

Sustainable Advanced Biofuels and more – St1 Biorefinery

Building a sustainable European biofuel industry
Gothenburg Nov 4th 2019

St1 Oy
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St1 vision: "To be the leading producer and seller of CO₂-aware energy"

Our goal is to

- Develop and commercialize functional and environmentally sustainable solutions
- Deliver these solutions profitably

Each solution must be

- Technically ready for use today
- Ecologically and ethically sustainable
- Logistically feasible

$$E = St^1$$

St1 home market

ST1

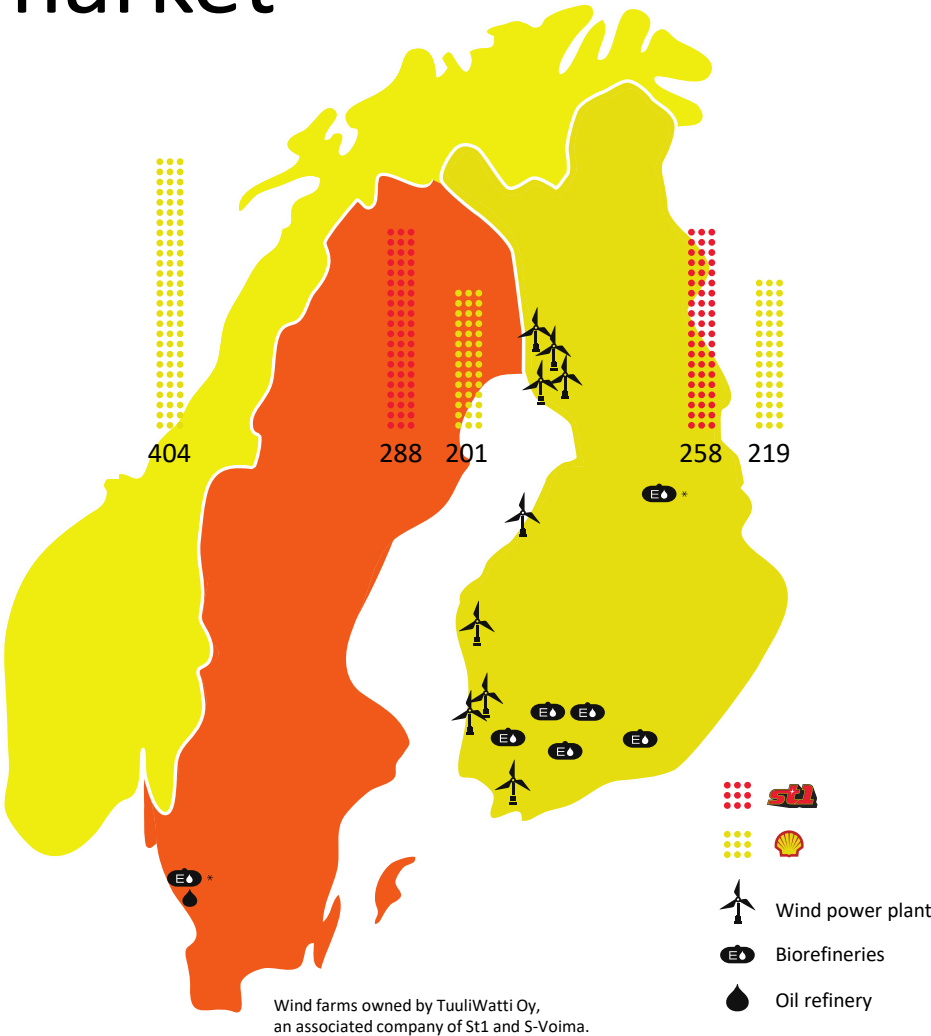
Home market consists of Finland, Sweden and Norway.
Headquarters in Helsinki.
Employs more than 770 people.
Operations are strengthened by strategic long-term partnerships in various areas.

STATION NETWORK

Total of ca. 1300 St1- and Shell-sites in Finland, Sweden and in Norway.

ENERGY PRODUCTION

Biorefineries producing waste-based advanced ethanol. Industrial wind power plants. Geothermal pilot heat plant under construction. Oil refinery in Sweden.



MARKET SHARES 2018

FINLAND

Petrol	23%
Diesel	19%
Light fuel oil	21%

SWEDEN

Petrol	19%
Diesel	15%
Light fuel oil	22%

NORWAY

Petrol	23%
Diesel	20%
Marine gas oil	22%

KEY FIGURES 2018

Net Sales, MEUR

6,885

Profit for the period, MEUR

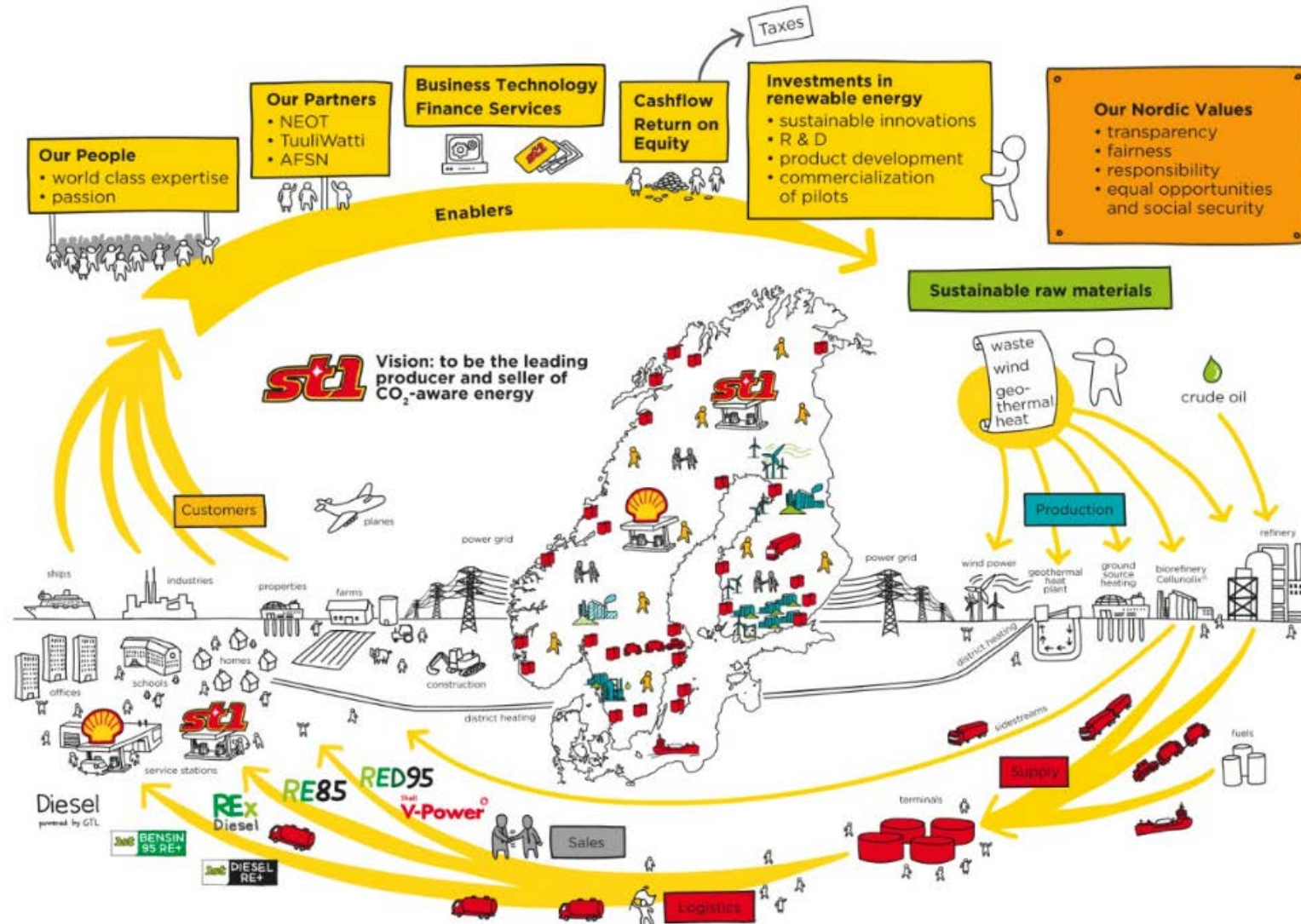
55.3

Return on Equity, %

7.0



st1 VALUE CHAIN

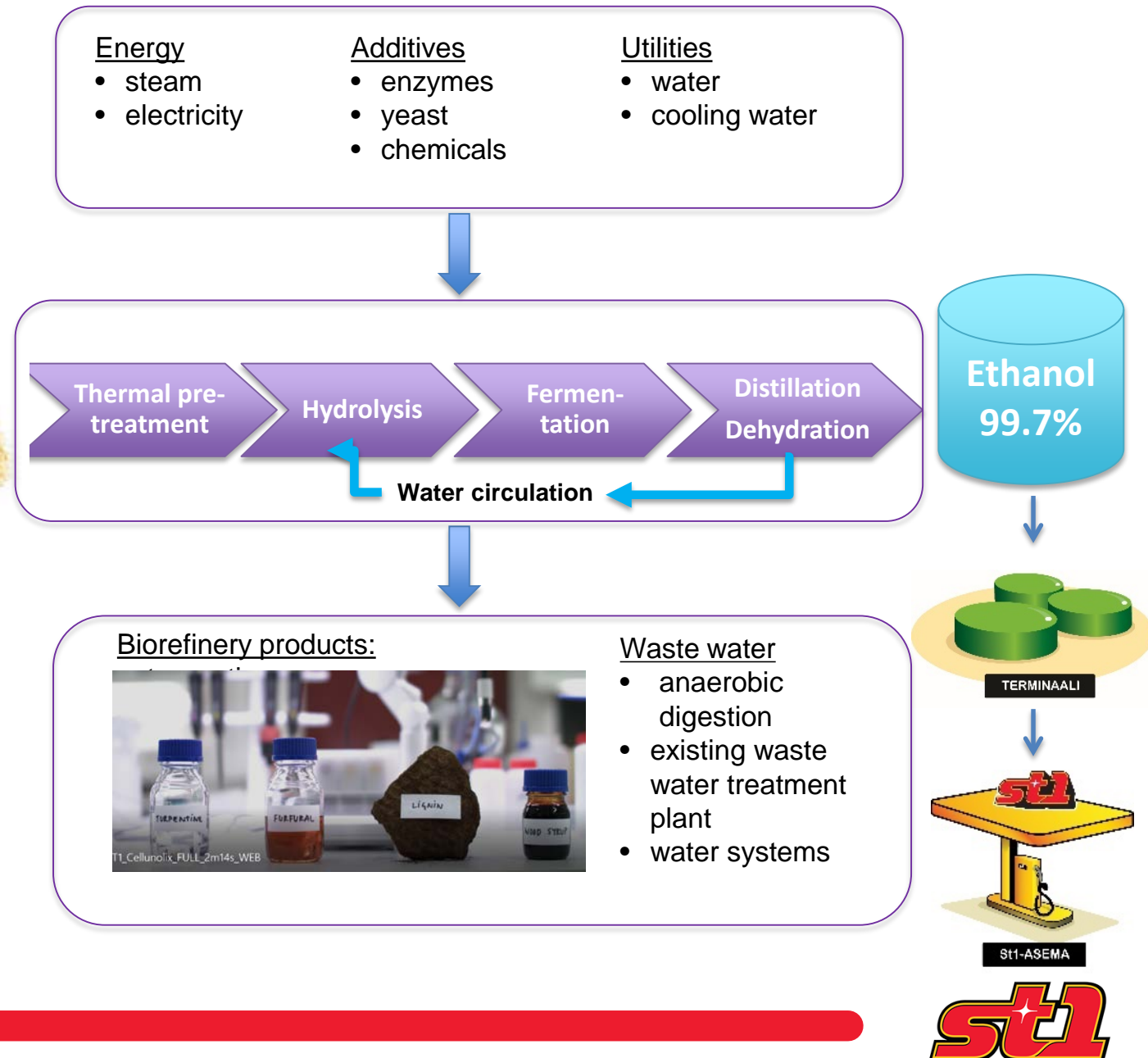


[St1 value chain video](#)

St1 Biorefinery Business Development & Production

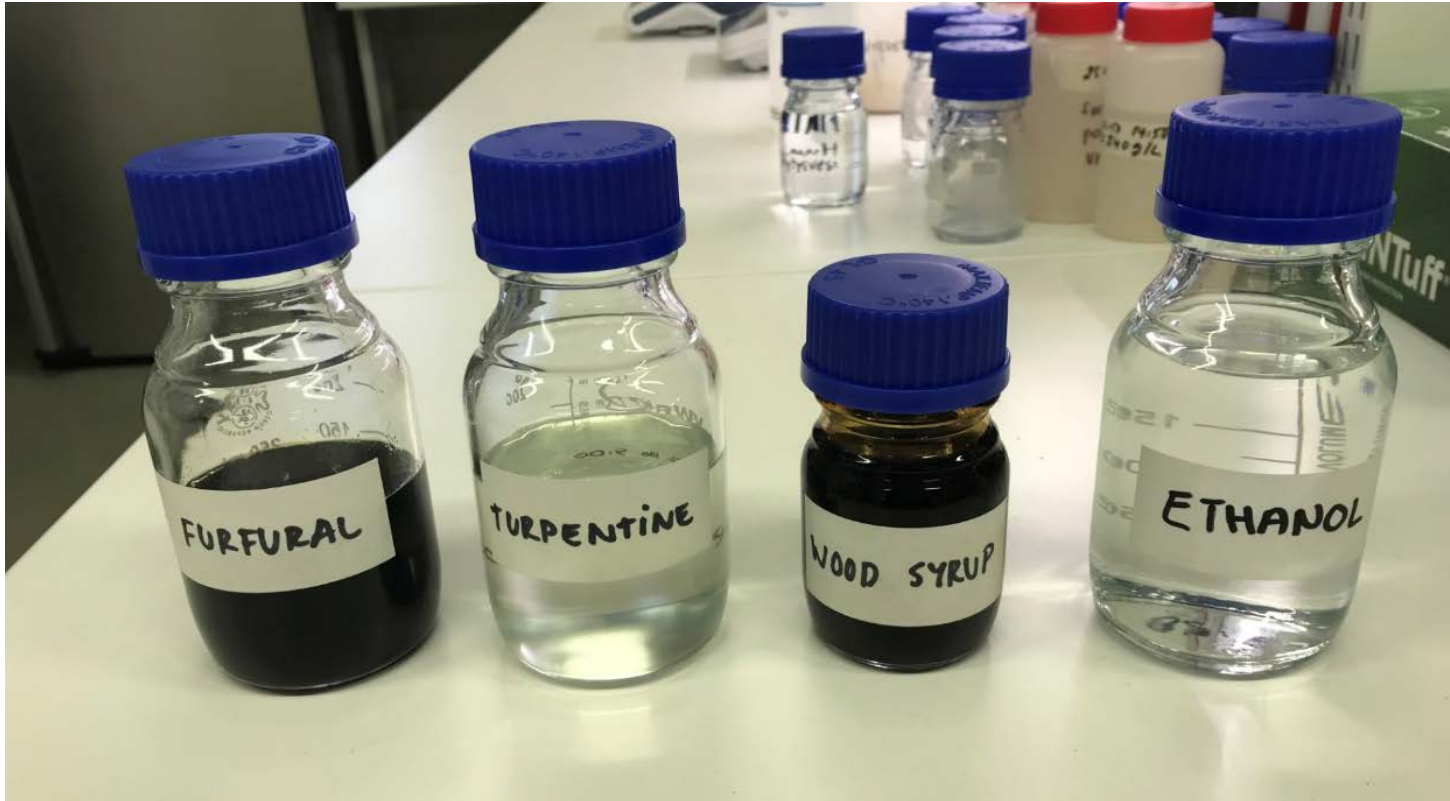


St1 Cellunolix[®] process is optimised for softwood saw dust



Cellunolix® Products

Sustainable & biobased solutions for different uses and applications



St1 Advanced Ethanol Production in Circular Economy

- Over a decade St1 has developed waste based advanced ethanol production concepts for various waste feedstocks.
- Biorefinery concept and technology development is done hands-on from lab to pilot and furthermore to demonstration scale ending up to a commercial replication.
- Current development focus is in
 - new feedstock
 - Process enhancement
 - own enzyme onsite production
 - biorefinery side products to valuable renewable products.
- Development is made in partnership with world class commercial and academic partners.

Waste & process residues sources



Food Industry & Retail



Municipal & Commercial



Wood Industry



Recycling

Feedstock & Sourcing Partners

St1 Biorefinery Solutions



Etanolix®



Bionolix®



Cellunolix®

Technology & Development Partners

Products and co-products

Ethanol

Biogas

Heat & Power

Advanced Biofuels & Renewable Energy

Animal Feed

Soil Improvers

Fertilizers

Agriculture & Nutrient Recovery



Future Products

Off take & Development Partners