INP Reference

Conversion of the energy generation plant supply of an existing energy park

LOCATION: Heilbronn, Deutschland

SYSTEM/TECHNOLOGY: Steam/hot water heat exchanger

SERVICES: Production monitoring, Commissioning, Project management, Quality assurance, Site management, Documentation, Pre-project planning and tendering, Basic-engineering and pre-engineering, Detail engineering, Installation supervision, Solution development / Feasibility studies

INDUSTRY BRANCH/TYPE OF PLANT: Green Energy

CLIENT: Heilbronner Versorgungs GmbH

ACTIVITY PERIOD: 2024 bis 2026

POINTS OF CONTACT



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Tasks

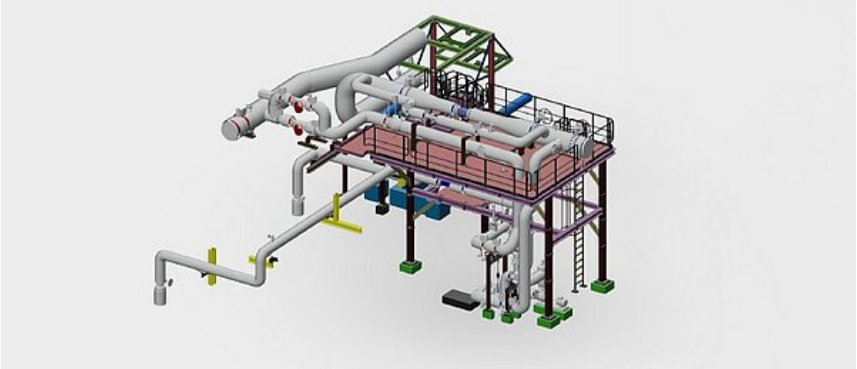
At an existing heating plant in Heilbronn, Heilbronner Versorgungs GmbH (HNVG)
currently receives heat in the form of high-pressure steam from the overall provider. This steam is converted into hot water by two steam-to-hot-water conversation stations and feed into the HNVG owned district heating system. In addition to the external superheated steam supply, the site operates two natural gas- and fuel oil-fired boilers for steam generation as well as a combined heat and power units (CHPs). The current district heating capacity is approximately 30 MWth.

The existing external steam supply will be canceled in future and replaced by a hot water supply, additionally with that transformation allowing a significant increase of heat delivery. This transition will be taken as an opportunity to dismantle the existing fossil fuel-fired generation units and to convert the district heating supply to a zero-emission-neutral system.
Based on an initial energy concept, a step-by-step conversion to a future-proof hot water system
was planned – initially with interim operation of the existing system, followed by the construction of a new boiler house with modular heat generation units providing of up to 70 MW.
The project is characterized by complex interfaces, tight schedules, and inner-city boundary
conditions.

Project description

INP is responsible for the end-to-end engineering process for the above-mentioned project, covering all phases of the HOAI [Fee Structure for Architects and Engineers] phase 1-8. The aim is to develop and implement a modular target system for heat supply , starting with a robust concept phase, followed by detailed engineering, and culminating in a fully

operational plant.



INP Services

INP provided the following services:

- Analysis of existing generation assets and heat consumers
- Development of the project schedule and investment plan
- Load profile analysis, demand scenarios, comparison of variants
- Development and review of various conversion scenarios with regard to suppliers, delivery periods, scope of construction measures, and environmental impacts
- Engineering of a target system with two expansion stages
- Technical and economic evaluation, including integration into municipal planning frameworks
- Design of an interim solution within the existing energy park buildings
- Detailed engineering of a permanent interim solution to ensure heat supply
- 3D as-built survey, integration of planning into 3D model structure, and detailed planning in the 3D modeled environment
- Review and preparation of documentation for potential funding schemes
- Preparation of tender documentation for plant- and piping-construction
- Coordination of interfaces between existing facilities and new building
- Design of a new modular boiler house as final expansion stage with increasing capacity to up to 70 MW thermal output
- Approval planning and coordination with authorities

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- Preparation of functional tender documentation (process engineering/plant construction, building services engineering, electrical, instrumentation and control systems, and civil works)
- Interface management between existing and new facilities and coordination of executing contractors
- Support of the client during bidder negotiations, scheduling and awarding of contract award
- Supporting construction supervision up to trial operation and acceptance tests