Islandmagee Storage Project

PROPOSED CONSTRUCTION EXPLAINED

Islandmagee
Storage


Islandmagee Storage is committed to protecting the environment and undertaking all operations to the highest safety standards.

Introduction

Following on from the publication of a detailed Environmental Impact Statement (EIS) and associated non-technical summary in March 2010, and as part of our ongoing consultation with the local community, Islandmagee Storage Limited has produced this leaflet to summarise for local residents what would be involved in the construction process of the Islandmagee Gas Storage Project should the scheme go ahead.

The Company has engaged in a full public consultation process over the past three years and remains happy to meet with residents to discuss any issues.

Gas storage facilities in salt sequences, such as that proposed by Islandmagee Storage Limited, have been operating safely in the UK since the 1970s. Islandmagee Storage Limited is committed to protecting the environment and undertaking all operations to the highest safety standards. In addition to requiring planning permission, the project will have to meet approvals from third party stakeholders including the Northern Ireland Environment Agency and Health and Safety Executive who will need to be fully satisfied on all environmental and safety aspects before licensing the construction and operational phases of the project. The site would also be subject to Control of Major Accident Hazards (COMAH) regulations in the same way as other strategically important gas infrastructure in Northern Ireland.

Each cavern will be independently controlled and fitted with a fail-safe sub-surface safety valve.

What will be involved

The Islandmagee Storage Project will involve the construction of:

1 Wellpad – a flat pad approximately 110 metres by 45 metres which will initially support the drilling rig to drill seven wells down to the salt layer and subsequently will contain the storage cavern connections in underground cellars.

2 Seawater and Brine Pumping Facilities (Leaching Plant) – a building housing the pumping equipment and brine tanks which will pump seawater into the wells (to create the caverns) and pump the brine out of the wells back to the sea **during the construction phase only**.

3 Main Gas Plant Facility – main operational facility which will house gas compression, heating/cooling, dehydration and metering equipment required for the day-to-day operation of the gas storage facility.

4 Seawater Intake Pumping Station – intake sump and pumping equipment located on the eastern shore of Islandmagee (at a site known as Castle Robin Bay or Bell's Port), which will draw in the 'fresh' seawater and pump it to the Leaching Plant during the construction phase only.

5 Brine Outfall Diffuser – a structure on the seabed 450 metres from the shore in 27 metres water depth designed to rapidly disperse the dissolved salt from the cavern creation process into the sea during the construction phase only.

6 Caverns – seven independent, gas tight caverns in the Permian salt layer at a depth of 1,500 metres, each capable of holding up to 70 million cubic metres of natural gas. Each cavern will be independently controlled and fitted with a fail-safe sub-surface safety valve.


Connecting Pipelines
TSC Temporary Storage Compound
A Ballylumford Power Station
B Scotland to Northern Ireland Gas Transmission Pipeline PRS
C Moyle Interconnector
N
TSC
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Construction schedule

In previous communications the Company advised residents that the project will take seven years to complete. Islandmagee Storage Limited feels that it is important to highlight that this is the timescale for the completion of the **entire** project and that the actual above-ground construction activities will be confined to non-continuous periods within the first four years of the project, set out as follows:

Year 1

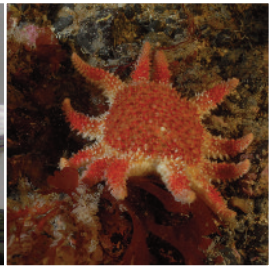
Wellpad construction and drilling of first well: construction activities will be confined to the wellpad site although some drilling equipment may be temporarily stored in a small portion of the Temporary Storage Compound. Site activities during Year 1 will only take place for 3-4 months (this includes six weeks for drilling the first well).

Year 2

Construction of brine leaching plant: there will be no construction activity for the first six months, during this time front-end engineering design will be completed and the first-phase construction contracts will be placed. During the second half of the year construction activities will be focused mainly on the leaching plant site, with some surplus rock removed from this location and transported across the road to the site of the main gas





plant facility. Construction of the pipelines between the wellpad and the intake/outfall points near Bell's Port will also take place over a three-month period during this year.

A small part of the Temporary Storage Compound will be used, where necessary, to store equipment and materials to ensure that deliveries to the north end of Islandmagee can be made outside peak commuting hours and periods when visitor traffic is expected to be high.

The proposed Temporary Storage Compound has been shown on the planning drawings as comprising the entire area of hardstanding owned by NIE which was used formerly in the construction of the power station. In practice, only a small portion of this area will actually be required for the storage of materials associated with the gas storage project and the remaining area will not be disturbed.

Above-ground construction activities will be confined to non-continuous periods within the first four years of the project.

Year 3

Construction of brine leaching plant and drilling remaining wells: the brine leaching facilities are expected to be completed and commissioned within the first three months of Year 3.

Following this, site operations will transfer back to the wellpad site, where the remaining six wells will be drilled. Drilling the six wells is expected to take approximately nine months in total.

Year 4

Main gas plant site: by Year 4 construction works at the wellpad and leaching plant will have been completed and the focus of the construction activities will be on the main gas plant site. Construction here is expected to last for around 12 months with some equipment and materials temporarily stored in a small part of the Temporary Storage Compound, to facilitate deliveries during non-peak hours.

At the end of Year 4 all surface construction activities will have been completed. Sub-surface brine leaching, where seawater is pumped down the wells and the brine is pumped back to sea, will continue until the end of Year 6 with the remaining caverns being filled with gas during Year 7.

Therefore there will be no perceptible construction noise or traffic impacts arising at the surface during the last three years of project completion.

Construction traffic

Typically during the intermittent construction periods (as outlined in the Construction Schedule) there will be no more than five construction vehicles entering and exiting the site per day. The project is designed to balance excavation and reinstatement with nothing having to be removed from the site.

Occasionally, where multiple deliveries must be made within a short time period, e.g. for concrete pours, there may be up to 5 trips per hour. As part of the construction and traffic management plans, the Company will consult with local residents, DRD Roads Service and other stakeholders to ensure that the timing of these operations is scheduled in a manner which causes the minimum level of disruption to residents.

The use of the Temporary Storage Compound is necessary to help in the implementation of a traffic management plan to reduce the impact to residents from HGV traffic by keeping deliveries outside of peak commuting times.

Where it is necessary to bring in workers from outside the local area they will stay in accommodation within East Antrim and a bus or car share scheme will be implemented to reduce vehicle movements on Islandmagee.

Local businesses and services should benefit indirectly from the additional people and activity during the construction period.

At the end of Year 4 all surface construction activities will have been completed.

Detailed modelling has verified that the tidal currents at this location will disperse the brine.

Marine life

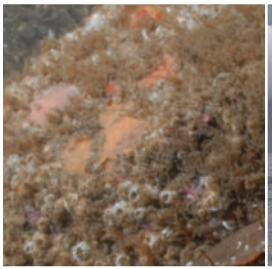
The salt which will be dissolved to form the caverns consists of naturally occurring Halite (Sodium Chloride). This will be dissolved by circulating seawater which will create brine.

The outlet for the brine discharge is proposed to be located 450 metres offshore, in a water depth of 27 metres. This location has been chosen because it will allow the outfall to be constructed entirely by directional drilling, which means that the outfall is put into place by tunnelling beneath the seabed. A longer outfall would require construction to take place by open trenching methods which would cause greater impacts to the seabed during construction and might cause a permanent obstruction to certain types of fishing vessel.

Detailed modelling has verified that the tidal currents at this location will disperse the brine and pools of brine will not accumulate on the seabed.

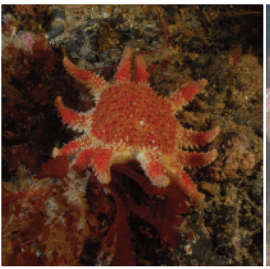
A specially designed diffuser will be fitted to the end of the outfall to force discharged brine upwards through the water, thus causing it to be diluted and dispersed rapidly.

A volume of water equivalent to 400 times the amount of brine discharged will pass over the



outfall every minute, hence the rapid dispersion of salt into the sea.

- The area within 10 metres of the outfall discharge point is expected to experience significant elevations in salinity which is likely to cause a decrease in the diversity and abundance of species inhabiting the seabed within this area. However, mobile species will be able to avoid this area and fish will be able to pass through this zone with no ill effects.



- The area between 10 and 100 metres from the outfall discharge point, the 'mixing zone' will experience levels of salinity slightly in excess of what would be expected to occur naturally. This may cause a decrease in species abundance and diversity within this zone, although the effects will reduce with increasing distance from the discharge point. Nonetheless, many species which are more tolerant to changes in salinity will be able to continue inhabiting this zone.
- Beyond 100 metres from the outfall discharge point, increases in salinity above background levels will be very small. It is not anticipated that there will be any detectable adverse impacts to species living within this zone.

The small area of impacted seabed will be able to begin recolonisation and recovery within days of stopping the discharge.

Following completion of the storage caverns, the outfall will cease operations. The small area of impacted seabed will be able to begin recolonisation and recovery within days of stopping the discharge as there will be no residual contamination.

As part of the Environmental Impact Statement, the Company has consulted with the UK Environment Agency, the North Eastern Sea Fisheries Committee's Chief Fisheries Officer and the Institute of Estuarine and Coastal Studies (IECS) who have first-hand experience of monitoring an existing brine outfall arising from the solution mining for gas storage caverns between 2005 and 2009 at Scottish and Southern Energy's gas storage project at Aldbrough, Yorkshire. In the case of Aldbrough, detailed monitoring of the brine discharge has shown no negative impacts on epifaunal or fish communities.

The maximum quantity of brine being discharged at Aldbrough is almost twice that which is proposed at Islandmagee and the discharge point is in much shallower water depths of only 10 metres, compared to the 27 metres proposed for the Islandmagee Storage Project.

During the process of leaching ('washing out' the caverns), the caverns behave as settlement tanks, causing almost all the insoluble particles to accumulate






in a sump at the bottom of the cavern. The insoluble materials are therefore not discharged from the outfall and will remain within the cavern. Similar leaching projects in England have actually measured lower amounts of suspended solids within the discharged brine than what was in the seawater which was drawn in.

Extensive consultation on the Islandmagee Storage Project has also taken place with the Northern Ireland Environment Agency to ensure that the scope and coverage of the Environmental Impact Assessment meet their requirements in terms of current legislation and that of new marine consenting processes which are being brought into force from 2011 under the Marine & Coastal Access Act.

Should planning permission be granted for the project, a subsequent licence will be required from the Northern Ireland Environment Agency to discharge brine into the sea. The Agency will independently monitor the brine dispersion in the marine environment.

The brine dispersion process will be stopped immediately and modified if, at any time, salt concentrations reached a trigger level which would be agreed beforehand with the Environment Agency. The powers of enforcement by the Agency will fall under the new Marine & Coastal Access Act.

There will be no long-term impact on marine life resulting from the project.

The Agency will independently monitor the brine dispersion in the marine environment.

Once constructed, the gas storage facilities – with the exception of the roof of the leaching building – will not be visible to the residents of Islandmagee.

Visual impact

Once constructed, the gas storage facilities – with the exception of the roof of the leaching building – will not be visible to the residents of Islandmagee. In order to mitigate the visual impact of the leaching facility, the Company will be excavating below current ground levels to reduce the visible height of the buildings. The sensitive use of colours and construction materials will further aid integration of the buildings, as will the provision of additional screening through the planting of indigenous vegetation around the site.

The main gas plant facility will be visible from across Larne Lough (e.g. Glynn) but through the use of appropriate colours and landscaping, the visual impact will be kept to a minimum.

The Company will work to ensure that visual disturbance throughout the construction period will be kept to a minimum and all contractors working on the project will be required to adhere to a 'tidy site' policy.

Noise

The Company is committed to keeping any inconvenience to residents as a result of noise from construction activities, to the minimum possible levels and will be required by law to do so.

To this end the majority of construction activities will adhere to the normal construction working hours. The only exception to this will be for the two phases of drilling operations which will last for a combined total of 10 months. During this time activities will need to take place on the well-pad area on a 24-hour basis (the main vehicle movements however will only be during the daytime).

To reduce noise from drilling activities, the Company will use the most modern technology available – a hydraulic drilling rig – which has comprehensive noise attenuation measures integrated into its structure. Noise levels at the nearest properties will fall within the Environmental Health target levels for undisturbed sleep.

During the creation of the caverns, water pumps will continuously circulate water and brine. These pumps will be housed in a building designed to meet noise standards for a permanent installation, despite the equipment being only for temporary use during construction. The noise will have to meet standards so as not to impact local residents or disturb sleep.

During the gas operations phase the main noise-emitting sources will be limited to the compressors within the main gas plant site. These will be housed within a building designed to meet present-day noise standards which will not disturb sleep.

To reduce noise from drilling activities, the Company will use the most modern technology available.

Well in advance of construction, the Company will be setting up a mechanism for liaison with the local community.

Community liaison

Well in advance of construction, the Company will be setting up a mechanism for liaison with the local community so that residents are kept informed of what construction activities are programmed for the coming months and advised of any unusual events, such as the transportation of an oversize load.

Updates will be provided on the Islandmagee Storage Project website www.islandmageestorage.com and through letter drops etc, but other communication mechanisms such as a project notice board in a local shop may be established by agreement with community representatives. To this end we will seek to establish a permanent liaison contact with residents' representatives.

The Company also proposes to implement a telephone hotline at which responsible personnel on site can be reached in order to answer and act promptly upon queries from residents.

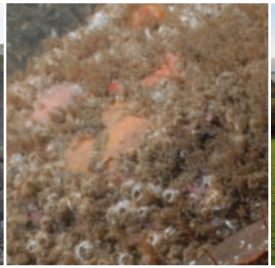
Charitable trust

Islandmagee Storage Limited has been consulting with the local community over plans to set up a charitable trust as part of a unilateral undertaking contribution. The Trust will consist of representatives from the local area, who, together with representatives from the Company, would support local projects and ideas themed around its main aims and objectives which will be education, geology and the environment.

The Trust will be set up in accordance with the Department for Social Development regulations. It is proposed that there will be an initial investment of £1 million on a range of projects over the first three years following full funding of the project with another £50,000 per annum thereafter for a minimum of six years.

Anyone with ideas on how best the Islandmagee Storage Trust could be used for the benefit of the wider community can contact our Trust Community Liaison Consultant, Judith Tweed on 028 9338 2055.



Northern Ireland currently imports 100% of its gas with 60% of its electricity produced from this gas.

Leaflet summary

We hope this leaflet helps to provide further clarification on what will be involved in the construction process and the measures that will be taken to minimise any impacts on residents and the environment should the Islandmagee Storage Project go ahead. The project is significant in its level of importance for Northern Ireland and although it will take a long time to complete, much of the construction period will involve below-ground activities and the surface works will be intermittent.

The key messages Islandmagee Storage Limited wishes to communicate in relation to the project are:

Strategic importance of project

The strategic importance of this project should not be underestimated. Northern Ireland currently imports 100% of its gas with 60% of its electricity produced from this gas. In the event of an interruption to supply the project could store enough gas to satisfy Northern Ireland's peak gas demand for more than 60 days. As we move towards greener electricity, gas storage will be very important to support gas-fired power stations responding to the intermittency of renewable forms of generation.






The local community will be consulted to agree a traffic management plan.

Safety & environmental impact

Should the project be granted planning permission, the project will have to gain approvals from the Northern Ireland Environment Agency and the Health and Safety Executive, before licensing the construction and operational phases of the project. Similar projects are being, and have been, constructed in Yorkshire and Cheshire, and numerous others are being constructed and operated elsewhere in Europe, including over 30 facilities in northern Germany.

Project timetable

The entire project will take seven years to become operational but by the end of year four, all the intermittent construction activities at the surface will have been completed.

Construction traffic

The local community will be consulted to agree a traffic management plan that will minimise the impact of the intermittent construction traffic on residents and visitors.

Impact on marine environment

All brine discharge and dispersion will be independently licensed and monitored by the Northern Ireland Environment Agency. There will be no long-term impact on marine life.

Construction noise

Modern technology will be used to minimise noise from drilling activities. Drilling will take place over two phases, lasting for a combined total period of approximately 10 months. Pumping equipment will be housed in a building designed to meet noise standards for permanent installation, even though the equipment will only be used on a temporary basis during construction. Activities will be independently monitored to ensure that noise levels do not disturb sleep at the distance of the nearest resident.

Community liaison

The Company has liaised extensively with the local community over the past three years and will continue to meet with residents at any time to discuss issues or concerns relating to the project. Well in advance of construction, the Company would implement a Community Liaison Scheme so that residents are kept fully informed on all aspects relating to the construction process and to ensure that key issues, such as the agreed traffic management plans, are working as expected.

Employment

The project will create more than 20 high quality permanent jobs within the local community. In addition, local temporary work will be created during the construction period. Together with the indirect economic benefits for local businesses, this will have a positive impact on Islandmagee and the surrounding areas.

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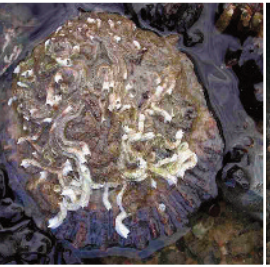




Charitable trust

Islandmagee Storage Limited has given a unilateral undertaking to support a range of community initiatives as part of a charitable trust should the gas storage project proceed. A dedicated Community Liaison Consultant for the Trust has already been appointed and is working with local residents to gather ideas for Trust support. Anyone wishing to put forward ideas for the Trust can contact Judith Tweed on 028 9338 2055.

Further information

This leaflet has been compiled to address what is likely to be involved in the construction element of the Islandmagee Storage Project. For further information on the project hard copies of the extensive Environmental Statement (ES) are still available for viewing at local libraries and Tweed Fuels. The full ES can also be downloaded at www.islandmageestorage.com where general information relating to the scheme can also be accessed, including the non-technical summary of the ES which was circulated to residents on Islandmagee in April 2010.

Islandmagee Storage Limited is committed to keeping all local stakeholders informed as this important project evolves. Anyone with any queries about the scheme should email **info@islandmageestorage.com** or contact Andrew Hindle, Managing Director, Islandmagee Storage on **028 9043 8009**.


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