INP Reference

TransHyDE: waste heat recovery LOHC-system / innovative heat supply concept

LOCATION: Helgoland, Germany

SYSTEM/TECHNOLOGY: Hydrogen, LOHC, waste heat utilization, heat extraction and integration

SERVICES: Basic-engineering and pre-engineering, Solution development / Feasibility studies

INDUSTRY BRANCH/TYPE OF PLANT: Green Energy, Power Generation

CLIENT: Versorgungsbetriebe Helgoland GmbH (local utility operator)

ACTIVITY PERIOD: 2021 - 2022

Project description

The TransHyDE project Helgoland, funded by the German Federal Ministry of Education and Research, focuses on the hydrogen transport technology „LOHC“. In this research project, nine partners from science and industry have networked with the island of Helgoland to develop a LOHC-based supply chain for green hydrogen produced offshore. The route of the supply chain runs from the Schleswig-Holstein coastal sea via the port of Helgoland to the port of Hamburg and thus to hydrogen consumers in the metropolitan region and beyond. In the LOHC supply chain, Helgoland is considered as the place of storage (hydrogenation) and Hamburg as the place of release (dehydrogenation).

The basis for this originally came from the AquaPortus project, which is part of the AquaVentus project family. After the research phase, the project was to be implemented in AquaPortus.

The aim of this study is to investigate the technical and economic feasibility of using waste heat from the LOHC plant (hydrogenation) and the CO2 reduction that this could bring to heat generation for Helgoland.

INP Services

- Preparation of a technical feasibility study for the utilization of LOHC waste heat, taking into account the necessary space requirements of the technology to be used as well as the integration into the existing district heating network
- Design of heat extraction and heat exchangers
- Design of heat storage, circulation, network pumps and fittings
- Layout concept for the LOHC plant and the new components required
- Integration concept into the existing heating circuit of the local CHP plant
- Design of the district heating pipelines for integration into the existing district heating network
- Planning of the necessary reconstruction measures in the pipeline

POINTS OF CONTACT



Michael Ohmer
Leiter Energie- und WärmeVersorgung
INP Deutschland GmbH
Werkstraße 5
67354 Römerberg
Deutschland
Tel. +49 6232 6869-0
michael.ohmer@inp-e.com
www.inp-e.com

route of the district heating system
- Determination of the necessary construction measures and the, among other things, required new or adapted foundations and enclosures
- Elaboration of energy balances for different scenarios of heat demand coverage
- Evaluation of the scenarios with recommendations for action for generation
- Preparation of a profitability analysis with investment costs, heat production costs, economic key figures, calculation of payback periods
- Calculation of possible heating oil savings and CO2 reductions