

Experiences from the start-up of Pyrocell's pyrolysis oil plant



Commercial production of Pyrolysis oil from saw dust for advanced biofuels

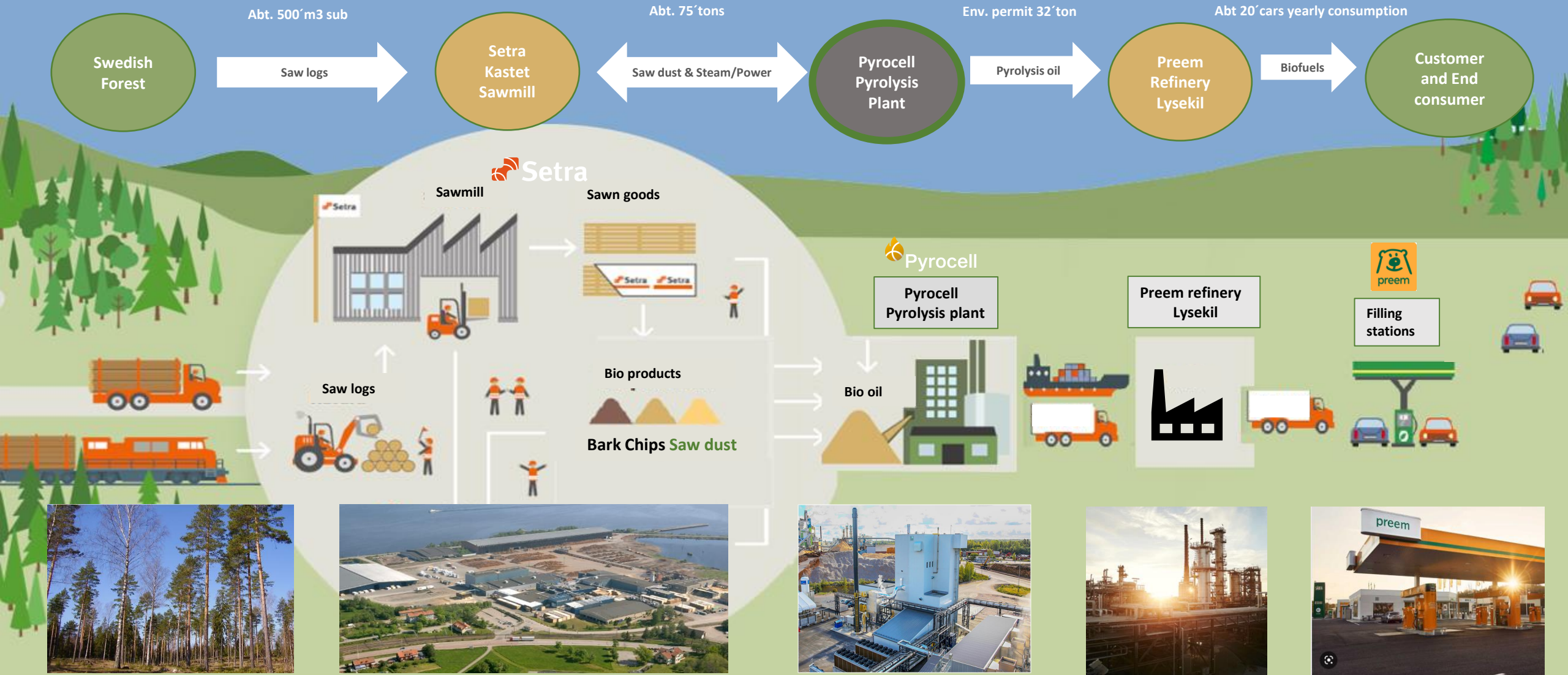
Pyrocell is jointly owned by Setra and Preem
www.setragroup.com ; www.preem.se

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Chairman of the Board of Pyrocell AB
Director ERM, Setra Group AB

The value chain



A sustainable value chain for renewable fuels - from Forest to Tank - enables replacement of fossil oil with non-fossil oil

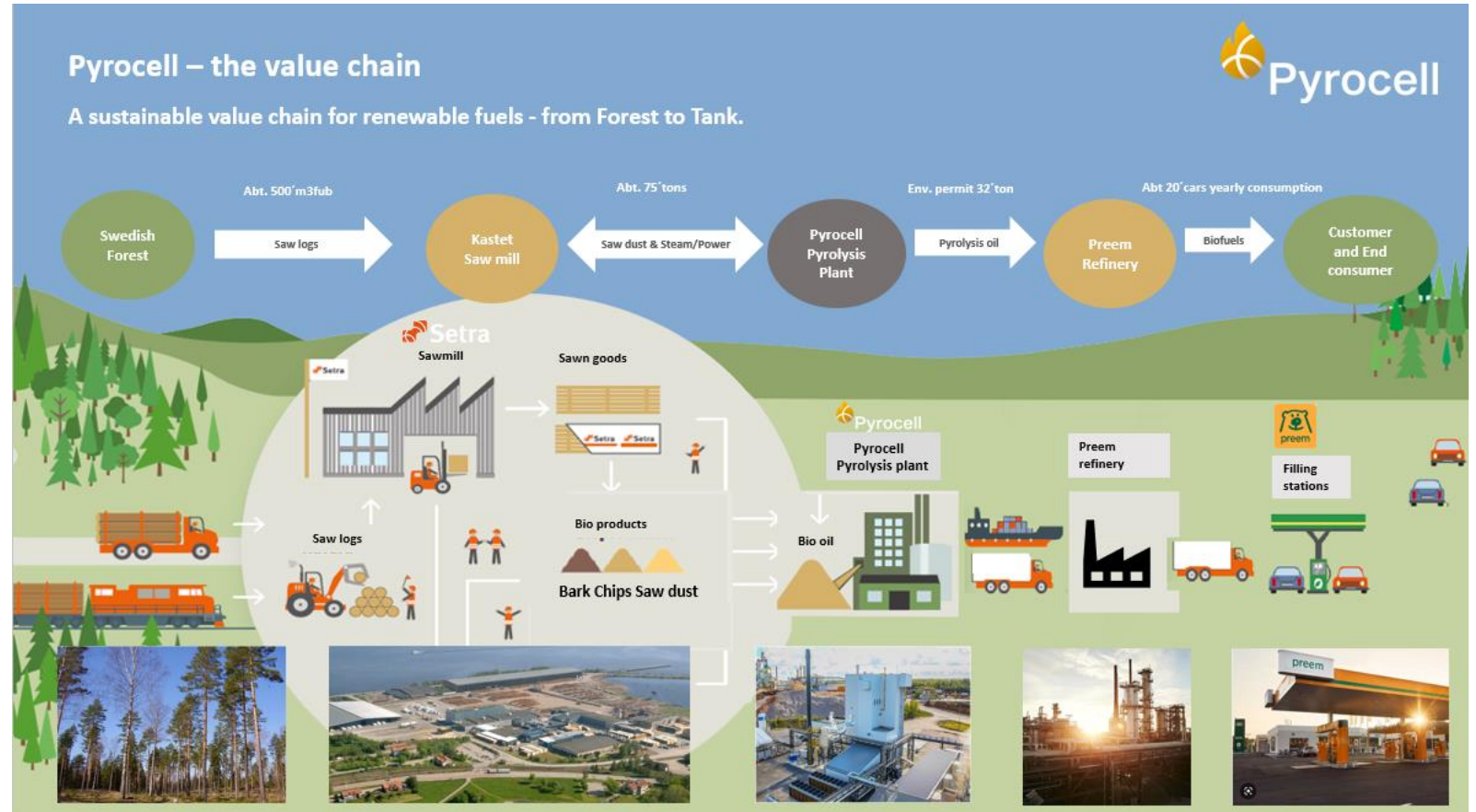


Experiences

Pyrocell's first two years of operation







- S: Safety & Health
- Q: Quality & Yield
- P: Performance
- E: Economy



Experiences

Pyrocell's first two years of operation

Objectives & Indicators	High-lights		Marker
S: Safety & Health <i>(Risk observations, accidents, illness)</i>	<ul style="list-style-type: none"> • So far, no incidents have resulted in injury with absence. • In practice, no sick leave, short or long. RTM < 1%. 		LTA
Q: Quality & Yield <i>(Specification & mass/energy yield)</i>	<ul style="list-style-type: none"> • Sawdust & Oil quality • Mass/Energy yield 	<ul style="list-style-type: none"> ➔ On-specification ➔ Close to preliminary calculation 	
P: Performance <i>(% on-stream, tons/h on stream)</i>	<ul style="list-style-type: none"> • Availability • Productivity 	<ul style="list-style-type: none"> ➔ A journey, lessons learned! ➔ In line with preliminary calculation 	
E: Economy <i>(Capex, EBIT)</i>	<ul style="list-style-type: none"> • Capex • EBIT 	<ul style="list-style-type: none"> ➔ Buildings & Machinery ➔ Groundwork and foundation ➔ EBIT positive, 2022/2023 YTD 	
Certification <i>(ISCC EU & Plus)</i>	<ul style="list-style-type: none"> • ISCC (EU & +) • A formal requirement 	<ul style="list-style-type: none"> ➔ Received certificate April 2023 ➔ To reach the export market 	

Pyrocell's position and development direction.....

Position

- Pyrocell and its owners have a unique, **sustainable value chain** ➡ **from forest to tank**
 - Locally produced *sawdust* - a pyrolysis oil *factory* - a *green product* as feed-stock to *Lysekil refinery*
 - Contributes to reducing CO2 emissions by up to >97% compared to fossil oil

Ongoing

- Investigation on possible investment ➡ **increased domestic production of Pyrolysis oil**
 - Based on a sustainable feedstock, saw dust, available at Setra sawmills

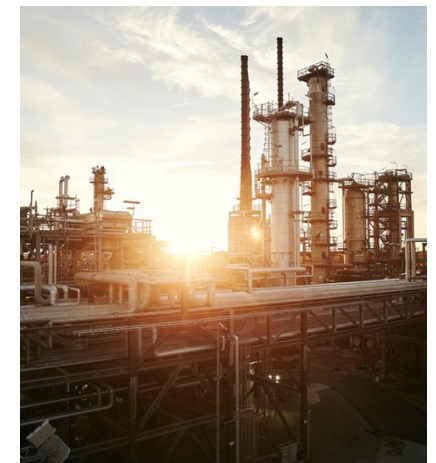
Need for upgrading technology ➡ improved quality, higher value as well as reaching new areas of use!

Close to the *production*;

- Stepwise condensation (1-n steps):
 - Expected result - *less water*
- Upgrading of the vapours before condensation (reactor with catalyst)
 - Expected result - *less water/oxygen*

Close to the finished *product*;

- Stabilization of pyrolysis oil (several ongoing research & development projects)
 - Enables processing of pyrolysis oil in existing reactors/infrastructure/refineries



Thank You for your attention!

