

INP Reference

Feasibility study for the renewal of a refrigeration system

LOCATION: Rüsselsheim, Germany

SERVICES: As-built status and data recording, Solution development /

Feasibility studies

INDUSTRY BRANCH/TYPE OF PLANT: Green Energy

CLIENT: Opel Automobile GmbH

ACTIVITY PERIOD: 2025

Project description

As part of the planned renewal of the cooling supply at the Rüsselsheim site, INP was commissioned to conduct a feasibility study. The aim of the study was to develop four technical variants for future cooling generation and compare them in terms of economic efficiency, operational safety, energy efficiency, and space availability. The power range considered covers a controllable cooling capacity of up to 5 MW. The study serves as a basis for decision-making on the implementation of a future-proof solution.

INP developed a robust basis for decision-making on future cooling for the paint shop at the Rüsselsheim site. First, the existing system was systematically documented, the existing load profiles were evaluated, and future demand was estimated. On this basis, four variants were developed:

- a) renovation of the existing system
- b) a new building on the same site
- c) a new building in the adjacent room
- d) an innovative system with ice storage and CHP.

The criteria of technical feasibility, economic efficiency, energy efficiency, space availability, and safety-related requirements (e.g., incident management plan, occupational safety, fire protection) were taken into account in the evaluation of the variants.

The power range considered comprises a continuously adjustable cooling capacity of up to 5 MW, which is designed for base, partial, and peak load cases.

INP Services

INP provided the following services:

- On-site inventory and evaluation of existing plans
- Determination of cooling requirements for base, partial, and peak loads

POINTS OF CONTACT



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- Development and comparison of four concept variants
- Preparation of rough plans for installation, connection, and integration into existing infrastructure
- Investment and operating cost estimates for each variant
- Initial scheduling for implementation of the variants
- Integration of requirements from safety, maintenance, fire protection, and approval concepts
- Recommendation of a technically and economically suitable preferred variant
- Preparation of a report for internal decision-making at the customer's site