

Market opportunities for Advanced biofuels & Integrated Hydrothermal Liquefaction (IHTL)

March 6th Final workshop

Adéola Jaiyeola, LGI Sustainable Innovation



This project has received funding from the European Union Grant Number 884111

Agenda

1. Market opportunities for advanced biofuels
2. Market opportunities for Integrated Hydrothermal Liquefaction (IHTL)
3. Opportunities beyond BL2F



This project has received funding from the European Union Gr



**Market opportunities
for advanced biofuels for
aviation and shipping**

Methodology

Selected countries

User segments	Countries analysed
Biofuels end-buyers	<ul style="list-style-type: none"> • Denmark • Finland • Norway • Sweden • United Kingdom
Users of the IHTL process	<ul style="list-style-type: none"> • Finland • France • Portugal • Sweden

Definition of market indicators

BL2F Value Chain

IHTL → Drop-in Biofuels

User segment: Pulp industry | End users (Aviation, Shipping)

Policies targeting biofuels	X	X
Society perception on climate change	X	X
Growth of biofuel consumption	X	
Share of biofuels in transport energy consumption	X	
Number of pulp mills	X	
Total pulp production	X	
Number of refineries		
Biofuel management infrastructure		X
Fiscal policies on competing products		X
Aviation traffic growth		X
Shipping traffic growth		X
Aviation traffic size		X
Shipping traffic size		X
Economic stability		X
Demographic Growth		X

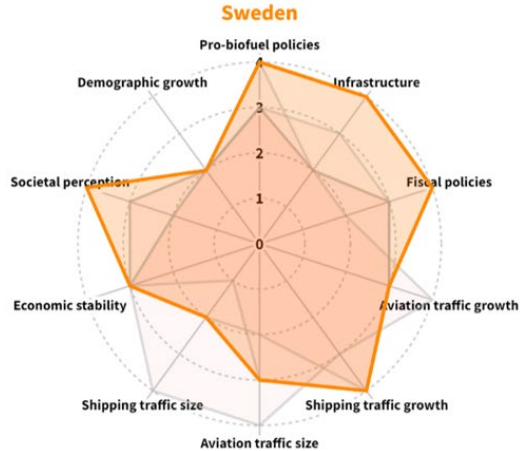
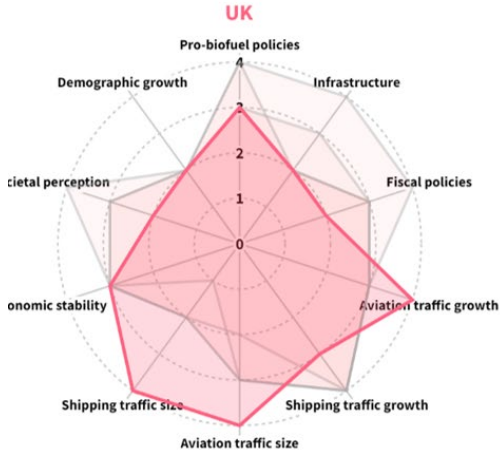
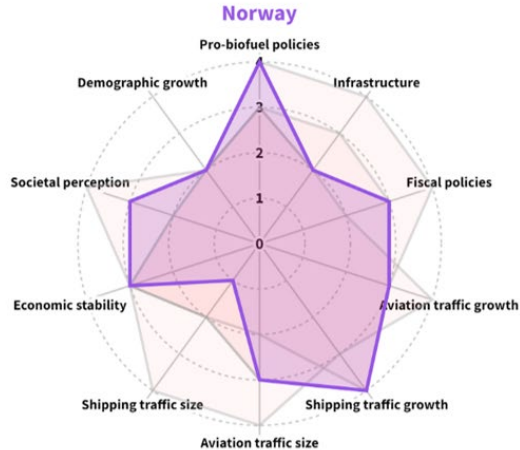
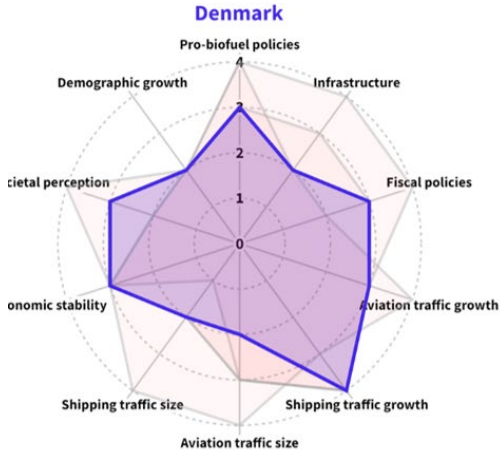


Market opportunities for advanced biofuels

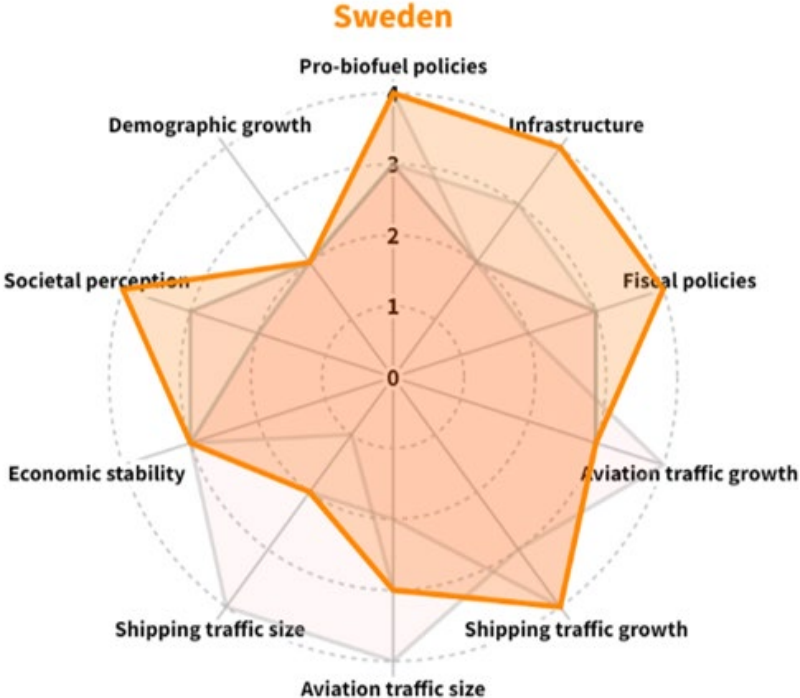
- Countries with the highest potential for advanced biofuels
 - Sweden
 - Norway
 - Finland
- Most influencing criteria : Biofuel regulations
 - Sweden: GHG reduction mandate in aviation: 27% in 2030
 - Norway : Advanced biofuel mandate in aviation
 - Finland: Target of 30% biofuels share in aviation



Assessing the maturity of the advanced biofuel market in selected countries



Assessing the maturity of the advanced biofuel market in Sweden



This project has received funding from the European Union Grant Number 884111



**Market opportunities
for Integrated Hydrothermal
Liquefaction**

Concrete examples of HTL on the global market



Transform sewage sludge and waste for the production of sustainable biofuels using **hydrofaction®**, a **proprietary implementation of HTL** which applies supercritical water as a reaction medium for the conversion of biomass directly into a high-energy density renewable biocrude oil.



Licella's technology Cat-HTR™, uses a **catalytic hydrothermal reactor** to convert various biomasses into advanced biofuels or biochemicals.



A **catalytic thermochemical process** that converts biomass, biowaste and organic waste into energy-rich drop-in liquid biofuel and recovers fertilizer-rich water and biochar.



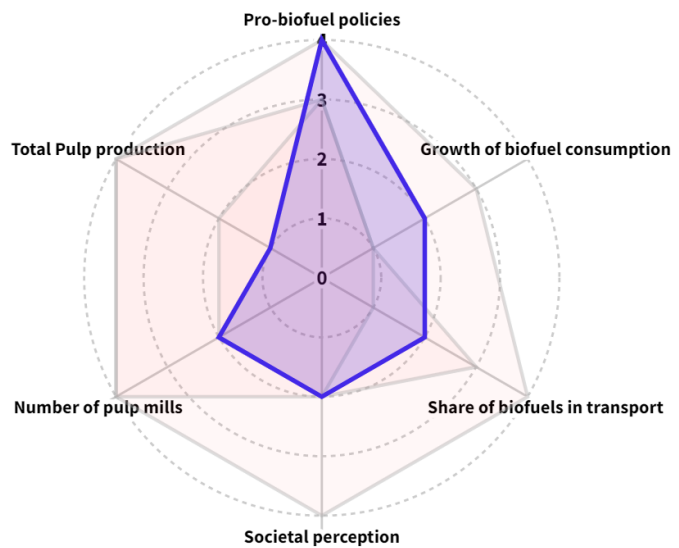
Assessment of IHTL market in Europe

- **Sweden and Finland** are the countries with the most potential for IHTL
 - High maturity of their pulp and paper industry,
 - Growing penetration of advanced biofuels in the aviation and shipping industries
- **France and Portugal**
 - France one of the largest consumers of biofuels in Europe
 - Portugal's pulp industry is well-established

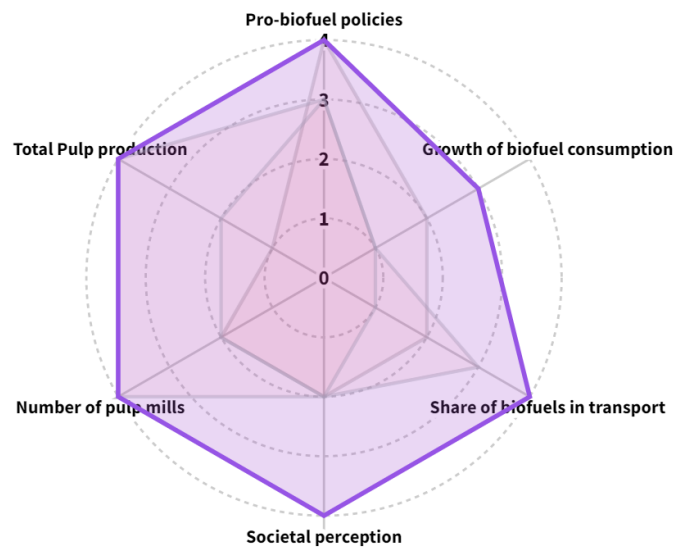


Assessing the maturity of the IHTL market in selected countries

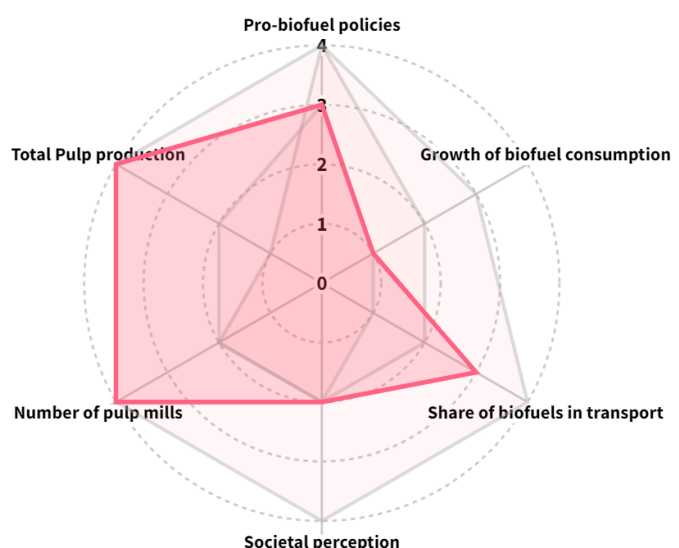
France



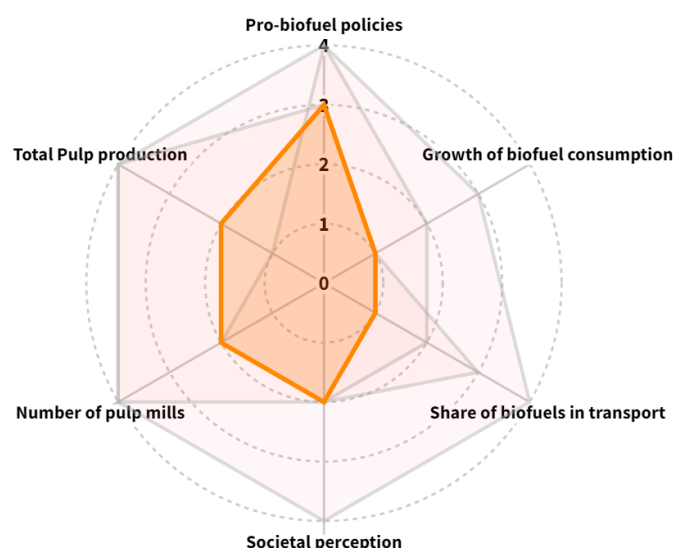
Sweden



Finland



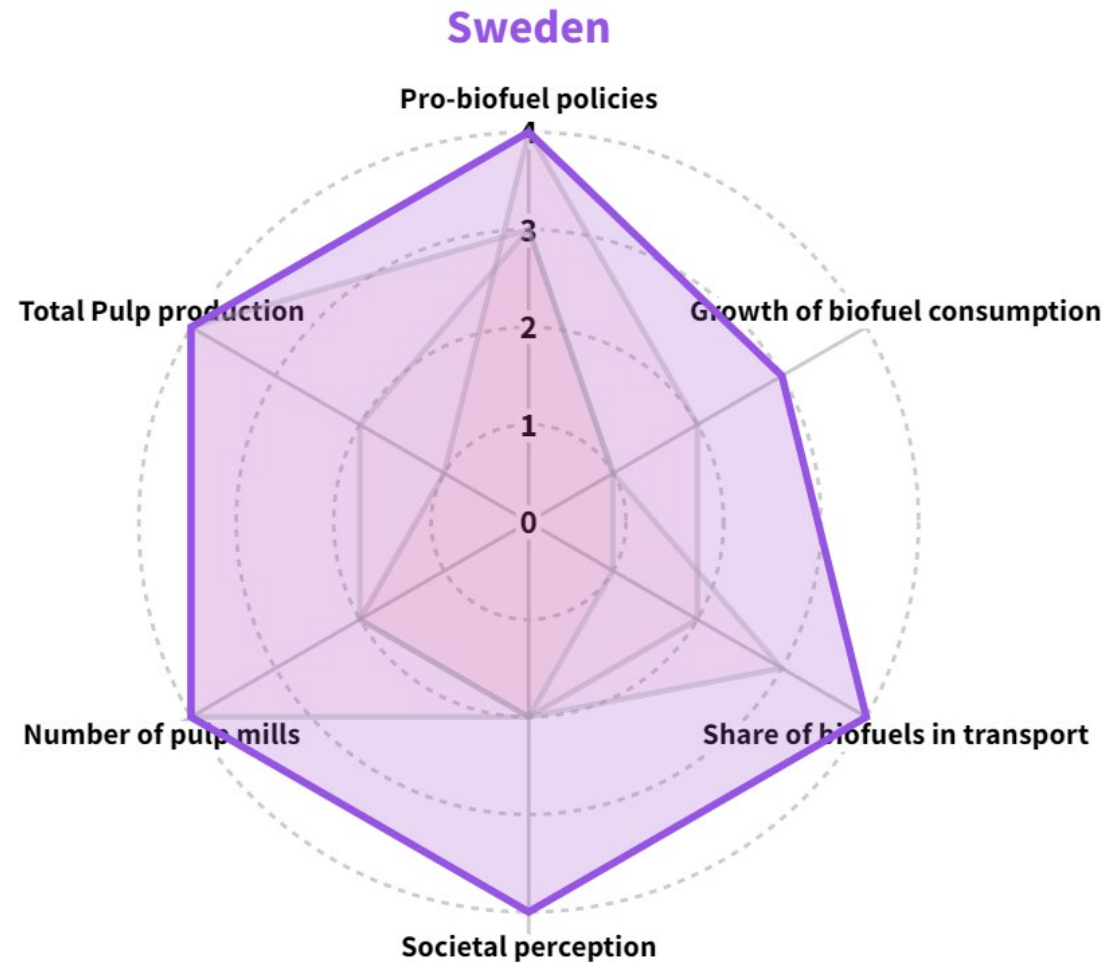
Portugal



This project is



Assessing the maturity of the IHTL market in Sweden



This project has received funding from the European Union Grant Number 884111

Opportunities beyond the BL2F project

Opportunities for feedstock diversification

- Bark, sawdust and sewage sludge have potential for advanced biofuel production – Opportunities in Finland and Sweden
- Low cost competitiveness in comparison to fossil fuels
- Possibility to combine several feedstocks



Ranking of feedstocks studied for biofuel production within the BL2F process



Business opportunities beyond BL2F

- Technology Readiness Level 4 achieved
- Further research in IHTL required to scale-up the technology
- Opportunities for commercialisation in the long term

→ **Open to build new partnerships on IHTL and advanced biofuels with research and industry stakeholders**



Thank you!

Get in touch with the project:

- Coordinator: Prof. Dr. Tero Joronen, Tampere University
- Presenter : Adéola Jaiyeola adeola.jaiyeola@lgi.earth
- Website: www.bl2f.eu



hello@bl2f.eu



@BL2F_EU



BL2F_EU



This project has received funding from the European Union Grant Number 884111