ANDRITZ CAPITAL MARKETS DAY

HYDROPOWER

FRÉDÉRIC SAUZE
EXECUTIVE BOARD MEMBER

JANUARY 24, 2024

ANDRITZ
ENGINEERED SUCCESS

AGENDA

1 | INTRODUCTION

2 | OUR SUSTAINABILITY PRODUCTS

3 | MARKET DEVELOPMENT / FRAME CONDITIONS

4 | STRATEGIC DIRECTION

5 | FINANCIALS

6 | OUTLOOK

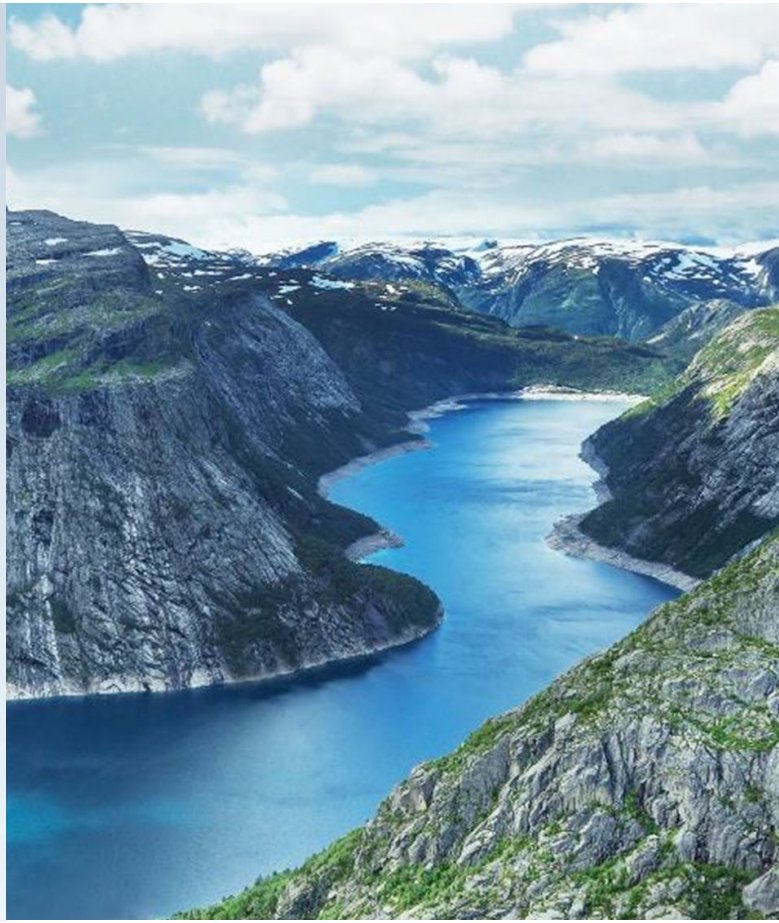
HYDROPOWER

Securing the global electricity production and supporting the green energy transition

ANDRITZ HYDROPOWER

- One of the world's **leading suppliers of electromechanical equipment and services** for hydropower stations
- **180 years** of experience
- 470 GW of installed or refurbished capacity

- We provide:
  - **Innovative solutions** for new and existing hydropower stations
  - From **small hydropower to large-scale plants**
  - State-of-the-art **digital solutions**
  - Comprehensive **services for the operation and maintenance** of entire hydropower plants
  - **Turbo generators** for the thermal power generation



STRONG POSITION IN ALL BUSINESS SEGMENTS

LARGE HYDRO

48%
626 MEUR*

#1-2

Hydro- and electro-mechanical equipment for large turn-key/ expansion projects; as well as modification of existing plants (large rehab)

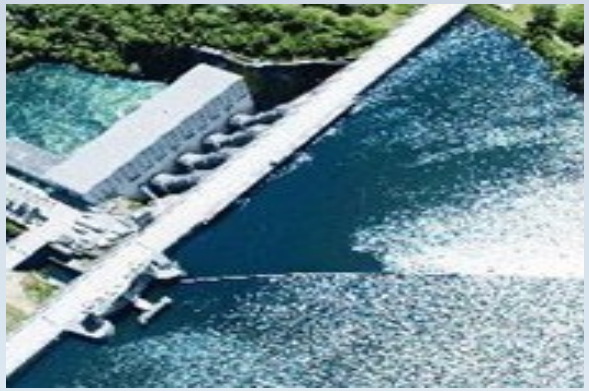
COMPACT HYDRO

4%
55 MEUR*

#2-3

World's leading provider for small hydropower plants -providing the full spectrum of electro-mechanical equipment

SERVICE & REHAB

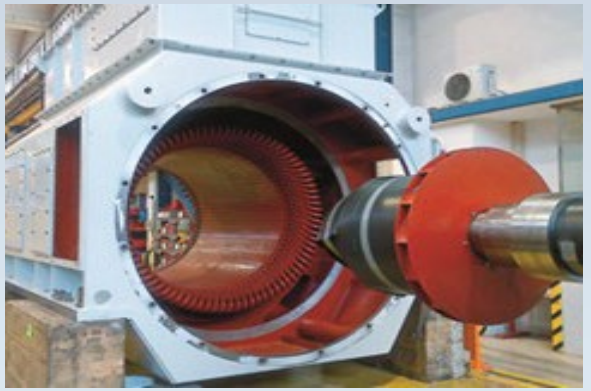


40%
531 MEUR

#1

Service and rehabilitation solutions to increase profitability and extend plant life span; automation and digitalization

OTHERS



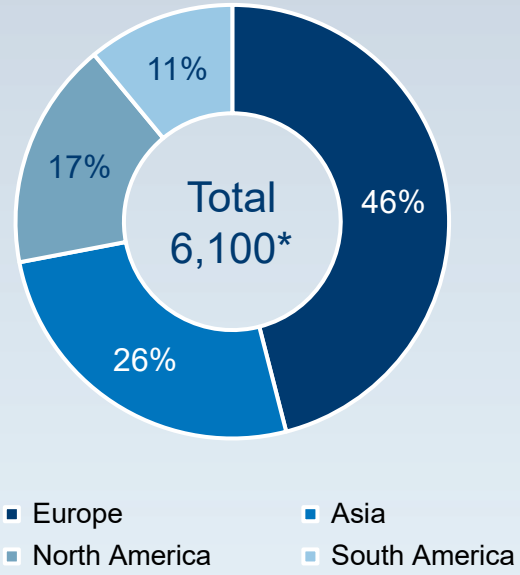
8%
100 MEUR

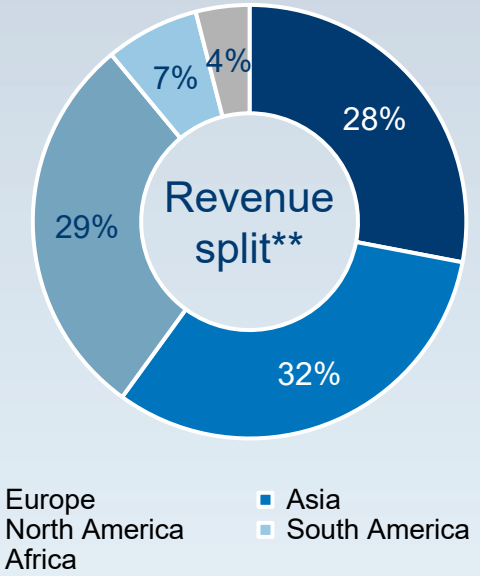
Turbo generators for thermal industry

* Share of total HYDROPOWER revenue, FY2022
# Global market position, estimated by ANDRITZ

HYDROPOWER

Regional split of employees & revenue



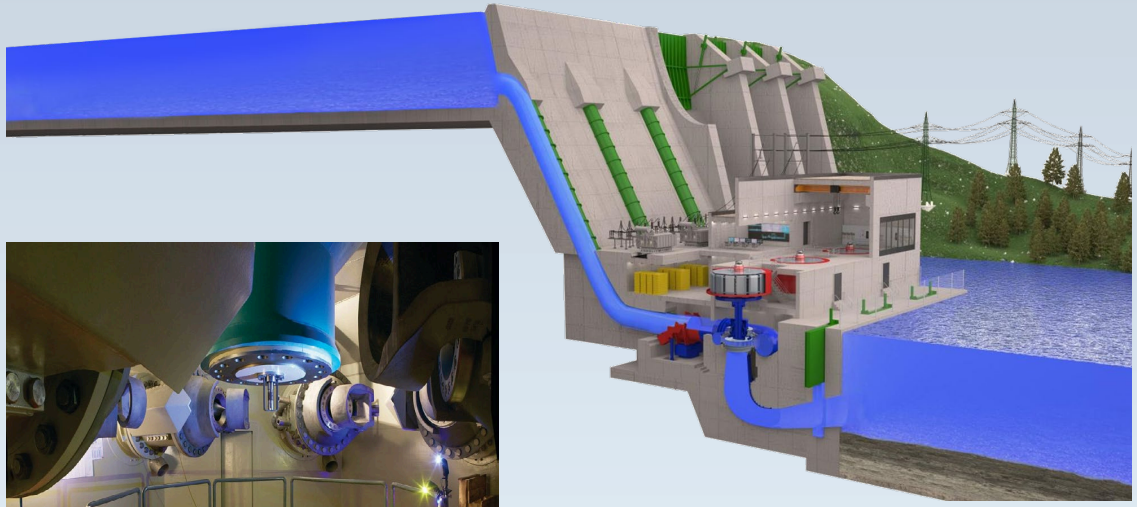


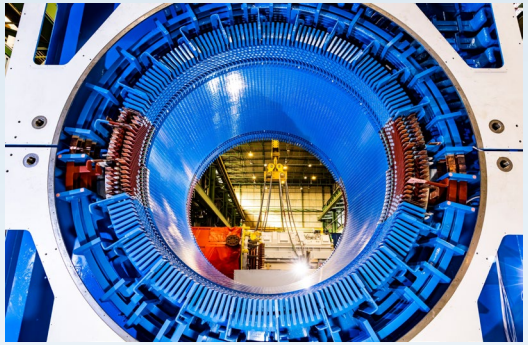
6,100 EMPLOYEES:

- 48% Technology, engineering, project management (incl. site staff)
- 17% Sales and marketing, administration
- 35% Manufacturing & supply chain

*Employees as of end 2022
**Region of final destination revenue split at end 2022

A QUICK PRODUCT OVERVIEW AT A GLANCE





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OUR CONTRIBUTION TO SUSTAINABILITY

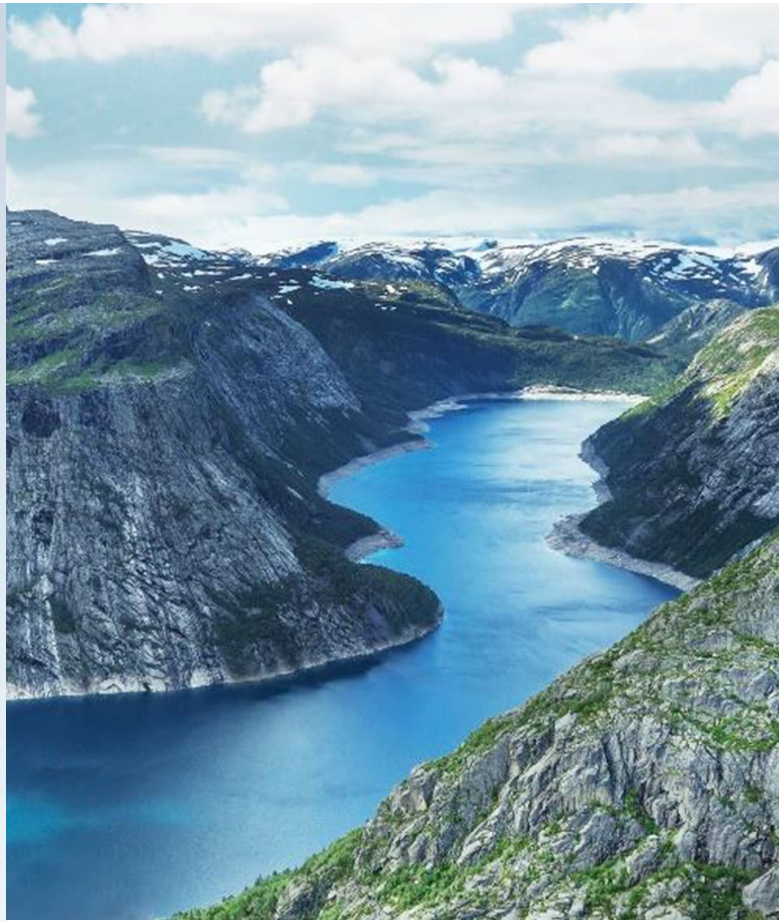
How can ANDRITZ contribute to climate neutrality and climate protection with our products?

Low-carbon and emission-free

- **ANDRITZ with its globally installed fleet of turbines and generators contributes to global CO_2 emission savings with about 700 million tons/year** (equivalent to 9x Austria‘s annual emissions)

Charging up variable renewables

- Hydropower is **an enabler to variable renewables like wind and solar**, thanks to its flexibility and energy storage services
- Hydropower can meet demand when these intermittent sources are unavailable
- **Pumped storage hydropower, operating like a green, rechargeable battery**, absorbs energy when supply exceeds demand



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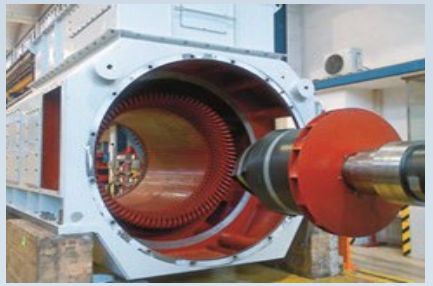
COP 28: “THE BIGGEST STEP FORWARD FOR RENEWABLES SINCE THE 1.5°C PARIS AGREEMENT”

The pledge to triple the global renewables power capacity to 2030 was included in the final text at COP28.
This goal cannot be delivered without sustainable hydropower, which provides the flexibility and storage for variable technologies like wind and solar.

Eddie Rich, CEO of IHA commented:
“Whilst the overall outcome from COP28 is mixed, the sustainable hydropower community welcomes the commitment the world’s leaders have made today on the future for renewables.
To triple renewables deployment without falling back on fossil fuels will require the flexibility and storage that only hydropower can bring at scale. Finding models that incentivize sustainable hydropower requires political will and action.

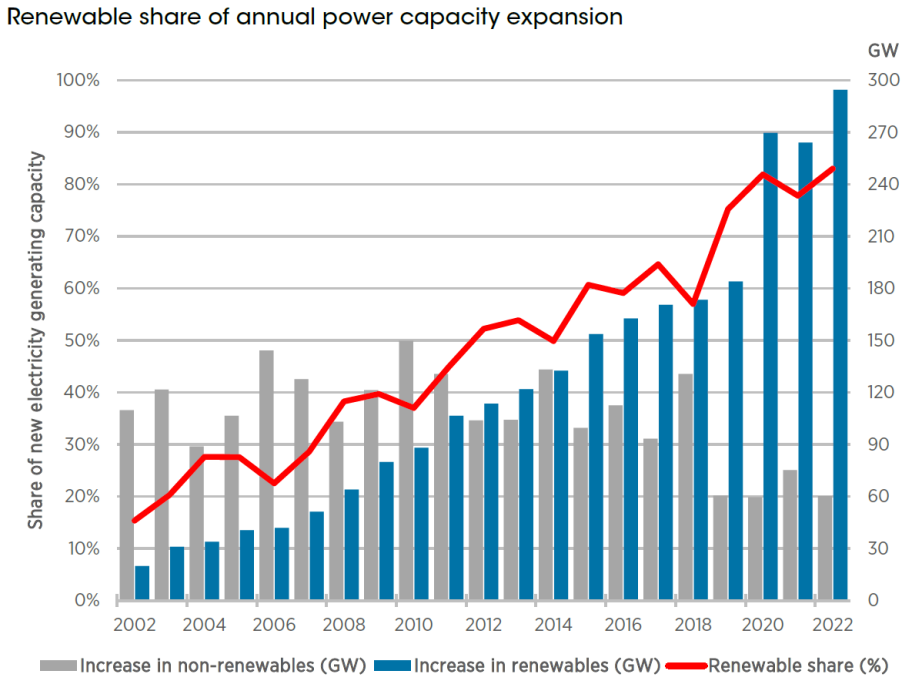
Water, wind and sun get the job done!”

HYDROPOWER

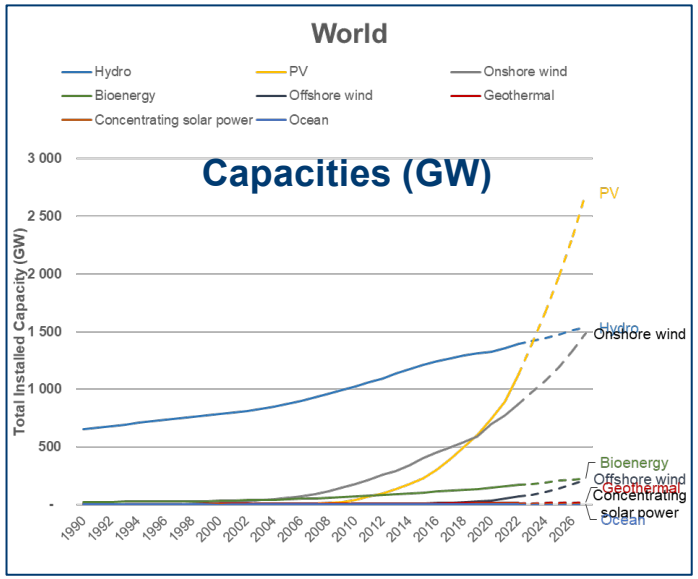
	LARGE HYDRO	COMPACT HYDRO	SERVICE & REHAB	OTHERS
				
Underlying mid-term market growth	2-3%	2%	3%	3%
Current strong regional markets	Asia, Australia, North America (Large Rehab), Europe	Asia	Europe, Africa	Europe and North America
Special growth opportunities	Middle East, Pumped storage, synchronous condenser	Large compact	Digitalization, operation & maintenance	Turbo generators

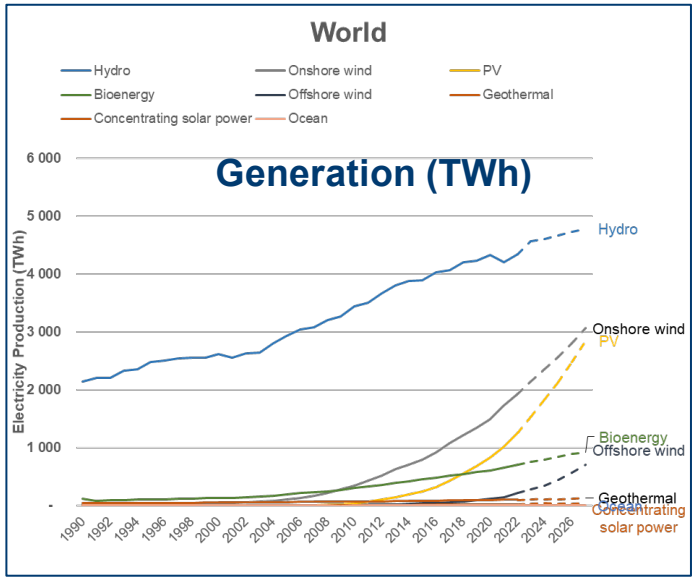
SUCCESS STORY OF RENEWABLES

9.6% record growth in renewables achieved in 2022



Source: IRENA, Renewable capacity statistics 2023



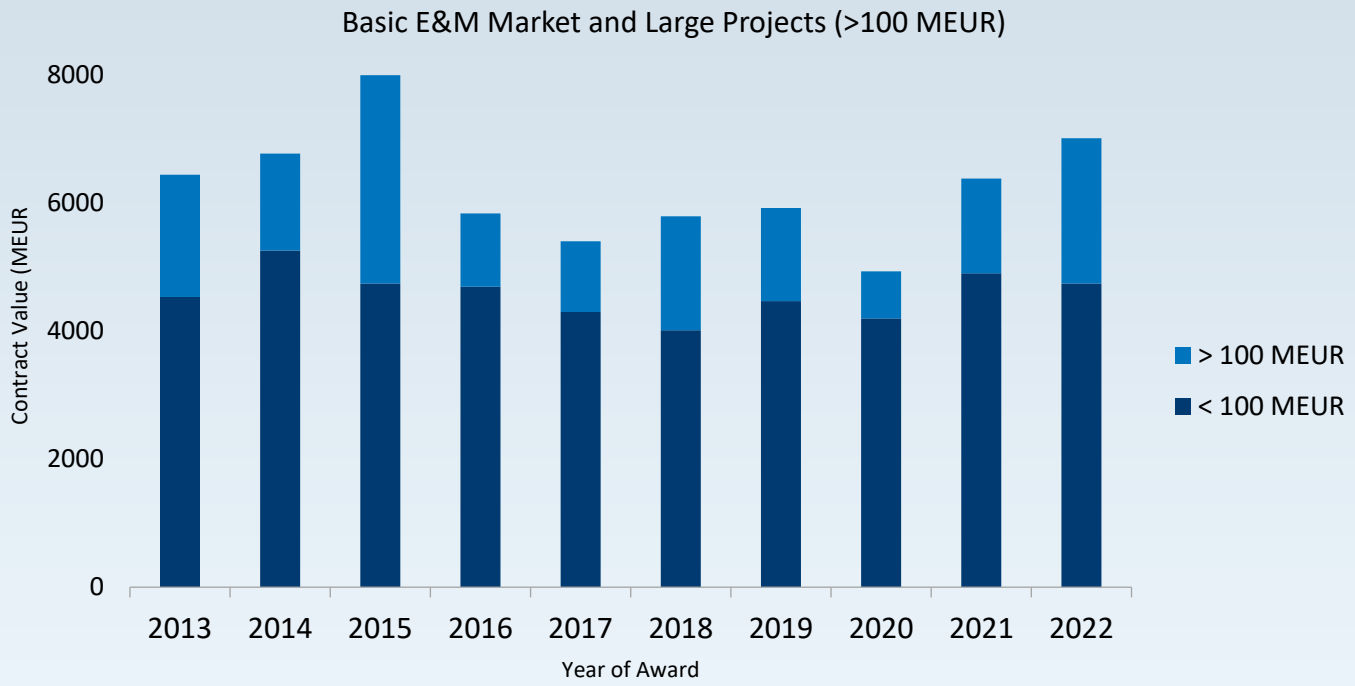


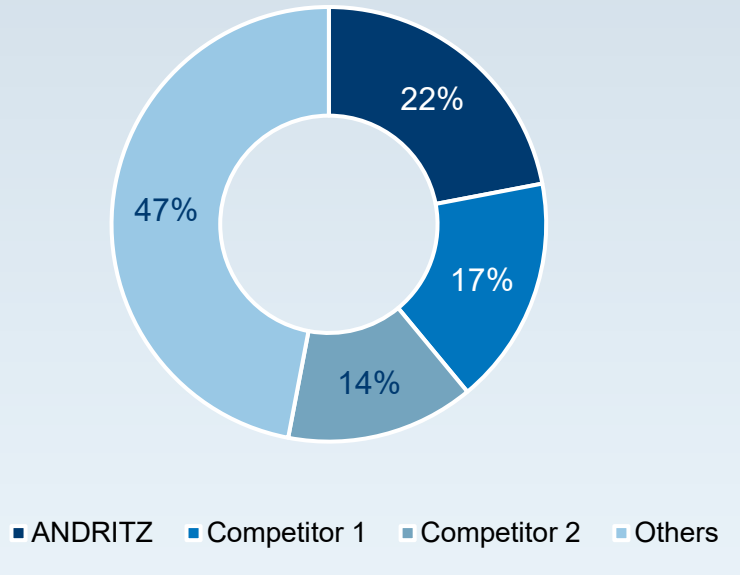
including pumped storage capacity

Source: IEA, Renewables 2022 - Analysis and forecast to 2027

INCREASING MARKET FOR ELECTROMECHANICAL EQUIPMENT

- Market growth influenced by presence/absence of large-scale projects (>100 MEUR)
- Stable "Basis" volume, around 4-5 BEUR, excluding large projects
- Strong post-COVID recovery and growth across all project sizes





Source: ANDRITZ

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BOOMING GREENFIELD MARKET

Globally existing carbon free target programs boosting green field hydropower

- Overall market for greenfield has developed worldwide in line with the tendencies of the last years
- More and more being on the top governmental priorities worldwide
- Global demand of green hydrogen will additionally boost the hydropower market
- Increasing activities of non-utility developers with low knowledge of and experiences in hydropower.
- **Early Contractor Involvement (ECI)** contributes, if accompanied by an adequate investment in predevelopment activities, to several project development (mainly greenfield / PSP) with a positive contribution on the gross margin development by preventing mutual risks.

- **Pumped Storage Projects (PSP)** Focus on China, India, Australia, Europe;
  North America still behind but opportunities on the midterm horizon

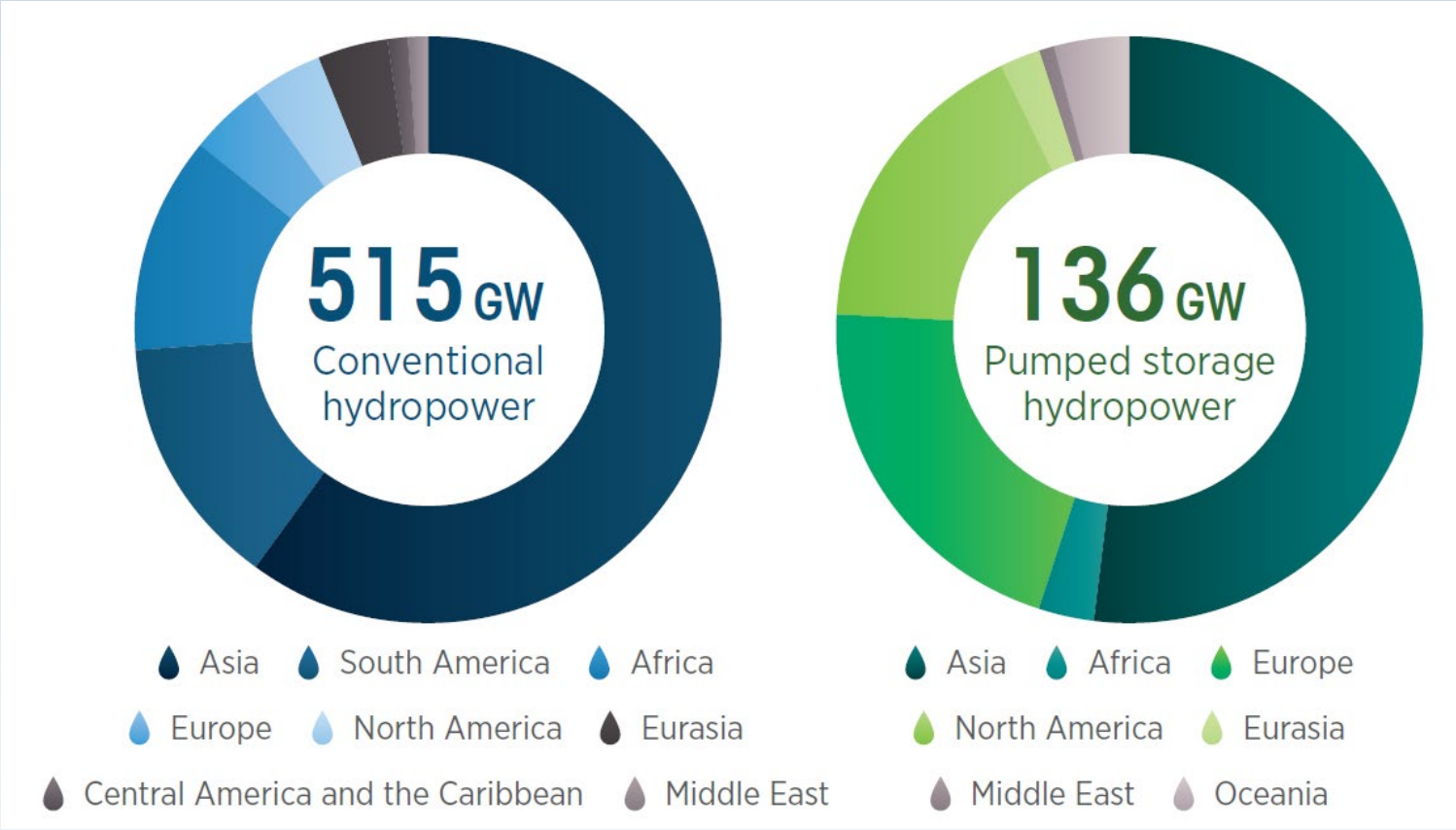
- **Conventional Projects (non PSP)** Focus Asia

GROWING PIPELINE FOR GREENFIELD PROJECTS

…with a growing share of pumped storage projects

Conventional hydropower focused on Asia, South America and Africa

Hydropower project pipeline, 2022-2037



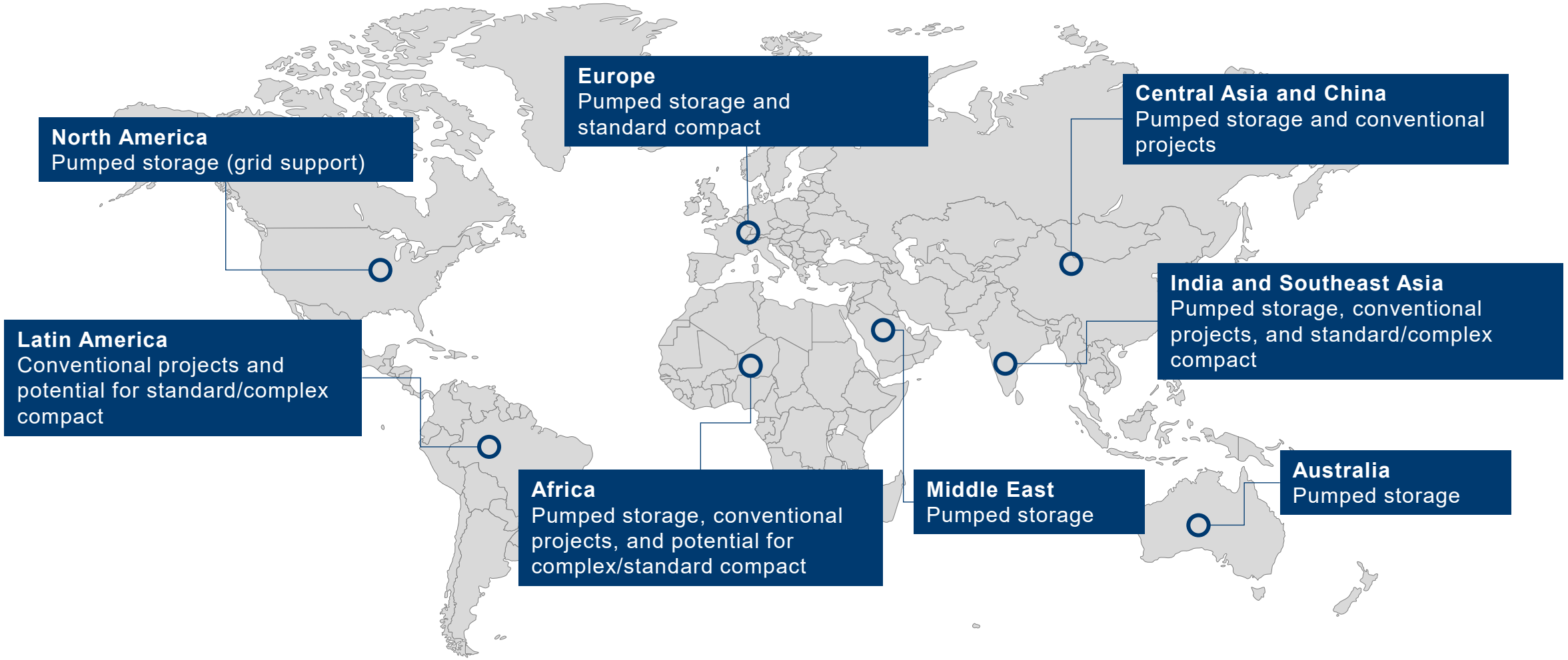
Pumped storage focused on Asia, Europe and North America

Source: IRENA; 2023; The changing role of hydropower: Challenges and opportunities

IRENA
International Renewable Energy Agency

GREENFIELD MARKET

Market potentials



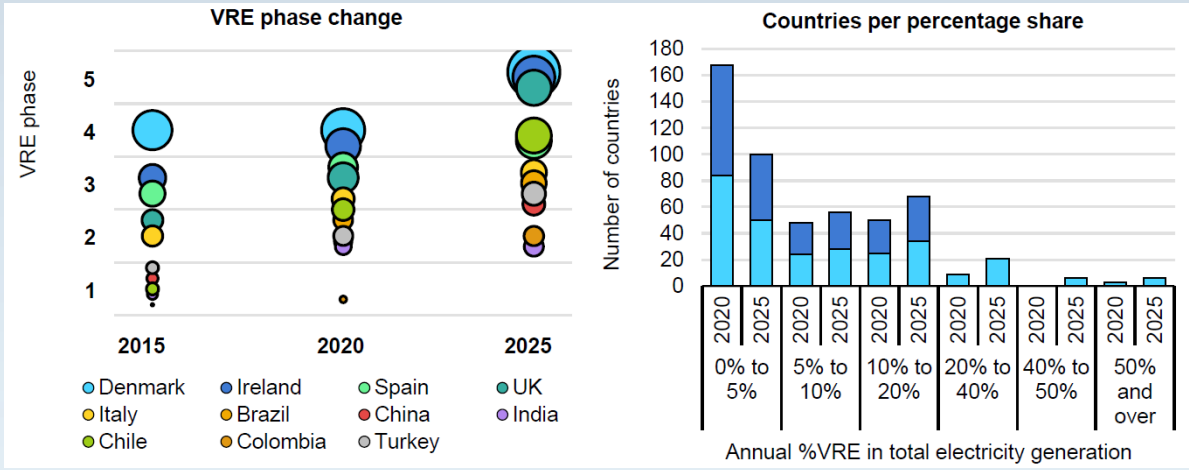
FLEXIBILITY NEEDS ARE INCREASING

IEA categories for the integration of Variable Renewable Energy (VRE)

- "Phase assessment framework" of six different phases
  - Phase 1: No noticeable impact from **VRE** at the system level
  - Phase 2: 5-10% VRE share
  - **Phase 3: ~15-30% VRE share**
    - **VRE determine the operating pattern of the whole power system**
    - **and additional flexibility options are needed (PSP, SynCon...)**
  - Phase 4: periods where VRE make up almost all or all generation
  - Phase 5: growing amounts of VRE surplus or deficit compared to total electricity demand for days to weeks
  - Phase 6: growing amounts of VRE surplus or deficit compared to total electricity demand for days to weeks and seasonal or inter-annual imbalances

- **Share of countries with VRE >15-30% is growing**
- Most countries will be in that range or above in 2025 onwards
- Increasing potential of pumped storage plants and synchronous condensers

Evolution of countries' VRE integration phases



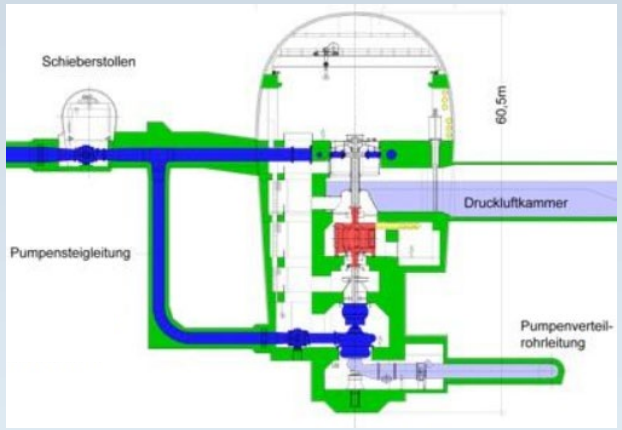
Note: Bubble size reflects the share of VRE in total electricity generation.

Source: IEA, June 2021, Hydropower Special Market Report

GRID AND SUPPLY SECURITY

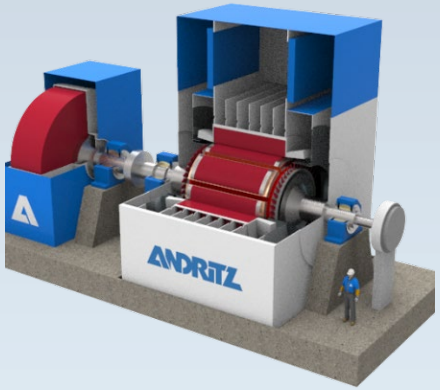
More renewables require more storage, flexibility, inertia, short circuit power, reactive power, ...

Pumped Storage



- Large energy storage systems for grid balancing
- Grid stabilization to compensate for missing inertia, short circuit power and reactive power
  - ➢ Generator enhancements
- Turbines providing better grid stability and services, reflecting requirements from climate change
- “Small” Pumped Storage

Synchronous Condensers (SynCon)



- Fast growing worldwide SynCon market (e.g. Australia, USA, Brazil, Europe)
- Clear trend towards SynCons with rating +300 MVA air-cooled
- Requirement for short delivery schedules

Hybrid Systems

- PSP + wind + photo voltaic (PV) hybrids
- Hydropower + floating solar PV hybrids
- Battery systems + HPP concepts

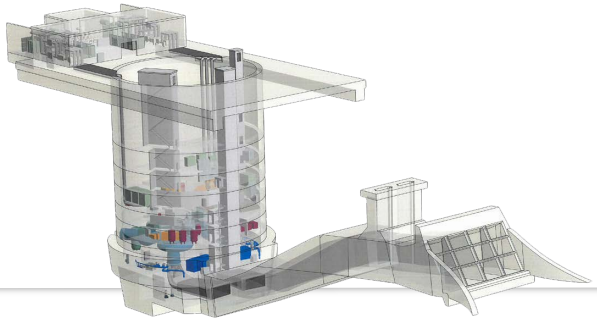
PUMPED STORAGE

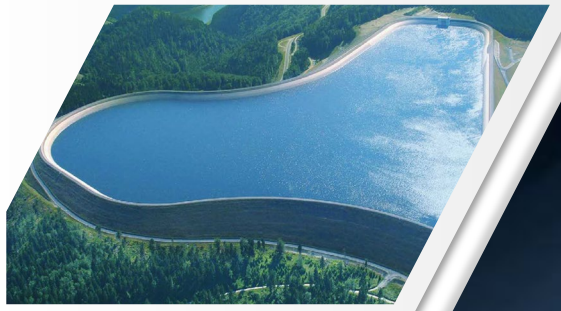
Large energy storage systems for grid balancing

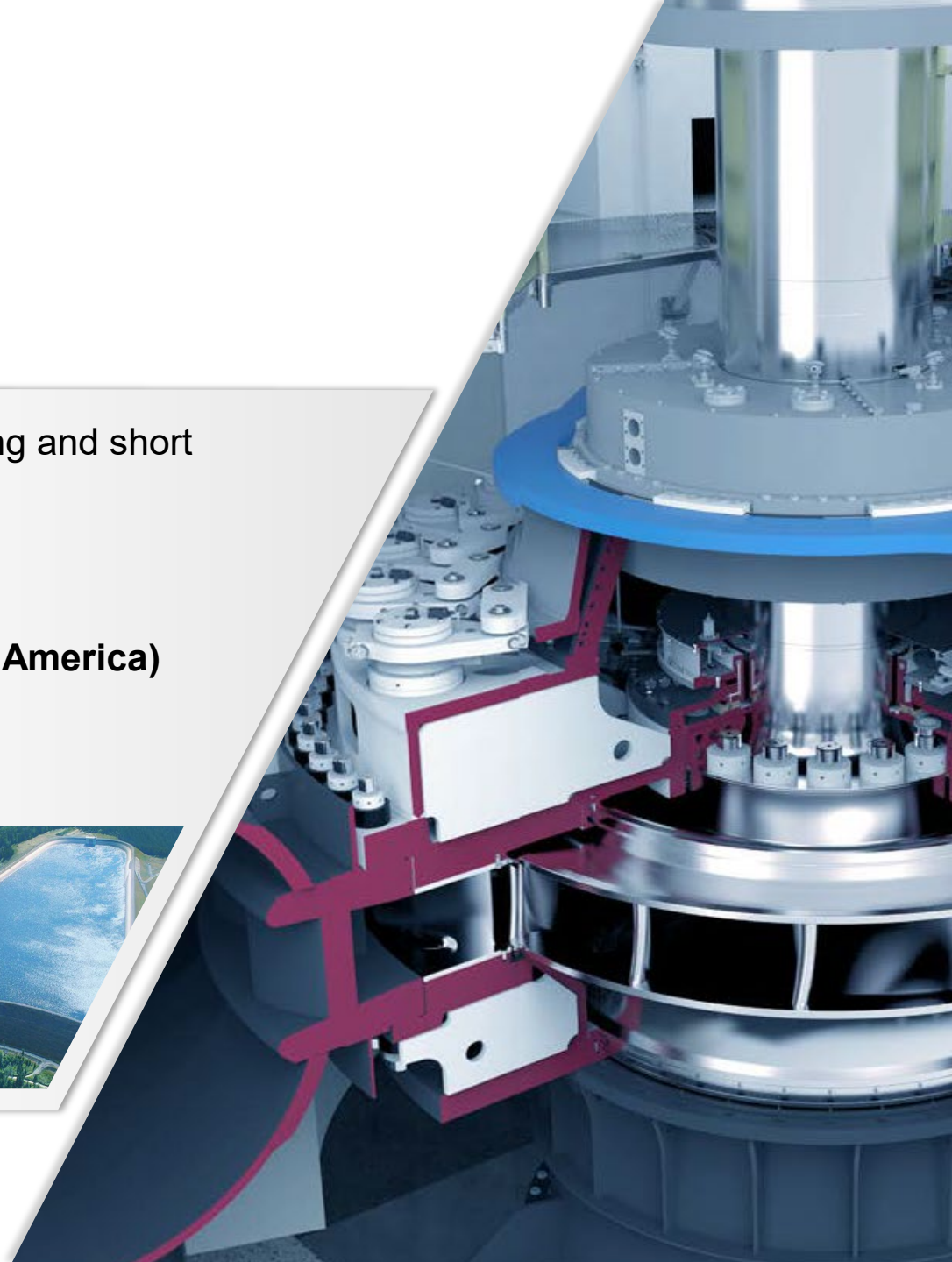
Balances volatility of energy demand by providing flexibility as well as long and short duration storage capacity

Growing worldwide market
(China, India, Australia, Southeast Asia, Europe, Middle East, North America)

Doubling of global pumped storage capacity over the next two decades expected







SYNCHRONOUS CONDENSERS

An effective solution for the new requirements of the grid

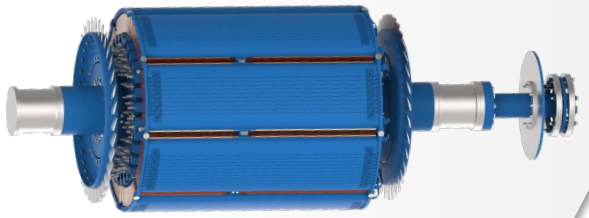
A synchronous machine which is operated to:

- Providing inertia – improving stability
- Dynamic voltage support – overload capability
- Short circuit power – essential for system protection
- Reactive power – still an important task

Fast growing worldwide market (e.g. Australia, USA, Brazil, Germany)

Clear trend towards SynCons with rating +300 MVA air-cooled

Requirement for short delivery schedules

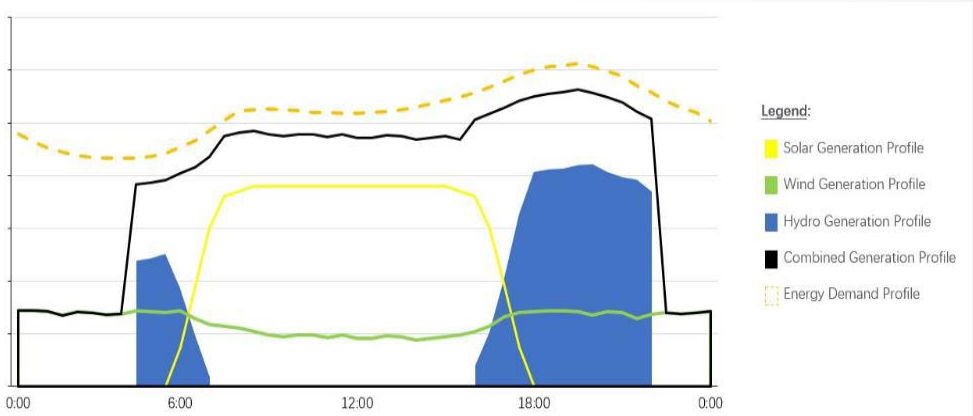


HYBRID INTEGRATED POWER PLANTS

The World’s first dispatchable renewable energy hub in Australia

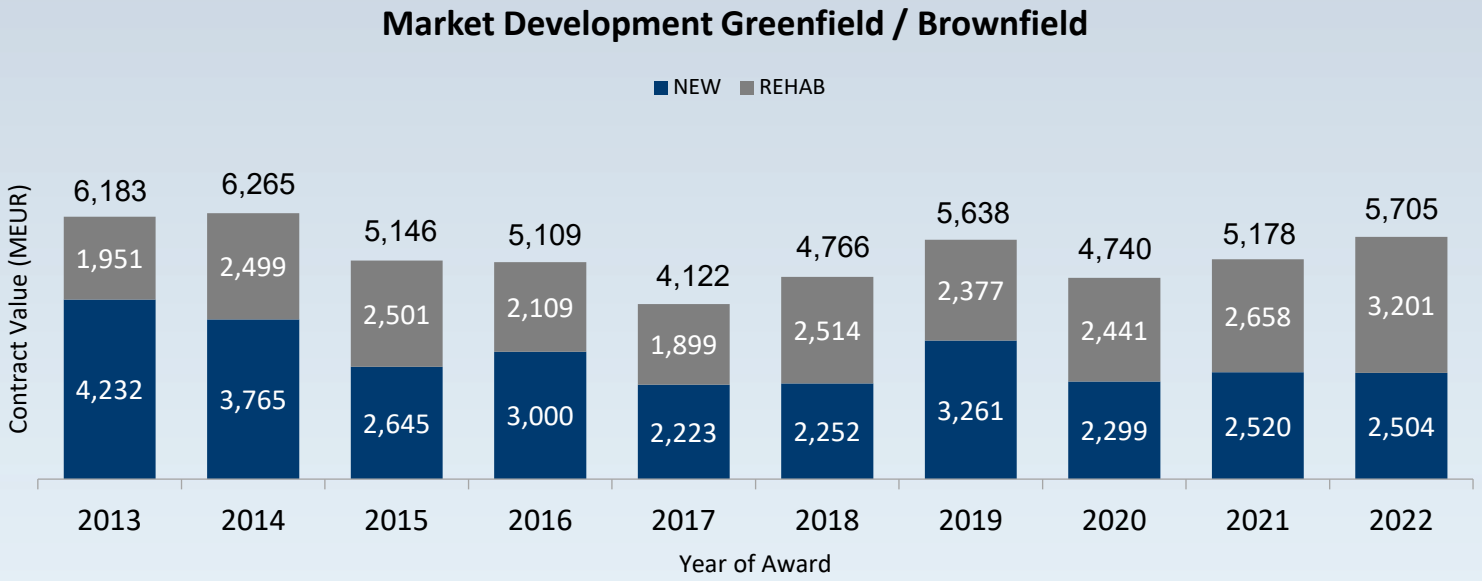
New energy concepts based on hybrid solutions balancing the energy before stressing the grid
- combination of a solar and wind power station with a pumped storage plant

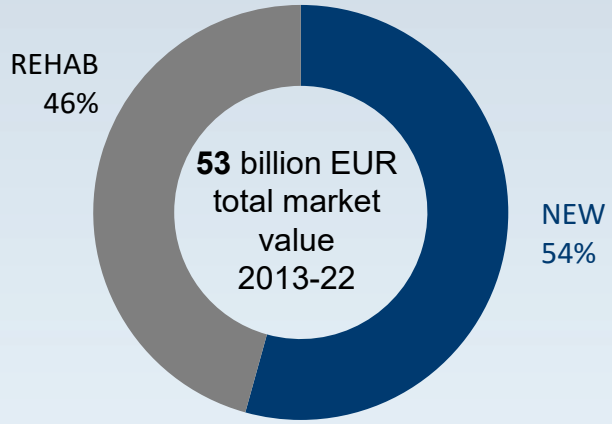
Australia
- 50 MW Solar (existing)
- 270 MW Solar
- 250 MW Pumped Storage (under construction)
- 150 MW Wind



GROWING BROWNFIELD AND MODERNIZATION MARKET

Global increase in volume and share





Trend shown with pumped storage and without China; figures for electromechanical equipment

Source: ANDRITZ

DIGITAL O&M AND ASSET MANAGEMENT

CUSTOMER CENTRIC
OPERATION & MAINTENANCE
SUPPORTED BY **DIGITAL SOLUTIONS**

Operation & Maintenance

Predictive Maintenance

Metris DiOMera digital platform

AUTOMATION AND DIGITALIZATION

SEAMLESS AND **SECURE ACCESS**
WITH **MODERN DIGITAL SOLUTIONS**

Integrated Automation

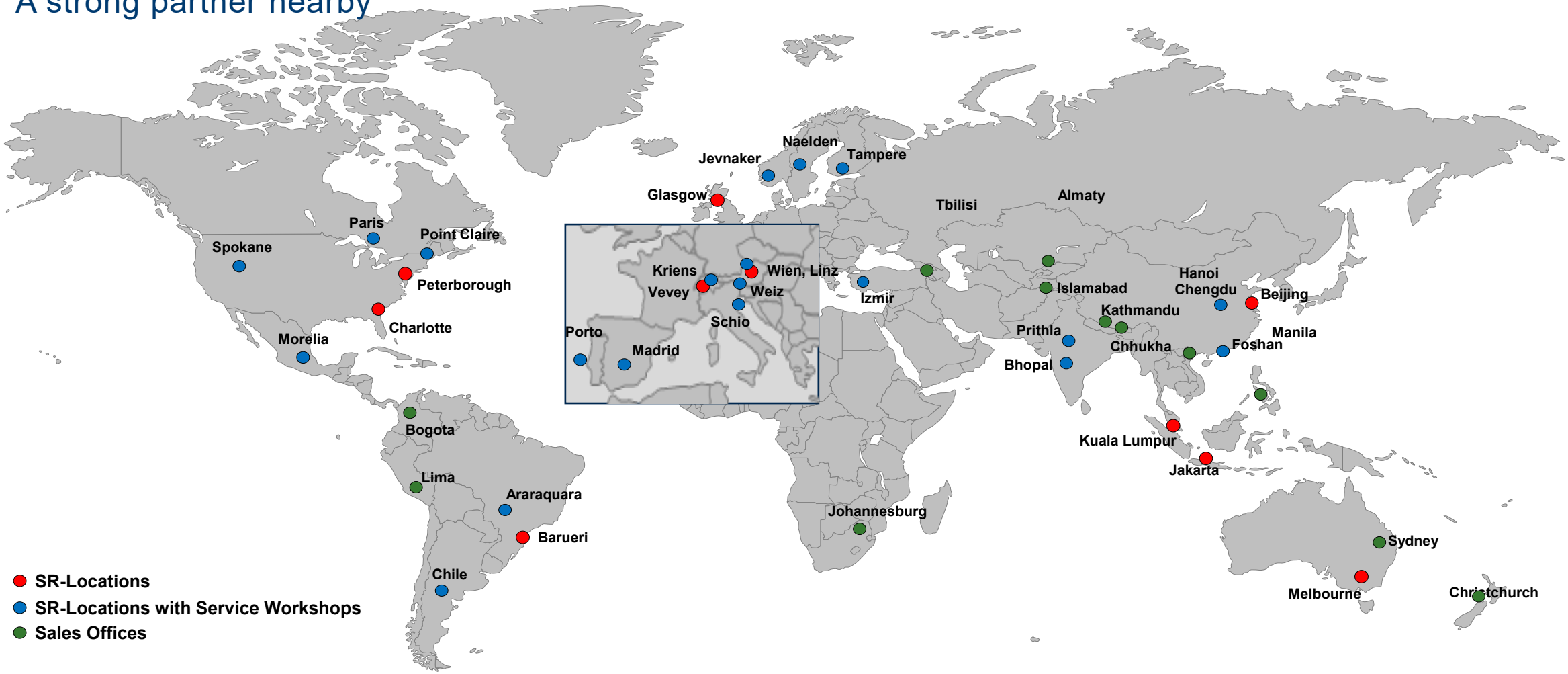
Digital Operation & Maintenance

Cyber Security

GLOBAL SERVICE OFFER

OUR GLOBAL SERVICE NETWORK

A strong partner nearby



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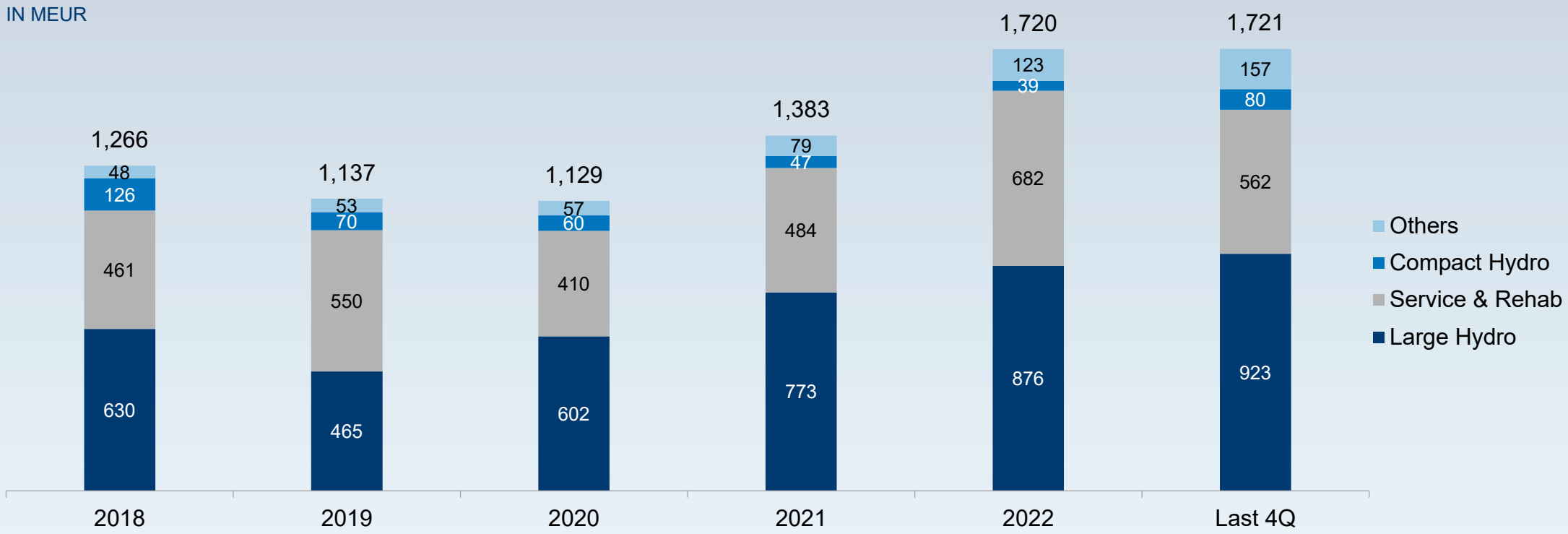
ORDER INTAKE

Order intake is growing with the growing hydropower market

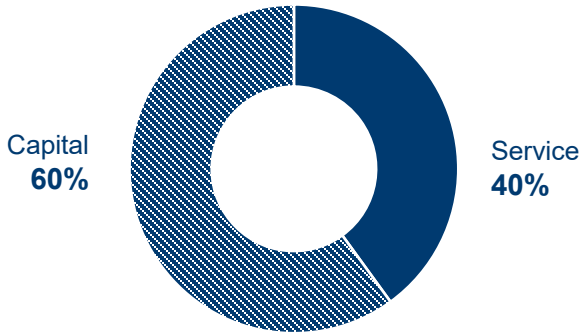


HYDROPOWER FINANCIAL DEVELOPMENT

FINANCIAL OVERVIEW						
in MEUR	**2018**	**2019**	**2020**	**2021**	**2022**	**last 4Q**
Order Intake	1,266	1,137	1,129	1,383	1,720	1,721
Order backlog (as of end of period)	2,350	2,228	2,282	2,467	2,878	3,289
Revenue	1,287	1,264	1,100	1,132	1,313	1,496
EBITA	89	78	37	63	72	79
EBITA margin in %	6.9%	6.1%	3.4%	5.6%	5.5%	5.3%

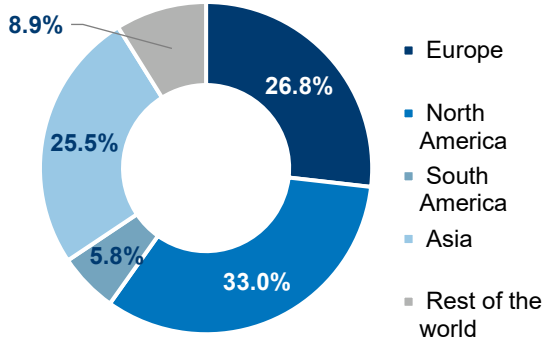
REVENUE SPLIT CAPITAL / SERVICE

LAST 4Q (Q4-Q3)

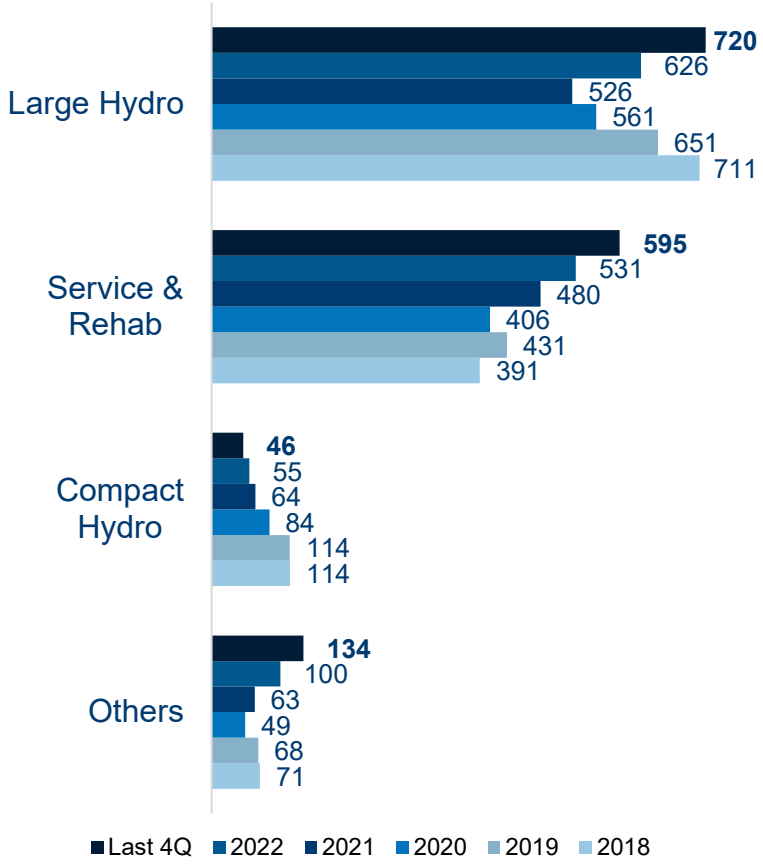


REVENUE BY REGION

LAST 4Q (Q4-Q3)

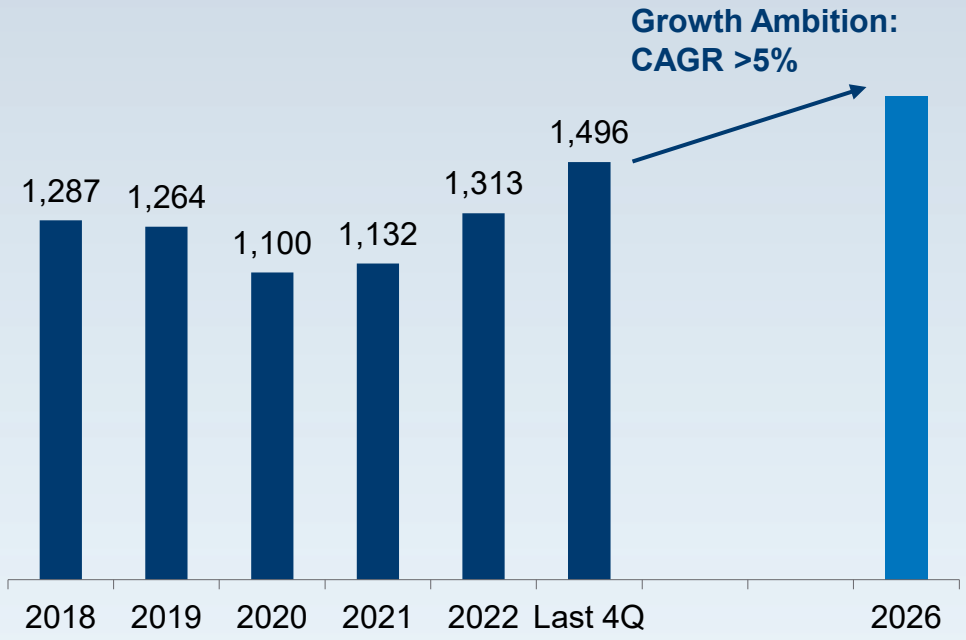


REVENUE BY SEGMENT

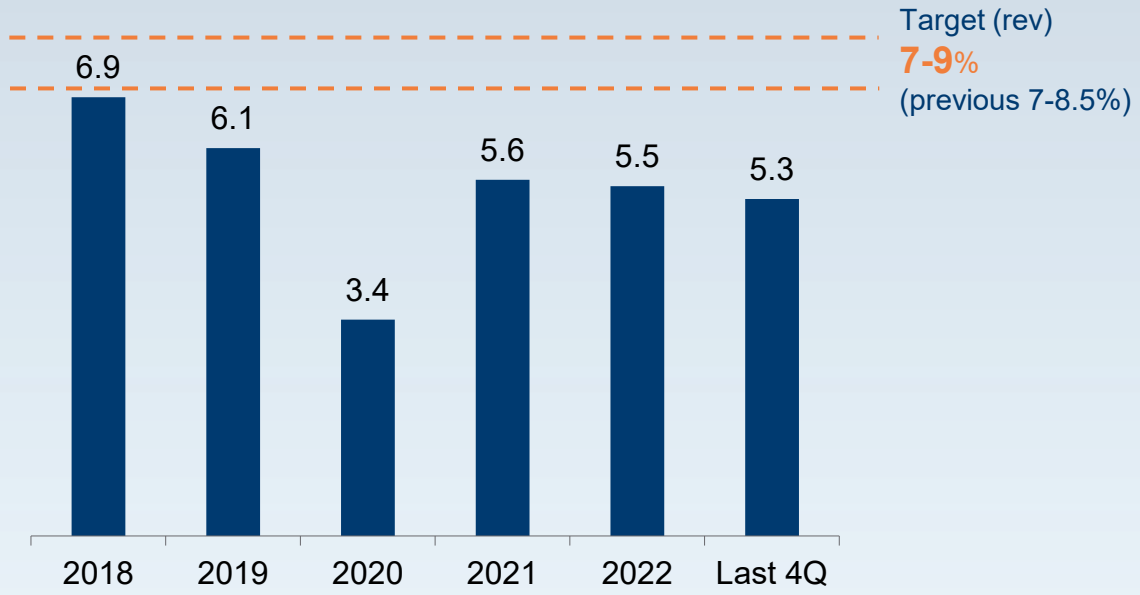


FINANCIAL TARGETS & AMBITIONS

Revenue (in MEUR)



EBITA margin (in %)



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WELL POSITIONED
FOR PROFITABLE BUSINESS DEVELOPMENT

- Order intake is growing with the growing hydropower market
- Pipeline for greenfield projects is additionally increasing due to the flexibility and storage capability function of hydropower in an energy system with volatile renewables
- Higher electricity prices support growing service business
- Additional growth opportunities for grid stabilizing systems like pumped storage or synchronous condensers

Hydropower – At the heart of the renewables


QUESTIONS?
ANDRITZ
ENGINEERED SUCCESS

LEGAL DISCLAIMER