



NEOT

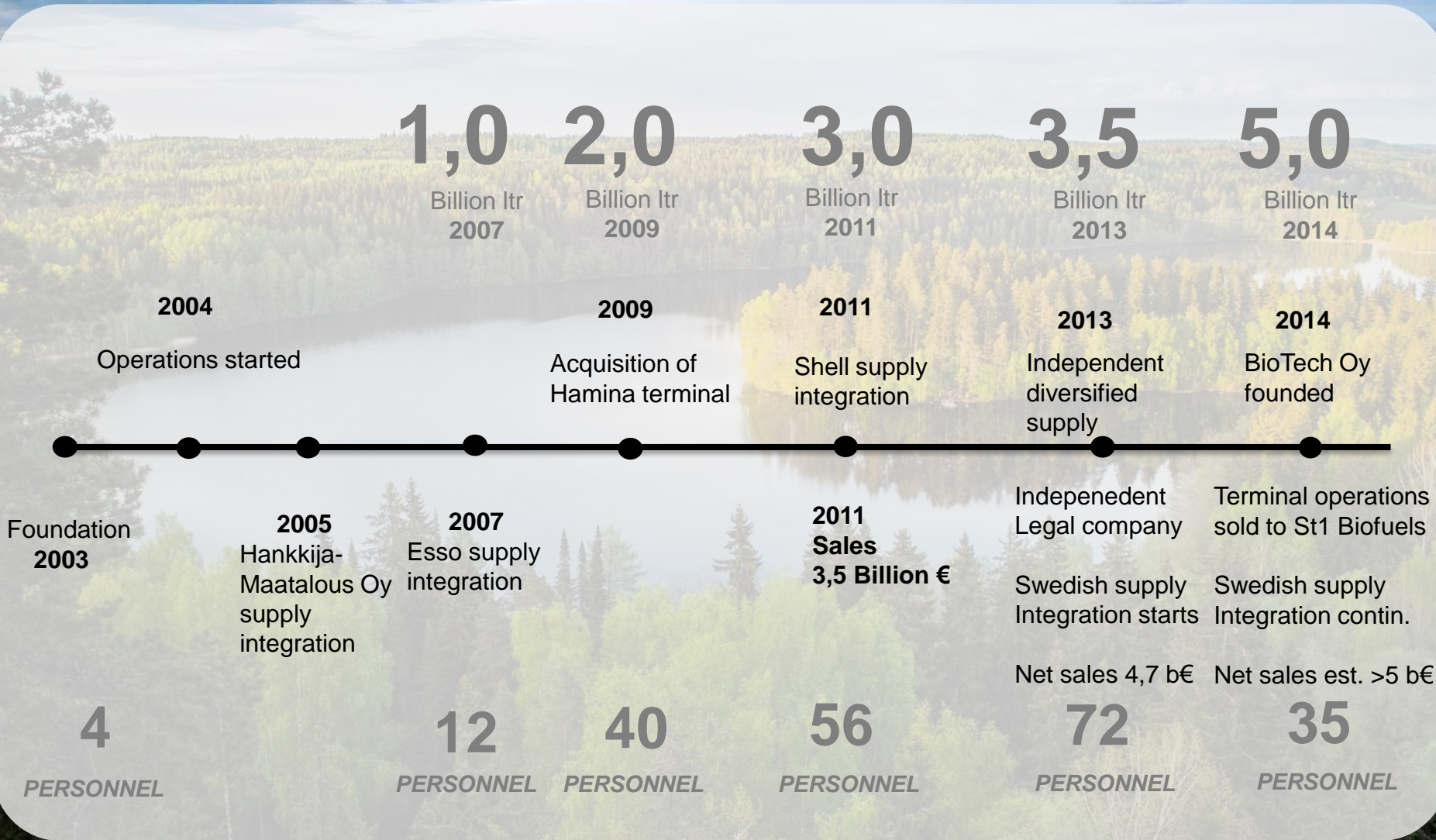
North European Oil Trade

Neot – Cleaner
path to the future

North European Oil Trade Oy

- NEOT was established in January 2003 and operations started on the 1st of February 2004.
- NEOT is registered in Finland and is owned by two Finnish companies SOK and St1 Nordic Oy. SOK owns 50,8% of the company and St1 Nordic Oy 49,2%.
- NEOT is a significant independent fuel procurement company in the Baltic Sea region and actively operates on the global trading markets
- We offer high-quality sea transportation, road transportation and terminal services for third parties
- NEOT supply annually (2014 →) approx. 5 billion liters of oil products
- Our market share of Finnish traffic fuel supply is approx. 41%

NEOT Evolution



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NEOT Shareholders

NEOT's strong and committed owners SOK and St1 both practice fuel oil sales through their own retail chains (ABC, St1 and Shell) in Finland and Sweden.

NEOT has been established to take care of the owners oil supply and logistics, product portfolio optimization and market opportunity utilization.

Founded in 1904 the S-Group is a Finnish cooperative organization and provides services in various markets such as grocery and consumer goods, agricultural supplies, Restaurant/Hotel and tourism businesses and automobile sales.



St1 is a Finnish energy company whose vision is to be the leading producer and seller of CO₂-aware energy. The company researches and develops economically viable, environmentally sustainable energy solutions. So far, St1 has bioethanol plants in Finland; an oil refinery in Gothenburg, Sweden; and service stations in Finland, Sweden and Norway





Outlet and Supply

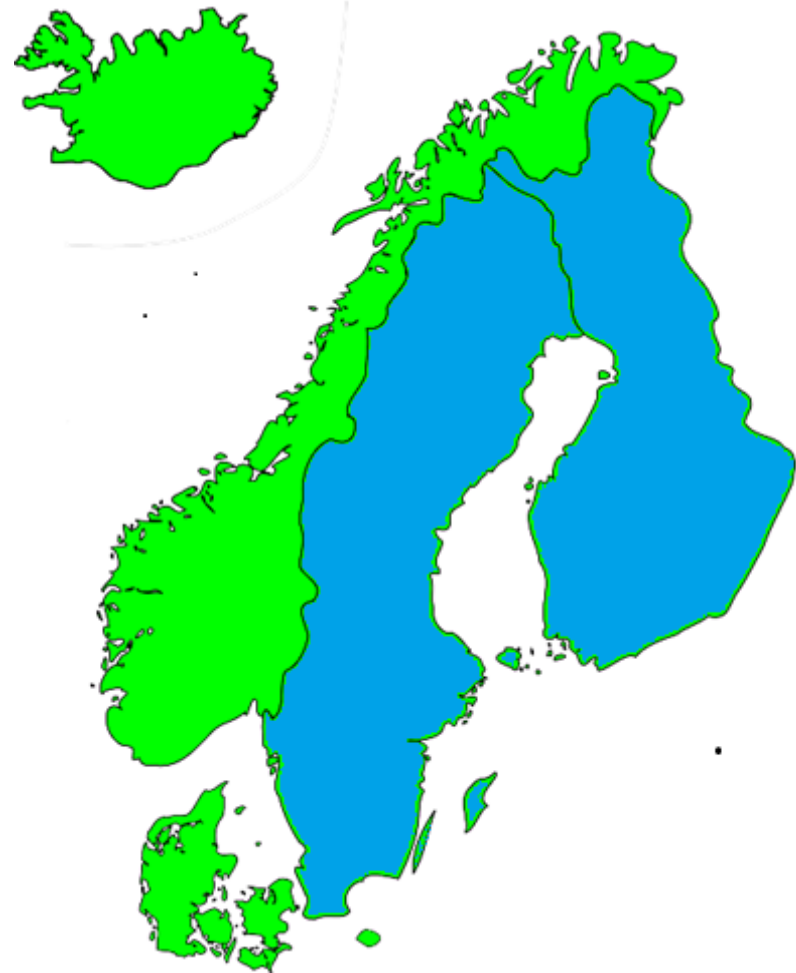
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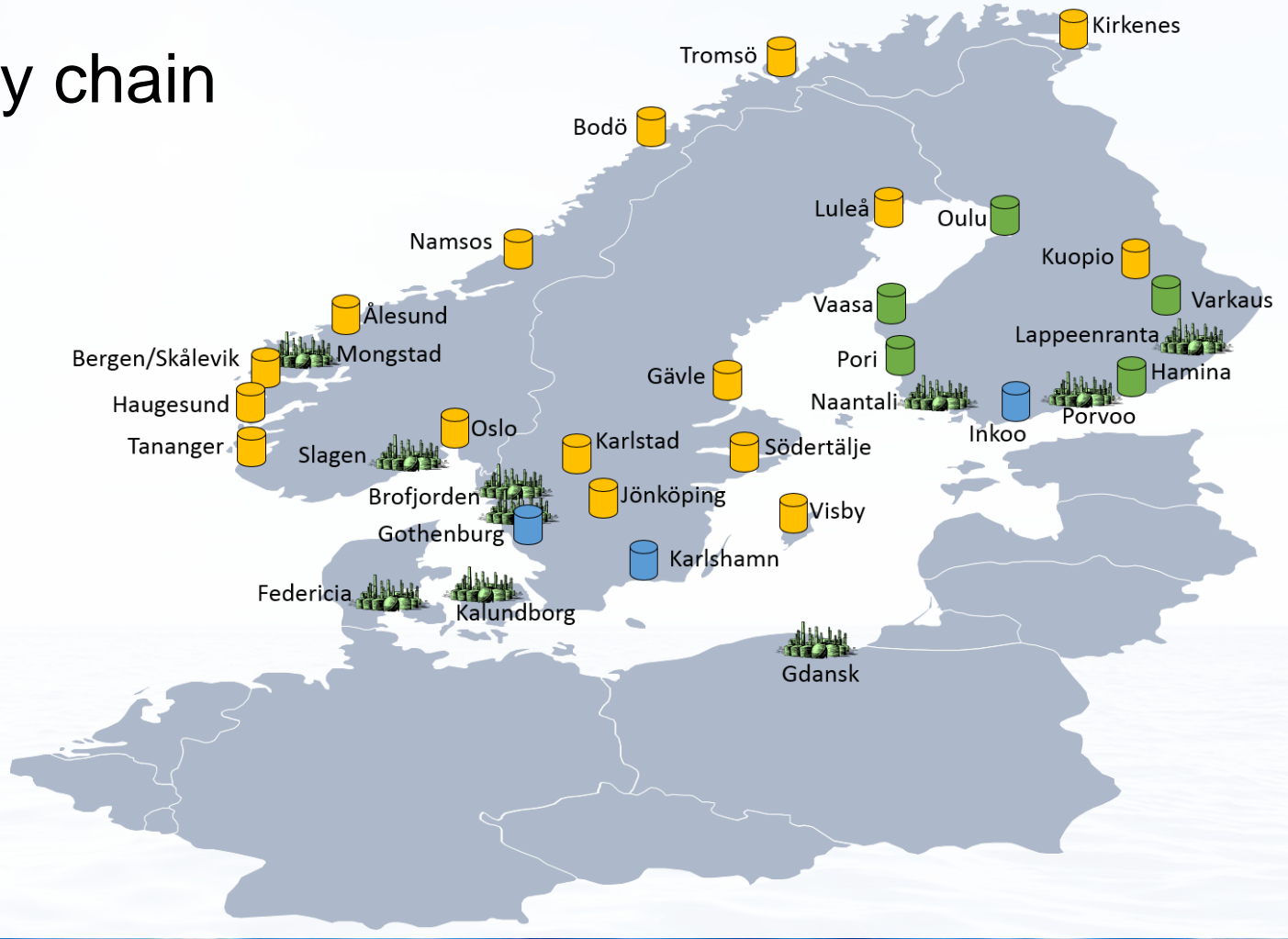
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Outlet

- SOK and St1 have a good station coverage in Finland and St1 also in Sweden
- Guaranteed outlet for almost 5.000.000 cbm via SOK's and St1's retail networks
 - 2.600.000 cbm in Finland
 - 2.300.000 cbm in Sweden
- In Finland NEOT delivers fuels to the stations and private households
- In Sweden NEOT delivers fuels to the oil terminals and St1 takes care of the inland logistic



Supply chain



Supply Chain emissions



0-83,8

0,9 – 1,4

0,02 – 0,03

0,3 – 0,45

- All values are averages throughout the supply chain
- Upstream can be anything between 0-83,8 (reference value for fossil)
- Shipping emissions are approximately 3 x bigger than distribution
- Storage emissions are practically irrelevant in this calculation.

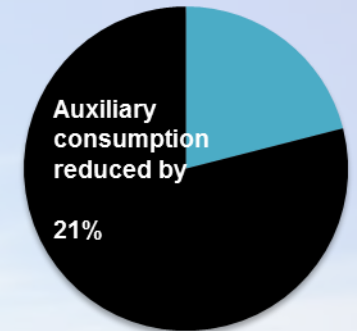
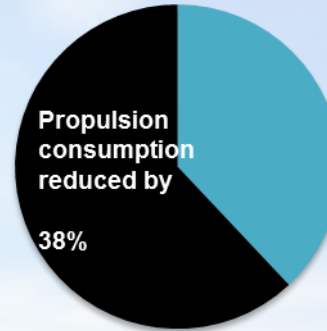
Improvements

- Energy efficiency in both Shipping and Road Transport
 - Best Ships we have now 0,3-0,5 g CO₂/MJ
- Biofuels can reduce significant amounts of Road Transport emissions
- Alternative fuels in shipping

Environmentally friendly and energy efficient

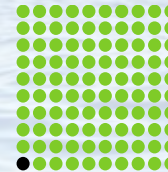


ENERGY EFFICIENCY

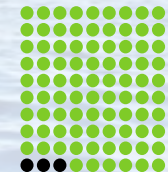


EMISSION REDUCTION

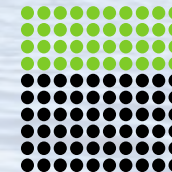
99% LESS
SO_x



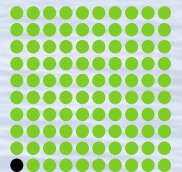
97% LESS
NO_x



40% LESS
CO₂



99% LESS
PARTICLES



Compared to a conventional vessel with same size built around 2005, operational speed 14 knots.



Policy

UN Global Compact: ACCENTURE CEO Study on Sustainability:

“..business leaders are beginning to express doubts over the potential for greater scale and speed without active government intervention.”

“83% of CEOs see an increase in efforts by governments and policymakers to provide an enabling environment for the private sector as integral to advancing sustainability.”

“Some 85% of CEOs demand clearer policy and market signals to support green growth.”

www.accenture.com/ungcstudy

Regulatory Framework 2030

European Commission

- **Reducing greenhouse gas emissions by at least 40% (ref. 1990)**
 - 43 % Reduction from ETS sector
 - **30% Reduction from non-ETS compared to 2005 level**
- => EC impact assessment (22/01/2014 - SWD(2014) 16) calculates that transport should contribute GHG emissions reductions up to 20% by 2030
- Increasing the share of renewable energy to at least 27%
- Increasing energy efficiency by at least 27%

European Council

- Invited EC to *“further examine instruments and measures for a comprehensive and technology neutral approach for the promotion of emissions reduction in transport, for electric transportation and renewable energy sources in transport also after 2020”*

Transport: Emissions and Energy security

DG CLIMA reports that roughly 25% of GHG emissions are derived from Transport within EU

- More than 90% of oil and 66% of natural gas are imported
- The total import bill is more than €1 billion per day.
- Some nations are solely dependent on imports from Russia

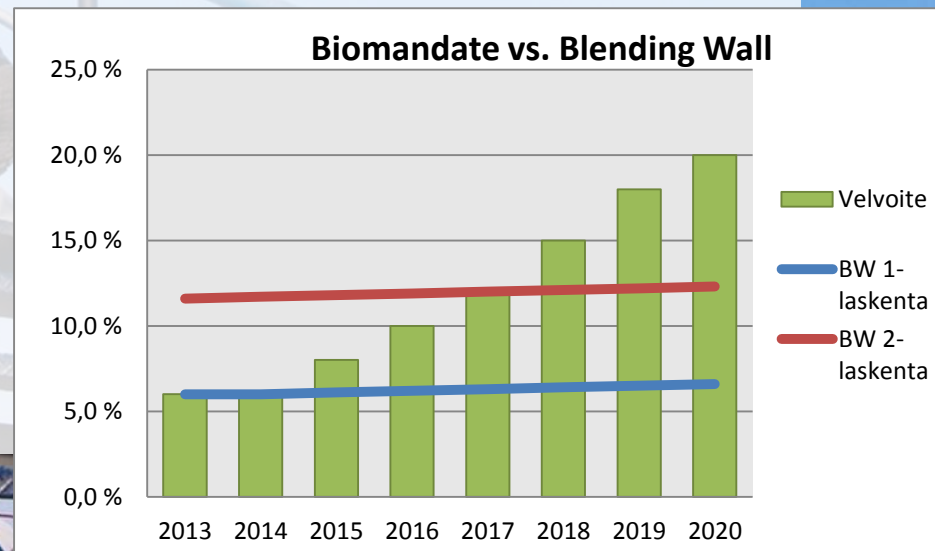
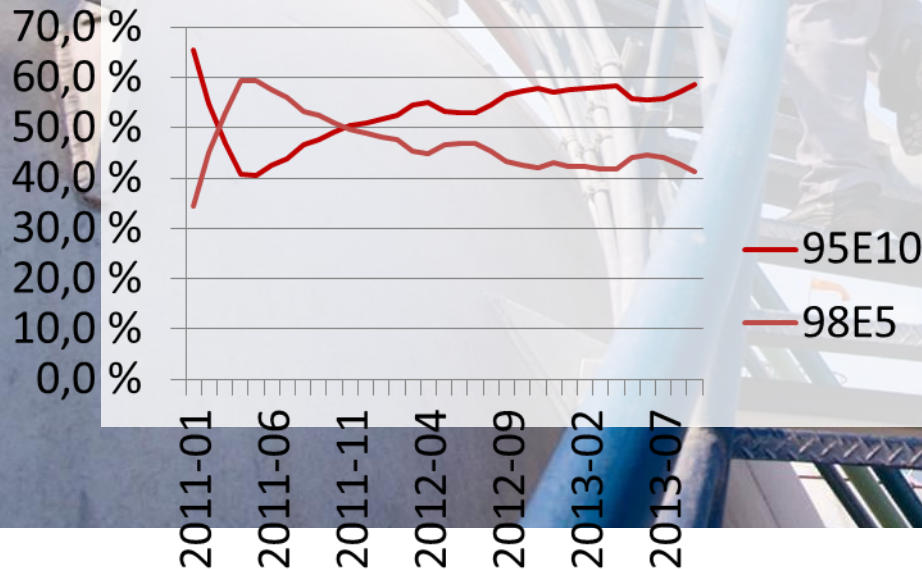
In Finland energy import bill is € 7 billion per annum

- Every liter that is produced locally from local feedstock reduces dependency and reduces imports
- It also generates jobs to rural areas and boosts national economy.

Biofuels mandate in Finland

RED: 20-20-20 by 2020

- High Mandate, 20% by 2020, fine 4 snt/MJ
- Generated investments to Finland, focus in advanced biofuels
- Technology Neutral taxation, Energy & CO2 tax
 - Includes all blending components with true energy and CO2 value
- Industry working together, E10 as main grade



Transport CO2 reduction in Finland

- MINTC targets 2 000 000 t CO2 reduction in transport from biofuels by 2020
 - 2011: 13,2 milj. t CO2 ekv
 - 2020: 11,2 milj. t CO2 ekv (-15% from 2005)
 - 2030: 8,4 milj. t CO2 ekv

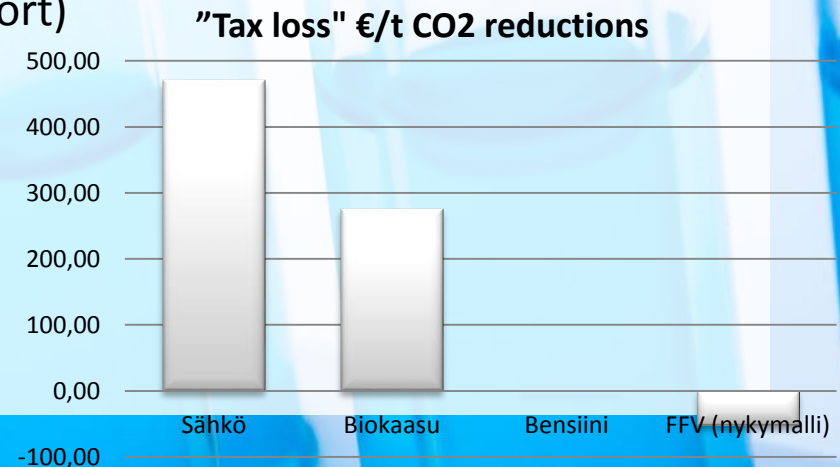
NEOT supplied over 80 M liters of biofuels to the market in 2014

- 65% out of these biofuels were from wastes, residues and cellulosic materials
- CO2 Reduction 130 000 t CO2 ekv =
 - 55 000 personal cars emissions (20 000 km/a)
 - 13 000 Finns carbon footprint

Going Beyond 2020

- ILUC will be addressed, 1G biofuels will be capped
- Alternative energies remain to be too expensive to be widely adopted, although already heavily subsidized
- Advanced/2G biofuels will be the ready to go economically viable option in short & medium term.
- Is there enough feedstock?

“Europeans generate around 900 M tonnes of waste paper, food, wood and plant material each year” (Wasted report)





Le décollage industriel de la G2 est en cours

Capacités construites ou en construction > 10 000 t/an



Well-to-Wheels CO₂ emissions

30 g CO₂/km

$$20 \text{ g CO}_2/\text{MJ} * 1,5 \text{ MJ}/\text{km} + (110 - 110) \text{ g CO}_2/\text{km} = 30 \text{ g CO}_2/\text{km}$$

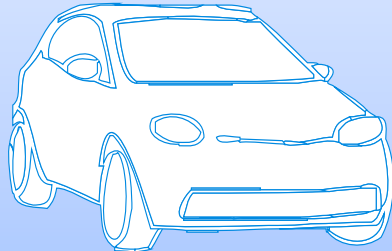
150 g CO₂/km

$$1000 \text{ g CO}_2/\text{kWh} * 0,15 \text{ kWh}/\text{km} = 150 \text{ g CO}_2/\text{km}$$

Appraisal in e.g. taxation

Tailpipe CO₂

110 g CO₂/km

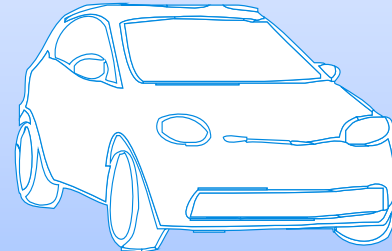


Energy consumption

1,5 MJ/km

Recirculated Carbon

0 g CO₂/km



0.15 kWh/km



20 g CO₂/MJ



1000 g CO₂/kWh

*VTT: Nylund 2014

Fuel / energy production



What Can be done then?

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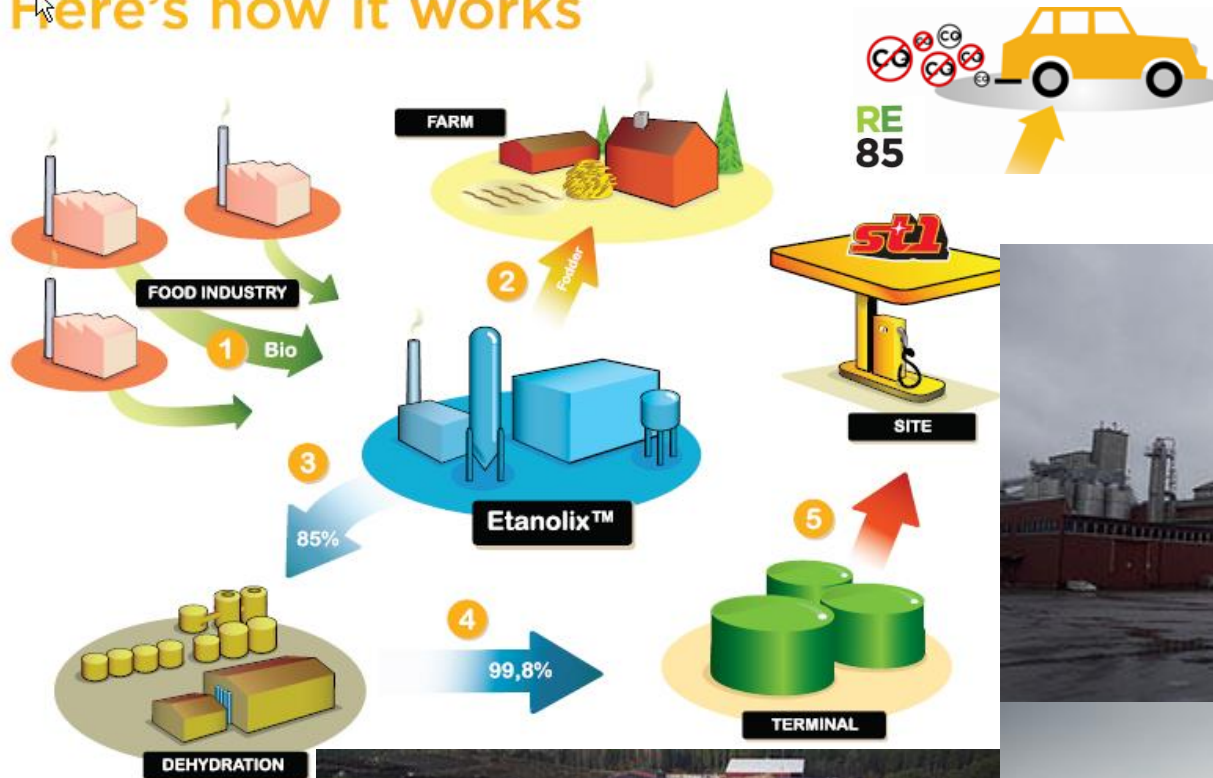
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St1 Ethanol production: Integrated production plants

Here's how it works



Etanolix® Göteborg – integration to an Oil Refinery



Production capacity

- Ethanol (as per 100% ETOH) 5.000 m³/a

Feedstock

- Industrial bakery waste / industrial process residue
- Packed and unpacked out dated waste bread from shops and markets
- Approx 20.000 tn/a feedstock is required (bread)

Products

- Anhydrous fuel grade ethanol
- Liquid animal feed for pig farms / feed for biogas plant (AD)

Time Line

- Production starts early 2015

Etanolix 2.0 LIFE+ project

Etanolix® concept further development & demonstration:

- New raw material handling.
- unique way of integrating the ethanol plant in a conventional refinery:
 - direct ethanol blending to vehicle fuels and in an effective way distribution to the consumers
 - utilize excess energy, cooling systems and wastewater treatment plant
- Refinery personnel's expertise and experience for safe and optimal operation.

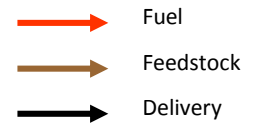
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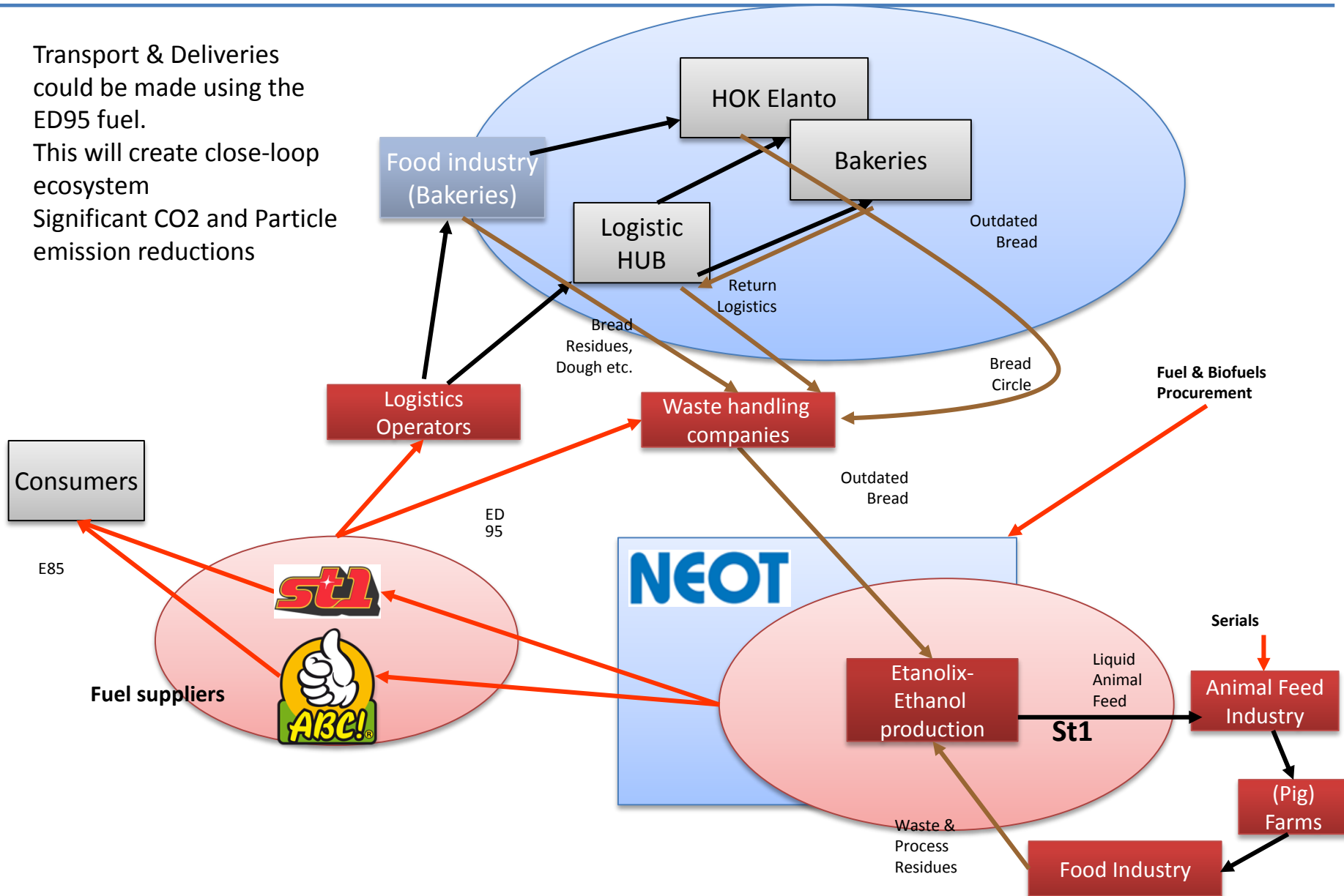


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IDEA: 2gen ethanol production eco-system



- Transport & Deliveries could be made using the ED95 fuel.
- This will create close-loop ecosystem
- Significant CO2 and Particle emission reductions



Cellunolix® Kajaani – integration to Sawmill & Power Plant

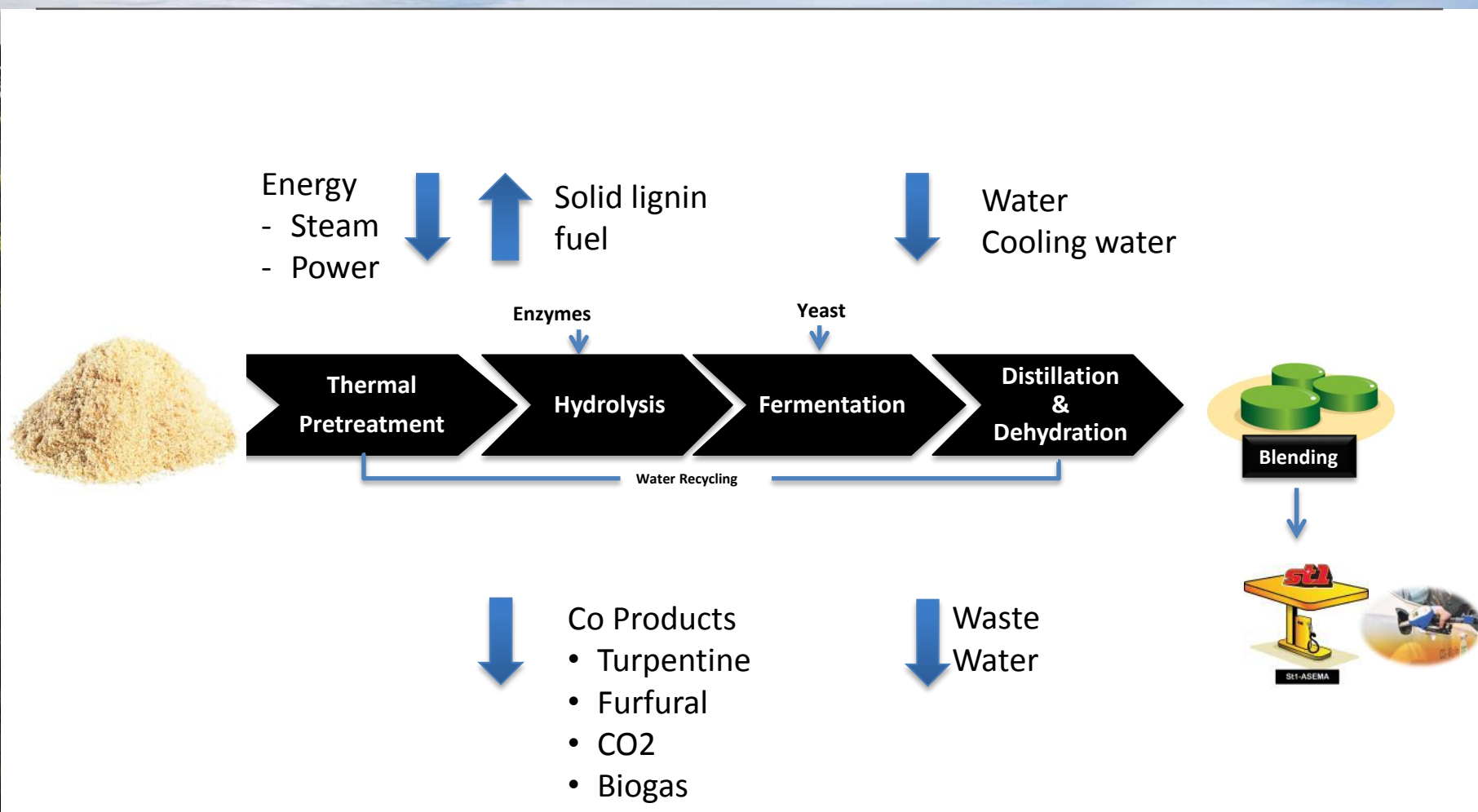


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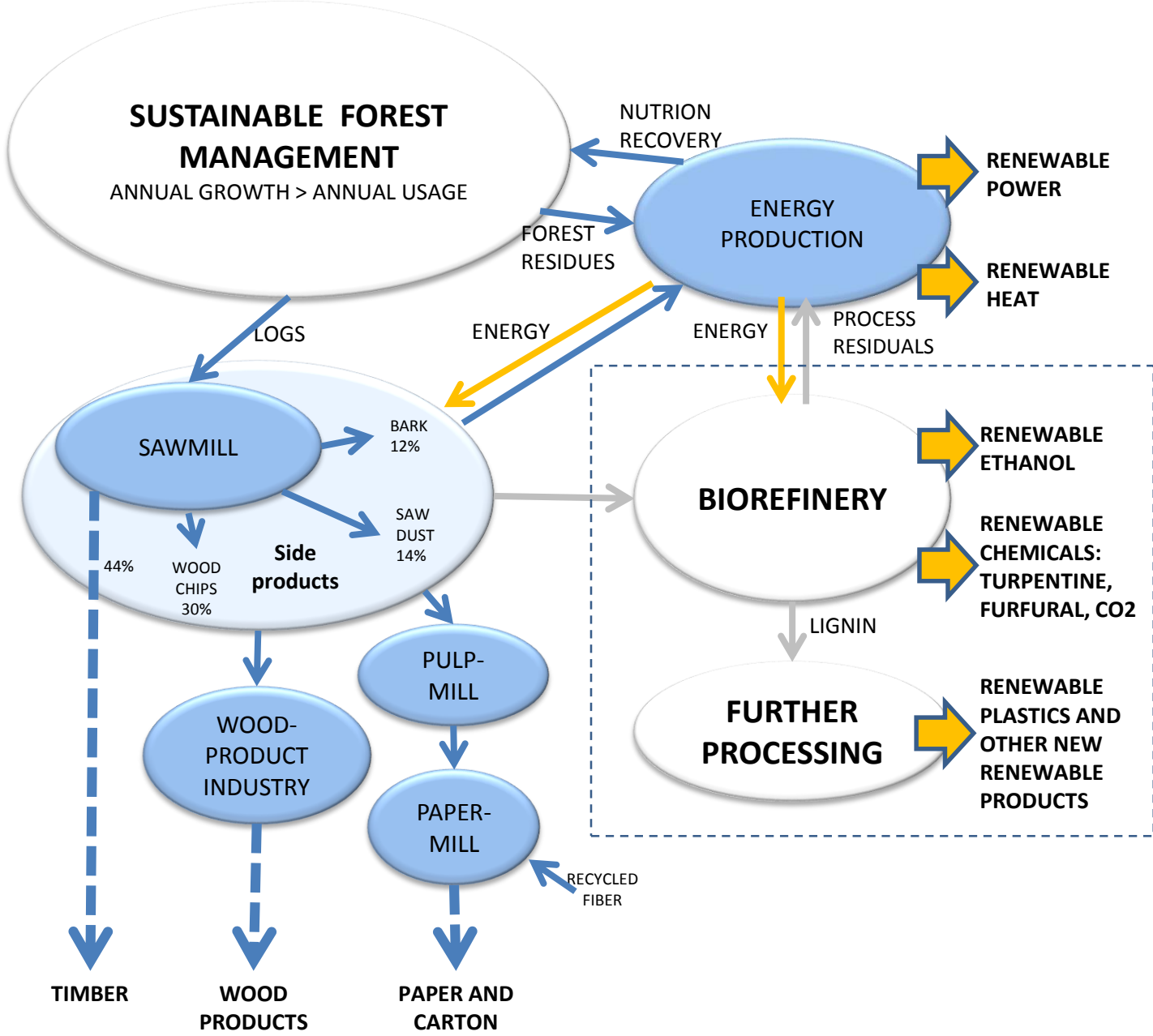
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Cellunolix® - Ethanol from sawdust



RENEWABLE PRODUCTS FROM SAWMILL BIOREFINERY



Summary

- Legislation is the key
 - Technology neutral GHG performance driven target
 - Well-to-wheel approach
 - Financial instruments
 - Sustainability
 - Predictable business environment
- Technologies that can provide the needed GHG reductions are available today
- It is essential to be able to find integrated win-win solutions
- Feedstock is plentiful, it just is different in different locations