



Overview of the GenComm project

The €9.39 million GenComm project funded by Interreg North West Europe aims to address the energy sustainability challenges of NWE, by technically and commercially validating renewable hydrogen technologies. The project will develop three pilot plants, in Northern Ireland (wind power), Scotland (bioenergy) and Germany (solar power), linking the three main renewable sources, Solar Power, Wind Power and Bioenergy, with energy storage and the main forms of demand - heat, power and transportation fuels. Based on the pilot plants, technical and financial models will be developed, with the overall aim of developing a Decision Support Tool (DST). This DST will then provide a roadmap for communities to transition to renewable, hydrogen-based energy.

Normandy Council supports GenComm research & leads the way with €15M hydrogen plan

Normandy Region Vice President, Mr Hubert Dejean de la Bâtie addressed the latest GenComm Open meeting at the Normandy Regional Council headquarters in Rouen France. Speaking to project partners and key energy stakeholders from throughout the Normandy Region, in the context of the Normandy Council's new 5-year hydrogen plan, Mr Dejean de la Bâtie emphasised that research projects like GenComm, which is funded by Interreg NorthWest Europe, are more critical than ever before.

Addressing the GenComm Open meeting at the Normandy Region Council Headquarters, Mr Dejean de la Bâtie highlighted the need for scientific research amid the pressures of climate change:

“In the context of today’s increasing environmental pressures surrounding climate change, we need the help of scientists and scientific research more than ever before. In 1987, in the face of a depleting ozone layer, we saw the universal ratification of the Montreal Protocol, which was a landmark global agreement to phase out the production and consumption of ozone-depleting substances. This agreement was a great success as evidence is showing that the ozone hole in Antarctica is slowly recovering. The effects of climate change are clear for all of the world to see, but so far they have not led to such a global treaty.

Scientific research into alternatives to fossil fuels is more critical than ever, and we are proud that our academic partner here in Rouen, INSA (National Institute of Applied Sciences), is delivering on this need under the banner of the Interreg NorthWest Europe-funded GenComm project, as they lead on the technical analysis of the project’s 3 renewable hydrogen plants.”



From left: Lionel Estel, INSA; Hubert Dejean de la Bâtie, VP, Normandy Council; Isabelle Polaert, INSA; and Paul Mc Cormack, Belfast Met.

Speaking about the launch of the Council’s Hydrogen Plan, Mr Dejean de la Bâtie added:

“The Normandy Region Council is delighted to announce that it has just launched a €15million 5-year hydrogen plan, which will see the further development of clean hydrogen cars, and the opening of 15 hydrogen-refuelling stations. This plan is a reflection of the region’s energy commitment to hydrogen, and we look forward to a strengthened partnership with the GenComm research project, as we progress the region’s transition to fully renewable energy.”

Isabelle Polaert of INSA Rouen, the French partner responsible for leading on the Technical Analysis of the project's 3 pilot plants, as well as the Methanation for the bioenergy plant, commented:

"GenComm will enable us to demonstrate that hydrogen from renewables energies is the energy vector of the future. The GenComm partnership enables transnational collaboration, which enriches our research and opens our minds, in turn benefiting the communities we are serving, those of North-West Europe. The partnership with the Normandy Region Council, and associated energy projects in the region, can only advance the country's transition to fully renewable energy and adoption of renewable hydrogen."

The € 9.39m GenComm project will validate renewable hydrogen as a viable source for powering heat, electricity and transport, particularly for remote communities, and the development of the project's 'Decision Support Tool' will benefit communities and regions considering the transition to clean hydrogen.

Other speakers at GenComm's Open Meeting in Rouen included Mathilde Belhache from the Council's 'Eas-HyMob' hydrogen vehicle project, François-Xavier Dumur of Nov&atech, who spoke on the subject of methanation in the



GenComm Open Meeting at Normandy Council Headquarters in Rouen

region; and Nicolas Picard from EDF-EN, who explained more about Normandy's offshore wind farm.

For further information on the GenComm project, visit <http://www.nweurope.eu/gencomm>

BURN receive recommendation at 'International Conference on Applied Energy'

The theme of this year's International Conference on Applied Energy (ICAE 2018) in Hong Kong, "Innovative Solutions for Energy Transitions", provided the ideal platform for BURN to promote the work of GenComm. As a joint research group of the 'Université Libre of Brussels' and 'Vrije Universiteit Brussels', BURN presented their work during the conference's second session on hydrogen energy. The conference attributed six oral presentations sessions to fuel cells and two sessions to hydrogen energy - a demonstration of the importance placed internationally, on hydrogen as an innovative energy storage solution.

Diederik Coppitters, PHD researcher in the Department of Mechanical Engineering, BURN, Brussels, outlines their presentation:

The work we presented considered a range of real life uncertainties, which can impact the hydrogen system performance during real-life operation. The uncertain behaviour of eighteen technical and economic parameters (e.g. solar irradiance, operating temperature, operating cost, discount rate, lifetime...) were taken into account to determine their effect on the design of a photovoltaic-electrolyser system, an electrolyser system similar to the one being developed by our GenComm partner IZES in Saarbrücken, Germany for their solar-powered hydrogen refuelling station.

It became clear that the uncertainties affected hydrogen production and the levelised cost of hydrogen, therefore



Diederik Coppitters, PHD Researcher, BURN

consideration of design modifications was essential, to reduce the volatility of the system under varying conditions.

Our work and presentation was very well received, and resulted in a recommendation by the Conference Chairs to publish our work in the Special Issue of the Applied Energy journal. Applied Energy is a high-quality international peer reviewed journal, ranked 8th out of 97 journals on energy and fuels, and ranked 4th out of 137 journals on chemical engineering. The recommendation for publication in this highly regarded journal reflects the importance of the work for the GenComm project, and demonstrates how central hydrogen has become to the future energy mix.

Diederik Coppitters,
BURN Brussels

“Hydrogen is safer than petrol”, affirms DCU’s James Carton at World Energy Week

Dr James Carton is an Assistant Professor in Energy Sustainability and Hydrogen and Fuel Cell Technology Development at Dublin City University (DCU). He presented at ‘World Energy Week’ in Milan in October, as part of the ‘Hydrogen Taskforce’ and as one of the ‘Future Energy Leaders’ (FEL). James gives his take on the week’s sessions and discussions.

This year the World Energy Week was in Milan, a week where energy experts, Ministers and CEOs of OEMs (Original Equipment Manufacturers) led key sessions on resilience, green finance, e-mobility, digitalisation and market design, as well as on macro-regional and international energy issues.

Renewables are the talk of every conversation; we are putting 500MW of wind here, wait someone else is installing 500MW of solar there. Renewables are booming and the old grey-haired men that once invested in coal are now beginning to divest. The title of every talk is “The energy Transition” (a transition to zero carbon and zero emissions).

Energy is prime in the minds of the CEOs and government Ministers across the world, and the Paris Agreement requirements are difficult if they are to be implemented. Hydrogen is still that thing everyone knows about, but some think it as a future solution. Professionals working in the energy industry still come up to me and ask, is hydrogen safe? To which my reply is: it is safer than petrol, and you let your kid pour that into your car! But the Hindenburg, was that not hydrogen? My reply: Yes, it was but standards and safety have moved on since 1937!

My team presented “Hydrogen enabling the energy transition”, and generated great interest. This was our motivation to attend World Energy Week – to educate the energy experts, the energy CEOs, and the energy Ministers



Dr James Carton, centre, with the FEL Hydrogen Taskforce

of the world. Hydrogen can add value to renewables. It can store renewable energy and convert this clean energy into fuel for your cars; chemicals for your industry, and gas for your grid! Connecting all society to a clean, zero carbon, emission-free opportunity. The Future Energy Leaders that presented in Milan, as part of the ‘Hydrogen Taskforce’ included Alena Fargere, James Carton, Bart Kolodziejczyk, Andres Picatellez, Cansu Karaca, Laura Martintez, and Yena Chae.

Next year it is the World Energy Congress, and it will be held in Abu Dhabi; where we will have more results, more projects to discuss, and either by twitter or by osmosis, we will get the message across that Hydrogen has an important role to play in our fight against Climate Change.

Dr James Carton,
Dublin City University

Hydrogen production plans for Ireland’s Valentia Island

An example of a small community seeking to produce hydrogen for their own use is Ireland’s Valentia island off the coast of County Kerry. Valentia Island Energy Co-operative have recently completed their ambitious local Energy Masterplan, and the production of hydrogen is detailed as a key strategic objective.

The next step for the Co-Operative will be to complete a feasibility study, which will be undertaken by Energy Co-Operatives Ireland in early 2019.

The development of GenComm’s Decision Support Tool (DST) will be very timely for this project, and will be of significant benefit in making hydrogen production a reality for this small but remote community.

Cormac Walsh,
Energy Co-Operatives Ireland



Valentia Island, County Kerry, Ireland

Maximising renewable energy sources for clean growth

The Northern Ireland context

In late June the UK Committee for Climate Change (CCC) published its annual report to Parliament on progress towards legally-binding emissions reduction targets as set out in the Climate Change Act. The Act is UK-wide and the CCC provides detail on greenhouse gas emissions for Wales, Scotland, England and Northern Ireland.

The report points out that despite local and national targets for greenhouse gas reductions, last year Northern Ireland increased emissions. We have a target to reduce emissions in 2025 by at least 35% compared to 1990 levels. In 2016 levels were only 16% below 1990 levels. The NI Executive's own projections suggest that progress is falling short of what is required. The Committee warns that unless action is taken now, we will face an unnecessarily expensive task to shift to a low-carbon economy in the future.

One bright spark in the report is the significant success of the renewable electricity sector in Northern Ireland. We expect to reach our ambitious 40% renewable electricity target in 2019: one year ahead of schedule. Not only that, but a recent study has found that there will be no net cost to the consumer of doing so. It is clear that when it comes to renewable electricity, we are already delivering clean growth. On top of the cost-neutral consumer impact of 40% renewables, there is an additional economic benefit. Across Northern Ireland local Councils receive £10million each year in business rates from large-scale wind farms. Voluntary community benefit schemes set up by wind farm developers deliver more than £1.6million to rural communities annually.

Analysis carried out this year demonstrates that Northern Ireland could have 70% renewable electricity by 2030 with no additional cost to the consumer, so the clean growth opportunity continues to make sense economically as well as environmentally. This requires the right supporting policies, and a continued focus on the innovation that has delivered success so far.

With increased levels of renewables we need to ensure that the cheapest forms of energy are used at maximum capacity. This means minimising the times that wind energy, in particular, is dispatched-down through constraints or curtailment. However, investment in low-carbon generation has not been matched by network investment, and across the island the greatest percentage of wind dispatch-down last year was in Northern Ireland: 109GWh or 5% of total available wind energy.¹

¹<http://www.eirgridgroup.com/Annual-Renewable-Constraint-and-Curtailment-Report-2017-V1.pdf>

Moving beyond 40% renewable electricity and decarbonising our energy sector through the electrification of heat and transport will require much greater emphasis on maximising existing renewables, as well as an increase in new renewable generation. The Interreg-funded GenComm project is seeking to resolve grid constrained renewable energy deployment by implementing pilot plants that link solar power, wind power, and bioenergy with energy storage and the heat, power and transport sectors. In Northern Ireland this involves working to transform and store excess electricity as hydrogen which could then be used to power vehicles, utilising otherwise unused wind energy and simultaneously lowering greenhouse gas emissions from transport.

NI actually increased overall greenhouse emissions by 1.3% in 2016, and NI transport emissions are 29% higher than in 1990. Given the importance of maximising existing renewable generation and the need for better progress on climate change targets, projects that seek to deliver improvements across the transport and energy sectors are vital for our success.

Meabh Cormacain
Northern Ireland Renewables Industry Group (NIRIG)



We invite your feedback at our Open Meetings!

12 Dec 2018 BURN (Brussels)
13 Mar 2019 Energia (Northern Ireland)
12 June 2019 Pure Energy Centre (Scotland)

11 Sep 2019 IZES (Germany)
11 Dec 2019 ENSI Caen (France)
Mar 2020 Belfast Met (Northern Ireland)



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