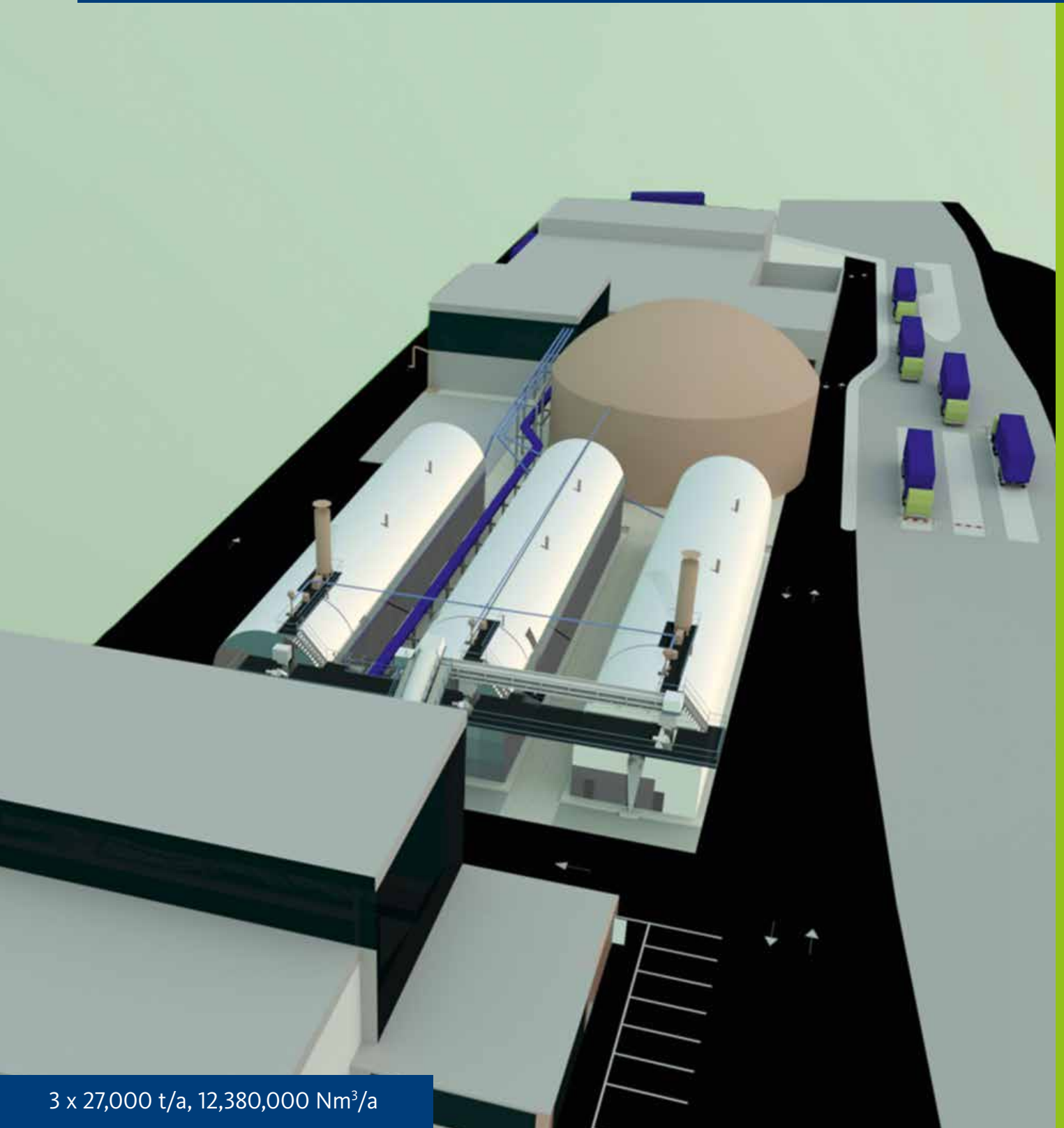


Hitachi Zosen
INOVA

Högbytorp / Sweden
Kompogas[®] Plant



3 x 27,000 t/a, 12,380,000 Nm³/a

Högbytorp – Kompogas® Biogas Plant Boosts Sweden's Climate-Friendly Energy Strategy

As part of the implementation of Sweden's new energy policy, Hitachi Zosen Inova is building Scandinavia's first Kompogas® facility at a site near Stockholm. In the future the installation will take organic waste from the local area and convert it into biogas and high-grade compost, making a valuable contribution to efforts to harness renewable energy resources and close the materials cycle.

Sweden's Fossil Fuel-Free Energy Future

In fall 2015 Sweden's government approved the ambitious target of becoming the first industrial nation in the world to eradicate the use of fossil fuels entirely and thus permanently reduce carbon emissions. To achieve this goal it will have to stop burning fossil fuels within the next 20 to 40 years and rely on renewable energy resources instead. Implementation of the new energy strategy will be facilitated by government grants.

Kompogas® Plant as Part of the New Energy Strategy

As part of the new energy policy, Hitachi Zosen Inova is building a complete turnkey Kompogas® biogas plant (without gas upgrading) in Högbytorp, around 40 kilometers northwest of Stockholm. The owner and subsequent operator of the plant is E.ON Biofor Sverige. With an annual throughput capacity of 83,000 tonnes of organic waste, the facility will generate around 6.8 million Nm³/a of biomethane, which will be fed into the local gas grid. This is equivalent to savings of around 7 million liters of heating oil and diesel.

To achieve its environmental targets, the Swedish government has budgeted a record SEK 12.9 billion (EUR 1.33 billion) for investment in climate protection, fossil-free transport, and renewable energy over the period from 2017 to 2020. E.ON Biofor Sverige has likewise been granted SEK 75 million (EUR 7.71 million) in subsidies for the overall project in Högbytorp.

Carbon-Free Circular Economy

The Kompogas® plant is part of a large-scale renewable energy park. Separately collected green and organic waste from the Upplands-Bro area will be delivered to the facility's three state-of-the-art PF2100 steel digesters for processing into biogas

and high-quality fertilizer. Thanks to a sophisticated airlock system, the whole process will take place without any odors being emitted into the atmosphere. The digestion process takes around two weeks, and will produce biogas, which will subsequently be upgraded into biomethane and fed into the local gas grid. The digestate will be dewatered and used in agriculture as high-grade compost and liquid organic fertilizer. This will close the recycling loop and help create a sustainable circular economy. The delivery of Scandinavia's first Kompogas® plant underscores HZI's market leadership in dry anaerobic digestion, serving as an important reference for further projects in northern Europe.

General Project Data

| | |
|--------------------|--|
| Owner and operator | E.ON Biofor Sverige AB |
| Commissioning | 2018 |
| Scope of delivery | Engineering, construction, and commissioning of entire plant (without gas upgrading) |

Technical Data

| | |
|------------------|---|
| Annual capacity | 83,000 t/a |
| No. of digesters | 3 |
| Digester type | PF2100, steel |
| Biogas use | Upgraded to biomethane for gas grid injection |
| Type of waste | Organic waste, green waste, horse dung, oils and fats |

Production

| | |
|---------------------------------|-------------------------------|
| Production of biogas | 12,380,000 Nm ³ /a |
| Biomethane exported | 6,800,000 Nm ³ /a |
| Production of compost | 6,500 t/a |
| Production of liquid fertilizer | 52,400 t/a |