

NEWSLETTER

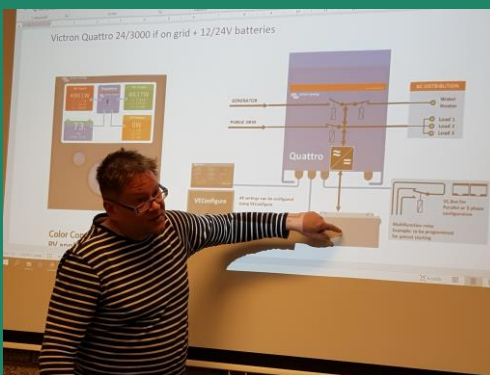
Edition 6, Volume 6



Donegal County Council is delighted to host the H-CHP seminar for Community and Energy Experts on 8th October 2020 on behalf of Energy Action. Joy Hannon of Donegal Co. Co have said that she can also place the details on our Internet for everyone to see. She will also share it with the various EU project teams internally and externally so that we can reach as many potential interested participants as possible. We would probably need to ask people to RSVP or use Eventbrite as it will be important to manage the number of participants in light of Covid-19 restrictions.

Due to the continuing restrictions of Covid-19, the H-CHP partners at a meeting on 9th September 2020 agreed that it is not possible to hold seminars in each partner country because of the continuing presence of Covid-19. Webinar will be held on 2nd November 2020 and all Projects will record their delivery of their own Work Packages. Eventbrite will be used to make and manage bookings.

COMMUNITY GUIDE TO HOUSEHOLD COMBINED HEAT AND POWER (H-CHP)




Index	
1	Introduction to the H-CHP Project
2	Purpose of the Community Guide to H-CHP
3	What is household or micro CHP?
4	Types of H-CHP and micro systems
5	How does H-CHP work
6	Examples of systems
7	Positives and downsides of micro scale combined heat and power
8	Community engagement for H-CHP and energy efficiency projects
9	Economic benefits to the Northern Periphery and Arctic Area of the EU
10	Partners within the H-CHP project



The purpose of this guide is to give an overview of our project and examples of small-scale combined heat and power for those who are interested in developing their own capacity and interest in CHP at an individual or community level.

The project is to promote the uptake of Combined Heating and Power systems (CHP) in the region using solid renewable biomass and gasification methods that will be appropriate for remote households. The Northern Periphery Area has abundant natural fuel resources but is subject to a harsher climate than the rest of Europe and these results in the need for increased domestic energy. The principle of CHP is to use some of the heat in the home to generate electricity; this is intrinsically highly efficient. The project will analyze the energy needs of remote households in the region. The available fuel is mainly solid which is unsuitable for existing gas CHP. We proposed a new affordable solution that uses local renewable solid biofuel in a small-scale micro CHP system. The advantage of this approach is that all fuel used is carbon neutral, transport costs are minimal, and there are reduced CO2 emissions. This helps



with carbon legislation compliance, reduced transmission losses from the grid, and the electricity-to-heat production ratio is a good match for the colder parts of Europe.

UPCOMING EVENTS

WORKSHOPS

- H-CHP SEMINAR 2nd NOVEMBER IN DONEGAL.



The GEK Gasifier kit is a complete gas-making system: from biomass fuel feed input through syngas/air mixer output to engine.

Professor Rúnar Unnþórsson from the University of Iceland demonstrates the equipment to colleagues. The gasifier turns 1.2 kg biomass into 3 metres cubed of gas which then produces the equivalent of 1 kWh of electricity.



The BioGen Wood Log Heater contains a commercial 20 kW heater for the gasification of wood logs or chips and the Microgen's 1kW Stirling engine beneath the heater generating electrical energy of about 600 to 800W. We tested this CHP solution in the test arrangement as shown in the picture. In the test arrangement, the CHP can be simulated approximately the same as if the CHP had been installed in a detached house and if the outdoor conditions would have been similar to the indoor ones. Tests took place in Nivala Finland when outdoor temperature was +3 °C when the Stirling generator produced electricity 650 W at maximum rate. We were surprised that the Stirling generator is amazingly quiet and vibration very slight – says Mika Puirava from the University of Oulu, Finland. The CHP is the best suited for the use in off-grid in northern colder climates with higher heat demand in combination with a battery pack and a centralized water heating system.

HOUSEHOLD COMBINED HEAT AND POWER (H-CHP) TOOLKIT



This toolkit is a systematic guide for start –up and use of the Wood Log Gasifier system and the University of Iceland gasification standard operating procedures from start-up to operating procedure and shut down procedure and post shutdown operating procedures.

Listed inside, is a simple to follow preparation, start-up, operating, to shutdown of the systems.