



Sweco in numbers

- #1 on the European market
- Leading position in 6 markets
- 14,500 employees
- Net sales EUR 1.7 billion

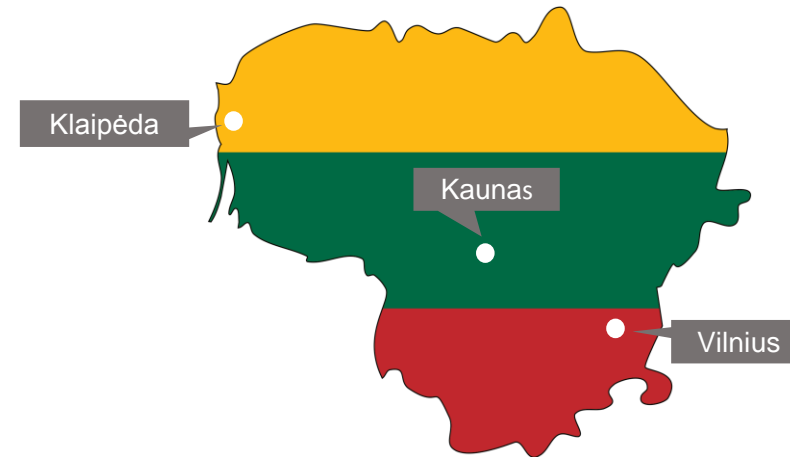




SWECO in Lithuania

Company: Sweco Lietuva UAB*

- 220 employees
- Offices in Vilnius, Kaunas and Klaipėda
- Sectors – cities, buildings, energy, industry, infrastructure, water & environment



- * the merger of three legal entities – Sweco Lietuva UAB, Sweco hidroprojektas UAB and Sweco Energy Consulting UAB - came into effect on the 1st of January 2016.



SWECO in Lithuania

Project management

- AutoDesk Navisworks
- MS Project
- Solibri
- TEKLA BimSight

Design

- AutoCAD
- AutoCAD Advance Steel/Concreate
- AutoCAD 3D Civil
- AutoCAD Architecture
- AutoCAD LT
- AutoCAD Plant 3D
- ArchiCAD
- Artlantis Render
- **Bentley OPEN PLANT**
- **Bentley Water CAD**
- **Bentley AUTO PLANT**
- **Bentley AUTO PIPE**
- DDS CAD
- EPLAN
- MAGICAD
- Revit Structure

Computation

- GEO
- MAGICAD Comfort & Energy
- Nemetschek SCIA
- Robot Structural Analysis
- SCAD Office
- STAAD

Other

- ArcGIS
- AERMOD View
- CadnaA
- Spatial Analyst
- SLAB View
- Other

Some of our software tools





“Auragen” Cogeneration Power Plant, Tallinn, Estonia. Pipelines Detail Design



Visvaldas Šavelskis
SWECO Lietuva



Content

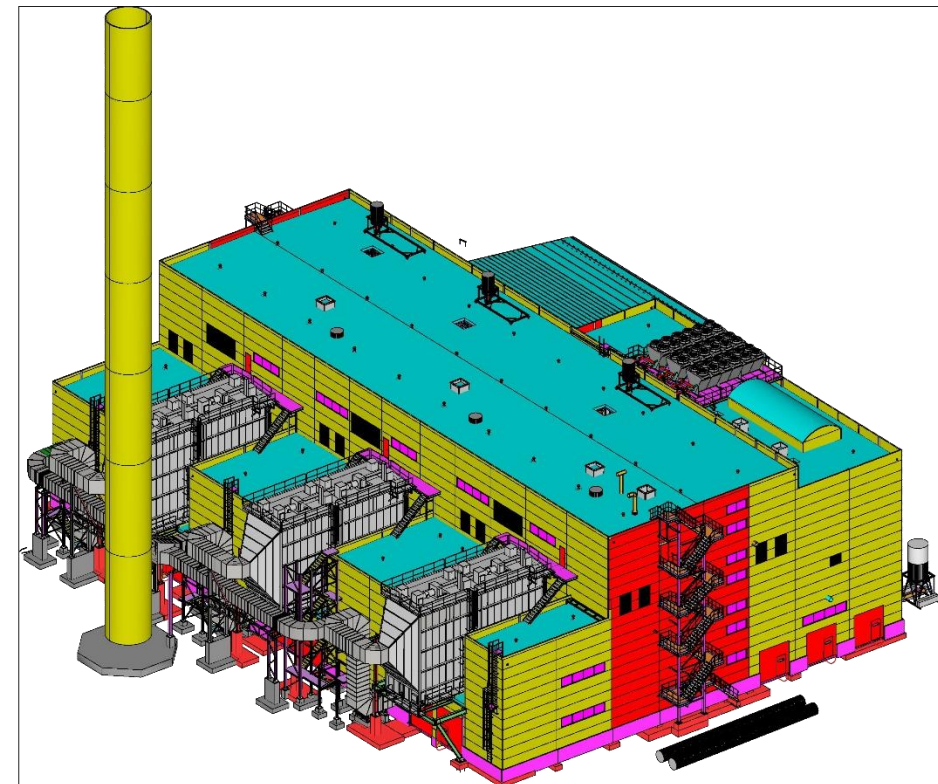
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About Object

- OBJECT: “OU Auragen”
Cogeneration Power Plant
- ADDRESS: Tooma 14 / Vaomurru
str. 1, Tallinn, Estonia
- BUDGET: 78.000.000 € (est.)
- PROJECT: Pipeline Detail Design
- STATUS: Under Construction





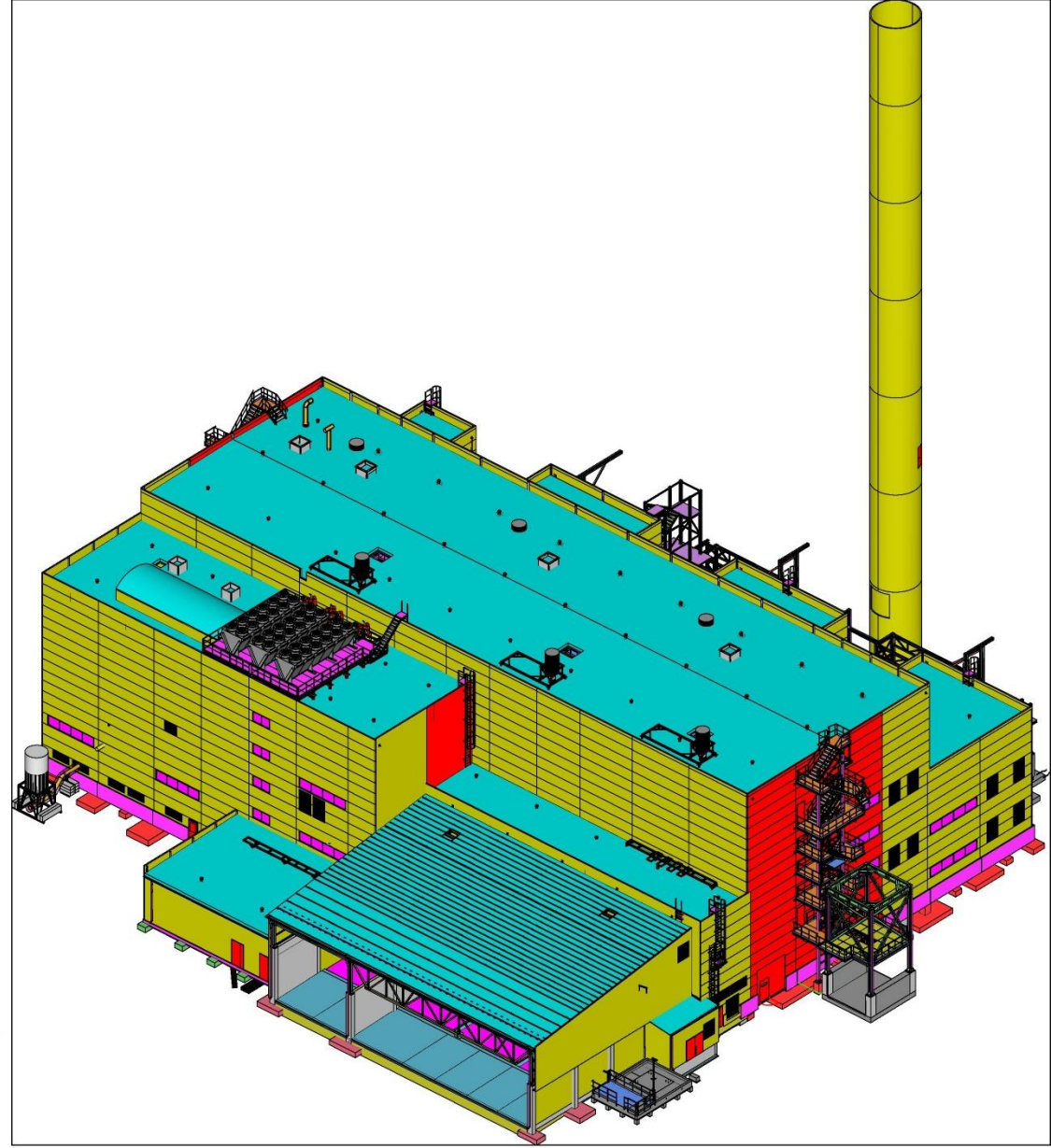
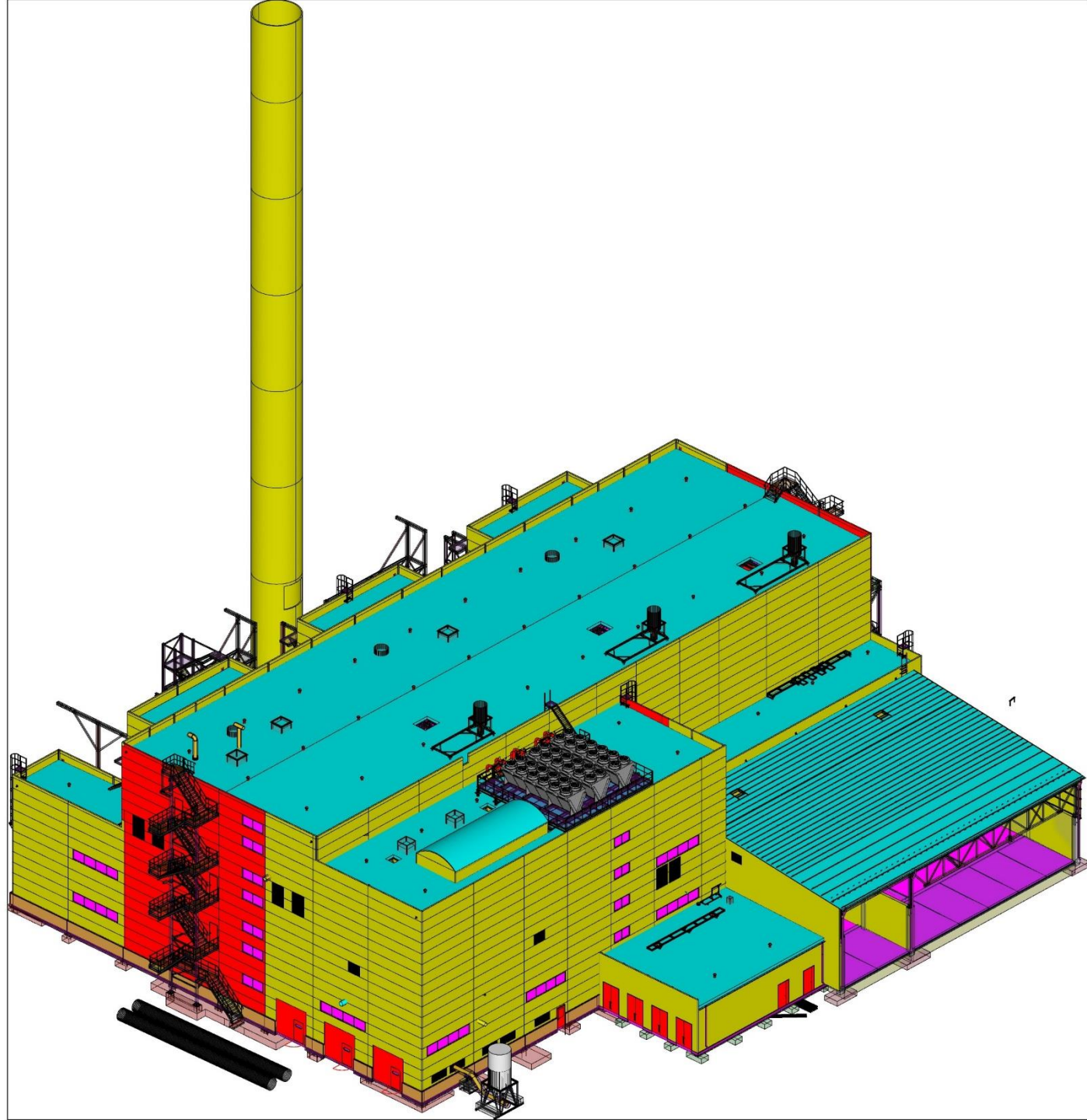
About Object

- Design and install a cogeneration power plant with the electrical power capacity of 21.4 MW and heat capacity of 76.5 MW for the private heat supply company “OU Auragen” in Tallinn, Estonia
- Cogeneration power plant will burn virgin wood chip mixed with up to 30% peat. The new power station will be able to produce up to 20.8% of the total heat required in Tallinn supplied centrally
- The power plant will be constructed in the Vão district of Tallinn, near the existing power plant of analogous power owned by the company Tallinna Elektriijaam
- Project aims to increase use of renewable energy sources for heat and electricity production, reduce CO2 emissions, reduce heat and electricity price for Tallinn residents, and reduce dependency on natural gas



Power Plant Technical Data

- The main power plant components: 3 grate boilers, each with 25MW power, steam turbine with condenser and flue gas condensers
- Cogeneration power plant will produce electricity that will be supplied to the electricity network and heat that will be supplied to the city of Tallinn central heating networks.
- Work mode: 3 x 8,56 kg/s, total 25,68 kg/s (3x30,8 t/h, total 92,4 t/h), 502 °C and 60 bar steam pressure
- Turbo generator is projected to 21,4 MW of electricity
- Biofuels and natural gas. Natural gas will be used for the power plant start-up
- Building of special purpose





Scope of Work

“SWECO Lietuva” was contracted for complicated Pipeline design, consisting of variety of piping systems:

- feed water piping;
- steam line piping;
- blow down piping;
- drainage piping;
- DH water piping;
- condensate piping;
- conservation system piping;
- closed cooling water system piping

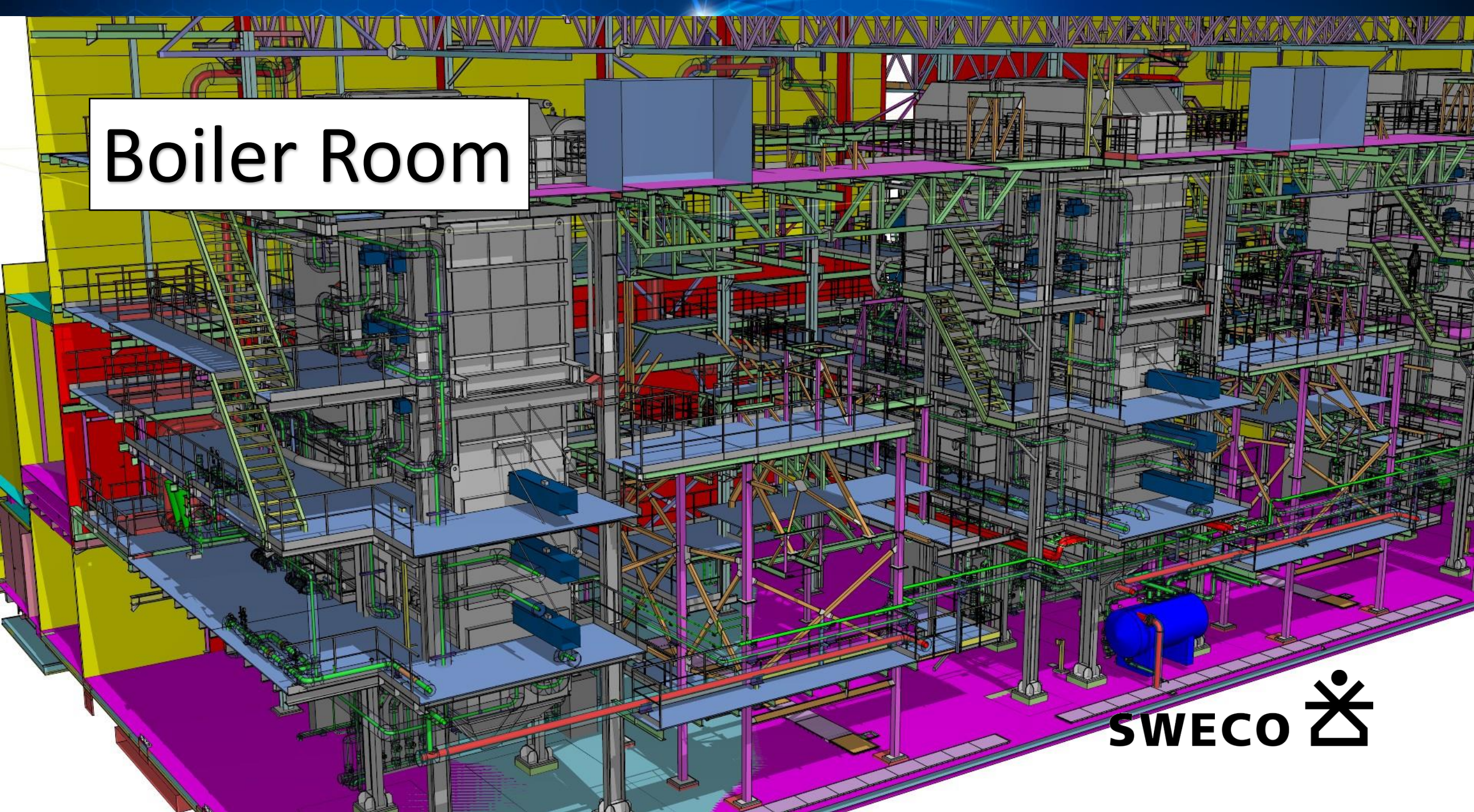
Boiler Piping



Scope of Work

- For each piping system
 - piping strength calculations and the categorical piping reports were produced
 - pipelines supports, hangers and spring hangers (pipeline elements) were designed
 - tasks for pipelines supports and spring hangers constructions and service platforms were prepared

Boiler Room





Meeting the Challenges

- Project contains 16 different pipeline systems, which contains about 6 kilometers of various diameter pipelines.
- Tools, that help meeting unique engineering challenges:
 - Bentley OpenPlant: work together for several engineers in one project, exchange 3D models not only within the company but also to external customers immediately
 - Bentley AutoPIPE: calculate pipe support loads, give clear and complete assignment to construction engineers
 - Bentley View: allowed us to share information with customer and builder
 - Time Savers: Clash Resolution, Automatic generation of BOM (bill of materials), Automatic piping drawings Isometric Manager

Pump Room

A detailed 3D CAD rendering of a pump room. The image shows a complex network of pipes, with red pipes forming the main distribution system and green pipes for secondary or return lines. Several large industrial pumps are visible, mounted on bases. In the center, there are three yellow control panels with multiple gauges and indicator lights. The background shows structural elements like beams and other piping, all rendered in a clean, technical style.

SWECO 



Outcomes and Benefits

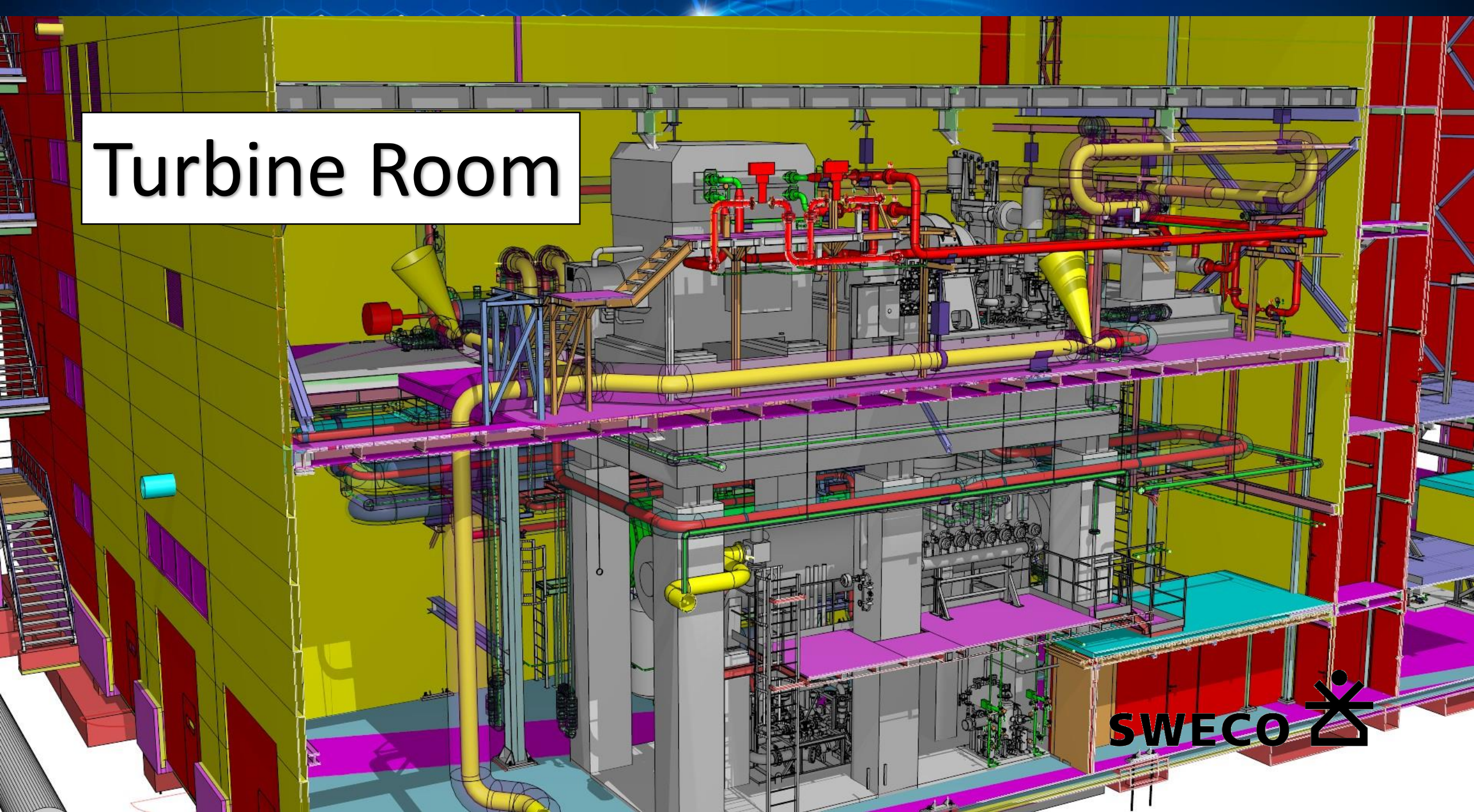
- Bentley Plant Design integrated solutions allowed to finish the project on budget, and ahead time, saving up to 2 piping designer-month of work!
- Working with Bentley products, allowed us to eliminate the risk of discrepancies and clashes in assembling piping systems, reduced the amount of modifications made in both the design and the installation stage
- Coordination of works of whole project team was performed all the time almost in online mode, allowing to avoid clashes and coordinate the fittings between systems



Outcomes and Benefits

- Integrated OpenPlant 3D design and AutoPIPE analysis workflow allowed to meet tight design schedules, while allowing to solve a variety of design alternatives quickly and without human errors, due to effective integration of design and analysis products
- Pressure and temperature calculations of piping systems were performed in AutoPIPE based on European Piping Design Code, that ensured the compliance with the regulatory requirements.
- Ability to use i-models for Bentley Navigator and Bentley View allowed to effectively communicate the design decisions to the Contractor and to local Authorities ensuring the compliance with safety regulations, and getting timely approvals.

Turbine Room





Manager's Quote



„Bentley Plant Design products and integrated workflow allows us to stay at the edge of competition, meeting the challenging schedules, while fitting within the budget. OpenPlant and Bentley Navigator allowed simultaneous work of few engineers designing such complicated project, consisting of 16 different piping systems, while Design Code-based analysis in AutoPIPE ensured the compliance with safety and environmental regulations.“

Visvaldas Šavelskis,
Vice-president, Energy Division
“SWECO Lietuva”





Designing for Sustainable Environment

- This project will reduce fossil fuel consumption, and CO2 emission
- Project will create more jobs
- The electricity and district heating will become cheaper, because power plant will use renewable fuel
- The new power station will be capable to produce more than 1/5 of the total heat required in Capital City of Estonia, consuming more environmental-friendly renewable energy resources

