NISA
Nordic Initiative for Sustainable Aviation

”Nordic cooperation on aviation biofuels”
NER Seminar/Oslo Sep 1, 2016

Martin Porsgaard

www.cleancluster.dk/nisa
The aviation industry has so far been involved in many different activities regarding emission reductions.

Biofuel for aviation has been in focus for SAS and Finnair for several years.

On the global scene IATA and ATAG has initiated a lot of activities over the last 7-8 years.

In Norway, Avinor has together with AirBP, Lufthansa Group, KLM and SAS made Oslo Airport into the world’s first hub to offer jet biofuel to all airlines on a commercial basis.

Finnair and SAS have carried out several commercial flights using biofuel.

Swedavia has established an offset model where a premium price goes directly to the use of biofuel.

Finavia is working with other relevant parties in Finland to find a model that can strengthen an interest in the production and use of biofuel.

Copenhagen Airports are involved in a feasibility study converting waste streams to new fuels.

Establishment of NISA to coordinates activities, projects, reports and initiating the Nordic Report. - A nonprofit organization, representing the whole sector
• The Nordic Study and after:

• Mapping of opportunities: Feedstocks, materials, residuals, methodes, co-production, cross cuttings, existing and new producers etc

• Identification of the complexity in choices and decisions: Sustainability criteria, Calculations, GHG and CO2 emissions, accessibility, pricing etc

• Identification of ownership: Customer-supplier-relationship, partners and collaboration, political landscape, priority and competition, investor aspects

• Barriers, difficulties and resistance (also passive): Complexity, lack of prioritization and decisions, lack of policy

• Recommendations etc: How to proceed, Identify partners, Tendering process, Feasibility Studies, potential solutions national, Nordic, EU, Global....

• Constellations for specific / closer cooperation: National, Nordic funding/ new applications, EU participants, NGO’s etc, - FlyGreenFund (FGF)

• Nordic Pilot Projects: 1, 2, 3......
A complete Nordic sustainable jet fuel supply chain

• will be highly complex

• consist of many different actors and stakeholders in addition to facing technological-, economic-, sustainability- and political challenges

• addressing the challenges could be the forming of partnerships or/and strong agreements and contracts
  – Private / public
  – Stakeholders across the different components of the supply chain
  – Stakeholders across companies, countries, institutions etc
Recommendations:

• The report contains a number of relevant recommendations.

• Aimed at policy makers, refineries, producers, suppliers and developers, investors and others. We see it as an important call for swift response and broad involvement.

• The overarching recommendation is that we all see the report as an instrument to take further steps!
What the next steps could be, - in a Nordic view:

• Policies and decisions to kick start long sighted development in the Nordic countries

• The market is there for using a new jetfuel in each of the Nordic countries, - but limited in order to produce it, - much stronger position on a Nordic and EU level

• We suggest a specific targeted study focused on possible constellations and collaborations

• Crucial to promote cross-border cooperation, both between public knowledge institutions and private businesses, - and between countries

• Creating a “Nordic Panel for sustainable Aviation”

• Nordic Council of Ministers/Nordic Energy Research to play an important role

• Strong pressure on fuel suppliers to deliver sustainable fuel for aviation

• Possible to develop a Nordic innovation tender process in collaboration with relevant parties?
Overall:

- There is an explicit need for stronger political and economic initiation, cooperation and coordination

- Sustainable jetfuel (sustainable future for aviation) is a serious issue for society, jobs, cleantech etc

- Important to engage and facilitate the public interest in the industry's efforts to develop a sustainable future for aviation, - the establishment of FGF etc

- Sustainable jetfuel should become part of National Energy Plans and coordinated on Nordic level

- Partnerships to coordinate a stronger development to create access to the most efficient pathways

- Coordinate and cooperate with international initiatives and with NGO’s
Emerging technologies

- Lanzatech - developing a technology for converting industrial waste gases into high value chemicals and ethanol by fermentation/chemical conversion into jet fuel

- Solazyme microalgae feedstock, world’s first 100% algae-derived jet fuel. Produced from algae oil by fermentation + UOP HEFA process technology

- Joule Unlimited produced both diesel and jet fuel - sunlight and concentrated CO₂ source to drive hydrocarbon production by photosynthesis in microbial organisms

- SOLAR-JET and German Sunfire, - Power to Liquid by capture CO₂ and convert into syngas – Electro fuels

- SWESTEP: Catalytic Pressureless Depolymerisation (CPD) multiple feedstocks

- SynSel: Catalytic pyrolysis - lignocellulosic feedstock

- Cumulus Bio: Develops advanced bio- and renewable hydrocarbon products

- Hydrothermal liquefaction (HtL) wet biomass processed in a medium-temperature, high-pressure thermochemical reaction to produce a bio-crude.
A subject with many names:

*Renewable Fuels*

*Renewable Jetfuel*

*Alternative Aviation Fuels*

*Sustainable Aviation Fuels*

*Sustainable Jetfuel*

*Biofuel*

*Biokerosen*

*Sustainable Alternative Aviation Fuels*

*Advanced sustainable jet fuel for aviation*
As an industry, we should now, in the light of the report and based on the experience we have done, finding ways as soon as possible to create sustainable solutions

The need is there, the market is there - and the possibilities are there!