



Northern Periphery and  
Arctic Programme

2014-2020



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## Renewable Community Empowerment in Northern Territories



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# Renewable Community Empowerment in Northern Territories

## Family Fun Day and World Water Day – Hosted by Clar ICH



In March our County Mayo, Ireland based partner CLAR ICH held a massively popular and successful family fun day linked to World Water Day. The focus was attention on the importance of universal access to clean water, sanitation and hygiene (WASH) facilities in developing countries. The day also focuses on advocating for the sustainable management of freshwater resources. The family fun day allowed CLAR to help young people think about water in these terms while participating in fun activities.



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## Mid Term Conference - "Renewable Energy Solutions for Sustaining Rural Communities"

On April 27<sup>th</sup> 2017 "Renewable Energy Solutions for Sustaining Rural Communities" was held in Westport, Co Mayo. The conference featured a range of speakers and covered a multitude of topics which are detailed on the web page linked below. The conference was incorporated as part of the #mayoday initiative and saw a fantastic turn out of attendees from the local area and further afield.

Key aspects of the conference included the ability for Scottish Water staff who were speaking at the event to spend time visiting sites in Mayo with Mayo County Council Staff and investigating how Group Water Schemes in Ireland work. Scottish Water have taken lessons learned from the visit back to their offices in Scotland and new links have been formed for continuous working together in the near and long term future.

The various speakers were well received and all the talks can be accessed in full video form via our mid term conference report on our website

<http://recent.interreg-npa.eu/news/show/recent-mid-term-conference-renewable-energy-solutions-for-sustaining-rural-communities/>



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## General Update

### Virtual Learning Campus

Across the regions involved in the RECENT Project a number of challenges have arisen which has shown the benefit of collaborative working as challenges in one jurisdiction can be tackled by solutions that have been tested in others. One of the major areas of work in the last few months has been related to one of the key outputs of the project.

Much work has been ongoing behind the scenes on the development of our Virtual Learning Campus, hosted by Moodle. A Virtual Learning Campus is a Web-based platform for the digital aspects of courses of study, usually within educational institutions. In the case of the RECENT Project we have decided to develop this campus as a way of helping community groups, alongside students or any other interested parties, to learn how to develop a community led renewable energy project.

There will be several key strands to the learning platform containing material for each of the 5 regions in the project; Scotland, Ireland, Northern Ireland, Finland and Sweden; which can be accessed by all users allowing a potential project in Scotland to learn from a continuing or completed project in Finland, for example. Alongside this several topics will be covered including case studies, information on potential funding mechanisms and access to mentoring.



The campus is being developed and information is being added on an ongoing basis.

### Conferences and Partner Meetings



The partners have met twice, in April in Mayo, Ireland and September in Oulu, Norway. This has allowed partners to visit various renewable projects and learn lessons from these that can be adapted to the circumstances in their own region.

In Oulu, partners visited various sites including the municipal waste site that is developing a biogas plant, a solar installation powering a newspaper printing press and one of the most northerly Botanic Gardens in the world which houses tropical plants in an arctic location.

### RetScreen

In June, the members of the partnership gathered on a webinar to learn about the program “RetScreen”.



RetScreen is a Clean Energy Management Software system for energy efficiency, renewable energy and cogeneration project feasibility analysis as well as ongoing energy performance analysis. What this means is that a potential renewable energy installation can be quickly and in straight forward fashion analysed on RetScreen to give a brief overview of the project’s viability. RECENT partners will be able to use the knowledge gained from this training in helping community groups as part of the project.



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## Pilot Site Updates - Sweden

### RECENT pilot Vilhelmina, Sweden: Wastewater Heat Pump

Kittelfjäll is a long and mountainous long valley within Vilhelmina municipality, which has outstanding on- and off-piste skiing opportunities in a beautiful nature. The small village is becoming more and more attractive to people who want to have an own cottages there. The rising number of inhabitants makes it necessary to build a new sewage plant, which will be equipped with a highly efficient heat pump to make use of the heat in the wastewater. The heat pump will be about four times more effective at heating than a normal electric heating system. What makes the system special is the easy handling of the heat collector, which is very resistant to chemicals and easy to pull up and clean.



*Wastewater heat pump system in Bjurholm, Sweden. A similar system will be built in Kittelfjäll.*

*Source of picture: Evertech & Ecoclimate Comfort Ceilings AB*



### RECENT pilot Jokkmokk, Sweden: district heating efficiency campaign

Jokkmokk district heating is to 98 percent based on bioenergy. Nevertheless, to be truly sustainable this is not enough as being energy and cost efficient is equally important. This is why there is now an efficiency campaign with a focus on the return temperature of the water coming back from the customers. This is a key indicator of heat network efficiency. A low return temperature results in a larger delta T, which means lower flow rates are required for the same kW delivered. By that, pumps and pipes work safer and more efficient. A cooler return pipe also lowers heat losses. In plants, which have like Jokkmokk a flue gas, condensation low return temperatures are very important for ensuring high efficiency of the condensation system. By installing new meter at customer's facility it is now possible to find out where problems exist and to fix the problems, often by adjusting the customer's heat exchanger.



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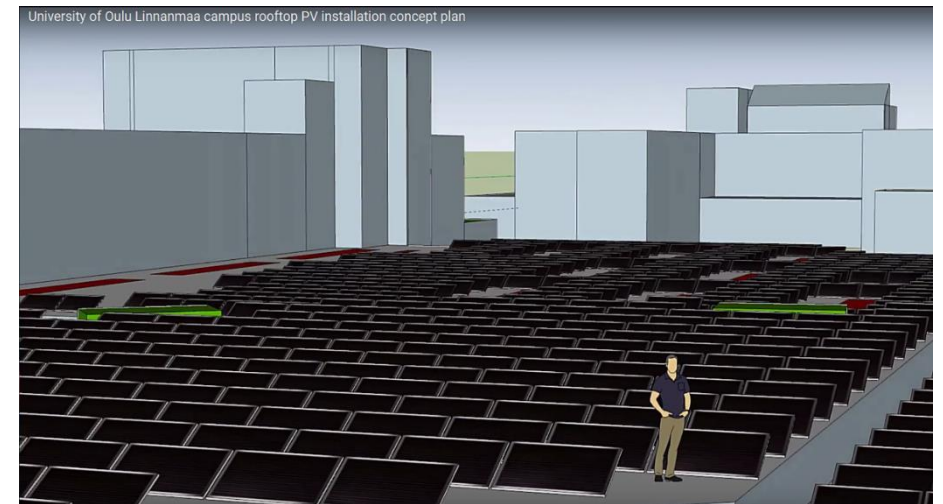
## Pilot Site Updates - Finland

The Oulu partner has made progress with a potential pilot in Finland, which is the installation of a large-scale solar photovoltaic array on the rooftop of the University of Oulu Linnanmaa campus. This pilot is developed in synergy with the FREED (Funding Resources for Energy Enterprise Development) NPA project. The Energy and Environmental Engineering Research Unit made a suggestion for a 2,2 MWp array capable of producing about 2000 MWh electricity throughout the year. This satisfies about 13 % of the university's yearly electricity need, however, in the summer months, it would reduce the university's peak electricity consumption of 3000 MWh/h by about 1000 MWh. Overall, it would reduce the University's CO<sub>2</sub> emissions by 47 tons a year. The sizing was made for 8000 panels, placed 2 metres apart at a 30 degree angle, occupying about 1/3 of the rooftop area of Linnanmaa campus. The sizing calculation was made using the Skelion plugin of the Sketchup programme, using the 3D image of the Linnanmaa campus (accounting also for shading), and is based on 10 years of measured solar irradiation data from Oulu. Based on the initial proposal done in the FREED project, an information video has been produced within the RECENT project, as well as the environmental, social and long-term sustainability of the proposed pilot have been evaluated.



*Concept plan of the 2.2 MWp PV array on the rooftop of University of Oulu Linnanmaa campus*

*Close-up of the rooftop PV installation concept plan*



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## Synergy with the Sustainable Urban Energy Training Programme



*Participants of one of the training seminars on Sustainable urban energy in Hanoi.*



*Live from Finland to Vietnam; Prof. Pongrácz interacting with the audience in Hanoi*

RECENT Project partners are also carrying out work in various other areas and some synergies between this work and the work of the project have been recognized.

The Oulu partner has been working with the Institute for Human Settlements (IHS) in Hanoi, and the Vietnam Institute for Urban and Rural Planning (VIUP) on promoting energy developments in Vietnam, within the 'Sustainable energy for urban households in Hanoi' project, financed by the Embassy of Finland to Hanoi. A training seminar on sustainable energy has been organized in Hanoi, which attracted so much interest (over 170 applicants) that it had to be repeated.

Altogether, over 120 participants completed the training. Further, a Moodle-based on-line training course in sustainable urban energy has been developed by the University of Oulu partner, the Energy and Environmental Engineering Research Unit, with lectures on the basics of renewable energy (solar photovoltaic, solar thermal), building ventilation and heat pumps as well as building energy efficiency and energy efficiency renovation. As most of the themes are relevant also for RECENT, it has been agreed that this training material will be made available also on the RECENT virtual learning campus.



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## Contact Us

The European North is one of the areas that will undergo significant changes in the coming decades due to climate change. Climate change is likely to challenge the provision of water services and local water and energy infrastructure. Projected challenges include precipitation induced flood events and increased run-off especially in winter and spring months and, in the summer, increased competition for water.

The impacts of climate change may also open new possibilities for the remote NPA regions that could make the region become a major energy producer. The 5 partner countries are some of the top regions of the world as regards the amount and quality of water. While water is abundant, providing water services in these regions is energy intensive. To become more efficient and smart in this area is therefore a significant objective.

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