SYNSAT PROJECT

We are increasing the production of renewable diesel

Switching to more renewables

At the refinery in Lysekil, the reconstruction of the so-called Synsat plant that produces diesel is underway. The plant is being rebuilt to enable renewable blending that increases Preem's renewable production capacity by about 900,000

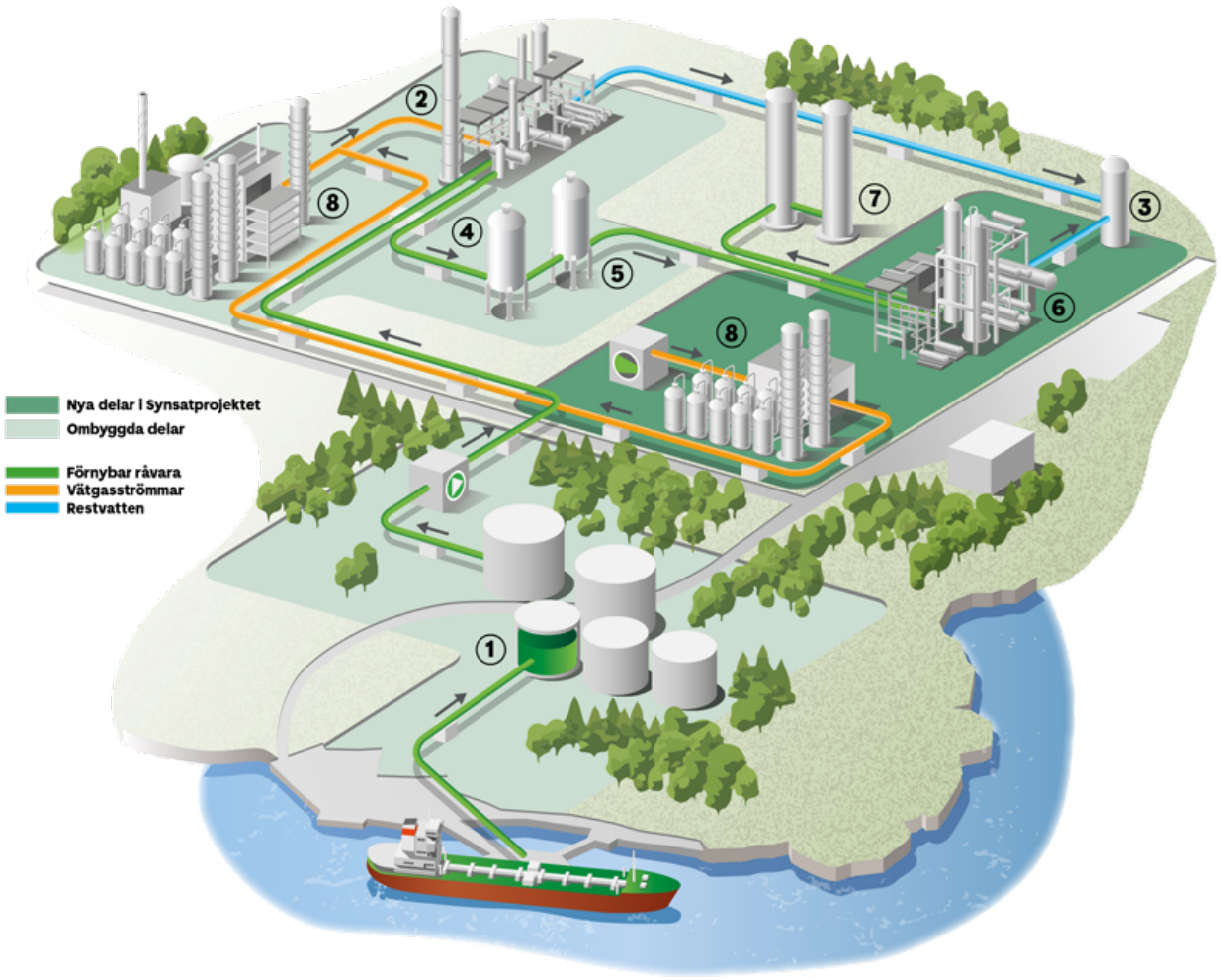
cubic meters per year.

The project also means that a corresponding amount of fossil fuel will be phased out. The conversion is ongoing and is expected to be completed in the first half of 2024.

Reduced carbon dioxide emissions in the last phase

Eighty-five percent of the carbon dioxide emissions in Preem's value chain take place at the user level. The manufacturing process accounts for about 4 percent. The converted Synsat plant reduces the fossil carbon dioxide emissions in the user stage by 1.2 - 1.7 million tons per year. Emissions of carbon dioxide at the refinery will not increase.

How it works to make diesel with renewable components



1. DELIVERY AND STORAGE OF RAW MATERIAL
   The renewable raw material, such as tall oil or rapeseed oil, is delivered to the refinery by ship. There it is stored in tanks and then pumped into the plant and mixed with other raw materials.

2. OXYGEN IS REMOVED
   Renewable raw materials contain oxygen, which needs to be removed. This is carried out in a newly built reactor by adding large amounts of hydrogen gas, which binds the oxygen. The residual product is water.

3. WATER PURIFICATION
   In a new sour water stripper unit, the residual water is cleaned of hydrogen sulfide and either reused in other parts of the refinery or sent for treatment in Preem's wastewater treatment plant.

4. PURIFICATION FROM SULPHUR
   The product is then sent to an existing reactor to purify the sulfur from the fossil fuel. As in the previous reactor, this takes place at a pressure of around 50 bar and a temperature of 300-400 degrees. The sulfur is captured and recycled.

5. AROMATICS ARE REMOVED
   In the next reactor, which is also from the original Synsat plant, aromatics are removed from the fossil part of the feedstock in the same way as before. The aromatics are removed to minimize particulate emissions from the finished diesel. Aromatics are not present in the renewable part.

6. COOLING PROPERTIES ARE IMPROVED
   In a newly built reactor, the cooling properties of the renewable part of the fuel are then improved. This is done by isomerizing the carbon molecules, i.e. converting the straight carbon molecules into branched ones.

7. THE FRACTIONATION TOWERS

Gas and light hydrocarbons formed during the process are separated out in two existing fractionation towers – one for the gasses and one for the light hydrocarbons – and then recycled.

8. HYDROGEN PLANTS
   Renewable raw materials require more hydrogen than fossil crude oil to be converted into diesel. The increased hydrogen demand is met by installing a new Pressure Swing Adsorption (PSA) plant. It recovers, purifies and concentrates hydrogen from the residual streams of other plants at the refinery. The existing hydrogen production facility, the Hydrogen Production Unit (HPU), is also being expanded for increased production.

Facts: Synsat project

Preem is rebuilding the existing Synsat plant at the Lysekil refinery to increase renewable diesel production.

Renewable production started at the end of 2020 with a low blend of rapeseed oil. A major refurbishment is planned for a large-scale co-production with up to 40% renewable raw material, increasing our renewable production by 650,000 - 950,000 annually.

The plant is planned to be in operation by 2024.

Questions and answers on the project

What does Preem want to do in Lysekil?

How important is the project for Preem?

How large will the renewable production be?

How is fossil fuel production affected?

What will this mean in terms of carbon emissions?

Will the project create new jobs in Lysekil?

Why is Preem choosing to rebuild the existing plant?

When will construction on the plant start and when will it be operational?

What does the project mean for Lysekil?

What renewable raw materials will you use in the converted plant?

Why do you need to convert the plant?

The HVO project

The ICR Project

→

The Carbon Capturing project

→

A better journey.

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