

MERCURY RENEWABLES NEWSLETTER

SEPTEMBER 2022





Dear Resident/Stakeholder, Since our Firlough Wind Farm and Green Hydrogen project began, Mercury Renewables has been committed to ensuring that local residents, businesses, and community groups are kept informed as we progress development.

Due to restrictions previously imposed because of the COVID-19 pandemic, we were unable to offer an in-person public consultation on the project – but launched an online virtual consultation in December 2021. Since then, we have been engaging with local residents in the vicinity of the proposed development via hand-delivered letters, leaflet drops, newsletters, phone calls, and in-person conversations.

This engagement has taken place in advance of any detailed design work – as we are firm believers that local stakeholders can provide unique perspectives regarding developments within the communities in which they live. Together with our Community Liaison Officers, Anna and Caitlin, we have been proactive in reaching out to the community and in making ourselves readily available to answer questions about the project.

This newsletter is intended to provide a project update following the feedback received through our public consultation, in particular addressing questions around health and safety, noise, use of local roads, and visual impact.

If you have not received any correspondence from us previously and would like to know more about Green Hydrogen, how it is produced, what the by-products are, our feasibility study with MaREI and DCU or to see some examples of what the agricultural style-building might look like, please get in touch and we would be delighted to provide you with past newsletters.

As part of our ongoing community engagement, we are hosting two in-person Public Information Days on Wednesday 14th September in The Grove Hall, Bonniconlon and Thursday 15th September in Castleconnor Community Centre. Further details can be found at the end of this newsletter.

We trust that we have demonstrated we not only listen to community feedback, but also take concrete action on this feedback. We want this project to succeed in a manner that benefits the entire community – and we are delighted to know that the vast majority of those in the local community want this too.

Once again, we want to thank you for your support for this development – and we look forward to ensuring that County Mayo and County Sligo can proudly assist in contributing towards achieving Ireland’s legally-binding climate targets, all while ensuring the future vibrancy of the local economy.

We hope to see you at one of our Public Information Days – and we look forward to keeping in touch.

John Duffy,
CEO, Mercury Renewables

SITE SELECTION AND ALTERNATIVES CONSIDERED

Preferred Proposed Hydrogen Plant Site: Mercury Renewables initially identified an electrolyser site immediately adjacent to the Firlough Wind Farm at Carrowleagh (known locally as “Kilbride Bog”).

Following extensive engagement with the local community, we have taken on board the feedback provided by residents regarding the use of local road networks as well as noise, health and safety, and visual impact interests.

We have acted on this feedback and have considered several alternative sites for the production of hydrogen using the electricity generated from the Firlough Wind Farm as well as exploring technical alternatives, for example; distributing the hydrogen via underground pipe.

We now believe that we have identified a new preferred site that:

1. ensures the strictest National and European health and safety standards are adhered to;
2. reduces the number of houses passed on local road networks to one;
3. will ensure the production of hydrogen cannot be heard at the closest residences;
4. is situated in a location that can accommodate the agricultural-style building in which the facility will be housed.



HEALTH & SAFETY:

Safety is at the forefront of everything we do. If it's not safe, we won't do it.

Once fully operational, our hydrogen project will be as safe as the following plants, where many different gases are stored in a safe manner:

- Ballina Beverages, Ballina, Co. Mayo
- Aurivo Dairy Ingredients (Connacht Gold), Ballaghadreen, Co. Roscommon
- Calor Teoranta, Claremorris, Co. Mayo
- Farragh Proteins, Crossdoney, Co. Cavan
- Flogas Ireland, Ballyhaunis, Co. Mayo
- Lakeland Dairies Co-Op, Killeshandra, Co. Cavan

Producing hydrogen from water is a well-established and safe technology. Across Europe and around the world, hydrogen is quickly becoming the green fuel replacement for fossil fuels. In Ireland, BOC, a British based gas company, has been producing hydrogen at a Dublin plant for over 25 years, supplying key Irish industry sectors such as aerospace, electronics, pharmaceutical, and medical. More recently, the company supplied the hydrogen used by the three hydrogen buses owned by Dublin Bus, which began serving residential routes in July 2021.

We continue to engage closely with the Health and Safety Authority through our Sligo-based engineering consultants, Jennings O'Donovan – as well as working closely with our internationally-renowned hydrogen-engineering consultants, Black & Veatch, to ensure that all domestic and international safety standards are adhered to.

Following identification of our Preferred Proposed Hydrogen Plant Site, we engaged with the Fire Department of Sligo County Council to begin planning out a fire response plan. Initial conversations have been positively received and we have been praised for our early outreach and proactive approach to health and safety.

TRANSPORTATION ROUTES:

The Preferred Proposed Hydrogen Plant Site is located 600 meters from the N59 national road network and will pass a single house of the general public on the local road network. The owner of the house has consented to the proposed traffic movement and is the existing owner of the land on which the Preferred Proposed Hydrogen Plant Site is located.

NOISE:

The main source of noise from the Preferred Proposed Hydrogen Plant Site comes from compressor equipment and cooling fans. We are currently completing a detailed noise assessment study that will be used to design out the noise produced by this equipment such that it cannot be discernible at the nearest noise receptors.

The plant design will be under constant review as the project progresses and the noise mitigation techniques will be continually monitored and reviewed as part of this, so that if further amendments are required, such as building material modifications and equipment design adjustments, these can be modelled and included. This will put noise mitigation, alongside health and safety, at the forefront of the design through all stages of the project.

Further information shall be provided at the Public Information Days and online.





VISUAL IMPACT:

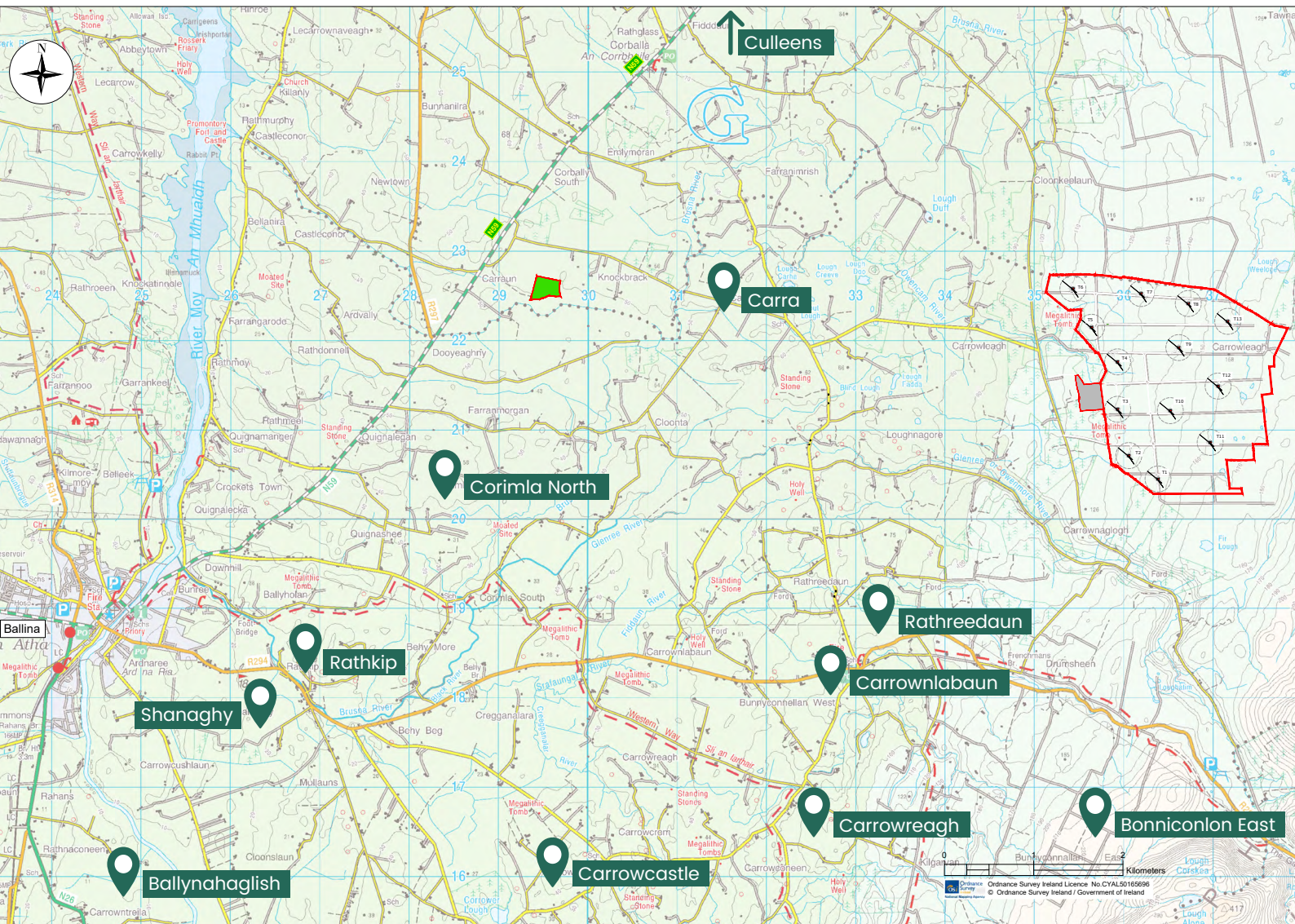
The Preferred Proposed Hydrogen Plant Site is located in an area of farmland that is naturally screened from many public vantage points. We have committed to housing the electrolyser componentry within an agricultural-style building to ensure the Project's sympathetic integration with the surrounding rural landscape. Further landscaping will be an integral part of our planning submission to ensure the building is suitably screened from the public, including houses to the south of the Preferred Proposed Hydrogen Plant Site.

PREFERRED PROPOSED HYDROGEN PLANT SITE SELECTION:

Thirteen different sites have been considered for locating the hydrogen plant. The below map shows the approximate location of these considered sites.

LEGEND

-  Proposed Firlough Wind Farm Site
-  Proposed Firlough Wind Turbine Locations
-  Original Proposed Hydrogen Plant Site
-  Preferred Proposed Hydrogen Plant Site



A summary of the grading system used in arriving at the ranking of the top six alternative sites considered is provided in the below table. Further detail will be provided at the upcoming Public Information Days and online.

	Preferred Proposed Hydrogen Plant Site	Original Proposed Hydrogen Plant Site	Culleens	Carra	Shanaghy	Bonniconlon East
Distance to Wind Farm						
Score calculated based on distance to the wind Farm ● < 1km ◐ 1<3km ◑ 3<7km ◒ 7<10km ○ >10km						
Proximity to Houses & Sensitive Receptors						
Score calculated on distance to closest house and or other sensitive building such as a school ● >200m ◐ 150m-200m ◑ 100m-150m ◒ 50m-100m ○ 50m						
Hydrogen Transportation Route Suitability						
Score based on local knowledge and review of local road network and national road proximity to show the suitability of the hydrogen trailer route and the impact on local traffic.						
Visibility & Screening						
Based on overview assessment of topography, natural screening from trees and other vegetation, set back from roads, houses and other sensitive receptors.						
Sensitive Landscape Areas, Features & Viewpoints						
Score based on overview assessment of Mayo/Sligo Sensitive landscape types/areas and proximity to scenic routes, viewpoints and high scenic amenity areas.						
Habitats & Ecology						
Score based on type of habitat and proximity to conservation areas and areas with protected species. Proximity to special areas of conservation and special protected areas (internationally protected conservation areas known as European sites), Natural Heritage areas, Salmonid waters (protected areas for salmon), ancient woodland, bird watch sensitivity areas, Annex I Habitats. Type of habitat and proximity to conservation areas and areas with protected species.						

Preferred Proposed Hydrogen Plant Site
 Original Proposed Hydrogen Plant Site
 Culleens
 Carra
 Shanaghy
 Bonniconlon East

Water Source



Data at the Preferred Proposed Hydrogen Plant Site and the Original Proposed Hydrogen Plant Site is from hydrological site investigations which include drilling to test water volume, quality and potential impacts of abstraction. Where not available a score was calculated looking at the type of aquifer in the area regionally/locally, presence of a gravel aquifer and locality of wells/karst features which suggests groundwater supply.

Cabling Route Suitability



Score based on the suitability of the cabling route between the wind farm and hydrogen production facility. Includes a review based on local knowledge and mapping software. A lower score is given where the route will need to go through towns/busy areas as this could cause disruption.

Flood Risk



Flood risk score based on the environmental protection agency flood risk maps.

Commercial Suitability



Score based on a combination of factors that contribute to the viability of the location from a commercial aspect, this includes size of land available, access rights, suitable distance from overhead lines and other limiting infrastructure, the landowners being open to the project, the cost of the cabling route.

Total Scores



STATUS OF DEVELOPMENT

Following the identification of the Preferred Proposed Hydrogen Plant Site, preliminary on-site investigations have been conducted including:

1. Drilling for water and testing of water flow rates and water quality
2. Ecological survey
3. Topographical survey
4. Archaeological assessment
5. Road and transport route assessments

This is in addition to extensive investigations that have also been carried out at the Proposed Firlough Wind Farm Site. A comprehensive description of investigative and assessment works shall be provided at the Public Information Days and will be included in the planning application to be submitted to An Bord Pleanála later this year.

Having obtained data from the on-site investigation work at the wind farm and hydrogen sites, preliminary design works have been prepared for the Proposed Firlough Wind Farm and the Preferred Proposed Hydrogen Plant Site. A selection of maps and graphics are contained on the following pages.

Further detail will be provided at the Public Information Days and online.

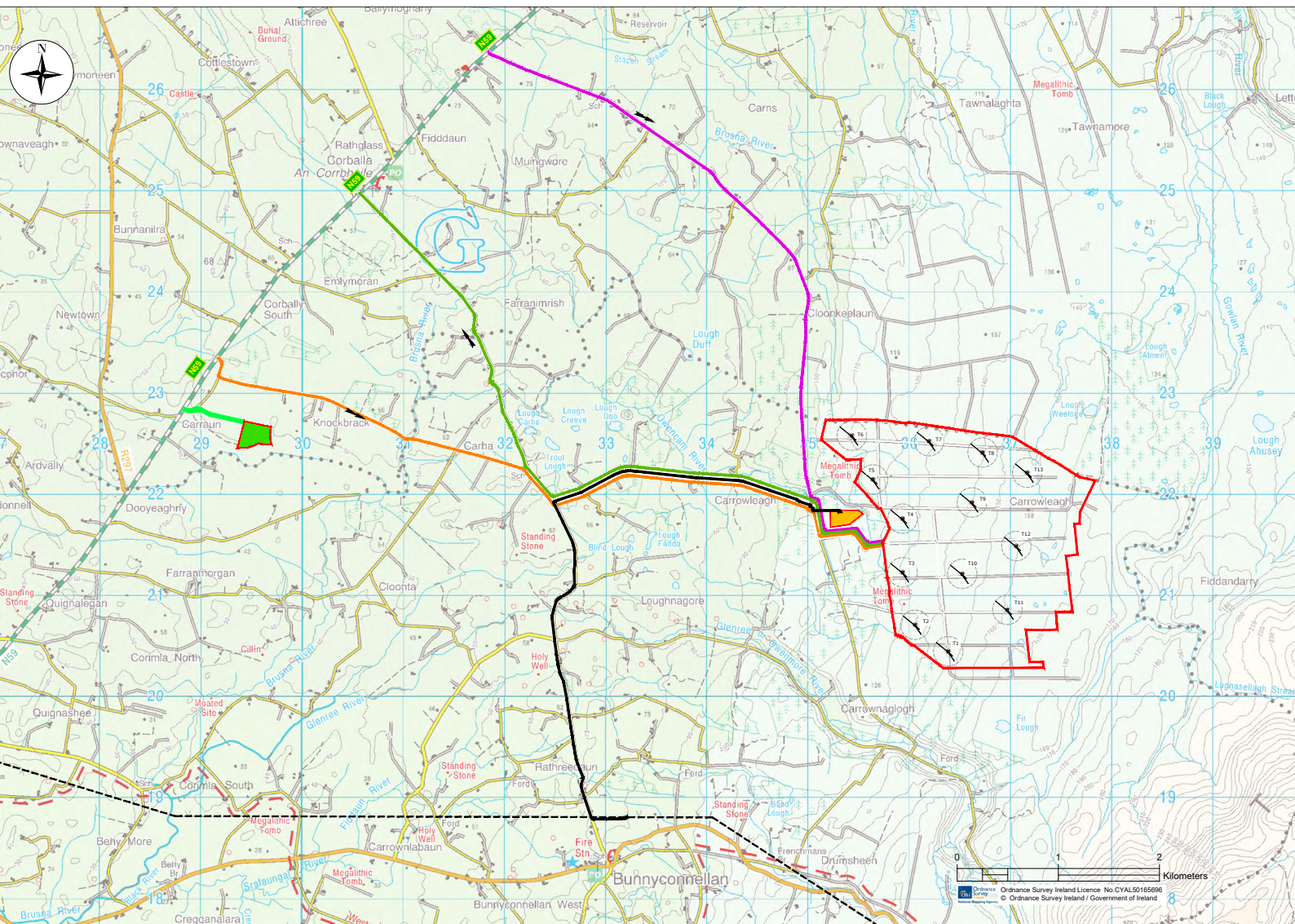


PROJECT DEVELOPMENT MAP

The below map shows the location of the Proposed Firlough Wind Farm and the Preferred Proposed Hydrogen Plant Site along with other ancillary infrastructure.

LEGEND

- Proposed Firlough Wind Farm Site
-  Proposed Firlough Wind Turbine Locations
- Proposed Firlough Wind Farm Substation Site
- Proposed Grid Connection Route
- Proposed Turbine Delivery Route
- Proposed Construction Haul Route To Site
- Proposed Construction Haul Route Away From Site
- Preferred Proposed Hydrogen Plant Site
- Preferred Proposed Hydrogen Transport Route To And From Site
- Existing Carrowleagh - Kilbride 110kV OHL



WIND FARM MAP

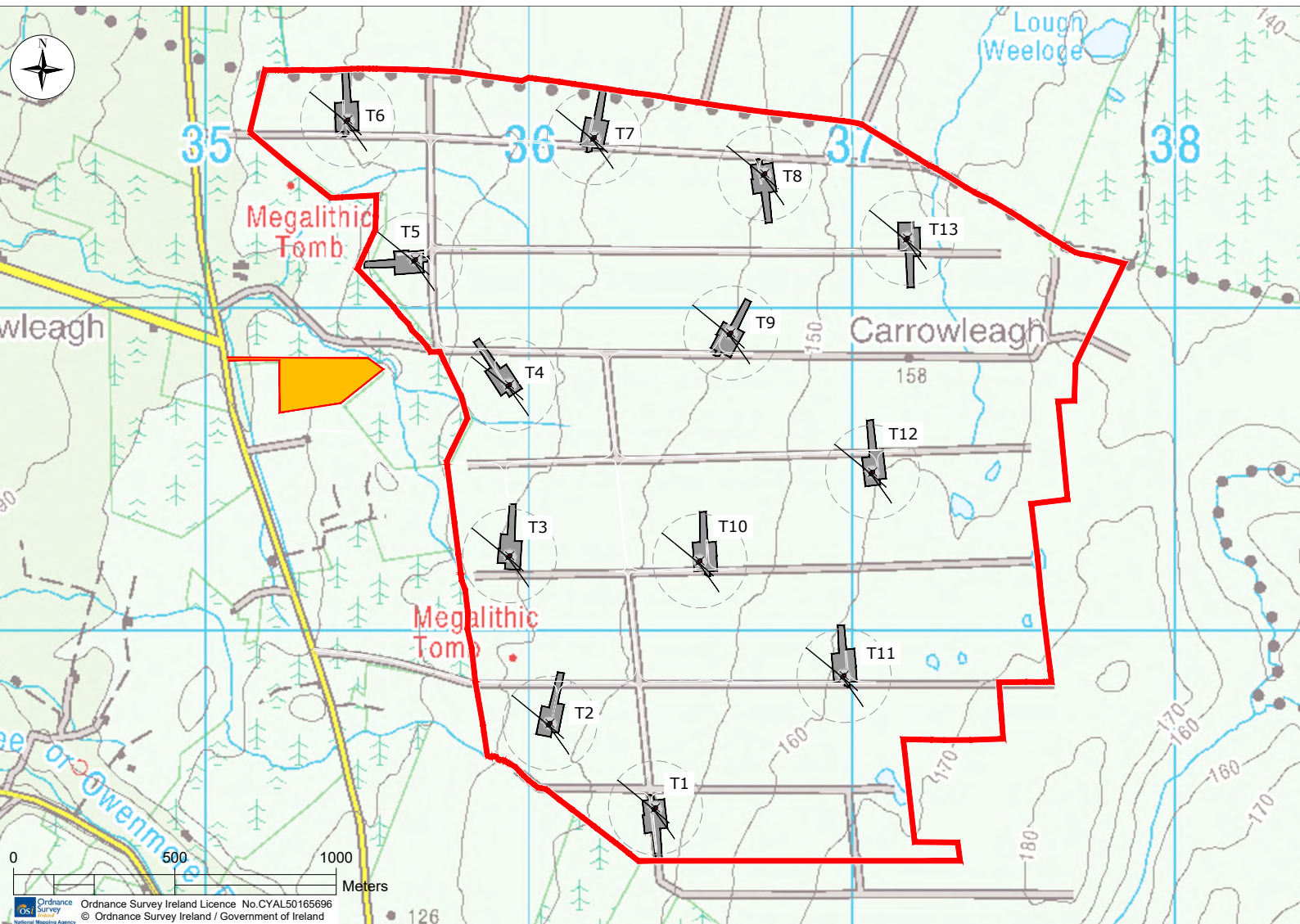
The below map shows a detailed layout of the Proposed Firlough Wind Farm including hardstands at each wind turbine location. Planning permission for a 21 wind turbine project was previously granted by An Bord Pleanála in 2013. We are now seeking new planning for fewer wind turbines at the Proposed Firlough Wind Farm Site.

Mercury continues to commit to local peat harvesters that their access and turbarry rights will be maintained at all times, both during construction and once the project is complete. If you have a concern regarding your continued access or turbarry rights, please contact us using the details at the end of this newsletter or drop in to see us at one of the Public Information Days.

Further detail will be provided at the Public Information Days and online.

LEGEND

- Proposed Firlough Wind Farm Site
- Proposed Firlough Wind Turbine Locations
- Proposed Firlough Wind Farm Substation Site
- Proposed Wind Turbine Hardstand

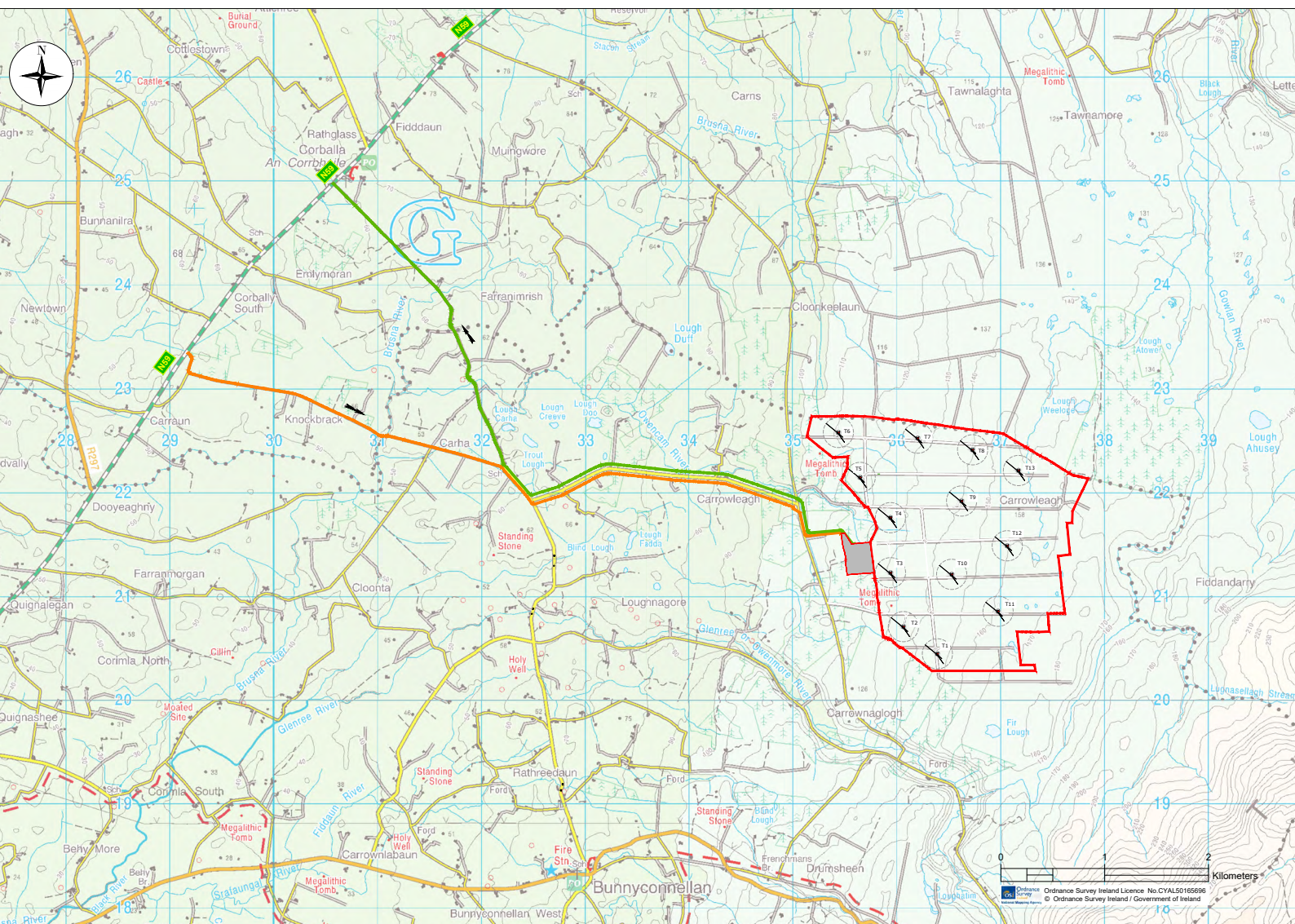


ORIGINAL PROPOSED HYDROGEN PLANT SITE MAP

The below map shows the location of the Original Proposed Hydrogen Plant Site. This is not Mercury's preferred location for the Hydrogen Electrolyzer and is being shown for comparison purposes. Further detail will be provided at the Public Information Days and online.

LEGEND

- Proposed Firlough Wind Farm Site
- Proposed Firlough Wind Turbine Locations
- Original Proposed Full Hydrogen Transport Route From Site
- Original Proposed Empty Hydrogen Transport Route To Site
- Original Proposed Hydrogen Plant Site



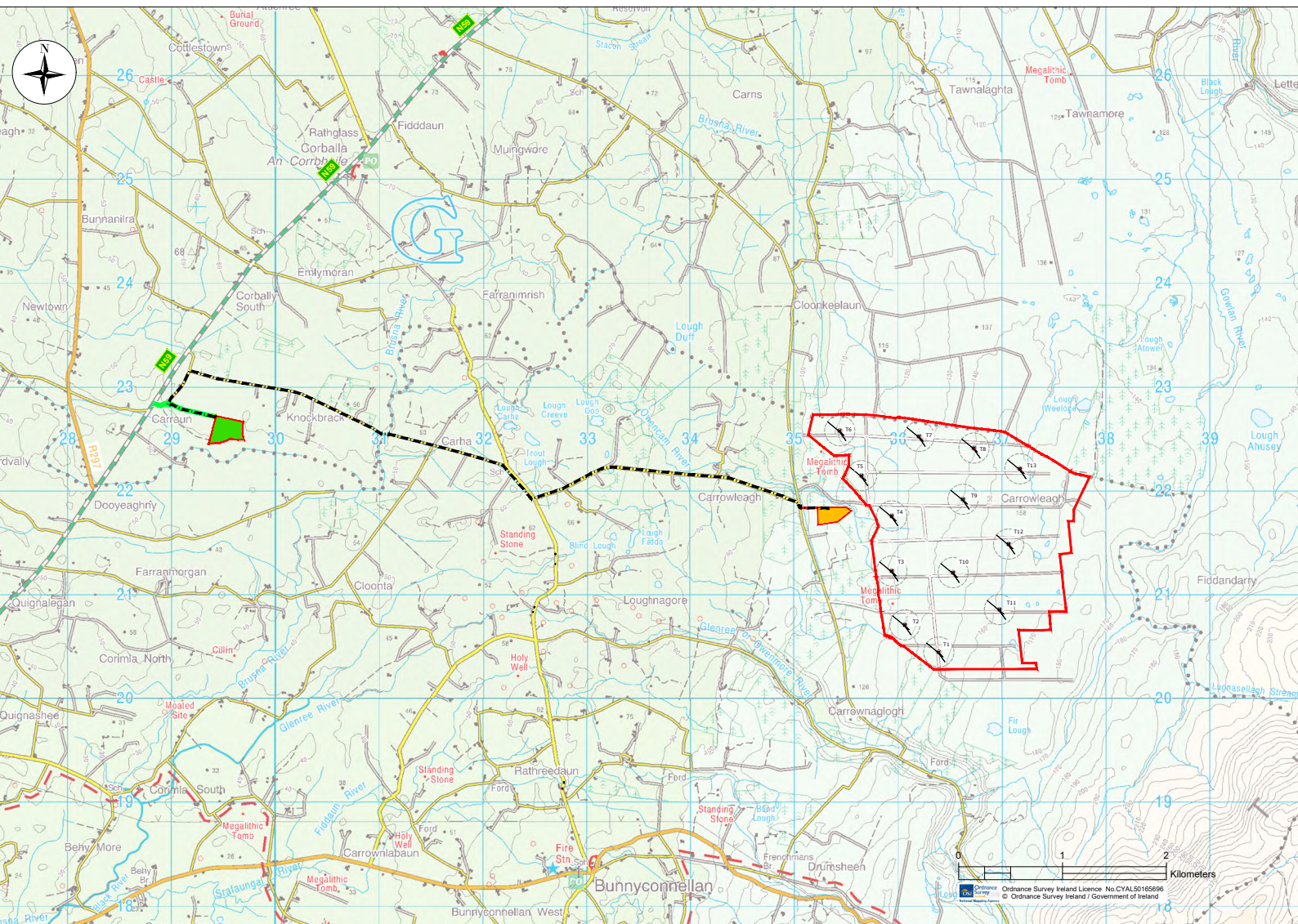
PREFERRED PROPOSED HYDROGEN PLANT SITE MAP

The below map shows the location of the Preferred Proposed Hydrogen Plant Site.

The Proposed Electrical Supply Circuit will be laid underground, following the local road network. Further detail will be provided at the Public Information Days and online.

LEGEND

- Proposed Firlough Wind Farm Site
- Proposed Firlough Wind Turbine Locations
- Proposed Firlough Wind Farm Substation Site
- Proposed Electrical Supply Circuit
- Preferred Proposed Hydrogen Plant Site
- Preferred Proposed Hydrogen Transport Route To and From Site



PREFERRED PROPOSED HYDROGEN PLANT SITE LAYOUT

The below is an indicative layout of the Preferred Proposed Hydrogen Plant Site.

Further detail will be provided at the Public Information Days and online.

LEGEND

- ✦ Preferred Proposed Hydrogen Plant Site Access
- Hydrogen Electrolyzer Equipment within Agricultural Style Building
- Cooling Fans and Compressor Equipment
- Water Treatment Equipment
- Hydrogen Tube Trailer Filling Equipment
- Electrical Infrastructure
- Staff Welfare Facilities
- Hydrogen tube Trailer Storage Bays
- Sensitive Rural Landscape Area (including set back buffer)



HYDROGEN BUILDING PHOTO MONTAGE

The below images provide indicative views of the Firlough Green Hydrogen Project from four separate vantage points. Further detail will be provided at the Public Information Days and online.

Viewpoint locations selected for the Firlough Hydrogen Plant project



VP01 - Existing



VP01 - Outline



VP01 - Montage



VP02 - Existing



VP02 - Outline



VP02 - Montage



VP03 - Existing



VP03 - Outline



VP03 - Montage



VP04 - Existing



VP04 - Outline



VP04 - Montage

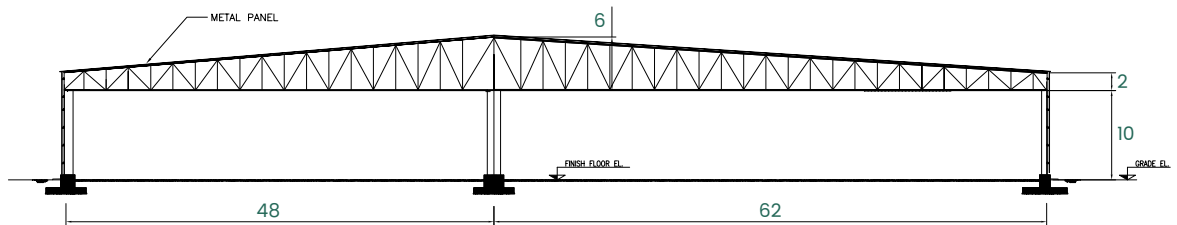


VP04 - Montage with Mitigation

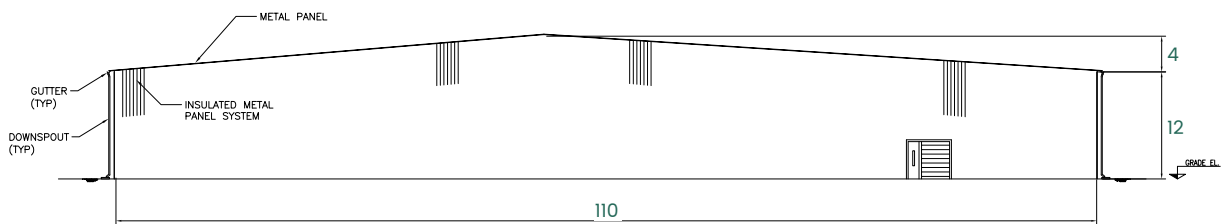


HYDROGEN BUILDING DIMENSIONS

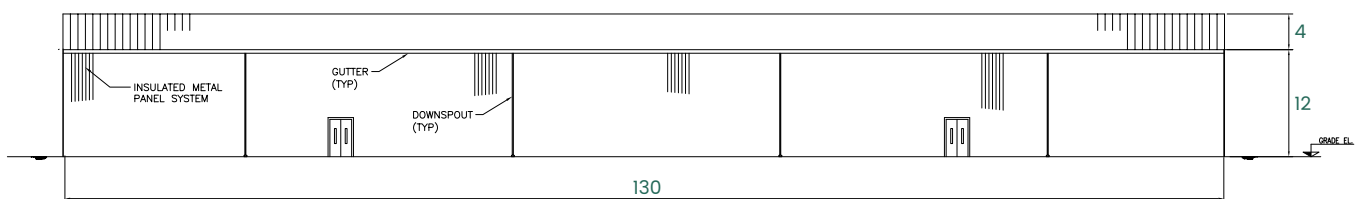
The below are indicative dimensions of the Firlough Green Hydrogen Project building. Further detail will be provided at the Public Information Days and online.



SECTION A WITH STRUCTURAL STEEL MEMBERS AND TRUSS
SEE DWG. 410135-1000-G2000 FOR PLAN OF ELECTOLYSER BUILDING



BUILDING NORTH ELEVATION



BUILDING WEST ELEVATION

HEALTH AND SAFETY

Mercury Renewables is committed to minimising the risk to employees, the local community and the environment and will achieve this through safe design, the management of risks and the training of personnel.

Hydrogen has a proven safety track record as a fuel for more than 80 years. Hydrogen has various properties that make it an ideal energy carrier:

- **Hydrogen is non-toxic and non-poisonous**, unlike conventional fuels. A hydrogen leak will not contaminate the environment or endanger the health of humans or wildlife. Hydrogen does not create “fumes.”
- **Hydrogen is 14 times lighter than air**, consequently when it is released it dilutes quickly into a non-flammable concentration, significantly reducing the risk of ignition at ground level.
- **Hydrogen has a higher oxygen requirement for explosion** than conventional gasoline. This means that hydrogen has a reduced risk of explosion than gasoline.
- **Hydrogen has a lower radiant heat** than conventional gasoline, i.e. the air around the hydrogen flame is less hot than around a gasoline flame, reducing the risk of secondary fires.

There are properties of hydrogen that require careful consideration to ensure risk is appropriately managed and sufficient controls are applied to ensure safe use. Here is what we have done so far and what we will continue to do to ensure the safety of all stakeholders and the environment.

UPDATE ON ACTIONS AND ENGAGEMENTS

Mercury Renewables has been engaging with various stakeholders and safety specialists for almost 2 years. Here is an update on what we have done so far:

- Review of internationally recognised safety standards and codes
- Incorporation of safety considerations to initial facility design
- Organisation of Preliminary Hazard Analysis (PHA) Identification sessions
- Development of PHA Report
- Engagement with the Health and Safety Authority (HSA)
- Engagement with Sligo Fire Service
- Engagement with Sligo and Mayo County Councils
- Development of a Safety Assurance Outline Plan

FUTURE STEPS

Safety will continue to be at the forefront of every phase. Here is what's to come:

- Continued engagement with local councils and HSA
- Completion of Quantitative Risk Assessment
- Continued engagement with Sligo Fire Service
- Development of a Risk Management Programme
- ATEX Assessment (workplace / employee based assessment)
- Development of a Safety Management System
- Continued review of facility design as hazards are identified
- Completion of Major Accident Prevention Policy

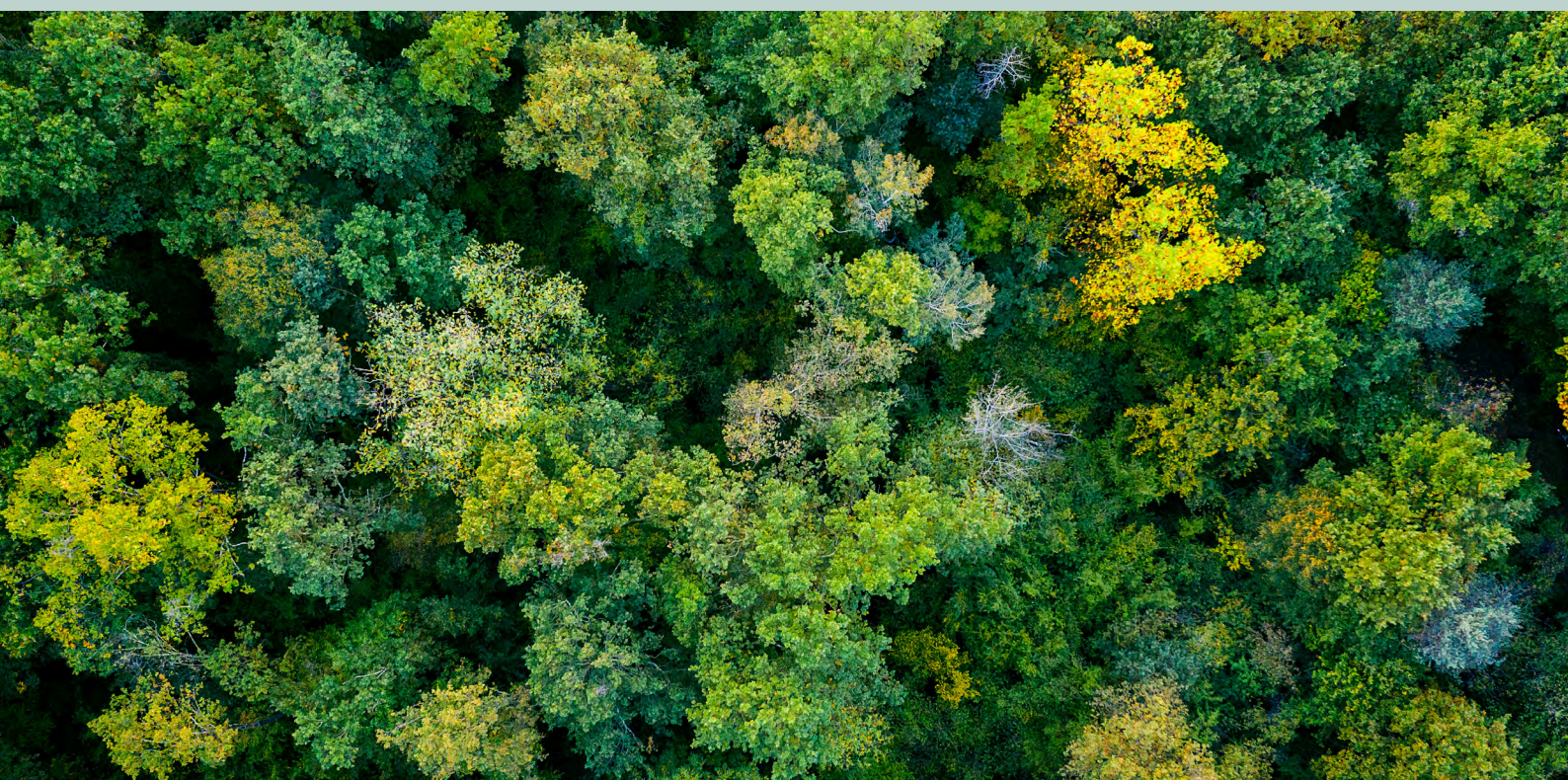
Once fully operational the Firlough Hydrogen Project will be classified as a Lower Tier COMAH site. The COMAH Regulations are part of The Chemicals Act Regulation 2015. The Health and Safety Authority states “The Regulations lay down rules for the prevention of major accidents and seek to limit, to the greatest practicable extent, the consequences for human health and the environment of such accidents. The overall objective is to provide a high level of protection in a consistent and effective manner.”

Ireland has many other Lower Tier COMAH sites across the country, many in residential or rural communities. A selection of Upper and Lower Tier COMAH sites is presented below.

By following the Lower Tier COMAH regulations, our facility will be as safe as any of the below sites.



Site Name	Location	Operations
Tynagh Power Station	Loughrea, Co. Galway	Power generation, distribution & supply
Flogas	Ballyhaunis, Co. Mayo	LPG Storage
Connacht Gold Dairy	Ballaghaderreen, Co. Roscommon	Manufacture of food and beverage products
Calor Gas	Claremorris, Co. Mayo	LPG Storage
Aghada Generating Station	Midleton, Co. Cork	Power generation, distribution & supply
Analog Devices International	Limerick, Co. Limerick	Manufacture of Electronic Components
Great Island Power Station	New Ross, Co. Wexford	Power generation, distribution & supply
Irish Oxygen Company	Cork, Co. Cork	General chemicals manufacture
West Cork Distillers	Skibbereen, Co. Cork	Manufacture of food and beverage products
BOC Gases Ireland	Bluebell, Co. Dublin	General chemicals manufacture
Ballina Beverages	Ballina, Co. Mayo	Manufacture of food and beverage products



WATER

A pumping test was carried out by Minerex Environmental Ltd to assess the sustainable yield from two 183m deep boreholes located on the Preferred Proposed Hydrogen Plant Site. At the time of drilling, water strikes were noted at depths of 50m and 80m below ground level in the respective wells. Pumps were installed to a depth of 80m in both wells and a pumping test was carried out over a 23-day period from the 11th of July to the 3rd of August 2022.

High resolution water level sensors were placed in the pumping wells for the duration of the test, with regular manual water level measurements also taken from both the pumping wells and a monitoring network of boreholes around the site. A water level sensor was also installed in a neighbouring landowner's well to identify any potential impacts resulting from the proposed abstraction.

A sustainable yield of 2.25 l/s and 0.44 l/s was established for the respective wells. There was no impact from the pumping test on the neighbouring landowner's well. Samples were taken from both the pumping wells and local surface waters over the course of the pumping test and analysed for a comprehensive suite of microbiological and hydrochemical parameters.

Black and Veatch has advised of a pre-treatment water requirement of approximately 66,256 m³/yr. This is within the annual groundwater production value determined from the measured borehole yields. At present, the design of the facility incorporates 24-hour water storage capacity. It is also intended that rainwater harvesting and a mains water supply will be incorporated into the design of the facility to supplement groundwater sourcing and to ensure any deficit in water supply versus water demand is met. High level calculations estimate a rainwater harvesting volume in excess of 18,000 m³/yr from the roof of the electrolyser building alone.

Further detail will be provided at the Public Information Days and online.

LOCAL BENEFITS



CREATING A LOCAL HYDROGEN ECONOMY

Internationally, most hydrogen is used close to where it is first produced. Mercury Renewables will ensure local businesses and residents have priority access to procure its locally produced green hydrogen. By doing this, the local community can become sustainable energy champions in Ireland's journey towards achieving its climate action targets, as well as reap the large economic benefits that will stem from this journey and the economic opportunities hydrogen will unlock in the locality. Be that the locating of industry in the area or growth in locally available jobs.



HELPING LOCAL INDUSTRY TO MAKE THE TRANSITION TO CLEANER ENERGY

We will also work with local businesses that are involved with industrial heat processes to develop a pathway for them to avail of our locally produced green hydrogen with a view to reducing their dependency on fossil fuels.



DISCOUNTED GREEN HYDROGEN FOR THE LOCAL COMMUNITY

Mercury Renewables intends to provide local residents and businesses with Firlough Green Hydrogen at a fixed, discounted price for 15 years. This will remove unexpected price rises and ensure a secure supply of energy from a local source. We have no doubt that this will go a long way to ensuring that the local community's carbon footprint is substantially reduced.



RETROFITTING HOME HEATING & COOKING SYSTEMS

Mercury Renewables welcomes the Irish Government's efforts to make it easier and more affordable for homeowners and households to undertake home energy upgrades for warmer houses in return for lower energy bills. At present SEAI grants don't cover hydrogen boilers, but we are engaging with policymakers to find alternative grant funding supports to help local residents convert to hydrogen boilers and cooking systems.



COMMUNITY FUND

Upon the completion of the development, Mercury intends to establish a local community benefit fund, which will aim to promote local businesses and charities – as well as developing local tourism activities. €500,000 will be committed to this fund annually – and it will be administered by an independent governance board to ensure that it is fairly distributed to various projects, groups and interests within the community.



DEVELOPING LOCAL SKILLS

Mercury Renewables intends to become a pioneer in Green Hydrogen production in Ireland. As such, we are committed to helping develop both the technical knowledge and skillsets in the community that will play a major role in helping the West of Ireland realise the full potential of this exciting new green economy. To accomplish this, we plan on establishing local apprenticeship programmes for electricians, logistic managers, health and safety officers, and other technical specialities as the project advances and roles become available.



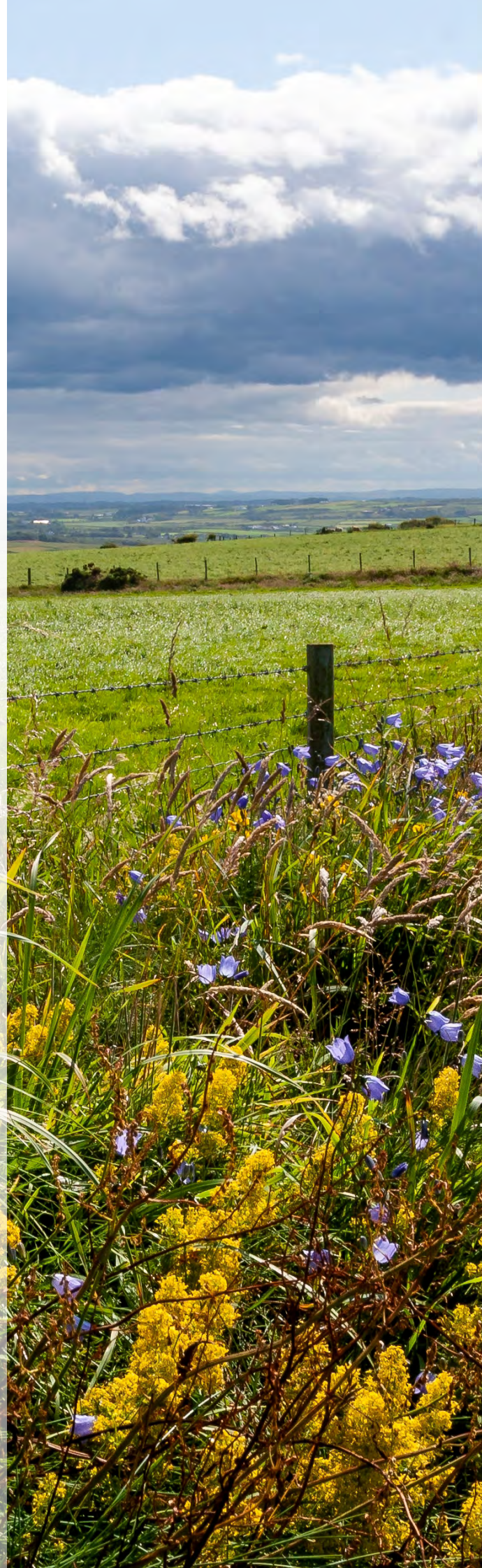
LOCAL SUPPLIERS AND MATERIALS

Our Firlough Wind Farm and Green Hydrogen Project can bring strong economic value to the local community in Counties Mayo and Sligo. Where possible, Mercury will procure materials within the locality – as well as utilising local services throughout the development, construction, and operation of the project. Between 100 and 150 jobs will be created during construction whilst between 10 to 20 further full-time and part-time jobs are expected to be created upon completion of the project.



ACCESS TO HYDROGEN-POWERED VEHICLES FOR LOCAL TRANSPORT, INDUSTRY & AGRICULTURAL SECTORS

Producing the green hydrogen that will fuel hydrogen vehicles is a key part of the solution to abating emissions in the transport, industry and agricultural sectors. However, the transportation and storage of the fuel must be considered as well as the procurement and financing of the hydrogen vehicles. As such, we have begun exploring solutions with manufacturers and suppliers to simplify and streamline the process of buying and operating a hydrogen vehicle in the West of Ireland.



PUBLIC INFORMATION DAYS

Mercury Renewables will host two in-person Public Information Days on Wednesday 14th September at the Grove Hall in Bonniconlon and Thursday 15th September at the Castleconnor Community Centre from noon until 8pm each day.

These events will provide the communities of Bonniconlon, Castleconnor, and surrounds with an opportunity to speak directly with the Mercury Renewables team and the consultants supporting us in key aspects of the project development. We encourage members of the community to come along and engage with us about the future direction of our project and hear first-hand, Mercury's vision of the future for Green Hydrogen in the West of Ireland.

If you have difficulty attending the event – or if you are in need of transport to any of the public consultation events, please contact Caitlin Duffy at cduffy@mercuryrenewables.ie or on 087 097 9700.

As always, you can contact Mercury Renewables by email at info@mercuryrenewables.ie or you can contact a member of our Community Liaison team directly:

| Anna Gallagher, Community Liaison Officer
agallagher@mercuryrenewables.ie | 0876183458

| Caitlin Duffy, Community Liaison Officer
cduffy@mercuryrenewables.ie | 0870979700



