

A photograph of a large industrial power plant with two prominent cooling towers, situated in a lush green field of tall grasses, white daisies, and red poppies under a blue sky with scattered clouds.

# Introduction of Hitachi Power Europe

April 2013

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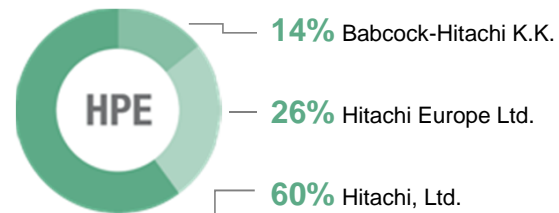
➤ **General Information on Hitachi Power Europe**

➤ **Experience of CCGT in Europe**

# Hitachi Power Europe

## Shareholders and key figures

- Start of business:  
1 May 2003
- Subscribed capital:  
182 Mio. EUR



	2009	2010	2011
Employees	1,070	1,130	1,052
Order intake in Mio. EUR:	892	86	225
Order backlog in Mio. EUR: (acc. HGB, not consolidated)	5,260	5,216	5,413



# Hitachi Power Europe

## Market region and locations

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Hitachi Power Europe is responsible for the **EIRA** region as part of a global strategy for Power Systems:

- Europe (incl. Romania, Turkey)
- India
- Russia
- Africa / SADC\*

\*SADC: Southern African Development Community

Product portfolio enlarged with steam turbine/ generator, gas turbine and EPC.





# Hitachi Power Europe

## Main business activities

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### Conventional power plants

- Coal fired EPC power plants
  - Power train
  - Utility steam generator
  - Firing systems
  - Mills
  - Ash handling systems
  - Flue gas cleaning systems
  - Steam turbines (Hitachi, Ltd.)
- 
- CCS-Technology
  - Combined-cycle power plants
  - Gas turbines (Hitachi, Ltd.)
- 
- Rehabilitations
  - Modernization
- 
- Service for energy systems and power plants
  - Delivery of all replacement parts



# Hitachi Power Europe

Group of companies

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## Babcock Fertigungszentrum Oberhausen GmbH

Production of  
first-class components  
for power plants  
(e.g. coal mill),  
mainly for  
Hitachi Power Europe



## BGR Boilers Private Ltd.

Engineering, manufacture  
and delivery of  
utility steam generators  
in India



## Donges SteelTec GmbH

One of Germany's leading  
steel and bridge  
constructors;  
manufacturing of  
steel structure  
for power plants

## Hitachi Power Europe GmbH



## Hitachi Power Africa (Pty) Ltd.

Subsidiary of HPE in  
South Africa; construction  
and engineering of  
12 utility steam generators  
for utility ESKOM



## Hitachi Power Europe Service GmbH

Service, rehabilitation  
and components  
in the industrial plant field



## Meeraner Dampfkesselbau GmbH

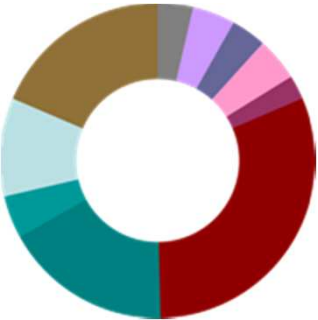
Manufacturing of  
premium components  
for utility steam generators  
(e.g. pressure parts)  
for power plants



- **Design and construction** of conventional fired power plants
- **Delivery of components** such as utility steam generator, environmental technology, turbines, milling plants

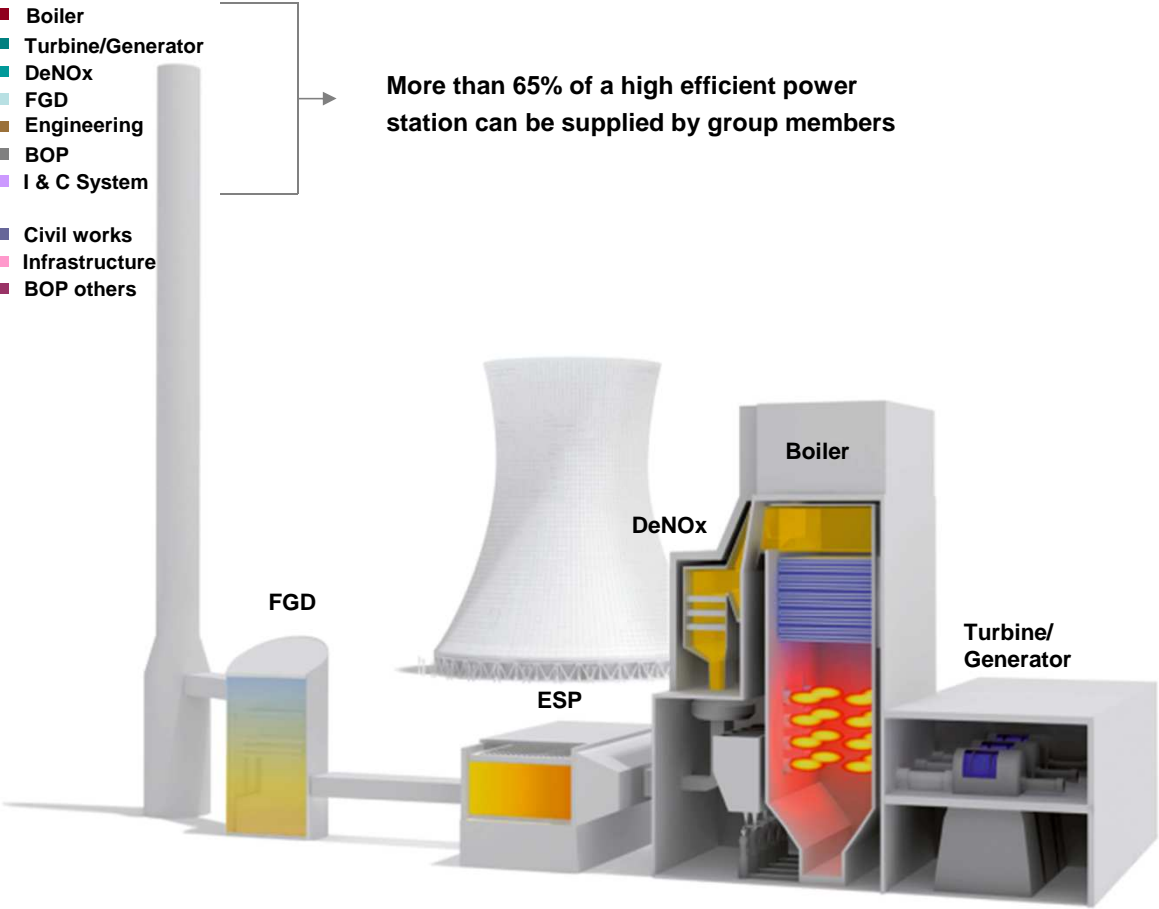
# Hitachi Power Systems

Competence in fossil-fired power plants



- Boiler
- Turbine/Generator
- DeNOx
- FGD
- Engineering
- BOP
- I & C System
- Civil works
- Infrastructure
- BOP others

More than 65% of a high efficient power station can be supplied by group members



# Hitachi Power Europe

## Selection of projects / products

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Project	Customer	Product	Capacity
<b>Kozienice</b> Poland	Enea	Turnkey power plant *	1 x 1,075 MW
<b>Maja / Solapur / Raghunathpur</b> India	NTPC	Utility steam generator	6 x 660 MW
<b>Kusile</b> South Africa	ESKOM	Utility steam generator	6 x 800 MW
<b>Medupi</b> South Africa	ESKOM	Utility steam generator	6 x 800 MW
<b>Eemshaven</b> Netherlands	RWE	Flue gas cleaning	2 x 800 MW
<b>Rotterdam</b> Netherlands	Electrabel / GDF Suez	Power Train **	1 x 790 MW
<b>Wilhelmshaven</b> Germany	Electrabel / GDF Suez	Power Train **	1 x 790 MW
<b>Maasvlakte</b> Netherlands	E.ON	Utility steam generator	1 x 1.100 MW
<b>Moorburg</b> Germany	Vattenfall	Utility steam generator	2 x 820 MW
<b>Westfalen</b> Germany	RWE	Flue gas cleaning	2 x 800 MW
<b>Datteln</b> Germany	E.ON	Utility steam generator	1 x 1,100 MW
<b>Neurath F &amp; G</b> Germany	RWE	Utility steam generator	2 x 1,100 MW
<b>Boxberg</b> Germany	Vattenfall	Utility steam generator	1 x 670 MW
<b>Walsum</b> Germany	Evonik / EVN	Turnkey power plant *	1 x 750 MW
<b>Gent</b> Belgium	Electrabel	Blast furnace gas utility steam generator	1 x 305 MWel
<b>Malmö</b> Sweden	E.ON Sverige	Combined-cycle power plant	440 MWel + 250 MWth

As of February 2013

\* Supply of utility steam generator, flue gas cleaning equipment, steam turbine/generator, civil engineering including cooling tower; overall plant layout

\*\* Power Train = utility steam generator, flue gas cleaning equipment, steam turbine/generator including balance-of-plant equipment (excluding construction work, electrical engineering, instrumentation & control, external coal feeding etc.)

Hitachi Power Europe - Company presentation 2013



➤ General Information on Hitachi Power Europe

➤ Experience of CCGT in Europe

# HPE Supply Experience

## - CCGT in Europe ( 1/4 )

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No.	Plant / Country / MW	Gas Turbine	HRSG	Steam Turbine	Fuel	Year of Commissioning
1	Oeresundsverket, Malmö, Sweden 447 MW	1 x GE 9FB	1 x Triple Pressure Boiler HP: 309 t/h, 140 bar, 567 °C	1 x Extraction /Condensing Type	Natural Gas	2009
2	BASF Tarragona, Spain / 400 MW	1 x GE 9FA	1 x Dual Pressure Boiler 470 t/h, 130 bar, 565 °C 70 MJ/s Supplementary Firing with Off-Gas	1 x Extraction/Condensing Process Steam: 46 bar, 405 °C	Natural Gas	2003
3	Taweelah A1, United Arab Emirates 1360 MW	5 x GE 9E 3 x GE 9E (Upgrade)	8 x Dual Pressure Boiler 365 t/h, 110 bar, 547 °C 150 MJ/s Supplementary Firing	3 x Extraction / Back Pressure 16 bar, 3 x 18 t/h 3 bar, 3 x 937 t/h	Natural Gas, Distillate (Backup)	2002/2003



# HPE Supply Experience

## - CCGT in Europe ( 2/4 )



No.	Plant / Country / MW	Gas Turbine	HRSG	Steam Turbine	Fuel	Year of Comissioning
4	Vasilikos Unit 4, Cyprus 226 MW	2 x GE 6FA	2 x Dual Pressure Boiler HP: 114 t/h, 107 bar, 553 °C NP: 18 t/h, 6 bar, 293 °C	1 x Condensing	Diesel / Natural Gas	2009
5	Cas Tresorer, Mallorca, Spain	2 x GE 6FA	2 x Dual Pressure Boiler HP: 117 t/h, 90 bar, 540 °C NP: 16 t/h, 8 bar, 288 °C	1 x Condensing	Diesel / Natural Gas	2007
6	Son Reus II, Mallorca, Spain 218 MW	2 x GE 6FA	2 x Dual Pressure Boiler HP: 111 t/h, 89 bar, 540 °C NP: 16 t/h, 8 bar, 288 °C	1 x Condensing	Diesel / Natural Gas	2005
7	Barranco de Tirajana, Gran Canaria, Spain / 219 MW	2 x GE 6FA	2 x Dual Pressure Boiler HP: 112 t/h, 90 bar, 540 °C NP: 16 t/h, 8 bar, 288 °C	1 x Condensing	Diesel / Natural Gas	2004
8	Debrecen, Hungary 100 MW	1 x GE 6FA	1 x Dual Pressure Boiler HP 108 t/h, 110 bar, 540 °C LP 18 t/h, 6 bar, 300 °C	1 x Extraction/Condensing	Diesel / Natural Gas	2000
9	Kraftwerk Bitterfeld GmbH, Germany 106 MW	1 x GE 6FA	1 x Dual Pressure Boiler HP 108 t/h, 70 bar, 540 °C LP 15.5 t/h, 6.5 bar, 204 °C	1 x Extraction/Condensing	Natural Gas	2000
10	Opel Ruesselsheim, Germany 110 MW	1 x GE 6FA	1 x Dual Pressure Boiler HP: 111 t/h, 115 bar, 540 °C LP: 19 t/h, 6 bar, 285 °C	1 x Extraction/Condensing	Natural Gas	1999
11	Usti nad Labem, Teplarna, Czech Republic 70 MW	1 x GE 6FA	1 x Dual Pressure Boiler HP: 109 t/h, 120 bar, 520 °C LW: 14 t/h, 16 bar, 290 °C	-	Natural Gas	1998

# HPE Supply Experience

## - CCGT in Europe ( 3/4 )

**HITACHI**  
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No.	Plant / Country / MW	Gas Turbine	HRSG	Steam Turbine	Fuel	Year of Commissioning
12	Nyíregyháza, Hungary 50 MW	1 x Hitachi H-25AX	1 x Dual Pressure Boiler HP: 91 t/h, 96 bar, 543 °C	1 x Extraction /Condensing	Natural Gas	2007
13	Matra Repowering, Hungary Repowering for Lignite Fired Power Plant	2 x Hitachi H-25AX	Inlet Temperature 130 °C Outlet Temperature 240 °C (Waste Heat Water Heater)	-	Natural Gas	2006
14	Tortosa, Spain 29 MW	1 x GE LM2500	1 x Dual Pressure Boiler 37 t/h, 80 bar, 460 °C	1 x Extraction/Condensing	Natural Gas	1996
15	EVO Oberhausen, Germany 25 MW	1 x Pratt & Whitney FT8	1 x Hot Water Boiler (130/65 °C) 33 MWth	-	Natural Gas, Oil	1995



# HPE Supply Experience

- CCGT in Europe ( 4/4 )

**HITACHI**  
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No.	Plant	Gas Turbine	HRSG	Steam Turbine	Fuel	Year of Commissioning
16	Nowa Sarzyna, Poland 119 MW Combined Cycle Power Plant for Cogeneration	2 x GE 6B -40 MW	2 x Dual Pressure Boiler HP 125 t/h, 72 bar, 512 °C LP 27 t/h, 7 bar, 285 °C	1 x Extraction/Condensing – 39 MW	Natural Gas, Oil	1999
17	Esenyurt, Istanbul, Turkey 180 MW Combined Cycle Power Plant for Cogeneration	3 x GE 6B - 40MW	3 x Dual Pressure Boiler HP: 65 t/h, 56.4 bar (a), 510 °C LP: 13 t/h, 6.0 bar (a), 204 °C	1 x Extraction/Condensing, ACC Cooling Type, - 60 MW	Natural Gas, Oil	1999
18	SVZ Schwarze Pumpe, Germany 70 MW Combined Cycle Power Plant as Integrated Part of Gasification Plant	1 x GE 6B – 44 MW	1 x Dual Pressure Boiler / Membrane Wall Type, Supplementary Firing / Ground Burners , 180 t/h, 110 bar, 525 °C	1 x Extraction/Condensing - 26 MW	Coal Gasification Synthesis Gas / Natural Gas	1996

Nowa Sarzyna, Poland  
119 MW Combined Cycle  
Power Plant for Cogeneration





## Summary

- **Hitachi has extensive power plant references and technologies for all kind of power plant**
- **Hitachi can engineer and provide all key components necessary for CCGT power plants**
- **Hitachi is a well experienced EPC contractor**
- **Hitachi's financial strength provides excellent performance security for investors**

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