Climate and Energy Programme 2030

Update of the action plan 2024

Regional Council of North Karelia

Briefly

- The implementation of the plan was last monitored in 2022 – based on survey for municipalities on climate actions
- A follow-up round in 2024 – in cooperation with the Climate-Resilient North Karelia 2030 project
- The action plan being discussed in the Climate and Energy programme 2030 expert group meetings in the autumn of 2024
- Slide 11 contains a list of the least advanced actions – updated based on the experiences of the Regional Council (especially with municipalities involved in the Climate-Resilient North Karelia 2030 project)

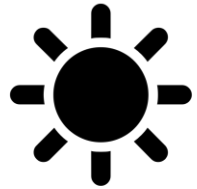
North Karelia is full of life and well-being

Climate change mitigation	Stage of implementation	Climate change adaptation	Stage of implementation
Promoting the use of biogas in transportation and supporting the hydrogen economy towards profitable business.	Both are still in the early stages: Savon Linja is converting its buses to run on gas, and hydrogen production pilot plant is being set up on the Joensuu Circular Park.	Ensuring the functionality and maintenance of the road network and other built infrastructure in changing climate conditions.	Increasing challenges, with the road network's condition being crucial, especially regarding fuel consumption.
Utilizing the opportunities of the circular economy: turning by-products into responsible, higher value-added products, and implementing actions from the circular economy roadmap.	This is "Will be happening in the future" type of activity, currently mostly energy from by-products.	Diversifying the economic structure and encouraging industries and businesses to develop profitable adaption-related businesses by offering funding, training, and networking opportunities.	Business related to adaptation is minimal.
Promoting the creation of carbon-neutral production and services through green transition funding.	"Will be happening in the future", with little action currently.	Developing planning to consider climate change mitigation and adaptation: green infrastructure, storm water management, etc.	Tools for planning are developed to address this issue. Implementation is needed.
Improving the region's accessibility by promoting low-carbon transportation (e.g., developing cross-regional rail transport, improving walking and cycling in urban areas, public transportation initiatives).	Electric buses have been introduced in public transport in the urban area (Joensuu), and biogas buses are also coming (including regional transport).		

Protecting the biodiversity

Climate change mitigation	Stage of implementation	Climate change adaptation	Stage of implementation
Influencing efforts to secure sufficient funding for biodiversity protection in the region.	The Helmi funding seems to be working, and there is room for more.	Identifying high-risk areas for biodiversity decline and targeting actions to improve the situation.	There is still a need for more nature management in suitable areas.
Ensuring the preservation of carbon stocks and sinks in the land-use sector.	New challenges include energy construction. In agriculture, the challenge is combining profitability with low emissions.	Considering the development of ecological corridors in forestry and other land use.	The actions remain on a small scale.
Implementing nature conservation methods in agriculture and forestry, supporting restoration efforts, and preparing for the implementation of the upcoming national restoration plan.	This includes restoration actions and the rehabilitation of natural sites. More is needed.	Increasing understanding of the significance of climate change in the region, as well as the interconnection between climate change and biodiversity.	We are still in a situation where ”understanding takes time.” Communication cannot be overdone; how can we influence consumers more effectively? The actions in the climate change adaptation plan may help increase the understanding of its significance.
Ensuring the maintenance and improvement of water bodies’ good status.	Restoration of lakes and wetlands, storm water management, migratory fish projects, and good forest management will become increasingly important in adaptation efforts.		

There is low-emission energy available based on the region's own energy production from local natural resources



Climate change mitigation	Stage of implementation	Climate change adaptation	Stage of implementation
Efforts are being made to increase the production of renewable energy in a sustainable manner, promoting decentralized energy production, and supporting energy communities.	Challenges related to wind power remain unresolved, solar energy requires large surface areas, and work is still in its early stages.	Harvesting energy wood is being developed to make it economically viable.	Local demand for energy wood has increased, along with its price. Challenges include harvesting methods and profitability – there is a need to develop smaller machinery and economically viable harvesting models.
Investments in biogas and its upgrading for use as transport fuel are encouraged.	Investments in biogas is only just beginning to progress. Farms have shown interest in biogas investments, but access to loans has stalled, at least in Central Karelia.	Energy security is ensured to prepare for extreme weather events caused by climate change and potential disruptions in imported energy supply.	While energy policy is a national issue, decentralized energy production and hybrid models can still be promoted at the regional level.
		Sustainable uses for former peat production areas are being developed (e.g., cultivation of bioenergy crops, solar power, wetland farming, restoration).	Much work remains to be done – solar power, afforestation, and biogas production have been proposed.

Climate resilient construction and housing are possible both in urban areas and in rural areas

Climate change mitigation	Stage of implementation	Climate change adaptation	Stage of implementation
Supporting wood construction and promoting the use of bio-based materials in building.	Progress is good in some municipalities.	Ensuring that expertise in resource-efficient and climate-resilient construction and renovation is applied in practice.	These themes are being better integrated into construction sector training. Practical implementation still requires action.
Developing smart and cost-effective solutions to maintain service structures in sparsely populated areas.	Development have included, for example, remote healthcare services and mobile service units (such as dental care and X-rays) brought to rural areas. However, there is still much work to be done.	Improving telecommunications networks and their reliability.	Some areas are already performing well, while others still need targeted efforts.
Using land-use planning to guide ecological construction and urban planning that supports climate change mitigation and adaptation.	Work is underway, and tools have been developed for land-use planning to take these into account. Practical implementation is still needed.	Land-use planning continues to be used to guide ecological construction and urban planning for climate action.	Work is underway, and tools for integrating these considerations into land-use planning have been developed. Practical application is still needed.

We use natural resources sustainably and enabling business

Climate change mitigation	Stage of implementation	Climate change adaptation	Stage of implementation
Refining raw materials into products with the highest possible added value.	There are good examples, but much work is still needed.	Promoting the production and processing of local food and the use of natural products.	Some examples exist, such as providing local food in schools and increasing the use and freeze-drying of natural products. However, further action is needed.
Developing industrial symbioses to process production by-products at their source.	There are good examples, but much work is still needed.	Developing the export of sustainable, high value-added end products.	This area needs significant development, although there are some beginnings – such as cooperation between the bioeconomy and food culture sectors with Japan.
Implementing climate-smart forestry practices.	The methods are known, but implementation is required. Notable progress has been made, such as the publication of an industrial biodiversity roadmap.	Leveraging strengths in technological expertise (e.g., photonics, composite materials).	More activity and collaboration are needed.
Developing carbon farming into a viable business model for agriculture (e.g., carbon sequestration farming).	Still in the very early stages.	Integrating the circular economy into everyday practices of businesses and citizens, shifting away from the disposable culture, and reducing waste generation.	Continued incentives and awareness-raising are essential. The implementation of the circular economy roadmap must be carried out.

We put expertise and research data to extensive use and North Karelia is a region that engages

Climate change mitigation and adaptation	Stage of implementation
Improving collaboration and knowledge transfer between research and educational institutions, businesses, and owners of agricultural and forest holdings.	This is happening in projects that have a clear connection to a company or practical actors and activities. However, there is no organized system in place, and it still requires attention.
Enabling long-term planning and implementation of development projects and initiatives.	Funding cycles and limited resources among actors pose challenges. The issue still needs continued focus.
Ensuring that innovations generated through research are effectively transferred to practical use (e.g., pilot funding, practical trials).	Only a few cases exist. The "InnoCity Joensuu" project activity is a step in the right direction.
Utilizing the biosphere area as a model region for holistic sustainability.	The biosphere area remains relatively unknown and highly underutilized.

We aim to 80 % reduction in emissions from 2007 (Carbon neutral municipalities, 'Hinku')

Emission source	Emission 2007, kt CO2-eq	Emission 2020, kt CO2-eq	Emission 2022, kt CO2-eq	Change 2007 – 2022, %
Consumption electricity	195.9	56.9	54.7	-72.1 %
Electricity (heating)	119.4	36.1	36.3	-69.6 %
District heating	194.0	102.0	80.8	-58.3 %
Oil heating	91.1	36.0	30.8	-66.2 %
Other heating	47.4	44.5	44.5	-6.1 %
Industry	61.4	28.2	32.5	-47.1 %
Work machinery	121.8	122.6	112.7	-7.5 %
Transport (roads)	382.4	294.6	266.7	-30.3 %
Transport (railways)	15.4	5.6	6.8	-55.9 %
Transport (water)	10.1	8.1	7.1	-29.5 %
Agriculture	314.2	286.4	263.0	-16.3 %
Waste treatment	86.1	62.2	56.3	-34.7 %
F-gases	48.2	30.8	25.5	-47.1 %
Wind energy	0.0	0.0	0.0	0.0
Total amount	1687.3	1114.1	1017.7	-39.7 %

What does 80 % reduction in emissions mean?

- Emissions in 2007 = 1673 kt CO_2-eq.
- 80 % reduction is then 1338.4 kt CO2-eq.
- According to this in 2030 emissions need to be 334.6 kt CO2-eq.
- In 2022 emissions from the 3 largest emission sources were 642,4 kt CO2-eq. in total
  - Even if these could be reduced close to zero, there is still work to be done across all emission sources
  - Reduction is needed through all emission sources

Measures that require significantly more investment

1. North Karelia full of life and well-being
   - Utilizing the opportunities of the circular economy: turning by-products into responsible, higher value-added products, and implementing actions from the circular economy roadmap
   - Promoting the creation of carbon-neutral production and services through green transition funding
   - Improving the region's accessibility by promoting low-carbon transportation (e.g., developing cross-regional rail transport, improving walking and cycling in urban areas, public transportation initiatives)
2. Protecting the biodiversity
   - Influencing efforts to secure sufficient funding for biodiversity protection in the region
   - Identifying high-risk areas for biodiversity decline and targeting actions to improve the situation
   - Considering the development of ecological corridors in forestry and other land use
3. Low-emission energy in a self-sufficient way
   - Efforts are being made to increase the production of renewable energy in a sustainable manner, promoting decentralized energy production, and supporting energy communities
   - Sustainable uses for former peat production areas are being developed (e.g., cultivation of bioenergy crops, solar power, wetland farming, restoration)
4. Climate resilient construction and housing
   - Developing smart and cost-effective solutions to maintain service structures in sparsely populated areas
   - Ensuring that expertise in resource-efficient and climate-resilient construction and renovation is applied in practice
5. Using natural resources sustainably and enabling business
   - Refining raw materials into products with the highest possible added value
   - Developing industrial symbioses to process production by-products at their source
   - Developing carbon farming into a viable business model for agriculture (e.g., carbon sequestration farming)
   - Leveraging strengths in technological expertise (e.g., photonics, composite materials) – opportunity for businesses and that needs to be increased
6. Expertise and research data put to extensive use. A region that engages
   - Ensuring that innovations generated through research are effectively transferred to practical use (e.g., pilot funding, practical trials)
   - Utilizing the biosphere area as a model region for holistic sustainability
7. **80 % reduction in emissions from 2007 – Hinku carbon neutral municipalities. This will happen in line with the achievement of the above-mentioned goals**

Example actions from the region 1/3

1. North Karelia is full of life and well-being
   - Expansion of the remote workstation network: Joensuu, Kontiolahti, Rääkkylä – new members can still join
   - Enabling multi-location work
   - Investments in solar and biogas energy, peat and imported wood replaced with locally sourced wood chips
   - Replacing virgin natural resources with waste materials on e.g. road construction
   - Maintenance and repair of the municipality's own road network, increased support for private roads
   - Repairs and renovations on the state road network (including resurfacing) have been carried out more extensively than in previous years (thanks in part to Traficom grants)
   - "Parasta Rääkkylää" Project, new business ideas and products developed for local companies
   - Development of nature tourism in cooperation with local businesses
2. The prevention of biodiversity loss is considered better in different activities
   - Restoration of water bodies, stormwater areas, traditional biotopes, and peatlands: 842 hectares of new protected areas (funded by Helmi and Metso programs), migratory fish projects, invasive species control, improved stormwater management (Nurmes / Lieksa)
   - Application of continuous cover forestry methods where suitable, stump submersion in wetlands for carbon storage, dissemination of climate-smart forestry practices
   - Afforestation of former peat production areas
   - Preference for wood construction whenever possible (from a carbon storage perspective)
   - Ecological management plan for urban forests and parks in Nurmes
   - Communication and training on various topics, including the impact of tree species selection on forest biodiversity

Example actions from the region 2/3

3. The energy is low-emission and based on the region's own energy production
   - Biogas investments (Joensuu and Kitee), individual electric vehicle charging stations in various parts of the region, solar power plants (Tohmajärvi, Joensuu, Kitee, and Kontiolahti), and ongoing wind power projects in Heinävesi (Jouhteninen and Kilpimäki – still facing some uncertainties), solar panels on the roofs of public buildings
   - Decentralized energy production is supported through land use planning, and there are plans to simplify permit procedures for solar panels and collectors (Rääkkylä, Tohmajärvi)
   - Within the limits permitted by the Public Procurement Act, local wood chips are used in thermal power plants
   - New bio terminals are planned for Joensuu and Puhos
   - Efforts are being made to promote the utilization of condensate water in the district heating network (Nurmes / Lieksa)

4. Climate resilient construction and housing are possible both in urban and rural areas
   - Hiking area structures are made of wood, with some new wooden buildings completed or under construction
   - All Hinku municipalities (11 out of 13) have joined or are joining the Energy Efficiency Agreement (EEA)
   - Renewable energy solutions such as heat pumps and solar energy are being utilized
   - Energy renovations of public buildings are underway, aiming to improve energy efficiency
   - Digital services have been developed
   - Urban structures have been densified, and in land use planning, attention has been paid to forest fragmentation, with specific nature areas designated
   - Electrification of public transport in cities and municipal purchases of electric vehicles (e.g., Joensuu and Kontiolahti), bike benefit programs for municipal staff (Nurmes / Lieksa)
   - Instead of acquiring a new one, a school centre's skate park will be repaired, maintained, and relocated in 2024-2025 (circular economy, Tohmajärvi)
   - Occupancy rate of properties is being assessed, and space plans are being updated (Nurmes / Lieksa)

Example actions from the region 3/3

5. We use natural resources sustainably and enabling business
   - Pilot permit granted for processing construction wood waste into circular economy products
   - Increased utilization of ash
   - Industrial symbioses: Joensuu's Circular Park and the Puhos port area (new bio terminal), including further processing of wood by-products, and hydrogen economy development
   - Energy wood is harvested from forest management sites (i.e., areas already targeted for thinning)
   - Local food is served in schools, and new project is underway to increase the use of natural products
   - Recycling has increased alongside public awareness efforts and expanded collection points
   - Boardwalks are being built using wood from municipal forest thinning (Nurmes / Lieksa), and discarded plywood from industry is used as a base material for jogging paths (Tohmajärvi)
   - Development of reuse methods for various types of sludge, such as biogas production (Nurmes, Lieksa, Tohmajärvi), and the use of composted sludge soil in local construction projects (Rääkkylä, Tohmajärvi)
6. We put expertise and research data to extensive use; we are a region that engages
   - Largely implemented through project-based cooperation (RDI – research, development and innovation – together with municipalities and companies)
   - InnoCity Joensuu activities (a collaboration network for research and educational institutions and businesses)
   - Activities of regional development companies (e.g., supporting the development and expertise of further processing)

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