

ACTION PLAN

SHREC - Shifting towards Renewable Energy for Transition to Low Carbon Energy

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Part I – General information

Project: **SHREC - Shifting towards Renewable Energy for Transition to Low Carbon Energy**
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Part II – Policy context

The Action Plan aims to impact:

Investment for Growth and Jobs programme European Territorial Cooperation programme, ERDF program 2014 – 2020. Middle Norrland. Thematic area 4, supporting the shift towards a low-carbon economy in all sectors.

The Shrec project described in 2018 the aim of the project in North Middle Sweden to be to tackle issues concerning how to influence the renewable energy production and consumption by business, communities and households. Project partners thus seek to increase the awareness among households, private and public sectors and the opportunities to use renewable energy.

Policy instrument initially addressed:

ERDF Programme 2014-2020 were we stated that:

Priority is therefore given to operations that encourage sustainable construction, favour regional trade and industry in the programme area and reduce climate impact. One way of achieving energy savings and developing clean energy products and services is environmentally sound procurement. There is also a need to boost knowledge of how this opportunity can be used as a policy instrument in the public and private sectors.

Strategic collaboration between research and the sectors benefit business opportunities and enterprise in the area of energy and environmental technology. Applied research in close collaboration with trade and industry should be developed. New technology, innovations and new services should be promoted through demonstration plants and test activities.

The energy and environmental technology industry are closely linked to information technology. Smarter power grids and sustainable energy solutions require advanced IT infrastructure. Improved communication, IT infrastructure, can have a huge effect on the transport infrastructure and consequently also have a positive environmental impact.

The Middle Norrland, Sweden regional program has focused on four priority axes:

1) strengthen research, technical development, and innovation, one main objective is to increase the amount of innovative SME. 2) Increase the access to, use of and the quality of information and communication technology, 3) Increase competitiveness in SME, the objective is to increase the number of new companies with growth potential, 4) support the change towards a CO2 free economy.

The analysis for Middle Norrland indicates that the region has several areas of strength to build upon; wind power on land, water- hydropower and a developed bio fuel economy, largely based on the forest industry. It is also important to stimulate . We have identified a new area of interest, the possible expansion of solar energy (PV) and as a consequence, the possibility that energy consumers also could act as energy producers i.e prosumers. The overall state of the region is explained in a report that can be found on the Interreg Europe Shrec webpage. There we identified the limited number of energy communities in Middle Norrland. Possibly due to the energy surplus of the region, emanating from a few large electrical production and distribution companies. The analysis identify the potential and challenge in developing (the few) existing testbeds for solar energy and develop the energy community concept. The region is in a few years time going from a surplus of green energy to the opposite. The industrial demand for green energy in northern Sweden will be doubled years to come. We can meet this, to us new situation, by energy savings and expanded green energy production. Not least more of innovativeness in companies and intensified collaboration between enterprises and research institutions. This will be a completely new reality and it has to be communicated to the citizens of the two regions. At the same time the two regions have been convinced and motivated to address this challenge jointly.

The ERDF Programme area (4) finances support to lower the CO2, to increase competitiveness and innovative skills and to increase the number of new companies with growth potential.

The implementing body of the program is the Swedish national agency for innovation and growth, Tillväxtverket (TVV), in cooperation with the two administrative regions of Middle Norrland (MN), Västernorrland and Jämtland / Härjedalen. MIUN is a partner in SHREC and has an active role as the single university in the region

Influence of SHREC: The learnings from SHREC influenced MIUN to participate in an EU REACT call during October 2021. MIUN got one project financed from REACT and the two regions. This will be a focused study on the reasons transforming electricity consumers to prosumers. If we can find out what motivates the few groups of citizens that have already started energy communities, we might be able to communicate a bit more effectively with the upcoming 'Early adopters and Early majorities' that must be mobilized and supported by the public sector. What mind sets and attitudes are in play in the rare occasions when today's 'Innovators' take their decisions?

This project will start 1 March 2022 and continue as a pre -study until end of November 2022.

The **new project** would not have been funded without the influence from SHREC PARTNERS and their good practice.

Joint effort of regional stakeholders involved

To collect all relevant information, facilitate co-development of actions and to ensure a broader acceptance of actions, MIUN gathered representatives of the regional government, researcher at the university and relevant support intermediaries as well as some companies in joint stakeholder meetings once every semester during the timeframe of the project.

The open, interactive, and structured exchange of experience of the regional players on energy transition issues is appreciated by the stakeholders.

ANALYSIS of Middle Norrland, Sweden regional policies regarding low CO2 economy

As starting point for mutual learning and the development of actions for improvement, MIUN made an analysis of the region and discussed the findings with the stakeholder

- **regional policies for transition to low CO2 economy to adapt to the new challenging environment.**

MIUN organized on **2nd of September 2021** a **workshop with invited stakeholders** representing:

1. The Swedish Agency for Economic and Regional Growth
2. The Regional Government, Region Jämtland/ Härjedalen
3. The Regional Government, Region Västernorrland
4. The Mid Sweden University
5. The High Coast Investment Company
6. The cluster Bron
7. The Municipality of Sollefteå
8. My Applebo AB Consultant Company
9. Jämtkraft electric company

The main background and the results of the analysis are:

The county administrative boards in Jämtland County and Västernorrland County have developed energy and climate strategies for the two counties in cooperation with the respective region; 2030 Jämtland LÄN ENERGY AND Climate Strategy 2020-2030 ⁶ and Energy and Climate Strategy for Västernorrland 2020-2030¹. The strategies defines the work forward to contribute to Sweden's national energy and climate goals, inspire regional actors to collaborate, identify focus areas and aspects with extra high priority and can serve as a basis for future action plans and projects. Important national and regional targets include maintaining high production of renewable energy in Middle Norrland, fossil fuel-free transport and machinery, forests as a resource for a strong and long-term bio economy and that this should be matched by the development of a stable electricity grid.

In Sweden, discussions and plans on fossil-free industrial processes (green hydrogen for green steel) and transition to renewable energy take more and more place. Most experts agree that electricity production in Sweden need to increase significantly, some say at least double (140 TWh to 280 TWh), while WSP (1) estimates that at least 215 TWh by 2045 will be needed for a good industrial

1 WSP report "Deficiencies, decisions and balances in the electricity system", 2021

conversion. Many interesting initiatives are underway, but is there any dimension that has untapped potential?

Existing statistics and comparisons with other countries within the SHREC cooperation (2) show that Sweden, and especially Middle Norrland, is very advanced when it comes to renewable energy production.

Mobilising civic society for the climate transition, both as customers/consumers and producers, is an important part of the SHREC and a recurrent ambition in global as well as EU strategies. It is an area where Sweden does not seem to be as active as compared to several of the other (2) participating countries, but where SHREC Sweden considers that Middle Norrland is a region that has great potential for new approaches in terms of taking an active part in climate action, developing learning about people's participation and participation to drive the implementation of this transition.

SHREC programme group in Sweden estimates that Middle Norrland has great potential to build value through co-production and new value-creating systems. It is also in line with the EU's emphasis, in its description of the strategy to implement the UN 2030 Agenda, that it must be done through a holistic approach 3. The starting point is that people can create a common vision and goals for collaboration, based on an understanding and in line with the wider context (larger system). In an image, the European Commission describes what is called "Whole-of-Government approach" 4. By developing a good innovative design for value creation, which highlights the common and mobilizes the necessary actors, implementation will be shared between the various collaborative actors.

At the same time, links must be created with regional, national and global innovation environments and partners. Here, existing clusters and innovation environments in the region will be of importance.

Middle Norrland is advanced in IT and digitalisation. It was confirmed when the National Innovation Council met Västernorrland region in (5) autumn 2020, and this is of course also a good and important technological prerequisite for co-creation in networks.

Some proposals – networking, system innovation and possible initiatives

In order to achieve the goals of the Paris Agreement and the Swedish vision of a fossil-free welfare society in 2045, we need to think in system perspectives and system innovation. The new values and new ways of working that emerge need to be supported by new policies, new types of infrastructure and production systems that promote innovation. For it to work, new business models involving new value constellations, target groups and collaborative actors will emerge. The result can be the development of completely new technologies, products or processes. Here are some possible initiatives discussed at the stakeholder meeting

2 SHREC, Regional Analysis on Policies for the Transition to Low Carbon Energy, October 2020

3 EU holistic approach to sustainable development | European Commission (europa.eu)

4 EU holistic approach to sustainable development | European Commission (europa.eu)

5 Forest and digitalisation – two areas of strength in Västernorrland — Regeringen.se (Government Offices/riegeringen.se)

* Testbeds or pilots for co-creating energy production and bio economy with design to be scaled up through networking from local initiatives to regional, national, EU and global. Follow-up research and support through network knowledge and policy development – MIUN.

O Biomass/biofuel – biofuels/biogas o Wind power

O Solar Power (solar electricity, solar heat) and Hydrogen

* “Energy communities” – collaboration in villages to become “prosumers” in interaction with network owners and electricity distributors

* A learning pilot – Transition to a fossil-free economy in a municipality – bio economy with holistic approach and with support and innovation work backed up by innovation environments in Middle Norrland, nationally, Nordic, EU and globally. Policy learning at different levels energy policy and contributing to system innovation

* Business models for a value-creating system by many different actors

* A limited concrete example from Middle Norrland to fossil-free Sweden – how to work with renewable and fossil-free – working machines

* Further development of the “Nordic Green Belt” based on renewable energy

With the help of the SHREC Action Plan, we have decided to improve the following **weaknesses**:

- Very few prosumers exist in the region
- Lack of good business models for prosumers.
- Non-existing energy communities due to law restrictions
- SMEs do not use green energy, sun, wind

And seize the following **opportunities**:

- The need of new concepts and testbeds for prosumers and the utilisation of energy communities in the region.
- EU bodies and program focus on clusters and cluster development for energy transition in present and future periods, DG-GROW not at all used in Middle Norrland, Sweden
- Formal cooperation within NUTS 32 and between clusters and communities, example for energy transformation of industry
- Disseminate success stories from other countries in the SHREC project and better communicate opportunities of energy transition

Endorsement and policy actions implemented.

Tillväxtverket and the Regions of Jämtland/ Härjedalen and Västernorrland endorse this idea for an action plan built on the analysis and the identified gaps and opportunities. The action plan takes stock from the good examples from Lithuania and Northern Netherlands. More specifically, learnings from the SHREC project is about to be implemented in the Prosumers in Middle Norrland project financed

by the “React call” from October 2021. The project was inspired by the good practice example on PV solar park market development from Lithuania (Ignitis) presented in stakeholder meeting 25th of January 2021 between Lithuania and Sweden. Another good practice that inspired us is the “GrunnegerPower“ <https://www.interregeurope.eu/policylearning/good-practices/item/3393/grunneger-power/>

example which is a local energy cooperative that has over 1000 members in the city of Groningen and neighbouring villages, where it develops i.e. solar parks. It works as an energy community and was presented at the partner meeting in Groningen in 2019

Tillväxtverket and the Partnership between the region of Jämtland/ Härjedalen and Västernorrland also encourages MIUN to develop and implement new concepts and testbeds tools to develop the policytools for photovoltaage and wind mills policy to be utilised by prosumers and in energy communities.

Item

Part III – Details of the actions envisaged

The action plan consists of one major new action. MIUN will run a React financed project until end of November 2022 and explore the drivers of the Early adopters of PV in the region. We will investigate the attitudes and experiences of this innovative segment of the population, trying to come to grips with the question; is it possible to build energy communities and increase the photovoltaage usage and turn consumers to prosumers in a larger extend than today. We would like to expand and evaluate this approach during phase two of the SHREC project. In doing so supporting the energy transition in smaller communities. The method and good example have been developed by the ministry of economics in Lithuania, University of Vilnius and the business community in Lithuania.

ACTION 1: The implementation and monitoring of the project” Prosumers in middle Norrland”

The background

The project will be run from 1th of march to 30th of November 2022. There will be evaluation of the possibility to implement the Lithuanian business model of photovoltaage- solar energy (the good example has not been published yet on the Interreg Europe/ Shrec webpage)

Challenge

The challenge is to manage supporting the 3-different communities in the region in their energy transition process. All in line with our need to increase skills and to implement policies supporting the PV development and market, on the ground.

Relevance SHREC / Lessons learned where and when:

The good practice example this project, prosumers in middle Norrland owned by MIUN is inspired from the presentation done by Lithuanians on the 25th of January 2021 at the common stakeholder meeting between Sweden and Lithuania.

1.1 Description of Action

The activities in the EU React project with number 20341222 in the administrative database of Tillväxtverket are:

Activity	Description	End date
External communication and dissemination of results	The results of the final report are communicated through a workshop with participating companies and representatives of community associations, authorities interviewed by the pre-study, as well as publication of the report on MIUN web and visibility of results via MIUN social media. Initially, the pre-study communicates that the project started via MIUN web and social media as well as keeps information when the pre-study has and had different meetings.	2022-12-03
Finishing work	The final report included results from: interviews with stakeholders (companies and prosumers). Knowledge from Lithuania and southern Europe about solar power. Sketch suggestions for different solar	2022-12-03
Evaluation and learning	Workshops and interviews conducted by researchers are part of learning throughout the pre-study.	2022-10-30
Develop design of test beds	Dialogue with Jämtkraft, Sundsvall's photovoltaage park and interested villages/community associations about design and test beds at each organisation and the development of basic requirements for the test beds. The energy researcher's perspective is included. These requirements are produced in the form of dialogues	2022-11-01
Dialogue with authorities in Sweden	Dialogue with the Energy Agency, the tax authority, energy offices in Jämtland and Västernorrland, on possible business models and technologies for solar power.	2022-06-30
Transfer of skills from Lithuania and South-Europe around the Energy Communitys	In-depth dialogue with Ignitis in the form of workshops and site visits for deep dialogue and exchange of skills around technology and business models that actors may be able to use in central Norrland. Digital dialogue meetings with authorities in France and Italy around Energy Communities.	2022-09-30

1.2 Players involved

Region of Jämtland / Härjedalen and Region of Västernorrland

Tillväxtverket, Region of Jämtland/Härjedalen and Region of Västernorrland, the policyowners who finance the project

The partners more operational in the project are:

Jämtkraft (Net owner and producer of electricity)

Lillium (property company)

SME installation firm

SME system designers of PV system (Solar North)

Same community in Jämtland (Mittådalen)

One condominium in Västernorrland (Brf Norrbacka)

1.3 Timeframe

The project with registration number 20341222 at Tillväxtverket is run between March 2022 – November 2022. The monitoring of the results and impact from the project which will be done during phase two of the SHREC project meaning the monitoring will be done during 2022 – 2023.

1.4 Costs

Personal from MIUN together with Tillväxtverket and the regions are doing the evaluation and monitoring of the results and impact of the project

The cost of the EU React s project no.20341222 is 0,08 m Euro.

Funding sources

The funding for monitoring comes from part two in the SHREC project. Reporting to Interreg Europe and sharing the results with the SHREC partnership.

The implementation and the project itself are financed by the EU - REACT call from October 2021, which means the project is financed by 0,4 m Euro from ERDF and 0,2m Euro from the region of Jämtland Härjedalen and 0,2 m Euro from the Region of Västernorrland.

1.5 Monitoring

Tillväxtverket is doing the monitoring of the REACT project as they have the responsibility of the approved project. MIUN is reporting the results and effects and together MIUN and Tillväxtverket make an analysis of the impact the call and the project have on the possible policy development of CO2 economy and the energy transition made for the different test sites/beds. These results will be reported during phase two of the SHREC project.

2022-06-30

Sundsvall

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