

Capital Markets Day, September 10, 2010, Zurich, Switzerland

The power of the portfolio - Introduction

Joe Hogan, CEO

The power of the portfolio

Agenda

- | | | |
|---------------|--------------------------------|--------------------|
| ▪ 1100 - 1130 | Introduction | Joe Hogan |
| ▪ 1130 - 1215 | Discrete Automation and Motion | Ulrich Spiesshofer |
| ▪ 1215 - 1300 | The grid is back | Peter Leupp |
| ▪ 1300 - 1345 | Lunch | |
| ▪ 1345 - 1430 | Growth through convergence | Brice Koch |
| ▪ 1430 - 1500 | ABB's financial strength | Michel Demaré |
| ▪ 1500 - 1515 | Summary | Joe Hogan |
| ▪ 1515 - 1600 | Final Q&A | |

ABB has come through the economic downturn in strong shape

Positioned for steady profitable growth

Operational

- Revenues have held up much better than during the previous downturn
- EBIT margin well inside target corridor set long before the crisis
- On track to deliver +\$3 billion cost out from end-2008 to end-2010
- Steady cash generation through the cycle

Strategic

- Increasing investment in new products, systems and services
- Highly competitive footprint to take on emerging competition
- Experienced leadership team with diverse mix of backgrounds, expertise
- Organizational realignment driving market focus and performance
- Solid balance sheet to fund restructuring, organic and inorganic growth

Strong, diverse portfolio in power and automation and rigorous operational execution are keys to performance

Overall direction and strategy

ABB Group direction

- Leading technology and total solutions provider in global power and automation markets
- Leadership in high-growth areas, e.g. emerging markets, renewables, energy efficiency
- Leverage emerging market growth through “in-country, for-country”
- Targeting service revenues at 20-25% of total, build software business (size and profitability)
- Remain within targeted EBIT margin corridor of 11-16%

Division Strategies



Power Products

Leverage #1 position in global infrastructure, maintain technology lead, competitive in emerging markets



Power Systems

Expand grid leadership in key growth technologies (e.g., HVDC, renewables integration, utility IT), globally competitive



Discrete Automation and Motion

Expand in motion and power electronics, focus on solution packages, build discrete beyond robotics, expand in emerging markets



Low Voltage Products

Leadership position in intelligent buildings and industry around comfort, productivity and energy efficiency, emerging market and US growth



Process Automation

Strengthen position in automation and grow services around energy efficiency and software

ABB strongly positioned to capture future growth

Current and future growth drivers

Need for more power



Climate change



**Energy efficiency/
industrial productivity**



Emerging markets



Commodity demand



How ABB positions itself

Broad, strong portfolio for greenfield and upgrade for infrastructure, industry and utilities

Technology and market leadership in high-efficiency power grids, renewables, automation and services

Half of sales driven by need for energy efficiency, productivity focus increasing, esp. in emerging markets

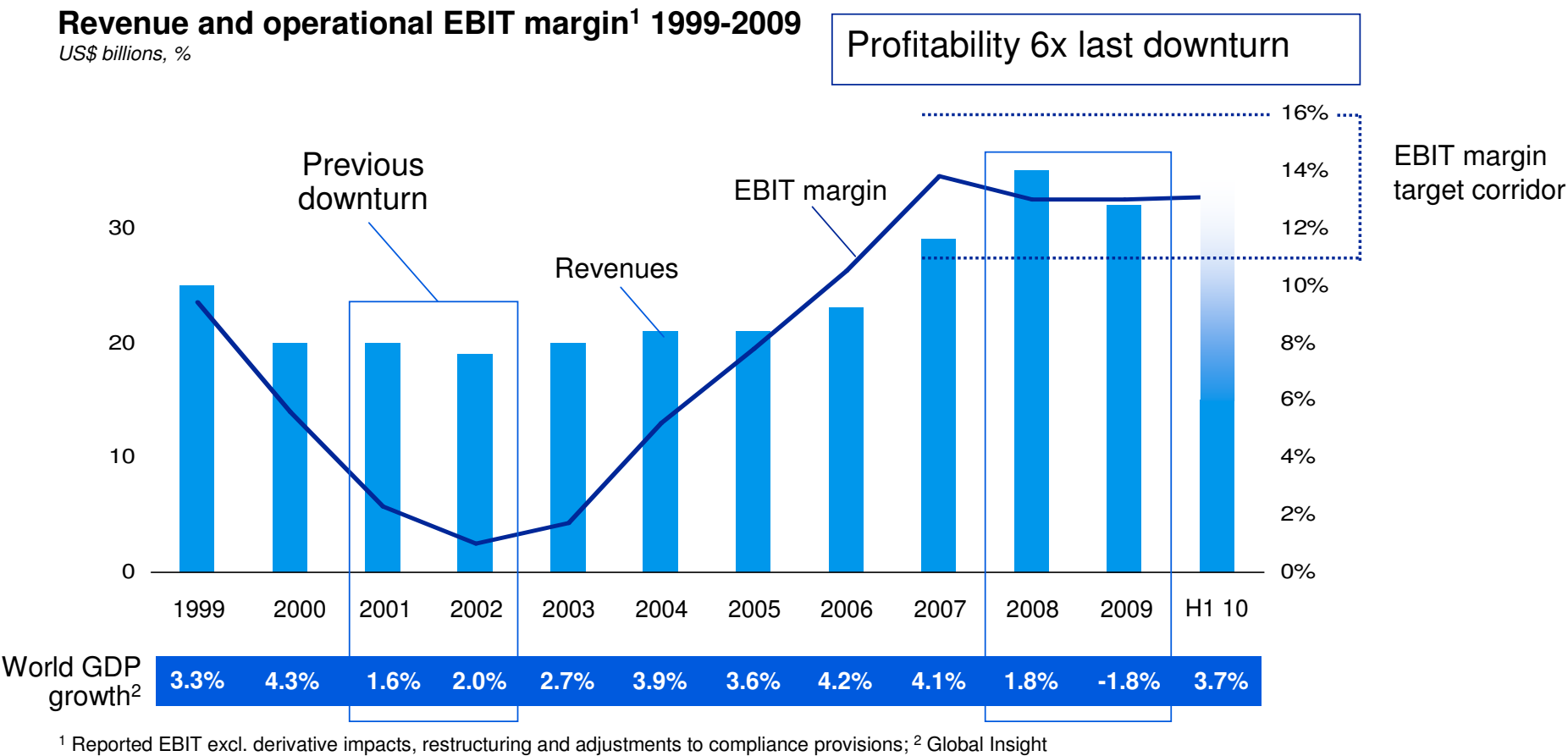
Leading emerging market sales >50%, net exporter

Strong position in process automation, expanding discrete capability and power delivery

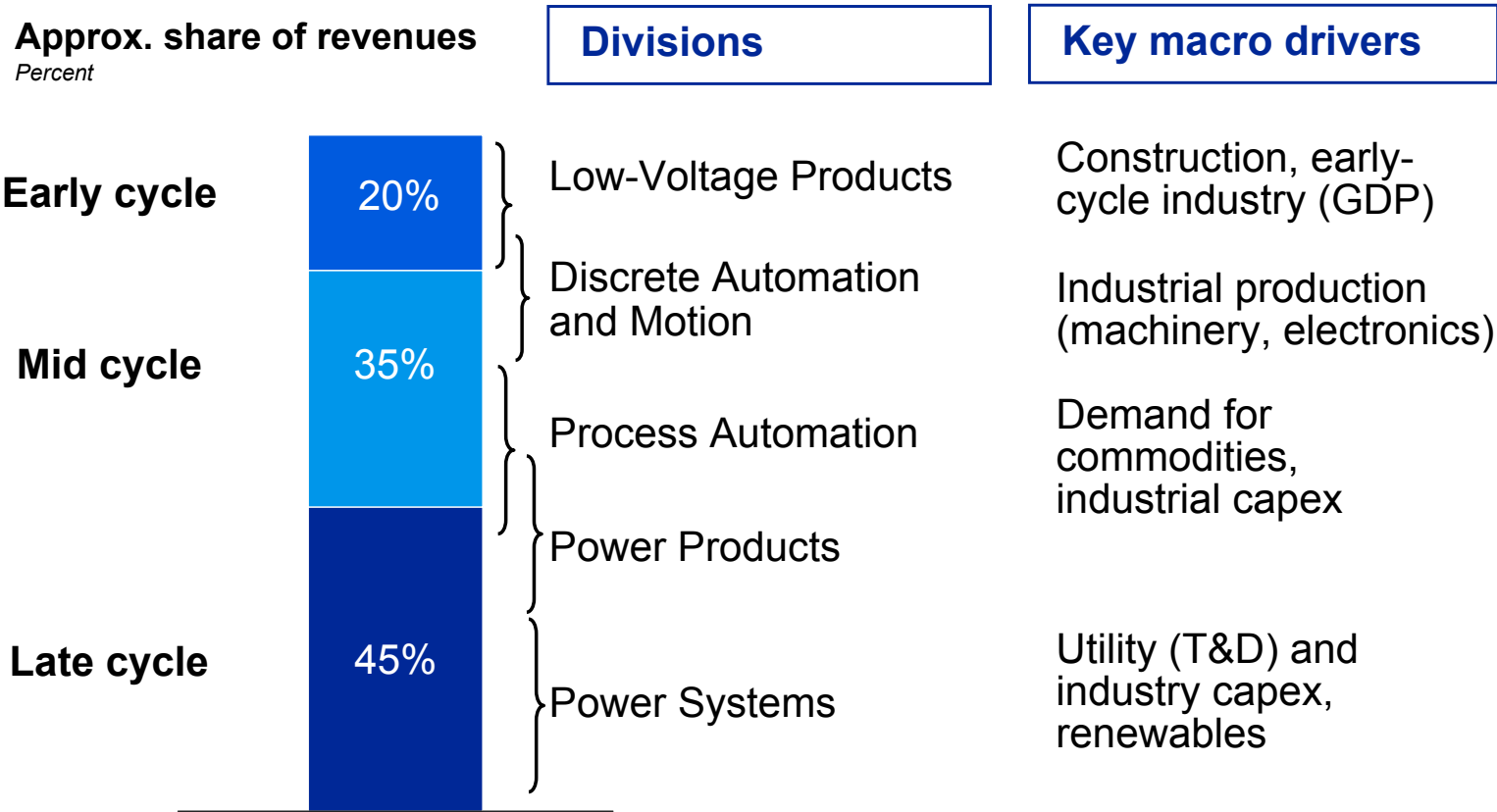


Unmatched expertise and position in promising growth markets

Portfolio focus and execution drive strong performance through historic downturn



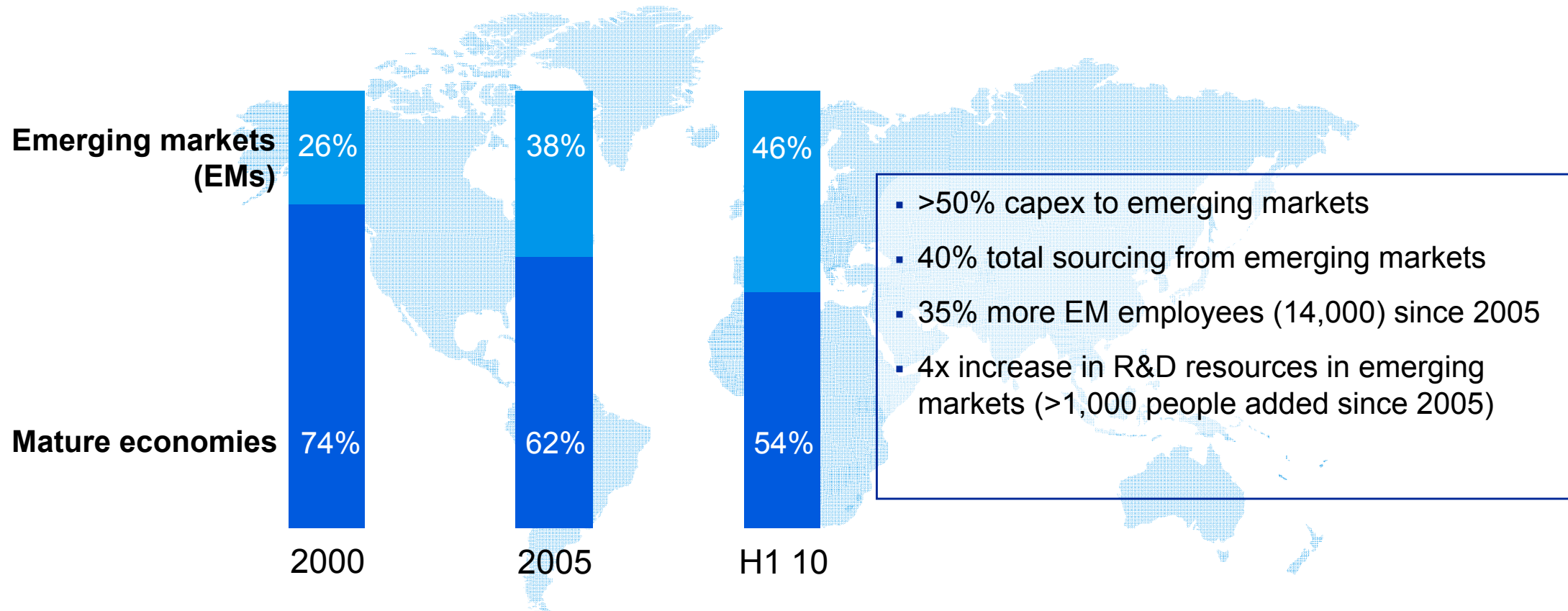
We have built a balanced portfolio across early, mid and late cycle sectors



Highest organic growth in the segment in the last 24 months

We have moved our footprint to match changing market demand
And to face emerging players with a competitive cost base

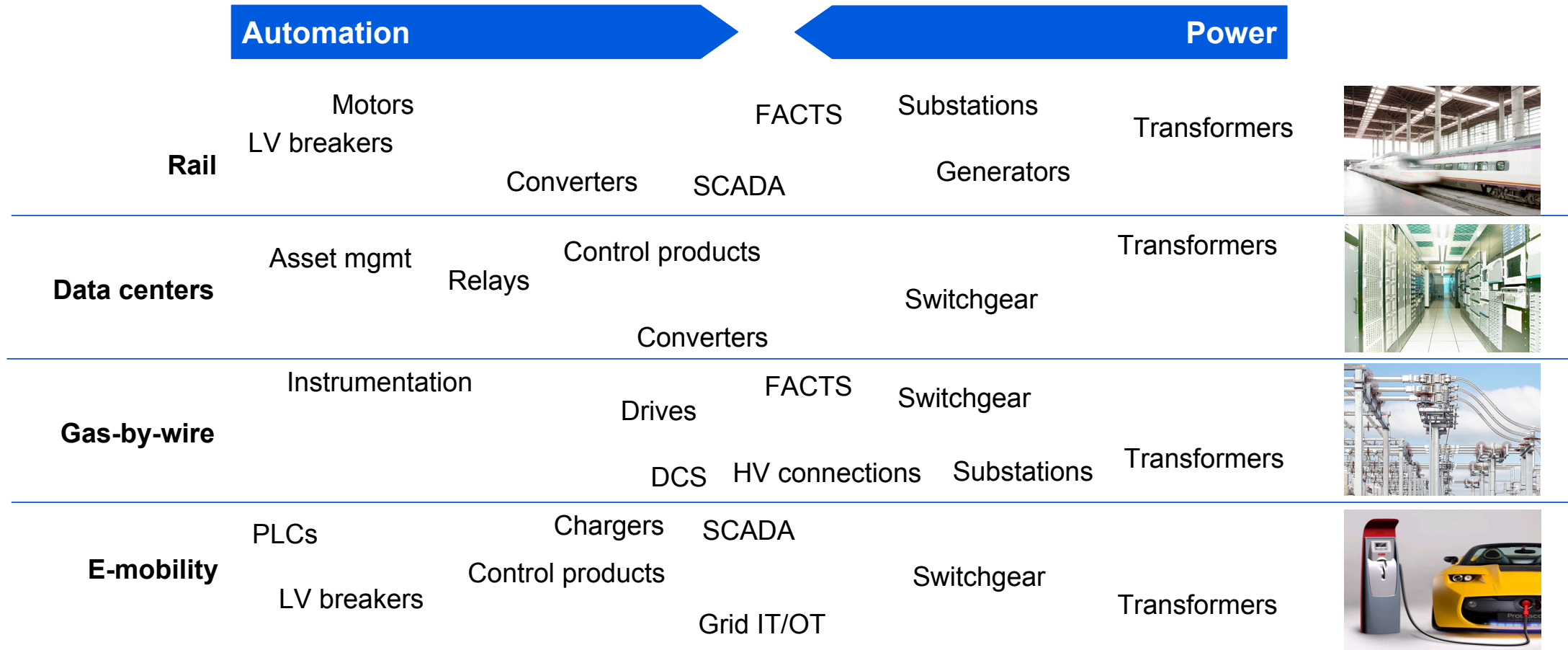
Share of employees by region 2000-H1 2010



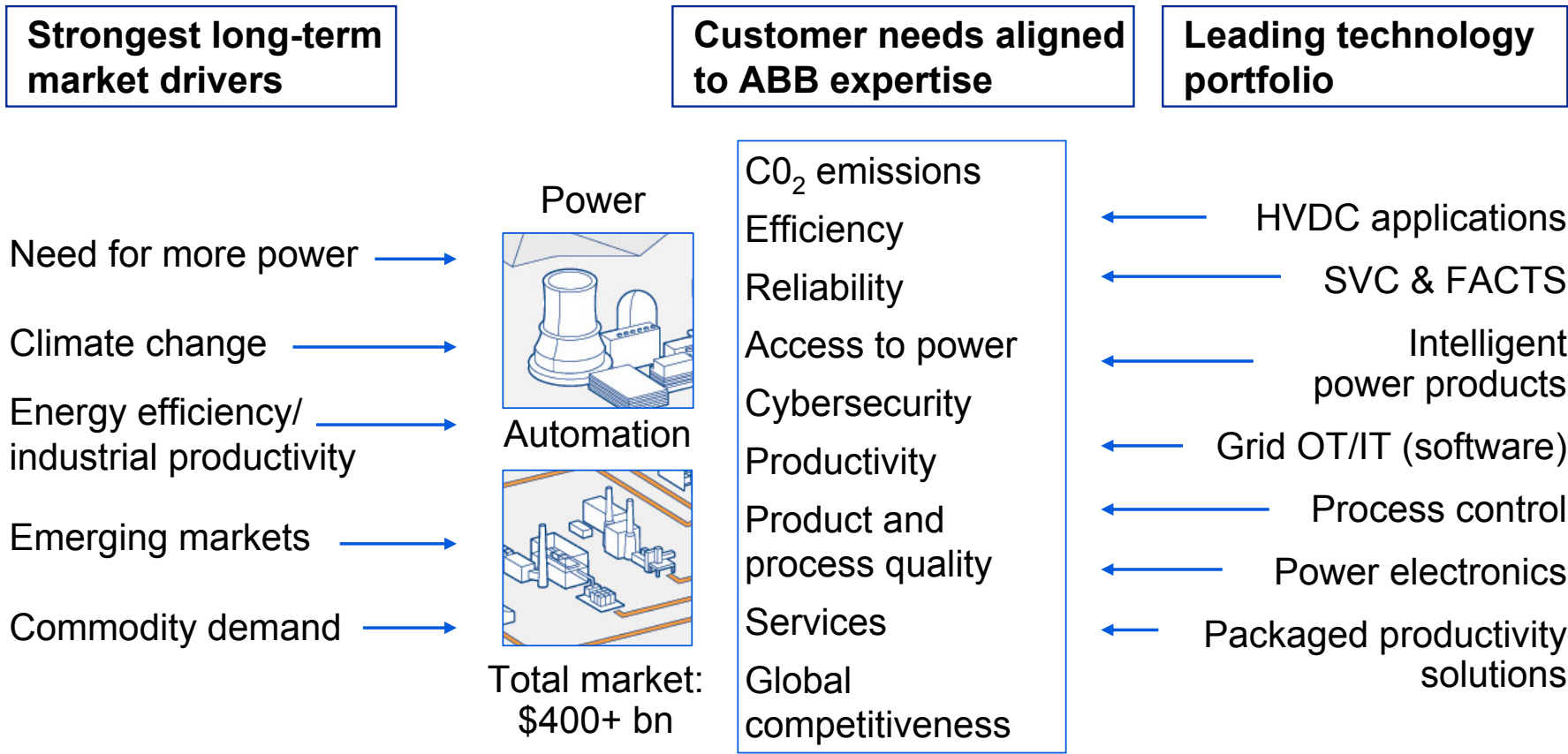
The broadest offering for key power and automation opportunities

	Power portfolio across the entire value chain							Unique solution set for industrial productivity							
	Transformers	HV products	MV products	HVDC	FACTS / SVC	HV cables	Power semiconductors	Drives	Motors	Power electronics	DCS	PLCs	Robotics	Breakers & switches	Wiring devices
ABB															
Siemens															
Schneider															
Alstom															
Legrand															
Rockwell															
Emerson															
WEG															
XD															
Crompton															

ABB's power and automation businesses are converging across many infrastructure industries



We have the technology and geographic scope to meet key demand drivers



ABB's technology portfolio as a platform for growth

Synergistic technology set that drives the business across all divisions



Silicon insulation,
ABB in China



Power semiconductors,
ABB in Switzerland

Automation

Power

	PP	PS	DM	LP	PA
Conduction, limiting and insulation	✓	✓	✓	✓	✓
Switching	✓	✓	✓	✓	
Power electronics	✓	✓	✓		
Control and protection	✓	✓	✓	✓	✓
Sensing and analyzing	✓	✓	✓	✓	✓
Software and communication	✓	✓	✓	✓	✓

Technologies converging

2010 R&D budget >\$1 bn, up 7% vs '09

Serving intelligent grid and industrial systems means adapting ABB's software business model

The engineering approach

- Custom-written code for complex processes
- “Write one, sell one”
- Hardware as source of value
- Software value undersold
- Profitability: Lower EBITDA margins

The software approach

- Modularized and standardized product codes
- “Write one, sell many”
- Software sold as added functionality
- Focus on service and maintenance contracts
- Profitability: EBITDA margins at 20% +

Ventyx to build out ABB's network management software business model
Expand approach beyond network automation into the rest of ABB's businesses

ABB's acquisition strategy

- Focused solely on power and automation markets and technology
- Cash returns at or above WACC within 3 years, NPV positive (DCF at WACC + internal hurdles)
- Conservative net debt/EBITDA and gearing ratios - maintain current credit rating (Single A)
- Fill critical gaps: geographic, product/services and industry

Examples of identified gaps

Geography

US ANSI, NEMA (late to market)
China, India and Brazil (mid-market)
Nordic countries (low-voltage)

Product/ Services/ Solutions

Discrete automation: PLC, motion control, safety products
Process Automation: Process instruments, oil and gas offering
Power: Enterprise software for utilities, grid communications, transformer components, instrument transformers
Low-Voltage: Building automation, local champions in wiring accessories

Industry/ market

Smart grids, data centers (UPS, etc.), home automation, rail water, energy savings systems, renewable energy

Recent inorganic actions

Kuhlman Electric (transformers - US)
Ensto Busch-Jaeger (wiring accessories - EUR)
Jokab Safety (safety control – EUR)
K-TEK Corp (O&G instruments – US, EMs*)
Comem (transformer components – EUR, EMs)
EXOR (engineering - EMs)
Polovodiče (semiconductors – EMs)
BJM (rail converters - China)
Genway (building automation – China)
Ventyx (grid IT – US)
Trilliant (smart grid communications – US)
[Chloride] (discrete automation – EUR)

* Emerging markets

ABB's automation businesses serve a wide variety of end markets

Total automation market more than \$200 billion

Discrete manufacturing



Hybrid/batch manufacturing



Process industries



Utilities



Transportation equipment



Infrastructure, buildings



E-mobility



Renewable energy



Newly aligned divisions to better serve automation markets

New organization

			Prev. org.
Discrete Automation and Motion (DM)	Control and motion solutions for discrete automation	<ul style="list-style-type: none"> Products Robot Automation Systems Service 	RO
	Motion and power electronics for all industries Related application packages and services	<ul style="list-style-type: none"> LV Drives Power Electronics and MV Drives LV Motors Machines Control Products 	AP
Low Voltage Products (LP)	Products and solutions to provide protection, control and measurement for LV electrical installations Intelligent building control and automation	<ul style="list-style-type: none"> Breakers and Switches Enclosures and DIN-rails Wiring Accessories LV Systems 	
Process Automation (PA)	Engineered automation solutions and products for process control and safety, and plant electrification for process industries Process industry-specific products and applications Lifecycle management and performance-based service	<ul style="list-style-type: none"> Instrumentation Marine and Cranes Metals Minerals Oil, Gas and Petrochemicals Pulp and Paper Process Industry Products APS Service Turbocharging 	PA



Low Voltage Products division

Key facts



- 2009 revenue \$4.1 bn
- EBIT \$519 mill
- 19,000 employees worldwide
- 60 manufacturing sites in 35 countries
- Sales activities in >100 countries
- 2,800 ABB sales people
- 150,000 products
- Ship >1 million products a day
- Over \$15 bn installed base



2010 H1 results

Orders	\$2.3 bn (+12%)
Revenues	\$2.1 bn (+8%)
Operational EBIT*	+53%
Operational EBIT%	17.5% (+480 bps)

* Reported EBIT excl. restructuring and losses/gains on derivative transactions

Low Voltage Products division

Business Units



LV Systems	LV Breakers and Switches	Enclosures and DIN-Rail Products	Control Products	Wiring Accessories
<ul style="list-style-type: none"> ▪ MNS conventional switchgear ▪ MNS intelligent switchgear 	<ul style="list-style-type: none"> ▪ Molded case circuit breakers ▪ Air circuit breakers ▪ Switches ▪ Fusegears ▪ Enclosed switches ▪ Cable distribution cabinets 	<ul style="list-style-type: none"> ▪ Modular DIN-rail products ▪ Intelligent building control KNX ▪ Enclosures and cable systems 	<ul style="list-style-type: none"> ▪ Control and protection ▪ Electronic products and relays ▪ Connections 	<ul style="list-style-type: none"> ▪ Wiring accessories ▪ Industrial plugs and sockets ▪ Door entry systems

% divisional revenues

~15%

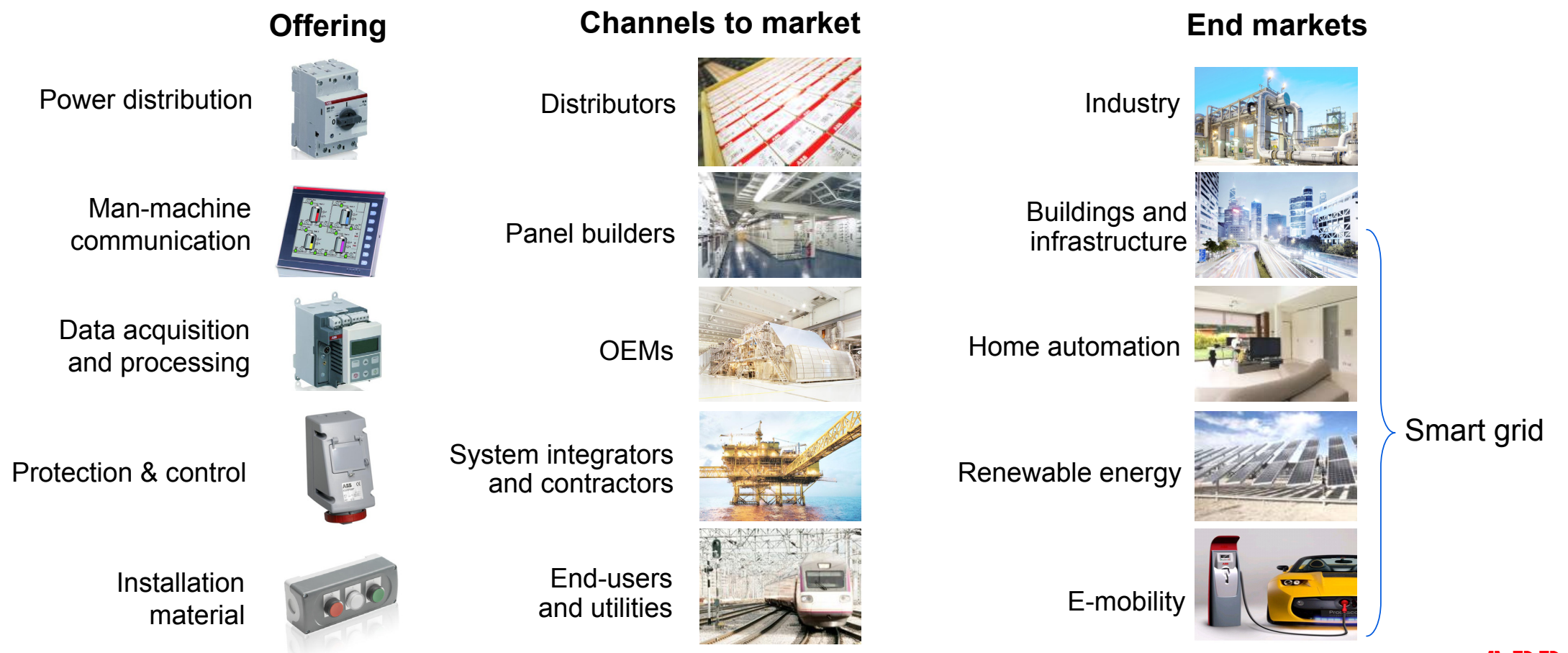
~30%

~25%

~20%

~10%

Offering a complete set of low-voltage electrification products



Smart grid



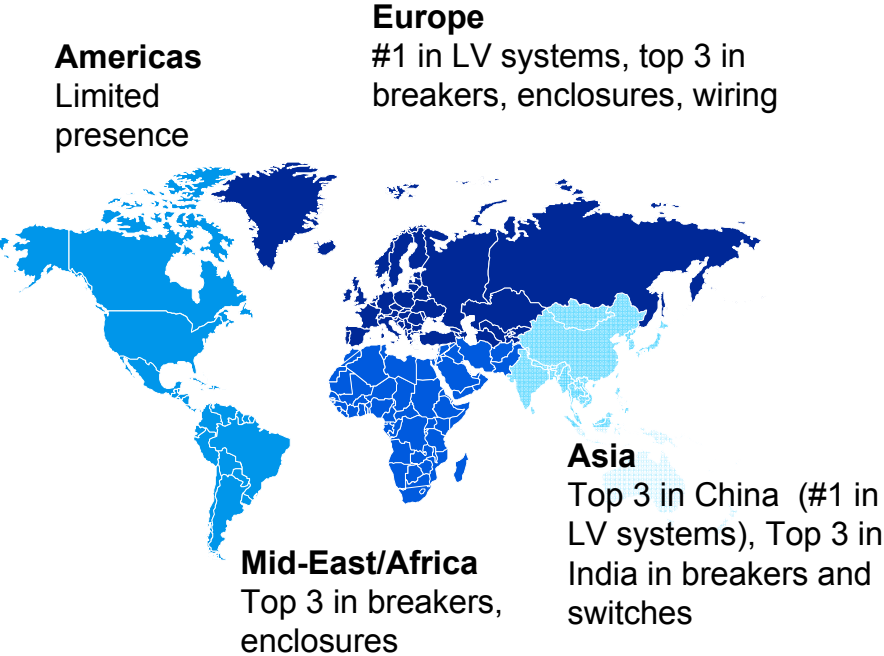
Competitive overview

Low Voltage Products leading in several geographies & key product lines

ABB's market position in low-voltage

	#1	#2	#3	#4
Breakers & switches	Schneider	ABB	Siemens	Eaton
Enclosures & DIN rail	Schneider	ABB	Hager	Rittal
LV systems	ABB	Schneider	Siemens	Legman
Control products (excl. PLC)	Schneider	Siemens	Phoenix Contact	ABB
Wiring accessories	Legrand	Schneider	Leviton	ABB

Market position by region



Opportunities for growth in Low Voltage Products

Building automation



Intelligent building control for lighting, heating and ventilation, energy management, security, etc.

Renewables



Contactors, breakers and switches, other electrical balance of plant and components for renewables generation

E-mobility



Contactors, adaptors, AC and DC charging components to panel builders and OEMs

Rail



Low-voltage components, control products, breakers and switches, safety and power quality devices

Geographic



Expansion in North America, emerging markets

Today's agenda

Some key portfolio strengths



Discrete Automation and Motion

- Productivity and energy efficiency growth drivers
- Essential part of any industrial investment
- High technology barriers

Positioned for growth



The grid is back

- Key to address climate change
- An enabler of renewables
- Energy savings
- Technology driven

Global ABB leadership



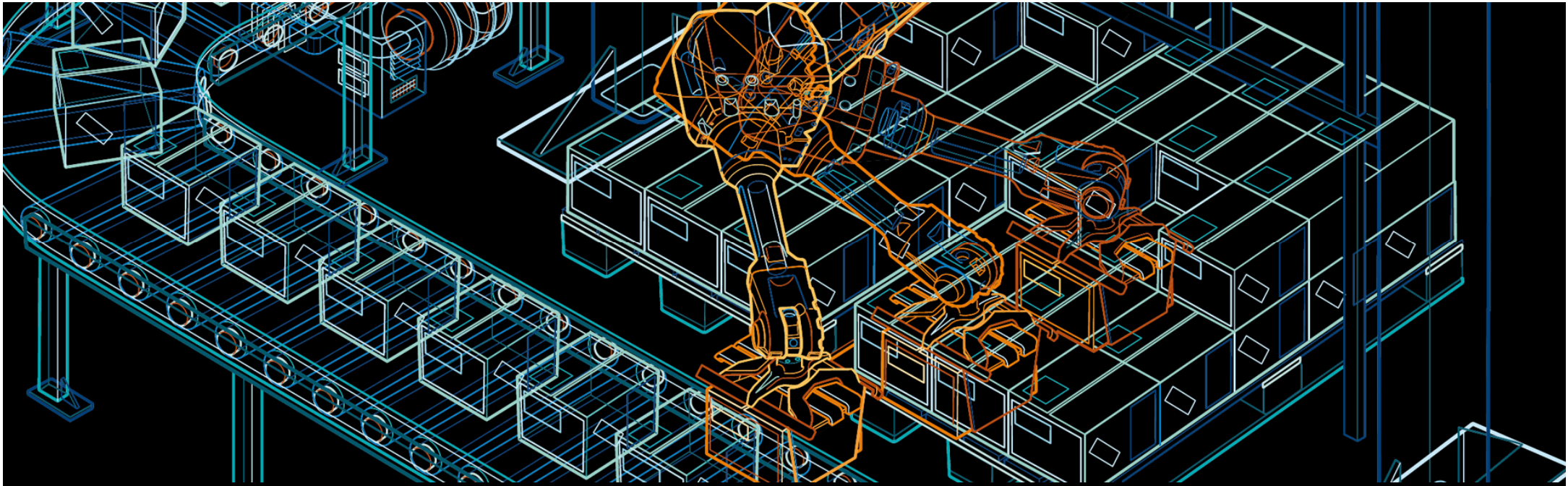
Converging demand

- Need for solution sets, not just technology
- Technology synergies across power and automation

Strong ABB position

Power and productivity
for a better world™





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Discrete Automation and Motion: Strategic outlook

Ulrich Spiesshofer

Head of Discrete Automation and Motion

Discrete Automation and Motion (DM)

Markets served

Discrete manufacturing



Hybrid/batch manufacturing



Process industries



Utilities



Transportation equipment



Infrastructure, buildings



E-mobility



Renewable energy



Discrete Automation and Motion division: Business units

Together, we drive our customer's industrial productivity and energy efficiency



LV Drives

- Low voltage AC drives from 0.12 to 5600 kW
- DC Drives from 4 kW to 15000 kW
- Wind turbine drives
- Solar converters
- PLCs, HMIs, and wireless sensors and actuators
- Software tools
- Energy saving tools
- Service

% divisional revenues ~30%



Power Electronics and MV Drives

- Advanced power electronics
- Converter products
- Excitation and synchronizing systems
- High power rectifiers
- Power quality products
- Traction converters
- Medium voltage drives from 315 kW to more than 100 MW
- Service

~20%



Motors and Generators

- Low voltage motors from 0.25 to 1000 kW
- High voltage motors and generators up to 70 MW
- High speed motors
- Traction motors
- Wind power generators
- Diesel generators
- Gas and steam turbine generators
- Hydro generators, tidal waves, etc
- Service

~30%

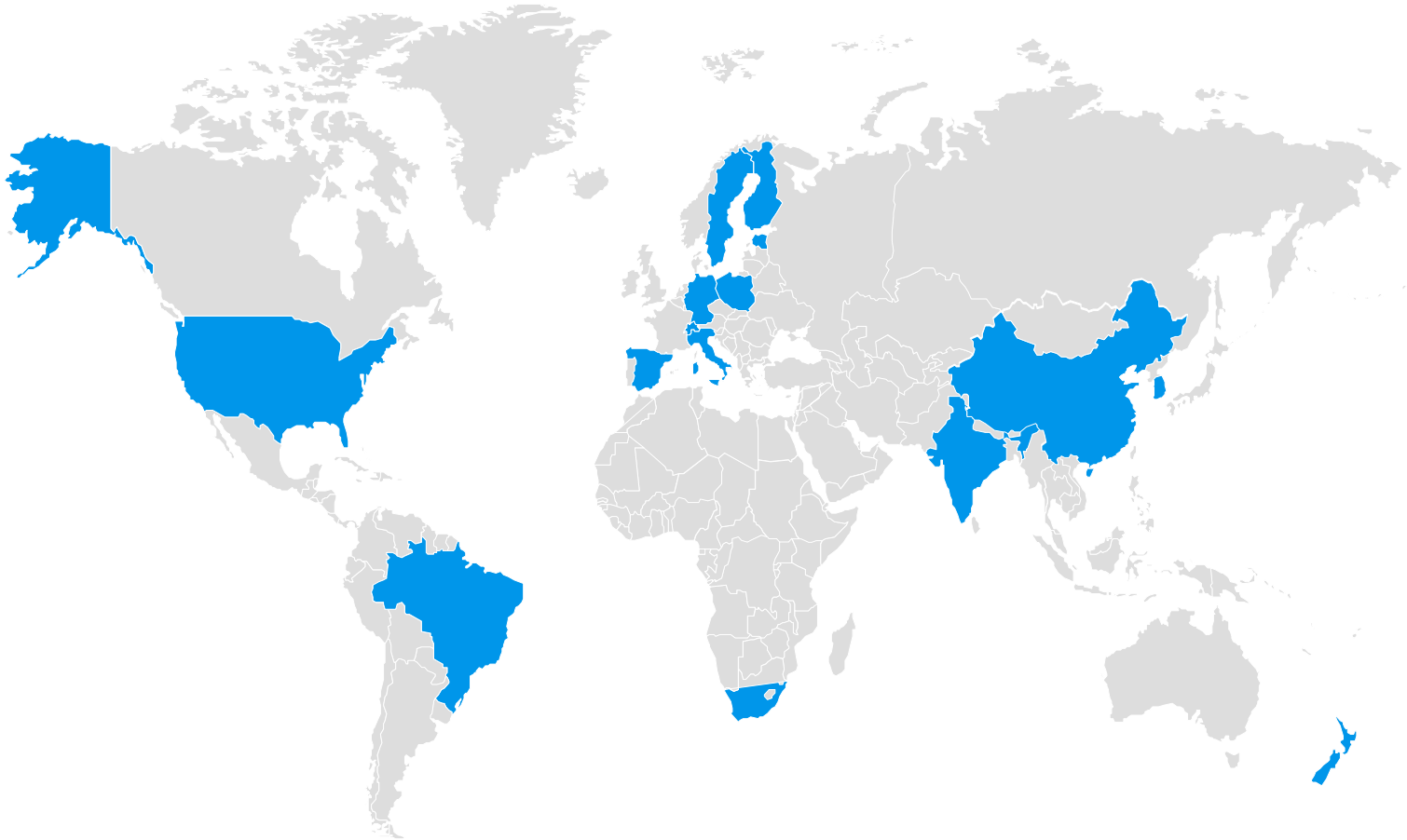


Robotics

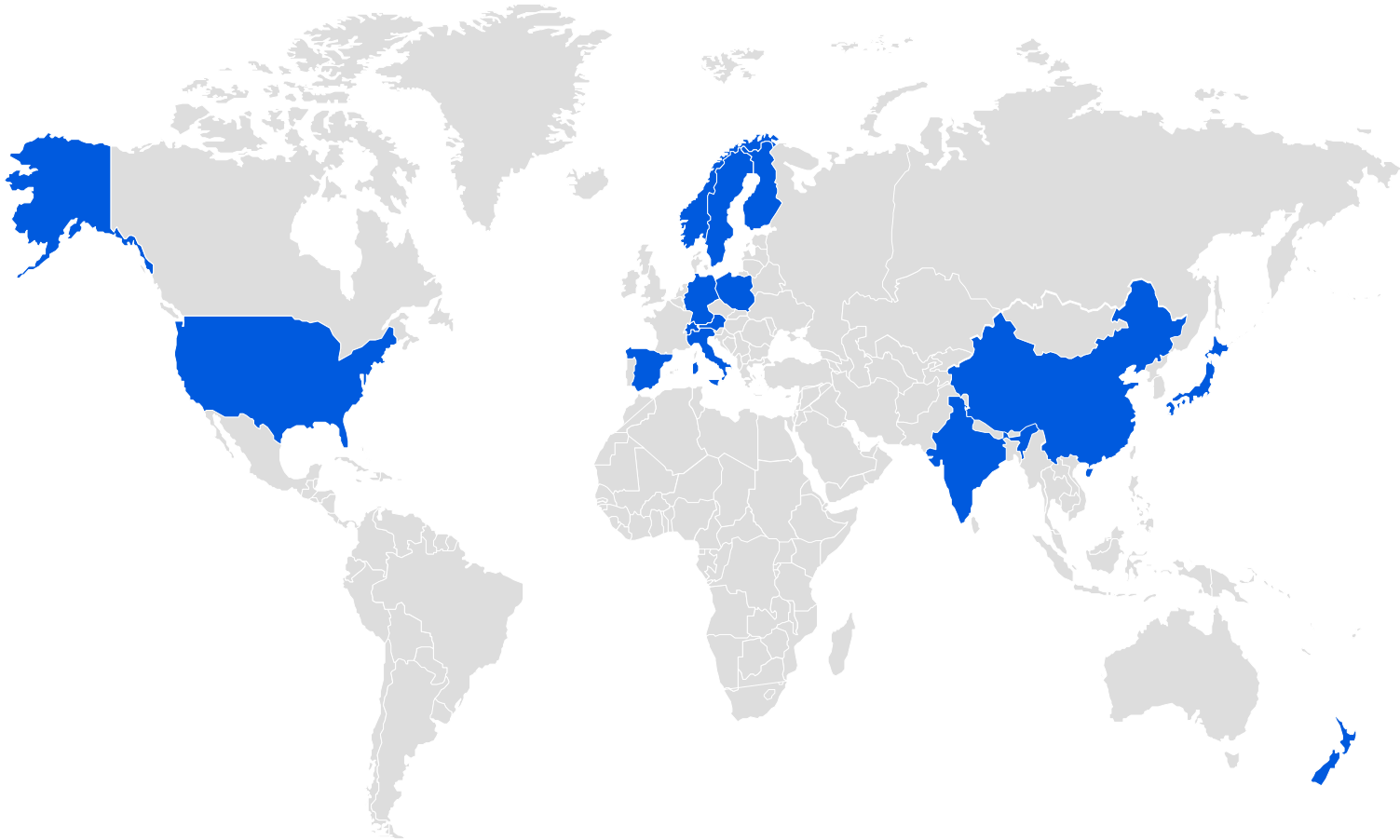
- Industrial robots
- Robot controllers and software
- Industrial software products
- Application equipment and accessories
- Robot automation systems for automotive, foundry, packaging, metal, solar, wood, plastics, etc. industries
- Service

~20%

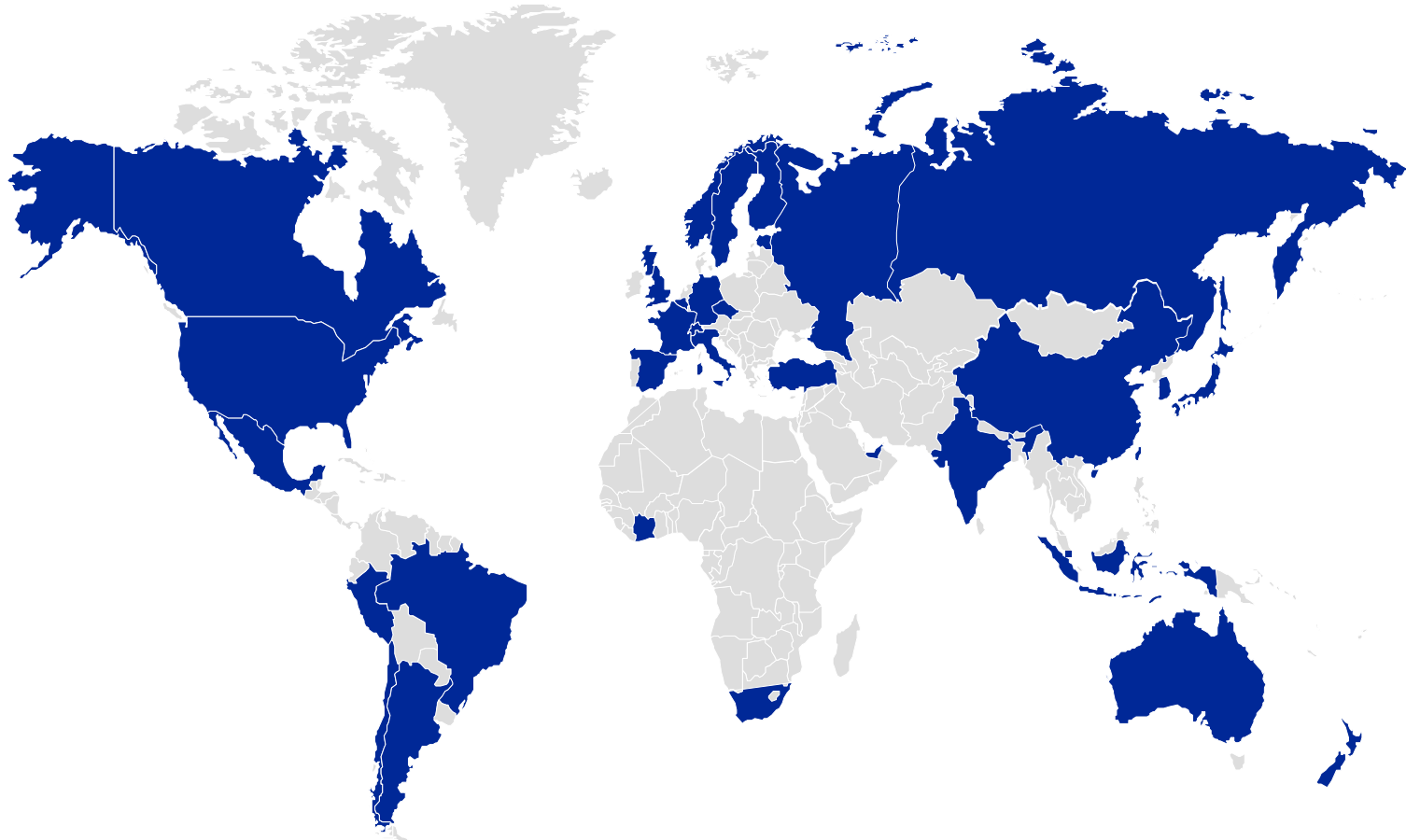
Present in all regions with a well-balanced and close-to-customer footprint Manufacturing



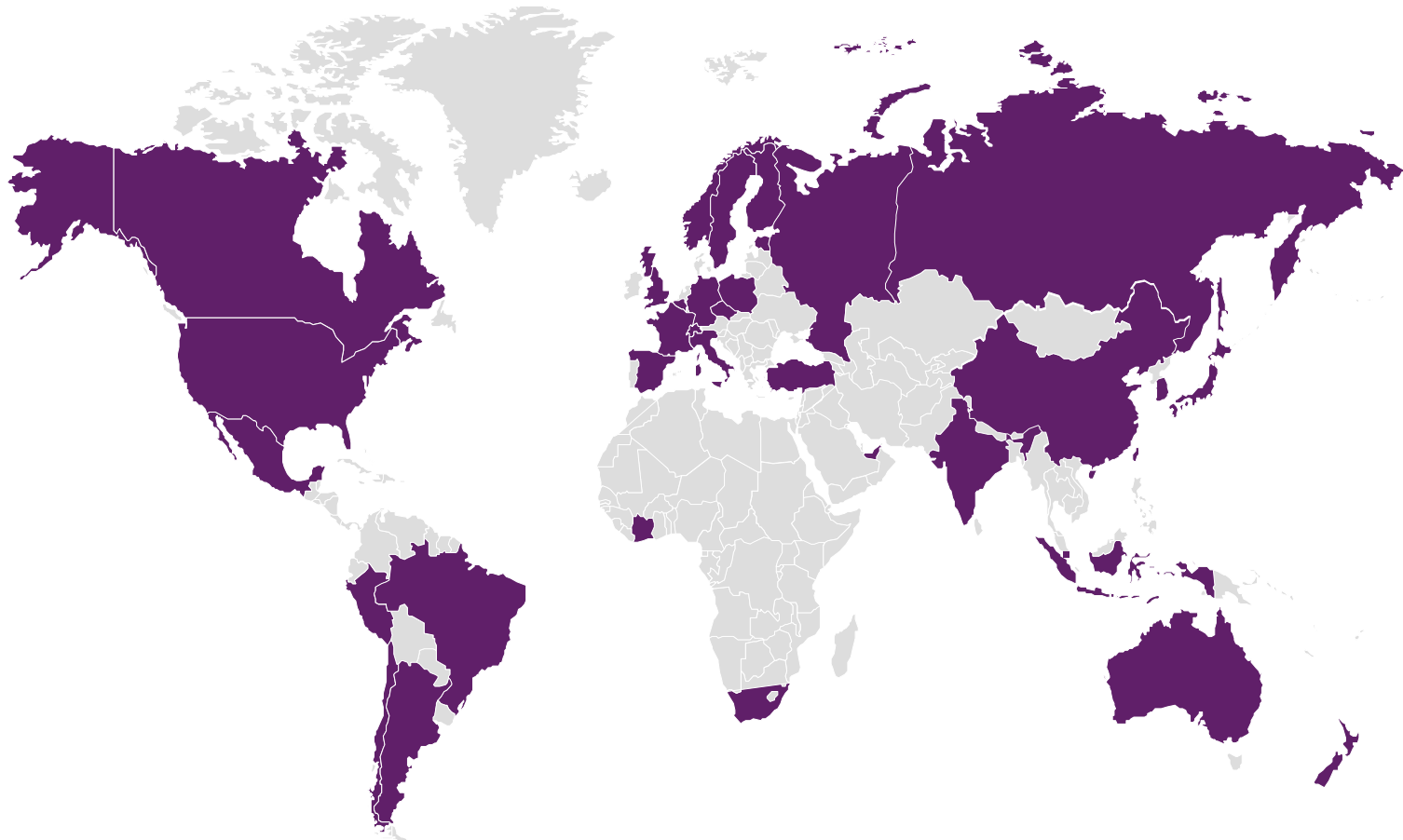
Present in all regions with a well-balanced and close-to-customer footprint
R&D and engineering



Present in all regions with a well-balanced and close-to-customer footprint
Service stations and workshops



Present in all regions with a well-balanced and close-to-customer footprint
Total employees 18,200, of which 42% in emerging markets



Discrete Automation and Motion

A good start in a recovering market

2010 H1 results

Orders	\$2.9 bn (+16%)
Revenues	\$2.5 bn (-6%)
Operational EBIT*	+14%
Operational EBIT%	16.5% (+290 bps)




* Reported EBIT excl. restructuring and losses/gains on derivative transactions

Key developments

- New, market focused organization established
- Customer reaction positive
- Recovering in the robotics business
- Growth initiatives launched (e.g. solar, service, India, Brazil)
- Continued focus on cost, execution and footprint

Discrete Automation and Motion

Strategy – opportunity space of five strategic planks

I	Discrete automation		Market size for DM ~\$60B	Offering Products and integrated automation solutions, incl. PLC, robots, drives and motors for discrete automation in industry, and infrastructure
II	Motion in industries		~\$25B	Motors, drives and generators for industry, utilities, infrastructure and transport
III	Renewables		>\$5B	Generators, converters and application packages for renewable power generation
IV	Power control and quality		~\$15B	Control of power supply and ensuring power quality for industrial, infrastructure and transport applications
V	E-mobility		Emerging	Fast charging, assembly and testing of batteries for electrical vehicles, on-board motors and drives
Growth trend: 5-10% p.a., >15% in new applications				

Product packages and engineered applications

Life-cycle services

An established player in key sectors with plenty of growth opportunities

Competitive position

I	Discrete automation
II	Motion in industries
III	Renewables
IV	Power control and quality
V	E-mobility



- Strong in robotics
- Limited presence in PLC, servo drives and motors
- Ability to leverage strong motion platform (AC motors, drives)



- Strong in drives, motors and generators
- Large installed base, advanced service capabilities
- Some regional weak spots, e.g. North America



- Strong in wind power generators and converters
- Entering solar business with new offering



- Strong in excitation systems, rectifiers and advanced power electronics
- Successful growth in traction
- Large application UPS a white spot



Market > \$100 million by 2015

- Early entry into fast charging, battery assembly
- Further potential: on-board components

Product packages and engineered applications

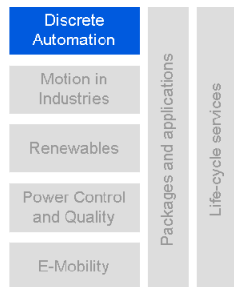
- Broad portfolio
- Allowing broad set of applications
- Domain expertise
- Global reach provides scale for roll-out

Life-cycle services

- Very large installed base
- Dense service network
- Proven traditional and advanced life-cycle service capabilities
- Energy audits

Discrete automation

The playing field



Customers

- Industry, e.g. food, automotive, electronics, machine tools
- Infrastructure, e.g. warehouses
- Serving end-industries directly, through OEMs and system integrators

Offering

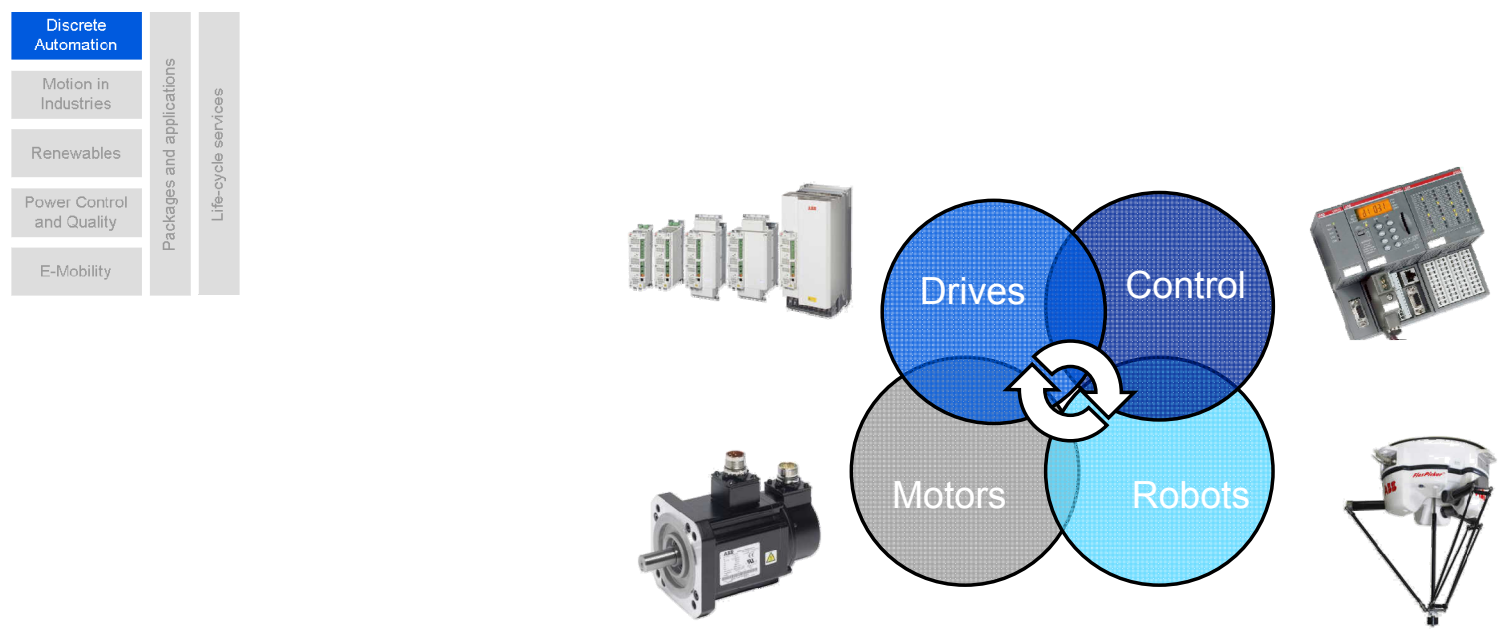
- Products and solutions for automation of discrete tasks (as opposed to continuous processes)
- Products include robots, PLCs, motors and drives, motion control
- Applications are e.g. welding, cutting, packaging, painting, assembly

Competition

- Large full-liners, e.g. Siemens, Rockwell Automation
- Companies with focused offering, e.g. Kuka (robot products and systems), Yaskawa (robot and motion control products)
- Application specialists

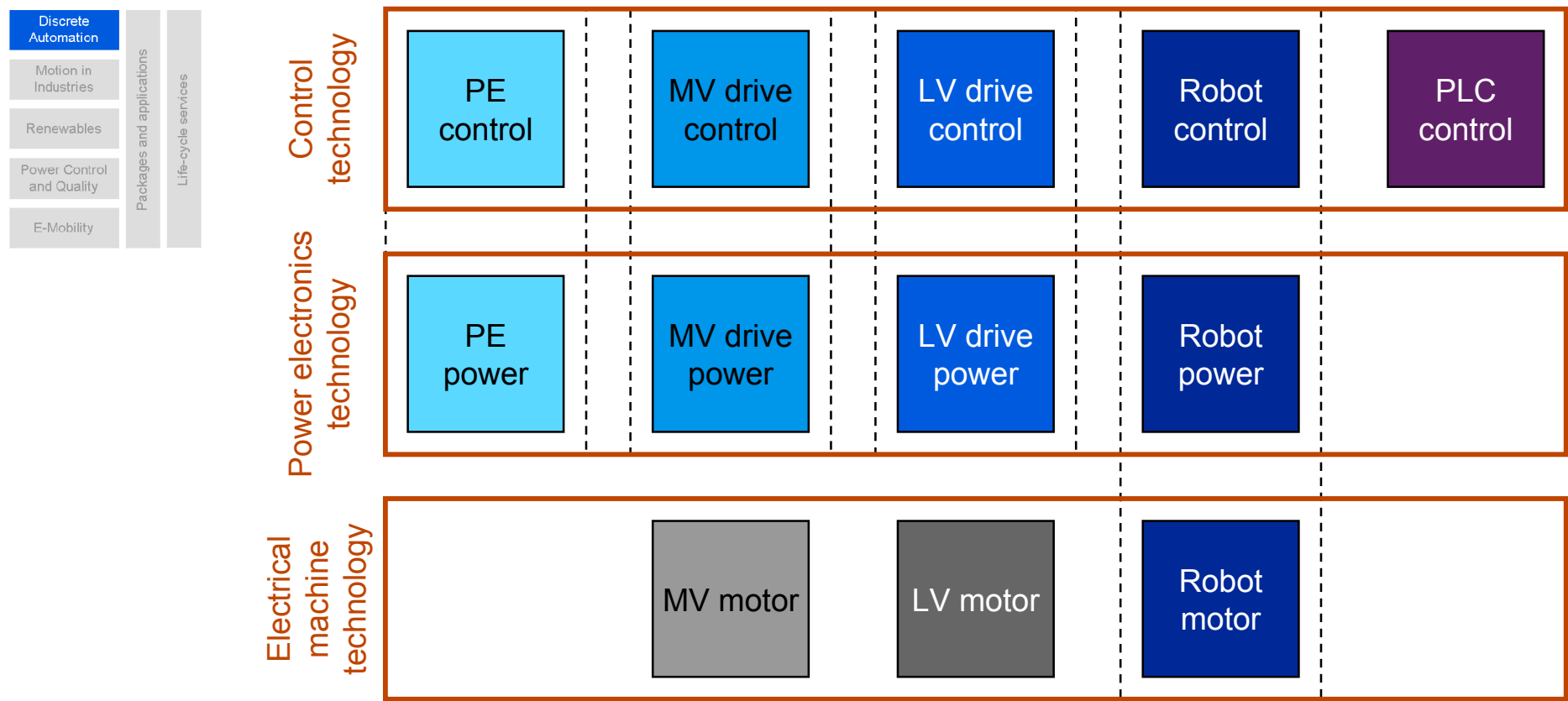
Combined offering to discrete automation

Beyond pure products: customer focused packages



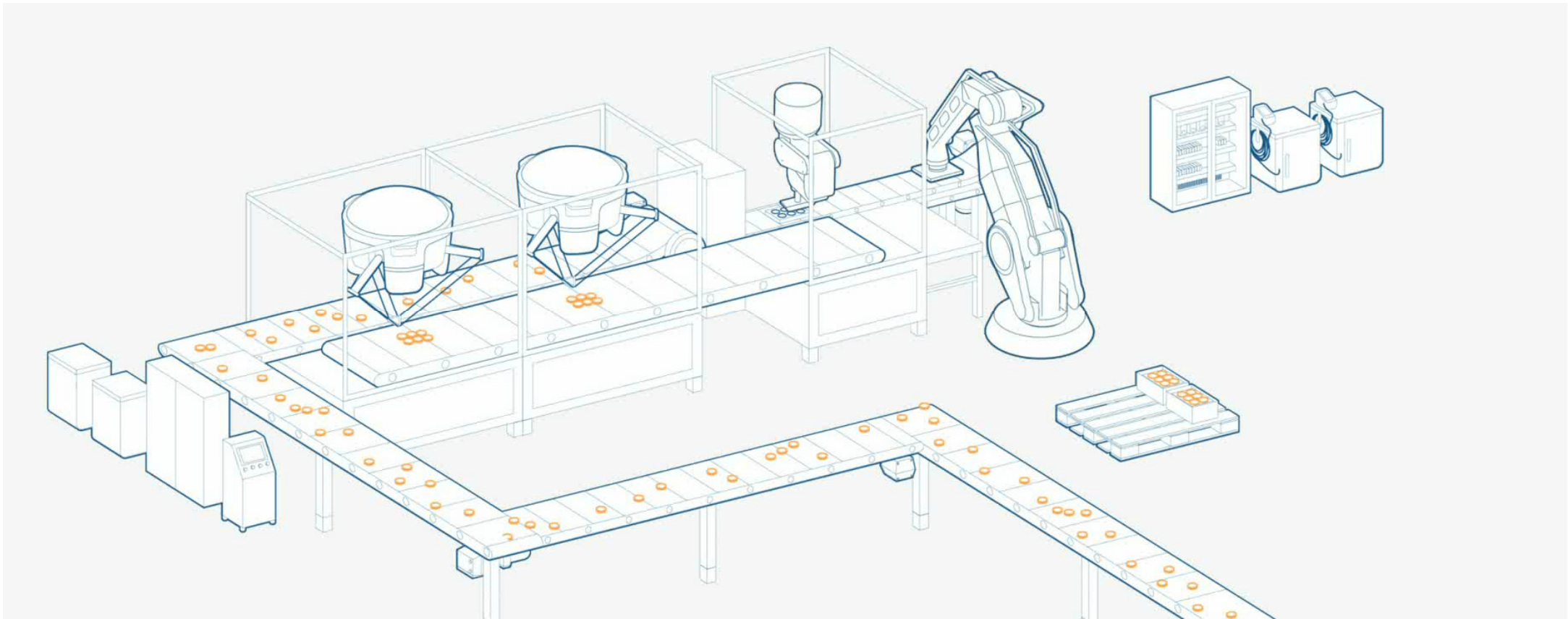
Significant technology synergies – today and to be created

Platforms and generic solutions with re-use



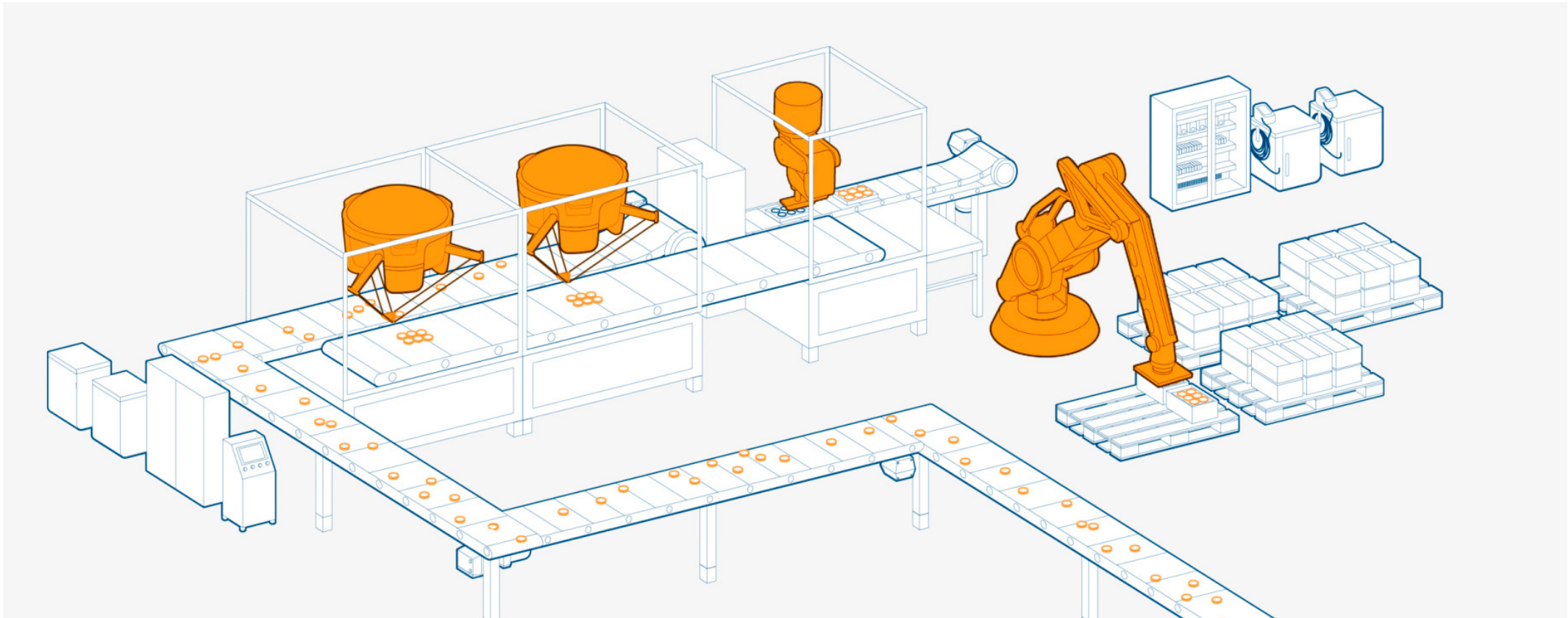
Combined offering to discrete automation

Example: Robotics application for candy packaging



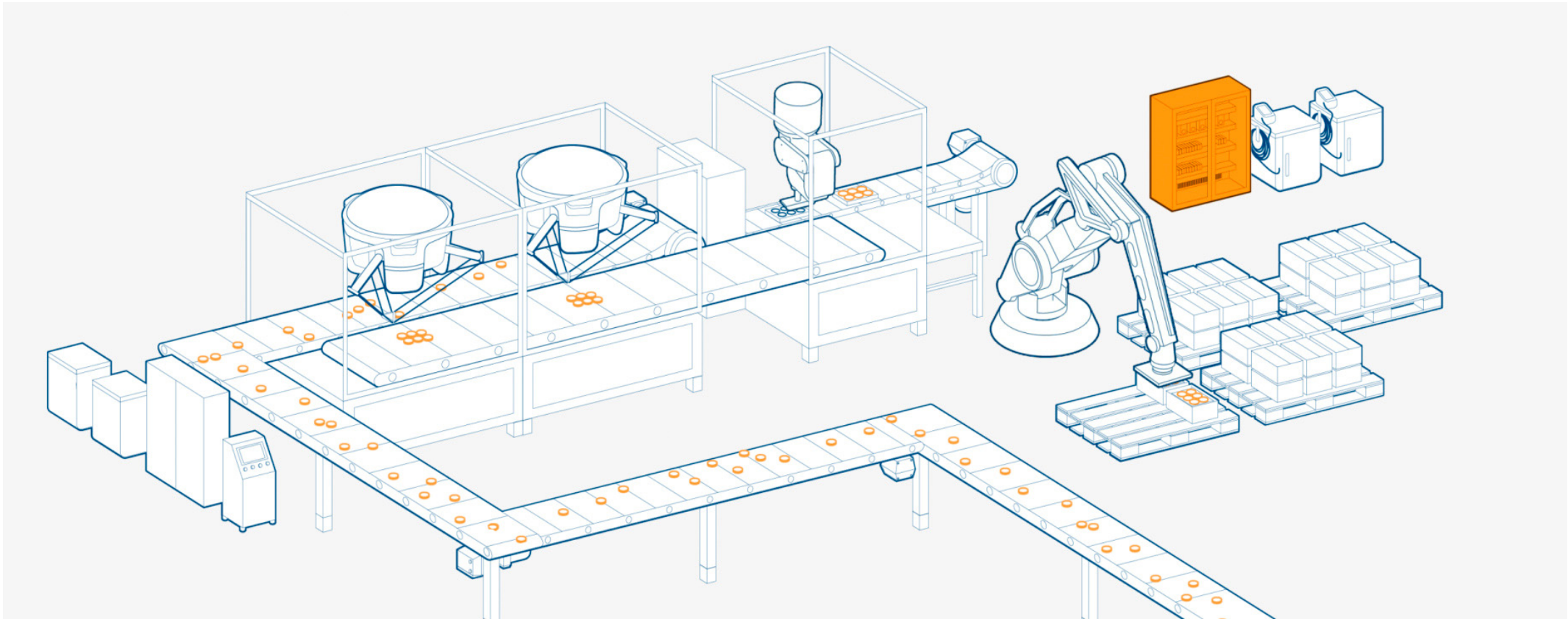
Combined offering to discrete automation

Robots: pick, pack and place

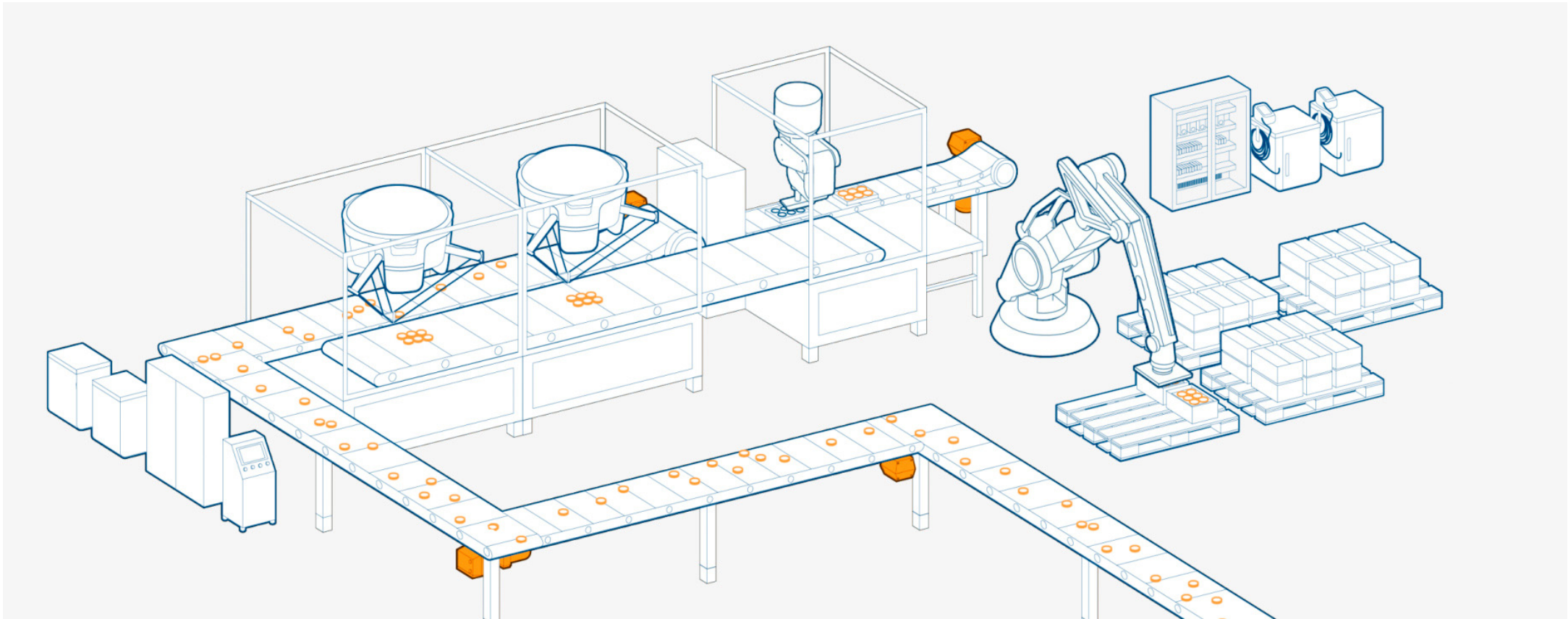


Combined offering to discrete automation

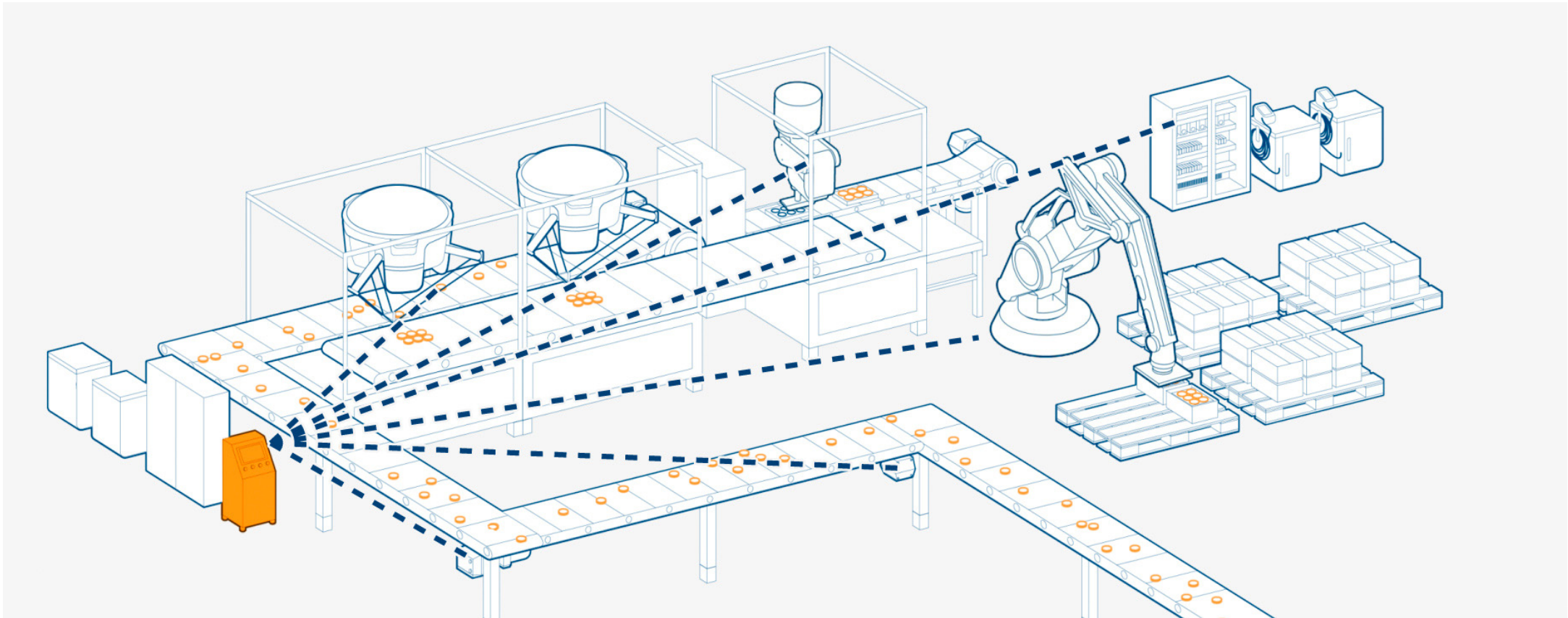
Drives and LV products



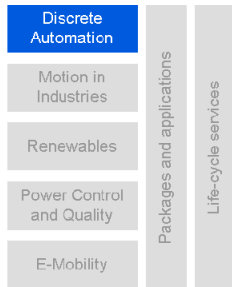
Combined offering to discrete automation Motors



Combined offering to discrete automation Control



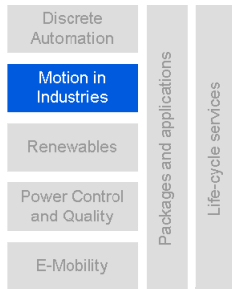
Key growth opportunities



- Automation penetration/new applications, e.g.
 - Robotics in general industry
 - Automated manufacturing in emerging markets (quality, safety, output efficiency)
- Application offering
 - Building on domain expertise
 - Combining broad line of DM products, engineering tools and application software
 - Packaged with LP
- Leveraging strong product and technology position in motion for discrete automation
- Rebound of the market

Energy efficiency a key demand driver for motion in industries

In addition to traditional productivity perspective



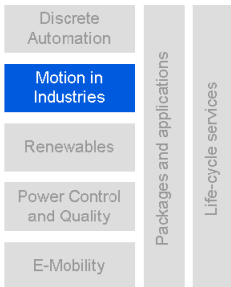
- Industry consumes ~1/3 of global electricity delivered to end users
- 2/3 of that is consumed by electrical motors
- High-efficiency motors and use of drives with significant energy savings potential
 - Motors up to 10%
 - Drives up to 40%
- Penetration of drives and high-efficiency motors is still low, therefore sizeable future opportunities
- Legislation changes coming, e.g. in the US, China

Installed base of ABB drives saves electricity equivalent to the annual consumption of more than 54 million EU households

Optimizing motor–drive systems worldwide could save power equivalent to the annual output of 250 nuclear reactors

An energy efficiency example

Aitik mine

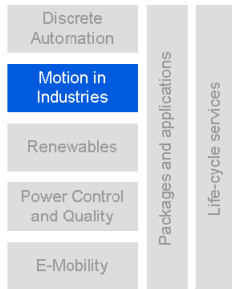


A recent ABB example

- Aitik copper mine in Northern Sweden
- Modernization of entire operation, total order volume of USD 84 million.
- Doubling production capacity with only adding 10% more employees
- Two ABB gearless mill drives (GMD) to crush the ore included
- 22.5MW each, largest GMDs ever built, can crush up to 2,200 tons of ore per hour
- GMD eliminates need for gears thus
 - Increasing efficiency (~40% lower loss possible)
 - Reducing mechanical wear and tear resulting in lower maintenance costs

DM already with a strong global position today

Well positioned to capture potential from energy efficiency demand



Strong position¹

	#1	#2	#3
LV motors	ABB	Siemens	WEG
Large AC induction motors	Siemens	ABB	WEG
LV drives	ABB	Siemens	Schneider
MV drives	Siemens	ABB	Converteam
Generators ²	Emerson	ABB	Cummins

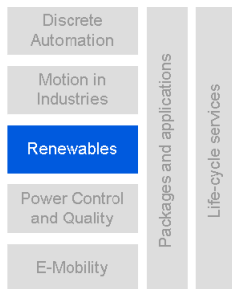
Key opportunities

- North America penetration
- Emerging market demand, mid-segment
- Innovation (strong pipeline)
- Filling portfolio gaps (e.g. high speed motion)
- Service (large installed base, value added services)

1: ABB assessment
 2: Excl. wind generators
 © ABB Group
 September 10, 2010

Renewables offering sizeable opportunities

Wind



New family of permanent magnet generators for 1.5 – 3.6 MW wind turbines



Newly opened ABB wind generator plant in Vadodara, India

Current status

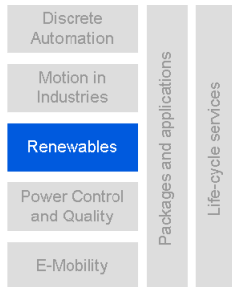
- Market for generators and converters growing ~5% p.a. – more and more in emerging markets (installations and OEMs)
- Trend towards higher power (off-shore)
- Costs more and more important
- DM among leading, independent component suppliers

Key opportunities

- Increased coverage of emerging markets: new customers and footprint
- Portfolio adaptations to new trends, e.g. larger, permanent magnet, gearless
- Closer cooperation with OEMs

Renewables offering sizeable opportunities

Solar



String inverters for residential applications



Central inverters for solar plants



Megawatt stations for solar plants

Current status

- Market for inverters growing >15% p.a. – fastest in solar plants above 100kW (>25% p.a.)
- DM entered market with competitive inverters and application packages (e.g. ready-to-install containers)

Key opportunities

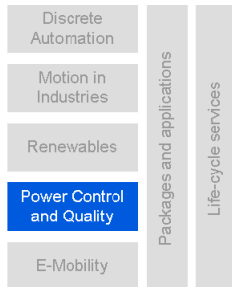
- Global roll-out and adaptation
- Broadening offering
- Leveraging ABB's global access to distribution
- Solution packages
- ABB's comprehensive product and system offering for solar plants

Power control and quality: A strong business based on expertise

With attractive future growth opportunities

Discrete Automation	Packages and applications	Life-cycle services	Strong base	High power rectifiers	<ul style="list-style-type: none"> ▪ Among the leading global players ▪ E.g. leading technology for world's largest aluminum smelter ▪ Opportunities in new segments, e.g. off-shore wind power, pump storage ▪ Servicing large installed base
Motion in Industries				Excitation systems	
Renewables				Power converters	
Power Control and Quality			Growing presence	Traction converters	<ul style="list-style-type: none"> ▪ Growing presence as an independent OEM supplier ▪ Increasing regional and OEM coverage ▪ 16.7 Hz rail power converter systems for Europe's railway operators in several countries a key opportunity ▪ Completing portfolio (e.g. higher power)
E-Mobility				Power quality	<ul style="list-style-type: none"> ▪ E.g. active voltage conditioning from Vectek acquisition ▪ Expansion of portfolio, e.g. for data centers
			Future markets	Energy storage	<ul style="list-style-type: none"> ▪ Leveraging power electronics expertise and technology platform to enter future growth markets
				New applications	<ul style="list-style-type: none"> ▪ E.g. roll-out of pump storage and energy storage solutions ▪ E.g. converters for shore-to-ship power supplies

Recent customer successes



High power rectifier for world's largest aluminum smelter potlines



- Qatalum (Qatar, 585kt/a) and Sohar (Oman, 360 kt/a)
- Highest voltages realized ever (1,750 V DC / 1,650 V DC) for maximum energy efficiency

Retrofit of propulsion drives for high-speed train ICE 1 of Deutsche Bahn (DB)



- Retrofit of traction propulsion converters (2 x 4.8 MW per train)
- First train fully approved by DB mid 2010
- 15% energy savings and increased reliability

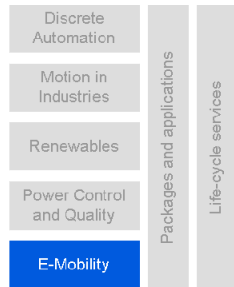
Variable speed drive for hydro power pump storage



- Variable speed drive for Grimsel hydro plant (CH)
- World's largest variable speed drive (100 MW)
- Optimized energy efficiency in all pumping modes (available power for pumping, storage lake water levels)

E-mobility - market accelerating

ABB an early mover



Market

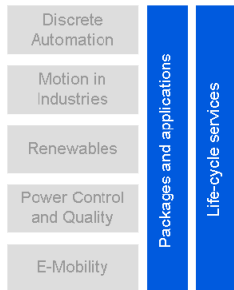
- Electrical vehicles (EV) are becoming part of “real world”
 - OEMs launch EV/plug-in hybrid EV serial production in 2010-2011
 - Large scale charging infrastructure pilots in all major regions
- Battery technology (range) and economics (cost) will determine mass adoption
- DC fast charging market expected to break \$100 million mark within next 3-5 years

DM offering

- DC fast charging
 - Product ready to launch in Q4, competitive technology and costs
 - Pilot participation in Europe and Asia
- Battery assembly
 - Robot manufacturing of high-power lithium ion batteries
 - First project won, others in the pipeline
- Future opportunities
 - Global expansion, on-board components (drives/power electronics, motors), integrated battery testing solutions



Two complementing enablers



Packages and applications

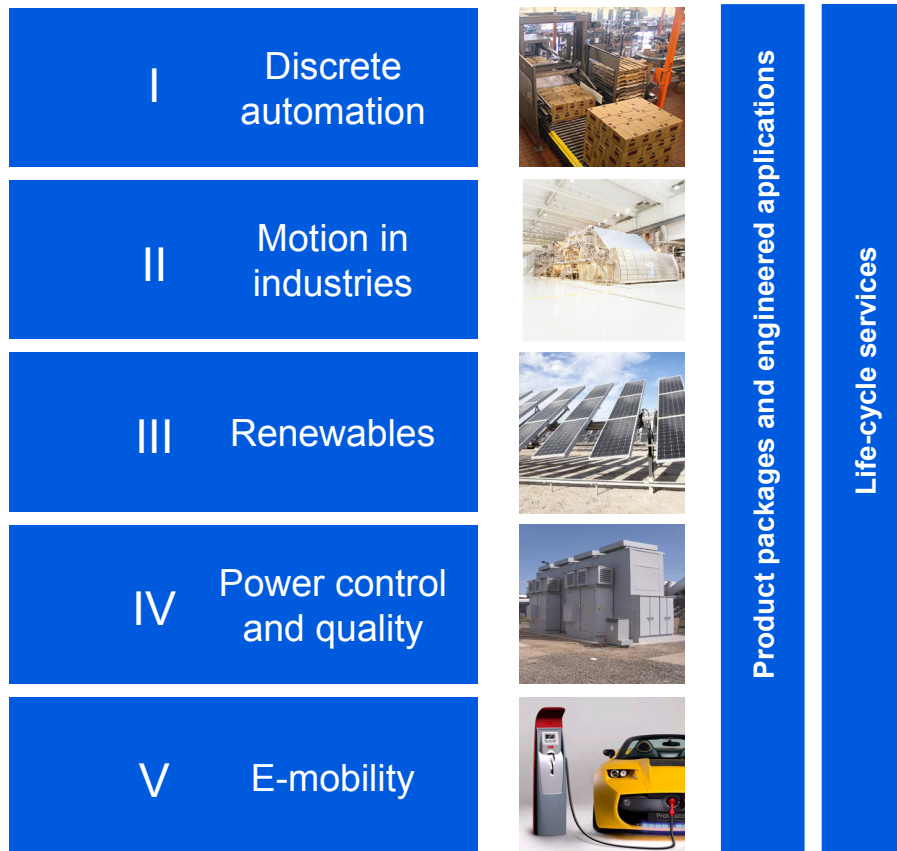
- Product packages with optimized fit
 - E.g. drives-motor bundles for high energy efficiency
- Applications for specific functionalities/tasks
 - E.g. synchronized tending robot and press drive for press automation
- Leveraging strong motion offering for discrete automation

Service

- Pre-sales, e.g. energy audits
- Advanced life-cycle services
 - E.g. LEAP (life expectancy and analysis program)
- 20% of revenues this year, ambition of ~30% by 2015

Discrete Automation and Motion

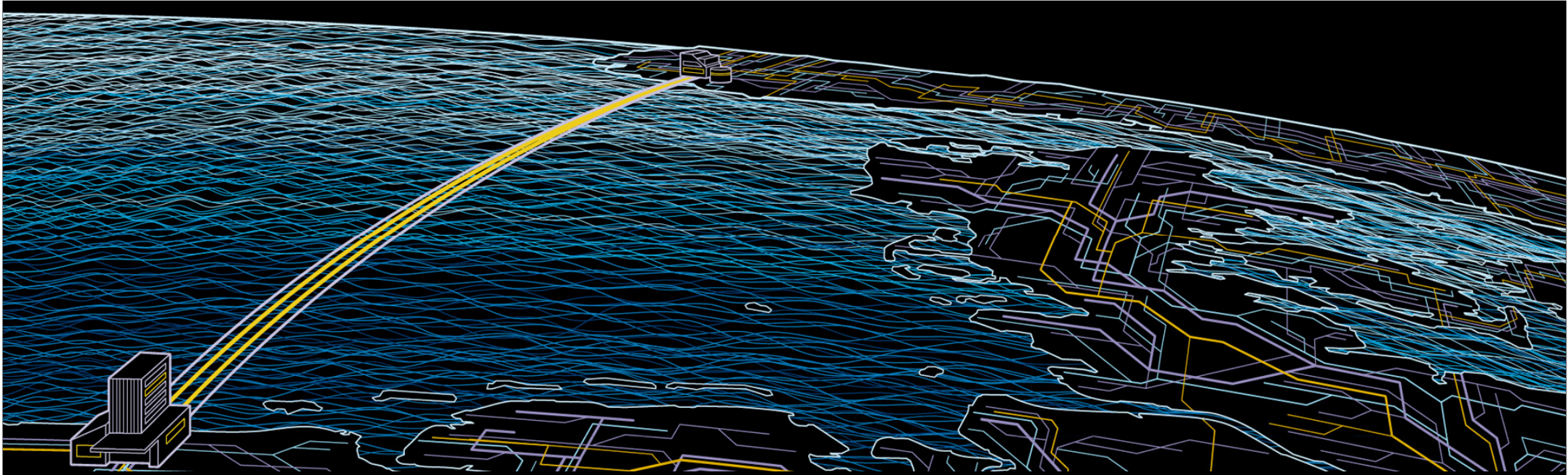
Great markets to serve – great business to be in



- Well balanced portfolio
 - Strong presence in key regions
 - Strong position in established markets (e.g. drives, motors, robots) and newly emerging opportunities (e.g. e-mobility)
 - Balanced cyclicalilty
 - Unique product offering
 - Application and service competence
- Strong technological platforms to use across segments
- Wide opportunities

Power and productivity
for a better world™





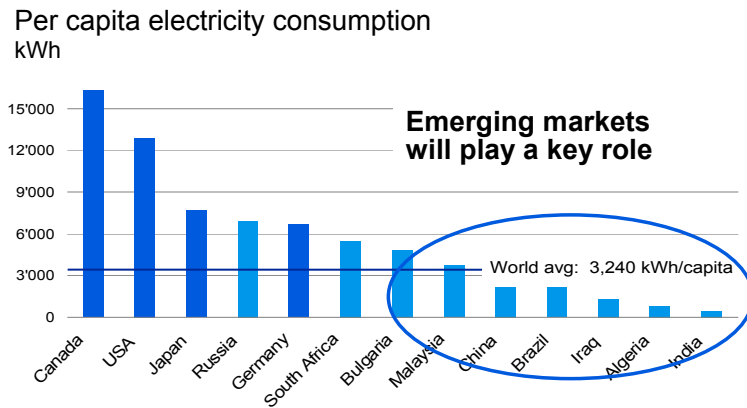
Capital Markets Day, Sept.10, 2010, Zurich, Switzerland

The grid is back

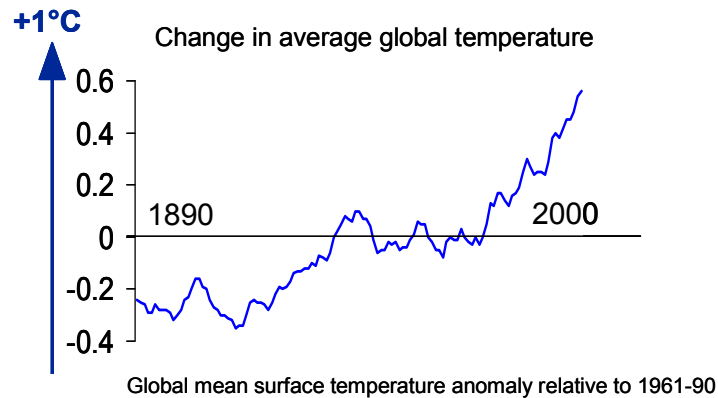
Peter Leupp, Head of Power Systems

The world needs more electricity but less CO₂

The power sector can make a big difference



- Electricity demand growing much faster than energy
- Requirement of 1 GW power generation and related grid infrastructure every week for next 20 years

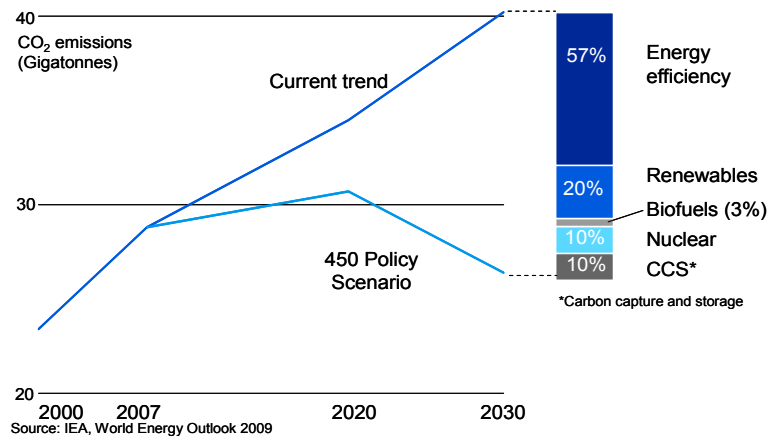


- 2°C accepted limit for global warming
- Power generation accounts for over 40% of CO₂ emissions

Emission reduction is a global priority

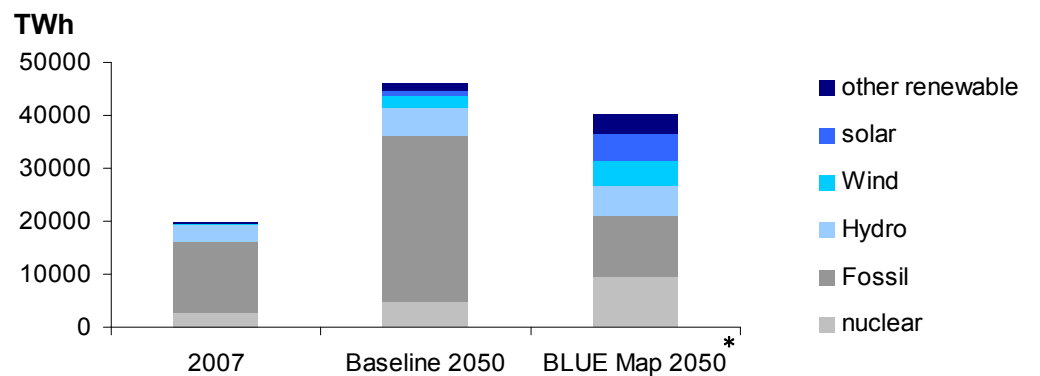
Renewables and energy efficiency will be key contributors

Emission reduction scenario



Energy efficiency and renewables can deliver >75% of required emission reductions

Growing contribution of renewables



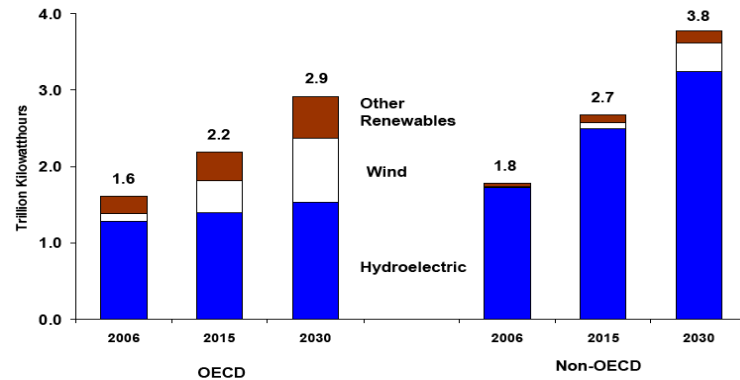
Source: IEA
Technology
Perspectives 2010

Reduced dependence on fossil fuels and renewables push to enable lower environmental impact

* Blue map: Energy CO₂ emissions in 2050 are half those of 2005. This is similar to the 450 PPM stabilization scenario of the World Energy Outlook 2007

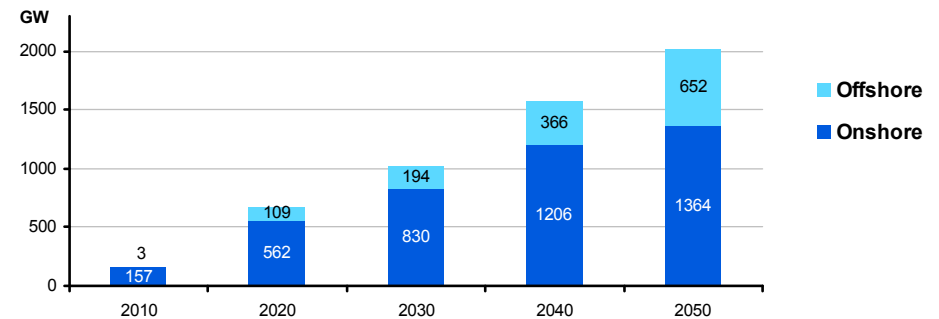
Growth of renewables brings many opportunities for ABB

Driven by wind in mature economies and hydro in emerging markets



Source: EIA
International Energy
Outlook 2009 [1 trillion
kWh/yr = 114 GW]

Wind power capacity projection

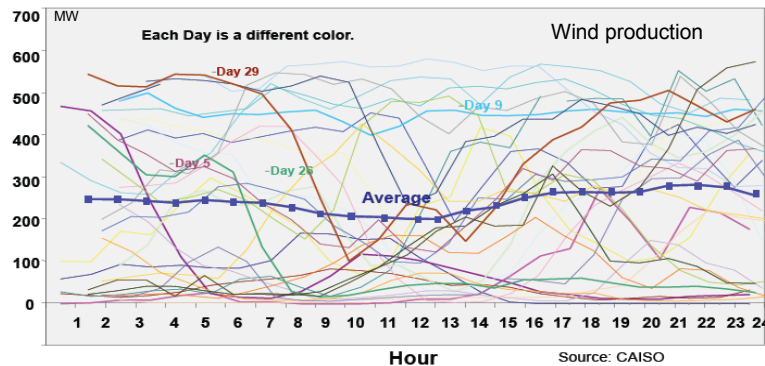


Source: IEA Energy
Tech. Perspectives
2010

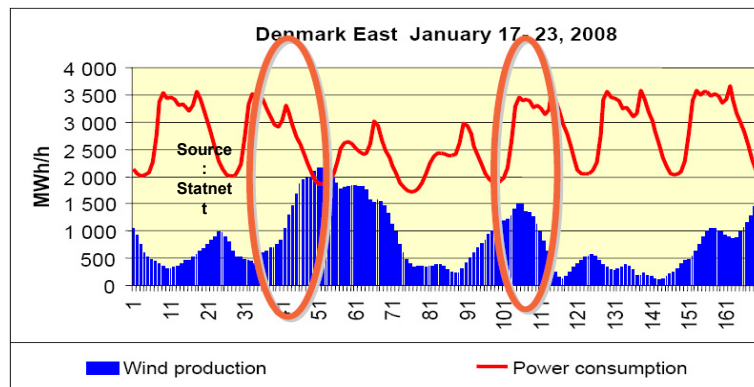
- 2010 - 2050: \$33 trillion required investment in power sector to meet blue map scenario (including ~\$12 trillion in T&D)
- Renewables driven by hydro and wind - recent successes include 800 MW Dolwin offshore power link worth 700 MUSD; ~2500 km Rio-Madeira hydro connection worth 540 MUSD

Integration of renewables also brings many challenges

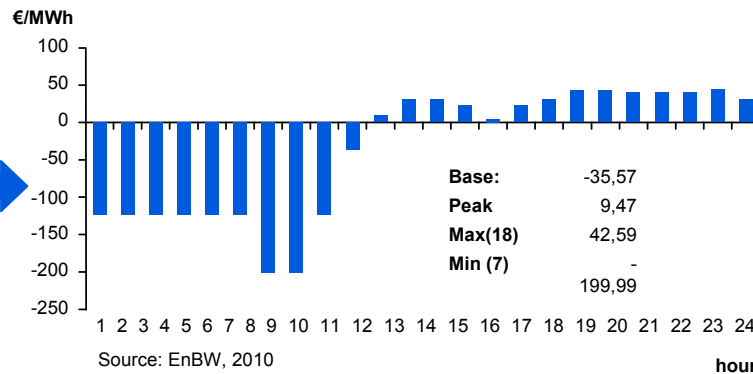
For instance - balancing demand and supply in real-time



- Unpredictable / intermittent
- Need for balancing reserves
- Legislation / incentives for renewables
- Negative tariffs

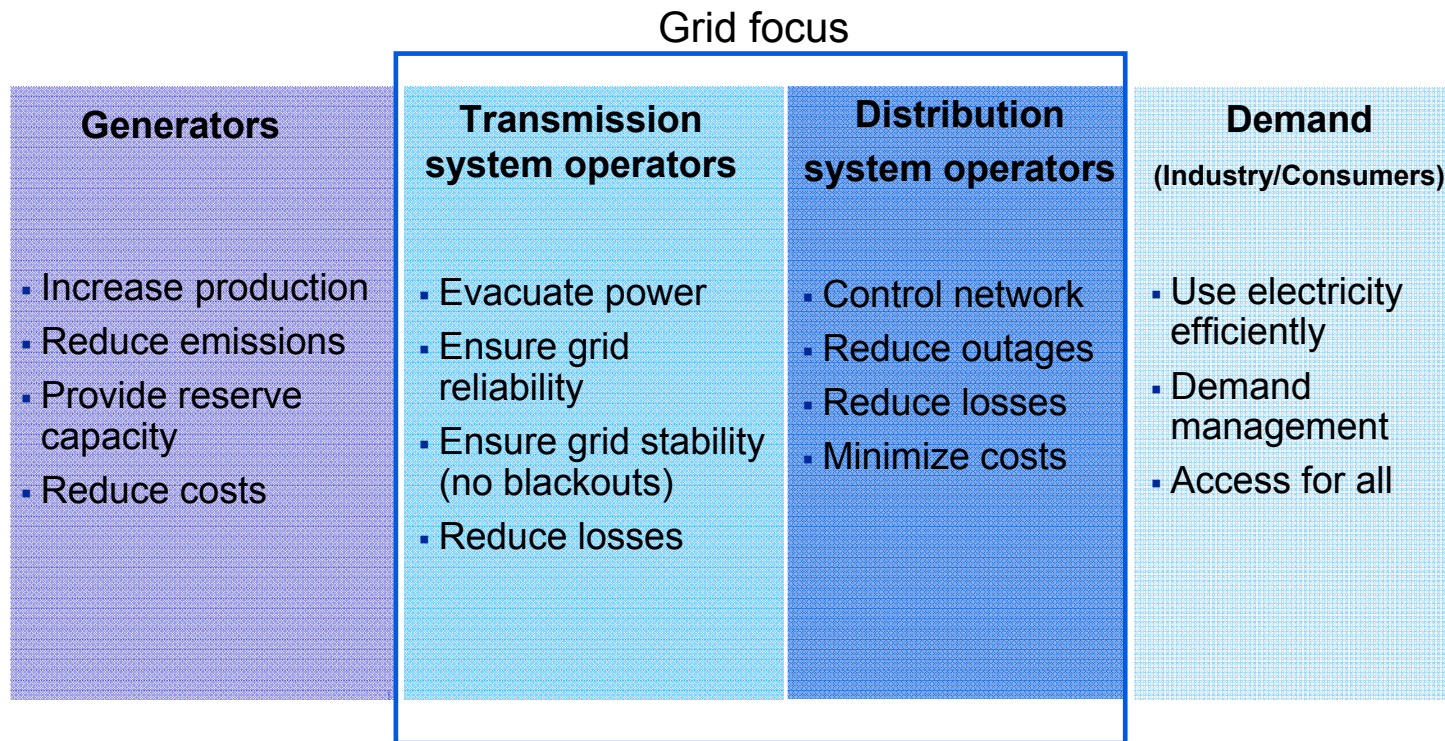


The effect of heavy wind power feed-in on tariffs



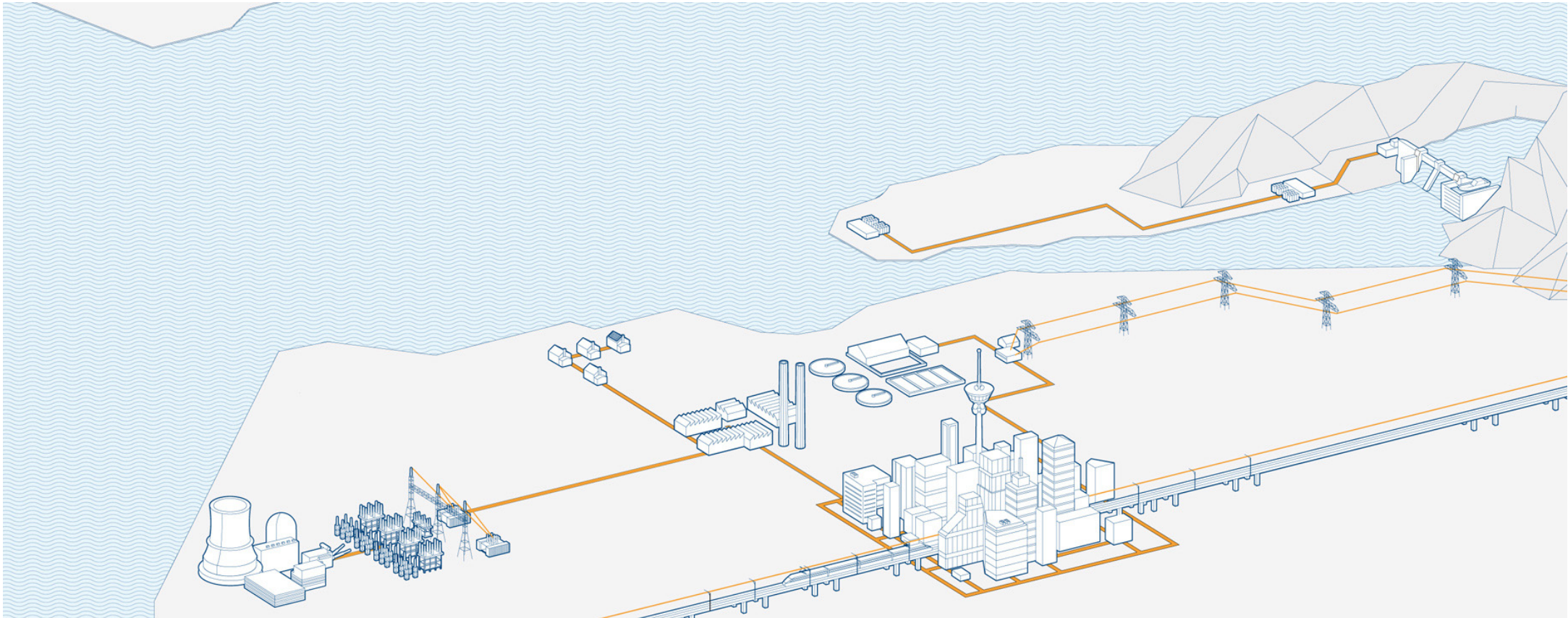
Customer priorities across the power value chain

The grid is in focus again



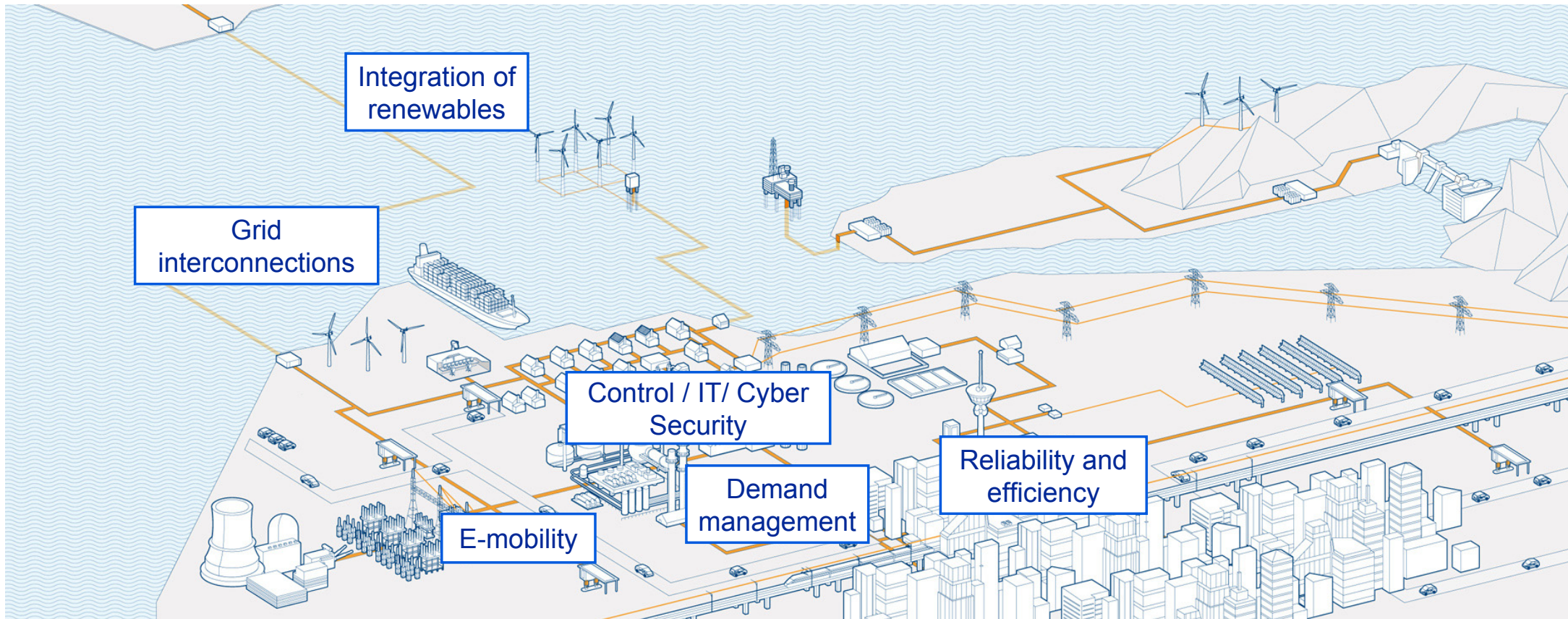
Traditional power grid

Relatively simple



The evolving grid

New complexities



The evolving grid

Key technology influencers

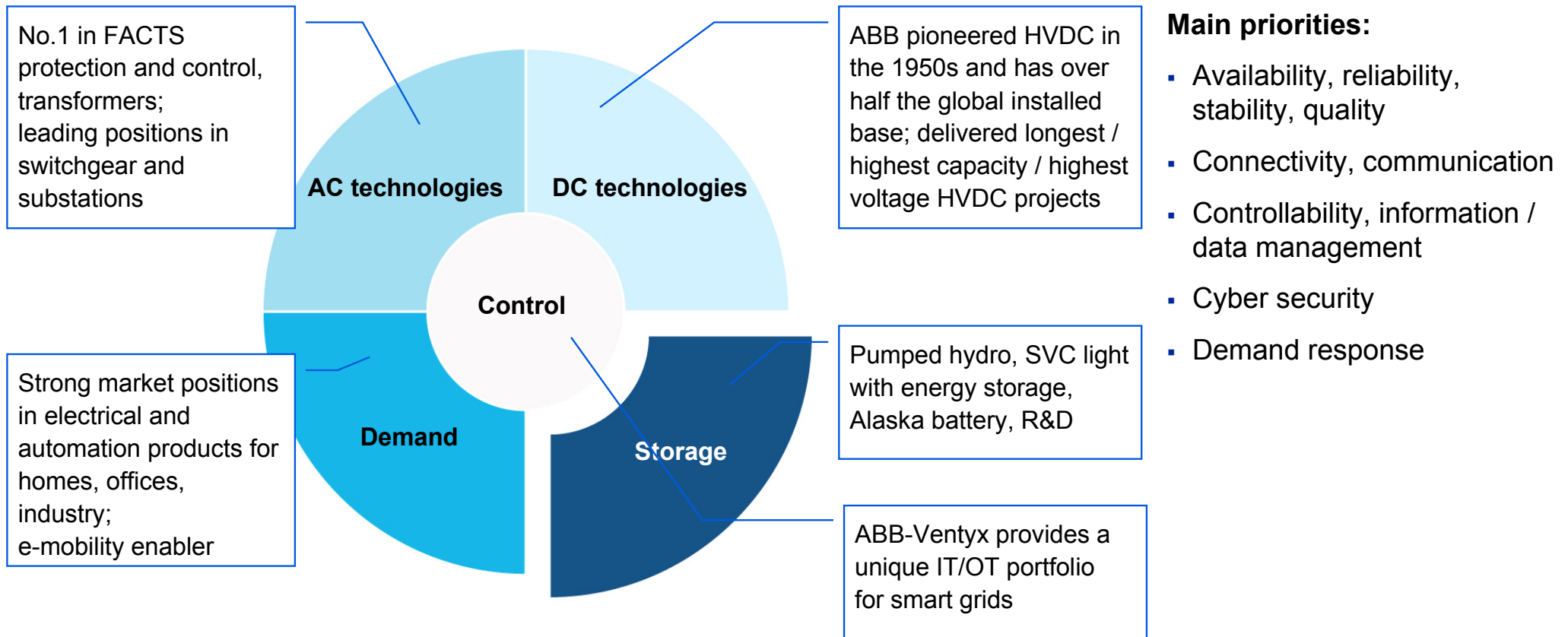


ABB already helps address these challenges

Solutions across the value chain



Enel, Torrealvaldiga, Italy, \$26 million

Thermal power plant converted to 'clean coal,' efficiency up by 15%



EirGrid, Ireland and Wales, \$550 million

500 MW HVDC Light® 186 km subsea and 70 km land cable link



La Robla, Spain, \$30 million

GA Solar, 13.3 MW PV solar plant produces 22.6 GWh per year, avoiding 11,500 tons of greenhouse gas emissions per year



Statoil Hydro's Gjøa floating platform, Norway, \$110 million

Powered from shore using dynamic cable avoiding 230,000 tons of CO₂ per year



BorWin 1, North Sea, Germany, \$700 million

World's most remote wind farm, 400 MW, HVDC converter stations, 200 km subsea & underground cables



Stattnet, Viklandet, Norway, \$35 million

FACTS RPC/SVC enabling more power through existing lines



Xiangjiaba-Shanghai, China, \$440 million

2,071 km, 6,400 MW, 800 kV first UHVDC commercial power link bringing hydropower to 31 million people



Outokumpu steel plant, Finland, \$16 million

FACTS reducing flicker and harmonics, providing reactive power support, and control upgrades to boost production



Rio-Madeira, Brazil, \$540 million

3,150 MW, 600 kV HVDC will be the world's longest link (~2,500 km) transmitting hydropower to São Paulo

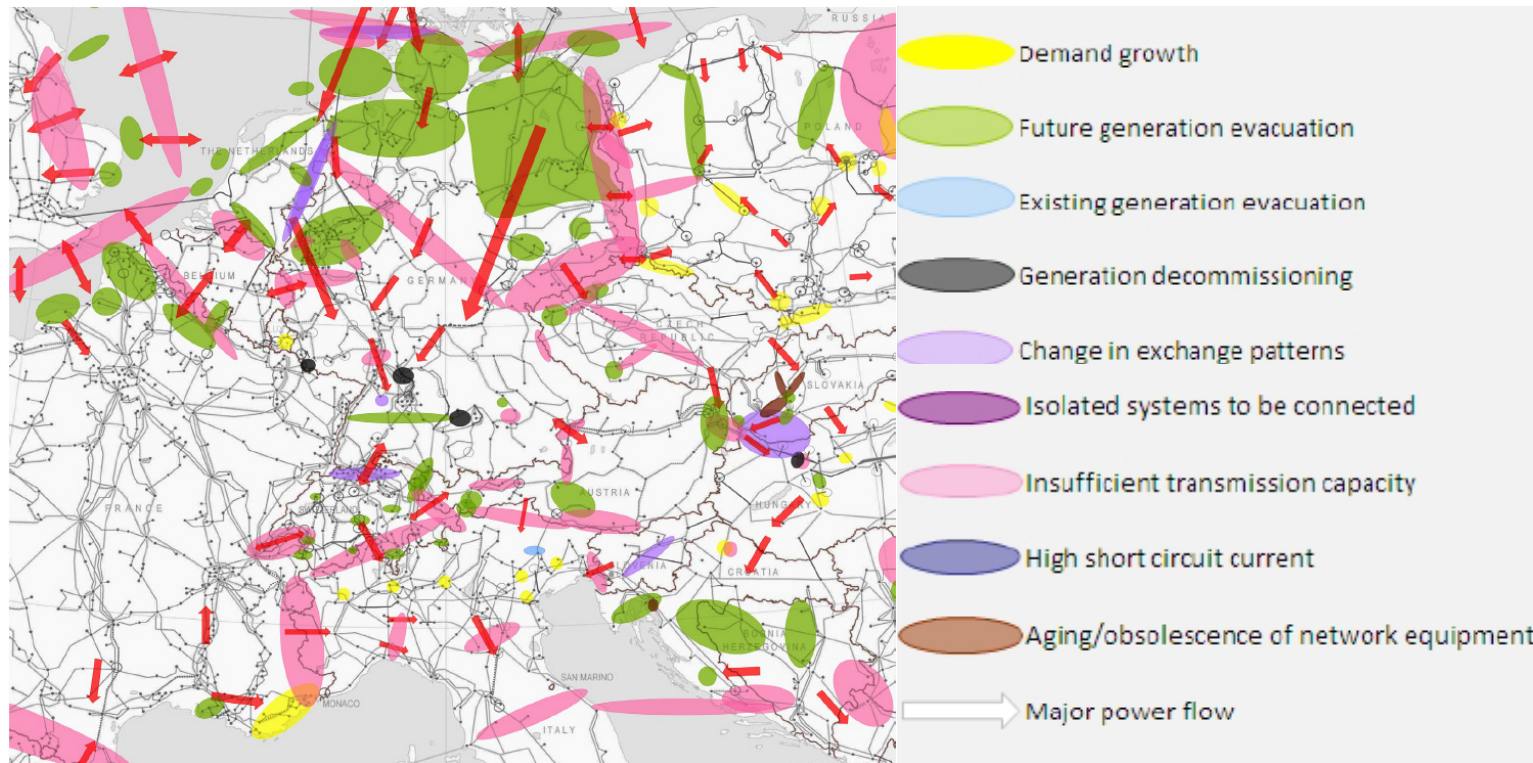


Karnataka, India, \$42 million

Smart grid enabler, SCADA network management, 867 remote terminal units - one control center serving 16 million consumers

AC technologies remain important

Significant installed base



ENTSO-E 10 year Network development plan

AC technologies remain important

Significant installed base

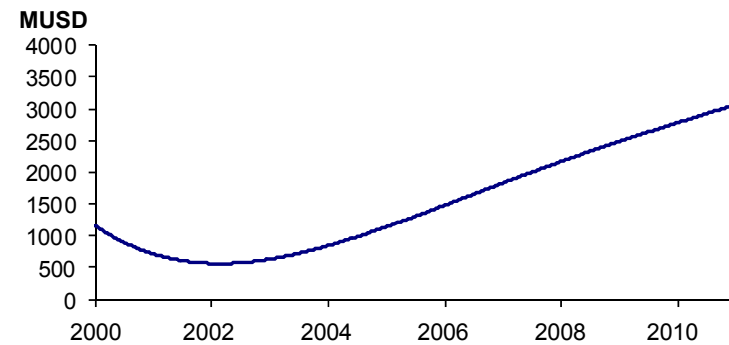
- Much of the existing AC infrastructure will remain – push for upgrades and efficiency
- FACTS devices enhance capacity, efficiency, power quality and stability – facilitate integration of renewables
- Continued innovation:
 - Size / footprint (GIS/PASS/Sensors)
 - Environmentally friendly/high efficiency transformers
 - New products for control platform
 - Distribution automation (smart grid enabler)
 - Reduce costs

Why HVDC?

A key transmission enabler



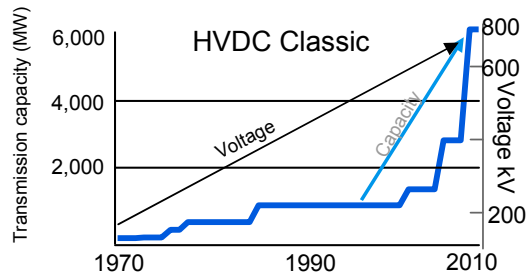
HVDC - world market development trend



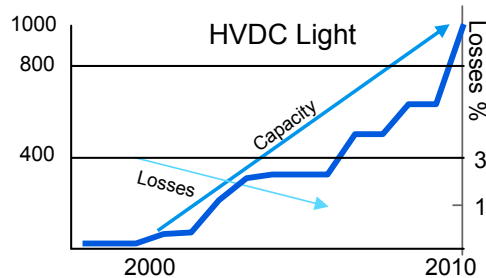
- Bulk power transmission over greater distances
- Higher efficiency / lower losses
- Enables integration of renewables including hydro, wind, offshore wind, solar
- Facilitates grid interconnections
- Suitable for overhead, underground and sub-sea transmission

Why ABB?

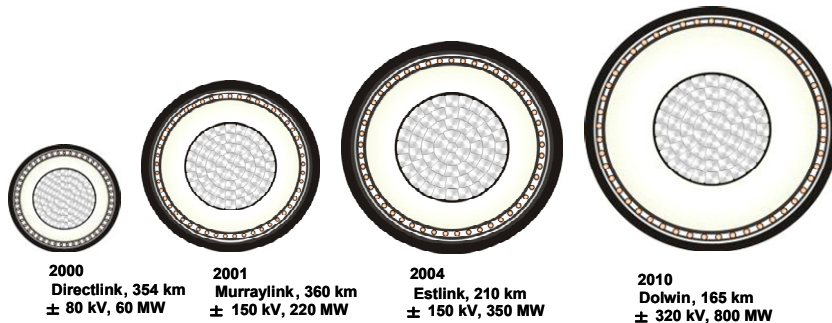
Unique position: track record, converters, semiconductors, cables



Capacity up 6 times since 2000;
Voltage up from +/- 100kV to
+/- 800kV since 1970



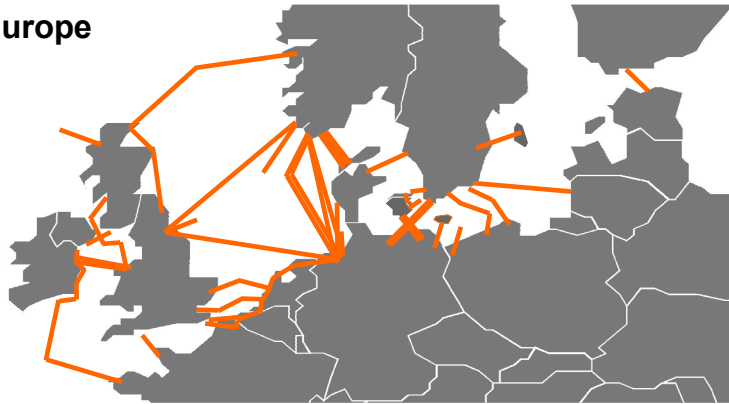
Capacity up 10 times; losses
down from 3% to 1% per
converter station since 2000



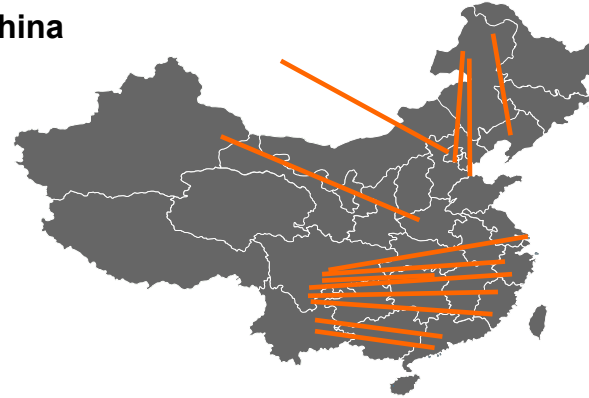
- ABB pioneered HVDC in 1950s and has over 50% of the global installed base
- Technology and innovation keeps ABB in the lead
 - Longer transmission distances
 - More power, lower losses, reduced cost per MW
 - Power electronics / semiconductors / cable developments
 - Integration of remote renewables
 - Next step-multi terminal leading to DC grids

Many supergrid visions will leverage this technology For integration of renewables and interconnections

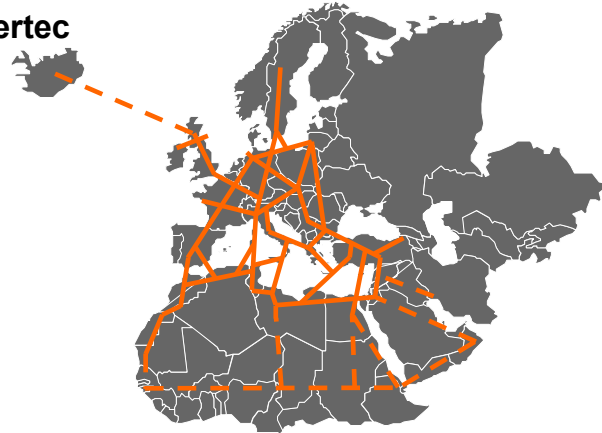
Europe



China



Desertec



Future developments

- Multi-taps (highway exit points)
- Connecting point to point → Grids
- Multiterminal links
- DC grids
- Mixed grids

Large scale electricity storage

A key requirement for the evolving grid

Current grids

- Stable, reliable, adjustable generation (fossil, nuclear, hydro)
- Supply follows the demand
- Instant delivery
- Predictable consumption

Minimal storage needs

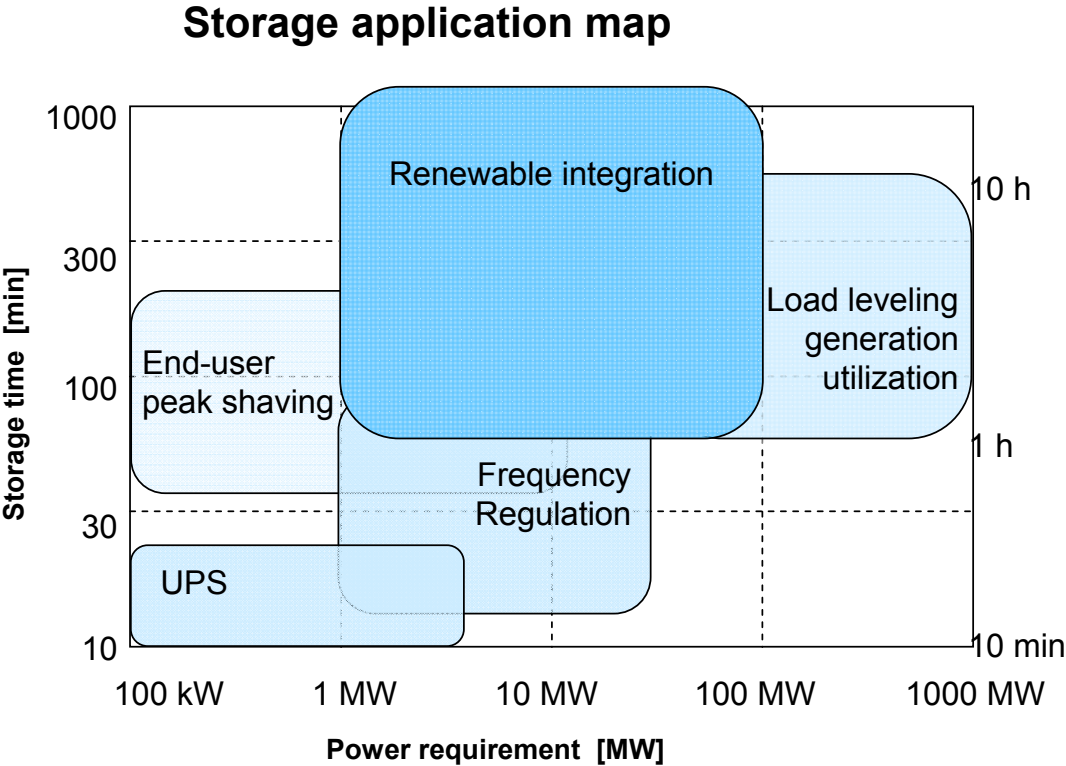
Evolving grids

- Renewable generation is unstable, unreliable (wind, solar)
- Power is available when people don't need it
- Renewable energy has priority for consumption (legislation)

Storage needed to balance supply and demand



Large scale electricity storage Applications

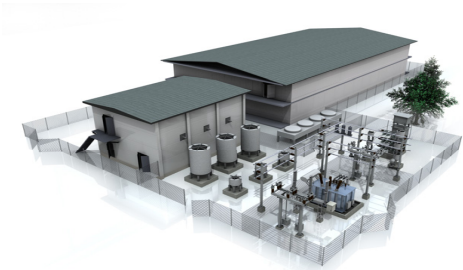


Large scale electricity storage

Technologies are in the evolution stage



BESS installation in Fairbanks, Alaska



SVC Light with energy storage

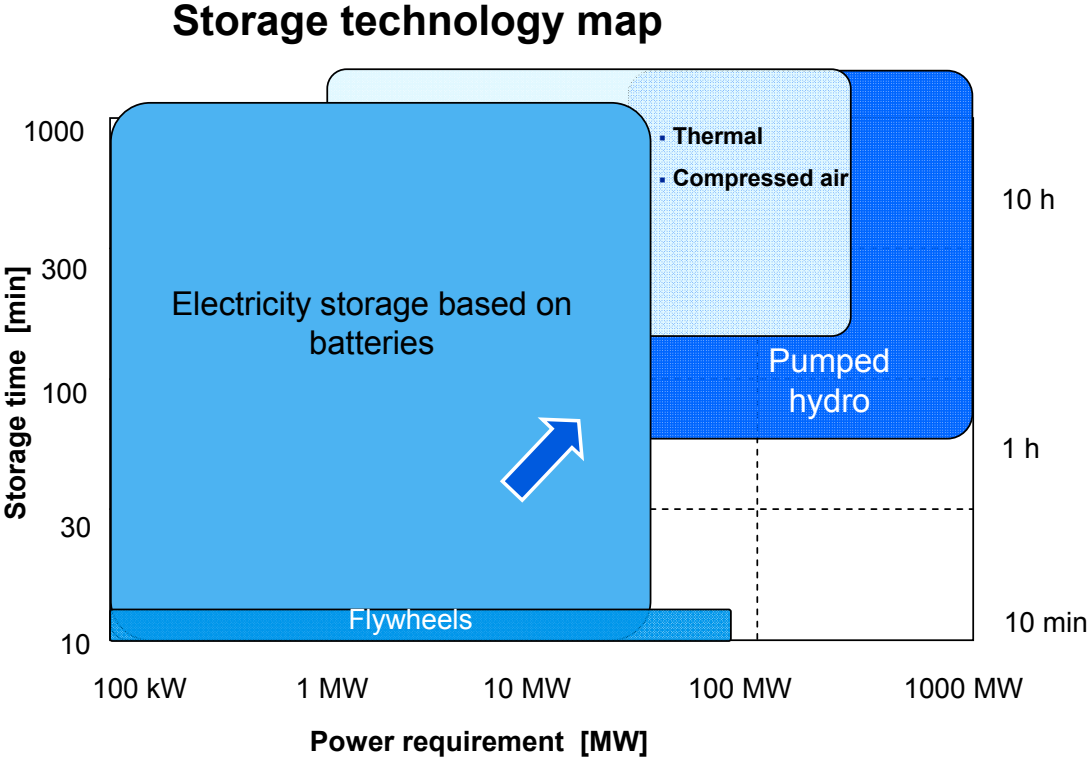
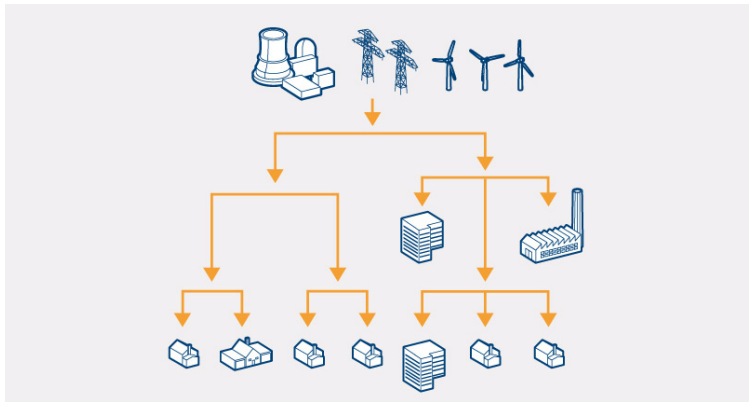


ABB will leverage knowledge and power electronics technology to develop storage systems

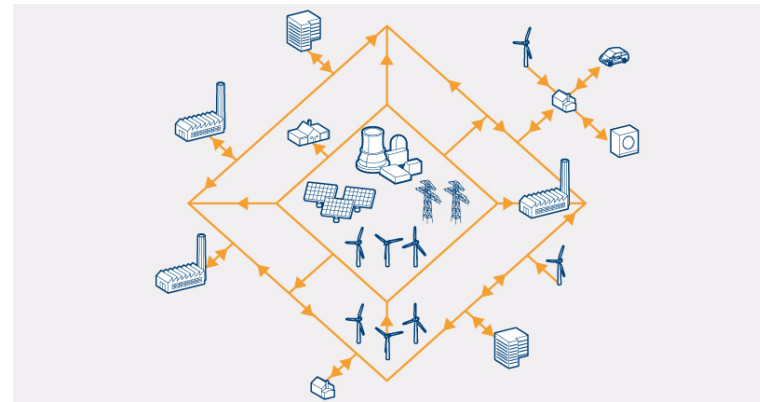
‘Control’ becomes a key factor as we move towards smarter grids

Need for more real-time data management



Traditional grids

- Centralized / stable power generation
- Limited grid accessibility for new producers
- One-directional power flow
- Very limited storage

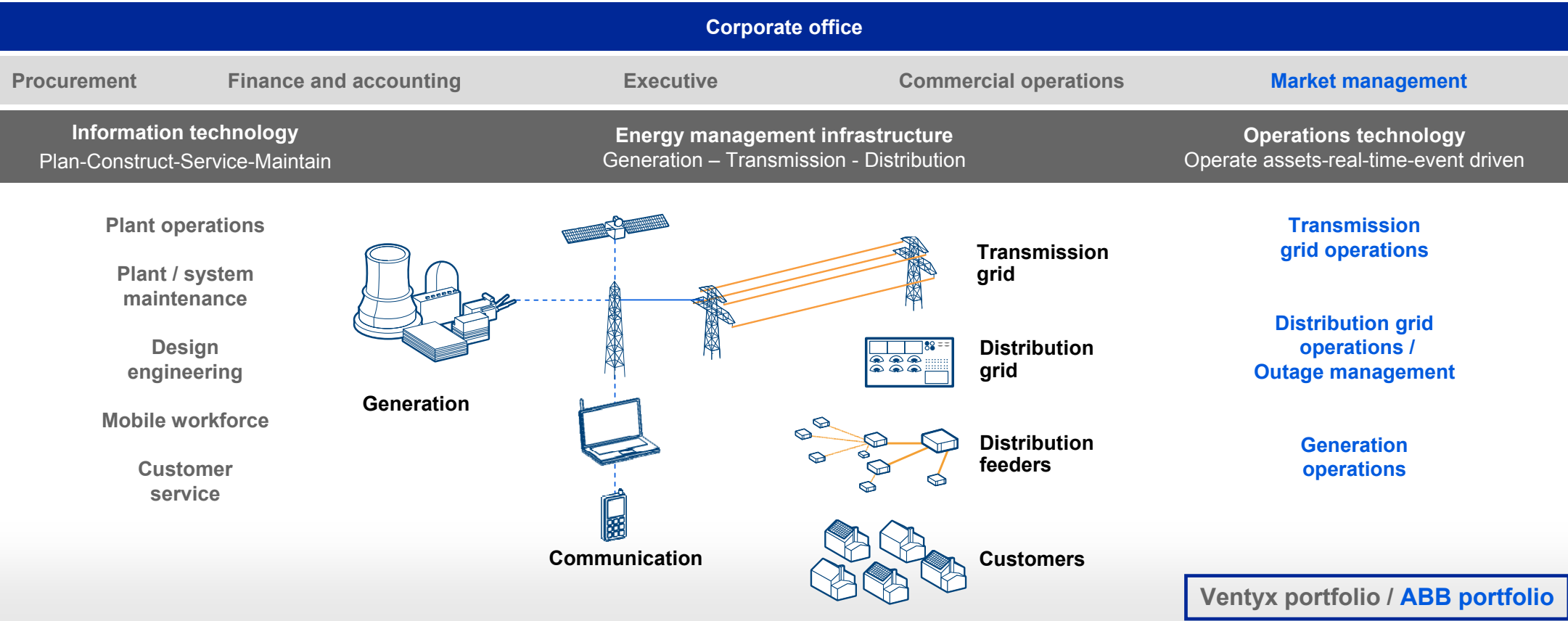


Future grids

- More distributed generation
- Unpredictable / intermittent renewables
- More grid accessibility and multi-direction flow
- Demand management and e-mobility add to complexity
- Storage at central and distributed levels

ABB can now offer integrated network management solutions

Bridging the IT/OT gap



The grid is back

ABB is well positioned to shape its evolution

The challenges

- Balancing the need for more power with mounting climate concerns
- Aging infrastructure and new complexities:
 - Distributed power generation; integration of renewables; reliability; efficiency; quality; demand management; e-mobility

ABB's position

- Global leader in energy-efficient T&D technology (AC and DC)
- Well positioned in mature markets – leading emerging market presence
- Portfolio and track record to tap renewable integration and energy efficiency opportunities
- ABB-Ventyx unique positioned to leverage IT/OT convergence, smart grid enabler

Power and productivity
for a better world™



Safe harbor statement

This presentation includes forward-looking information and statements including other statements concerning the outlook for our third quarter revenues and EBIT margin. These statements are based on current expectations, estimates and projections about the factors that may affect our future performance, including global economic conditions, the economic conditions of the regions and industries that are major markets for ABB Ltd. These expectations, estimates and projections are generally identifiable by statements containing words such as “expects,” “believes,” “estimates,” “targets,” “plans” or similar expressions. However, there are many risks and uncertainties, many of which are beyond our control, that could cause our actual results to differ materially from the forward-looking information and statements made in this press release and which could affect our ability to achieve any or all of our stated targets. The important factors that could cause such differences include, among others, business risks associated with the weakened global economy and political conditions, costs associated with compliance activities, raw materials availability and prices, changes in governmental regulations and currency exchange rates and such other factors as may be discussed from time to time in ABB Ltd’s filings with the U.S. Securities and Exchange Commission, including its Annual Reports on Form 20-F. Although ABB Ltd believes that its expectations reflected in any such forward-looking statement are based upon reasonable assumptions, it can give no assurance that those expectations will be achieved.

For more information, call ABB Investor Relations
or visit our website at www.abb.com/investorrelations

	Telephone	e-mail
Michel Gerber, Head of Investor Relations (Zurich)	+41 43 317 3808	michel.gerber@ch.abb.com
John Chironna (Norwalk, CT)	+1 203 750 7743	john.g.chironna@us.abb.com
John Fox (Zurich)	+41 43 317 3812	john.fox@ch.abb.com
Karen Himmelsbach (Zurich)	+41 43 317 3832	karen.himmelsbach@ch.abb.com
Astrid Bodmer, Assistant (Zurich)	+41 43 317 3808	astrid.bodmer@ch.abb.com