

Pyrocell

Production of pyrolysis oil from saw dust for biofuels

BiodrivMitt ,October 28

Presentation by Pontus Friberg
Chairman of the Board, Pyrocell Ltd

Bay of Gävle - entrance to Gävle Port

Setra Kastet Sawmill

Pyrocell

Pyrocell, located in Gävle 170 km north of Stockholm, next to Setra's sawmill Kastet and in direct connection to railway, port and motorway E4.



Business concept and common goals

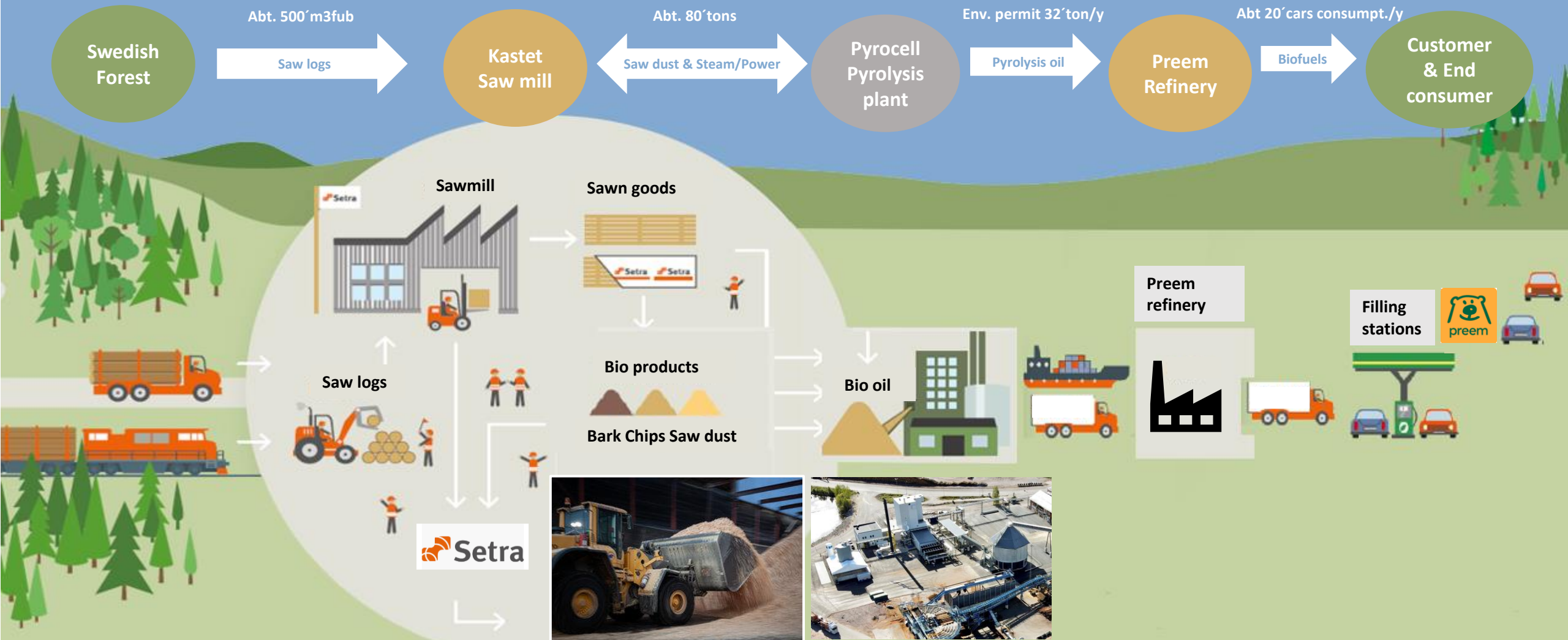
- Pyrocell enables the unique value chain
From Forest To Tank
- JV between Setra and Preem in a rapidly changing market
 - Formed in 2018 , jointly owned and based on the business concept of producing bio-oil from sawdust
- Collaboration between widely diverse industries with common goals
 - Sales of saw dust from Setra to Pyrocell and sales of pyrolysis oil from Pyrocell to Preem refinery
 - Preem co-processes the pyrolysis oil at the Lysekil refinery and increases the share of renewables in the fuels diesel and gasoline which in turn results in lower CO2 emissions



Pyrocell – the value chain

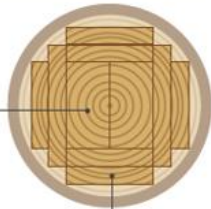


A sustainable value chain for renewable fuels - from Forest to Tank.



Forest raw material - why saw dust?

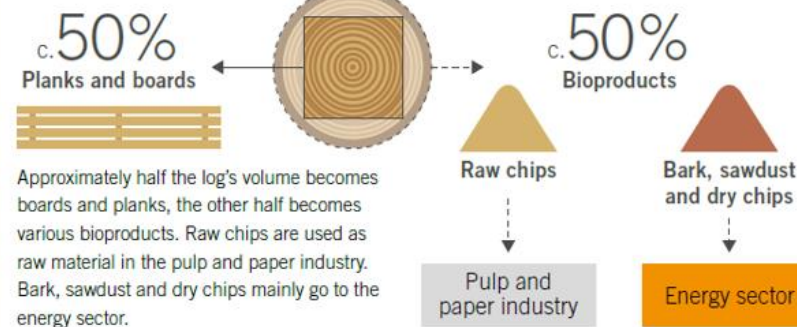
- Clean
- Homogeneous
- Availability - usually locally



Planks are sawn from the centre of the log and have a thickness of at least 32 mm.

Boards are sawn from the outer part of the log and have a thickness of less than 32 mm.

The whole sawlog is used



- Better utilization of resources
- Increased value
- Climate benefits

- usage of the whole saw log
- conversion to bio-oil
- non-fossil feed stock to Preem



From idea to start of operation

In 2016

- Setra initiated a feasibility study on bio-oil production based on the technology fast pyrolysis.

In 2017

- The study was the basis for the application to SEPA -Klimatklivet
- In the summer 2017, Pyrocell got a grant of SEK 117 million in investment support.

In 2018

- Environmental permit was obtained.

In 2019

- Setra's and Preem's boards decided to invest in a Pyrolysis plant
- Prerequisites were a JV Setra & Preem and above all investment support from SEPA.

2019/2020

- Procurement of pyrolysis plant and material handling system.
- On March 23, 2020, the first shovel was put in the ground

September 2, 2021

- Pyrocell was commissioned and production runs 24/7 since then.



2016

2017

2018

2019

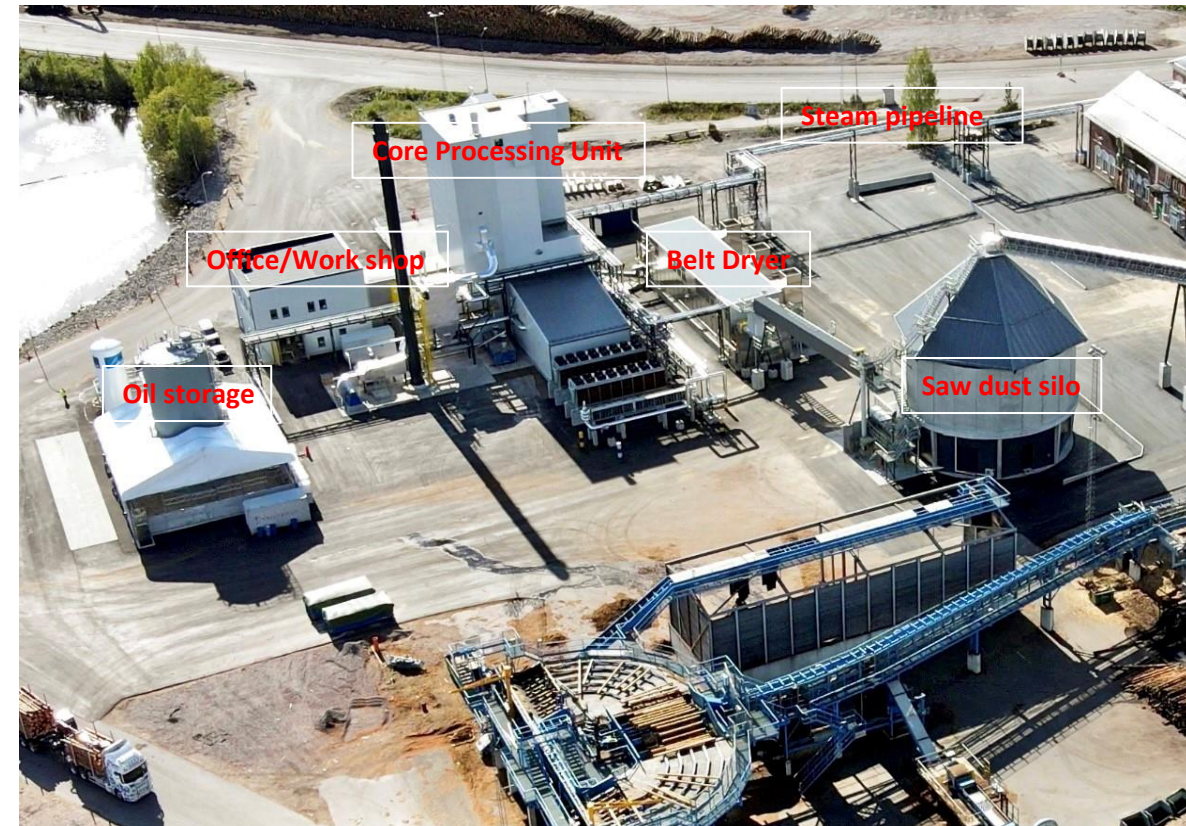
2019/20

2 Sep.
2021

The world's first commercial Pyrolysis oil plant integrated with sawmill and refinery.

- Technology
 - Fast pyrolysis
- Feed stock
 - The residual product sawdust from Pine, 100%
- Production
 - Est. 25,000 tons of oil/year and steam for drying of sawdust or sales of excess steam to the sawmill. Environmental permit 32 000 tons/year
- Number of employees
 - 12 incl Production Management, shift work, 24/7
- Uniqueness
 - On-site integration of sawdust flow between sawmill & Pyrocell
 - On-site integration of steam flow between Pyrocell, heating plant and the sawmill
 - Integrated supply chain between Pyrocell and Preem's refinery for biofuel production
 - First-class logistics in the form of railway, port and motorway

The Forest to Tank concept creates conditions for reduced number of transports, costs, CO2 emissions and enables energy cooperation and as well income to Pyrocell



Thank you for your attention!

