

The background is a complex, abstract design featuring concentric circles and a central wind turbine. The turbine has three blades, one of which is white and the other two are grey. The background is composed of various shades of blue, green, and purple, with some areas having a textured, almost crystalline appearance. The overall effect is one of modern, high-tech engineering.

Decarbon Technologies

Equity Story

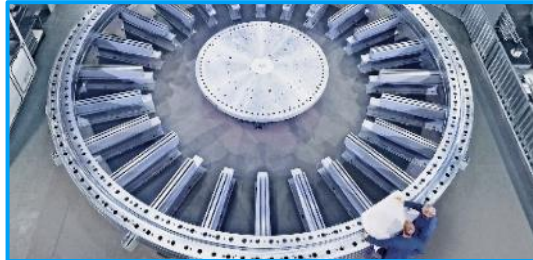
November 2023

engineering. tomorrow. together.



thyssenkrupp

DT combines key technologies for decarbonization with a broad industrial customer base



Rothe Erde

Producer of (large) slewing bearings and rings

Broad range of industrial applications incl. renewable energy



Uhde

Suite of green technologies to support energy transition

Plant engineering & project delivery for chemicals such as ammonia/ methanol



Polysius

Plant engineering and service in the cement/lime industry

Technologies for emission reduction, efficient carbon capture processes



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Supplier of electrolyzers for green hydrogen

Plant engineering for chlor-alkali production

Selected examples of customer base

- Siemens Gamesa
- Vestas
- JCB
- GE Renewable Energy

- Saudi Aramco
- Uniper
- ADNOC
- Qatar Energy

- CEMEX
- Heidelberg Materials
- GCC
- Holcim

- Air Products
- Shell
- Covestro
- Unigel

Key technologies for industrial decarbonization

+

Coverage of crucial steps in green H₂ and renewable energy value chain

+

Extensive customer base with broad industry reach

1. Publicly listed company with thyssenkrupp AG as majority shareholder



Decarbon Technologies bundles key technologies for Green Transformation

Rothe Erde



- Global No. 1 supplier for **slewing bearings** and leading supplier for **rings**
- Mission critical **components for wind energy**
- **Enormous opportunities** from global expansion plans for wind energy

Polysius



- Paving the way for **climate-neutral transformation** of the **cement and lime industry**
- Solutions to **reduce CO₂** within production process (e.g., clinker factor reduction, carbon capture)

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- **Technology leader in electrolysis plants** to produce **green hydrogen**
- **Successful IPO** underpins opportunities of the hydrogen market and its growth prospects

Uhde



- **Technology leader** and global plant engineering capabilities
- **Wide range of technology portfolio** to support industrywide green transition (e.g., ammonia, methanol, ammonia cracking)



Executive board of the Decarbon Technologies segment with strong business acumen

Miguel Lopez

Chief Executive Officer DT (also CEO tkAG)

- Extensive experience in the industrial equipment sector and in the field of new energies
- Various executive positions in industrial corporations (e.g., Siemens AG, Norma Group SE)



Dr. Klaus Keysberg

Chief Financial Officer DT (also CFO tkAG)

- Broad industry expertise with a focus on the automotive industry and the material trading sector
- Former CFO positions in various tk businesses and segments (e.g., thyssenkrupp Bilstein GmbH)



Cetin Nazikkol

Chief Strategy Officer DT¹ (also Head of tk APA)

- Strong expertise in development of new business models with focus on technology and sustainability
- Former leadership and strategy positions in various tk businesses (e.g., thyssenkrupp Steel Europe AG)



Michael Höllermann

Chief Human Resources Officer DT

- Longstanding experience in plant engineering and human resources
- Part of tk for over 30 years with executive positions in various group companies



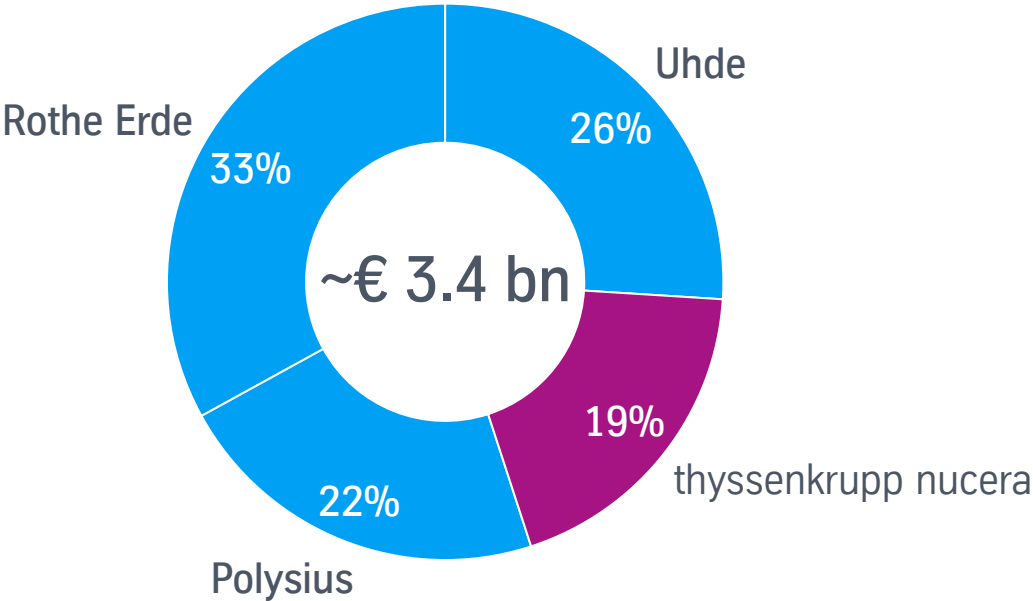
Note: Executive board of DT-segment. thyssenkrupp nucera as publicly listed company with separate executive and supervisory board 1. Designated



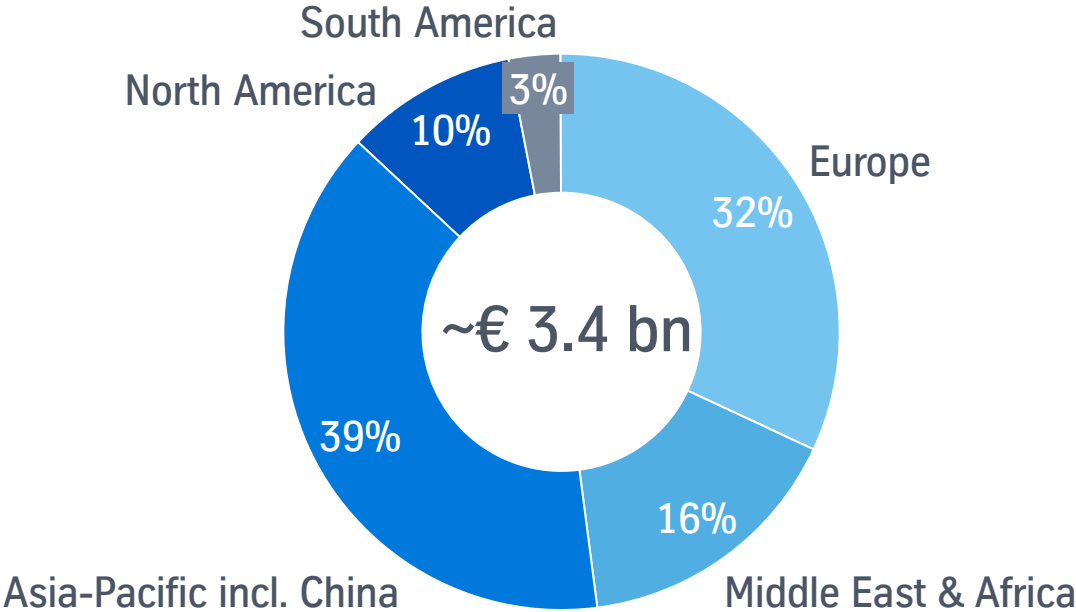
Revenue by business and region FY 22/23

Pro-forma figures, bn €

 Revenue by business in FY 22/23

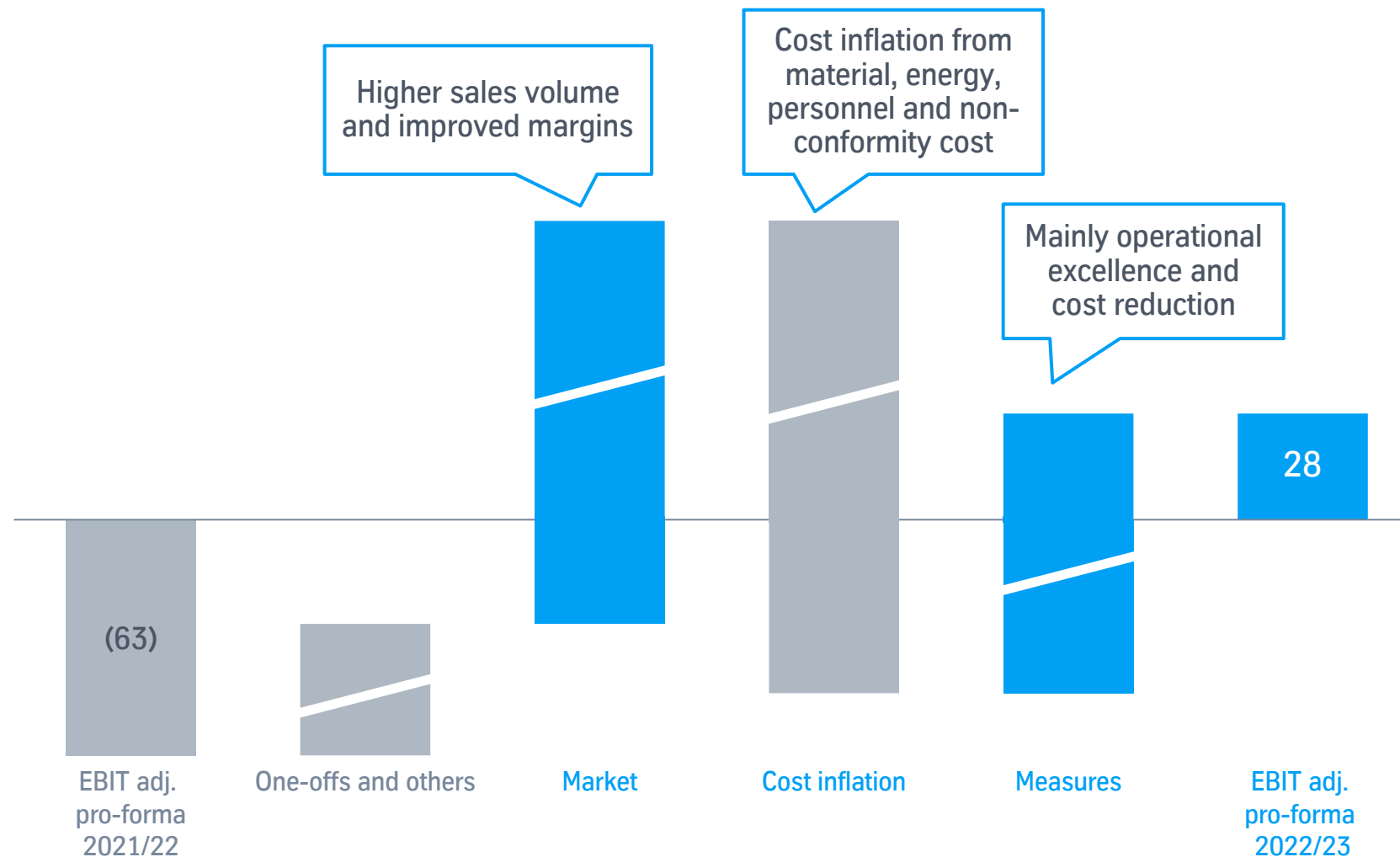


 Revenue by region in FY 22/23



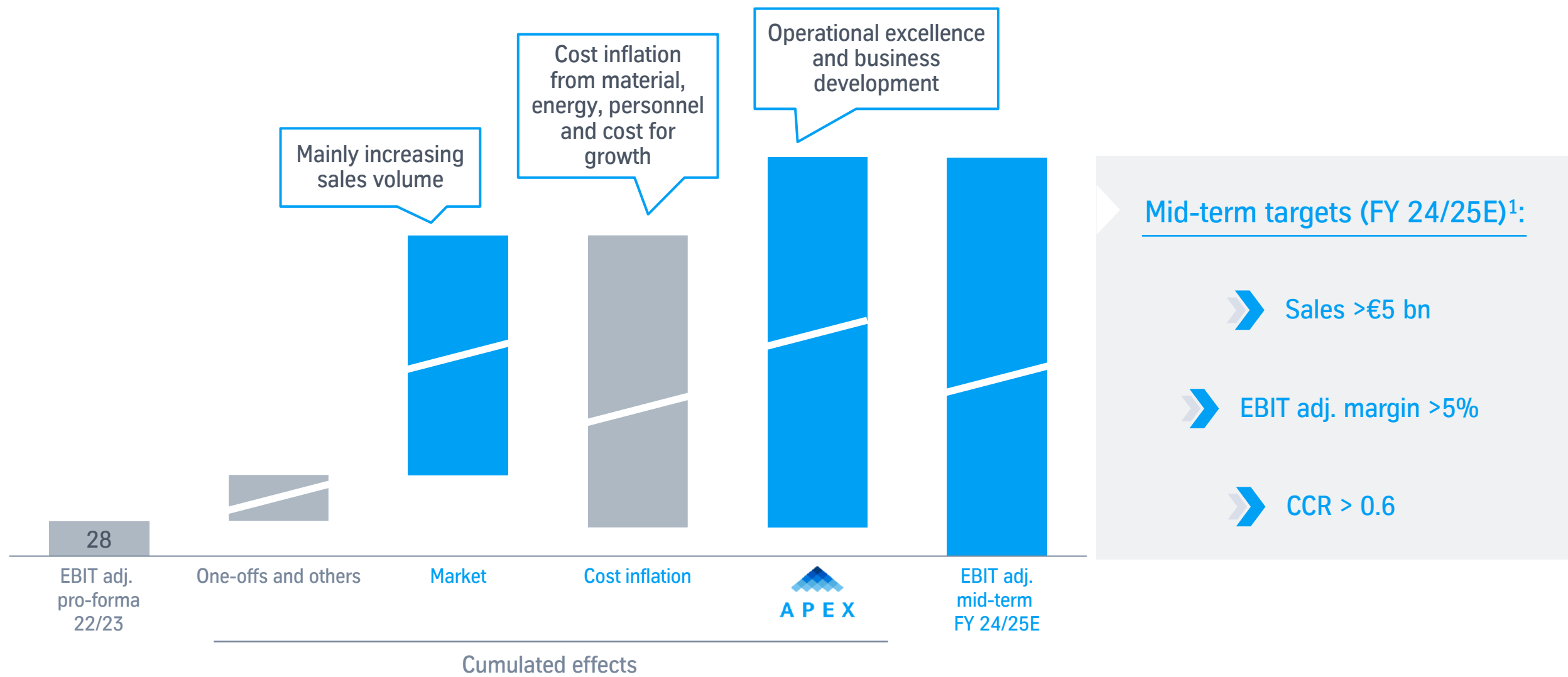
FY 2022/23: EBIT adjusted turnaround strongly supported by measures

Pro-forma figures, mn €



Mid-term targets established – growth and efficiency gains drive performance

Pro-forma figures, mn €



1. Based on current set-up



Key highlights Decarbon Technologies

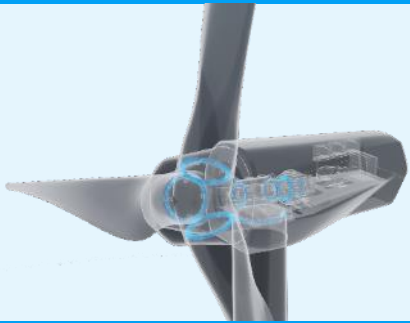
- 1 | Enabler for decarbonization across industries and market leader in attractive key technologies
- 2 | Well-established businesses with access to customers and large installed base
- 3 | Global Player with regional customer focus on main growth markets
- 4 | Clear path for commercializing decarbonization technologies with strong focus on performance
- 5 | Consequent initiatives to enhance execution excellence at industrial large-scale projects
- 6 | Significant order backlog and strongly growing order intake with attractive margins
- 7 | Experienced management with cross-industrial expertise



1 | DT businesses possess world-leading technological solutions for industrial decarbonization

Selected highlights of the technology portfolio

Rothe Erde



Bearing solutions for multi-megawatt wind turbines **on- and offshore**

Uhde

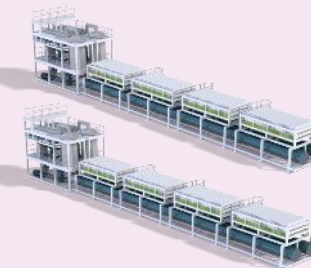
Energy efficient ammonia plants with capacity ranging above 3300t per day; driving industrywide decarbonization efforts with broad technology portfolio e.g., **methanol, ammonia cracking, biomass gasification**



The polysius® **pure oxyfuel technology** is the best-in-class technology for **carbon capture** in cement and lime production

Polysius

Highly efficient **20 MW AWE module scalum®** for production of green hydrogen at industrial scale




thyssenkrupp
NUCERA



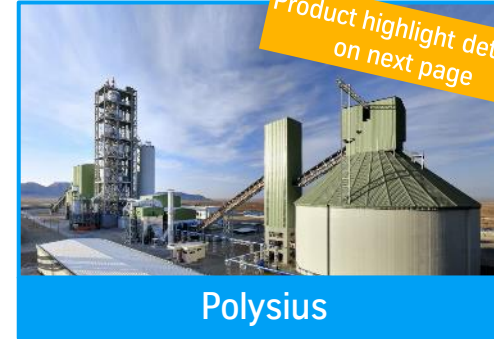
1 | Leading market positions established – decarbonization offers further growth potential



Rothe Erde



Uhde



Polysius

Product highlight detailed on next page



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Long-term market drivers



Renewable energy transition



Ammonia as fuel as well as a hydrogen vector & methanol as fuel and as a chemical pre-cursor



Decarbonization of cement and lime production; aging installed base



Further ramp-up of hydrogen production

Current market positioning

High performance large diameter **slewing bearings and rings** for mission critical applications

End-to-end solution provider for clean ammonia plants and other wide range of green technologies

Full range solution provider for the cement and lime industry incl. green tech, service, and automation solutions

System provider for green hydrogen (AWE) and chlor-alkali, as well as hydrochloric acid solutions

Market leadership

Market leader for **large slewing bearings**, supplying attractive and diverse end markets incl. **wind power**

Market leader in large scale **uhde® ammonia process**; proven experience in **first of its kind e-methanol** and **biomass gasification**

Leader in **decarbonization solutions** such as **polysius® pure oxyfuel**

Industry leader for green hydrogen technology with **20 MW AWE module “scalum®”**



1 | Highlight Polysius | We are at the frontline of reducing CO₂-emissions to almost zero



Oxyfuel: Sustainable technological leadership

New
production
process

Clinker production under pure oxygen
environment for high grade CO₂-emission

Allows full
CO₂ neutral
cement plant

Capturing of CO₂ during production for
direct usage or storage

Attractive
customer
business case

Cost savings on CO₂-emission
certificates

Large installed
base can be
addressed

Potential to address global mature
markets following EU boom



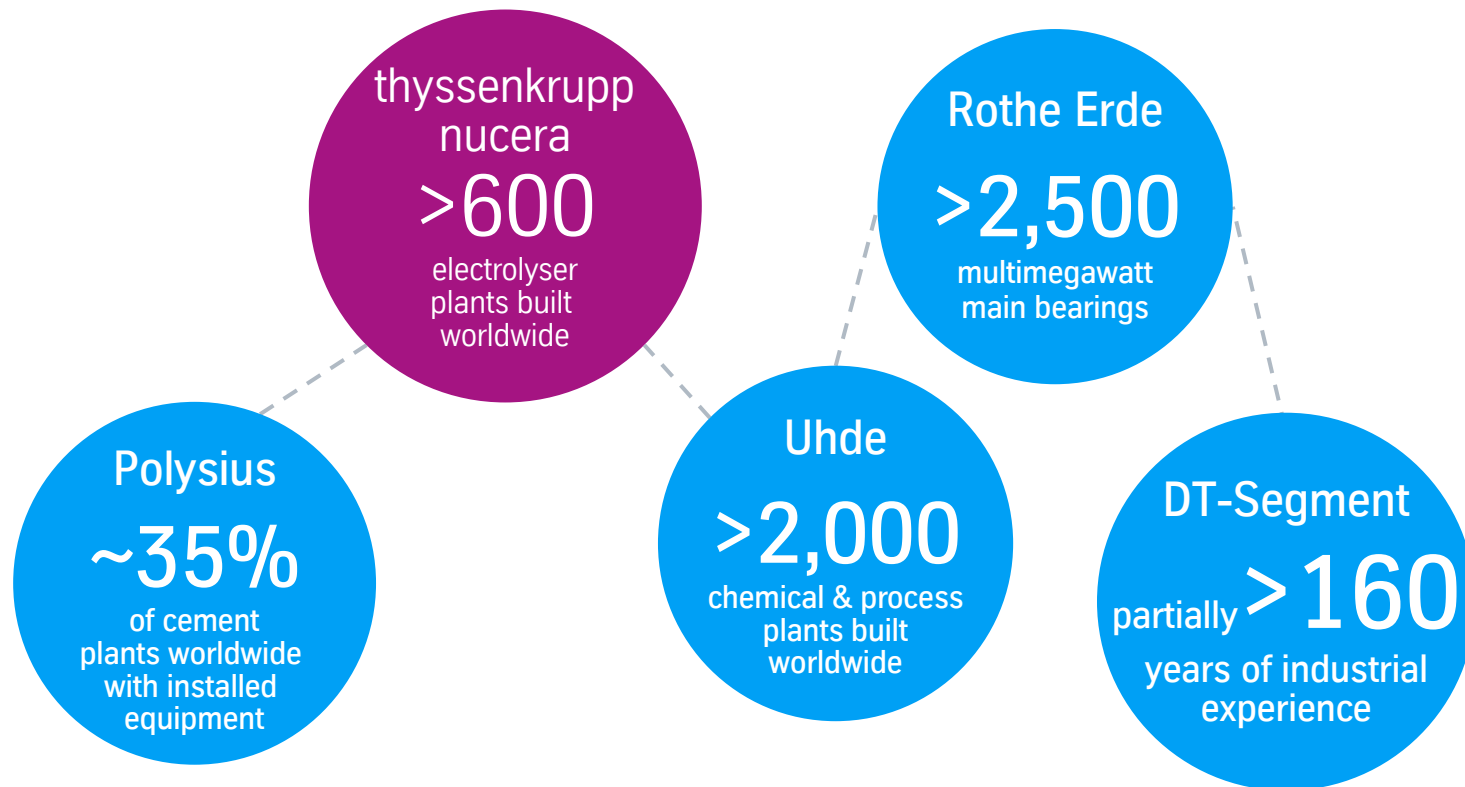
Our USPs

Technology protected by 15+ patents and patent applications
Process integrated, compact design






2 | Significant market presence and ready for additional growth

Market presence and experience

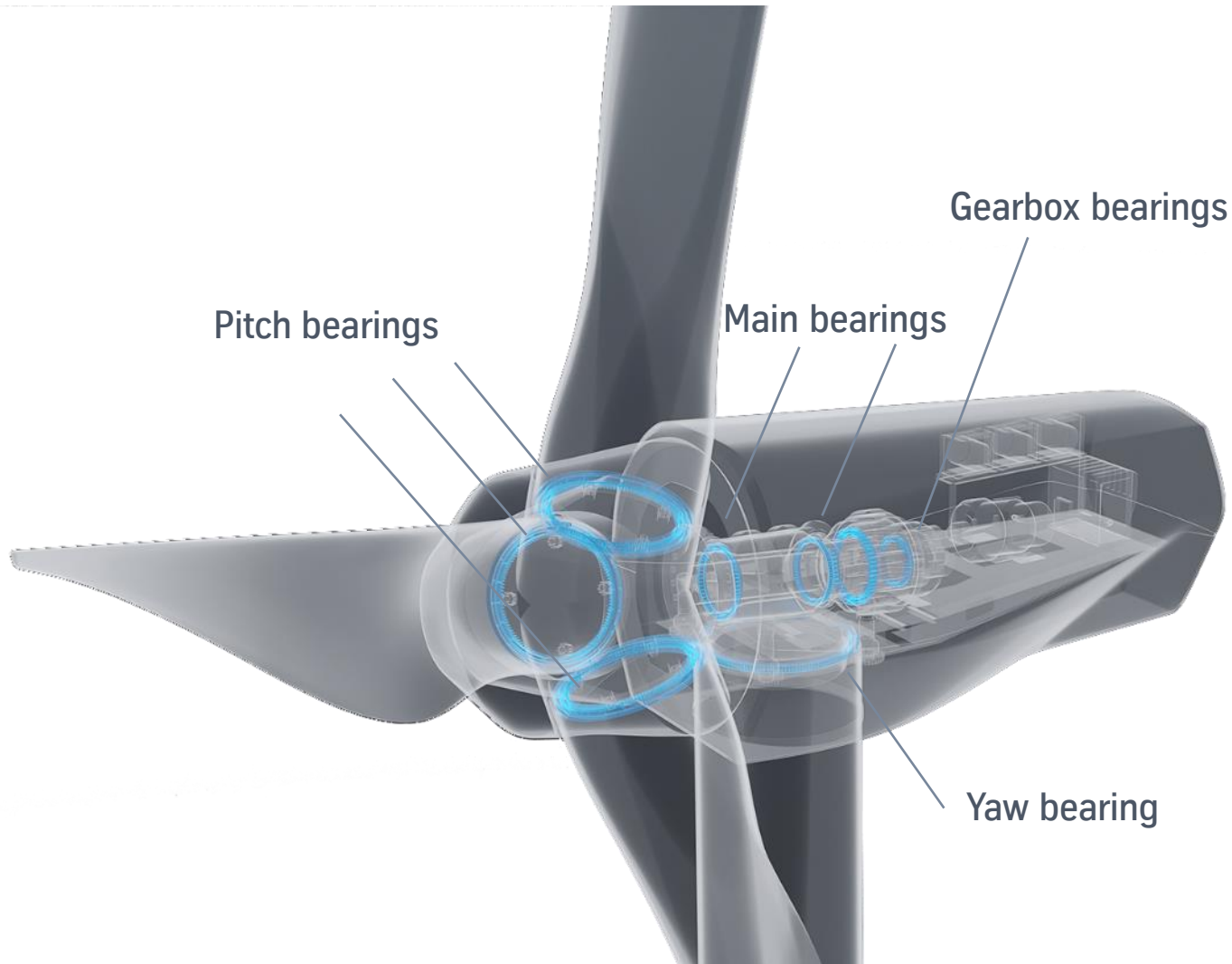


Key advantages

-  **Long-time experience:**
Best-practices have been acquired over decades
-  **Profound experience:**
Expert knowledge in a broad range of international plant engineering
-  **Precondition for additional growth:**
Large installed base and close customer relationships as catalyst for additional (service) business



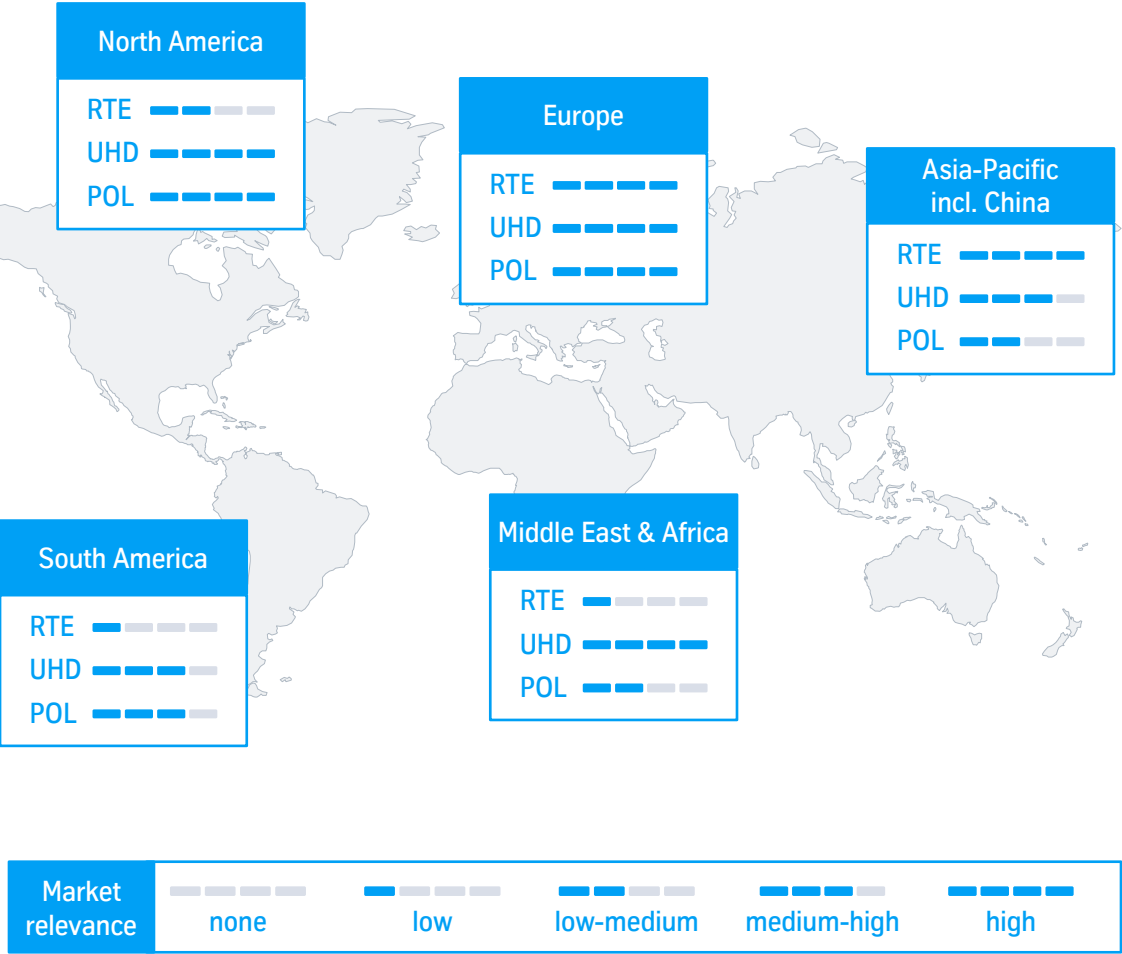
2 | Highlight Rothe Erde | Our technology for multimegawatt wind turbines



- ✓ **Customized** | Tailor made according to customer needs
- ✓ **Innovation** | Bearing design and break-through developments for the benefit of our customers
- ✓ **Experience** | More than 50 years in wind industry and thousands of bearings operating worldwide
- ✓ **Quality** | Design, Manufacturing, Testing without compromise – according to APQP4Wind
- ✓ **Reliability** | Proven designs for all wind turbine types – based on leading FEM calculation tools, validated by true to scale tests
- ✓ **Performance** | Established track record with thousands of bearings operating under harshest conditions – on- and offshore
- ✓ **Value Chain** | Expertise and concepts for integrated solutions of Hub or Drivetrain (e.g., Pitch Bearing Unit)
- ✓ **Service** | Global Service for Pre- and Aftersales



3 | Decarbon Technologies is a true global player with regional focus on all relevant markets



Notes: DT-businesses are abbreviated as follows – Rothe Erde = RTE; Uhde = UHD; Polysius = POL

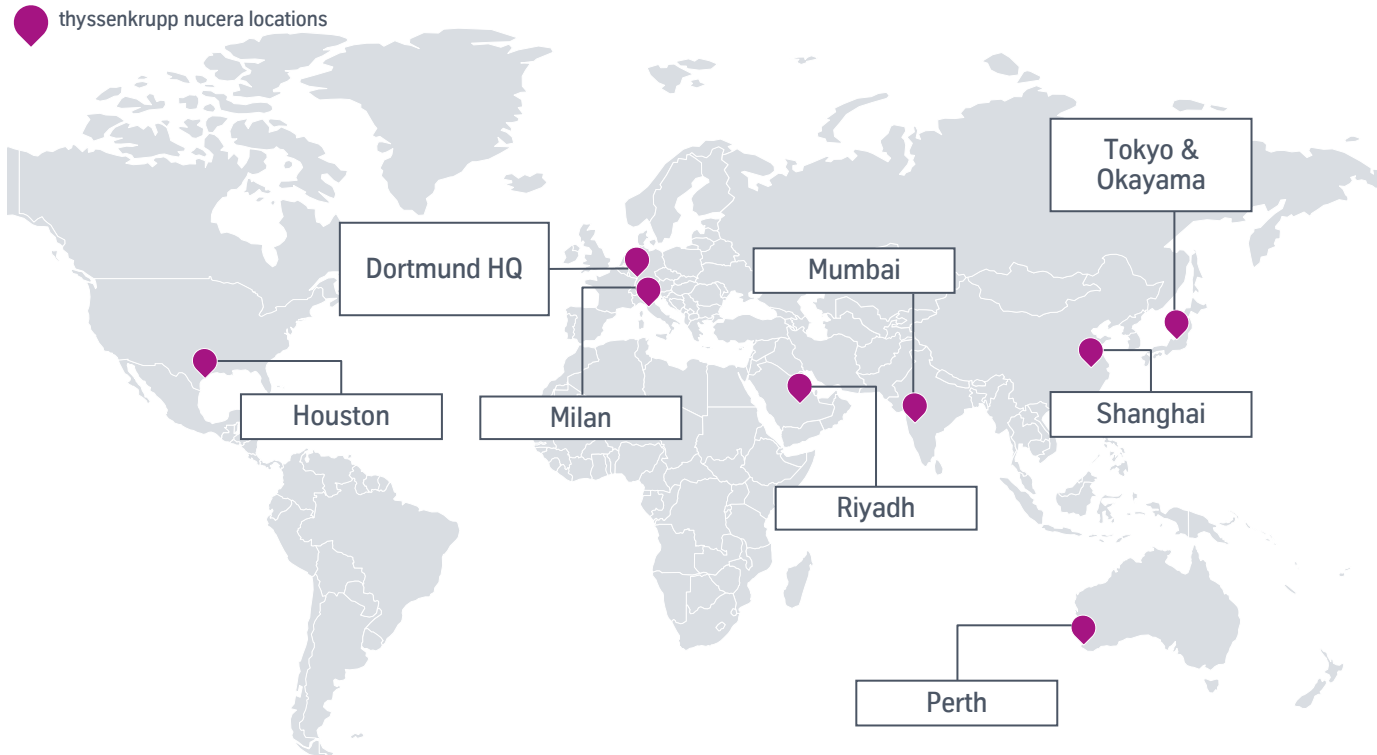
Selected highlights

North America	RTE	Evaluation of opportunities in offshore wind (IRA)
	UHD	Technology hub for blue ammonia and N2O/NOx abatement technologies to support regional customers
South America	UHD	Regional sales hub for the future growth region (e.g., biomass, methanol)
	POL	Alternative fuels and clinker factor reduction plus additional service growth potential on installed base
Europe	RTE	Increased testing capacities for main bearing solutions
	POL	Globally strongest installed base for service
Middle East & Africa	UHD	Regional sales and execution hub as well as global competence centre for fertilizer digitalization
	POL	Activated clay for clinker factor reduction and extensive installed base for further service growth
Asia-Pacific incl. China	RTE	Start of main bearing production in China
	UHD	Global competence centre for power-to-X value chain (AU) and ammonia loading/unloading solutions (IN)



3 | Highlight thyssenkrupp nucera | Global organization to capture accelerated growth in green hydrogen

Global presence – Current focus on NAM and Europe...



Current focus on **North America** and **Europe**

- Strong push due to IRA in the US and ramp-up of local organization
- Europe as home market and important green hydrogen destination – initiatives such as RePower EU, NZIA¹ and European Hydrogen Bank as strong market impulses





Objective: **Serve all relevant green H₂ markets globally by 2030**

- Sequenced approach to expand business geographically in sync with our organizational ramp-up and establish a global footprint



4 | Clear path for commercializing our leading decarbonization technologies with strong focus on performance

Uhde product highlight detailed on next page

	Modularization/standardization	RTE	Development of innovative hub and drivetrain systems solutions
		POL	Modular/standard solutions for oxyfuel plants and establishing concept & basic engineering as a product
	De-risking of plant business	UHD	Stronger focus on high margin share of business, e.g., licencing, engineering, propriety equipment and service
		POL	Focus on USP engineering and supply portion as well as further increase of service business
	Further growth opportunities	RTE	Systematic use of opportunities for service and spare parts growth from aging wind turbine population
		UHD	Further expand regional service hubs to provide revamp, performance optimization and digital services
	Evolution of business model	<ul style="list-style-type: none"> • Transition of business model to highly standardized product business for high-volume serial fabrication for GW hydrogen projects • Significant upside potential due to high value-add aftermarket and life cycle service offering in the long-term driven by strong market position in a dynamically growing industry 	

Mid-term targets
(FY 24/25E)¹:

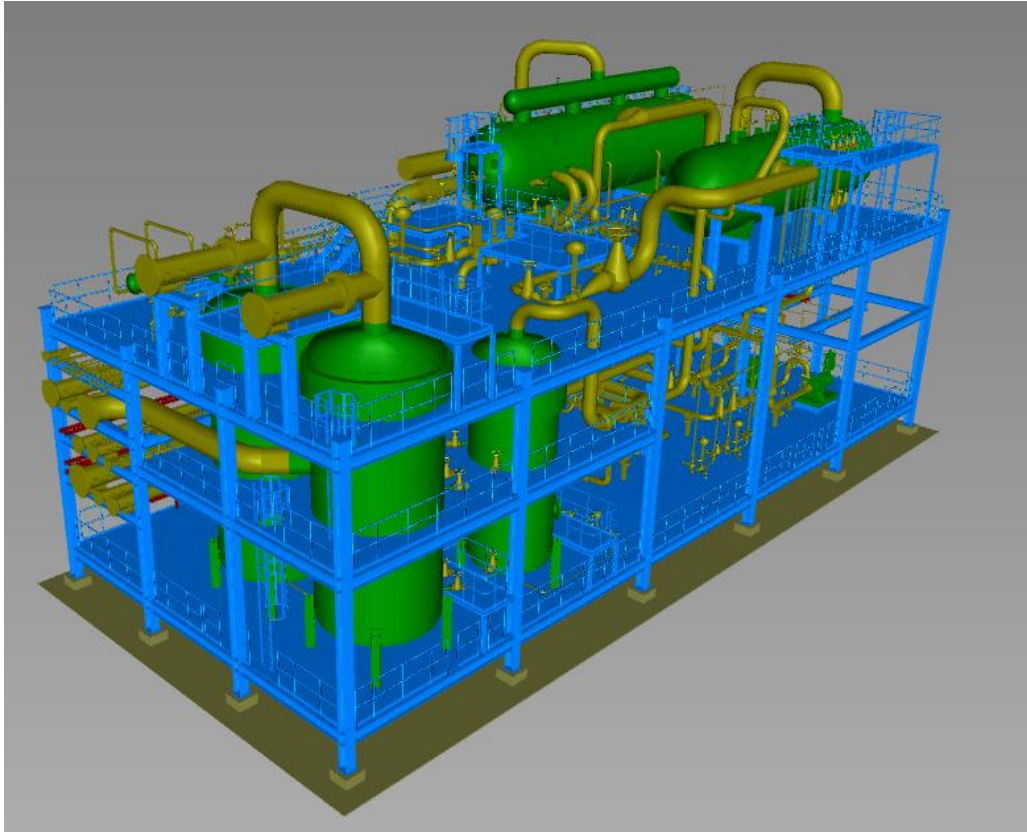
>€5 bn Revenue

>5 % EBIT adj.
margin

Notes: DT-businesses are abbreviated as follows – Rothe Erde = RTE; Uhde = UHD; Polysius = POL 1. Based on current set-up



4 | Highlight Uhde | Combining Uhde's modularization and standardization capabilities enables accelerated scale-up and integration readiness of green ammonia plants



Exemplary 3D view of one module

Modularization

- Improvement in safety performance
- De-risked schedule
- Higher quality control
- Smaller environmental footprint

Standardization

- Development of standard plant sizes supported by market demand
- Reduced delivery times
- Reduced complexity
- Reduced costs through economies of scale



Leveraging synergies, cost savings and improved fabrication efficiency leads to increased competitiveness, risk mitigation and unlocking of capacity constraints

Uhde is preparing itself for the increased demand resulting from enormous future investments in green markets



5 | Consequent initiatives to enhance execution excellence at industrial large-scale projects

Overarching targets



Continuous enhancement of execution excellence



Ongoing simplification and standardization of processes



Best-in-class performance regarding results, quality, and efficiency

Business-specific initiatives

Rothe Erde

- Global production network with **scalable manufacturing lines**
- **Strengthening relationship** with leading OEMs as **strategic partner**, e.g., systems supplies for wind turbine modules

Uhde

- **4Uhde transformation program** with a target to **achieve 50% of revenue** and steady bottom-line effects from **clean technologies** by FY26-27

Polysius

- Focus on **developing standard models for oxyfuel**
- **Descope EPC-model** with partner for construction part
- **Integration of sales and execution**



6 | Recently formed alliances and acquired projects underline the leading role of the Decarbon Technologies segment in key lighthouse initiatives for sustainable development

Rothe Erde



- **Strategic partnership** with leading western OEM & LTA until 2028
- **Major share-of-wallet agreement** with leading OEM for 2024 worldwide demand

Uhde



- **Qatar Energy** selected Uhde for their **world scale blue ammonia** project
- Uhde awarded contract by ENOWA, NEOM's **energy/water company**, to supply a **green methanol** & methanol-to-gasoline plant

Polysius



- **First industrial pilot** for polysius® pure **oxyfuel technology**
- **Door opener** for further **large projects**, both in innovation environment (e.g., Carbon2Business) & regular EP in coming years

thyssenkrupp nucera



- **NEOM: >2 GW** installation – one of the largest projects – **project on track, first modules in fabrication**
- **H2green steel:** supply modules for a green steel plants with **more than 700 MW capacity**



7 | Experienced management with cross-industrial expertise

Rothe Erde



CEO

Winfried
Schulte



CFO

Philipp
Conze



COO

Dr. Wilfried
Spintig

Uhde



CEO

Dr. Cord
Landsmann



CFO

Misa
Djenic



COO

Lucretia
Löscher



CHRO

Walter
Schön

Polysius



CEO

Pablo
Hofelich



CFO

Dr. Alexander
Just



CSO

Frank
Ruoss

thyssenkrupp nucera¹



CEO

Dr. Werner
Ponikwar



CFO

Dr. Arno
Pfannschmidt



CTO

Fulvio
Federico

Significant cross-industry experience ✓

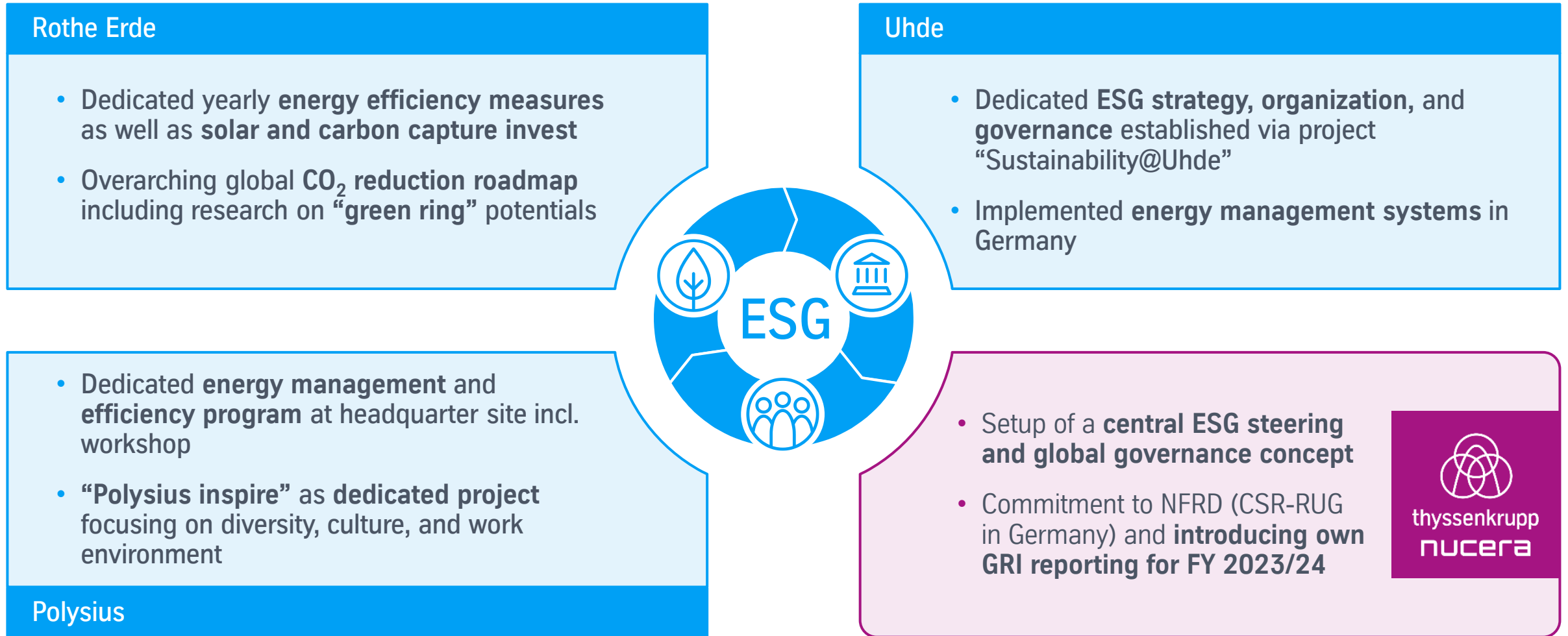
Leading technological experience ✓

Global management experiences ✓

1. Publicly listed company with thyssenkrupp AG as majority shareholder



In line with our mission to decarbonize the industry, ESG is an integral part of our business



Decarbon Technologies: The “green industrial powerhouse” enables a broad industrial customer base for decarbonization



Decarbon Technologies bundles thyssenkrupp’s **key technologies** for the green transformation



The businesses are **global market leaders** in highly-attractive sustainable growth markets



Decarbon Technologies has a **clear path** for commercializing our leading technologies with **strong focus on business performance**



Strong order intake and focus on execution excellence combined with an experienced management team paves the way for **sustainable value creation**



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