Zurich, February 16, 2012, Peter Leupp

Power Systems
On the growth path

Power and productivity
for a better world™

Power Systems
Key performance indicators and highlights

Power Systems	Q4 11	Q4 10	Change		FY 2011	FY 2010	Change	
$ millions unless otherwise indicated			*US$*	*Local*			*US$*	*Local*
Orders	3,130	2,626	*19%*	*21%*	9,278	7,896	*18%*	*12%*
Order backlog (end Dec)	*11,570*	*10,929*	*6%*	*11%*				
Revenues	2,412	2,088	*16%*	*17%*	8,101	6,786	*19%*	*14%*
EBIT	145	3	*n.a.*		548	114	*381%*	
as % of revenues	6.0%	0.1%			6.8%	1.7%		
Operational EBITDA[1]	238	69	*245%*		742	304	*144%*	
as % of operational revenues	9.9%	3.3%			9.1%	4.5%		
Cash flow from operating activities	306	508	-40%		288	439	-34%	

- Biggest orders in history - large orders supported by base order growth
- Strong double-digit growth in service business
- Cable business back on track
- Well positioned for future growth
  - Record order backlog; tender backlog remains high
  - R&D continues to drive technology and innovation

Power Systems
Market trends and opportunities

Market trends

- **Economic growth**
  - Need for more electricity / capacity
- **Climate change challenge**
  - Renewables
  - Energy efficiency
  - Demand management
- **Higher reliability of power supplies**
  - Stronger and smarter grids
  - Improve / upgrade existing grid
- **Urbanization / mobility**
- **Water gets higher visibility**

Key opportunities for ABB

Power generation
- Traditional and renewable (solar, wind, hydro)

Integration of renewables
- HVDC; cables; semiconductors

Reinforcing the grid: capacity / reliability
- FACTS; substations; storage

Smarter power networks
- Control and automation; software

Mobility
- Railways / metros

Water
- Pumping stations; desalination plants

Service; asset management; consulting

Renewables solutions
Solar: PV, CSP and CPV

Photovoltaic (PV)

- Optimized, high efficiency modular solutions
- Proven track record ~250 MW; 40 PV plants

Concentrated solar power (CSP)

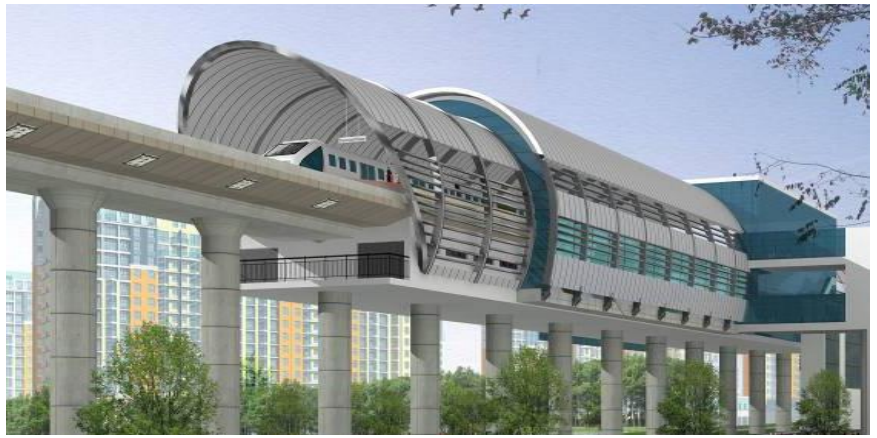
- 35% stake in Novatec; co-operation on turnkey projects
- Cost-effective and efficient Linear Fresnel-based direct steam generation (500°C)
- Highest yield per m^2 land

Concentrated photovoltaic (CPV)

- Significant stake in Greenvolts with exclusive marketing and sales agreement
- Outstanding solar electrical efficiency with triple-junction cells and dual-axis trackers
- Prefabricated / tested “plug and play” system

Transportation solutions
Railway and shore-to-ship power

Bangalore, Warsaw, São Paulo



Rail

- Traction power supply for metros and urban rail in India, Brazil, Poland
- Turnkey transmission, distribution, auxiliary and traction substations
- Efficient and seamless management of power network
- Space saving; high operational performance and productivity

Ystad, Sweden / Hoek van Holland

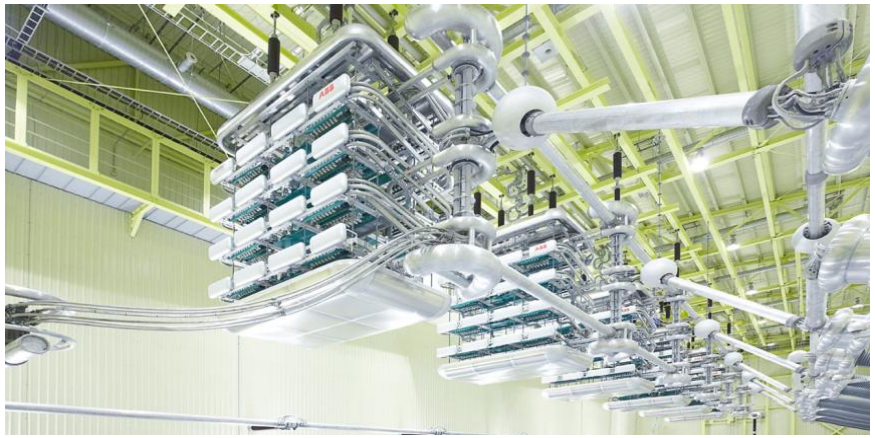
Shore-to-ship power

- Clean, reliable power from shore for onboard systems of berthed vessels
- Reduction of greenhouse gasses, noise emissions and vibrations
- Flexible, simultaneous supply with two frequencies to match vessel requirements

HVDC technology
A key transmission enabler

Connecting remote hydro power

Xiangjaba-Shanghai, Itaipu, 3Gorges



Power from shore

Troll A, Valhall platform

Offshore wind connections

Borwin 1, Dolwin 1+2,

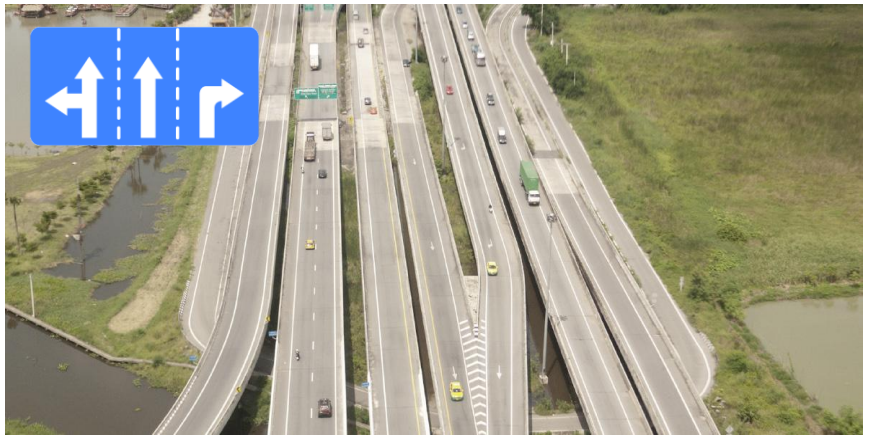
Cross border interconnections

NorNed, EWIC, Skagerrak, NordBalt, Estlink

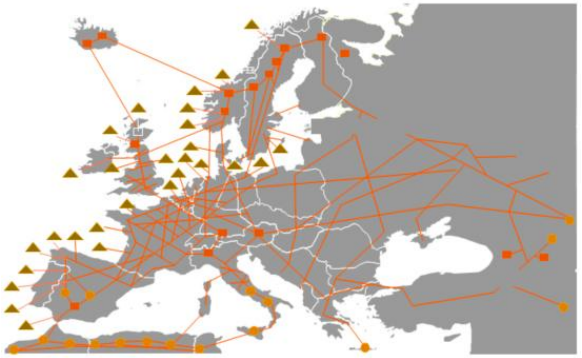
Ultra high voltage direct current link order in India
$900-million order is a technology first

- Transmitting remote hydro power from multiple stations more than 1,700 km
- Capable of supplying enough electricity to serve 90 million people
- Highest-ever converter capacity at 8,000 MW
- World's 1st UHVDC link with three converter stations
  - Two "sending" stations convert from AC to DC for transmission
  - One "receiving" station in Agra converts back into AC for distribution to end users

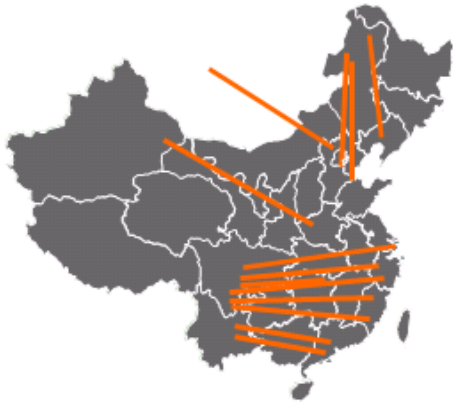
HVDC power highways
From joining the dots to connecting the lines



Europe



China



Desertec

ABB's unique position in HVDC
In-house converters, semiconductors, cables

Essential components of HVDC transmission systems

R&D, consulting, simulation

Converters/breakers	High power semiconductors	HV cables
		
Conversion of AC to DC and vice versa	Silicon based devices for power switching	Transmit large amount of power below ground and sea
New simulation/test lab Sweden	**~$200mln investment Switzerland**	**~$90mln US ; $400mln Sweden**

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