



**BILFINGER**

**ENGINEERING  
AND SERVICES**

**Bilfinger SE**

# Capital Markets Day „Bilfinger Power“

Joachim Enenkel | Member of the Executive Board at Bilfinger SE

November 29, 2013

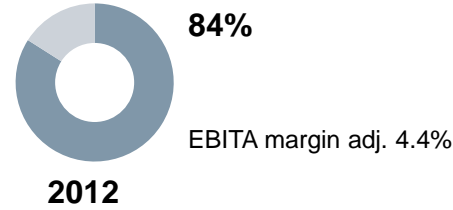
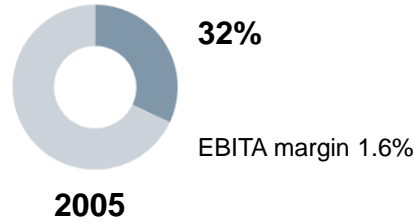
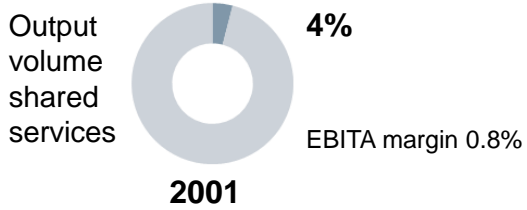
# Bilfinger SE in 2013

## Successful evolution into an Engineering and Services Group

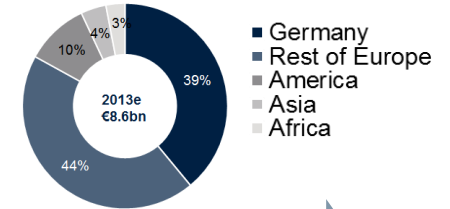
**BILFINGER + BERGER**  
BAUAKTIENGESELLSCHAFT

**BILFINGER BERGER**

**BILFINGER**  
ENGINEERING AND SERVICES



### Output volume by region



Technological Diversification

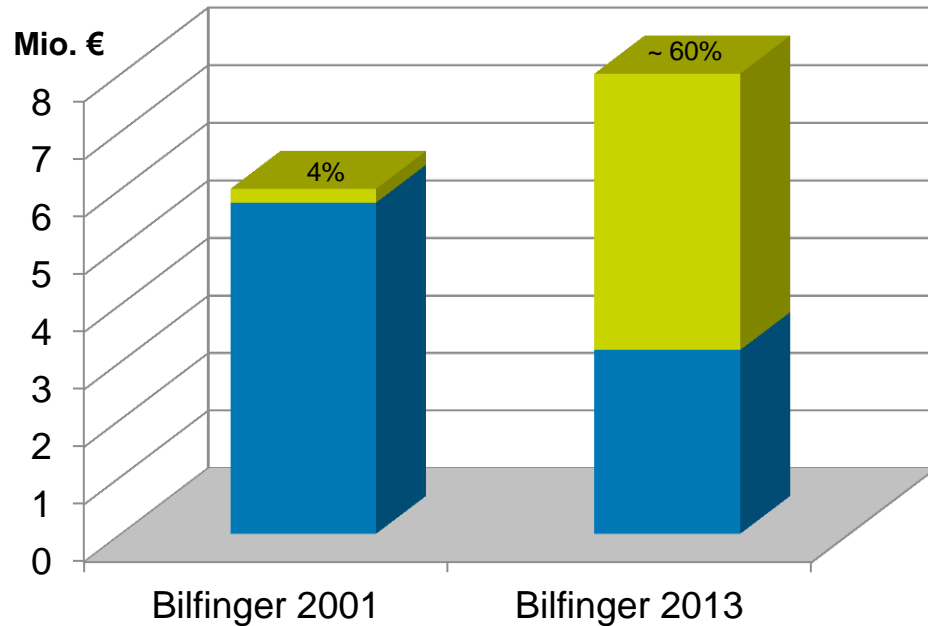
Regional Diversification and Internal Cooperation



# Bilfinger SE in 2013

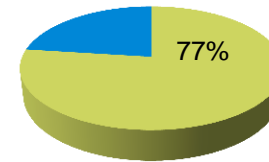
Our differentiation and strengths

## Overview Bilfinger's contract structure

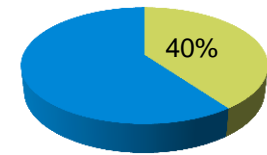


## Bilfinger's contract structure

### Industrial

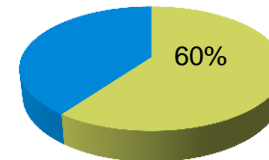


### Power



Services (OPEX driven)  
Projects (CAPEX driven)

### Building & Facilities



### Construction



# Bilfinger SE in 2013

Future growth is one of Bilfinger's core strategic challenges

## Organic growth strategy

- Expansion of **higher-margin** activities
- Expansion of **full-service** offering in all our markets
- **Regional expansion** and “follow our friends” strategy

## Deeper integration through cooperation between segments

- **Leveraging of customer relationships** from other segments
- Stronger **market presence** through joint customer approach / tenders across segments
- New **types of contracts**, e.g. life-cycle solution “one”
- Leveraging the **international distribution network**

## External growth strategy

- Broadening and balancing **global footprint** of Bilfinger's presence, including emerging markets
- Further **completing** Bilfinger's **service offering** along the value chain
- **Segment Power:** Regional expansion to USA, Middle East, Asia
- Expansion of technological scope

**WE  
MAKE  
POWER  
WORK**



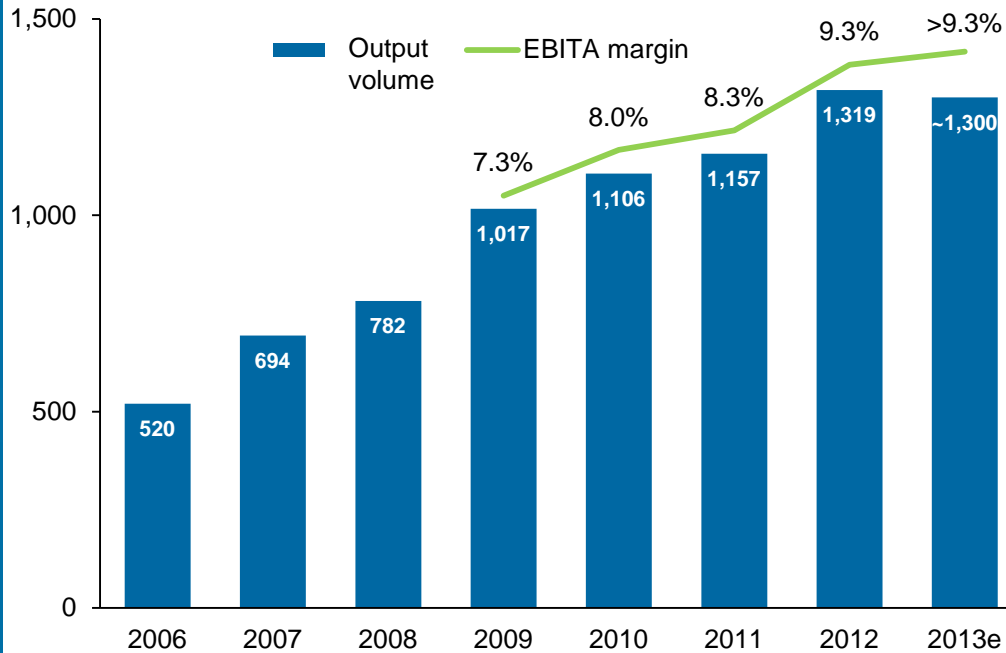
**BILFINGER**

**ENGINEERING  
AND SERVICES**

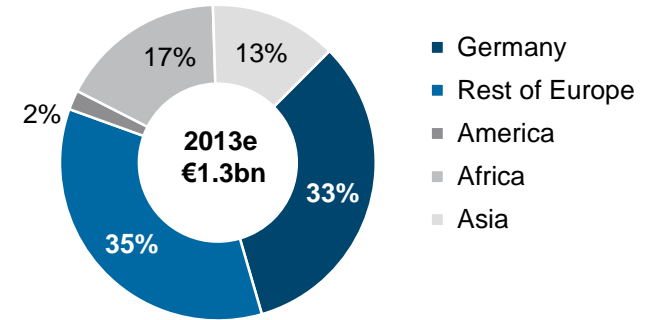
# Bilfinger Power Systems

## Key figures

### Output volume 2006 – 2012 (€ million)



### Output volume by region FY 2013



in € million	9m 2012	9m 2013	Change	2012
Output volume	937	916	-2%	1,319
Orders received	828	881	6%	1,178
Order backlog	1,361	1,283	-6%	1,311
Capital expenditure	11	17	55%	20
Depreciation of P, P & E	16	17	6%	22
EBITA / EBITA adjusted	85	83	-2%	123
EBITA margin	9.1%	9.1%		9.3%

# Bilfinger Power Systems

## Strengths and competences

### Selected acquisitions within Bilfinger Group



**A focused acquisition strategy is in plan to reach our goals for 2016**

### Value chain of activities



### **¾ of the Power Systems activities are currently in the area of brownfield (OPEX and CAPEX)**

#### Examples:

- Maintenance services, repair, spare parts
- Service framework agreements
- Lifetime extension
- Rehabilitation/ Modernization
- Efficiency improvement (e.g. heat recovery systems)
- Environmental enhancements (e.g. flue gas cleaning)
- Optimization (e.g. of firing technology)
- Fuel supply and ash treatment
- Conversion of the firing system / Conversion Open Cycle in Combined Cycle power plants

### **¼ of the Power Systems activities are currently in the area of greenfield (CAPEX)**

#### Examples :

- Construction of boiler and heat recovery systems
- High and medium pressure piping
- Design, Engineering and General Management of power plants
- Flue gas cleaning



# Bilfinger Power Systems

## Range of activities – selected references

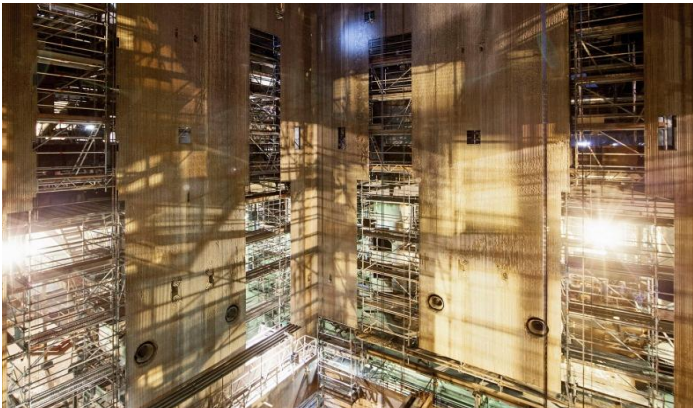
### **¾ of the Power Systems activities are currently in the area of brownfield (OPEX and CAPEX)**

Reference: Lignite-fired power plant Belchatow, Poland

- Modernization of boilers no. 3-12
- Renewal of the steam generators
- Design, manufacture and assembly of the modernized firing systems, pressure section

Involved units (i.a.):

- Babcock Borsig Steinmüller
- Bilfinger Piping Technologies
- Bilfinger Duro Dakovic Montaza
- Subgroups of Bilfinger Industrial



### **¼ of the Power Systems activities are currently in the area of greenfield (CAPEX)**

Reference: Coal-fired power plant Moorburg, Germany

- Engineering, Supply, Construction and Commissioning of two Flue Gas Desulfurization (820-MW blocks)

Involved units (i.a.):

- Envi Con
- Bilfinger Piping Technologies
- Babcock Noell
- Bilfinger Mauell
- Bilfinger MCE Aschersleben

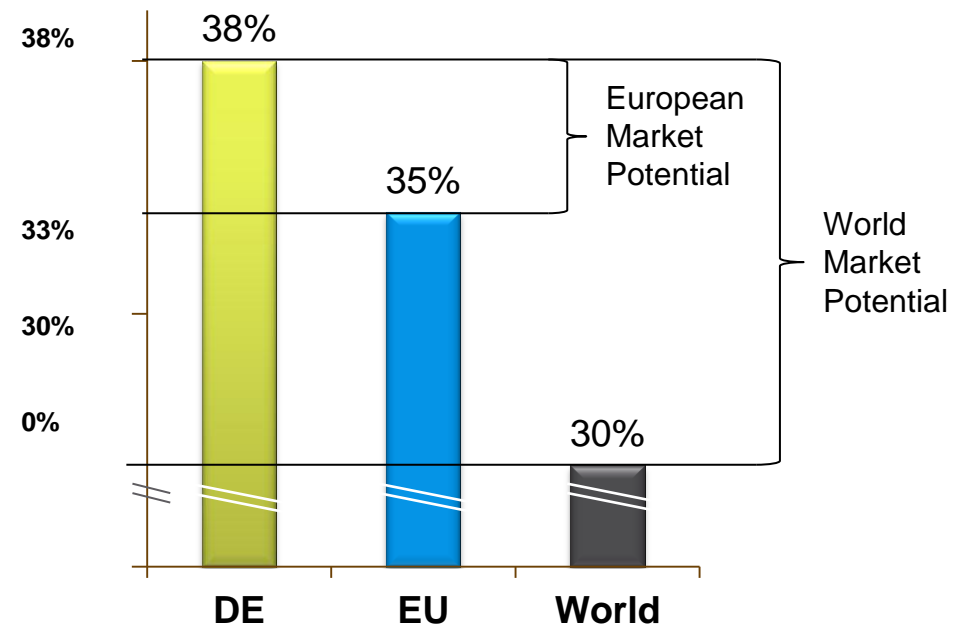


- $\eta$  = net efficiency

- $\eta = \frac{\text{net useful energy}}{\text{input energy}} \times 100$

- Market potential derives from **increase in efficiency, increase of available capacity** and **environmental protection**:
  - **Increase in efficiency**: high temperature boiler and piping (700 °C power plant), condensers, international heat use, cogeneration, reduce of losses, optimization etc.
  - **Increase of available capacity**: modernization, repowering, rehabilitation, automation&control (Mauell)
  - **Environmental protection**: flue gas desulphurisation plants (FGD), DeNO<sub>x</sub>, dust removal, noise protection

### Net efficiency – current power generation



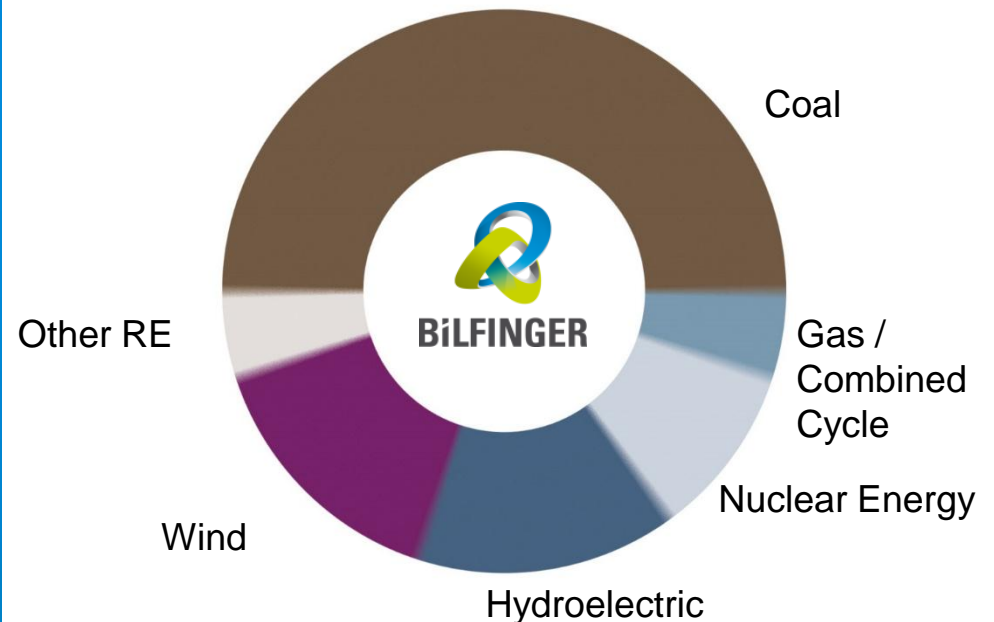
### Analysis of the energy sector and determination of target markets – examples for decisive factors

- Number of existing power plants in a given country
- Type of power plants
- Age and condition of existing power plants
- Capacity of power plants
- Efficiency / environmental requirements (e.g. limit values for CO<sub>2</sub> emissions, NO<sub>x</sub>-emission)
- Economy growth, political circumstances (e.g. availability of financing, energy mix)
- Long term demand for energy



**Business drivers for rehabilitation measures**

**We generate an annual volume of approx. €2 billion in the national and international energy sector**



# Bilfinger Power Systems

## Analysis of selected energy sectors

### Installed electricity generating capacity (in GW)

	USA	IN	POL	RUS	VIE	DEU	Total
Coal	343,8	132,3	28,7	58,6	2,1	55,1	620,6
Oil	57,5	1,2	1,0	83,8	1,2	6,4	151,1
Gas	479,5	20,4	0,6	21,6	3,7	23,9	549,7
Nuclear	107,0	4,8	-	21,7	-	12,7	146,2
Hydro	99,0	39,6	2,3	39,3	7,2	10,6	198,0
Renewable	64,2	27,5	0,4	-	-	65,8	157,9
<b>Total</b>	<b>1.151,0</b>	<b>225,8</b>	<b>33,0</b>	<b>225,0</b>	<b>14,2</b>	<b>174,5</b>	<b>1.823,5</b>



Source: U.S. EIA, 2011



Source: Enerdata 2009



Source: APEC Energy Statistics, 2010



Source: BMWi, 2011

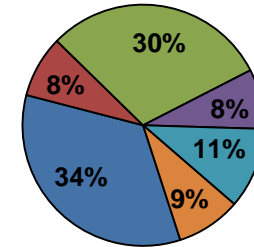


Source: World Energy Outlook 2009

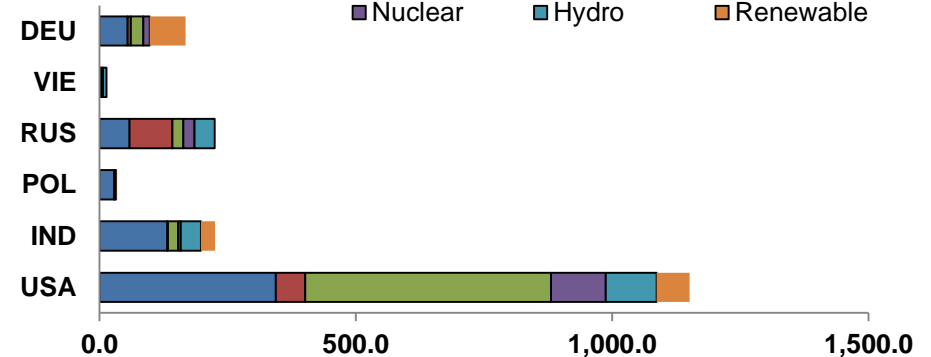


Source: Ministry of Power, 06/2013

### Installed electricity generating capacity Installed by sources and regions (in GW)



■ Coal      ■ Oil      ■ Gas  
■ Nuclear      ■ Hydro      ■ Renewable



# Bilfinger Power Systems

## Analysis of selected energy sectors

### Overview average age of power plant units (on the example of power plant units USA)

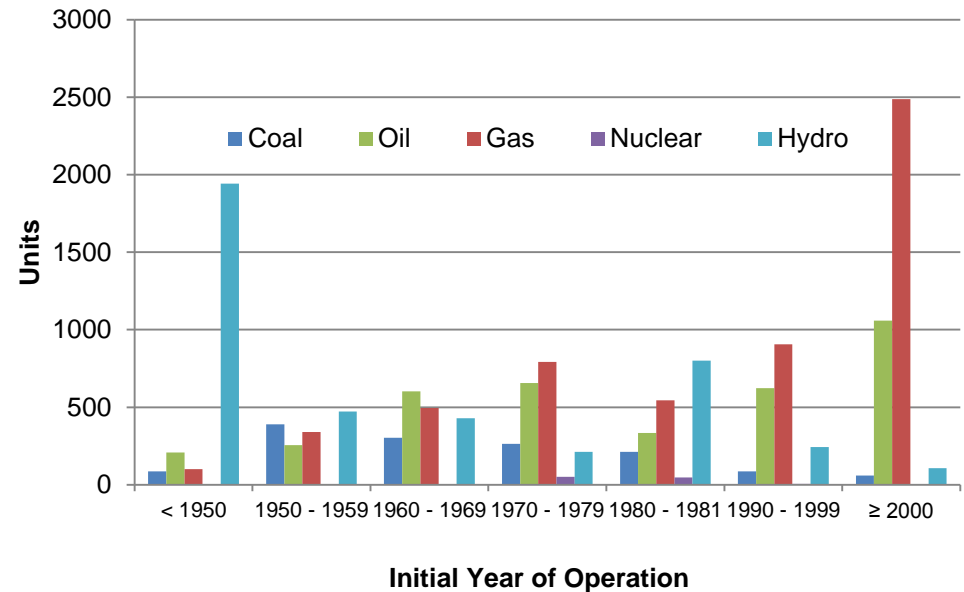


	< 1950	1950 - 1959	1960 - 1969	1970 - 1979	1980 - 1981	1990 - 1999	≥ 2000
Coal	85	390	303	264	213	86	59
Oil	207	256	602	657	334	624	1.058
Gas	101	340	494	792	545	906	2.487
Nuclear	0	0	2	51	46	5	0
Hydro	1942	472	428	211	800	243	106
<b>Total</b>	<b>2.335</b>	<b>1.458</b>	<b>1.829</b>	<b>1.975</b>	<b>1.938</b>	<b>1.864</b>	<b>15.109</b>

**Target market**

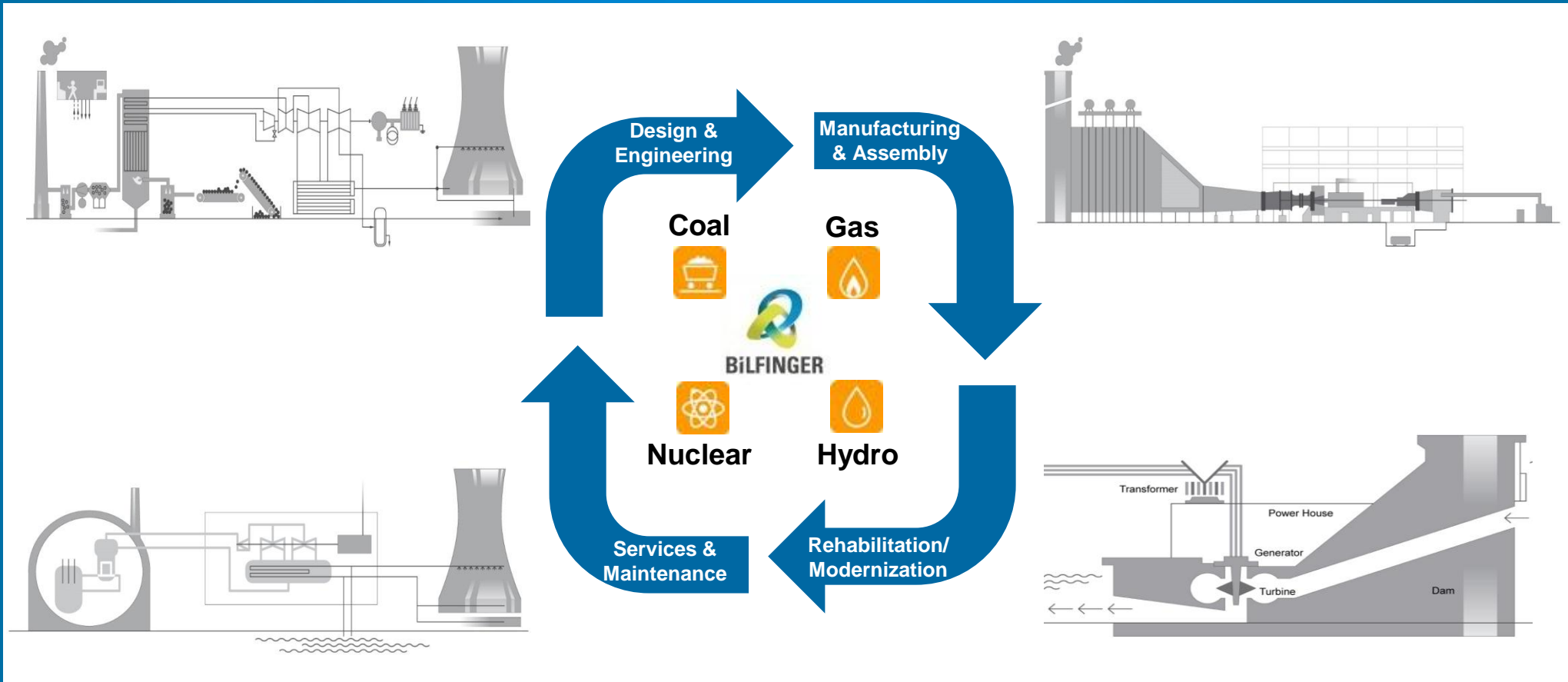
Source: U.S. Energy Information Administration

### Overview initial year of operation (on the example of power plant units USA)



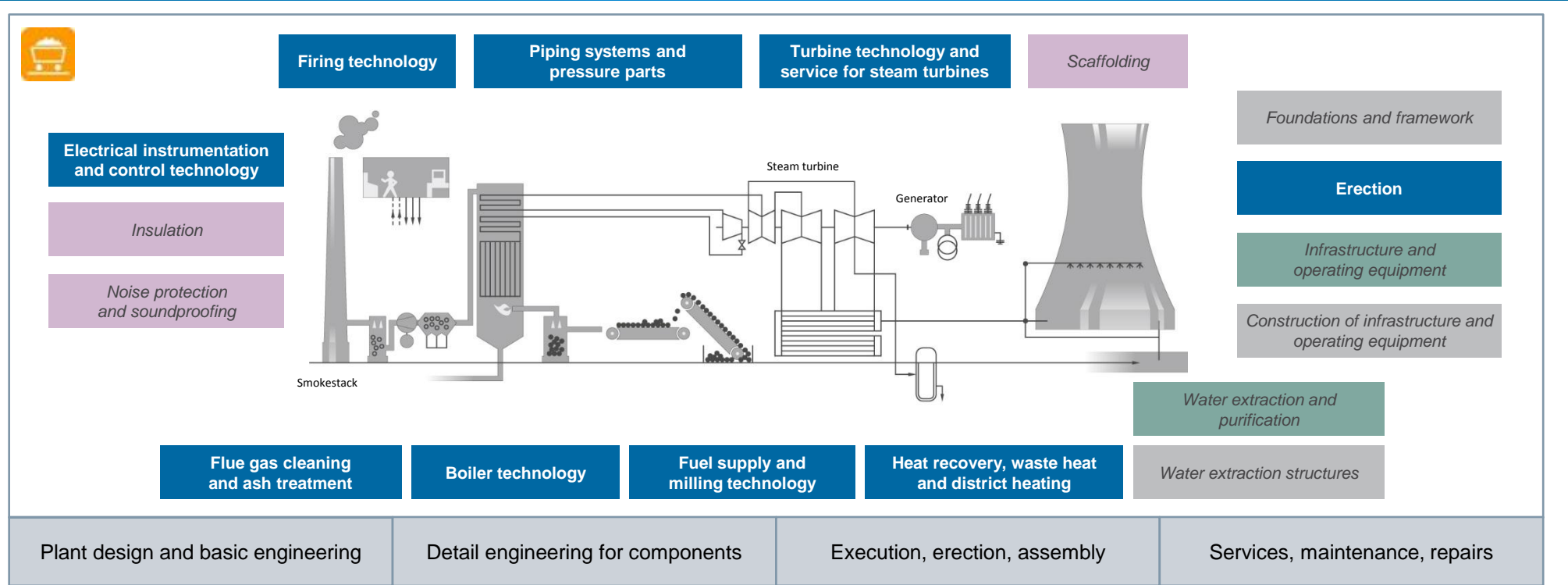
# Strength & Innovations of Bilfinger Group

LifeCycle approach – products and services from a single source



# Strength & Innovations of Bilfinger Group

## Power plant range of services – Coal



# Strength & Innovations of Bilfinger Power

## Selected references – Coal



**Babcock Noell | Heat recovery from flue gas  
Boxberg power plant | Germany**

- Flue gas desulfurization technology and the Powerise system
- 46,000 ton reduction of CO<sub>2</sub> a year



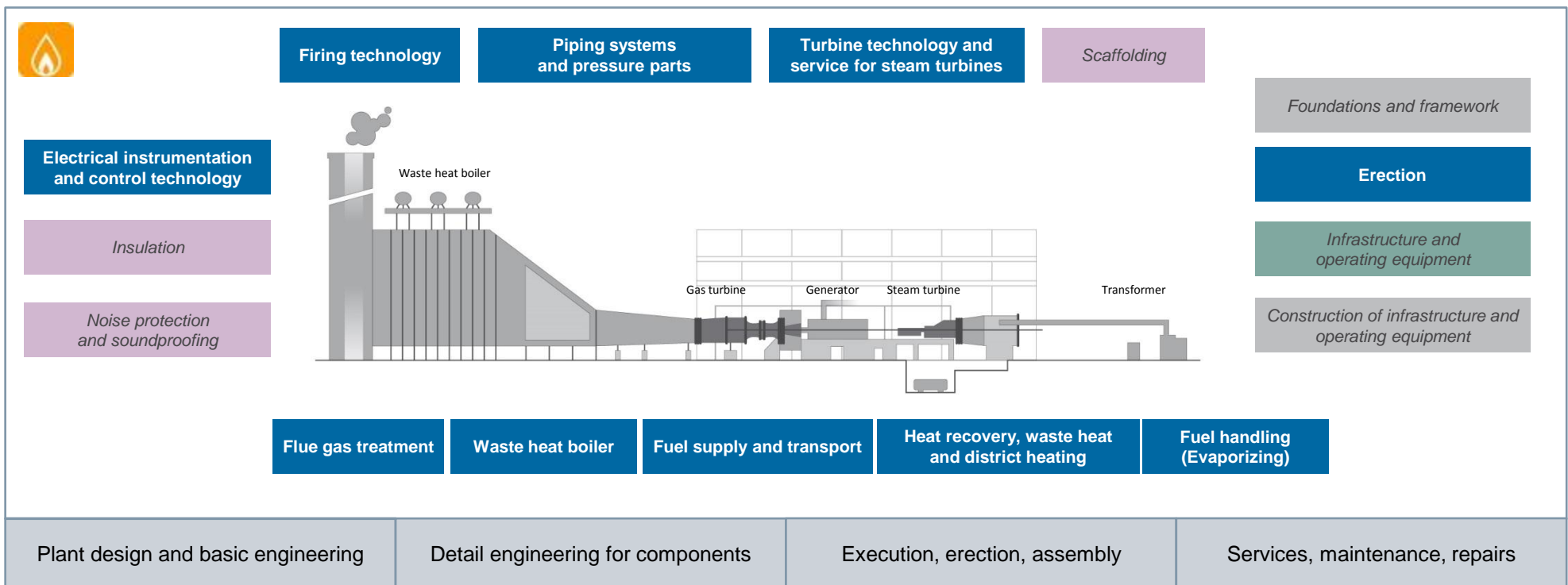
**Bilfinger Envi Con | Engineering  
Power Plant Westfalen / RWE, Block D & E | Germany**

- Overall planner for the entire project
- Project development
- Basic design and construction planning



# Strength & Innovations of Bilfinger Group

## Power plant range of services – Combined Cycle Power Plant



I Industrial   
 P Power   
 BF Building and Facility   
 C Construction

# Strength & Innovations of Bilfinger Power

## Selected references – Combined Cycle Power Plant



### **Babcock Borsig Steinmüller | Heat Recovery Steam Generator** **Heat Recovery Steam Generator Mellach | Austria**

- Design, construction, assembly and commissioning of the HRSG
- Plant capacity: 840 Mw<sub>el</sub>, net efficiency: 59,2%
- Boiler type: 2x HRSG, horizontal, triple pressure with reheat

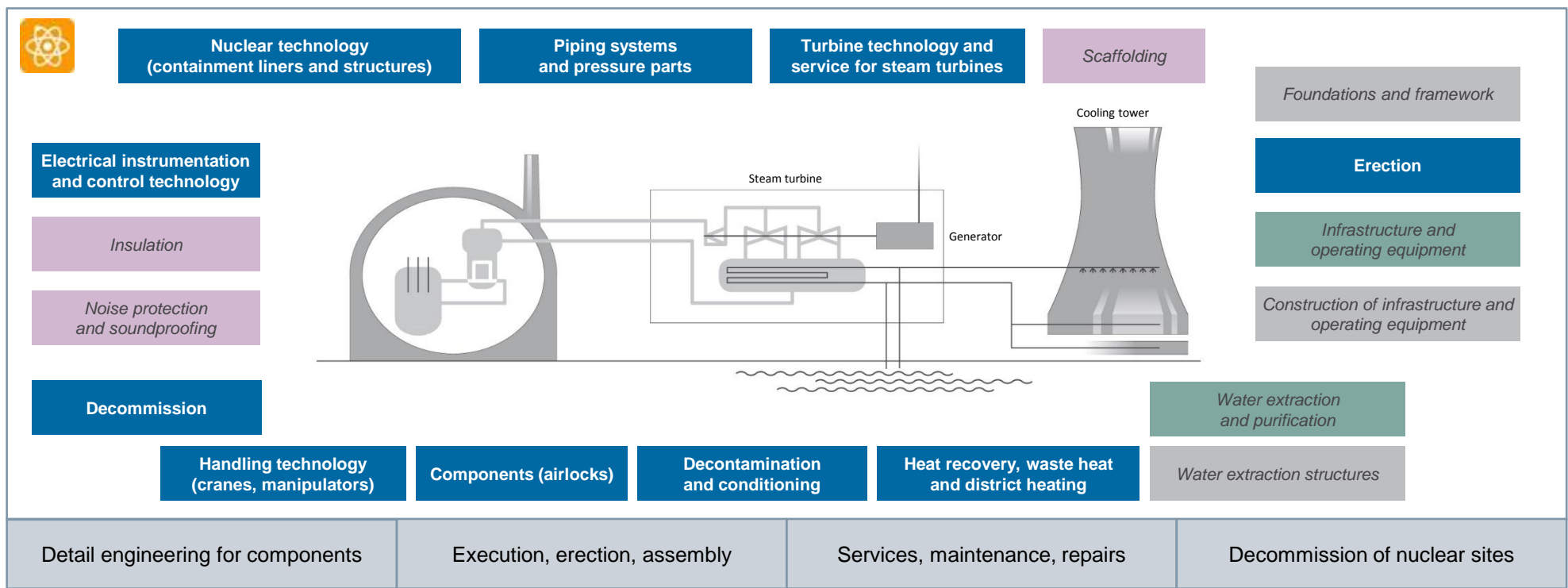


### **Bilfinger Mauell | Control Room Technology** **Control Room CCP Plant Munich South**

- Automation System for new plant (two gas turbines and one steam turbine)
- Central Control Room for two plants with uniform operator interface
- Three Large Screen Systems for optimum plant survey

# Strength & Innovations of Bilfinger Group

## Power plant range of services – Nuclear Energy



# Strength & Innovations of Bilfinger Power

## Selected references – Nuclear Energy



**Babcock Noell | Nuclear Technology**  
**Bilfinger Piping Technologies**  
**Nuclear Power Station Olkiluoto 3 | Finland**

- Construction of a new 1,600 MW EPR-reactor; design, delivery, prefabrication and construction of main steam and feed water lines and Nuclear Island. Design, prefabrication and delivery of containment liner.

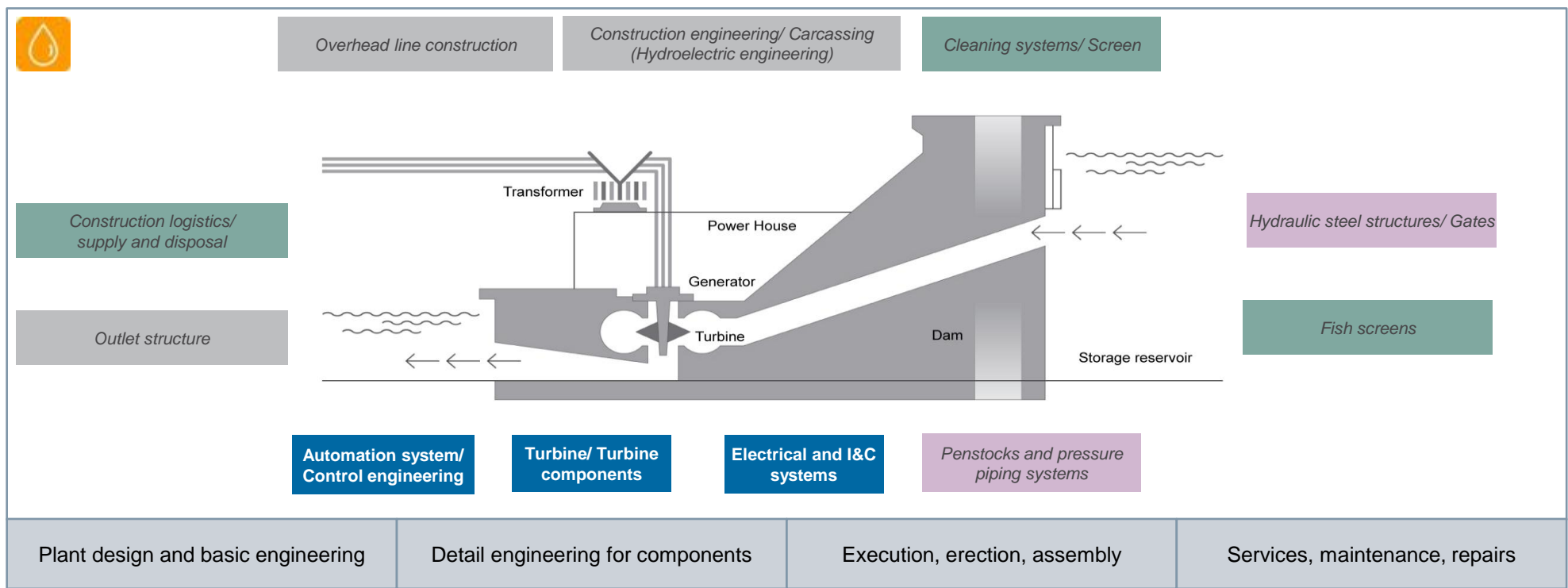


**Babcock Noell | Nuclear Technology**  
**Nuclear Power Station Caorso (Piacenza) | Italy**

- PHADEC (PHosphoric Acid DEContamination) Decontamination plant for radioactive steel; Design; Manufacturing; Fabrication; Construction; Commissioning

# Strength & Innovations of Bilfinger Group

## Power plant range of services – Hydropower



# Strength & Innovations of Bilfinger Power

## Selected references – Renewable Energies



**Babcock Maschienenbau | Hydro Power**  
**Hydro Power Plant Lünensee | Austria**

- Ready for delivery after total repair



**Babcock Borsig Steinmüller | Upgrading and efficiency improvement**  
**Rodenhuize power plant | Belgium**

- Conversion of the power plant from coal to operation with biomass
- Engineering, manufacturing, assembly and commissioning
- Conversion of the burners, modernization of the air ducts

# Strength & Innovations of Bilfinger Group

Range of services – Renewable Energies

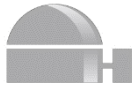


## Onshore wind power

Prestressing for wind towers

## Offshore wind power

Foundations for wind parks



## Biomass / biogas

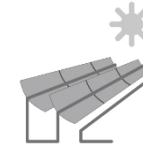
Biomass gasification

Biogas preparation /  
purification

Conversion to burning with  
biomass

Integration of regenerative  
fuels in buildings

Construction of operating  
buildings



## Solar thermal

Insulation of piping systems  
in solar thermal power plants

Power block for solar thermal  
power plants



## Photovoltaic

Installation, operation and  
maintenance

Building integration

## Other

Micro gas turbines

Decentralized combined heat  
and power

Oxyfuel systems

Desertec Industrial Initiative



# WE MAKE EFFICIENCY

Frank Meyer works at Bilfinger. His strengths become apparent when it comes to bending a pipe with a wall thickness of 120 millimeters – with millimeter precision. Bilfinger develops, manufactures and assembles highly durable piping systems that can withstand very high temperatures and high pressure. That's how we give a power plant more "power" – and efficiency. [www.bilfinger.com](http://www.bilfinger.com)

# WORK



**BILFINGER**

ENGINEERING  
AND SERVICES