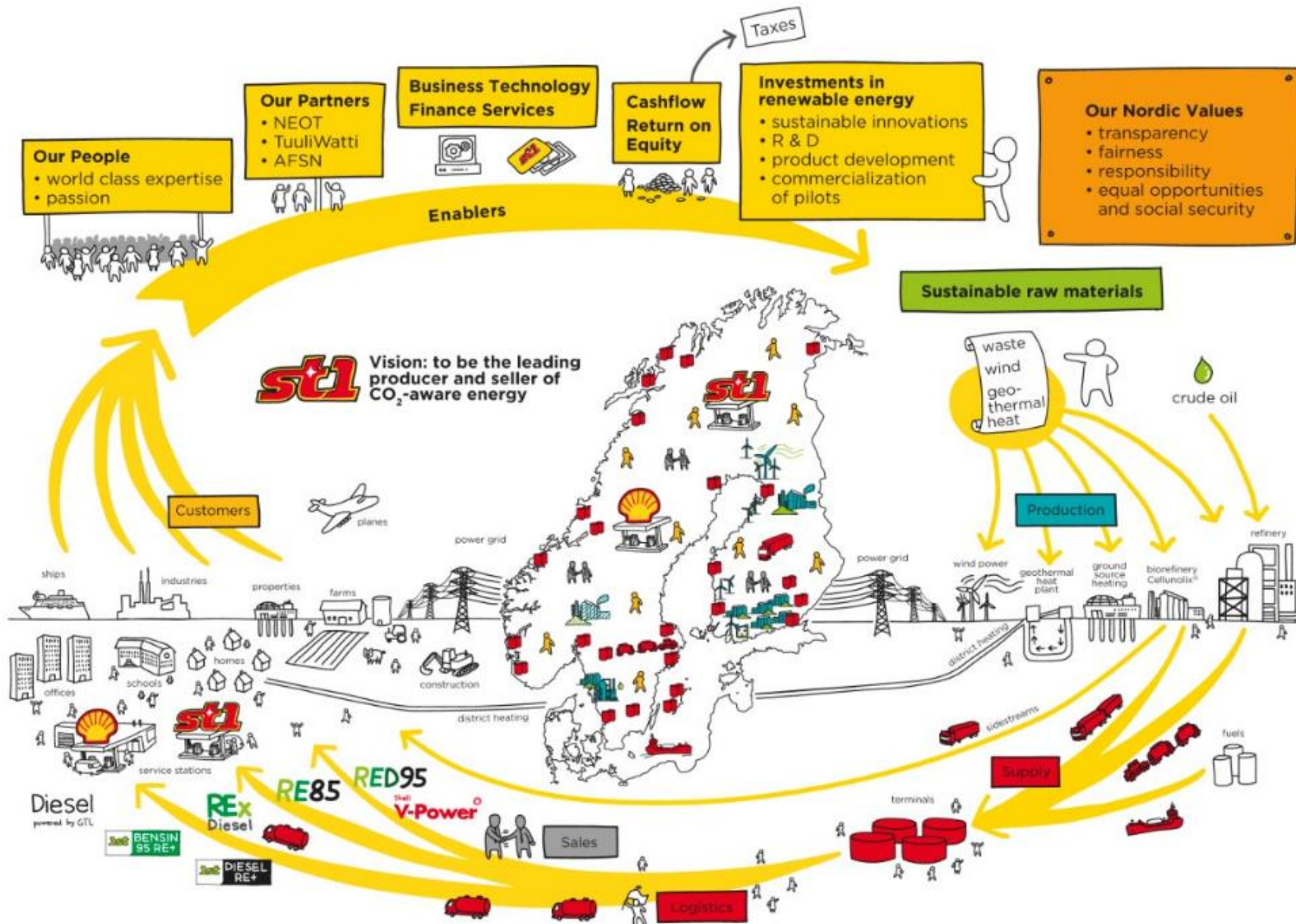




St1 SAF and e-fuels production

Simen Hauland

ST1 VALUE CHAIN



Gothenburg Biorefinery

We have constructed a biorefinery in Gothenburg

- Ramp up underway – Started December 2023
- The design of the biorefinery allows the use of a wide range of feedstocks with a yearly capacity of 200 000 ton
- The unit is capable of meeting the current and future specifications of the renewable fuels to be produced, which include HVO diesel, jet fuel, and naphtha
- Feedstock used cooking oil (Brockelsby UK) and residues from the forest/wood production (SCA)



April 10th 2024 – Official opening



St1 og SCA starter storskala produksjon av fornybart drivstoff i Göteborg

st1.no • 3 min read



Östrand Biorefinery

JV between St1 and SCA:

- Next to Östrand pulp mill
- Sustainable feedstocks and energy available
- Environmental permit received to build a biorefinery at the Östrand pulp mill (up to 300,000 tonnes capacity)
- FID in 2025 and Start up in 2029

2

Solid biomass



Solid biomass



Biorefinery



Advanced biofuels,
biojet



The E-Jet Game Changer

We have a partnership model with Vattenfall with a purpose to produce 1 000 000 m³ of e-fuel:

- 850 000 m³ Sustainable Aviation Fuel (E-Jet) in stepwise approach
- 150 000 m³ e-diesel/naphtha

The e-fuel is produced from:

- Fossil free hydrogen from offshore wind power
- Biogenic carbon dioxide

We are in the final stages of a feasibility study for the first location production unit, to start operation 2029-2030

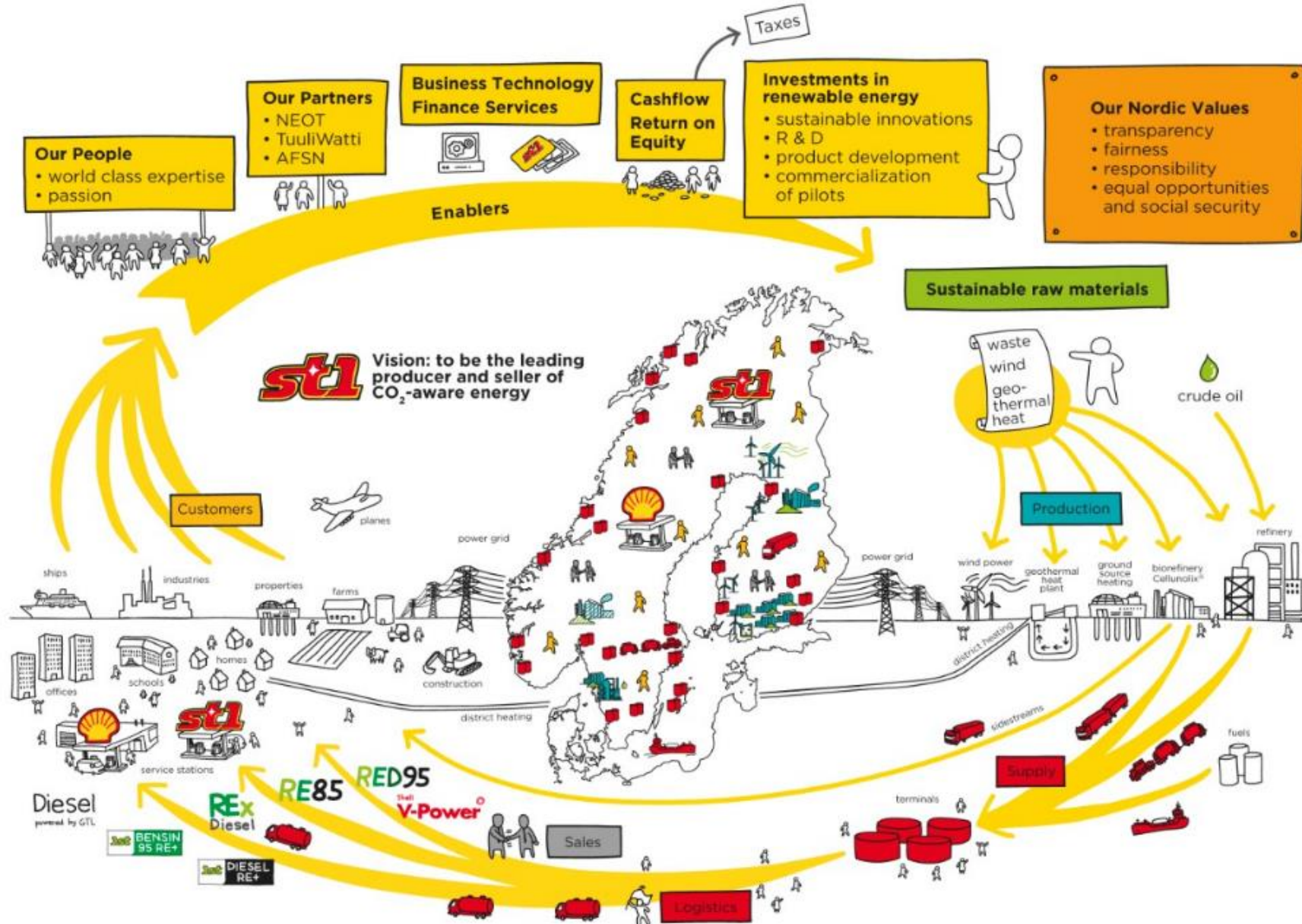




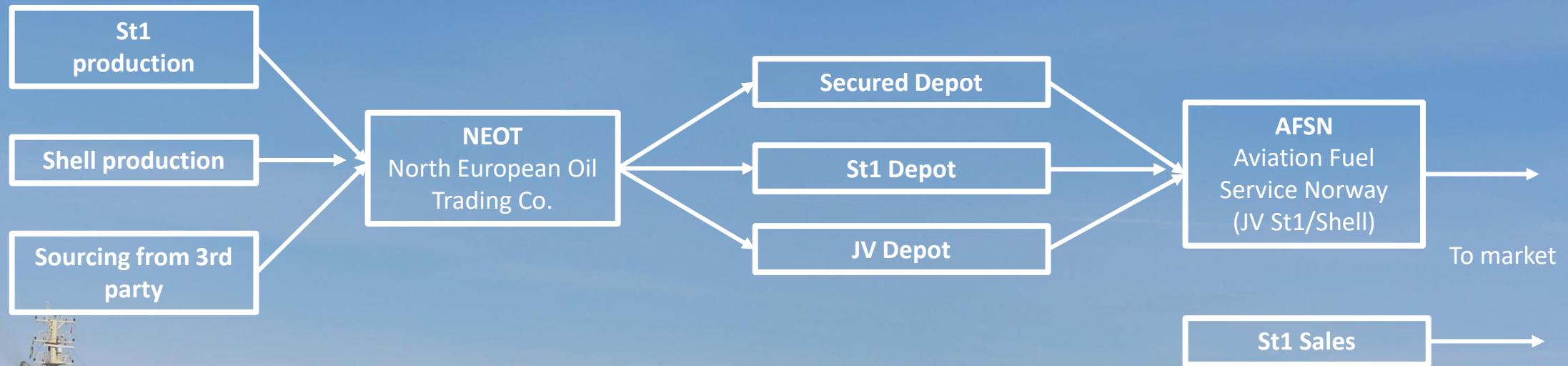
St1 SAF and e-fuels Logistics

Simen Hauland

STI VALUE CHAIN



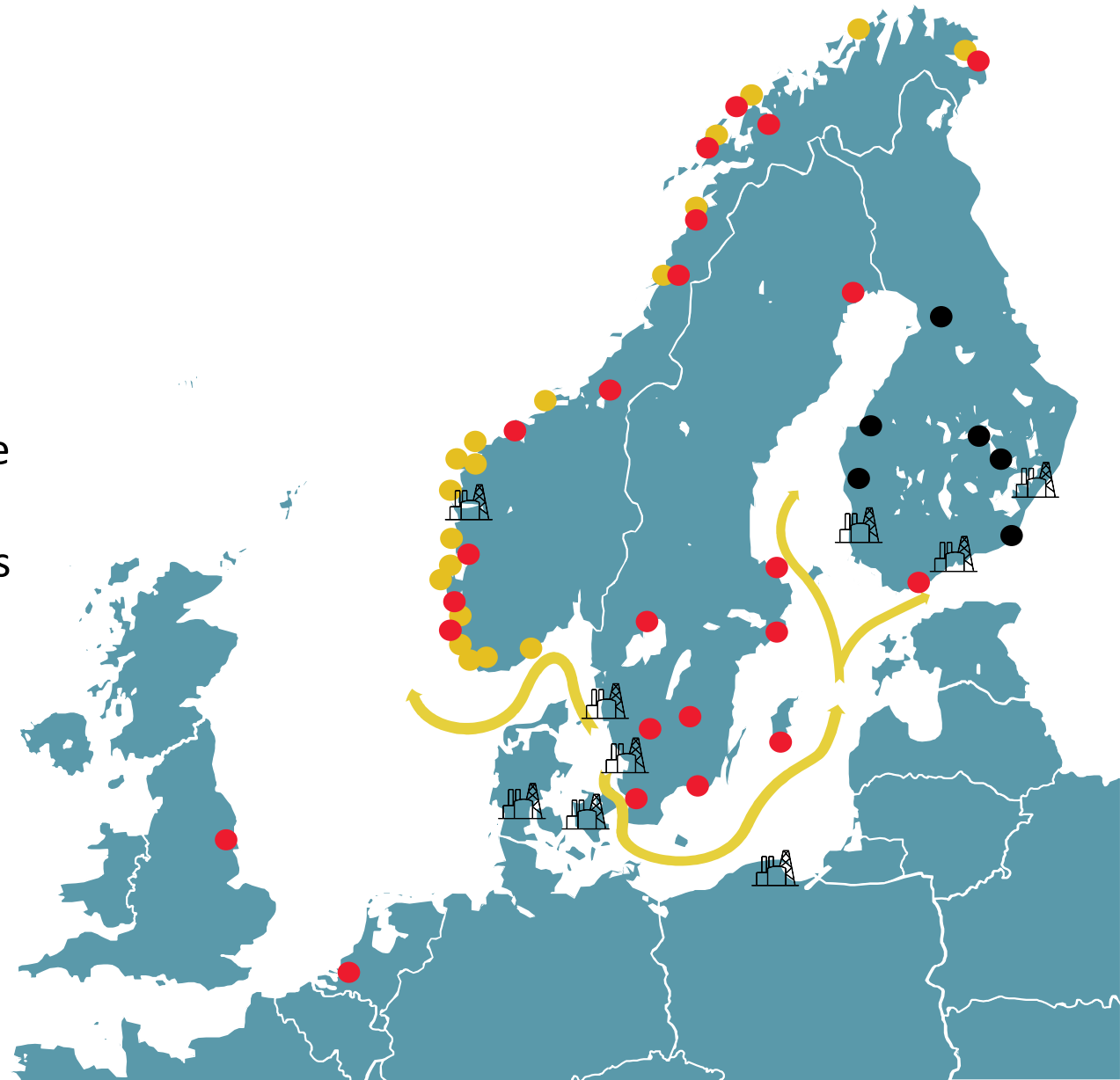
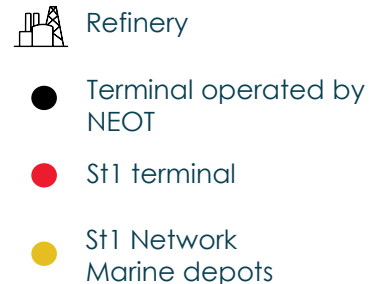
St1 aviation logistics



NEOT is St1 trading company with the responsibility to source all products needed within St1 as well as trading with 3rd parties

Energy Trade and Logistics

- Our associated company NEOT acquires fuels from the global trading markets
 - St1 Gothenburg refinery is the most important source of supply
- Together with NEOT, we have a comprehensive logistics chain in all our operating countries, consisting of terminals for storing the products and a wide transport network

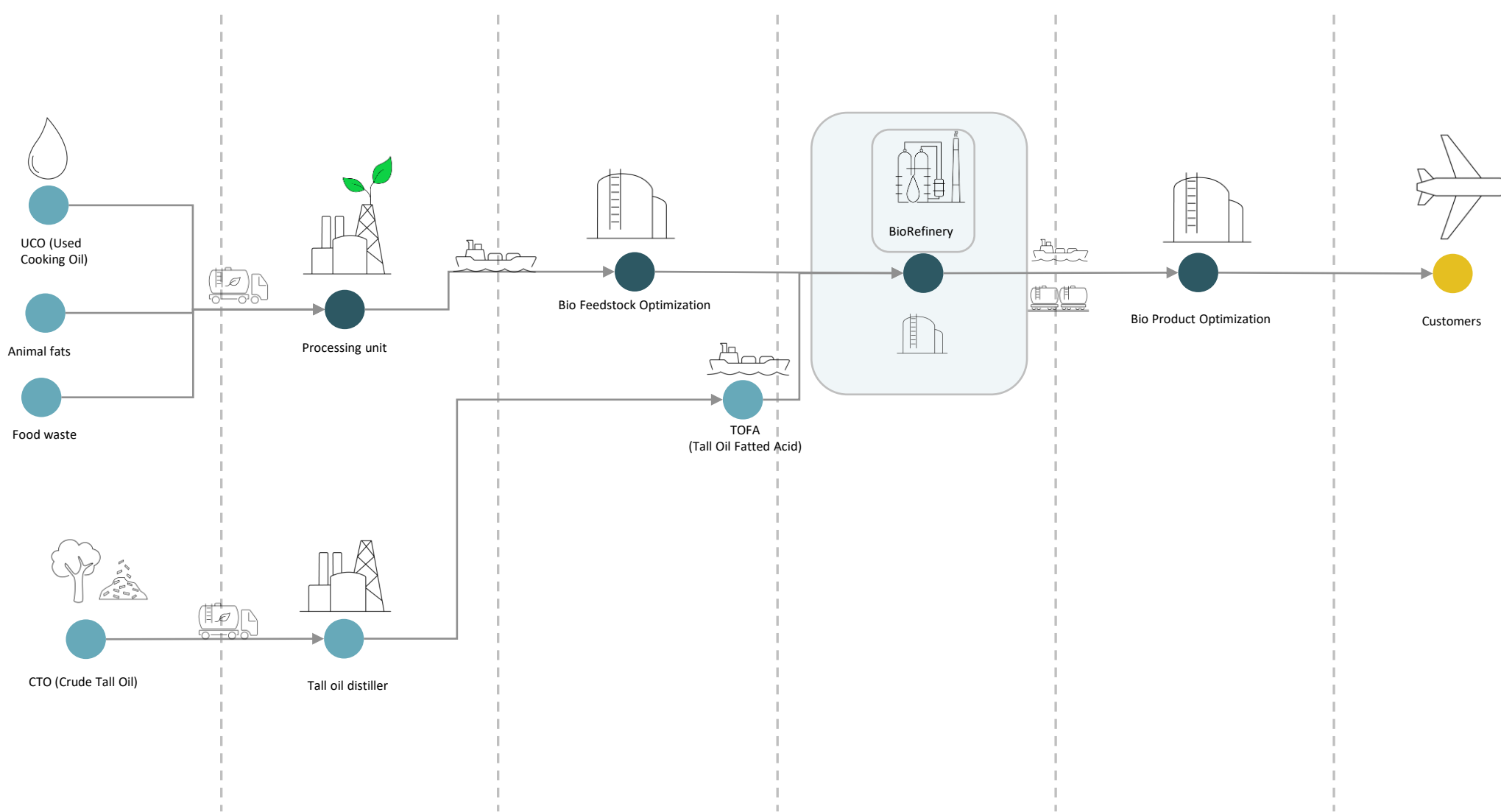




Certification and quality control



- Well to Tank (LCA)
- GHG
- Sustainability certification (eg. ISCC)
- Product quality / Specifications / certification (ASTM, EU standards)



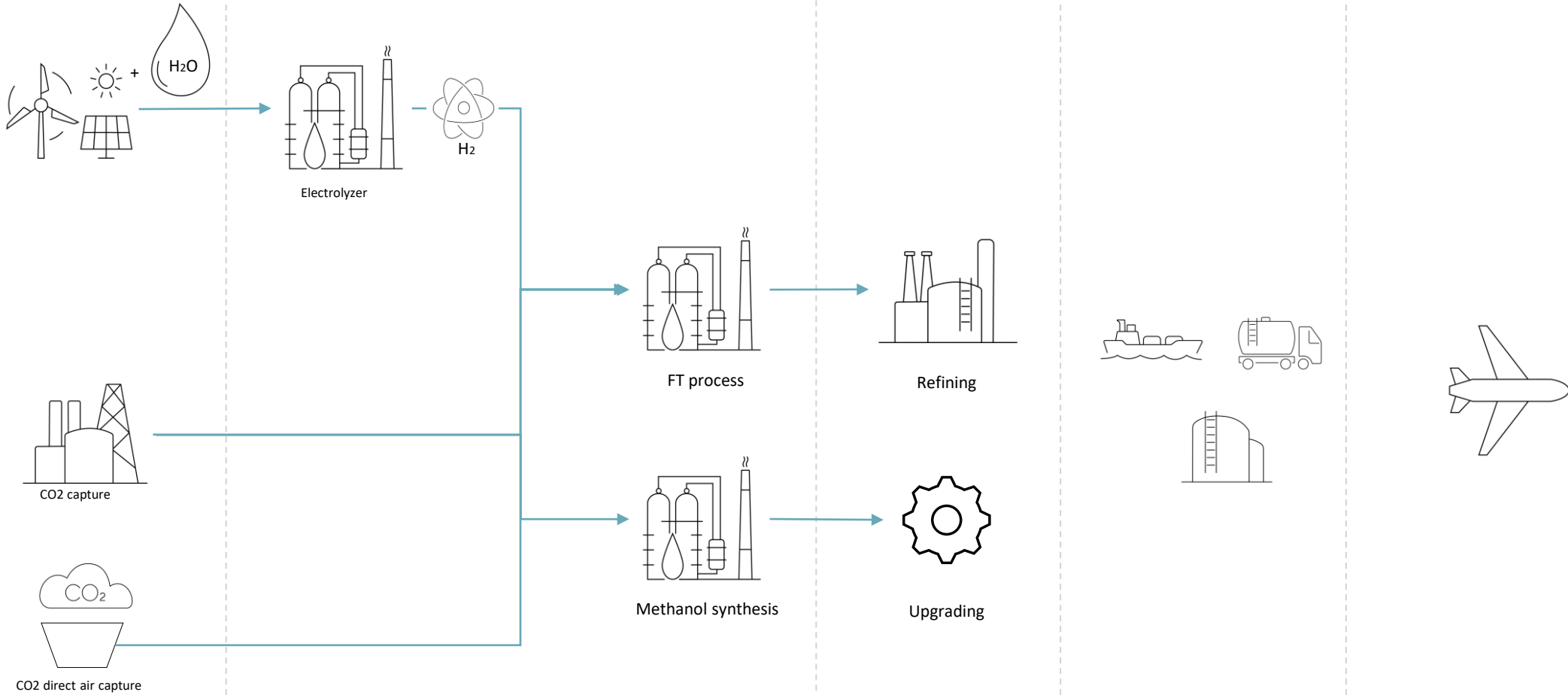
Feedstock

Processing

Refining

Storage and logistics

Sales and use





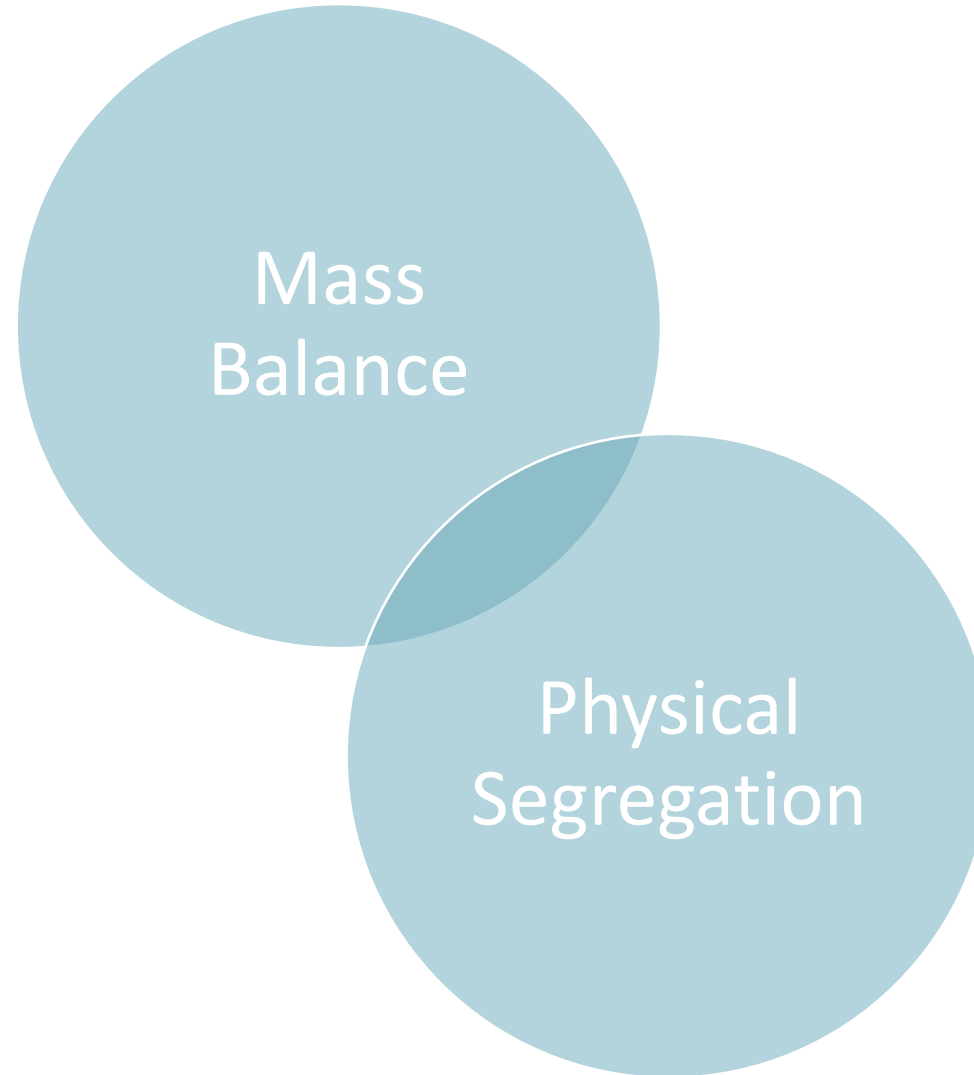
Mass
Balance

Physical
Segregation

Controlled
Blending

**How to deliver product
to customer?**

- Not guaranteed physical product
- Simplified logistics
- Segregated certification



Mass
Balance

Physical
Segregation

- Additional infrastructure
- Costly logistics
- Individual logistics
- Clear certification

Assessed changes to the product regulation



The Norwegian Environment Agency (NEA) are considering multiple changes to the product regulation in Norway – Reduce flexibility, increased risk and cost for the registered entities

- Gradual move from a mass balance system to physical product
- Bio in all locations?
- No transfer of bio from a year to another?
- Bio reconciliation at tank level rather than terminal level.
- From yearly to monthly reporting of bio mandate.
- Considering expiry date of 1 year for bio certificates
- How will this affect e-Fuels?

When things go wrong

AVINOR TROMSØ FLY

Fører til forsinkelser: Mangler godkjent flydrivstoff i Tromsø

Av Eskill Mehren

Publisert: 03.03.24 12:49

Del

– Har aldri opplevd dette før, svarer lufthavnsjefen.

«Hendelse under transport»

Kommunikasjonssjef Lillian Aasheim i St1 Norge, forklarer at de har fuel på depotet på Skjelnan, men at man ikke har fått godkjent dette.

– Vi har flere sjekkpunkter. Jetfuel som er på depotet på Skjelnan må resertifiseres. Det er tatt prøve, men det er en forsinket prøve fordi det har skjedd en hendelse under transport. Prøven skulle vært fremme på laboratoriet, men nå har vi fått beskjed om at den kommer frem på mandag, svarer Aasheim.

- Vulnerable supply chain have big repercussions.
- Errors can be more than severe accidents.



St1 is open towards co-operation with producers, sellers and users of SAF

Contact us for further discussions

Thank you