

# Thermal water systems

Service portfolio



## DESIGN

Early planning is essential for the successful implementation of geothermal projects. **gec-co's** portfolio includes the entire planning for thermal water systems. The company offers the comprehensive design of the above-ground thermal water system from the production to the injection well. In cooperation with the drilling planner, all aspects including relevant rules and regulations are considered. An entire procedural and mechanical planning (process flow chart, hydraulic calculation of different versions) as well as an electrical and I&C description of the plant is part of the design. A multidisciplinary team of plant technicians as well as mechanical and civil engineers guarantees a smooth operation.

## ENGINEERING

### BASIC

**gec-co's** portfolio comprises the entire conceptual design. Technical specifications including essential parameters and interfaces of the thermal water system are defined based on national and international regulations. **gec-co** thereby specifies suitable materials, develops a piping and instrumentation diagram with all components incl. measurement and creates an I&C program description. To provide a comprehensive overview, **gec-co** prepares a layout plan of the building and the plant components via 3D modeling. Furthermore, **gec-co** develops a concept for explosion, fire and noise protection as well as for residue disposal, performs a risk analysis and prepares a room book for architecture planning as well as a schedule of services for architectural work.

### DETAIL

Based on the Basic Engineering, **gec-co** offers the entire approval and implementation planning as well as contact to other technically involved members. In detail, **gec-co** compiles all necessary documents for the approval planning concerning public and legal procedures, sets up building directories, negotiates with public authorities and accompanies approval procedures. By detailed design, a thermal water system ready for assembling is set up, considering plant-specific and authorization requirements. The result is a concept of the thermal water circuit, including all information from the 3D modeling. Necessary thermodynamic and fluidic calculations are performed by our experienced staff. Depending on the chosen tendering model, **gec-co** sets up functional and detailed tender documents.



## District heating

Newly developed or integrated in an existing district heating system, **gec-co** sets up the specifications and offers the subsequent planning for the supply of district heat including all substantial components (e.g. fittings and filtration).

## Co-support

**gec-co** designs and implements solutions regarding conveyed materials in thermal water systems. Extracted natural gas can be, for example, fed into an incineration plant for energy production (electricity, heat) via the gas separator.

## CONSTRUCTION

**gec-co** acts as an interface between the local site supervision, the client and the construction companies. **gec-co** represents the client and is responsible for the site management and the local construction supervision. In this way, **gec-co** supervises the implementation and is responsible for quality control, acceptance and cost monitoring. Further tasks include:

- coordination of the technically involved members
- controlling the local construction supervision
- dialog box
- acceptance of delivery and performance
- hand-over of object
- notice of default of executing companies

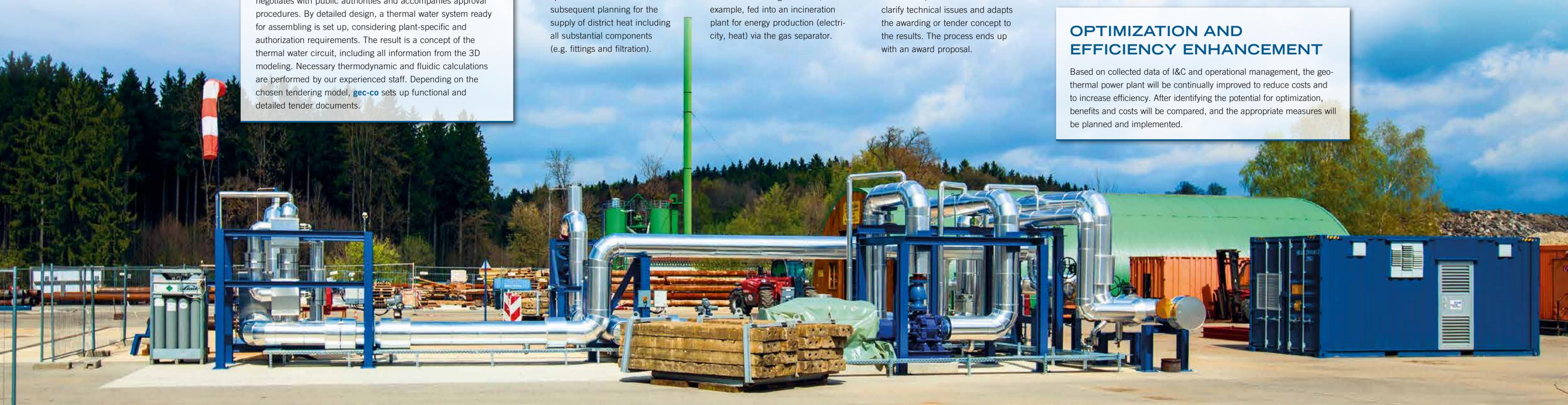
Furthermore, **gec-co** supervises drilling, pumping and installation of power plant technology. To guarantee a high performance quality, our employees check all components delivered by the manufacturer on-site. We accept the components and prepare a comprehensive documentation during the manufacturing process. All parties involved are regularly informed about the project status (directly, up-to-date and bundled).

## OPTIMIZATION AND EFFICIENCY ENHANCEMENT

Based on collected data of I&C and operational management, the geothermal power plant will be continually improved to reduce costs and to increase efficiency. After identifying the potential for optimization, benefits and costs will be compared, and the appropriate measures will be planned and implemented.

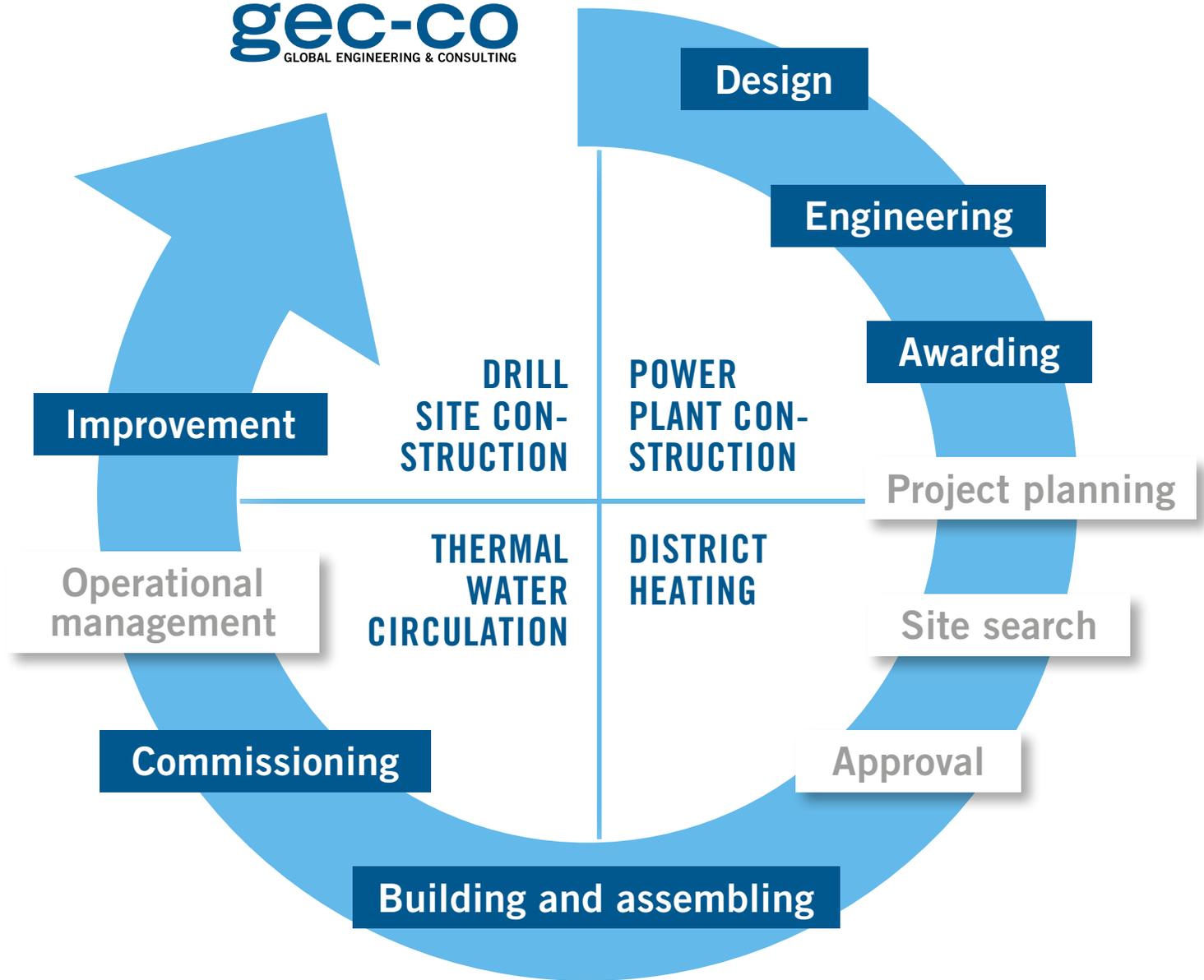
## COMMISSIONING

Following the construction of a geothermal power plant, **gec-co** accompanies the cold and warm start-up as well as the trial operation including performance tests of all substantial plant components (pump, heat exchanger, turbine etc.). In cooperation with the customer, the expected performance parameters are tested and the guaranteed properties are checked.





**gec-co**  
GLOBAL ENGINEERING & CONSULTING



# CONTACT

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