly growing global footprint

Know-how and processes

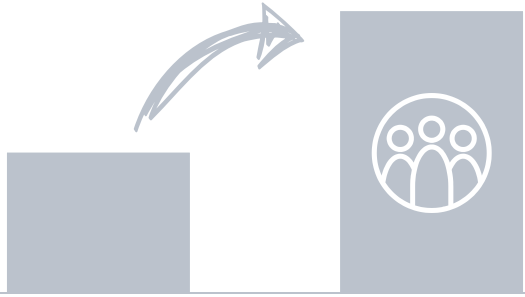


Established know-how and processes in CA as basis for **rapid AWE scale-up**

- **Roll-out** of know-how and processes to existing and new offices ongoing
- Global workshare constantly adapted to growing setup

Prepared for growing green future

Team



- **86 positions** filled globally in FY20/21
- Overwhelming response to job postings with **2,000+ applicants**
- Attraction of young and smart talents worldwide

Line of sight on talent pipeline

thyssenkrupp nucera is well prepared for the future of rapid growth

thyssenkrupp nucera's proven experience in Chlor-Alkali business provides a strong technology basis for AWE scale-up

Chlor-Alkali Electrolysis

Alkaline Water Electrolysis



A global leader with proven experience with over **600 projects & 240,000 cell elements** >10 GW of electrolyzer capacity installed



Building on Chlor-Alkali experience to be **#1 in AWE**

Market Readiness

- Industrial-scale installations
- Quality proven supply chain of 1 GW cell manufacturing capacity p.a.

- Industrial-scale hydrogen plants
- Expand to a 5 GW supply chain

Product

- A technology leader for electrolysis
- Handling of hydrogen as a by-product

- Standardized AWE product with leading TCO¹
- Hydrogen as the main product

Organization & Network

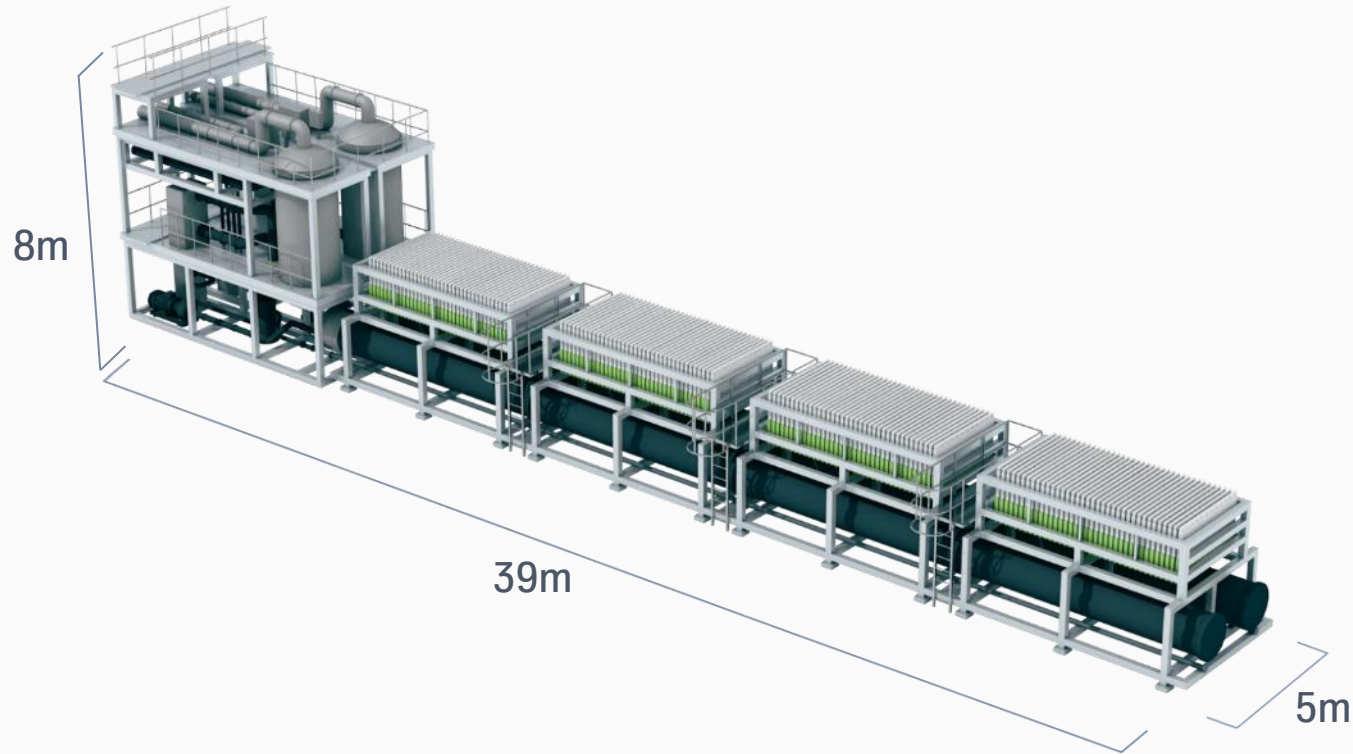
- Holistic life cycle services
- Global network with partners

- Successful service model
- Automation and digitalization

Key enabler of hydrogen production

1. Total cost of ownership

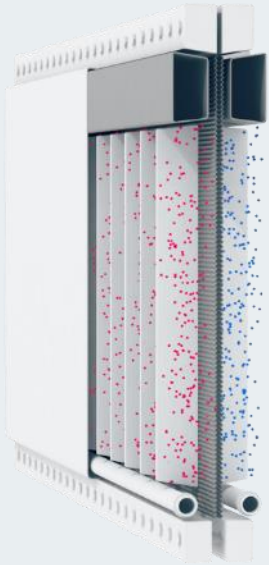
thyssenkrupp nucera's unique 20 MW AWE module – based on proven Chlor-Alkali properties



- ✓ **Quality** | Proven cell design
- ✓ **Longevity** | High durability proven by Chlor-Alkali
- ✓ **High Performance** | Long-term technology experience
- ✓ **Compact Design** | High current density
- ✓ **Service** | Global service network with partners`

thyssenkrupp nucera offers an efficient and highly scalable module concept to match highest market demands

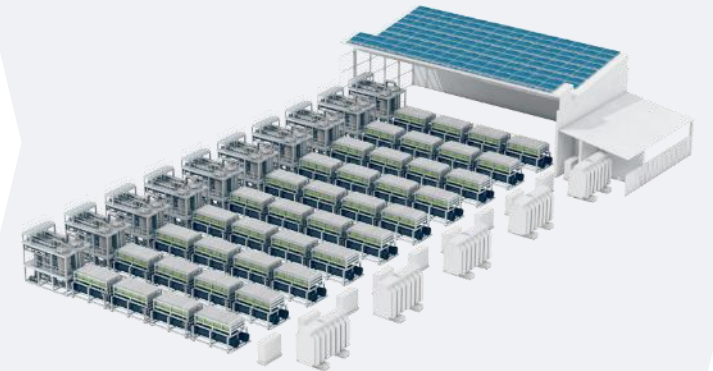
AWE single element



20 MW electrolyzer unit



Highly scalable GW plants



Select thyssenkrupp nucera green hydrogen milestones timeline solidifies position as an industry leader



Carbon2Chem

thyssenkrupp nucera's Duisburg demonstrator hydrogen plant started operations, a green world premiere



Air Products

thyssenkrupp nucera signed an exclusive strategic cooperation agreement for world-scale electrolysis plants to be developed in key regions



20 MW installation

thyssenkrupp nucera awarded supply contract by CF Industries to deliver a green hydrogen plant for the production of green ammonia



NEOM

thyssenkrupp nucera signs one of the largest green hydrogen projects in the world to install over 2 GW electrolysis plant for Air Products in NEOM



SHELL

thyssenkrupp nucera to engineer, procure and fabricate Shell's 200 MW hydrogen facility in the port of Rotterdam



more to come

thyssenkrupp nucera has the largest¹ contract backlog



“NEOM” Project



>2 GW



2026 Start-up



“Shell” Project



200 MW



2024 Start-up

thyssenkrupp nucera has an AWE order backlog of approx. 0.9 bn €¹ and a CA and Service order backlog of approx. 0.4 bn €¹

Key messages | thyssenkrupp nucera, a global leader in Alkaline Water Electrolysis



High growth hydrogen market will drive growth in water electrolysis



A leading organization with a global network close to customers



Proven know-how in Chlor-Alkali provides a strong basis for the scale-up of AWE



Modular 20 MW electrolyzer specifically designed for industrial-scale projects



Secured hydrogen projects with a total of more than 2 GW and working on further multi 100 MW opportunities



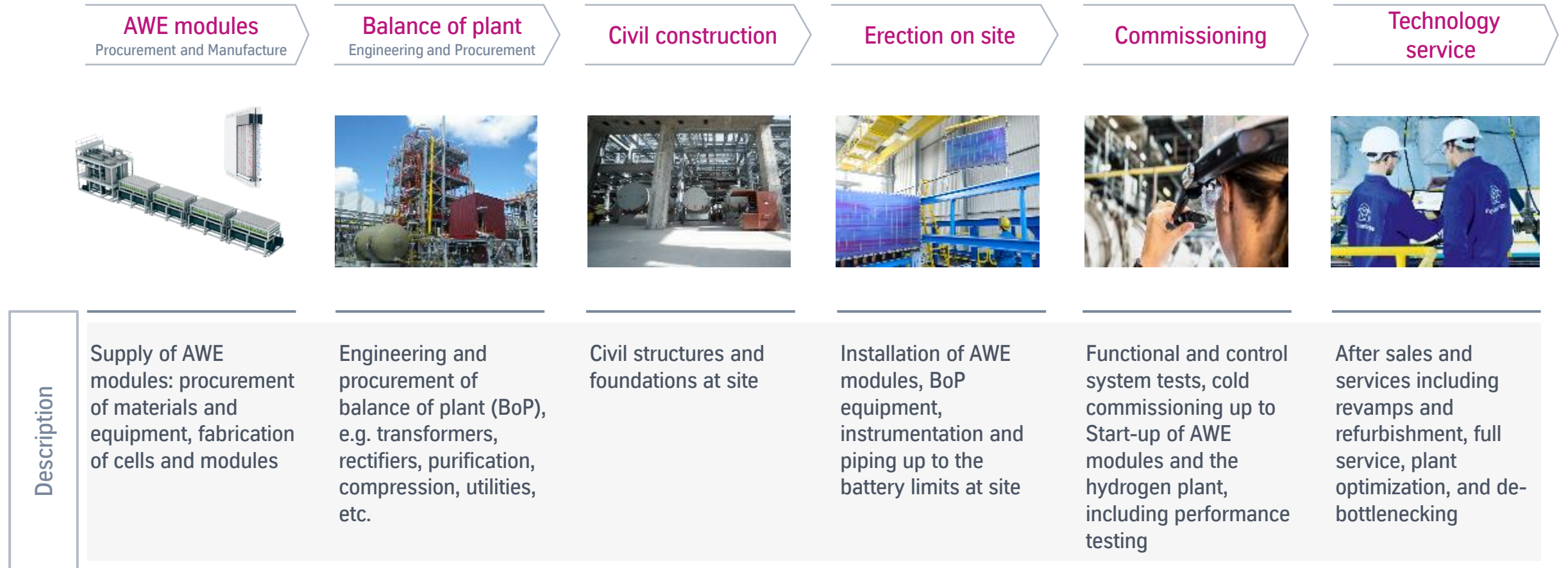
2. Business Model & Strategy

Denis Krude



thyssenkrupp
nucera

Illustrative scope for a hydrogen plant project



Preferred business models focused on attractiveness in terms of added value and limited complexity



1. thyssenkrupp nucera has the ability to perform civil construction through its partners at the request of the client 2. Only for proprietary equipment

De Nora provides access to best-in-class electrodes technology and a global service network, Uhde is an EPC¹ provider, while thyssenkrupp nucera holds the technology IP



De Nora capability highlights

- One of the largest suppliers of metal coated electrodes and a recognized pioneer in water electrolysis
- An innovative provider of electrodes and key components
- Large manufacturing capacity and global network of service workshops

De Nora key areas of collaboration with thyssenkrupp nucera

20-year partnership, dedicated to unique technical solutions

Technology

- Joint R&D programs
- Dedicated development of coatings

Manufacturing of Electrolysis Cells

- Manufacturer of the electrolysis cells
- 240,000 elements made (>10 GW)



tk Uhde capability highlights

- A leading engineering business, with expertise in EPC for industrial plants
- Modularization expertise at Uhde Thailand
- Portfolio includes leading technologies and downstream processes that provide a competitive advantage to thyssenkrupp nucera in joint offerings

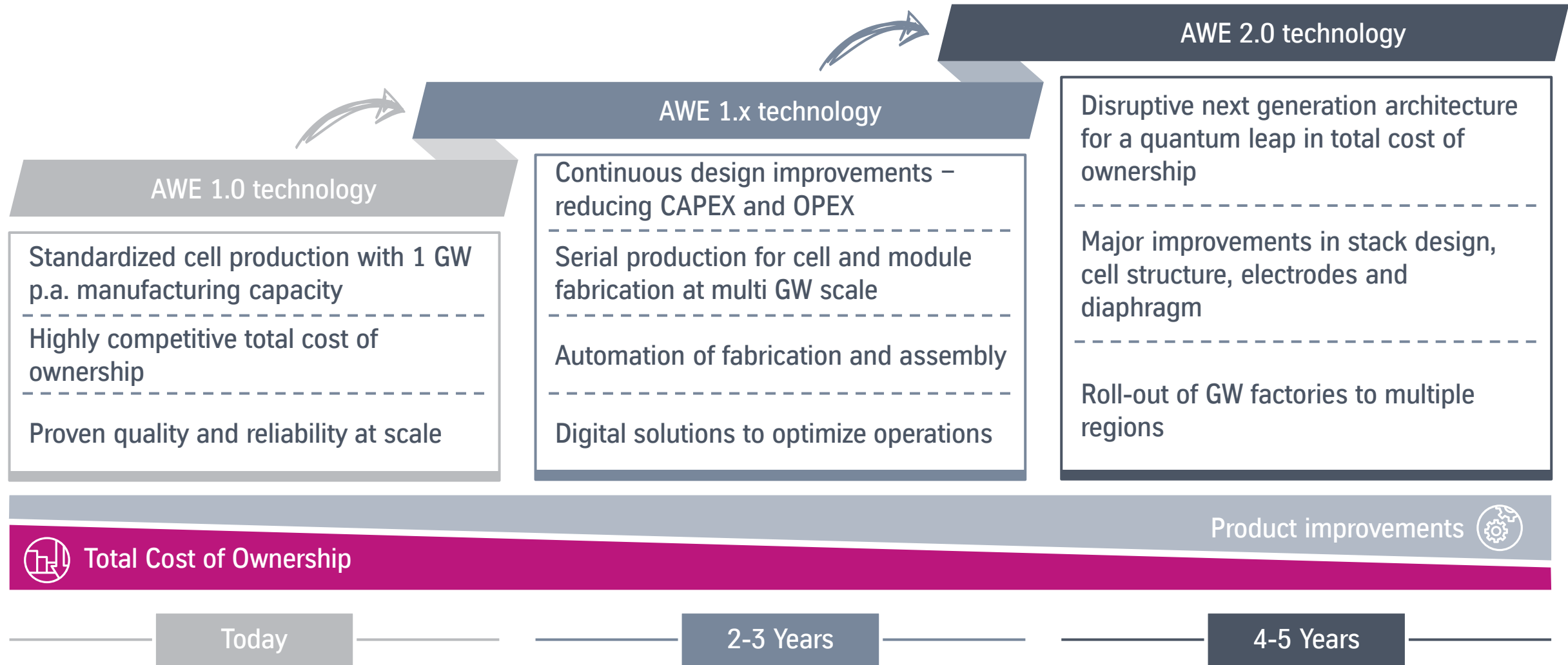
tk Uhde key areas of collaboration with thyssenkrupp nucera

Engineering, Procurement and Construction

- EPC services
- Regional support
- Joint offering of process chains:
CA – EDC / VC / PVC,
H₂ – ammonia / methanol

1. Engineering, Procurement, and Construction

Strategic roadmap for disruptive next generation architecture will deliver superior performance



Electrolysis is in thyssenkrupp nucera's DNA with decades of experience

Foundation

Decades of electrolysis experience

An established technology leader

Commitment to quality and longevity

Holistic life-cycle services

Multi-cultural set-up

A global leader of chlorine technologies

Vision for new era

Diversified technology and services portfolio with globally leading TCO

Electrolyzer GW factories around the globe

Fully automated and digitized fabrication and operation

Attraction & inspiration of talents

Enable industry to deeply decarbonize

Global number one provider for hydrogen and chlorine technologies

Key messages | thyssenkrupp nucera structured to benefit from a global platform



Highly scalable business model focused on most value-add activities



Strong strategic partnerships with Uhde and De Nora, IP rights with thyssenkrupp nucera



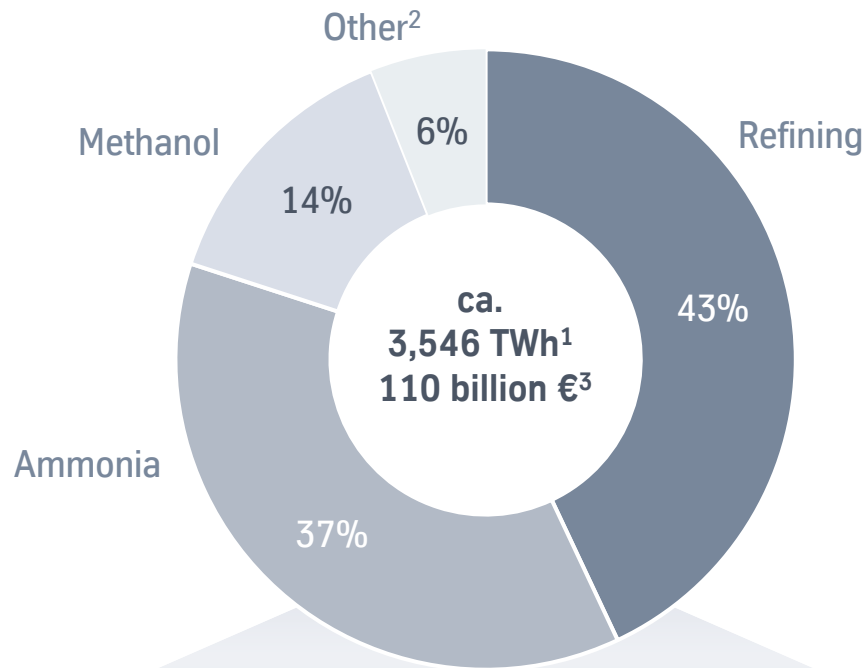
Clear technology roadmap and company vision for long-term success

3. The Hydrogen Reality

Christoph Noeres

Hydrogen already has a market demand of more than 3,500 TWh

Hydrogen market demand 2020A¹



Nearly all demand deployed in industrial uses³

Current H₂ market generates

900

Mt of CO₂ emissions per year¹...

... Total industry⁴ generates 24% of global emissions

2020

~950

GW

electrolysis

...assuming 3,546 TWh at 100 % green H₂ at 75% energy efficiency and 5,000 full load hours of operation p.a.

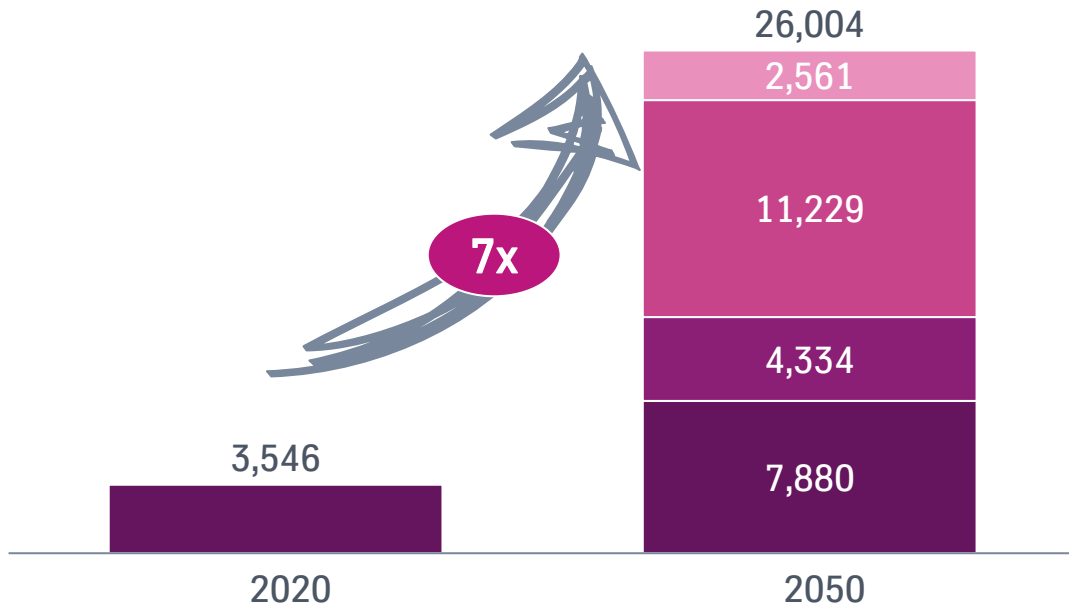
1. Source: IEA (2021), Hydrogen, IEA, Paris <https://www.iea.org/reports/hydrogen> 2. Includes DRI and other industrial uses 3. Source: Bloomberg News, Hydrogen Generation Market Worth \$201 Billion by 2025, February 16, 2021 4. Refers to 2019 Other Energy Industries and Industry uses



The worldwide hydrogen market is expected to grow sevenfold by 2050

Hydrogen market development until 2050 (TWh¹)²

- Power generation
- Transportation
- Building heat and power
- Industrial feedstock



2050: green hydrogen will account for²
60 – 80%

2050
about
~5,500 GW
electrolysis




80 Gt of CO₂
cumulatively abated by 2050²

...assuming 26,004 TWh at 80% market share of green H₂ at 75% energy efficiency and 5,000 full load hours of operation p.a.

1. Converted from Mt with an energy content of 1kg of hydrogen equal to 141.9 MJ (HHV) = 39.4 kWh Report, November 2021

2. Source: Hydrogen Council in collaboration with McKinsey & Company, Hydrogen for Net Zero

thyssenkrupp nucera focused on green hydrogen, an enabler of the net zero economy

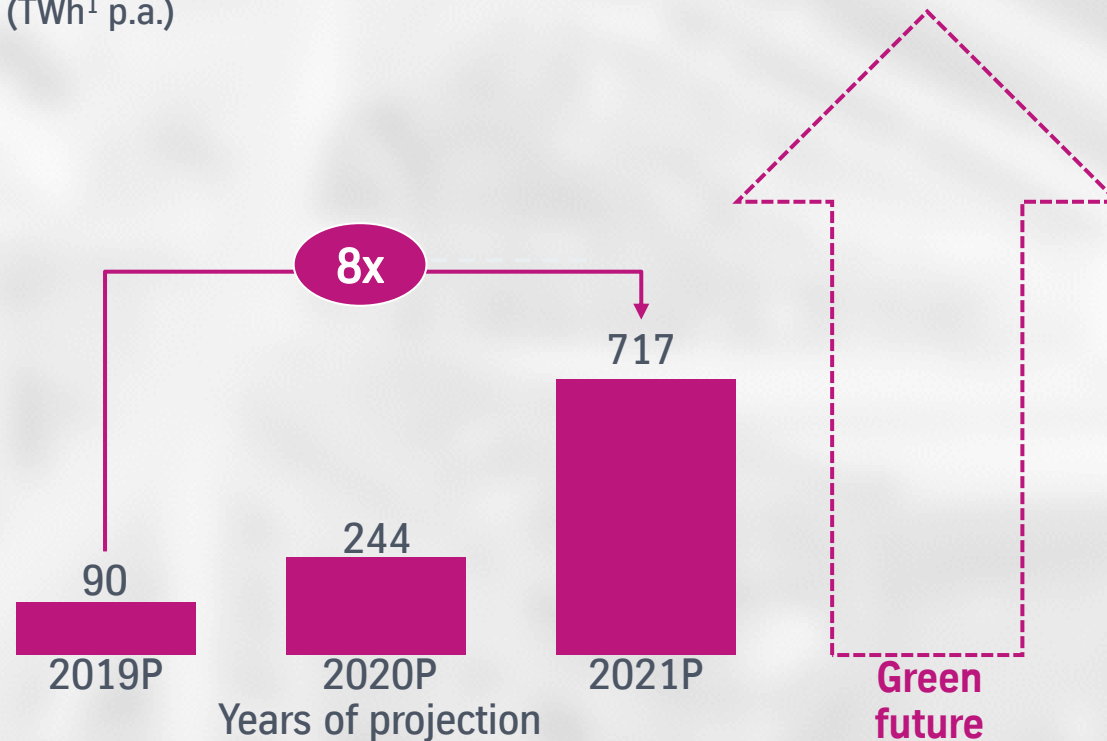
			How technology addresses Net Zero goals ²	2050 supply mix ²	
Grey hydrogen 	Coal Natural Gas Biomethane	Reforming (Gasification)	CO ₂ emitted	× Emits around 10kg of CO ₂ per kg of hydrogen produced	0%
Blue hydrogen 	Natural Gas Biomethane Biomass	Reforming (Gasification)	CO ₂ stored / reused	<ul style="list-style-type: none"> ✓ Natural gas reformed to H₂ and CO / CO₂ in Autothermal Methane-Reformer (AMR) ✓ Remaining CO₂ is captured and stored (CCS)¹ 	20 – 40%
Green hydrogen 	Renewable energy Water	Electrolysis	No CO ₂ emitted	<ul style="list-style-type: none"> ✓ Essentially zero emissions ✓ Creation of H₂ from renewable energy 	60 – 80%

1. Carbon capture and storage (CCS) 2. Source: Hydrogen Council in collaboration with McKinsey & Company, Hydrogen for Net Zero Report, November 2021

Tremendous momentum for hydrogen projects globally

Announced hydrogen production volume by 2030⁴

(TWh¹ p.a.)

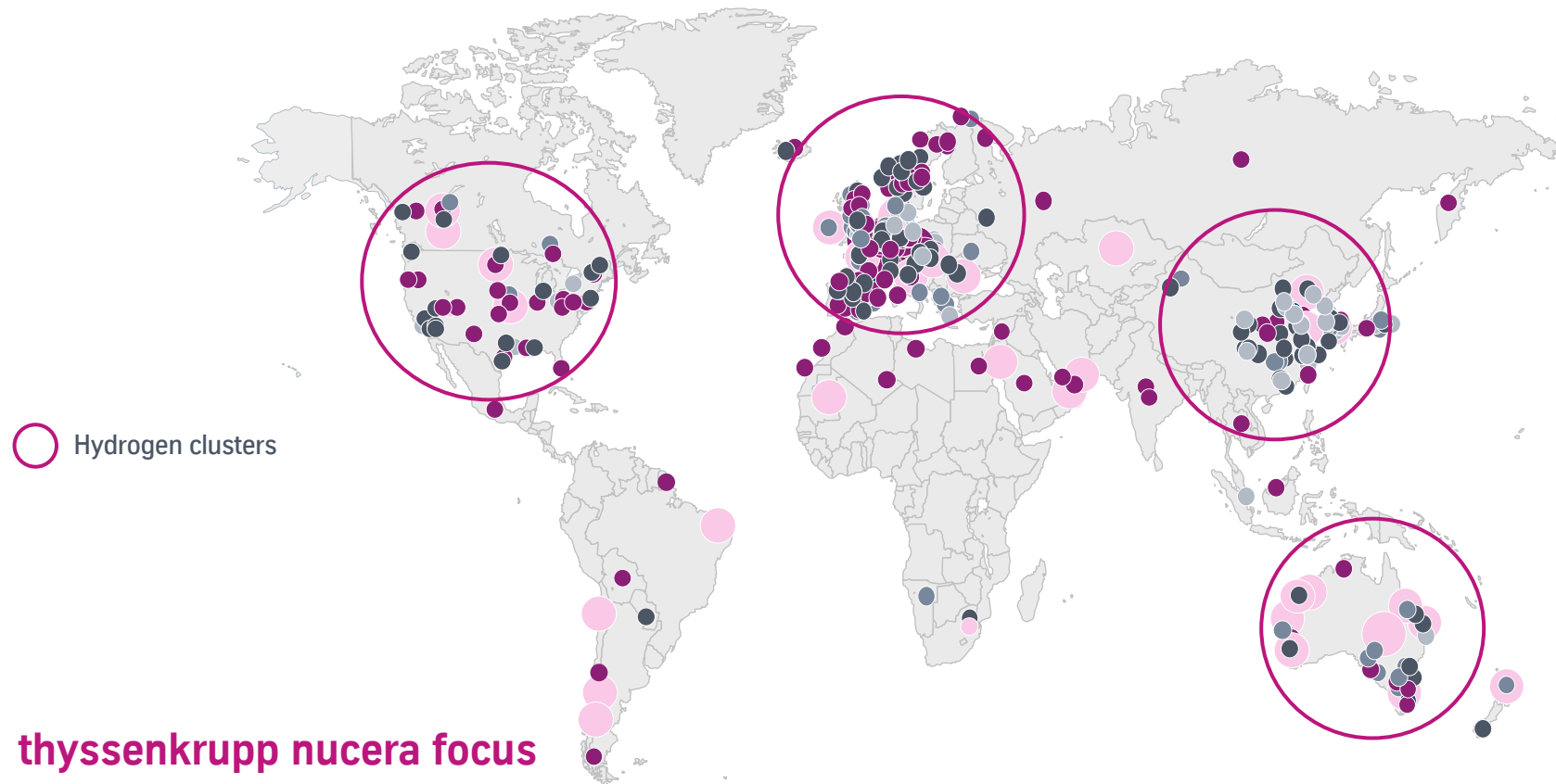


2021

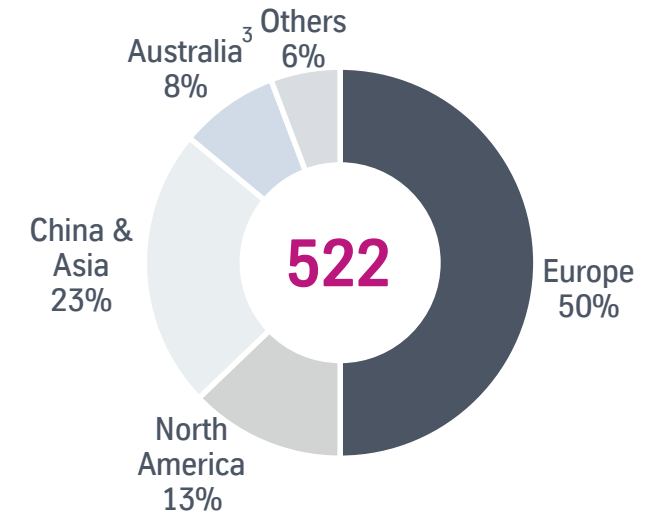
50% of announced hydrogen projects are green, corresponding to 93 GW^{2,4} electrolysis

1. Converted from Mt with an energy content of 1kg of hydrogen equal to 141.9 MJ (HHV) = 39.4 kWh 2. Assuming a conversion efficiency of 75% and about 5,000 full load hours p.a. 3. Green market share not given for 2019 and 2020 4. Source: Hydrogen Council in collaboration with McKinsey & Company, Hydrogen for Net Zero Report, November 2021

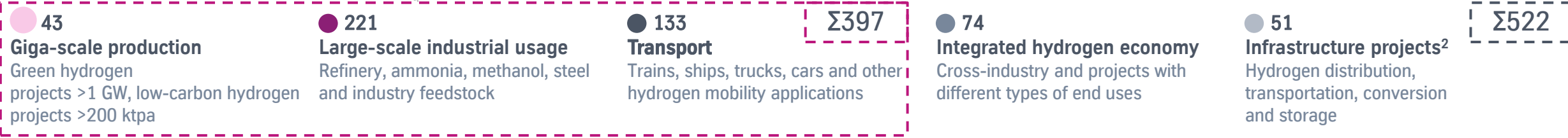
Global hydrogen projects and investment across the value chain – announced as of November 2021



Announced MW-scale projects¹

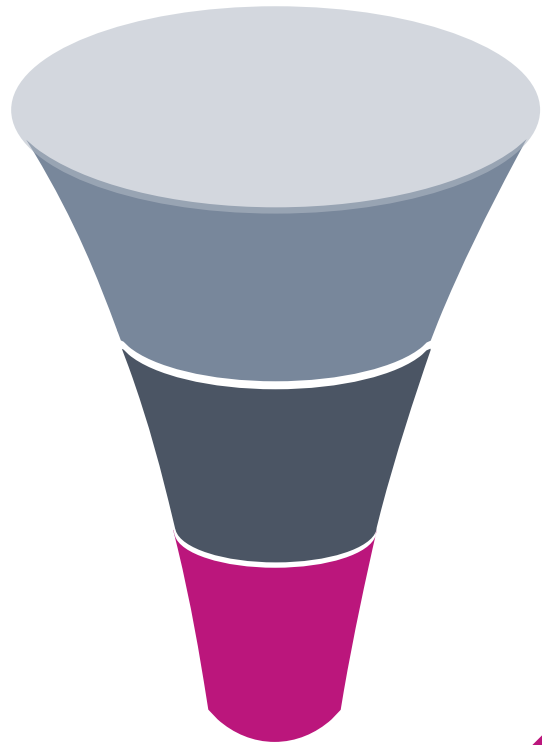


thyssenkrupp nucera focus



1. Focus on large-scale projects including commissioning after 2030, >1000 small scale projects and project proposals not included 2. Includes 9 hydrogen production projects in China without announced end-use 3. Greater Oceania, including New Zealand
Map, pie charts and statements: Sources: Hydrogen Council in collaboration with McKinsey & Company, Hydrogen for Net Zero Report, November 2021

thyssenkrupp nucera selected sales funnel already can cover an order intake volume of 13+bn EUR – median project size of 100 MW



522

Total number of global announced projects¹

397

Giga-scale production, large-scale industrial usage, transportation

90

Currently identified as attractive projects for thyssenkrupp nucera

13+ bn €

35
countries

100 MW
Median project size

1. Focus on large-scale projects including commissioning after 2030, >1000 small scale projects and project proposals not included

The hydrogen economy has broad-based secular support for growth



Government policy and consumer demand

- Green hydrogen driven by net zero targets and green recovery policies
- Increasing CO₂ emission costs promotes innovative green energy solutions

93 countries have adopted net-zero targets¹
39 countries have adopted hydrogen strategies¹



Cost and availability of renewable energy

- Continuous decline of renewable energy costs
- Growing installed base of renewable energy (wind and solar)

c.11% global annual decline rate of renewable power² prices between 2010 and 2020³



Opportunity for scalable green H₂ solutions

- Seen as the only viable solution to decarbonise hard to abate industries
- Large business potential in all market sectors

>40 giga-scale production projects announced as of Nov 2021¹

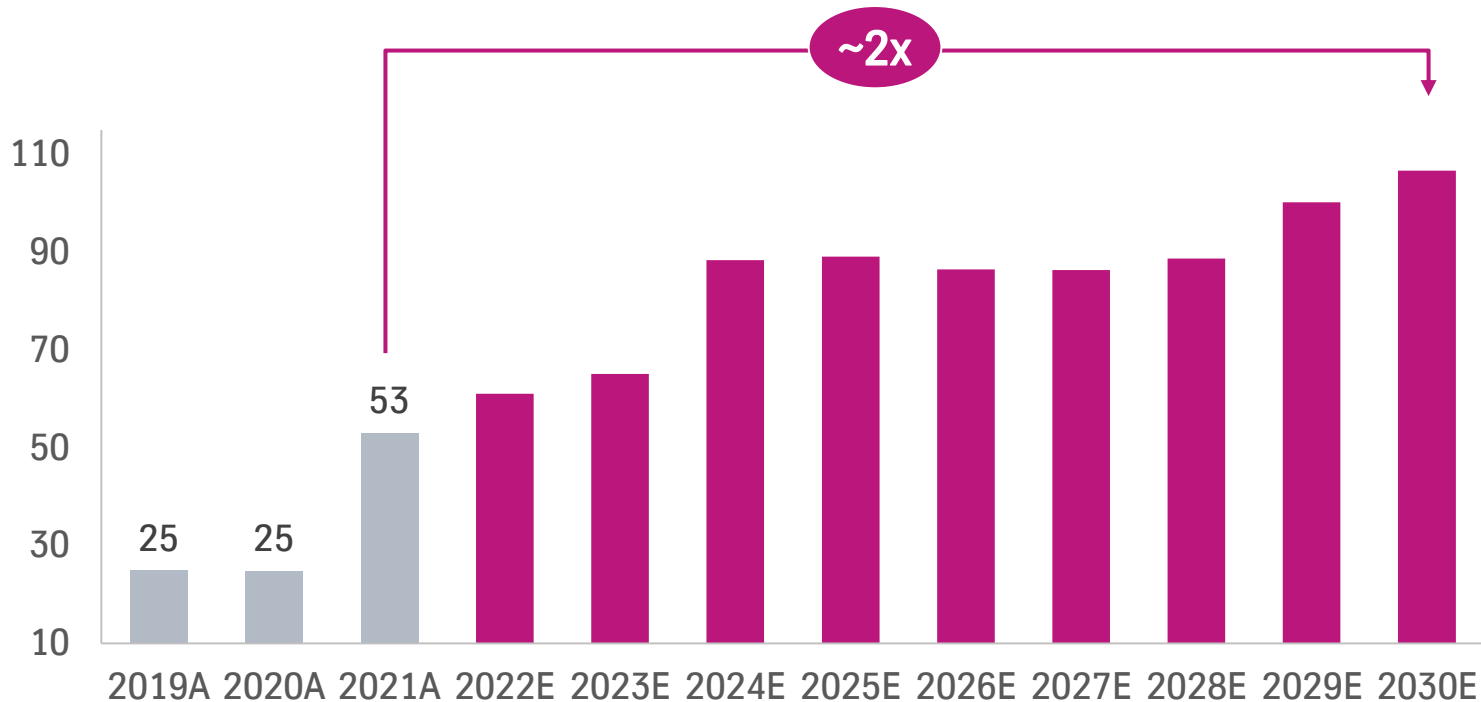
1. Source: Hydrogen Council in collaboration with McKinsey & Company, Hydrogen for Net Zero Report, November 2021
International Renewable Energy Agency, Abu Dhabi

2. Including Solar (PV), Offshore and Onshore Wind

3. Source: IRENA (2021), Renewable Power Generation Costs in 2020,

Hydrogen has significant cost reduction potential which is further accelerated by increasing cost for carbon emissions

European trading system for emission allowances (€/t CO₂)¹



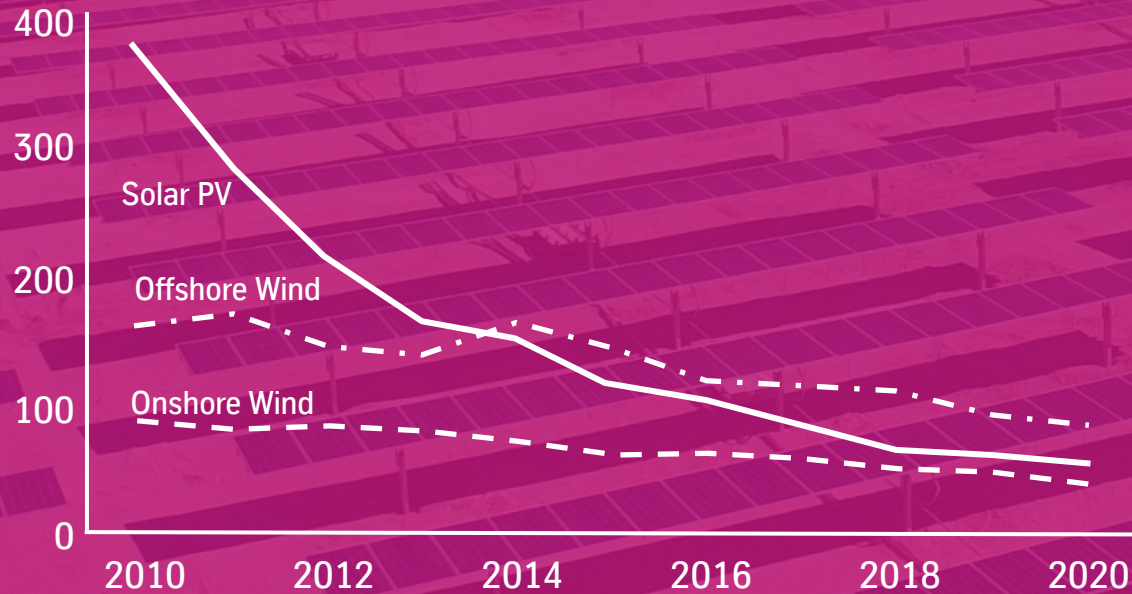
1. Source: Bloomberg NEF, New Energy Outlook, 2021

- Emission allowances to nearly double from today to 2030
- Auctioning emission allowances is a main driver for green hydrogen
- “Analysts raise EU carbon price forecasts as tougher climate targets loom” (Reuters, April 2021)
- “Carbon to hit 100 Euros sooner than you think” (Bloomberg NEF, June 2021)



Low cost renewable energy is the basis for competitive green hydrogen production

Global weighted-average utility-scale LCOE by technology in USD/ MWh¹



- Solar and wind power costs continue to decline at a rate of **c.11% per year¹**
- **Hydrogen costs expected to decline accordingly**, as electrical power constitutes majority of total cost
- Record prices as low as **10.4 USD/MWh²** for solar PV

Large scale renewable energy projects continue to push down the cost of renewable energy

10.4 USD / MWh PPA in Saudi Arabia (Shuaibah project)¹

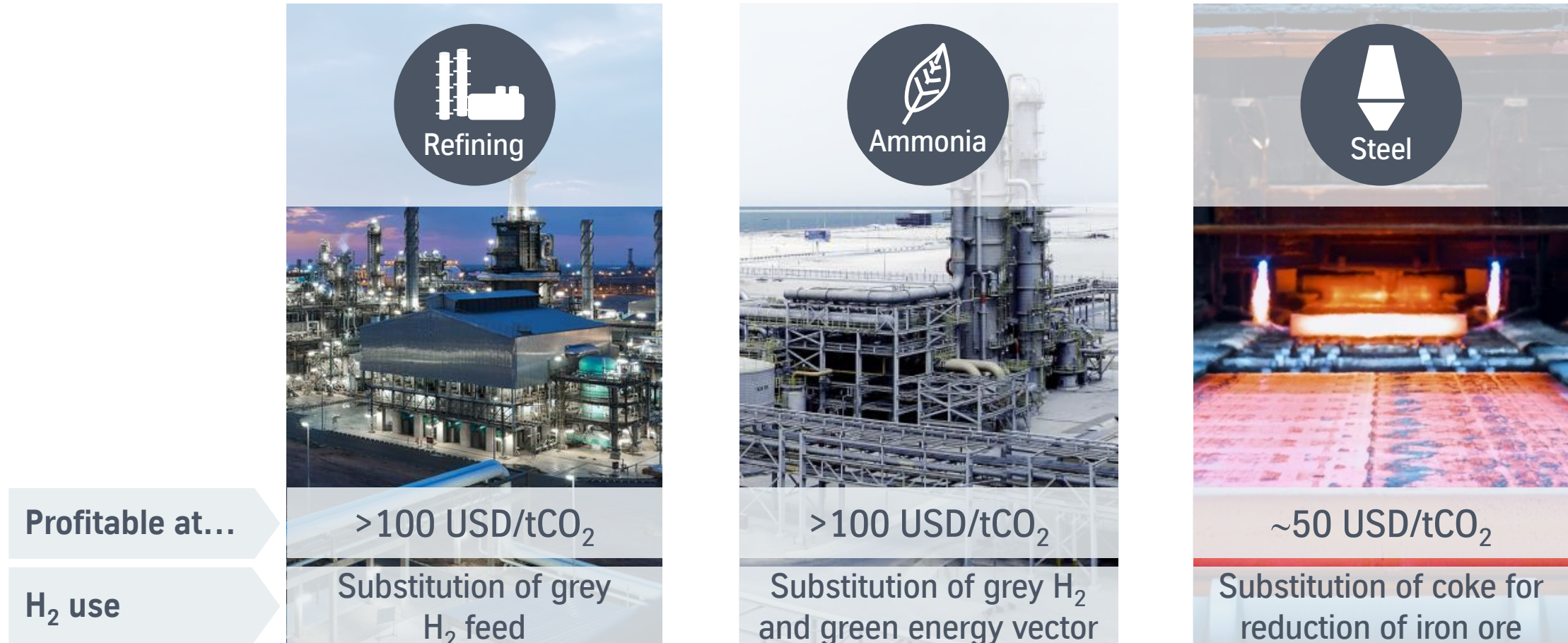
for a 600 MW PV based project

In 2020
an additional
capacity of
280 GW
renewable power
came online²

In 2025
an additional
capacity of up to
400 GW
renewable power
is expected to
come online²

1. Source: ACWA Power, price achieved in this project 2. Source: IEA (2021), Renewables 2021, IEA, Paris <https://www.iea.org/reports/renewables-2021>

Refining, ammonia, and steel are the focus applications the market is starting with

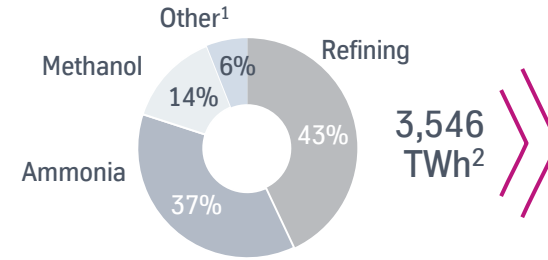


No alternative to green hydrogen in hard to abate sectors with exposure to carbon tax

Efficient production of hydrogen requires industrial scale hydrogen plants

Substitution

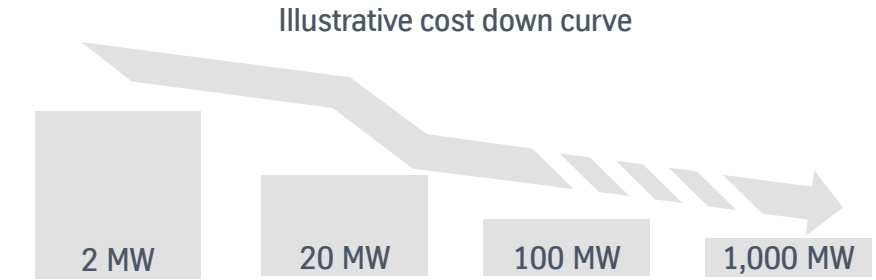
Substitution of grey hydrogen in existing industrial value chains requires industrial scale solutions



Assuming 3,546 TWh at 100 % green H₂ at 75% energy efficiency (HHV³) and 5,000 full load hours of operation p.a.

Economies of scale

Large scale electrolysis needs materially lower investment in project development, engineering, and construction



Downstream fit

New downstream PtX⁴ process as well as transport vessels for global supply chains are only competitive at large scale



1. Includes DRI and other industrial uses 2. Source: IEA (2021), Hydrogen, IEA, Paris <https://www.iea.org/reports/hydrogen> 3. High Heating Value 4. Power to X

Key messages | Green hydrogen is a huge opportunity in a fast developing market



Steep market development expected with gigawatt scale projects announced



Green hydrogen is the key to the energy transition driven by governmental policies and low cost renewable energy



Green hydrogen demand will be driven by the industrial sector – thyssenkrupp nucera's focus market

4. AWE Technology

Christoph Noeres

thyssenkrupp nucera's AWE technology is derived from decades of know-how in the electrochemical industry

The foundation of thyssenkrupp nucera

Engineering know-how

- A global leader in chlorine-electrolysis
- 30+ years of experience in plant engineering and design of industrial scale electrolysis for production of chlor-alkali and hydrogen
- >10 GW electrolyzer capacity installed
- >600 electrochemical projects realized
- ~50% of sales through aftermarket services

Advancement of AWE

AWE standardized & modular

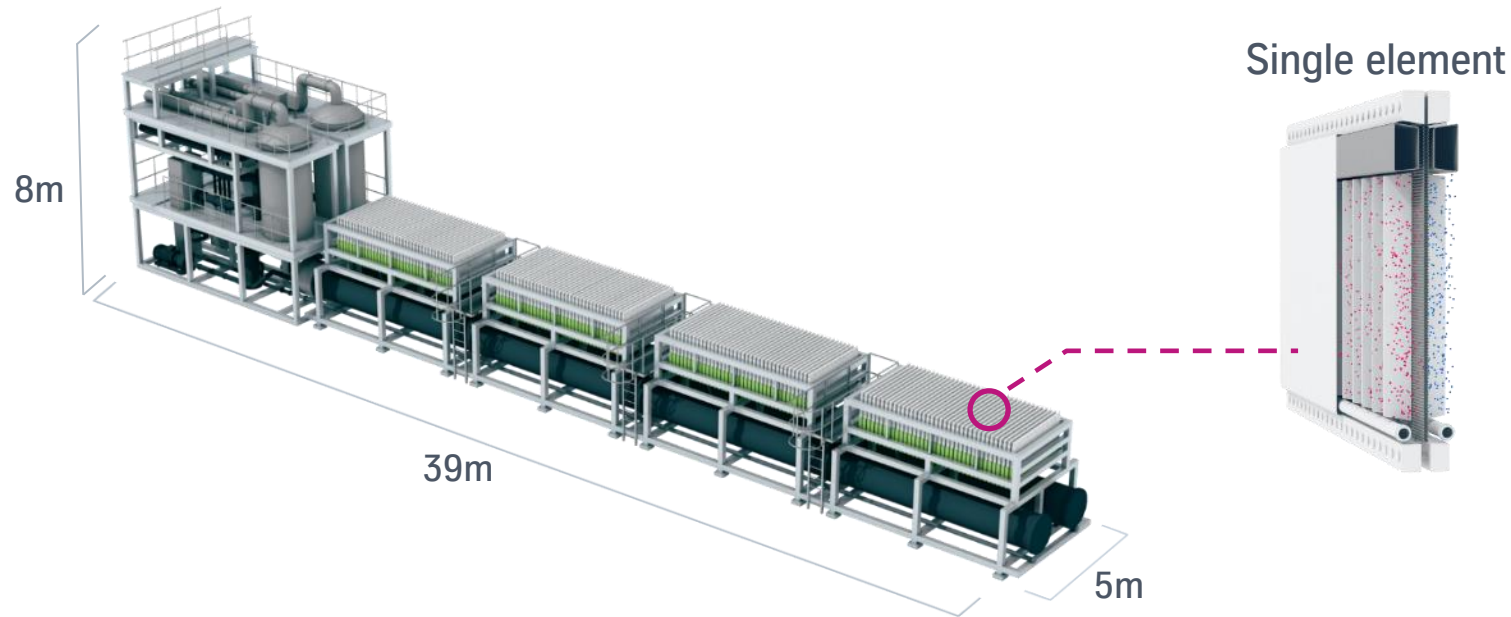
- Competitive standardized high performance product
- 1 GW p.a. electrolyzer supply chain for water electrolysis available today
- Scalable technology with 20 MW module
- Basis for efficient supply chain and mass production

Green hydrogen future

Scaling-up & cost down

- Cost down roadmap:
 - Manufacturing scale-up
 - High performance materials
- Incremental design improvements
- Prepare disruptive product design AWE 2.0

thyssenkrupp nucera's Alkaline Water Electrolyzers – designed for industrial-scale roll-out



- ✓ **Quality** | Proven cell design
- ✓ **Longevity** | High durability proven by Chlor-Alkali
- ✓ **High Performance** | Long-term technology experience

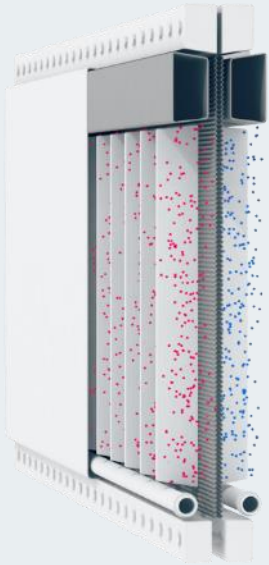
- ✓ **Service** | Global service network with partners
- ✓ **Compact Design** | High current density

- **Worldwide** one of the biggest electrolyzer modules
- **Standardized** solution for green hydrogen
- High current density operation with **optimized** footprint



thyssenkrupp nucera offers an efficient and highly scalable module concept to match highest market demands

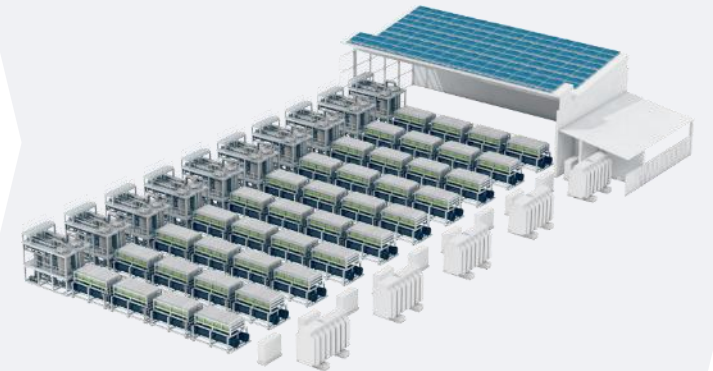
AWE single element



20 MW electrolyzer unit



Highly scalable GW plants



Demonstrator and test stand of AWE technology at Carbon2Chem in Duisburg

Continuous testing of innovative components and materials

- Capacity: up to 2 MW
- H₂ production: 440 Nm³/h
- H₂ purity: > 99.95 % (dry)

Carbon2Chem® supported by



Federal Ministry
of Education
and Research

BMBF funding numbers
3EK3037 to 03EK3043



thyssenkrupp
NUCera

Assembly of an electrolyzer stack (Chlor-Alkali)



Large scale modular electrolysis plants (Chlor-Alkali)










60 MW Electrolysis Plant

- Customer: Tessenderlo Group
- Location: Belgium
- Capacity
 - 307,000 t/a of NaOH
 - 272,000 t/a Cl₂
 - 7,700 t/a of H₂¹

1. Hydrogen is about 35 times lighter than chlorine

thyssenkrupp nucera's AWE technology is most suitable for large scale rollout of green hydrogen production capacity globally

Technology		Alkaline Water Electrolysis (AWE)	Polymer Electrolyte Membrane (PEM) Electrolysis	Solid Oxide Electrolyzer Cell (SOEC)
Development stage ¹		Mature and commercial	Commercial under development	Early stage development
Application ¹		Centralized	Decentralized	To be determined
Typical plant size (MW) ²		Multiple of 100	Multiple of 10	To be determined
Response time ³		Fast	Very fast	Very slow
Efficiency ^{4,5} (LHV) ⁶	Today	thyssenkrupp nucera ¹ :  Industry average: 		
	2030E			
Pressure (bar) ⁴		thyssenkrupp nucera ¹ : Atmosphere Industry average: 1 – 30	30 – 80	1 If steam at a high temperature is available
Use of precious metals ¹		Limited	Significant	n/a

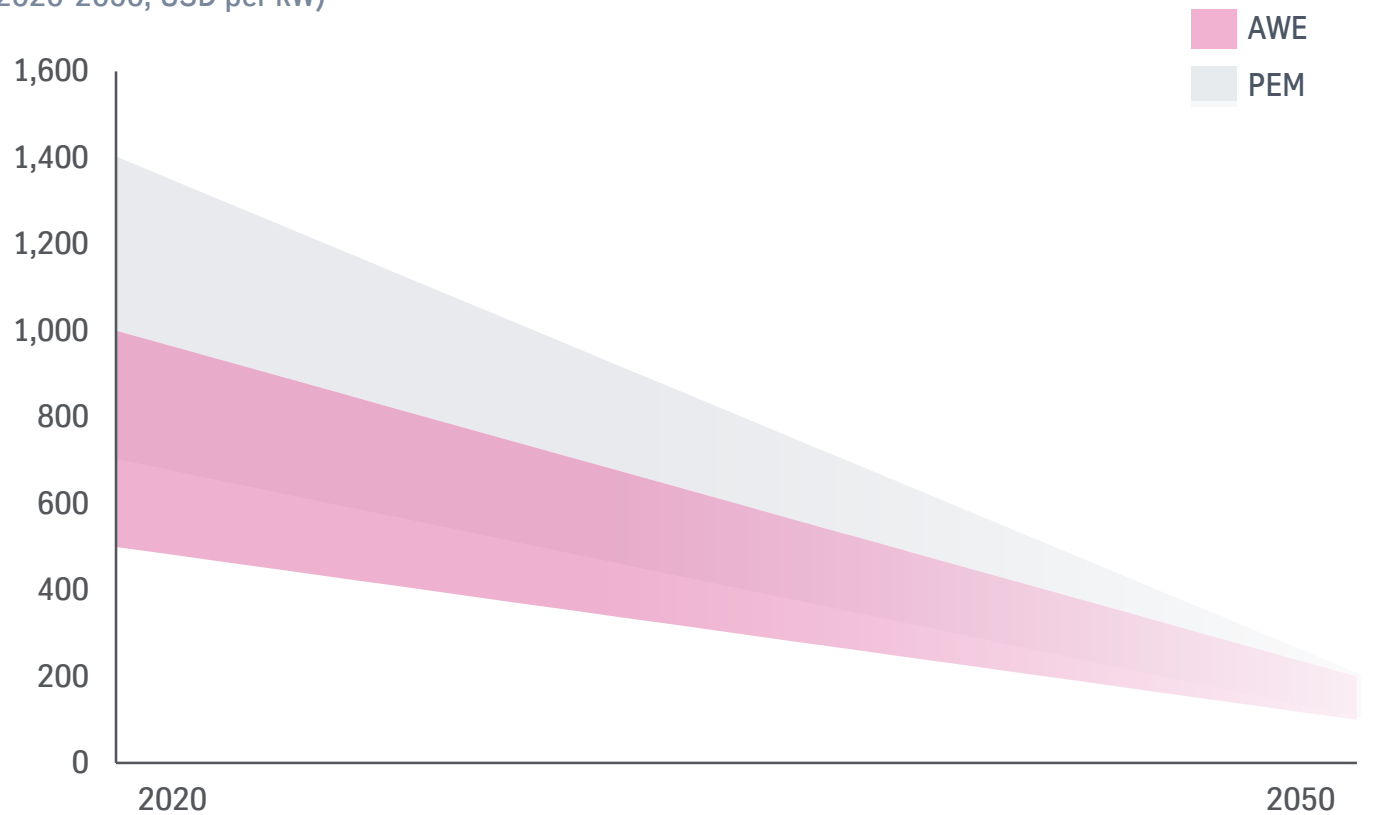
 High  Low

Illustrative table 1. Company estimates 2. Typical size of plants tendered in the green hydrogen market 3. Source: IRENA (2020), Green Hydrogen Cost Reduction: Scaling up Electrolysers to Meet the 1.5°C Climate Goal, International Renewable Energy Agency, Abu Dhabi 4. Source: Source IEA (2019), The Future of Hydrogen, IEA, Paris <https://www.iea.org/reports/the-future-of-hydrogen> 5. Harvey balls represent a relative metric and not actual efficiency 6. Lower heating value

thyssenkrupp nucera's AWE is leading the technology development and represents the most competitive green H₂ production solution

AWE and PEM cost evolution^{1,2}

(2020-2050, USD per kW)



1. Includes Global NZE by 2050 for Alkaline and PEM 2. Source: IRENA (2020), Green Hydrogen Cost Reduction: Scaling up Electrolysers to Meet the 1.5°C Climate Goal, International Renewable Energy Agency, Abu Dhabi

Cost reduction measures of thyssenkrupp nucera

Product philosophy

GW procurement & supply chain

Technology roadmap

AWE 2.0 with disruptive design

5 GW manufacturing

Key messages | AWE will be a leading green hydrogen production technology



AWE technology is ready today



Most suitable technology for industrial scale hydrogen production



High performance and cost leading technology

Q&A



thyssenkrupp
nucera

Capital Market Day agenda

	Topic	Speaker
1	Introduction to thyssenkrupp nucera	Denis Krude
2	Business Model & Corporate Strategy	Denis Krude
3	The Hydrogen Reality	Christoph Noeres
4	Alkaline Water Electrolysis Technology	Christoph Noeres
	Q&A and Break	
5	The Chlor-Alkali Market	Roland Beckmann
6	Chlor-Alkali Technology – the DNA for AWE	Roland Beckmann
7	Innovation Leadership	Fulvio Federico
8	Technology Service and Digitalization	Ulf Bäumer
	Q&A and Break	
9	Manufacturing Strategy	Fulvio Federico
10	Environment, Social, Governance	Denis Krude
11	Financial Section	Arno Pfannschmidt
	Wrap-up and Q&A	Denis Krude

5. Chlor-Alkali Market

Roland Beckmann



thyssenkrupp
nucera

CA chemical products are essential for a large number of end products



Aluminium



Polyurethane foam / Polycarbonates / PVC



Hydrogenation of Alkenes, Fats and Oils



Soap / Detergents



Sodium Hypochlorite /
Disinfection



Hydrochloric acid



Hydrogen compression
and bottling

Caustic Soda (NaOH)

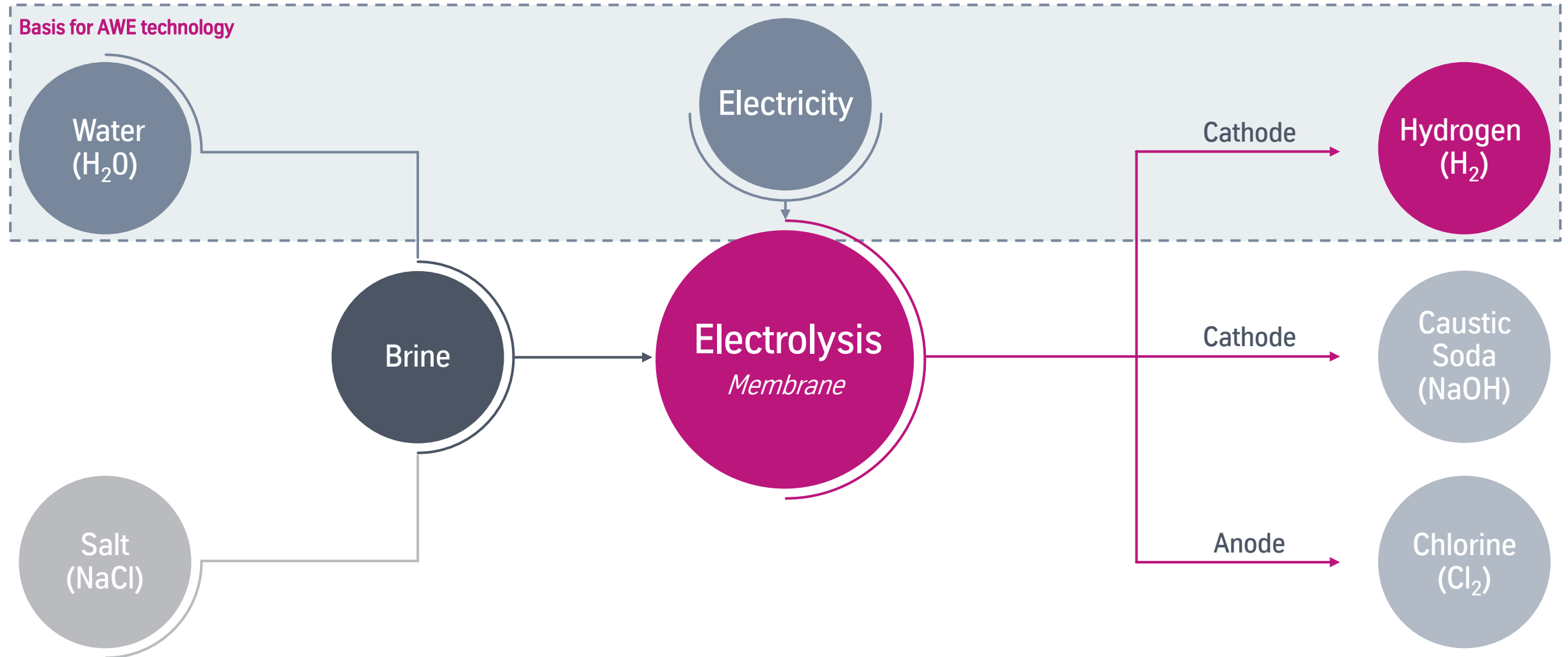
Chlorine (Cl₂)

Hydrogen (H₂)

Global demand for Chlorine and Caustic Soda grows in line with GDP enabling strong and stable growth for thyssenkrupp nucera

Illustrative examples, not exhaustive

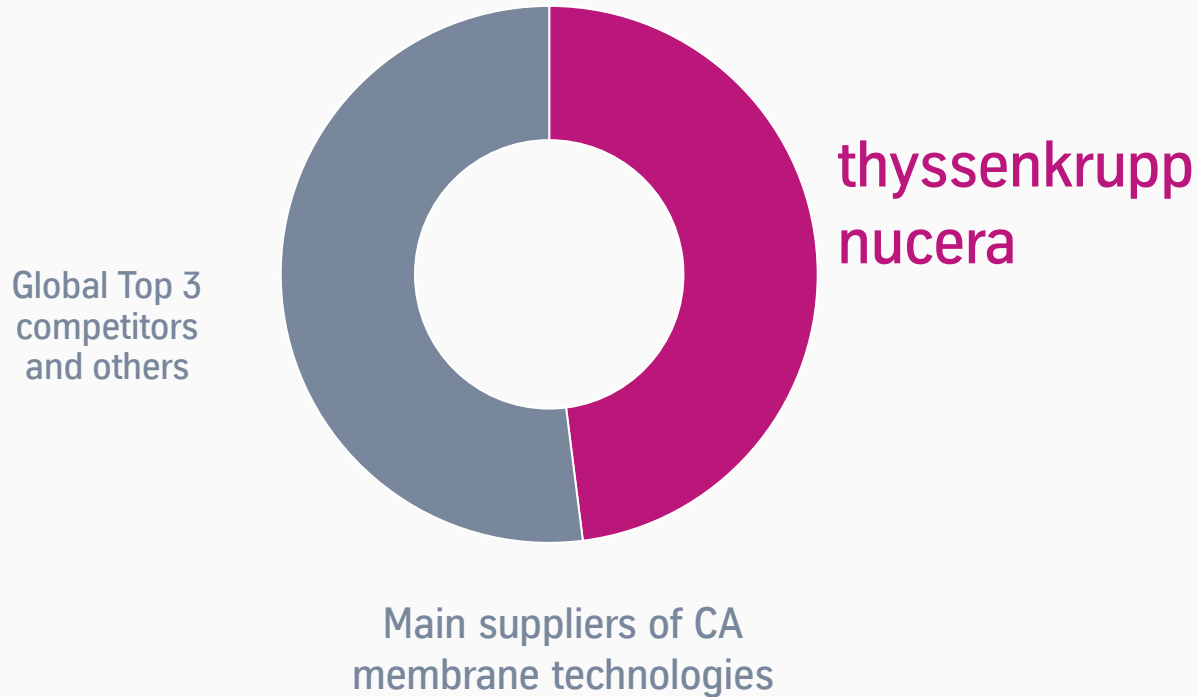
CA chemical process in a nutshell



CA chemistry describes the process of splitting salt (NaCl) and water (H₂O) into Chlorine (Cl₂), Caustic Soda (NaOH) and Hydrogen (H₂)

thyssenkrupp nucera is the global market leader in CA membrane electrolysis

CA market installed capacity in operation (2021)¹



Accumulated orders up to 2021²

40.5 million t/year Cl₂
from CA

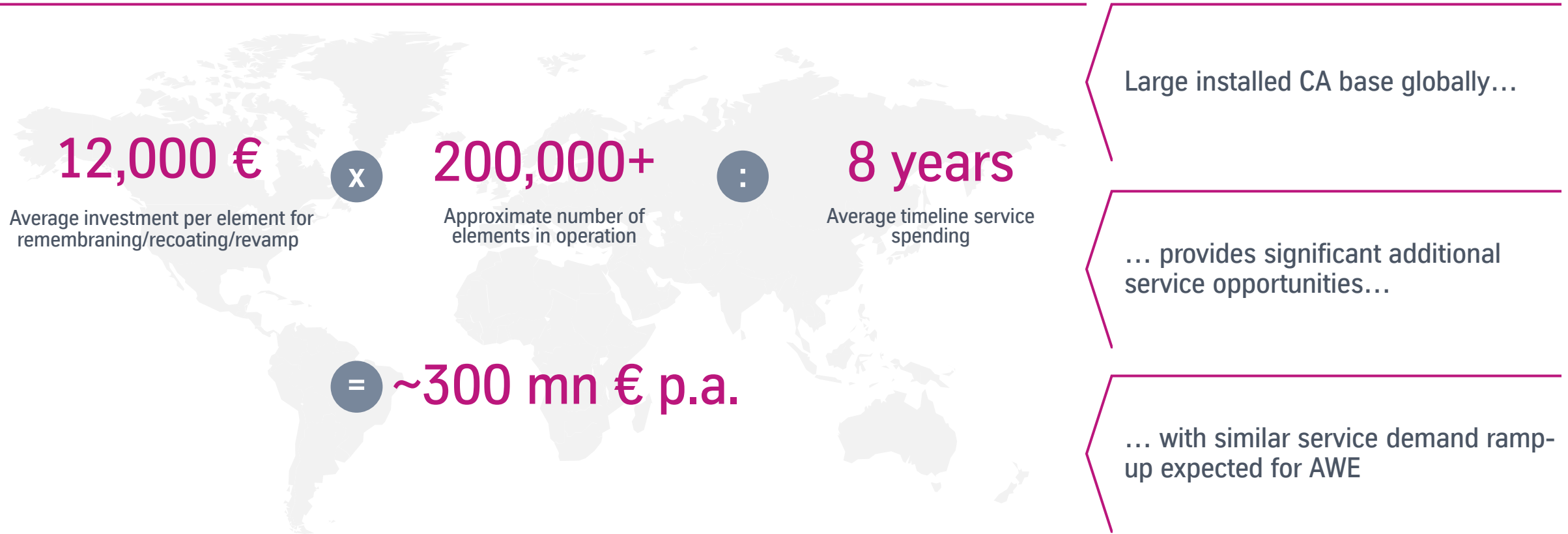
2 million t/year Cl₂
from HCl-ODC³

6.6 GW eq. H₂ produced
from CA⁴

1. Company estimate AWE-electrolysers 2. Company information as of December 2021, time period from 1977 to 2021 3. HCl-ODC = Hydro-chloric acid – Oxygen-Depolarised Cathode 4. 6.6 GW installed power to get the same amount of H₂ produced from CA also from

Large installed CA base provides meaningful and stable services – revenue potential with similar ramp-up expected for AWE

Estimated service demand based on global CA installed base (membrane technology)



Estimated service demand for electrolyzers in CA for thyssenkrupp nucera amounts to ~300 mn € per year – similar ramp-up expected for AWE

Key messages | thyssenkrupp nucera is a global leader in the large and stable CA market



CA electrolysis is a fundamental technology for the chemical industry and the starting point for various value chains of day-to-day products



thyssenkrupp nucera is a global market leader in CA membrane electrolysis in terms of installed capacity in operation



Large installed CA base provides meaningful and stable services revenue potential with similar ramp-up expected for AWE



6. Chlor-Alkali Technology – the DNA for AWE

Roland Beckmann



thyssenkrupp nucera's leading expertise in CA electrolysis technology serves as strong basis for AWE

Global leader

in electrolysis

>10 GW

electrolyzer capacity installed¹

Over 600

electrochemical projects realized

Over 240,000

electrolytic cell elements produced

Product portfolio

CA Electrolysis:

Local production of Chlorine (Cl_2), Caustic Soda (NaOH) and Hydrogen (H_2)

Uhde BM2.7²



Chlorine Engineers BiTAC³



NaCl ODC⁴



Hydrochloric Acid (HCl) Electrolysis:

Recycling of HCl into Chlorine (Cl_2) and Hydrogen (H_2)

HCl Diaphragm electrolysis



HCl ODC⁴ electrolysis⁵



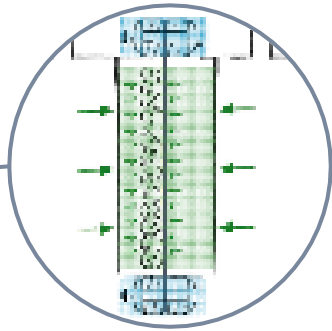
1. To produce chlorine and hydrogen 2. Bipolar membrane electrolyzer 2.7 m² 3. BiTAC: Bipolar Tosoh and Chlorine Engineers 4. ODC: Oxygen Depolarized Cathode 5. Recycling HCl at low energy consumption

thyssenkrupp nucera's leading design and manufacturing know-how crucial in developing the AWE cell

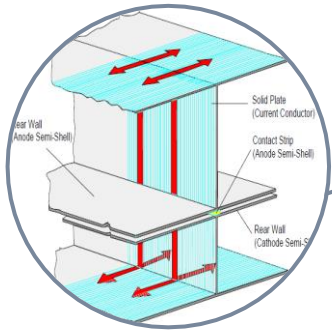
Hydraulic design



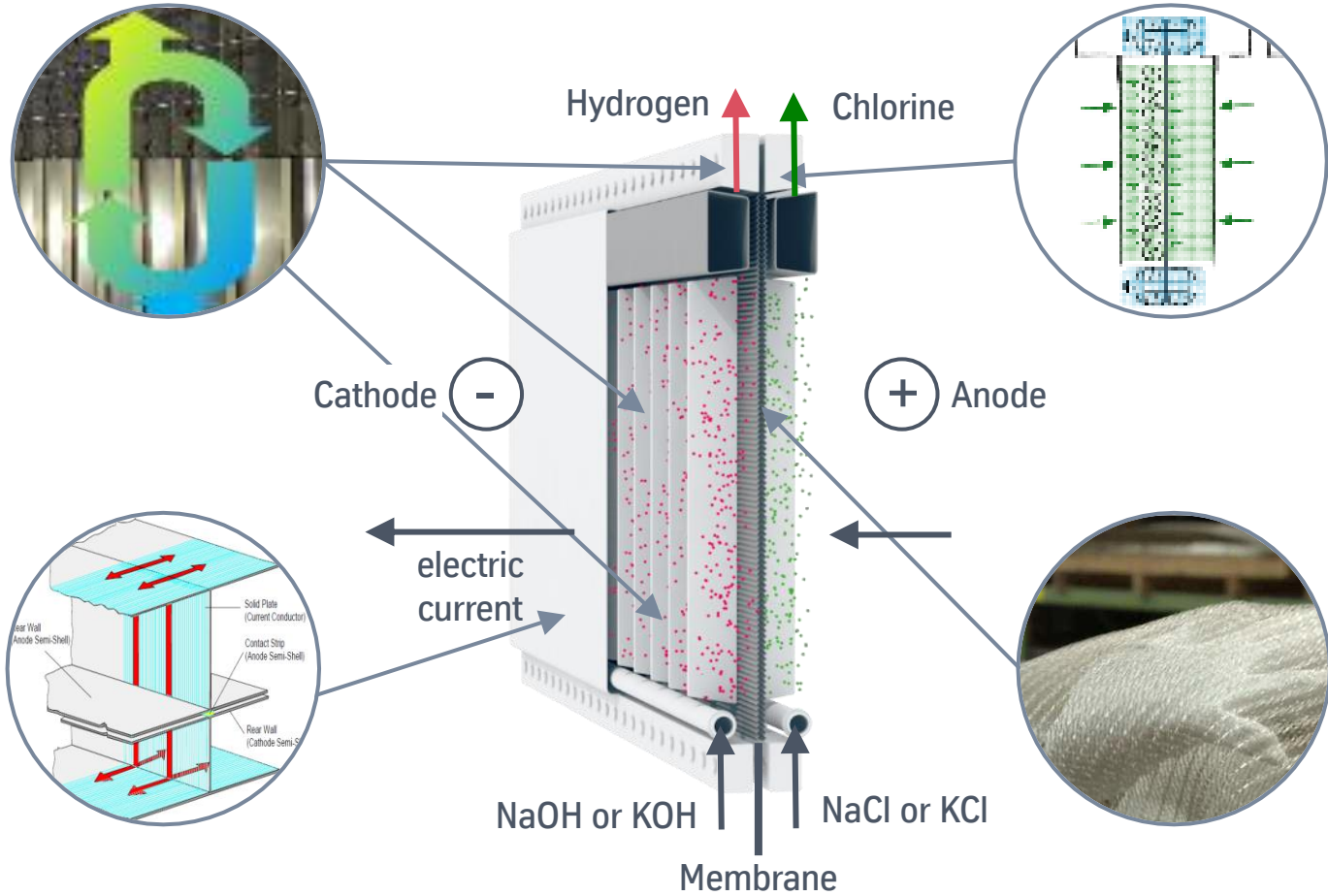
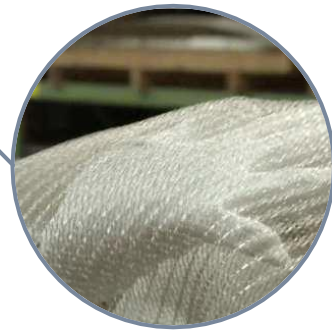
Mechanical design



Electrical design

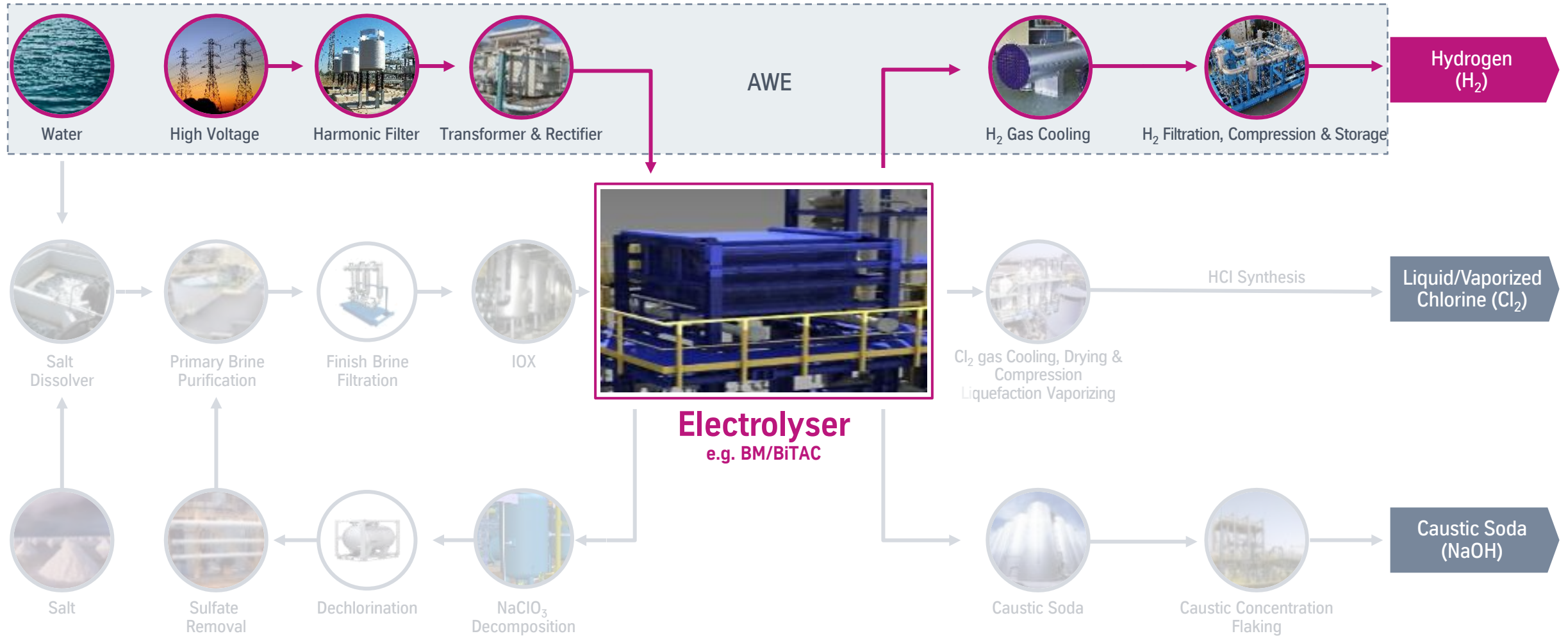


Zero gap



Know-how and technologies needed for implementing effectively high current density and high efficiency

thyssenkrupp nucera owns critical technology competencies forming the basis of AWE



Globally leading know-how to integrate adjacent technologies into CA plants forming the basis of AWE

Outstanding plant engineering capabilities are a key differentiator

Selected engineering references¹



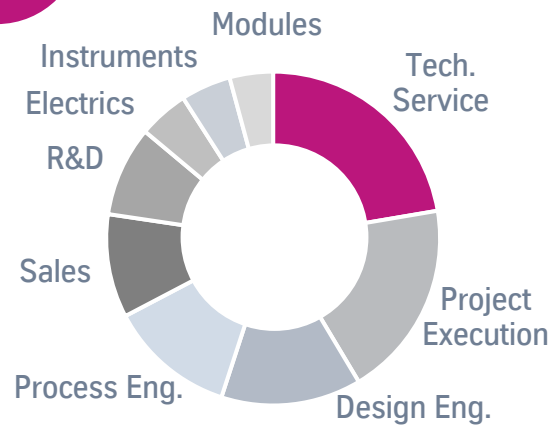
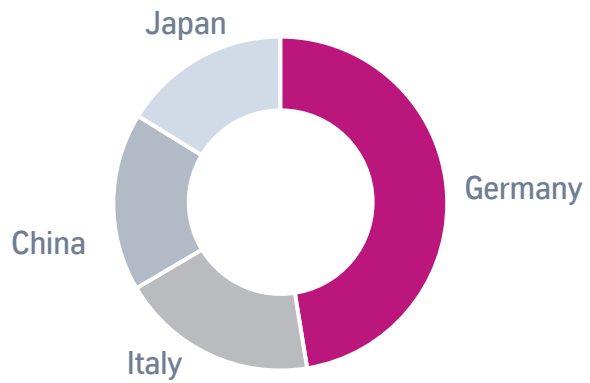
About **600 electrochemical** projects were planned and realized by thyssenkrupp nucera



+420,000 engineering hours p.a.



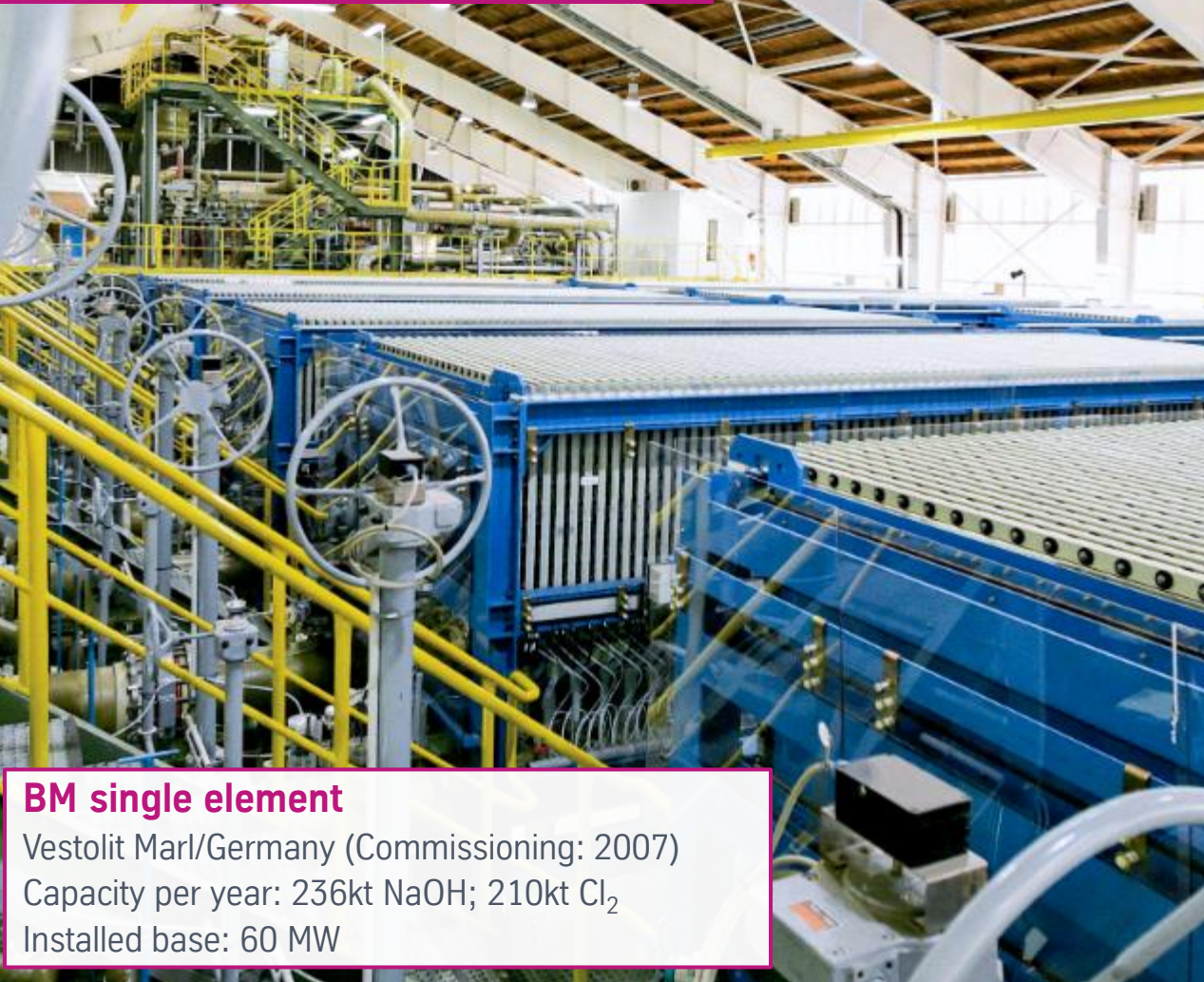
+300 experts across disciplines



TÜV certification



Globally leading technologies for chlorine production



BM single element

Vestolit Marl/Germany (Commissioning: 2007)
Capacity per year: 236kt NaOH; 210kt Cl₂
Installed base: 60 MW



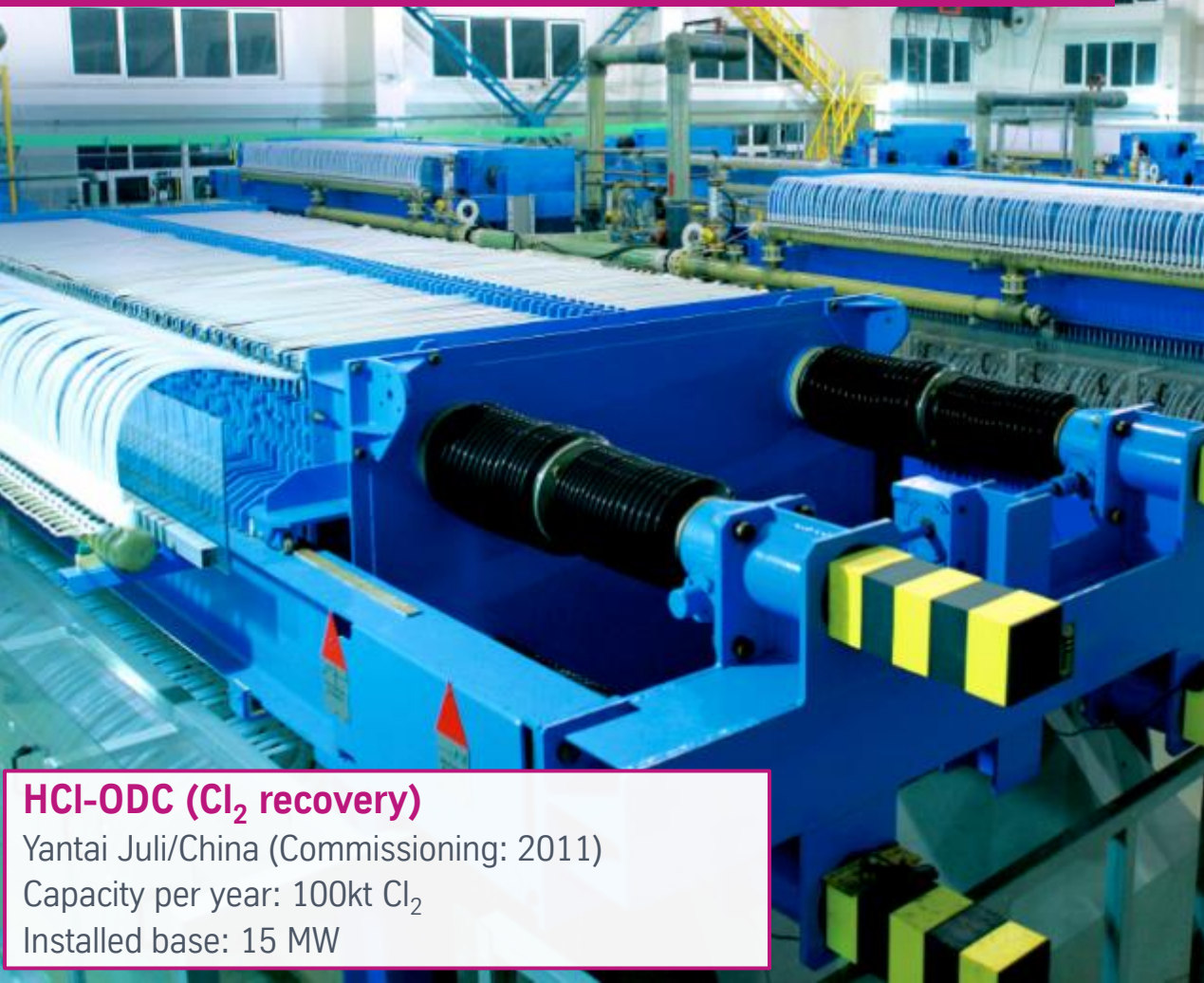
BiTAC filter press

Ningxia Risheng/China (Commissioning: 2018 & 2019)
Capacity per year: 320kt NaOH; 298kt Cl₂
Installed base: 81 MW



thyssenkrupp
NUCERA

Leading energy saving technologies for chlorine production and recovery



HCl-ODC (Cl_2 recovery)

Yantai Juli/China (Commissioning: 2011)

Capacity per year: 100kt Cl_2

Installed base: 15 MW



NaCl-ODC

Covestro Uerdingen/Germany (Commissioning: 2011)

Capacity per year: 20kt Cl_2

Installed base: 5 MW



thyssenkrupp
NUCERA



Excellent modular solutions and services
reduce cost and add value

Services & Revamps



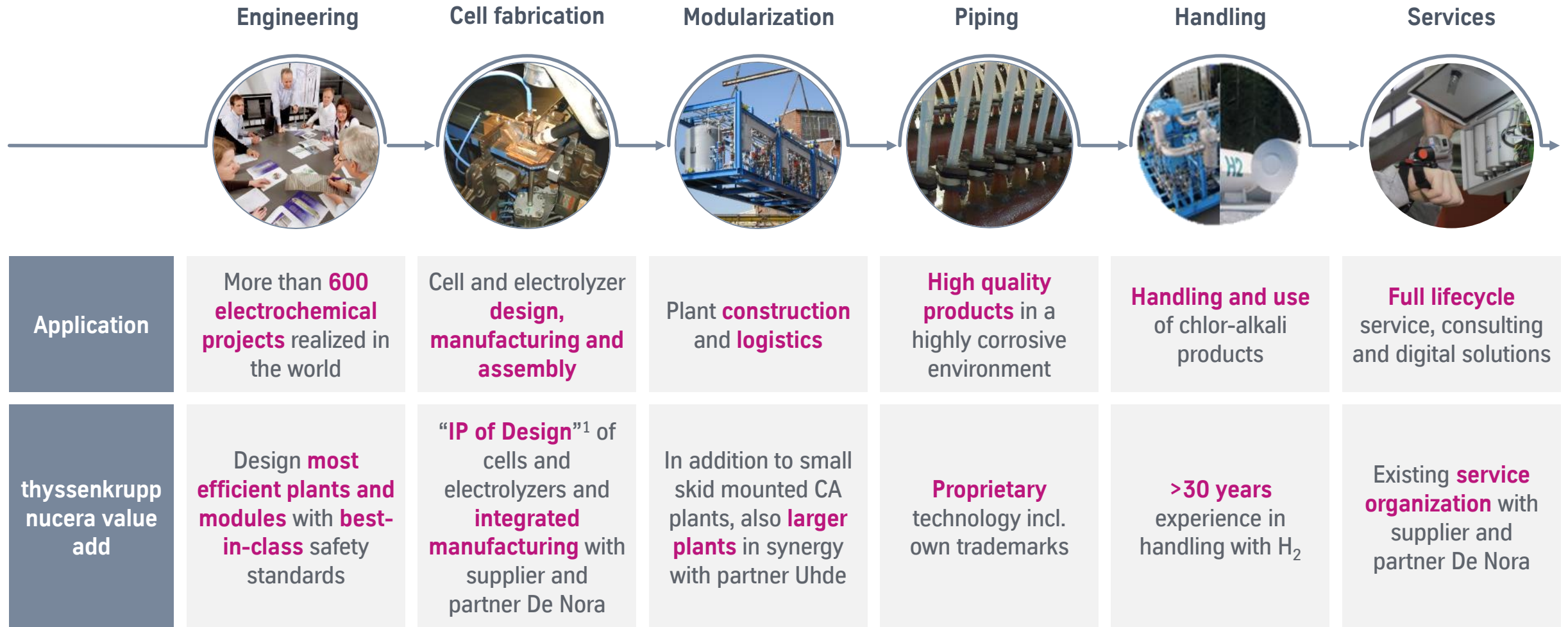
Services & Revamps



Skid mounted plants



thyssenkrupp nucera makes a difference across every step of the industrial electrolysis value chain



thyssenkrupp nucera provides leading in-house experience along each step of the electrolysis value chain

1. The cell and electrolyzer shape and structure are designed for best utilization of key electrochemical components (anode and cathode coatings, separator), in terms of efficiency, products quality, durability/longevity, safety. By developing optimization of: Gas-liquid fluids handling, distribution, control of pressure fluctuations; uniform electrical current distribution and low ohmic drops; selection of corrosion-resistant materials; serviceability

Recap | thyssenkrupp nucera's proven experience in Chlor-Alkali business provides a strong technology basis for AWE scale-up

Chlor-Alkali Electrolysis

Alkaline Water Electrolysis



A global leader with proven experience with over **600 projects & 240,000 cell elements**, >10 GW of electrolyzer capacity installed



Building on Chlor-Alkali experience to be **#1 in AWE**

Market Readiness

- Industrial-scale installations
- Proven quality supply chain

- Industrial-scale hydrogen plants
- Expand to a 5 GW supply chain

Product

- A technology leader for electrolysis
- Handling of hydrogen as a by-product

- Standardized AWE product with leading TCO¹
- Hydrogen as the main product

Organization & Network

- Holistic life cycle services
- Global network with partners

- Successful service model
- Automation and digitalization

Key enabler of hydrogen production

1. Total cost of ownership

Key messages | Chlor-Alkali Technology Overview



Industrial, large-scale electrolysis is the DNA of thyssenkrupp nucera



Significant technology and know-how in CA is the foundation for the technological adaption to AWE



thyssenkrupp nucera has a holistic understanding of the entire electrolysis value chain



Proven experience with over 600 projects & 240,000 electrolytic cell elements, >10 GW of electrolyzer capacity installed

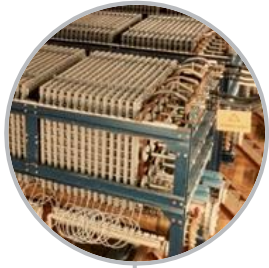


7. Innovation Leadership

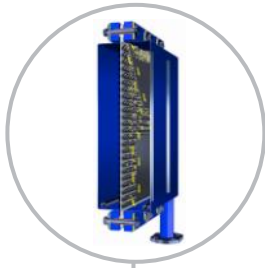
Fulvio Federico

thyssenkrupp nucera looks back at >30 years of leading innovation in modern industrial electrolysis

BM
First Uhde **Single Element** Bipolar Membrane electrolyzers



UHDENORA JV among Uhde and **DE NORA** in 2001



HCl-ODC²
First industrial reference plant, **energy saving hydrochloric acid recycling**



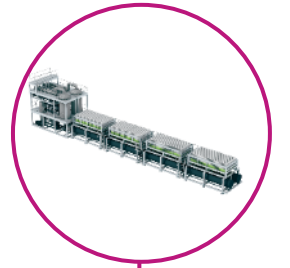
tkUCE JV among thyssenkrupp electrolysis and **DE NORA**, merging also former **Chlorine Engineers Corp.** in 2015



NaCl-ODC²
Market Entry
25% energy saving CA electrolysis

e-BiTac v7 and BM Gen. 6plus
Latest high efficiency electrolyzers

CFI
First project on new increased capacity **20 MW module**



Power Consumption ↘

1984¹ – 1994

1997

2003

2012

2013

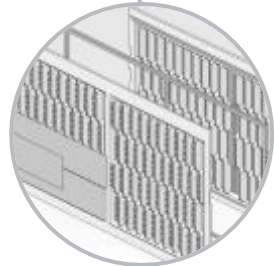
2018

2020

2021

Current Density (specific production capacity) ↗

BM single element Gen.3
First **laser-welded cell**, internals made possible acidified operation



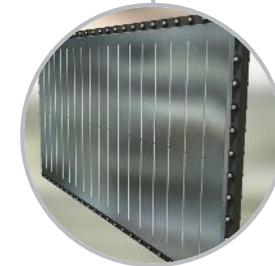
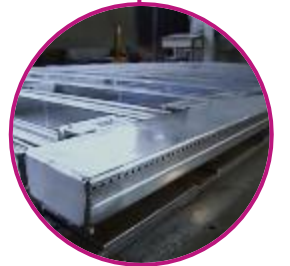
BM single element Gen.6
First Full **Zero-Gap cell** incl. **flexible elastic element** and combined with **independent sealing**



Carbon2Chem AWE (Hydrogen)
Demo Plant 2 MW (stack portion of 10 MW unit)



1 GW p.a. fabrication
De-bottlenecked production of **15,000 cells p.a.**



BiTAC
World's first **zero-gap cell** which made **6kA/m²** possible

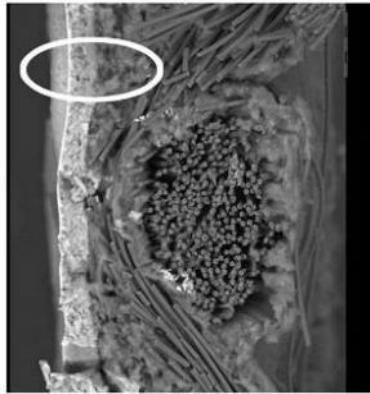
● AWE ● CA

1. Much longer experience before with mercury amalgam cells 2. Joint Development with Covestro and De Nora; ODC = Oxygen depolarized cathode; HCl = Hydrochloric Acid; NaCl = Sodium Chloride
Developments with De Nora advanced coatings and half-shells / bipolar elements manufacturing

Example | Successful implementation of disruptive innovations – unique advantage of thyssenkrupp nucera

25% energy saving compared to conventional CA electrolysis

Gas Diffusion Electrode



Gas Diffusion Electrode (GDE) by De Nora typically used in Fuel Cells



Applied in large scale HCl-ODC electrolyzers (2003)



Applied in NaCl-ODC electrolyzers (2013)

thyssenkrupp nucera developing an industry leading electrolyzer cell design with De Nora

Contributions thyssenkrupp nucera

Design of cell, electrolyzer and balance of plants



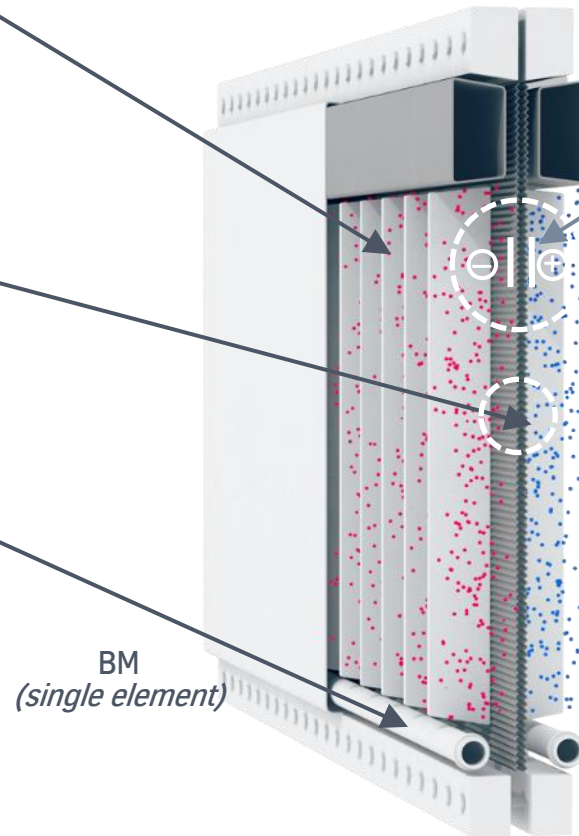
Selection of separator (membrane/diaphragm)



Other parts including:

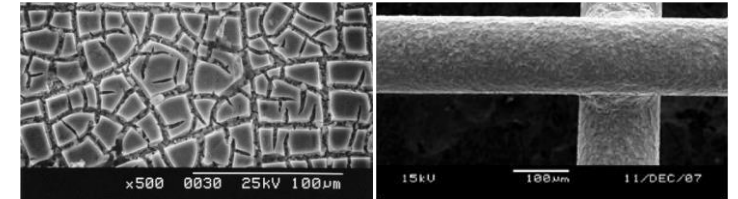
- Selection of corrosion resistant materials
- Current distribution & electrical contacts
- Gas-liquid fluids handling & distribution
- Sealing
- Adaptations for different operating conditions, procedures, concepts (e.g. with or without ODC)

thyssenkrupp nucera cell



Contributions De Nora

Anode and cathode catalytic coatings, and GDEs

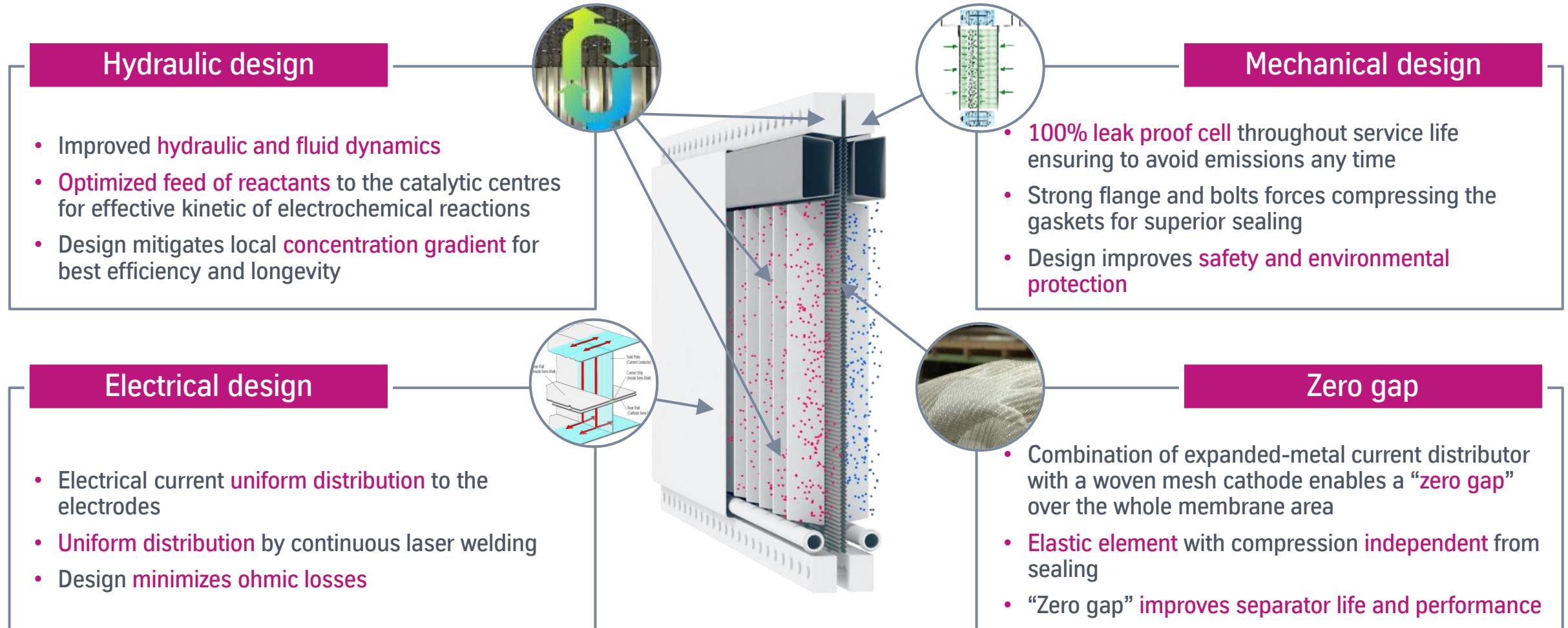


Manufacturing of half-shells



Holistic collaboration in cell design, electrochemical components and manufacturing process

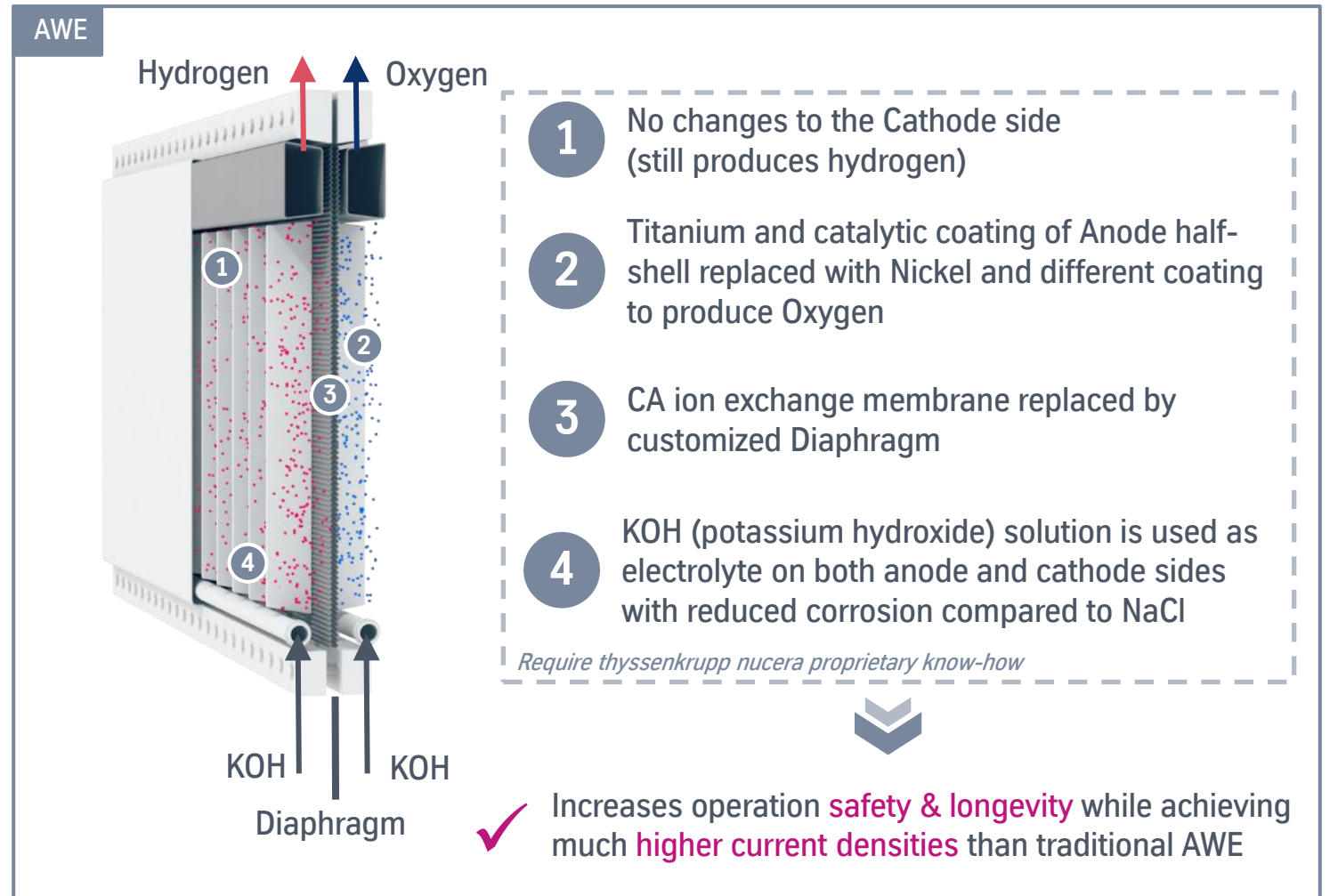
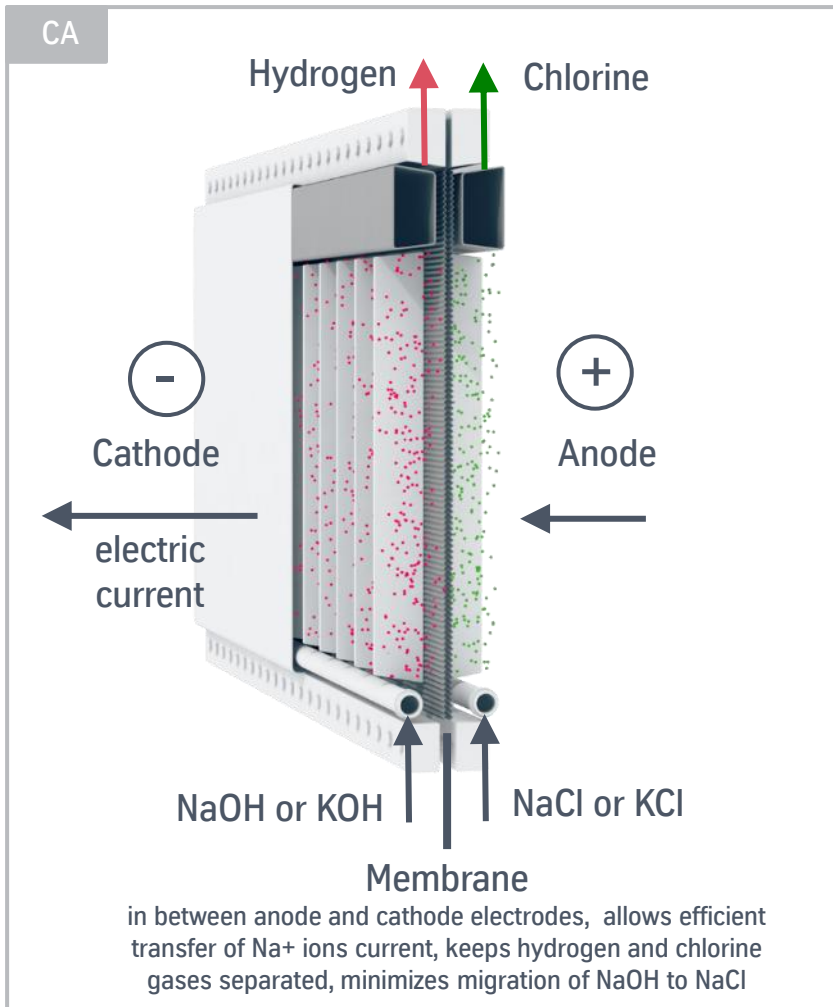
thyssenkrupp nucera's leading design and manufacturing know-how crucial in developing the AWE cell



Know-how and technologies needed for implementing effectively high current density and high efficiency¹

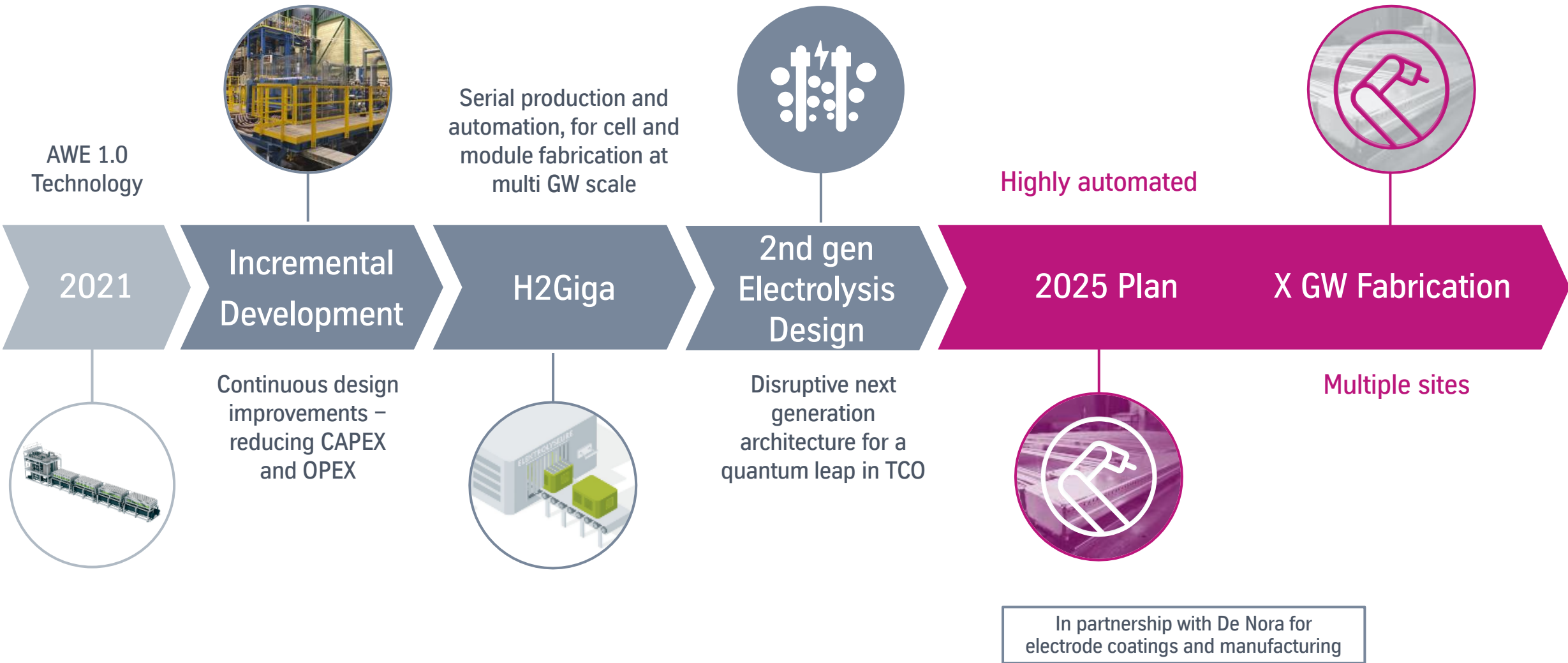
1. Density and efficiency assessment based on Eurochlor data

Leveraging the CA cell technology has led to the innovative AWE cell



With proprietary know-how and years of development, thyssenkrupp nucera's cells can operate at much higher current densities than traditional AWE

Product development roadmap with focus on performance and overall total cost of ownership



Incremental developments | Continuous design improvements – reducing CAPEX and OPEX

New test unit



- ✓ **Improvements** | Continuous improvements on the basis of current BM single-element cell platform
- ✓ **Optimization** | Enhancing hydrogen handling through increased pressure and other optimizations of operating conditions
- ✓ **High quality** | Implementation of advanced electro-catalytic coatings with/from partner De Nora
- ✓ **Asset light** | Reducing CAPEX and OPEX

H2Giga | Serial production and automation, for cell and module fabrication at multi GW scale

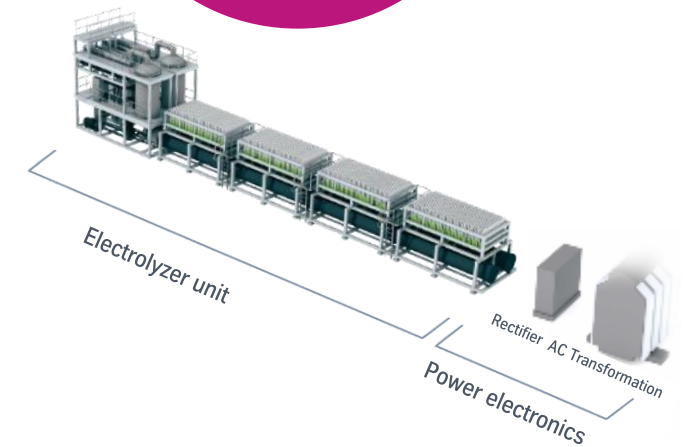
Build up more capacity, together with established and new partners

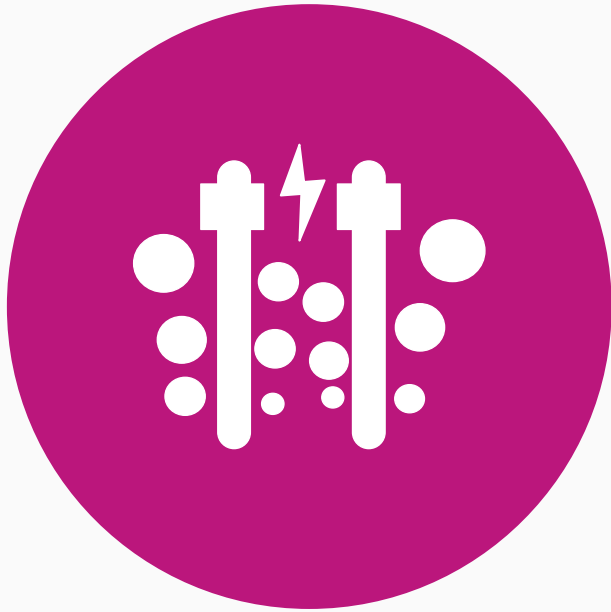


- 1 Cell, stack and module development
- 2 Optimization and scaling of manufacturing
- 3 Optimization and automation of assembling

Each optimization proven with solid qualification process of performance and reliability

Plan:
5 GW
annual capacity





1 New concepts

Major improvements in module and stack design, cell structure, electrodes and diaphragm

2 Network integration

Integration of opportunities coming from the network of technology in the fields of materials, catalysts, solutions for dynamic operation, digitalization, automation, serviceability, scalability and sustainability

3 Cooperation

Agile project design in close cooperation with customers, partner De Nora and others

thyssenkrupp nucera focusses on technology and delivers innovation with passion

Key messages | Innovation Leadership



Innovation Leadership for over 30 years to create world leading technology



Technology and application know-how consistently transferred from CA to Hydrogen



Achieved milestone of standardized - high power density - 20MW AWE module



Continuous improvements and disruptive new generation technology under development to further improve total cost of ownership and manufacturing, for the industrial scale mass market growth



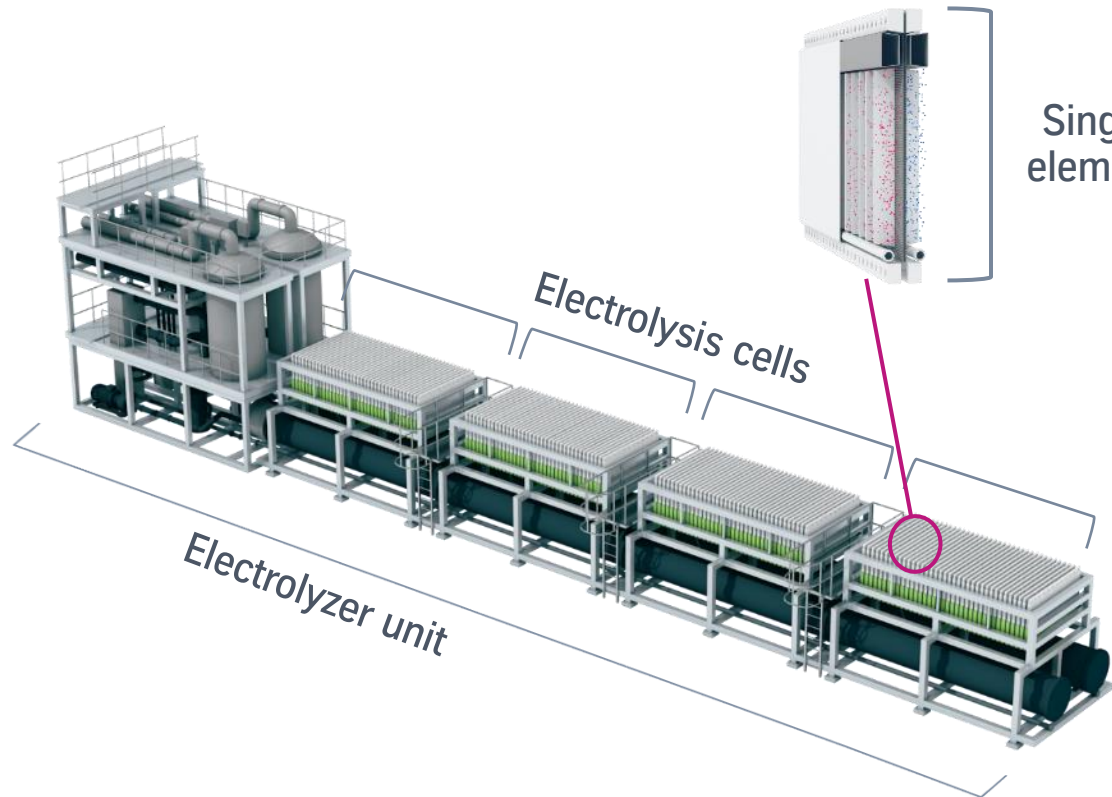
8. Technology Service and Digitalization

Ulf Bäumer



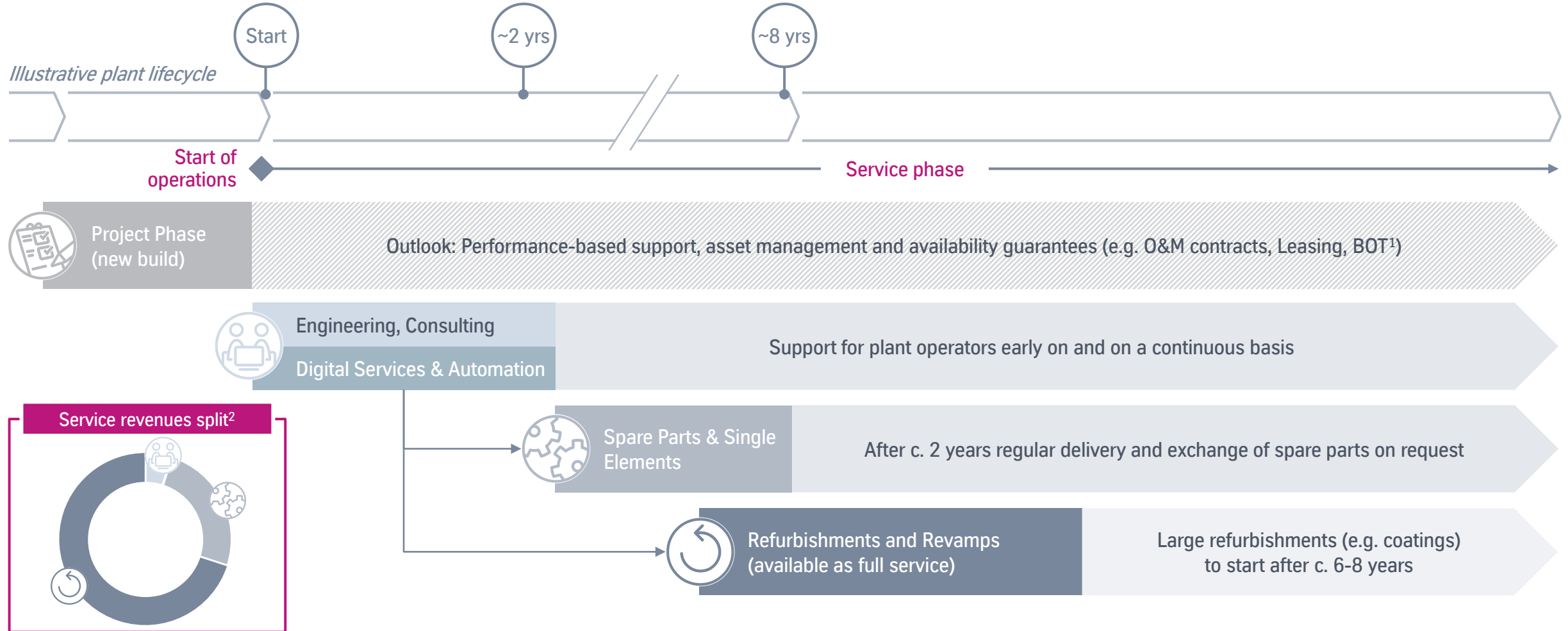
thyssenkrupp
nucera

thyssenkrupp nucera service portfolio addresses plant operator's key priorities for large scale electrolyzers



Safety, availability and performance are at the center of thyssenkrupp nucera's service portfolio

Services offering and digital solutions integral to thyssenkrupp nucera business model providing high recurring life-cycle revenue and addressing plant operator key priorities

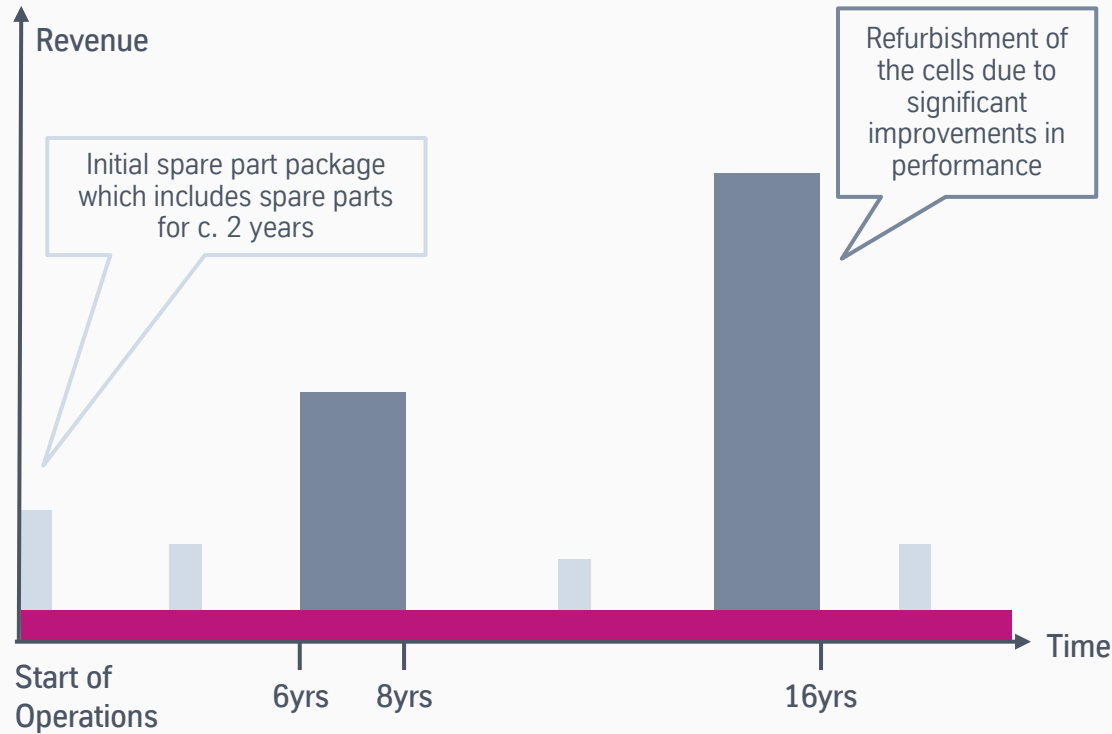


Leveraging thyssenkrupp nucera's leading position & service business know-how in CA to grow AWE service

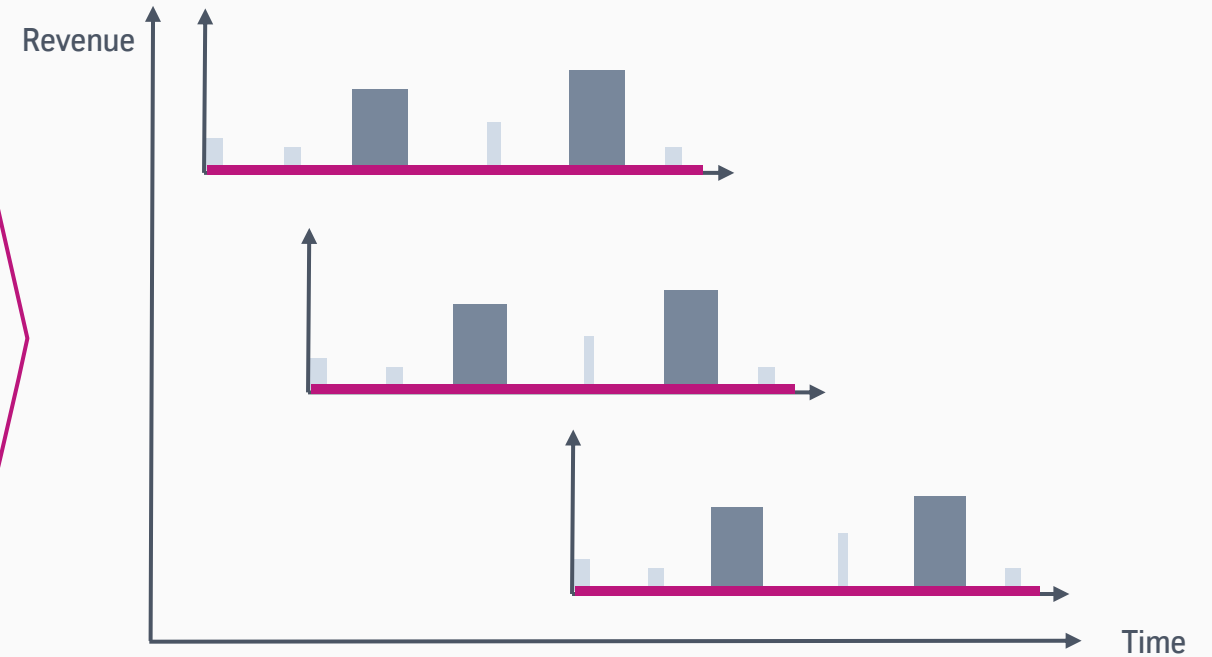
1. Build, Own, Transfer 2. Illustrative over plant lifecycle

Plant operators are provided with ongoing services to ensure safety & availability which bears significant upside from steady revenue stream as AWE capacities are being ramped up

Illustrative service revenues from one plant ...



... leading into steady revenue stream from growing base



Digital Services,
Engineering & Consulting



Spare parts &
single elements



Refurbishments
and Revamps

Maintenance spending over plant lifetime (c. 20–30 years) estimated at ~100% of initial capex spent (excl. upgrades / revamps)¹

1. Based on management estimates in real terms for CA

Holistic service portfolio maximizes plant performance and availability

thyssenkrupp nucera service portfolio

Digital Services, **1** Engineering & Consulting



Services

- Digital twins
- Advanced process control
- Remote expert support
- Studies, e.g. capacity extensions

Value-add

- Full transparency of operating / maintenance data
- Innovative solutions
- Increased plant availability & performance

Spare parts



- OEM parts
- Electrolysis cell
- Global supply chain

- Consistent quality
- Build-in licensor know-how
- High plant availability

Refurbishments and Revamps



- On-site services In collaboration with De Nora
- General plant improvements, refurbishments and revamps
- All offered as Full Service Solutions **2**

- All services from single source
- New System guarantee
- Extended capacity with maximum use of existing asset reduces TCO

Growth potential

Unlocking thyssenkrupp nucera's growth potential



Services

- Performance based contracts
- Asset Management
- Operation & Maintenance contracts
- Invest in key projects (BOT¹)

Value-add

- Maximum involvement of licensor know-how
- Attractive financial models for investors

On top of existing portfolio additional growth potential has been identified

1. BOT: Build, own, transfer

1 Digital solutions suite is core for new service business models



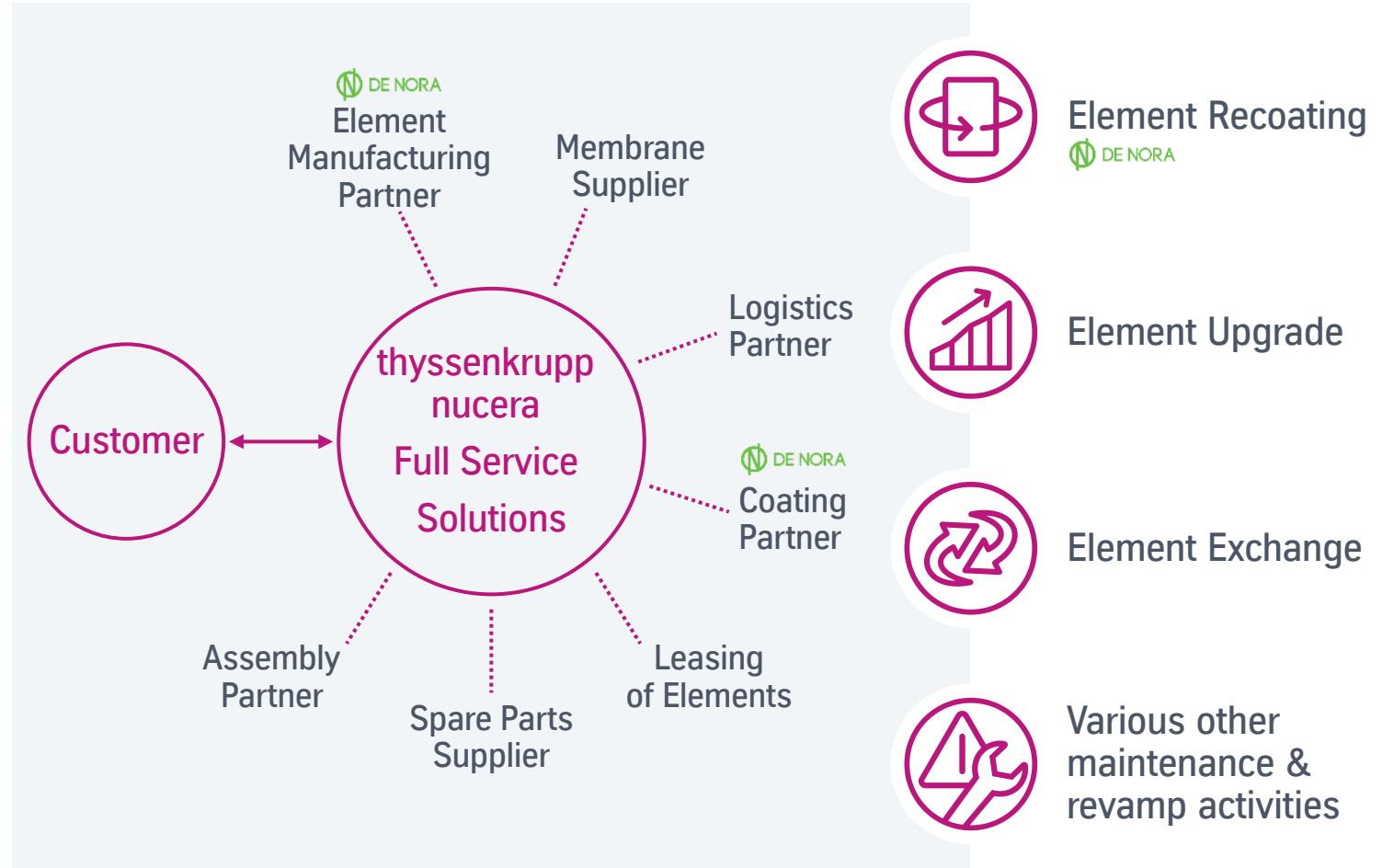
thyssenkrupp nucera acts as digital industrial catalyst connecting domain expertise & digital capabilities to engineer smarter products & services

2 Full-service solutions from a single source



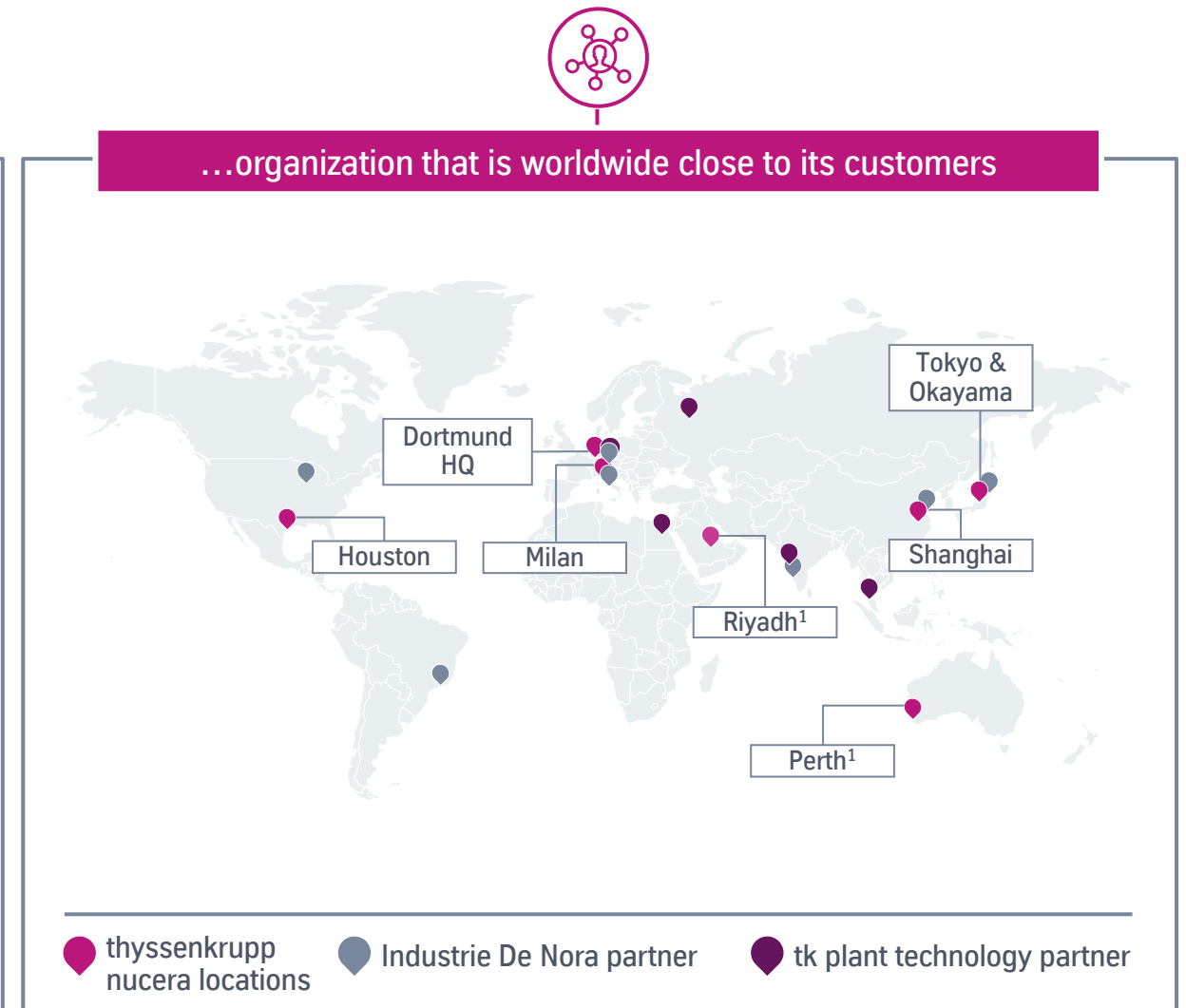
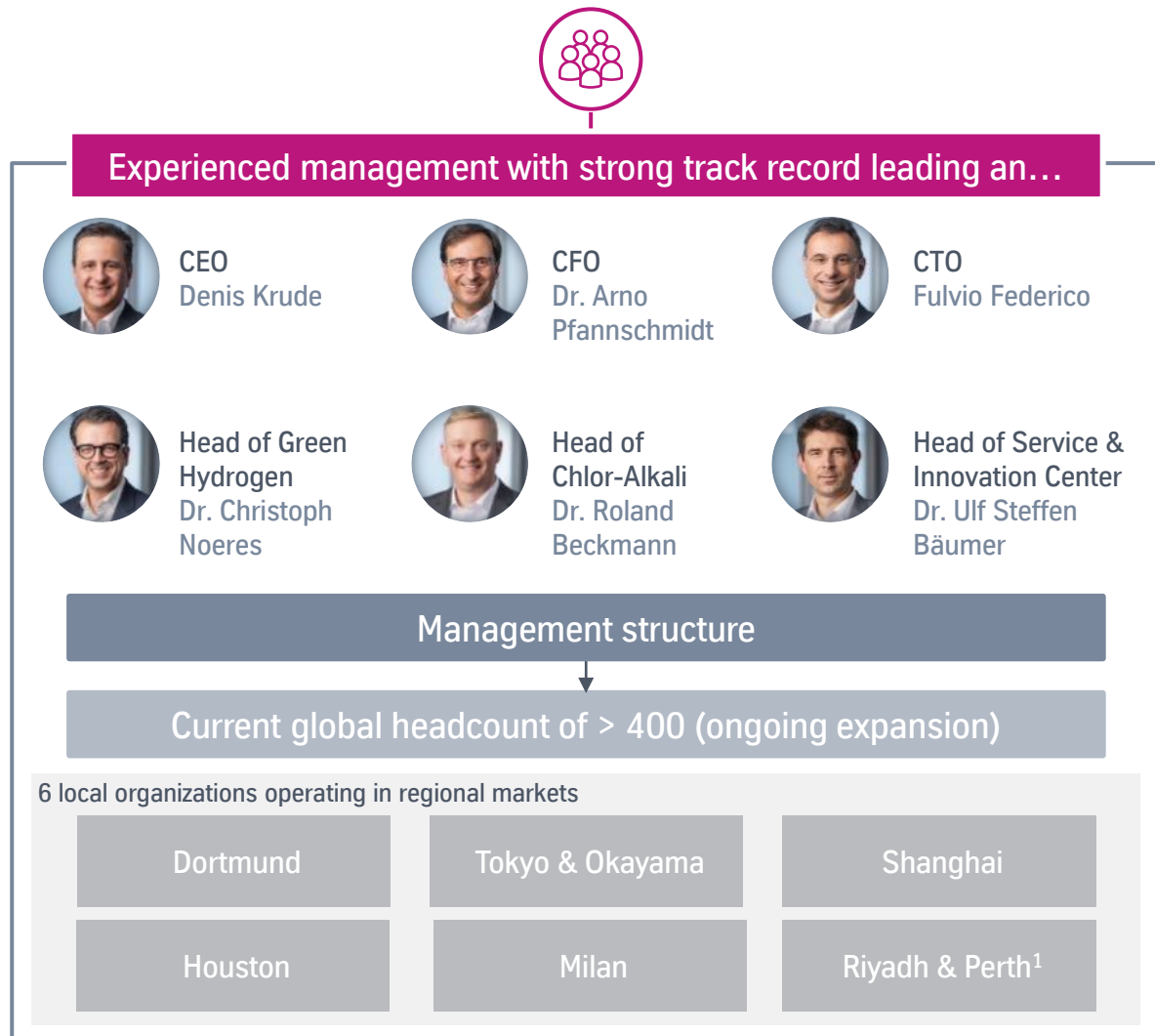
Key Characteristics

- Maintenance, revamp or refurbishment projects **executed by thyssenkrupp nucera completely**
- **Single point** of responsibility
- **New system guarantee**



Customers benefit from a fully integrated offering at global scale

Building on a leading global organization with a network close to customers...



1. Newly established office

Key messages | Technology Service and Digitalization



De-risked and efficient ramp up and scale in AWE by leveraging existing CA offering and service business



Steady revenue stream from growing installed base provided by AWE life-cycle service business



Growth potential in digital solutions unlocked by combining technological know-how, performance optimizations and data analytics

Q&A



thyssenkrupp
nucera

Capital Market Day agenda

	Topic	Speaker
1	Introduction to thyssenkrupp nucera	Denis Krude
2	Business Model & Corporate Strategy	Denis Krude
3	The Hydrogen Reality	Christoph Noeres
4	Alkaline Water Electrolysis Technology	Christoph Noeres
	Q&A and Break	
5	The Chlor-Alkali Market	Roland Beckmann
6	Chlor-Alkali Technology – the DNA for AWE	Roland Beckmann
7	Innovation Leadership	Fulvio Federico
8	Technology Service and Digitalization	Ulf Bäumer
	Q&A and Break	
9	Manufacturing Strategy	Fulvio Federico
10	Environment, Social, Governance	Denis Krude
11	Financial Section	Arno Pfannschmidt
	Wrap-up and Q&A	Denis Krude

9. Manufacturing Strategy

Fulvio Federico

Evolution to a product-based business to most efficiently serve growing global demand

Project business

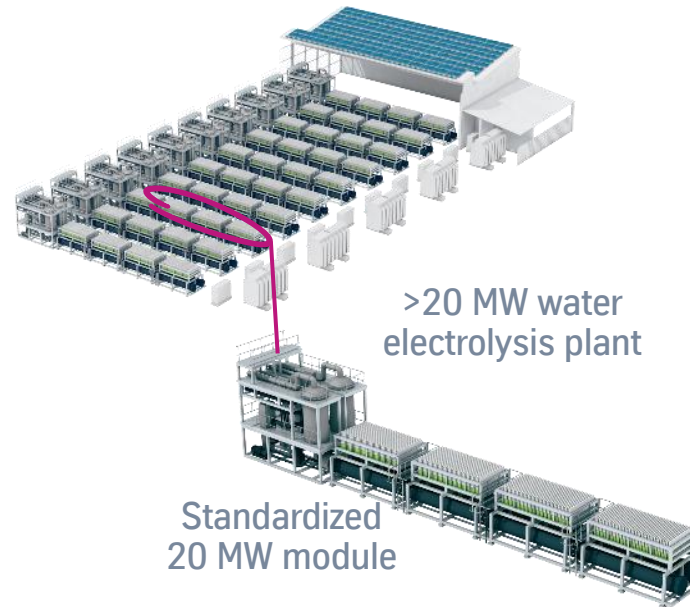
Full customization per project

Illustration



Technology provider and product business

thyssenkrupp nucera green hydrogen business prepared for being highly standardized with 20 MW module



Key benefits

- 1 Standardization and serial production to achieve GW scale ensuring quality, schedule and cost optimization
- 2 Establish thyssenkrupp nucera as a key technology provider
- 3 Reduction of complexity and risks by standardization

thyssenkrupp nucera business in transition from a classical project business to a future AWE product-based business

thyssenkrupp nucera provides meaningful value-add across each step of the manufacturing process

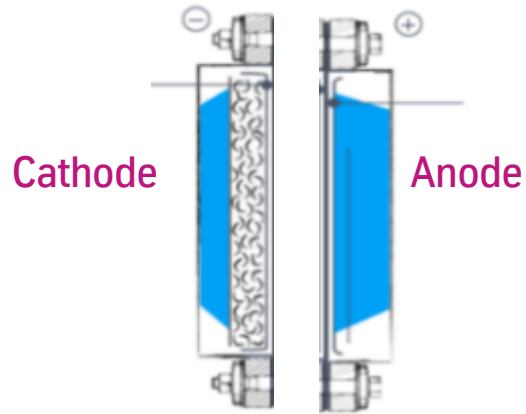
A thyssenkrupp nucera cell design



B Fabrication of skid-mounted process units



C 20 MW module assembly



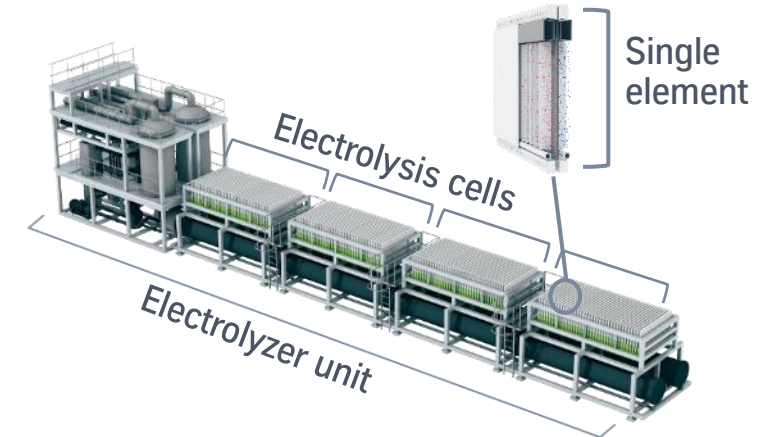
thyssenkrupp nucera supply chain of cell components:

- **Half shells manufacturing** according to thyssenkrupp nucera's IP design (De Nora)
- **Electro-catalytic coating** and production techniques (De Nora)
- **Other cell components** (e.g. separator / diaphragm, gasket frames and sealing, bolted flange, insert and distribution pipes, fittings and hoses for connection to the headers)



thyssenkrupp nucera supply chain of process & plant equipment:

- Tanks, pumps, filters
- Piping, valves & heat exchangers
- Electrical, instrumentation and control
- Power electronics

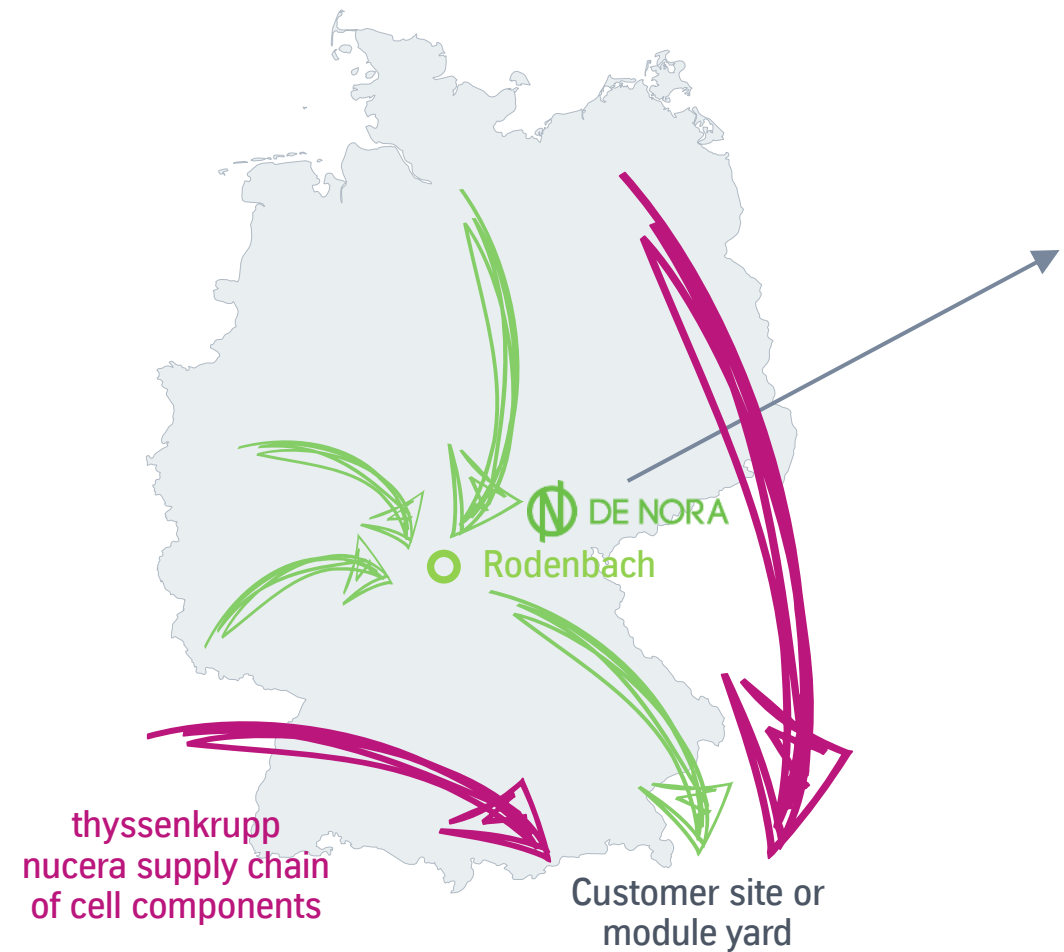


thyssenkrupp nucera assembly:

- Assembly of cells at customers' site or at thyssenkrupp nucera workshop
- Assembly of process units at customers' site

thyssenkrupp nucera's AWE business follows a holistic serial fabrication concept to capture demand

A thyssenkrupp nucera and De Nora already set up today to deliver 1 GW p.a.



Half shells production



Further capacity expansion into other regions are planned



thyssenkrupp nucera supply chain for cell components fully established & synchronized with De Nora to deliver 1 GW of electrolyzer p.a.

Video | How to achieve the energy transformation?



B Skid-mounted chlorine plants proof thyssenkrupp nucera's capabilities for standardization

- Standardized engineering for cost optimization
- Cost reduction by process simplification
- Reduced civil and erection works at site
- Reduced investment risks
- Very fast project schedule versus regular plants



Modularization and skid-mounted plants are a proven concept of thyssenkrupp nucera

B 20 MW module containerized skid-mounted configuration, transportable anywhere in the world



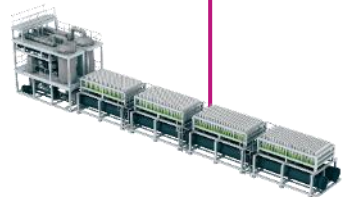
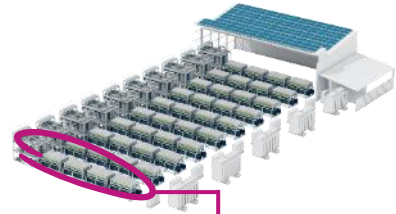
20 MW
electrolyzer unit

Applying thyssenkrupp nucera's know-how on AWE and engineering provides an attractive solution to serve global demand

C Given AWE business based on highly standardized approach, holistic serial fabrication concept necessary to capture demand

Module standardization

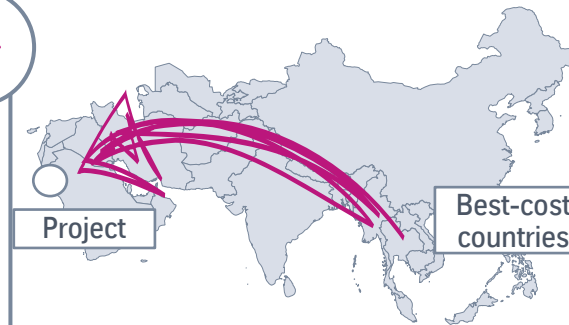
>20 MW water electrolysis plant



Standardized 20 MW module

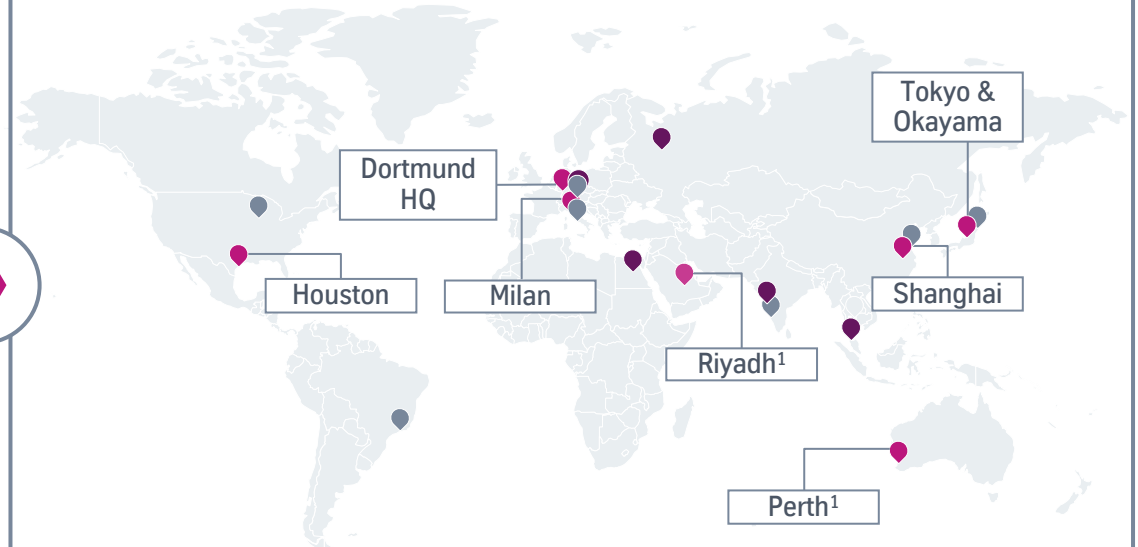
Initial fabrication concept

First project to utilize international supply chain with **module fabrication** via **external module yards** in best-cost countries



Target concept for serial fabrication

Holistic thyssenkrupp nucera serial fabrication concept necessary to realize water electrolysis capacity ramp up from 1 to 5 GW per year



Cells manufacturing and module fabrication yard(s) will expand worldwide and taking advantage of the existing network

- thyssenkrupp nucera locations
- Industrie De Nora partner
- tk plant technology partner

Next steps to fulfil expected market demand

Clear concept in place to fulfill vision to supply 5 GW of electrolyzers p.a.

1. Newly established office

Key messages | Manufacturing Strategy



Evolution to a product based business to drive cost reduction through efficient serial production driven by a growing global demand



Supply chain of annual electrolyzer production capacity of 1 GW is already in place




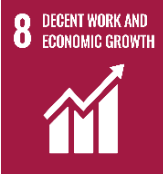



Modularization enables cost-effective solutions to deliver and erect electrolyzer modules on a global scale and at accelerated time tables

10. ESG

Denis Krude

Sustainability is at the heart of thyssenkrupp nucera's culture and strategy

Strategy contributing to UN Sustainable Development goals...

 <p>7 AFFORDABLE AND CLEAN ENERGY</p>	Affordable & clean energy	<ul style="list-style-type: none">thyssenkrupp nucera's mission is to advance the widespread adoption of green hydrogen, the only zero carbon fuel
 <p>8 DECENT WORK AND ECONOMIC GROWTH</p>	Decent work & economic growth	<ul style="list-style-type: none">Aspiration is to be the employer of choice, generating high-skilled, high quality employment and training opportunities
 <p>9 INDUSTRY, INNOVATION AND INFRASTRUCTURE</p>	Industry, innovation & infrastructure	<ul style="list-style-type: none">Through engineering know-how and design of hydrogen production facilities, thyssenkrupp nucera is helping to decarbonise industrial processes
 <p>11 SUSTAINABLE CITIES AND COMMUNITIES</p>	Sustainable cities and communities	<ul style="list-style-type: none">With its electrolyzers, thyssenkrupp nucera is helping to build the future sustainable cities, such as NEOM in Saudi Arabia
 <p>17 PARTNERSHIPS FOR THE GOALS</p>	Partnerships for the goals	<ul style="list-style-type: none">thyssenkrupp nucera has positioned itself at the center of global coalitions, such as the Hydrogen Council and H2Global, to scale the hydrogen economy

...underpinned by robust sustainability commitments

1

Commitment to calculate and report greenhouse gas emissions

2

Commitment to employee health & safety

3

Commitment to responsible procurement practices

4

Commitment to strong governance standards, including diversity, transparency and accountability

Introduction to thyssenkrupp nucera's governance structure

Key elements of thyssenkrupp nucera's KGaA¹ structure

Legal form of General Partner	<ul style="list-style-type: none">• Aktiengesellschaft (AG)• Management to run company under own responsibility
Ownership threshold	<ul style="list-style-type: none">• KGaA to be converted into AG structure if combined thyssenkrupp and De Nora ownership falls below 40%
Approval rights of management	<ul style="list-style-type: none">• Supervisory Board of General Partner
Shareholder rights	<ul style="list-style-type: none">• Regular shareholder rights

Background & rationale

- Safeguards free float shareholders' interests, while recognizing thyssenkrupp's intention to keep thyssenkrupp nucera as key part of the group
- Several successful precedents of publicly listed German KGaAs
- Providing operational autonomy to thyssenkrupp nucera...
- ...whilst reflecting long term partnership with both thyssenkrupp and De Nora

1. Kommanditgesellschaft auf Aktien (partnership limited by shares)

Key messages | ESG



thyssenkrupp nucera's mission statement is aligned with the UN Sustainable Development goals to create long-lasting impact



KGaA structure provides operational autonomy to thyssenkrupp nucera whilst reflecting long-term commitment with key shareholders thyssenkrupp and De Nora

11. Financial Section

Arno Pfannschmidt

thyssenkrupp nucera provides for an attractive financial profile ready to scale up



AWE

AWE ready for **scale-up** and **exponential profitable growth**



CA

Stable business with best-in-class technology and
~50% service share

AWE contracted order backlog includes global first mega-scale hydrogen project among others



~0.9 bn €

AWE contracted order backlog



>2.2 GW

AWE contracted order backlog

- Contracted AWE order backlog includes **5 projects**
- One of world's largest green hydrogen projects **NEOM signed** in December 2021
- Latest project win is **Shell signed** in December 2021
- Additional CA contracted order backlog of ~0.4 bn €

thyssenkrupp nucera won the NEOM mega-scale project as supplier of its AWE technology

thyssenkrupp nucera has the largest AWE contract backlog compared to green hydrogen peers¹



“NEOM” Project



>2 GW



2026 Start-up



“Shell” Project²



200 MW

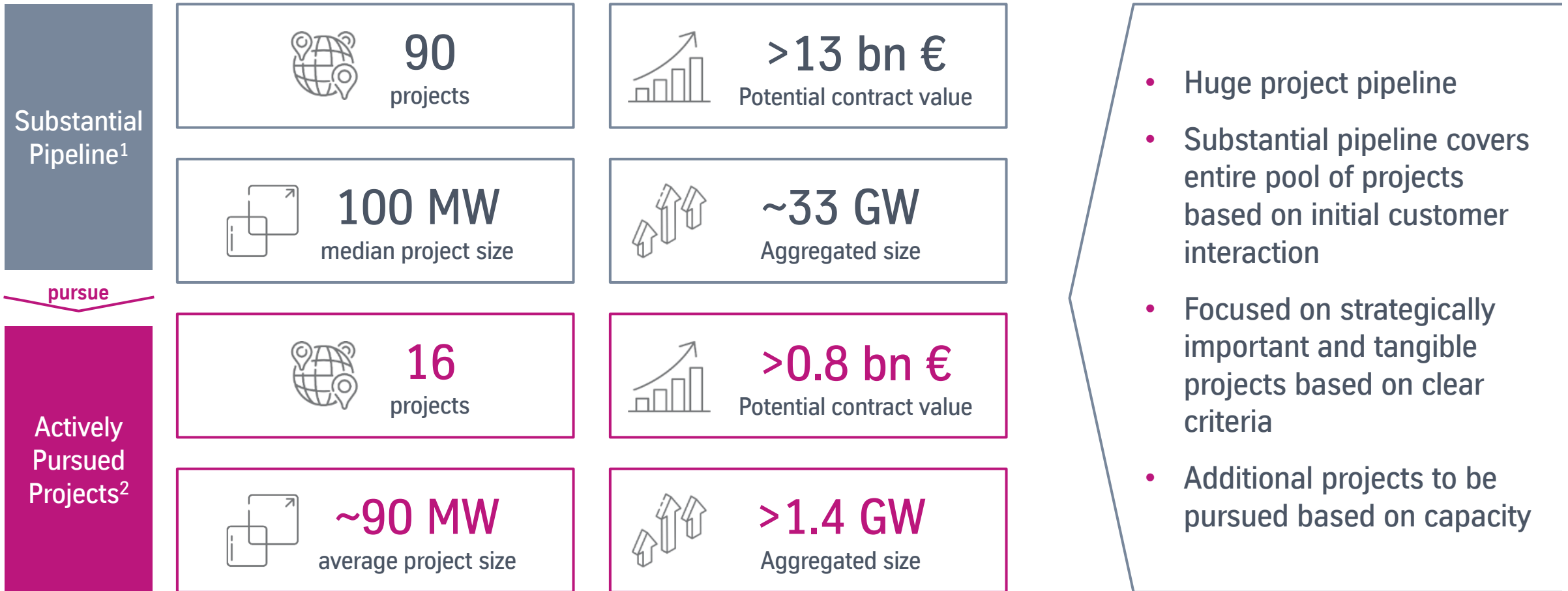


2024 Start-up

Recently meaningful industrial scale projects have been contracted and there is more to come

1. Based on publicly available information as of December 2021 2. For further details please refer to the thyssenkrupp press release as of 10 January 2022

AWE pipeline continues to grow across many countries for industrial-scale projects



Data as of 31 December 2021 1. Projects which thyssenkrupp nucera had first interactions with & that are being monitored closely 2. Projects which already passed the pursue / non-pursue gate

Overview of thyssenkrupp nucera financial reporting

Segment overview

thyssenkrupp
nucera

- Currently represented by 5 legal entities with dedicated P&L responsibility
- Fiscal year end September 30th



Germany



Italy



Japan



China

RoW

Rest of
World¹

Product groups overview

AWE

- New build projects
- First meaningful projects booked in FY20/21
- Service for AWE to ramp-up



CA

- New build projects
- Historically over 600 realized projects
- Ongoing service and maintenance of electrolysis plants

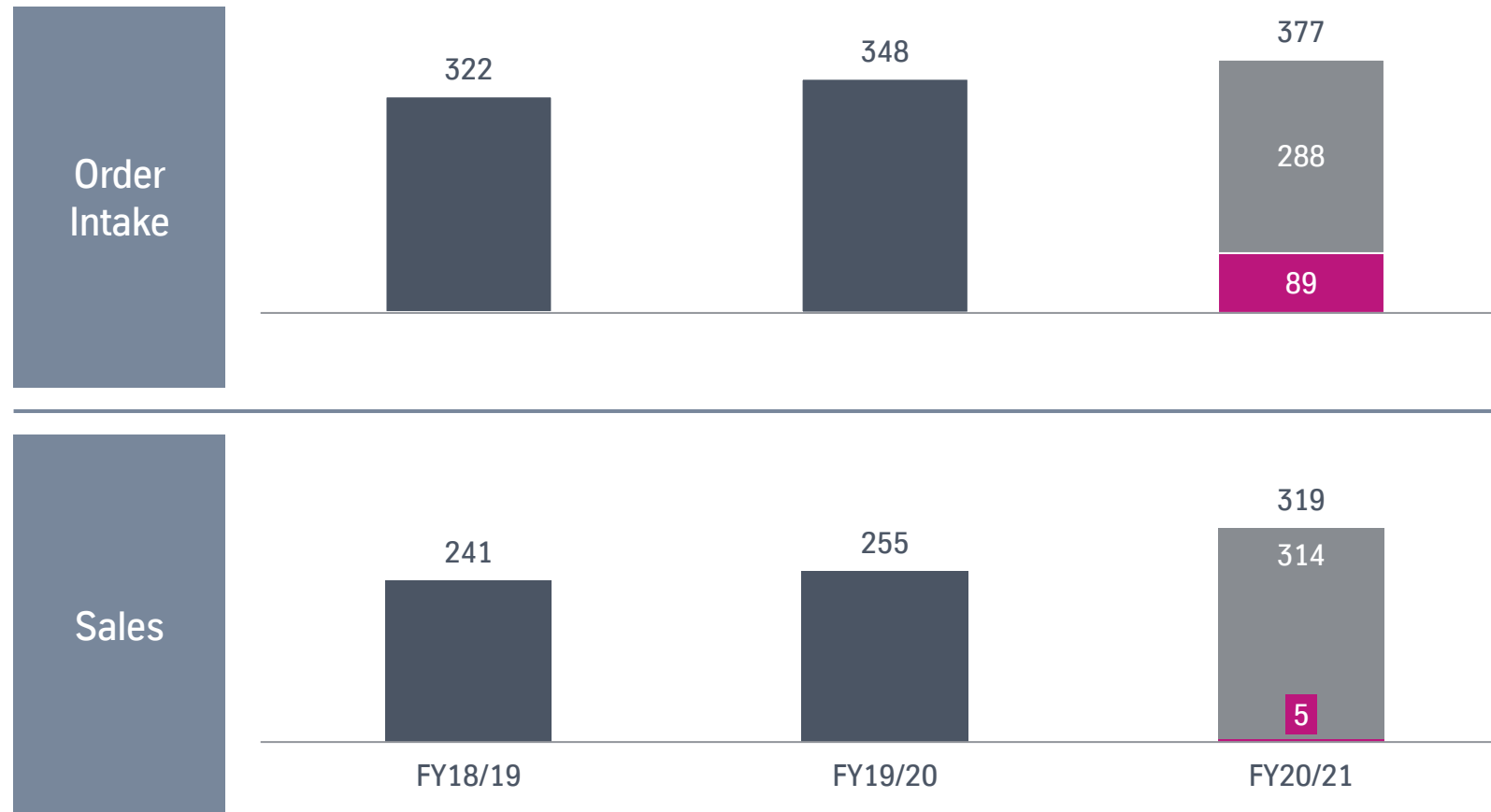


Segment reporting is centered around thyssenkrupp nucera's main locations

1. As of 30 September 2021 US only while new legal entities in Australia and Saudi Arabia are in the process of being established

Group | Stable Order Intake and Sales with strong growth in FY20/21

Key financials (mn €)



Order Intake

- First meaningful AWE projects have been booked in FY20/21
- The NEOM and Shell projects have been signed post Sep-21 and will be reflected in Q1

Sales

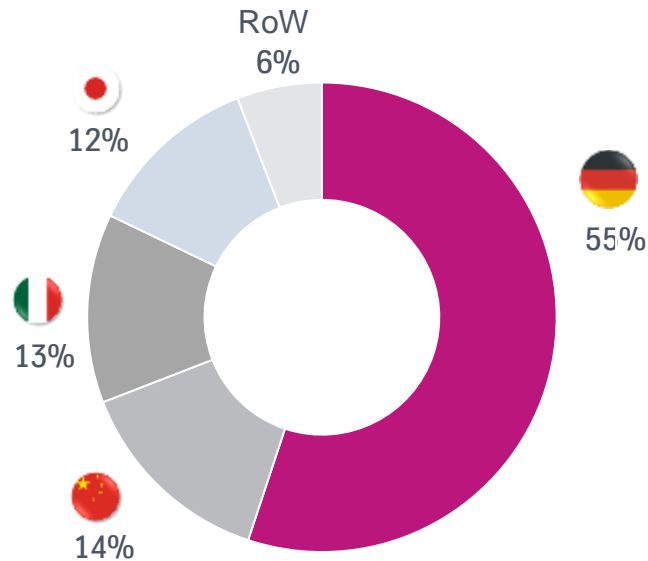
- FY20/21 Sales follows strong previous Order Intake

thyssenkrupp nucera's AWE business has realized first meaningful Order Intake and Sales in FY20/21

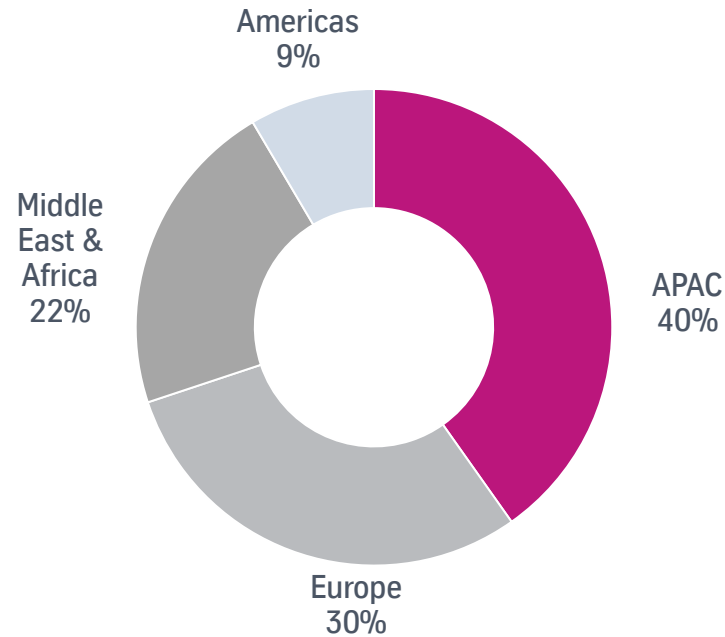
■ Group ■ AWE ■ CA

Group | Balanced global footprint represented by thyssenkrupp nucera's segments

FY20/21 Sales by segment¹



FY20/21 Sales by destination



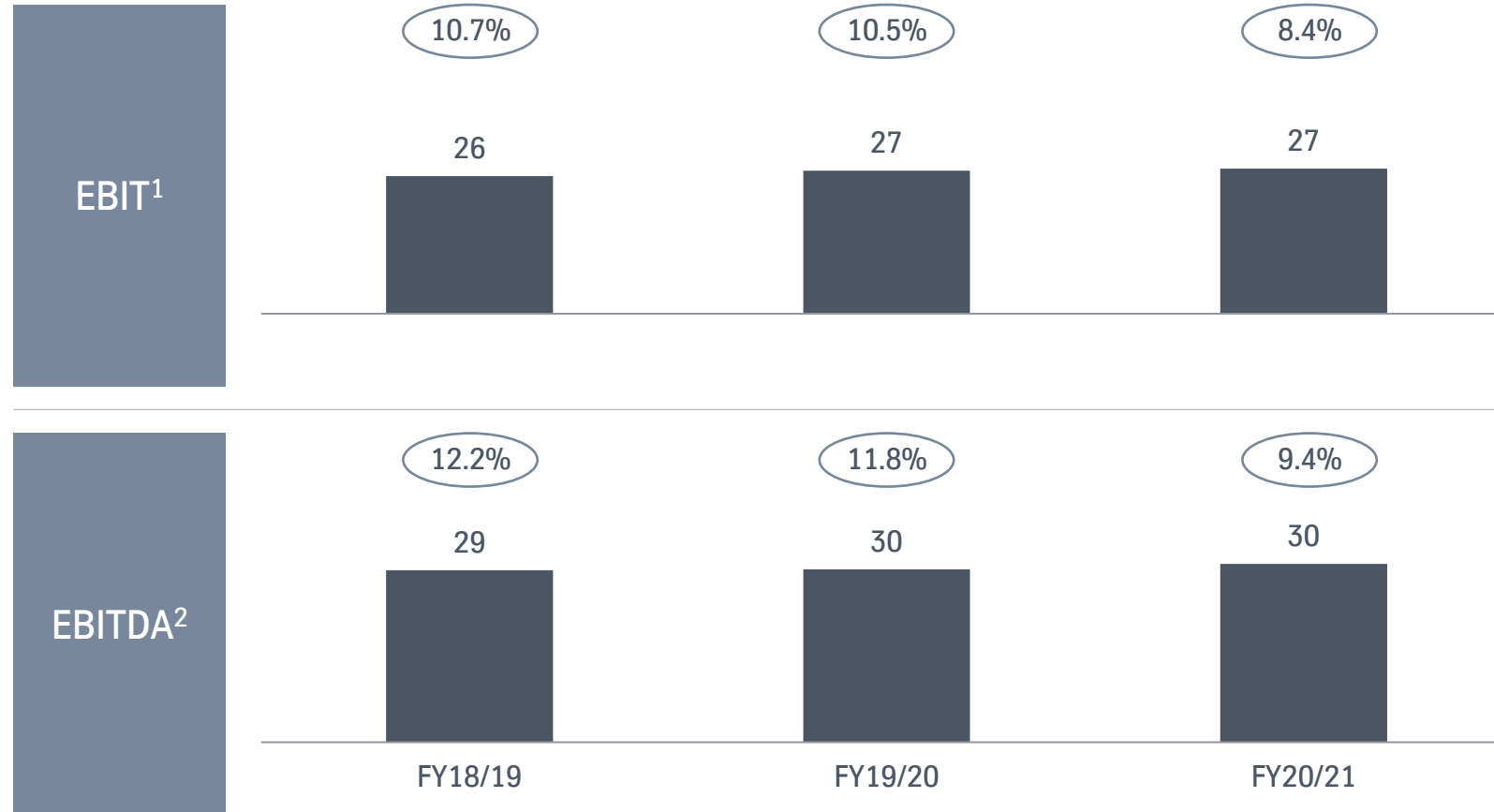
- Germany is the largest segment with Sales predominantly in Europe and Middle East & Africa
- Global reach and balanced geographical Sales by destination

Global business with existing footprint to reach customers worldwide

1. External sales

Group | Consistently profitable operations

Key financials (mn €)



- Margins in FY20/21 include AWE ramp-up costs
 - Increased SG&A expenses due to first AWE orders
 - Increased R&D costs (which are fully recognised in P&L) in FY20/21 to drive AWE development
- D&A in line with asset light business model

Stable historic margin profile with slight dip in FY20/21 due to AWE ramp-up

1. Refers to income from operations 2. Income / (loss) from operations plus depreciation, amortization and impairment of non-current assets

○ % of sales

Group | Cash generating business with certain working capital swings

Key financials (mn €)



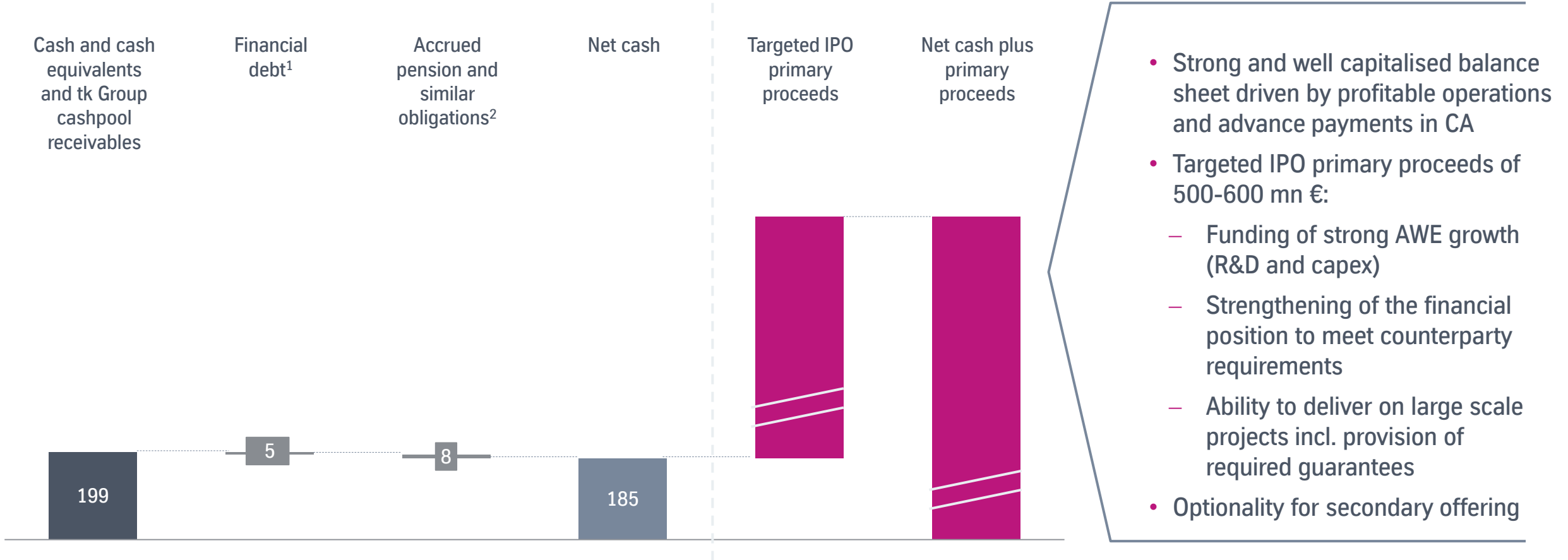
- Historic negative NWC driven by pre-payments
- Investing cash flow includes limited capex requirements given thyssenkrupp nucera's asset light business model

Historic Net Working Capital profile driven by CA business' pre-payments

1. As per Balance Sheet and defined as: Inventories + Trade account receivables + Contract assets – Trade accounts payable – Contract liabilities
 2. As per Cash Flow Statement and defined as: Changes in assets and liabilities, net of non-cash effect, for Inventories, Trade accounts receivable, Contract assets, Trade accounts payable, Contract liabilities

Group | Use of targeted IPO primary proceeds and pro-forma capital structure

Capital structure as of September 2021 (mn €)



Healthy balance sheet ready to scale-up AWE with additional primary proceeds from IPO

1. Includes lease liabilities current and non-current and other financial liabilities 2. Includes accrued pension and similar obligations and provisions for other non-current employee benefits

thyssenkrupp nucera is committed to its financial targets

AWE

Sales

- **600 mn € – 700 mn €** Sales by FY24/25
- Service Sales are expected to ramp up **6-8 years** after installation

EBIT

- **Break-even** around FY23/24
- In the long-term increase to **low double digit margin** also driven by increasing service share

CA

Sales

- Sales reflect project business related Order Intake movements, expected at around **300 mn € by FY25/26**
- Thereafter, expected to grow in line with **GDP**

EBIT

- Mid-term target to achieve **high single-digit EBIT margin**

Group

R&D expense

- Aggregate R&D expense between FY21/22 and FY24/25 is expected to amount to **50 mn € – 100 mn €** (reflected in EBIT margin)

Cash flow

- Aggregate Capex between FY21/22 and FY24/25 is expected to amount to **150 mn € – 200 mn €** (incl. investments in technology)
- NWC expected to increase slightly into **positive territory** over time
- Free cash flow **break-even** expected around FY25/26

Financial targets reflecting thyssenkrupp nucera's attractive positioning and strong order backlog in AWE

EBIT and EBIT margin on product group level are not expected to be reported as part of the segment reporting in the near future

Q&A

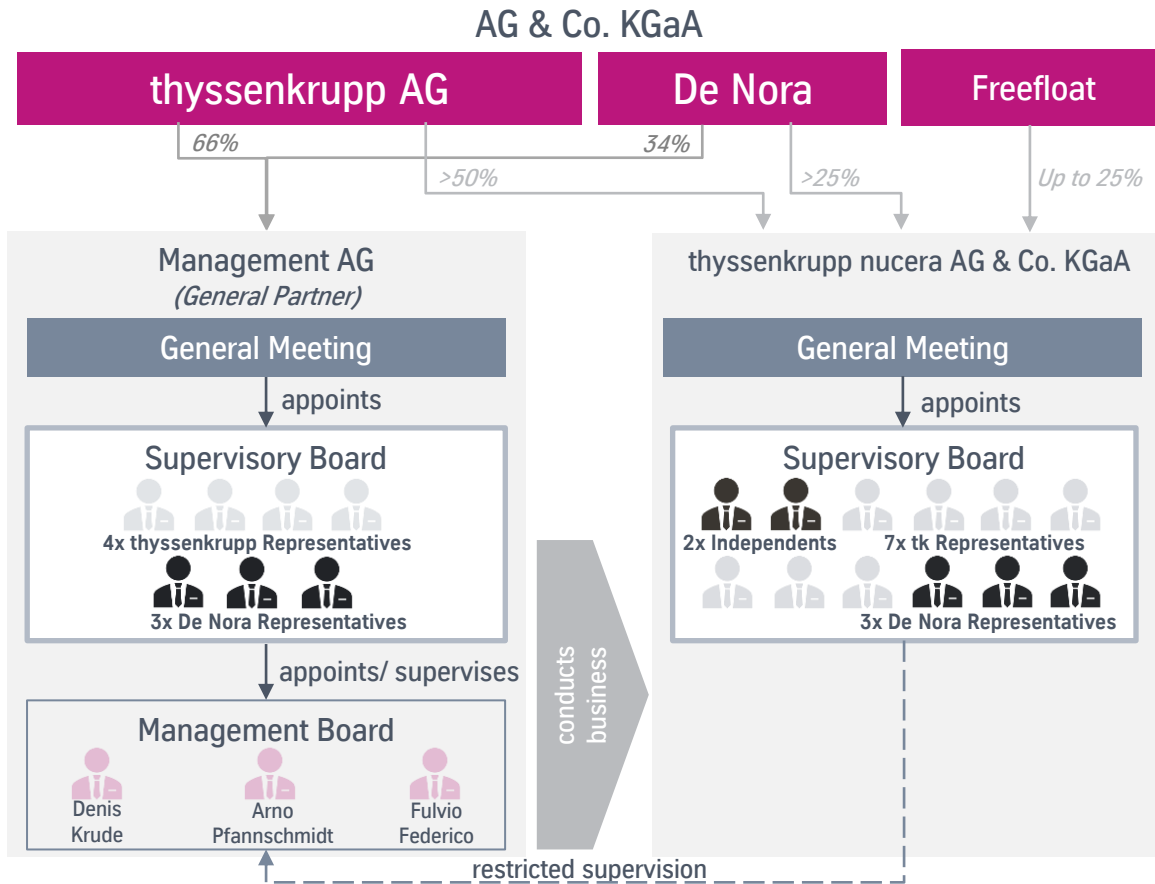
Appendix



thyssenkrupp
MULDER

KGaA structure will enable thyssenkrupp & De Nora to support strategy post listing, while enabling thyssenkrupp nucera to pursue its own commercial objectives

Overview of KGaA Structure and Governance



KGaA supports thyssenkrupp nucera's strategy & long-term partnerships

- **Balanced Supervisory Board composition:**
 - 2x independent members
 - 7x thyssenkrupp representatives
 - 3x De Nora representatives
- Shareholder relationship between thyssenkrupp nucera, De Nora and thyssenkrupp, including key governance, financing and oversight matters, to be set out in Shareholders Agreement
- Cooperation between thyssenkrupp nucera, thyssenkrupp and De Nora to be provided by in a Relationship Agreement as well as in Service and Toll Manufacturing Agreements (Cooperation Agreements)

Group | Summary Income Statement

(in mn €)	FY18/19A	FY19/20A	FY20/21A
Sales	241.2	254.7	319.1
<i>% growth</i>	<i>n/a</i>	<i>5.6%</i>	<i>25.3%</i>
Cost of sales	(183.8)	(195.7)	(250.1)
<i>% of sales</i>	<i>76.2%</i>	<i>76.9%</i>	<i>78.4%</i>
Gross margin	57.4	58.9	69.0
<i>% margin</i>	<i>23.8%</i>	<i>23.1%</i>	<i>21.6%</i>
R&D	(6.2)	(6.8)	(10.7)
SG&A	(19.6)	(21.1)	(27.3)
Other income /(expense), net	(5.6)	(4.3)	(4.1)
EBIT¹	25.9	26.7	26.9
<i>% margin</i>	<i>10.7%</i>	<i>10.5%</i>	<i>8.4%</i>
Financial income /(expense), net	1.1	0.8	(0.2)
Income tax expenses	(6.5)	(5.9)	(5.4)
Net income	20.5	21.7	21.3

1. Refers to income from operations

Group | Summary Cash Flow Statement

(in mn €)	FY18/19A	FY19/20A	FY20/21A
Net income	20.5	21.7	21.3
Depreciation & amortisation	3.4	3.3	3.2
Change in NWC ¹	(28.9)	(12.9)	18.2
Other operating cash flow ²	(6.0)	(7.7)	(6.0)
Operating cash flow	(11.0)	4.3	36.6
Capital expenditures	(0.9)	(1.8)	(0.3)
Proceeds from disposals	1.0	0.4	0.4
Investing cash flow	0.1	(1.4)	0.1
Dividends paid to equity holders	(43.4)	(10.9)	(3.1)
Proceeds from/(repayments on) loan notes and other loans	49.5	1.8	(25.3)
Other financing cash flow ³	(1.9)	(2.0)	(2.0)
Financing cash flow	4.2	(11.1)	(30.4)
Effect of exchange rate changes	1.3	(0.4)	(0.0)
Increase/(decrease) in cash and cash equivalents	(5.4)	(8.7)	6.3

1. As per Cash Flow Statement and defined as: Changes in assets and liabilities, net of non-cash effect, for Inventories, Trade accounts receivable, Contract assets, Trade accounts payable, Contract liabilities on disposal of non-current assets, Changes in assets and liabilities, net of non-cash effects in - Accrued pension and similar obligations and Other provisions, Other assets/liabilities not related to investing financing activities 2. Includes Deferred income taxes, net, (Gain)/loss redemption of lease liabilities 3. Includes Cash flows from

Group | Summary Balance Sheet assets

(in mn €)	FY18/19A	FY19/20A	FY20/21A
Property, plant and equipment	11.6	10.5	8.2
Goodwill	58.1	57.0	57.2
Intangible assets other than goodwill	2.3	1.7	1.3
Other non-current assets ¹	6.8	5.4	7.8
Total non-current assets	78.8	74.6	74.5
Inventories	86.6	91.0	61.3
Trade accounts receivable	25.7	37.8	38.3
Contract assets	4.8	4.1	16.1
Cash and cash equivalents and tk Group cashpool receivables	217.7	165.0	198.5
Other current assets ²	15.0	17.5	26.9
Total current assets	349.8	315.4	341.0
Total assets	428.6	390.1	415.6

1. Includes Other financial assets and Deferred tax assets 2. Includes Other financial assets, Other non-financial assets, Current income tax assets excluding Receivables from cash pooling arrangements with tk Group

Group | Summary Balance Sheet equity and liabilities

(in mn €)	FY18/19A	FY19/20A	FY20/21A
Equity attributable to equity holders	216.8	183.5	203.4
Accrued pension and similar obligations ¹	6.4	7.5	8.0
Other provisions	4.7	3.9	3.0
Deferred tax liabilities	3.2	3.5	7.6
Lease liabilities	5.6	3.7	2.3
Total non-current liabilities	19.8	18.7	20.9
Trade accounts payable	34.5	20.8	37.6
Contract liabilities	112.5	130.1	115.1
Lease liabilities and other financial liabilities	3.0	3.4	3.0
Other current liabilities ²	41.9	33.5	35.7
Total current liabilities	191.9	187.9	191.3
Total equity and liabilities	428.6	390.1	415.6

1. Includes Accrued pension and similar obligations and Provisions for other non-current employee benefits 2. Includes Provisions for current employee benefits, Other provisions, Current income tax liabilities and Other non-financial liabilities



thyssenkrupp
nucera

