

The background of the slide features several flowing, wavy lines in various shades of blue, creating a sense of movement and energy. These lines sweep across the frame from the top left towards the bottom right.

unis

unis POWER

Company Presentation

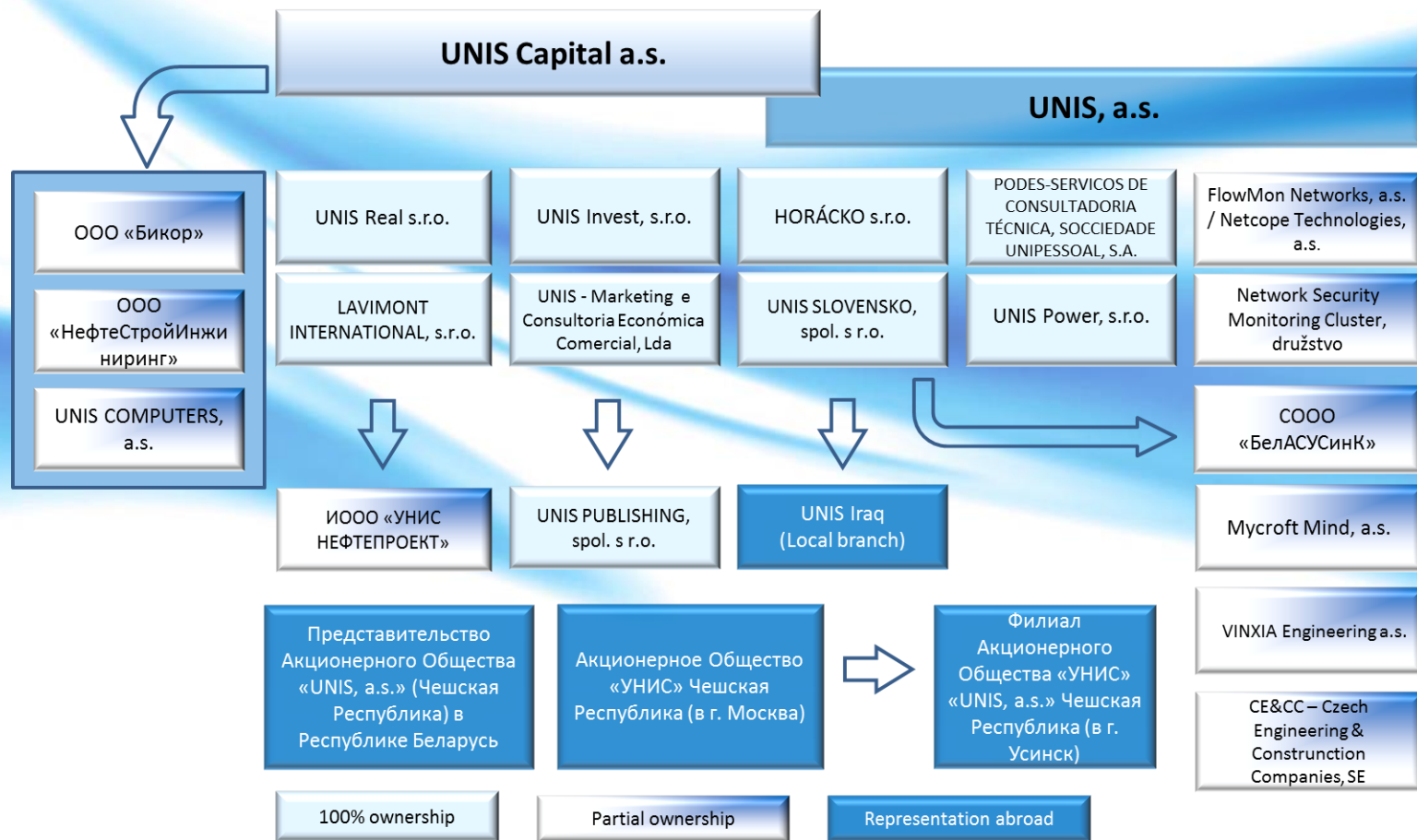


Headquarters:

UNIS, a.s.
Jundrovská 33
624 00 Brno
Czech Republic

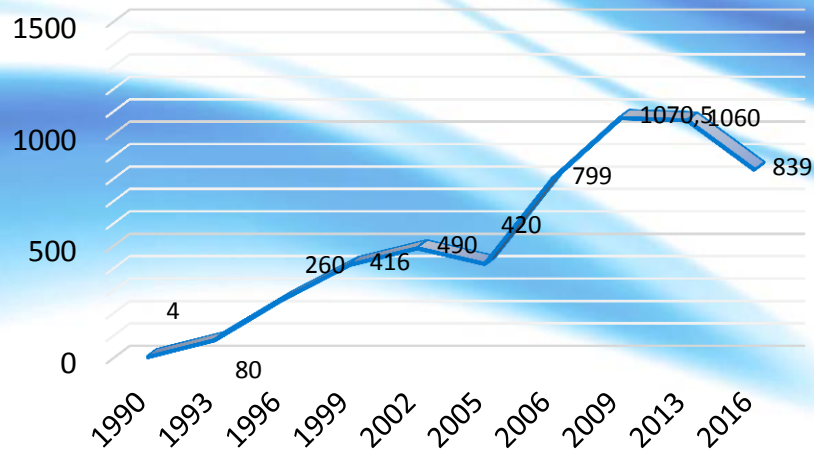
- Founded in 1990 (27 years ago)
- Joint Stock Company since 2008
- Without any foreign capital participation
- Engineering services related to complete deliveries of capital equipment on the basis EPC/EPC-M



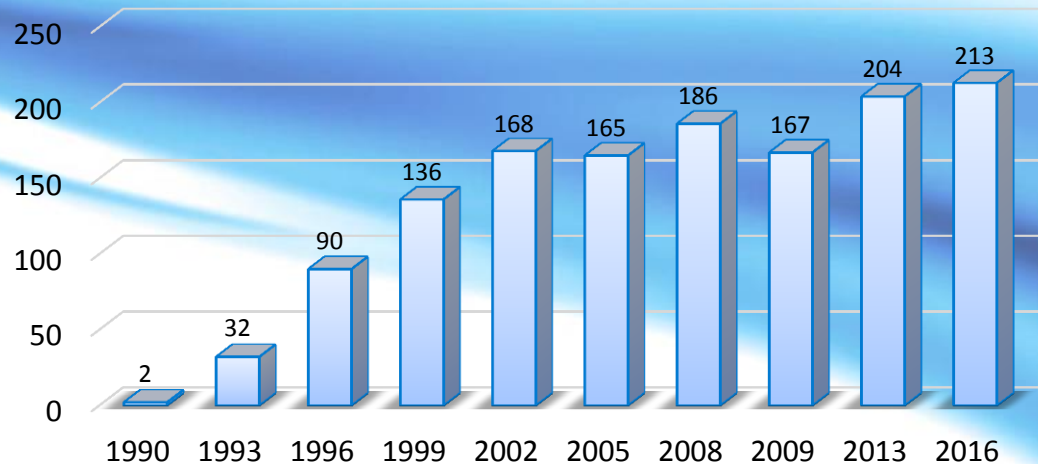


Turnover Progress

In mil. CZK



Company Staff



Engineering Procurement Construction (EPC)

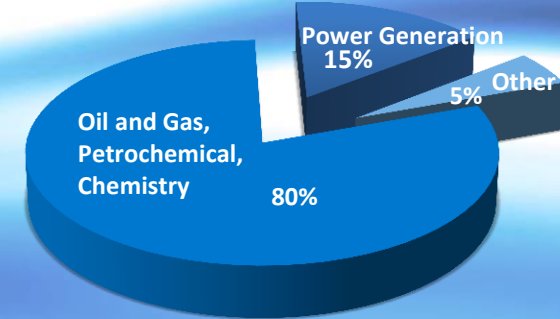
- Design
- Procurement
- Project Management
- Construction
- Field Instrumentation
- Process Control
- Electrical Systems

Manufacturing Execution Systems (MES)

- Manufacturing of pharmacy
- Plastic moulding shops
- Metal machining
- Rubber industry

Research and Development

- Division Aerospace and Advanced Control
- SW Development for Advanced Control
- Embedded Systems and IoT Solutions



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UNISPOWER

Company Presentation

1814 - 1993

In 1814, Jan Reiff, August Scholl, Bedřich Scholl and Kristian Memmert founded a company to manufacture textile machinery and steam engines in Šlapanice u Brna. Between 1872 and 1993, the company wore the name První brněnská strojírna, a.s. (PBS).

1999

During the 1990s, it continued to operate under new ownership, first ABB and then Alstom Power.

2006

In 2006, the Austrian company Austrian Energy & Environment AG bought the major part of the branch of industrial boilers.

2011

The company became member of Bilfinger Power Systems GmbH Group since July 2011, operating under the name Bilfinger Babcock CZ s.r.o.

2017

...and from December 2017 the company is part of UNIS, a.s. under the name **UNIS Power, s.r.o.**

We are experienced provider of „turnkey“ solutions and comprehensive services for power industry.

Turnkey Solutions

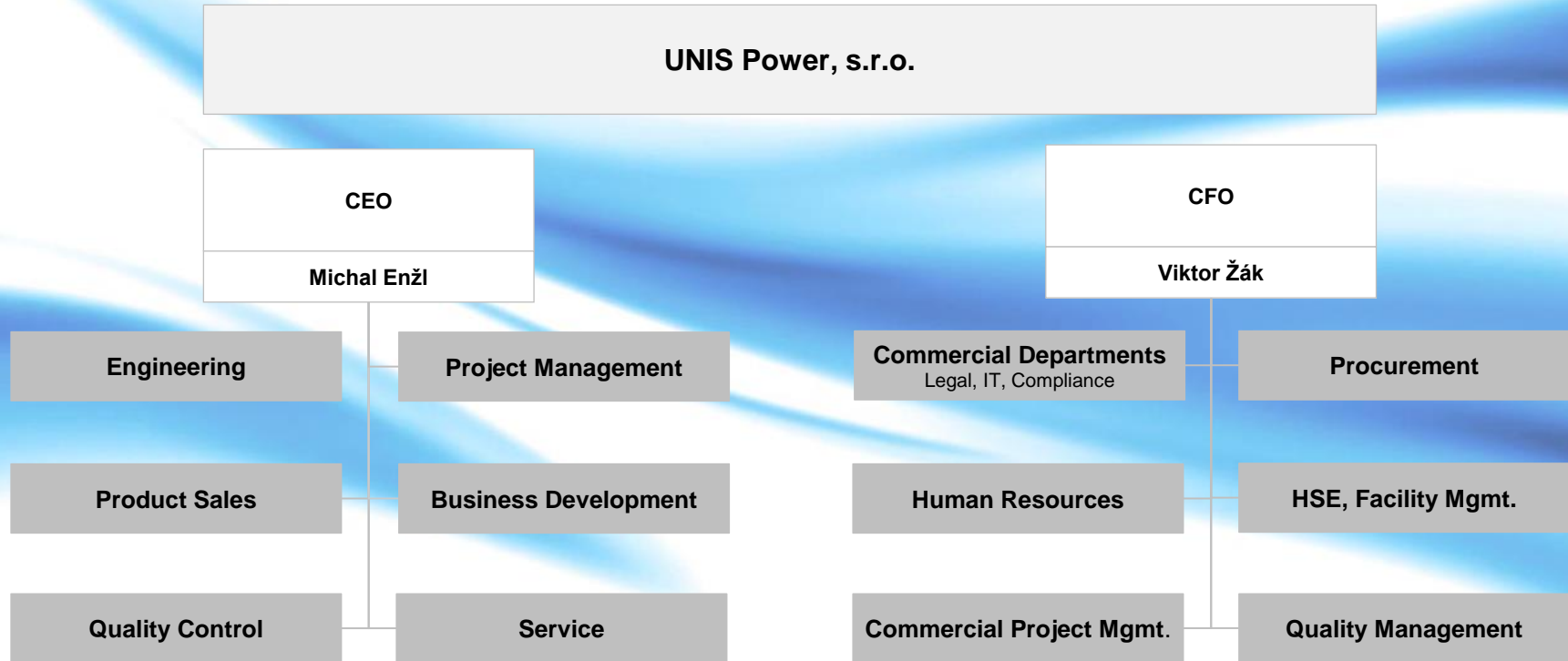
- Industrial Power and Heating Plants – new built
- Boiler Islands – new built
- Reconstructions and Operational Improvements

Variety of Services

- Conceptual/Basic Design ➡ Equipment Deliveries ➡ Site Assistance
- After Sales Service / Tests & Diagnostics

UNIS Power Boilers:	Heat Recovery Steam Generators	all sizes
	Clean Biomass Fired Boilers	30 - 200 t/h
	Coal Fired Boilers	30 - 400 t/h
	Special Gas/Oil Fired Boilers	40 - 600 t/h





More than 80% of employees hold university degree

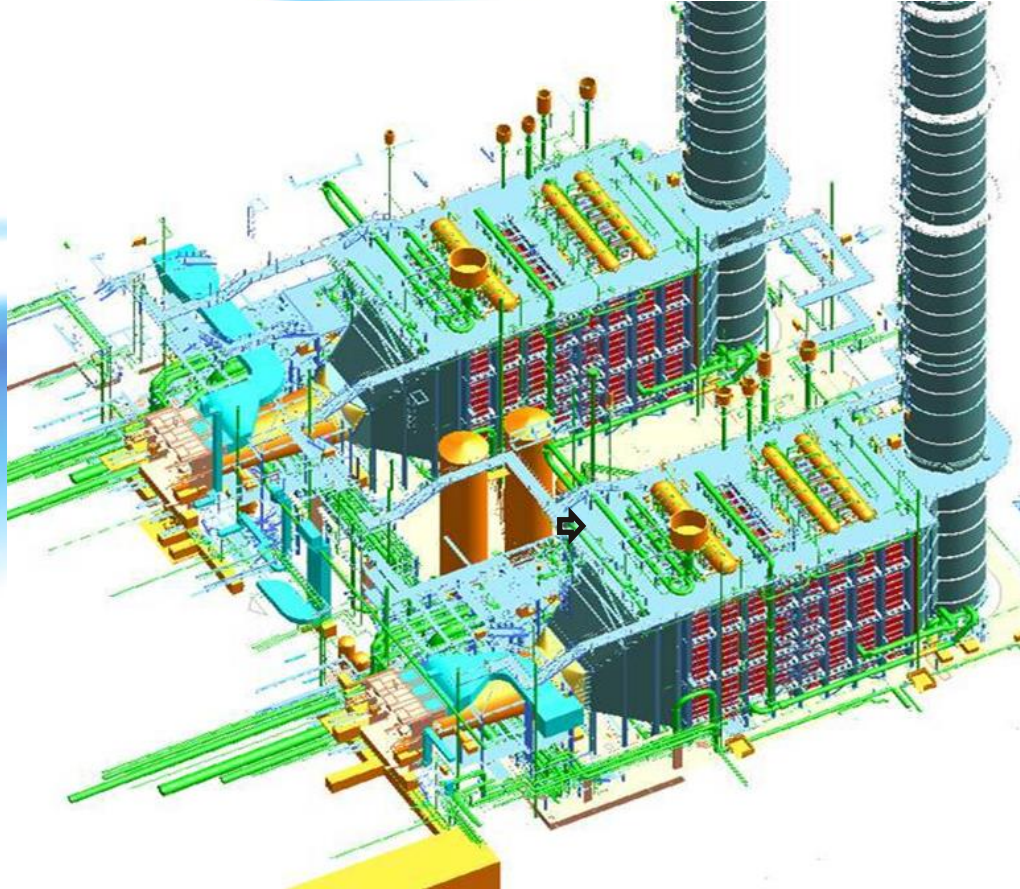
Number of employees app. 105

Competent Project Execution Team:

- Project Co-ordination and Control
- Time Management and Logistics - expediting
- Conceptual and Project Engineering
- Quality Control
- Assembly & Commissioning
- Documentation including O&M Manuals and Training

We are ISO 9001 and ISO 14001 certified;
OHSAS 18001 certificate in Health & Safety

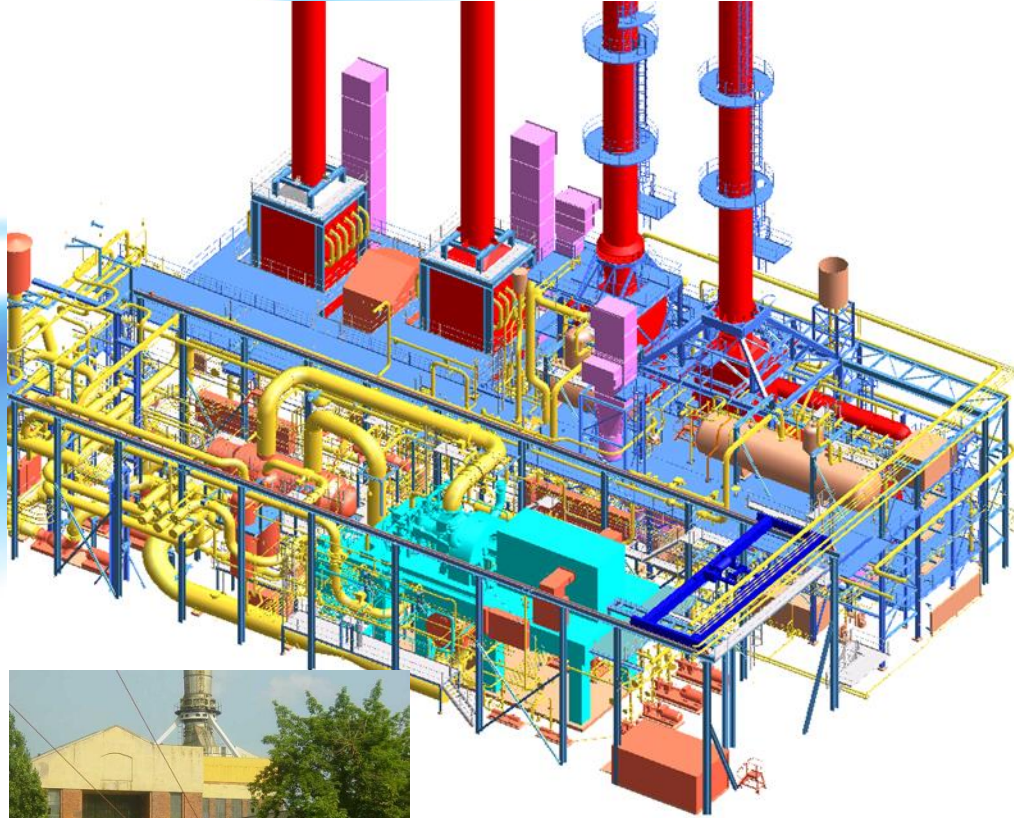




- C • Thermal Calculations, Heat Balance, Flow Studies
 - Design Concept and General Layout
 - Main Equipment Performance and Dimensional Data
- P • Process and Control Engineering
 - Plant Layout; 3D Modelling
 - Stress Analysis
 - Structural and Other Calculations
 - Instrumentation & Control, Electrical Equipment

Design Codes and Standards: EN, ASME (S Stamp), GOST, VGB etc.

SW Tools: PDMS, ACAD Mechanical, ACAD P&ID, Inventor, ANSYS, SCIA, CaePipe, Probad, Advance Steel etc.



New Built Industrial Power and Heating Plants

Plant Reconstructions and Operation Improvements

Boiler Island

- UNIS Power Boilers – unique know-how and design
- BoP Equipment
- Feed Water System
- Fuel and/or Ash Handling Systems
- Flue Gas Cleaning
- I&C and Electric Part
- Civil Works

Technology Competence



Control system
(control room, HMI,
high level & low level
systems, instruments)

Feed water
pre-heater

Reheaters

Boiler

Superheater

Steam Turbine

Gen.

Feed water
system

condenser

Cooling tower

Fuel handling:
Coals (storage, milling)
Biomass (storage, conveying)
Oil&Gas (pressure reduction,
heating)

Firing systems:
Coal
Biomass
Gas&Oil

EPC Competence

Ash silo

Ash removal

Air pre-
heaters

Fan

ESP / Filter

Ash removal

ID fan

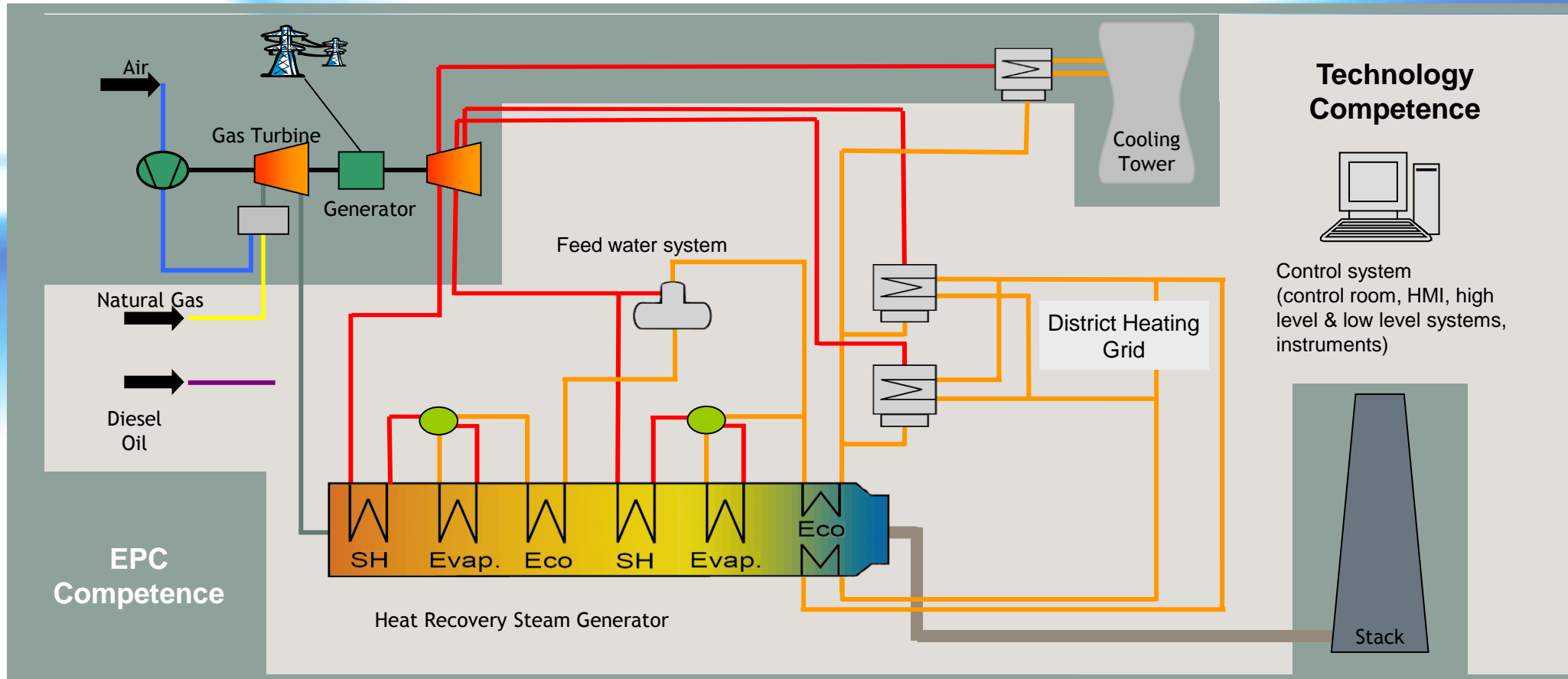
Heat recovery
system

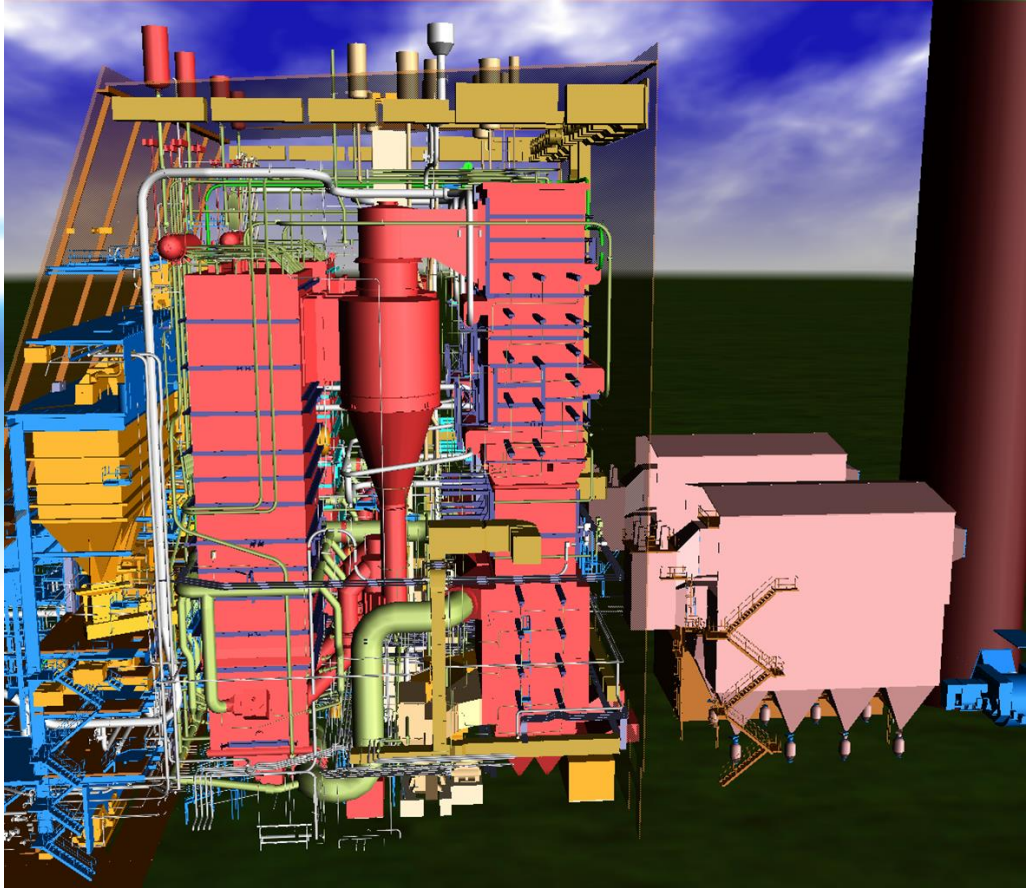
REA
fan

FGD
(REA)

Stack

DeNOx - SCR





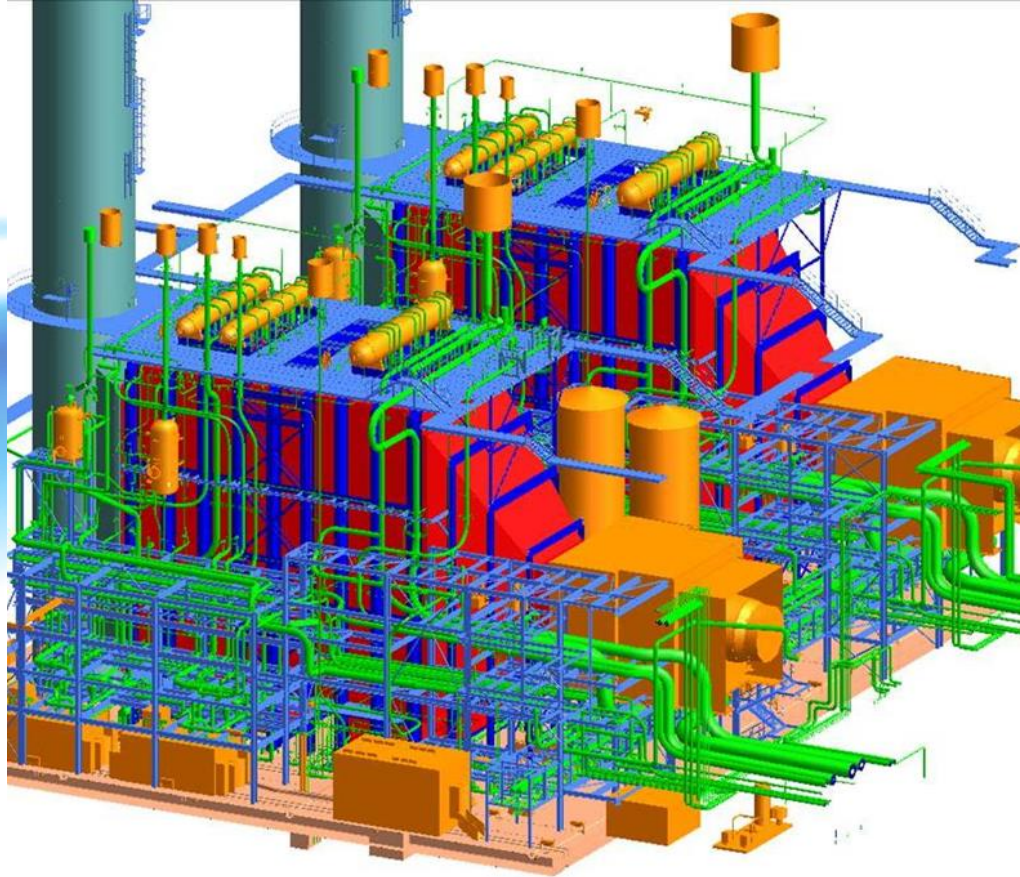
- **Heat Recovery Steam Generators** **all sizes**
- **Clean Biomass Fired Boilers** **30 - 200 t/h**
- **Coal Fired Boilers** **30 - 400 t/h**
- **Special Gas/ Oil Fired Boilers** **40 - 600 t/h**

Fluidized-bed Boilers

Pulverized Coal Boilers

Grate Boilers

Gas/Oil Fired Boilers



Gas Turbines

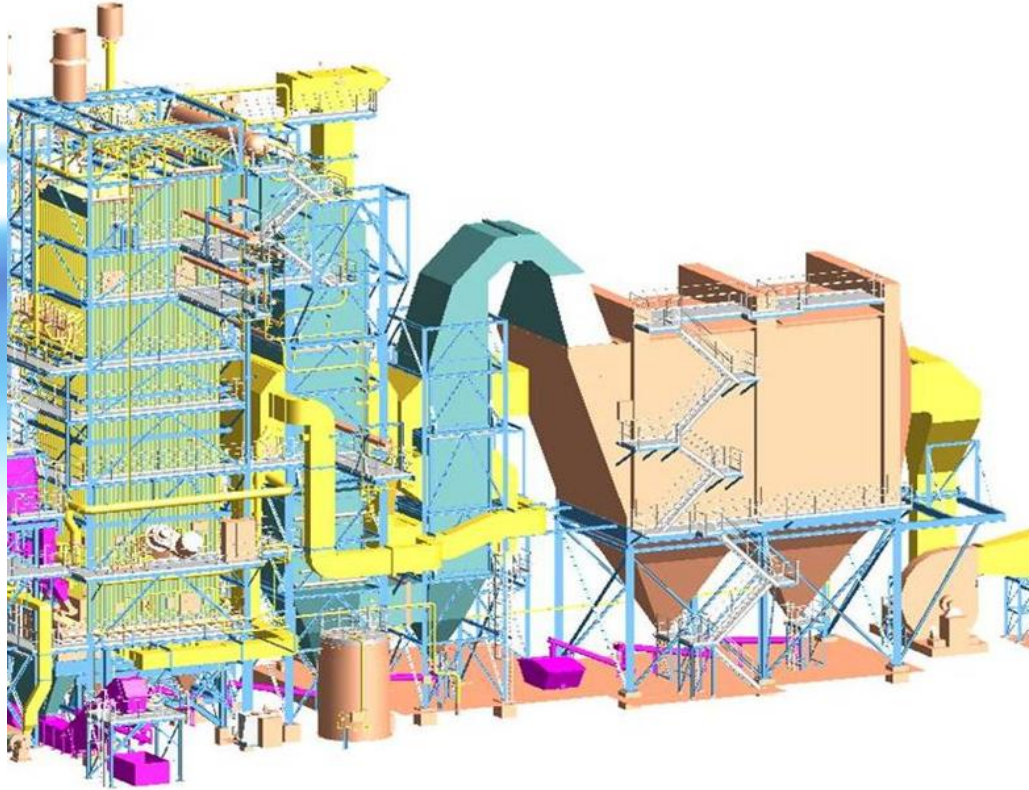
- Utility Concept
- Industrial Concept
- Gas Engines (large installations)

Industrial Processes

- Customised Design

Large Variability of Standard Solutions

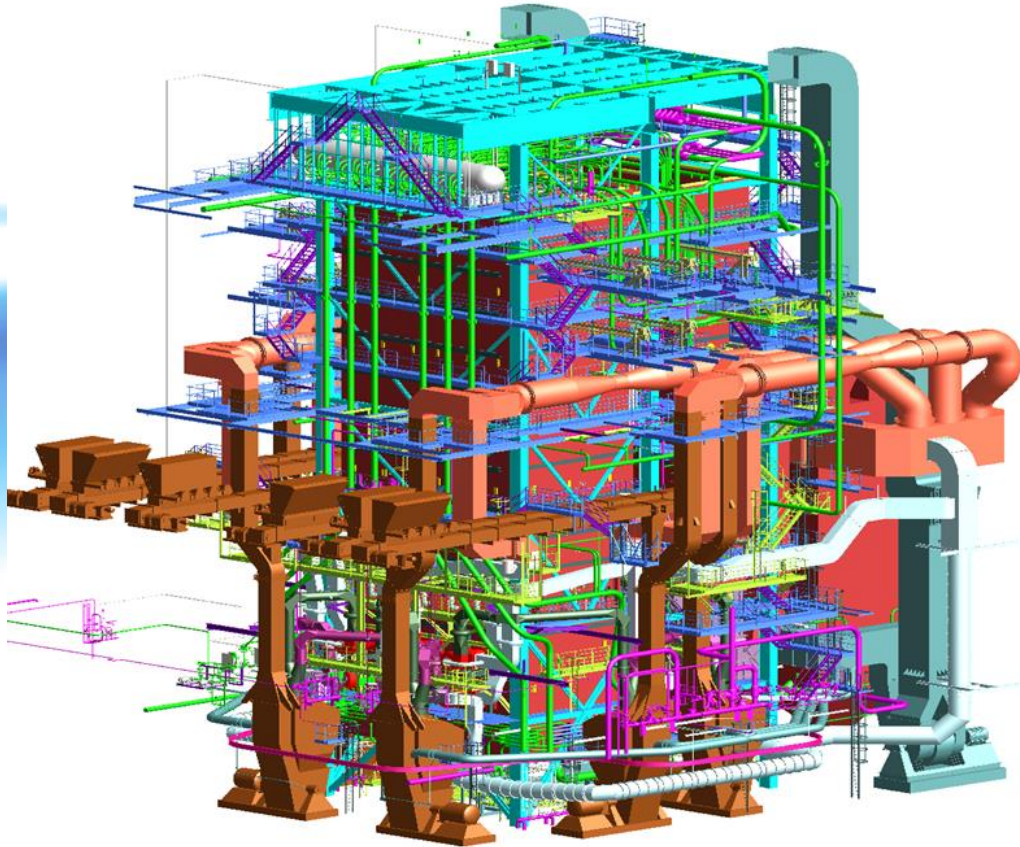
- Vertical or Horizontal
- Single, Double or Triple Pressure with Reheat; DH Circuit
- Hot Water Applications
- Supplementary / Fresh Air Firing
- Various Erection Concepts – „O“/“C“ modules, bundles or loose harps
- SCR and/or CO Catalyst



Range of application:

30 – 200 t/h, 40 – 140 bar(a)

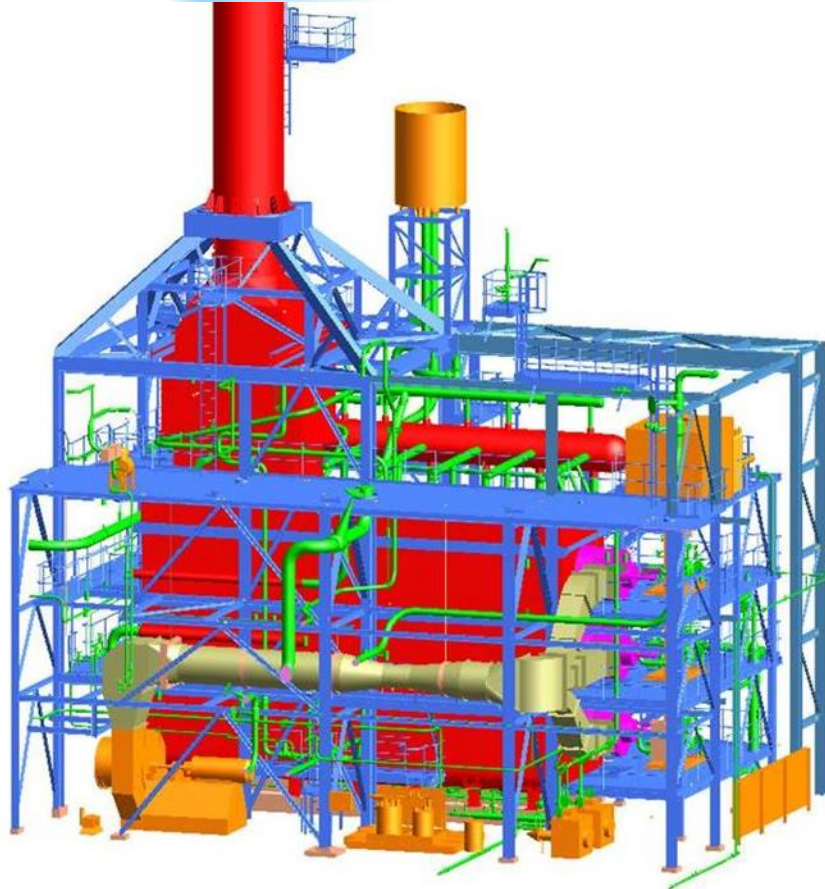
- Different Biomass Fuels such as Wood Chips and/or Pellets, Sawdust, Straw, Bark, Pulpwood, Cardboard and other Biomass Residues including Agriculture
- Coal as a Support/Substitute Fuel
- Grate Firing
- Fluidized-bed Firing
- Bottom Supported
- Primary De-NO_x, SCR/SNCR Systems



Range of application:

30 – 400 t/h, 40 – 175 bar(a)

- Wide Range of Coal Quality Experience
- Fluidized-bed Firing
- Pulverized Coal Firing
- Grate Firing
- Bottom or Top Supported
- Primary De-NO_x, SCR/SNCR Systems



CoGB Compact Design:

40 – 200 t/h, 40 – 140 bar(a)

- Modular Concept for Easy Construction

Field Erected:

80 – 600 t/h, 40 – 175 bar(a)

Hot Water:

50 – 250 MWth, 10 – 25 bar(a)

- Special Gaseous and Liquid Fuels such as Blast Furnace Gas, Coke-oven Gas, Hydrogen, Heavy Fuel Oil, Coking Tar and Other Waste Fuels and Fuel Combinations
- Bottom or Top Supported
- Primary De-NO_x, SCR/SNCR Systems

- Complete Boiler Rehabilitations
- Performance Enhancement of an Existing Equipment; Efficiency and/or Operational Characteristics Improvement
- Existing Fuel Modifications and/or Alternative Fuel Co-firing
- Reduction of Original Equipment Emissions
 - by primary measures (low-emission burners, combustion air staging and complex modernization of fuel preparation system)
 - by secondary measures (SCR or SNCR)
- Repairs/Exchange of Damaged Parts or Parts at the End of Service Life



- Technical Studies and Consultations
- Inspections and Revisions
- Warranty and Operational Characteristics Measurement
- Certificated Emission Measurement
- Diagnostics and Equipment/Failure Analysis
- Risk and Remaining Life-time Assessment





**Client:**

EDF Polska S.A.

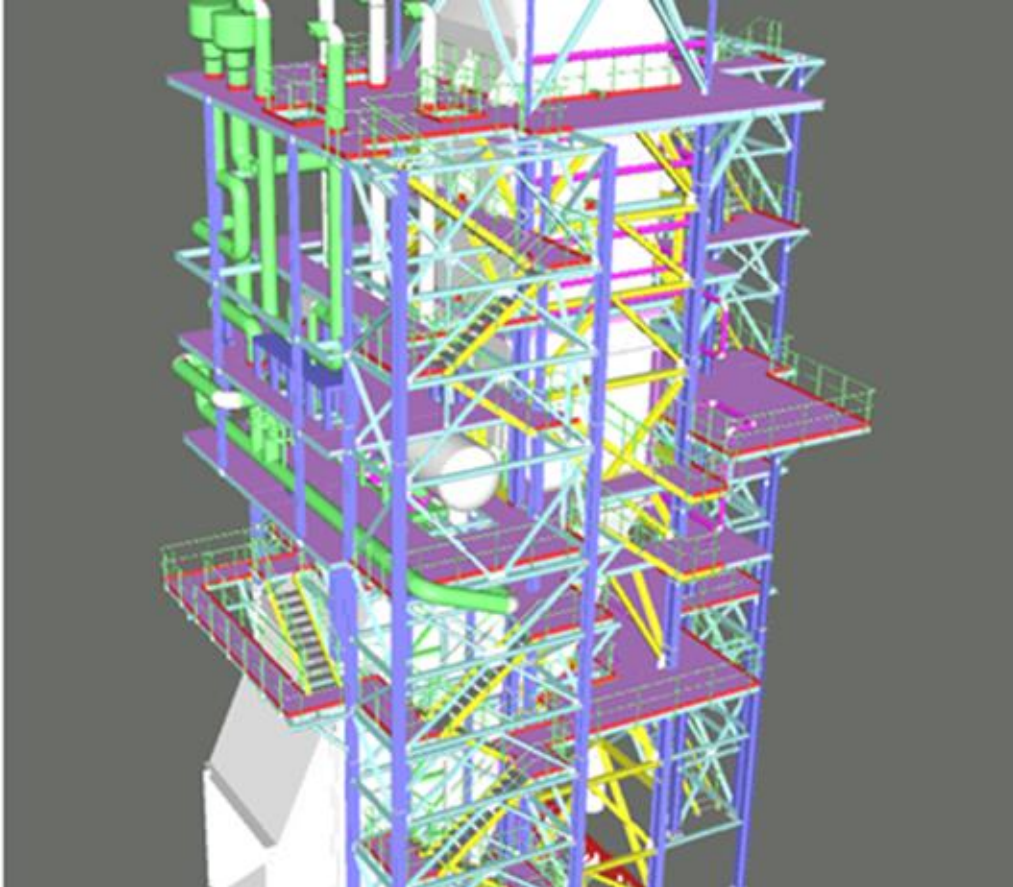
Year of Completion: 2017

2 x HRHWB

- 116 MWth
- 135/60 °C
- vertical
- supplementary firing (70 MWth)

Gas turbine: LM 6000 PF

Extended scope: DH system including BoP,
pumping station and heat accumulator

**Client:**

IDO EET / Borealis Kallo NV

Year of Completion: 2017**1 x HRSG**

- 95 t/h
- 43 bar (a)
- 410 °C
- horizontal
- single pressure
- process waste heat

Scope: basic and detail design only

**Client:**

Dubai Aluminum

Year of Completion: 2015 - 2017

5 x HRSG

- 228 t/h
- 20 bar(a)
- 215 °C
- vertical
- single pressure with integrated de-aerator
- brown field project with existing plant interfaces

Gas turbine: 9 BE

**Client:**

EP International BV

Year of Start-up: 2012

2 x HRSG

- 281 / 47 / 29 t/h
- 112 / 31 / 4 bar(a)
- 530 / 524 / 194 °C
- vertical
- triple pressure with reheat and integrated de-aerator
- „dry run“ concept

Gas turbine: SGT5 – 4000F

**Client:**

Intertechelektro / TGK-2

Year of Start-up: 2012

1 x HRSG

- 108 / 21 t/h
- 93 / 6 bar(a)
- 545 / 227 °C
- horizontal,
- double pressure with integrated deaerator

Gas turbine: GE 6FA

**Client:**

Siemens Power Generation
Anlagentechnik GmbH

Year of Start-up: 2011

2 x HRSG

- 266,6 / 300,6 / 40,5 t/h
- 129,5 / 29,9 / 4,3 bar(a)
- 559,6 / 560 / 226 °C
- horizontal
- triple pressure with reheat

Gas turbine: SGT5 – 4000F

**Client:**

Siemens Industrial
Turbomachinery AB

Year of Start-up: 2011

2 x HRSG

- 59,9 t/h
- 84,2 bar(a)
- 512 °C
- vertical
- single pressure with district heating circuit

Gas turbine: SGT800

**Client:**

Kraftanlagen München

Year of Start-up: 2009

1 x HRSG

- 109 / 20,5 t/h
- 94 / 6 bar(a)
- 543 / 205 °C
- vertical
- double pressure with district heating circuit

Gas turbine: 6FA

**Client:**

Orient Power Company (Pvt) Ltd.

Year of Start-up: 2008

2 x HRSG

- 111 / 17 t/h
- 93 / 5 bar(a)
- 538 / 270 °C
- horizontal
- double pressure

Gas turbine: GE 6FA

**Client:**

Vatech Hydro

Year of Start-up: 2007

1 x HRSG

- 262 t/h
- 102 bar(a)
- 511 °C
- horizontal
- single pressure with DHW heater and supplementary firing (55 MWth)

Gas turbine: GE 9E

**Client:**

Siemens Industrial Turbomachinery AB

Year of Start-up: 2006

3 x HRSG

- 158,6 t/h
- 103,5 bar(a)
- 542 °C
- horizontal with water cooled combustion chamber
- single pressure with DH circuit and supplementary firing (78 MWth)

Gas turbine: SGT800

**Client:**

Mostostal Warszawa S.A.

Year of Start-up: 2013

1 x Clean Biomass Fired Boiler

- 90 t/h
- 95 bar(a)
- 525 °C
- Vibrating water cooled grate

Fuels: straw and wood pellets



Client:

EGI Contracting Engineering Co.Ltd

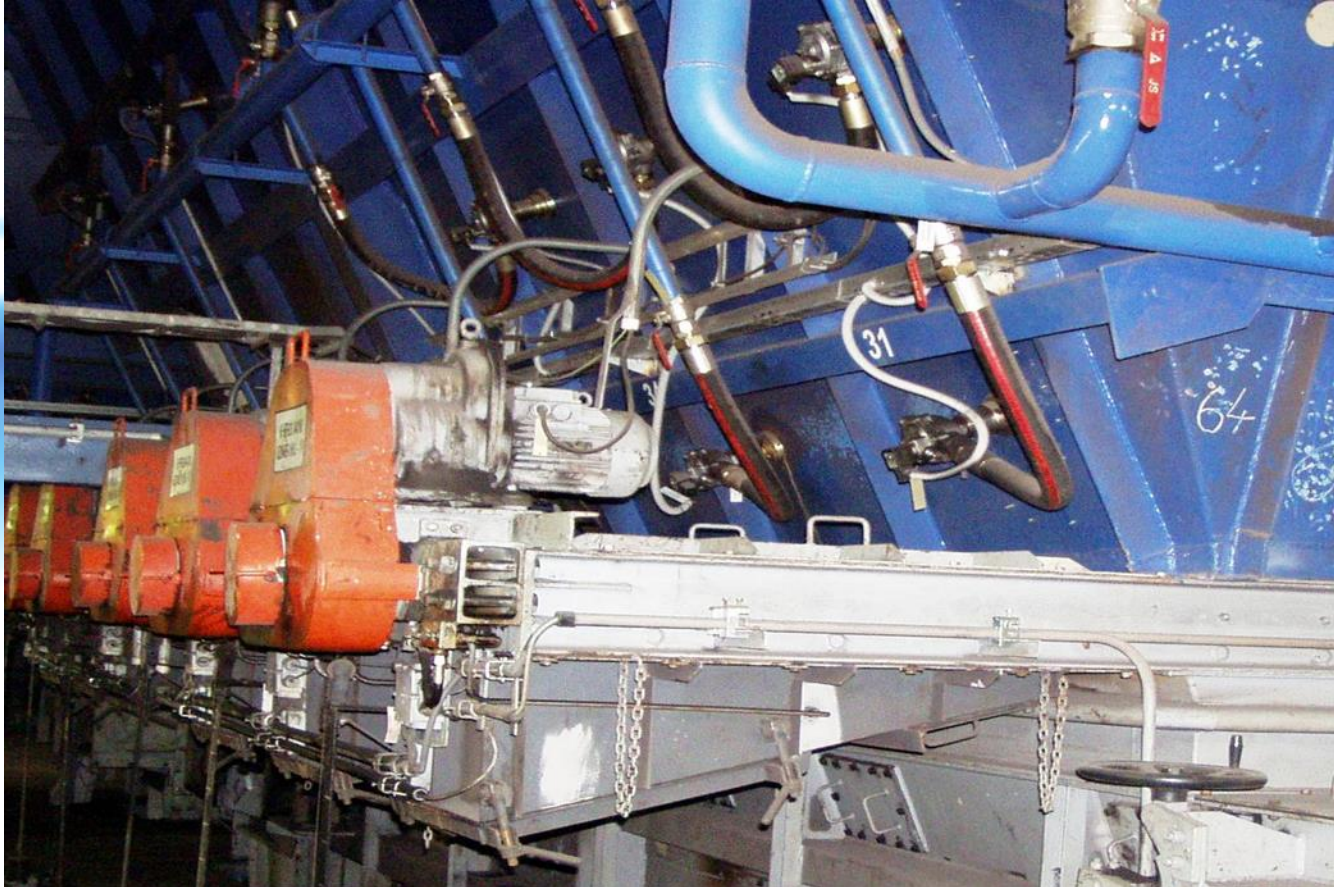
Year of Start-up: 2009

1 x Clean Biomass Fired Boiler

- 80 t/h
- 93 bar(a)
- 515 °C

- vibrating grate

Fuels: wood chips

**Client:**

Plzeňská teplotárenská, a.s.

Year of Start-up: 2006

1 x Circulating Fluidized Bed Boiler
Modernization of boiler K6

- 180 t/h
- 13,6 MPa
- 540 °C

Fuels: brown coal, biomass

Scope: conversion from brown coal to biomass firing, firing process optimization, SOx emission reduction, fluidization nozzle re-design (back sifting)

**Client:**

Babcock Borsig Steinmüller GmbH
(Office Oberhausen, Germany)

Year of realization: 2014 - 2016

2 x Coal fired boilers

- 230 t/h
- 13,8 MPa
- 540 °C

Scope: Engineering works focused on process design, completion of P&I diagrams, delivery and installation of field instrumentation, CEMS and SWAS.

**Client:**

TPP Elektroprivreda BiH

Year of Start-up: 2012

1 x Pulverized Coal Fired Boiler

General modernization of boiler K6

- 350 t/h
- 140 / 32 bar(a)
- 540 / 540 °C
- slag-tap furnace

Fuels: brown coal

Scope: performance enhancement, reduction of slagging, emission reduction, life assessment, exchange of deteriorated parts, long-term service concept

**Client:**

Saudi Electricity Company

Year of realization: 2013 - 2014

4 x Oil Fired Boiler

Replacement of economizers
at 900 t/h boilers

**Client:**

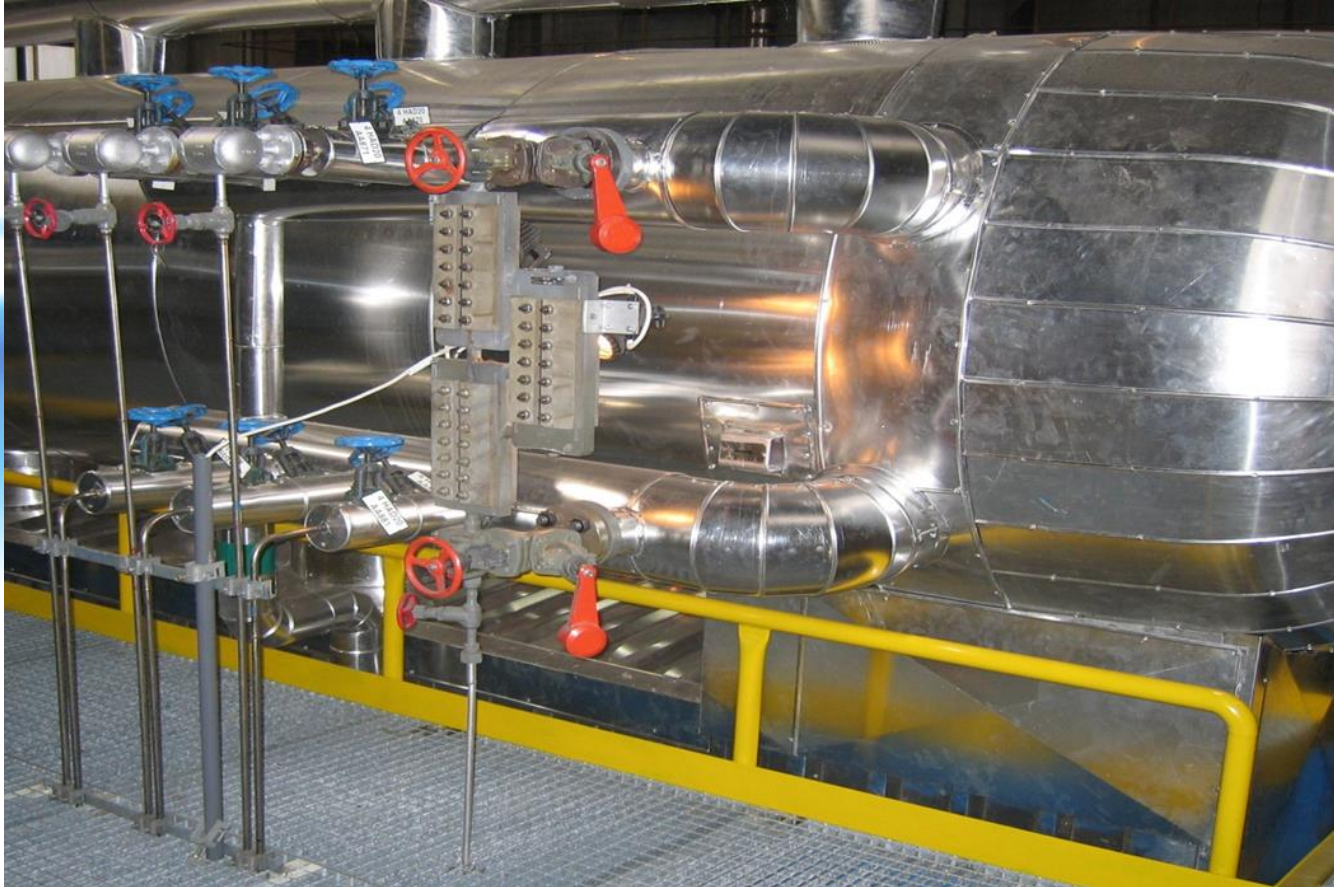
Vattenfall Europe Wärme AG

Year of Start-up: 2014

3 x Hot Water Boiler

- 125 MWth
- 45-60 /110°C

Fuels: natural gas

**Client:**

U.S. Steel Serbia, d.o.o.

Year of Start-up: 2005

1 x Gas Fired Boiler

- 75 t/h
- 40 bar(a)
- 450 °C

Fuels: blast furnace gas, natural gas

**Client:**

Saline Water Conversion Corporation

Year of Start-up: 2014

1 x Oil and Gas Fired Boiler

- 672,2 t/h
- 86 bar(a)
- 525 °C

Inspected and tested parts:

- boiler drum
- superheaters tubes and headers
- furnace water wall tubes and headers
- economizer tubes and headers
- attemperators
- main steam line
- burners
- rotation air heaters
- FD fans

UNIS Power, s.r.o.

Thank You for Your Attention!

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