



A brief overview of alternative sustainable mobility opportunities seminar organised by the eMOPOLI project

The eMOPOLI seminar on alternative sustainable mobility opportunities took place as planned on 16.11.2020, part of it online, part of it face-to-face. There were 32 participants, 18 online and 14 in location.

The purpose of the seminar was to discuss alternative mobility approaches projects and strategies encouraging sustainability and innovation in Kainuu region. Biogas applications, electrical mobility, hydrogen solutions, synthetic energy solutions, fuel cells storage, and research into new types of fuels were prioritised in the meeting's agenda. It is important to remember that Kainuu is both a renewable energy provider (biogas) and an end user. Alternative mobility, therefore, is a both a compliance duty and an opportunity domain.

The findings of the seminar confirmed the eMOPOLI action plan based on a mixed mobility model for Kainuu (biogas & electricity). They also point out as priorities adopting systematic value chain approaches and activating the battery alliance with linkages to renewable hydrogen solutions. Kainuu decision to integrate into the revised RIS3 the Green Deal strategy as a cross cutting priority, and through this to include also activities of the eMOPOLI action plan, was introduced and positively commented by the relevant speakers.

Highlights of the contributions



- Jouni Ponnikas, Regional Development Director, Regional Council of Kainuu, eMOPOLI partner 6, opened the event, with a reminder of the eMOPOLI project, and the Kainuu action plan (presentation attached).



- Krista Mikkonen, Minister of Environment and Climate, focused on fossil-free traffic towards carbon neutrality in 2035.

Municipalities and regions have set ambitious emission reduction targets throughout Finland. Already, more than 45% of Finns live in municipalities that aim to be carbon neutral by 2030. In Kainuu, the target share of renewable energy has been set at 80% in 2035. The Finnish Government have set a target of being carbon neutral in 2035. We are working hard to draw up plans for various sectors (transport, industry, electricity and heat production, agriculture, forestry) to achieve carbon neutrality. Transport emissions are a significant part of this work. The government have decided that emissions from transport sector must be reduced by at least

50 percent by 2030 and by 2045 we must archive carbon-free transportation. Our government are currently negotiating how this goal will be achieved.

I recommend everyone interested to read the final report of the Fossil-Free Transport Roadmap working group, published last month. The working group sought to identify the means by which the emission reduction targets for domestic transport will be achieved as a basis for government decision-making. There are no magic tools for reducing traffic emissions, but achieving a goal requires a combination of several different tools. In general, transport emissions can be reduced *in three different ways*:

- *1. reducing the need to move and using more public transport;*
- *2. reducing the energy consumption of individual modes of transport*
- *3. introducing renewable fuels and electricity to replace fossil fuels.*

Finland is a big country and conditions are different in different regions. It is quite clear that the means of reducing traffic emissions will vary from region to region. Nevertheless, a fair transition must be ensured and any price increases must be compensated for low-income people.

In large urban areas public transport needs to be further strengthened. In sparsely populated areas, new driving forces such as biogas and electricity will help reduce emissions.

In heavy transport, where electrification at least does not yet play a major role, the importance of biogas is emphasised.

In anticipation of the roadmap for fossil-free transport, the government have already begun to accelerate the transition to clean transport: the Parliament are currently discussing both, subsidies for the purchase of gas trucks and a scrapping premium to support the replacement of cars. Earlier this year, the government supported the development of Finnish battery expertise, which is important for electrification.

The European Commission have proposed raising the EU's 2030 emission reduction target to at least 55% by 2030. This is in line with the EU's 2050 carbon neutrality target and corresponds to what Finland has pursued together with other EU countries that support an ambitious climate policy. The messages of science have long been clear: with the current measures, it will be impossible for us to achieve the goals of the Paris Agreement of limiting global warming to 1.5 degrees. At least 55 emission reduction targets by 2030 are also in Finland's interest. A stronger EU-level target will help us achieve our own climate goals, a level playing field, and create a market for the export of clean solutions.

In the transport sector, vehicle emission standards have proved to be a very effective way of promoting the development and introduction of low-emission vehicles. Finland therefore supports the tightening of standards. This legislation should also take into account the potential of biogas to reduce emissions.

EU COVID-19 Recovery and Resilience Facility also gives us an excellent position for accelerating the development of clean transport. The government are committed to using some 50% of it for climate work. We simply cannot afford to revive the fossil-based economy, we need, on the contrary, to take the leap towards clean transport.



- Jari Ihonen, Principal Scientist, VTT (Technical Research Centre of Finland Ltd), discussed the national hydrogen roadmap for Finland.

The reason why hydrogen is important in the present conjecture was opened up: (i) Renewable hydrogen is important as a transportation fuel, as intermediate product for replacing fossil hydrogen in conventional transport fuels and target as well other programmes for GHG reduction and (ii) Finland produces a significant amount of hydrogen (about 17 000tons/annually) as by-product hydrogen produced in chlor-alkal industry. A

major part of this could be used for vehicles, when fuel cell vehicles are commercialised. The production of by-product hydrogen is also relatively distributed but located mostly in southern Finland with highest population density.

The use of inexpensive by-product hydrogen in the first phase of hydrogen infrastructure build-up would also favour relatively centralised hydrogen production in the latter phase, as delivery infrastructure would be built around the by-product hydrogen. With other words, inexpensive by-product hydrogen may have a central role in path creation for hydrogen infrastructure in Finland. Another important industrial factor in Finland is availability of biomass and high-level technological knowledge in biomass and solid waste gasification¹.

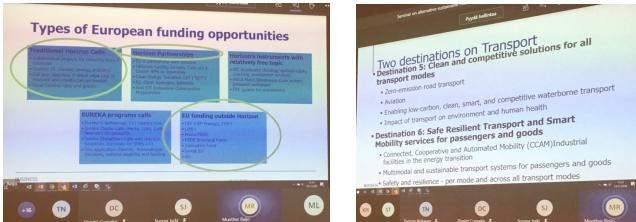
Important objectives, today, are reducing the cost of "good" hydrogen as a result of progress in the technology of electrolyzers thus increasing the production of low-cost renewable electricity and enlarging the production of renewable transport fuels. Use of hydrogen fuel cells could be used to lower transport costs especially in heavy transport vehicles (very high in Finland due to distances) through selected point-to-point logistic cases.

Finland has already a fairly well-populated value chain for hydrogen production and use strong grid and good potential for new renewable electricity generation; strong high-tech industry in hydrogen technology; identified, potential large-scale targets for new hydrogen use; good potential to accelerate rd&d efforts, but also some other cases suitable for public support; streamlining of RD&D funding process is needed; enlarging hydrogen-related domestic market is necessary.

Kainuu has comparative advantage in the hydrogen value chain based on the Terrafame mine located in Sotkamo producing H₂S for the ore refining process.

The Hydrogen roadmap for Finland is here: https://www.businessfinland.fi/4abb35/globalassets/finnish-customers/02-build-your-network/bioeconomy--cleantech/alykas-energia/bf_national_hydrogen_roadmap_2020.pdf

The full presentation is here: https://www.businessfinland.fi/4a828c/globalassets/finnish-customers/02-build-your-network/bioeconomy--cleantech/alykas-energia/hydrogen-roadmap-for-finland-2020-10-06_final-pdf-002.pdf



Reijo Munther, National Contact Point (NCP) and

Expert Member of the Committee, Horizon Europe, Alternative Mobility Priorities, Business Finland discussed funding possibilities for alternative mobility:

- Innovation fund: The Innovation Fund is one of the world's largest funding programmes for demonstration of innovative low-carbon technologies²; funding applied for green transition.
- Battery partnership links to Cluster 5 and is related to what is done in Cluster 4 (photo)
- Hydrogen is a hot topic, it is changing the entire energy field
 - Green deal search> want to create larger electrolysis units> target price 2 e / kg

¹ See also: http://www.topnest.no/attachments/article/12/WP3_H2FC%20Finland_revised.pdf.

² See also: Legal framework, https://ec.europa.eu/clima/policies/innovation-fund_en#tab-0-3; Focus https://ec.europa.eu/clima/policies/innovation-fund_en. The Innovation Fund focuses on: Innovative low-carbon technologies and processes in **energy intensive industries**, including products substituting carbon intensive ones; Carbon capture and utilisation (**CCU**); Construction and operation of carbon capture and storage (**CCS**); Innovative **renewable energy** generation; **Energy storage**. **Large & small scale projects**: The Innovation Fund delegated regulation defines as 'large-scale' projects (https://ec.europa.eu/clima/policies/innovation-fund_en#tab-0-1) with capital expenditure above EUR 7.5 million, and as 'small-scale' projects (https://ec.europa.eu/clima/policies/innovation-fund_en#tab-0-2) below this threshold.

- A hydrogen car is practically an electric car.
- A fuel cell uses pure hydrogen. Find more info from the webpage of Hydrogen Europe: <https://hydrogogeneurope.eu/project/hydrosol-plant>. Please note that the Valleys mentioned in many of the other projects in the web pages of Hydrogen Europe, are local, regional projects.



- George Kassapidis, Governor of Western Macedonia. Western Macedonia region is strongly investing in diversifying from lignite-based economy while maintaining the profile of an energy leading region. For this purpose, the White Dragon project, in collaboration with Hydrogen Europe, was submitted to the EC under the IPCEI (Important Projects of Common European Interest³) initiative on 9.10.2019. It concerns the replacement of the current lignite-based production and applications by hydrogen: the production of thermal energy from hydrogen which will cover the needs of district heating, energy storage, hydrogen propulsion, etc. It is worth noting that in Greece there is still no legal framework regarding the use of hydrogen in energy production.

Submitting the 'White Dragon' was a turning point as, initially, the possibilities and opportunities that investing in hydrogen technologies could generate was not widely accepted. In the meantime, the Region of Western Macedonia approved the feasibility of a proposal for the application of hydrogen technology combined with a small photovoltaic park for the energy upgrading of a building in the Region and, with the excess hydrogen supply to be utilised through a Hydrogen Refueling Station (HRS), for alternative mobility purposes.

These concerted actions, orchestrated by strong EU initiatives, continuous development of hydrogen applications, knowledge and further research, as well as systematic awareness raising have contributed to the wider acceptance of hydrogen technologies by the citizens of the Region, as well as by the Government themselves. It can be argued that a breakthrough has been achieved.



- Anna Virolainen – Hynnä, Executive Director of the Finnish Biocycle and Biogas Association. Biogas applications as a clean energy tool are very strong in Finland⁴. The use of biogas as transport fuel is now about 10% and has growth potential. There are 17 biomethane producers in Finland. National support is currently foreseen for heavy goods vehicles. A new financial support mechanism, a national procurement aid for heavy goods vehicles is currently under preparation.

A working group, coordinated by the Ministry of Transport and Communications, elaborated the National Biogas Plan, delivered in January 2020. According to this plan,

- Biogas (and possibly also synthetic gases) has a significant role to play in achieving emission reductions in road transport in Finland in both the medium and long term.

³ IPCEI:s aim at bridging the gap where private initiatives often fail to materialise because they succumb to one of the significant risks these types of projects entail. Reference: [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014XC0620\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52014XC0620(01)), **COMMUNICATION FROM THE COMMISSION 2014/C 188/02, Criteria for the analysis of the compatibility with the internal market of State aid to promote the execution of important projects of common European interest.**

The EC assess proposed projects under the specific EU State aid rules for IPCEIs. The rules have a specific provision for Member States to fund disruptive and ambitious research and development, as well as the first industrial deployment of the technology.

Also: <https://www.businessfinland.fi/en/whats-new/events/2020/infotilaisuus-suomalaisen-elinkeinoelaman-osallistuminen-mahdolliseen-vety-ipceihin>.

⁴ Tiedote: Biokaasulla on merkittävä rooli tieliikenteen päästövähennysten aikaansaamiseksi Suomessa, 27.10.2020.

- Extend the scope of the Distribution Obligations Act to biogas and synthetic fuels. Support the production of sustainably produced biofuels, biogas and / or synthetic fuels at least until the 2020s.
- Accelerate the development of transport biogas production, consumption and distribution infrastructure through various means of control.
- The measures in the implementation plan for the biogas program must be continued. In connection with the reform of the Distribution Obligations Act, care will be taken to ensure that the price competitiveness of biogas in relation to petrol and diesel is maintained at a sufficiently good level.
- A target is set for biogas to bring about 2.5 TWh of biogas to transport by 2030 and up to 10 TWh by 2045. Raising gas car targets: 2.5 TWh of biogas in 2030 could be used, for example, by about 145,000 gas-powered cars and vans and about 6,000 heavy vehicles.
- It will be ensured that gas cars will continue to be taken into account in the limit value legislation for EU car manufacturers. Promote the spread of gas-powered trucks with support for the purchase of heavy equipment, the continuation of which beyond 2021 should be considered.
- Continue support for the conversion of gas cars. By the time of the 2021 framework debate, preparations are being made to encourage the reform of the taxation of employee benefits



- Dimitris Corpakis, on behalf of the Friends of Smart Specialisation⁵.

The Green Deal is a turning point for the future of Europe. It is a new growth strategy for Europe. But the present proposals on the Green Deal, the new industrial policy and recovery largely ignore the role of multi-level governance on (place-based) innovation and transformation. If the Green Deal is not to suffer the same fate as the Lisbon Strategy, it needs to incorporate both the policy and governance learning available from smart specialisation and combine smart specialisation with the Green Deal as an ambitious but achievable new European growth strategy.

Some facts: (Fact 1) Regions are not involved in the governance of the new growth strategy (Green Deal), the New Industrial Policy and the Recovery Plan. (Fact 2) Smart specialisation is not considered as a core component of the new investment strategy

At the moment, the Green Deal has no reference to smart specialisation -in spite of the fact that S3 can enhance its implementation. This is also true of the new industrial policy, which ambitious as it is, it is not explaining how delivery in the regions will be ensured neither takes into account the potential contribution of regions into its implementation. And yet there is clear reference to the involvement of the economic and knowledge sectors. But these sectors are always located somewhere, they are place-based and bery often they are place-funded.

The matching of Green Deal and smart specialisation strategies can be a winner. A systemic challenge such as the Green Deal needs the mobilisation of all resources, all actors all over Europe. Smart specialisation can be the key delivery mechanism for this new growth strategy by combining the directionality of the European Green Deal roadmap and, from a bottom-up perspective, identify new future activities based on the unique characteristics of all places. Interregional partnerships will also play a key role in leveraging the alignment of place-based strengths.

⁵ An initiative from an independent group of experts and practitioners concerned for the future directions of S3 Started in 2018 by Dimitri Corpakis, Jan Larosse, Richard Tuffs (supported by EFIS, the European Future Innovation System Centre). The group's goal is to support the mainstreaming of Smart Specialisation as an instrument for strengthening the multi-level European innovation system.

Although regional innovation ecosystems are increasingly seen as a key element in a more place-based industrial policy the full potential of smart specialisation has not been used. New focus on European industrial ecosystems (although reduced to Alliances, formed on the initiative of the EC). Hence the importance of proximity and the exploitation of place-based advantages and the regional dimension through clusters.

Industrial eco-systems must build on multi-level governance of industrial policy, given that competences are distributed and that innovation strategies are fragmented. Smart specialisation enables a decentralised coordination

Comparative advantages of S3, some reminders:

- S3 is not looking at the comparative advantages of the past but at competitive positioning in the economy of the future.
- Smart specialisation can help to align resources as effectively as possible based on place- based entrepreneurial opportunities triggered by a shared European vision.
- Smart specialisation requires tailored policy mixes and policy integration. It stimulates integration of innovation policy in the broader set of education, training, regulation and infrastructure policies to make it work.
- Smart specialisation can and must engage civic society and build trust in the future.
- Need to build on and not ignore 10 years of experience on S3 at the regional level as a governance mechanism to connect European level directionality in objectives with place- based discovery of opportunities.

....and why these advantages are often being overlooked

- The continuous fragmentation of innovation and transformation policies in the EU
- between the different policy domains at the regional, national and European level.
- RIS3 – linked to cohesion and not a wider bandwidth in the Commission
- Inward-looking S3 strategies at the regional level
- A lack of regional capacity to develop, implement and monitor S3 strategies as full part of their economic development policies
- A lack of co-investment – the responsibility of regional policy makers is to make co- investment happen, by committing own resources!
- COVID19 can act as a transition accelerator – towards EU strategic autonomy in restructuring global value chains.

What is needed now is a strategic policy discussion on the evolving role of smart specialisation, from a cohesion policy instrument to a political component of a multi-level governance process for European transformation (part of the EU Semester). This includes also the Recovery and Resilience Facility. Member States' recovery and resilience plans should address the economic policy challenges set out in the country-specific recommendations of recent years and in particular in the 2019 and 2020 cycles. The plans should also enable Member States to enhance their economic growth potential, job creation and economic and social resilience, and to meet the green and digital transitions.

In attachment, the agenda of the seminar and the presentations by Jouni Ponnikas, George Kasapidis, Anna Virolainen-Hynnä and Dimitri Corpakis.



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Kajaani, 16.11.2020

Programme

11:00	Registration & lunch	
11:40 – 12:00	Opening of the event: welcome and objectives & eMOPOLI action plan	Dr. Jouni Ponnikas, Regional Development Director, Regional Council of Kainuu.
12:00 – 12:20	Biogas applications, electrical mobility, fuel cells storage, and research into new types of fuels: Green Deal, national priorities and regional opportunities.	Minister of Environment Ms. Krista Mikkonen.
12:20 – 12:40	A national hydrogen roadmap for Finland	Dr. Jari Ihonen, Research Centre of Finland Ltd (VTT).
12:40 – 13:00	Brief intermission	
13:00 – 13:20	Horizon EUROPE, alternative mobility priorities	Dr. Reijo Munther, Business Finland
13:20 – 13:40	Experience from initiating hydrogen clean energy in the region of West Macedonia in Greece	Mr. George Kassapidis, Regional Governor of Western Macedonia region, Greece.
13:40 – 14:00	Biogas, opportunities and expectations	Mrs. Anna Virolainen-Hynnä Toiminnanjohtaja / Executive Director Suomen Biokierto ja Biokaasu ry/ Finnish Biocycle and Biogas Association.
14:00 – 14:20	Green Deal and RIS3	Dr. Dimitri Corpakis, former EU official, Senior Research Fellow, South East European Research Centre.
14:20 – 14:30	Discussion and conclusions	