



Hydrogen Turbine 1 (HT1) Project

Pre-Application Consultation (PAC) Event Interim Report

APFP Regulation: Number

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VATTENFALL

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Acronyms

Acronym	Definition
ACC	Aberdeen City Council
AOWF	Aberdeen Offshore Wind Farm
ASH	Aberdeen South Harbour
BEIS	Department of Business Energy and Industrial Strategy
CEP	Community Engagement Plan
CO2	carbon dioxide
COMAH	Control of Major Accident Hazards
ETZ	Energy Transition Zone
FC	Facilitating Change (UK) Ltd
GDPR	General Data Protection Regulations
GW	GigaWatt
H&S	health and safety
HT1	Hydrogen Turbine 1
HVDC	high voltage direct current
MS-LOT	Marine Scotland – Licensing Operations Team
MW	MegaWatt
OGA	Oil & Gas Authority
ORE	offshore renewable energy
PAC	Pre-Application Consultation
PAN	Proposal of Application Notice
SEPA	Scottish Environment Protection Agency
SP=EED	Scottish Planning Equals Effective Engagement and Delivery
SSSI	Site of Special Scientific Interest
UK	United Kingdom

1. Introduction

1.1. Purpose of this document

This document presents a review of the recent Pre-Application Consultation (PAC) event (held in Aberdeen on 14 November 2022) for Vattenfall's proposed Hydrogen Turbine 1 (HT1) Project. The document outlines the background to the event and explains how it was organised and promoted. It provides summaries of the written feedback received from those who attended and details follow up actions, where relevant.

1.2. Why early engagement and what happens with the information provided by participants?

Engagement and local dialogue are important to Vattenfall. We believe involving local people and stakeholders helps to make sustainable and robust decisions with respect to existing assets, such as the Aberdeen Offshore Wind Farm, and as we shape proposals for new developments, such as the HT1 Project. Early engagement allows local knowledge to be incorporated into the design and development of projects, resulting in better outcomes for all.

As described in the Community Engagement Plan (CEP) as shared with Community Councils, Vattenfall adheres to a core set of principles, namely:

- Openness and transparency
- Providing opportunities to get involved
- Sharing information and understanding
- Listening and responding
- Respect

The event also ensured the HT1 Project is complying with stakeholder engagement requirements under Scottish legislation. Please refer to Section 2 for further details.

We would like to thank all participants for their contributions, questions and feedback. While many conversations were held on the day, this report documents only written feedback received.

The HT1 Project team are carefully considering the feedback received and how it can influence project decision-making, both in terms of future engagement events as well as in terms of project design.

There were helpful suggestions about how to enhance participation among residents living closest to the proposed onshore search area, for example, and where future events could be held. In addition, participants provided clear direction to Vattenfall on topics relating to the project that concern them most, including the proximity of onshore infrastructure to residential areas and/or concerns about taking up space that is currently undeveloped. Participants and respondents indicated the aspects of the projects we should consider carefully and share more information on these topics at any follow up events, including for example safety, potential visual impacts and size of onshore elements of the project.

Our response to the feedback will be reflected in any future engagement activity, explaining how it has influenced the next iteration of the project design, and will be recorded in the final PAC report.

1.3. The Hydrogen Turbine 1 (HT1) Project

This section provides an introduction to the proposed HT1 project. A more detailed description can be found on the website which includes copies of the exhibition boards displayed at the event and the brochure that was available to take away:

<https://www.vattenfall.co.uk/HT1>

Vattenfall proposes to install hydrogen producing equipment on an existing wind turbine at its Aberdeen Offshore Wind Farm (AOWF). By installing the equipment on an extended platform on the existing turbine, Vattenfall will be able to use seawater and electricity from the wind turbine to create green hydrogen through a process called electrolysis. The hydrogen will be transported to shore using a pipeline where it can be used as a source of sustainable energy. Figure 1 illustrates the indicative location of the proposed HT1 project.

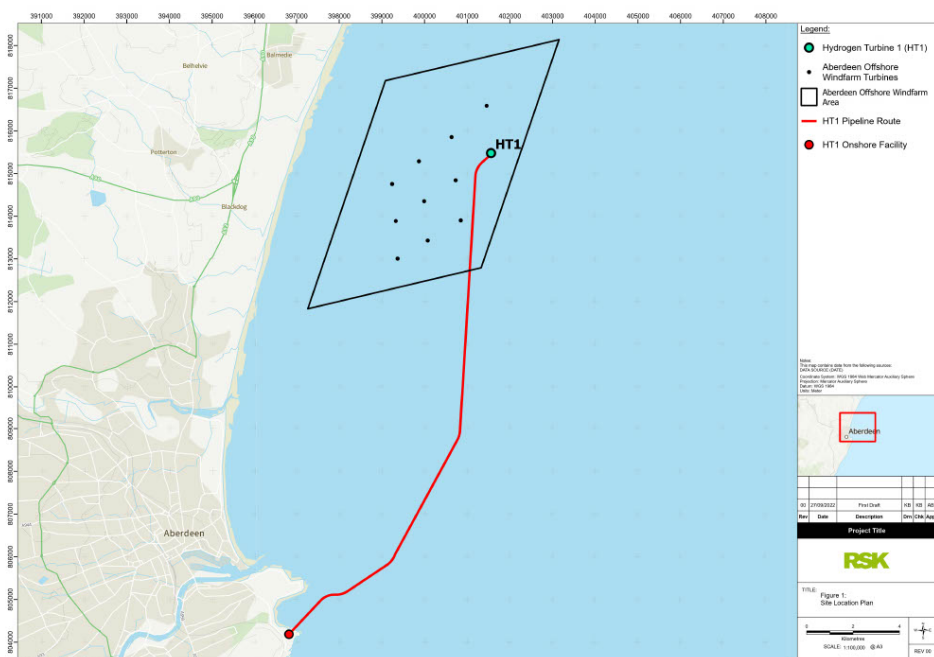


Figure 1: Location of proposed HT1 project

The HT1 project will test the full integration of an electrolyser with an offshore wind turbine for the first time and examine its real-time response to a variable power source. It will examine how fossil-free hydrogen can be produced safely at low cost and what needs to be done to enable large-scale commercial production and the creation of a regulatory regime for offshore fossil free hydrogen.

1.4. About Vattenfall

Vattenfall is one of Europe's largest producers and retailers of electricity and heat and employs approximately 19,000 members of staff. For more than 100 years Vattenfall has electrified industries, supplied energy to people's homes and modernised their way of living through innovation and cooperation. We are determined to enable fossil-free living within one generation. To succeed we must also become fossil-free. We are looking beyond our own industry to see where we can really make a difference. Together with our partners, Vattenfall is taking on the responsibility to find new and sustainable ways to electrify transportation, industries and heating.

Since 2008, Vattenfall has been a partner in Scottish and UK Net Zero and decarbonisation ambitions; seeking to deliver fossil-free living whilst driving the transition to a more sustainable energy system. Vattenfall is a European leader in the development, operation and maintenance of offshore wind farms with more than 2GW in operation (enough to power more than 1.6 million homes), 1.5GW under construction and an ambition to install a further 15GW by 2030.

At Vattenfall, we pride ourselves on our ground-breaking expertise, innovation and investments which open pathways to expansion and fossil free living.

Furthermore, we are on track to help save eight million tonnes of CO₂ each year by 2030, the equivalent to taking four million cars off the road through projects including:

- Hydrogen Turbine 1 (HT1) Project - a world first hydrogen-producing turbine at the Aberdeen Offshore Wind Farm
- Muir Mhòr Wind Farm – a floating offshore wind project developed by Vattenfall and Seawind (Fred Olsen Renewables), of up to 798MW located approximately 67km off the East coast of Aberdeen
- the 4.2 GW Norfolk Offshore Wind Zone – consented projects with a single coordinated high voltage direct current (HVDC) transmission system.

1.5. RSK and Facilitating Change (UK) Ltd

This document has been prepared by Facilitating Change UK Ltd (FC) on behalf of RSK Environment Ltd. RSK Environment Ltd is contracted by Vattenfall Windpower Ltd to lead the Environmental Assessment and support the consenting process for the HT1 Project. The RSK team has worked widely across Scotland, the wider UK and Ireland on offshore renewable energy (ORE) projects for over 20 years. FC are providing specialist facilitation and engagement support within the team. They have an extensive track record of delivering successful stakeholder engagement activities in relation to offshore renewables in Scotland. FC are advising on engagement matters and delivering consultation activities, including reporting.

2. Pre-Application Consultation (PAC)

2.1. Purpose of PAC

Under Scottish planning and marine licensing legislation, pre-application consultation is a requirement for certain types of proposals and activities both onshore and at sea. Details of these consenting processes and associated PAC requirements are provided in the Community Engagement Plan (CEP) which can be found on the website at <https://www.vattenfall.co.uk/HT1>

Figure 2 summarises the legislative PAC requirements. The overall purpose of these is to provide an opportunity for people to:

- learn more about the proposal
- raise any concerns that they may have
- make suggestions for improvement

In relation to offshore consents, the Applicant must...	In relation to onshore consents, the Applicant must...
<ul style="list-style-type: none"> • submit a Proposal of Application Notice (PAN) of intention to apply at least 12 weeks prior to submission • submit a PAC Report with the application describing the consultation undertaken 	<ul style="list-style-type: none"> • submit a Proposal of Application Notice (PAN) of intention to apply at least 12 weeks prior to submission • wait no more than 18 months before submitting a planning application following submission of PAN • submit a PAC Report with the application describing the consultation undertaken
<ul style="list-style-type: none"> • notify the following stakeholders that an application for a Marine Licence is to be submitted: <ul style="list-style-type: none"> • the Commissioners of Northern Lighthouses • the Maritime and Coastguard Agency • the Scottish Environment Protection Agency • Scottish Natural Heritage (now NatureScot) • any delegate for a marine region where the application for a Marine Licence is for an activity which is to be carried out wholly or partly in that region • hold one event where stakeholders can comment • publish a notice with details of the event and associated consultation in a local newspaper • wait at least 6 weeks after the notification of stakeholders and appearance of the advert before holding the event 	<ul style="list-style-type: none"> • describe proposed consultation activities in the PAN • consult all Community Councils whose area is within or adjacent to the development site • provide a copy of the PAN to the above Community Councils. • hold two public events¹ (with the second event no less than 14 days after the first event) • publish notices in a local newspaper at least 7 days prior to each event • provide feedback to the public on comments received at the final public event

Figure 2: Summary of pre-application consultation requirements

¹ Please note that the community consultation event held on 16th November 2022 was not an official Pre-Application Consultation (PAC) event for the purposes of onshore planning regulation. Additional events will be required to comply with this legislation before a planning application for any onshore development is submitted.

2.2. Community Engagement Plan (CEP)

The most effective way of engaging all stakeholders is to allow them to influence the direction their involvement takes. With this in mind, Vattenfall prepared a draft Community Engagement Plan (CEP) to outline our proposed approach to engaging with local communities. The CEP was sent to local Community Councils and Aberdeen City Council to seek feedback on our ideas for engagement and copies were available at the PAC event. The CEP is a live document and is expected to be updated as the engagement process is refined and further input is received.

2.3. Identifying community stakeholders

A key component of the CEP was identifying local stakeholders for the HT1 project; following best practice guidelines in terms of inclusiveness and equality. It is particularly important to make sure that Vattenfall hears from those people most likely to be impacted by the proposed project such as residents living in the coastal areas of Aberdeen. Vattenfall has therefore employed a range of different approaches, including those indicated in section 2.4 below, to enable and encourage effective engagement with as many people as possible in these areas. We are also keen to hear suggestions on how to reach people who may find it difficult to participate in traditional consultation activities.

2.4. Community Councils

Community Councils play an important role in representing local people and understanding their needs and priorities. Vattenfall has consulted with Aberdeen City Council regarding which Community Councils are relevant to the HT1 project and agreed on those operating within a 2-mile radius of the proposed onshore site search area, as listed below and illustrated in Figure 3. We have sought to contact these Community Councils directly to let them know about the project and seek their feedback on the CEP. Please note that those Community Councils indicated in red have not been contacted as they were not operating at the time that the contact was made. It is understood that this situation is subject to change during the consultation process, and contact will be reattempted at an appropriate point accordingly.

1. Castehill and Pittodrie
2. City Centre
3. Cove & Altens
4. Froghall, Powis and Sunnybank
5. George Street
6. Kincorth and Leggart
7. Nigg
8. Old Aberdeen
9. Ferryhill and Ruthrieston
10. Seaton and Linksfield
11. Torry

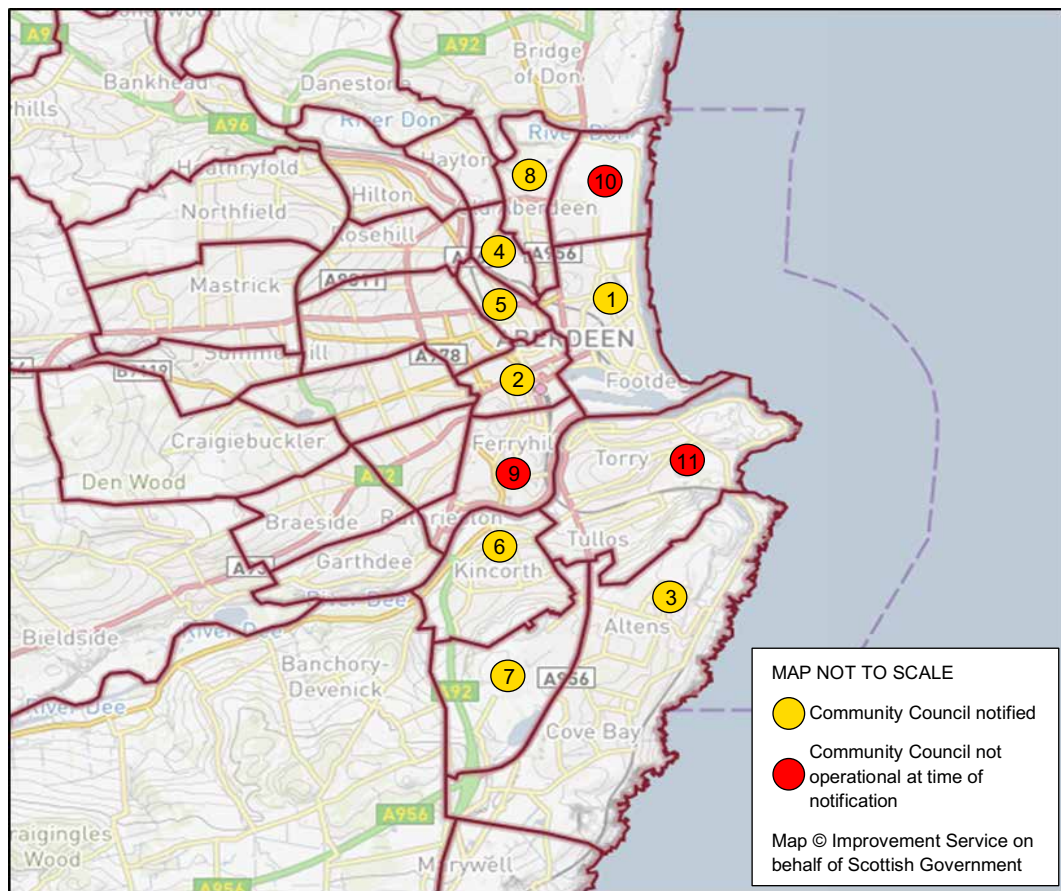


Figure 3: Community Councils notified²

2.5. PAC Notice

In line with the legislation, an official 'PAC Notice' which detailed Vattenfall's formal PAC event on November 14th 2022 was published in the *Aberdeen Evening Express* six weeks in advance of the event itself on October 3rd 2022. The PAC Notice introduced the project, provided information about the event and explained how people could get in touch with Vattenfall. A copy of the PAC notice was also sent to the operating Community Councils listed above. (Please see Appendix 1: PAC Notice).

2.6. Leaflet drop

Vattenfall appreciates that not everyone reads the local press and therefore decided to arrange a leaflet drop to all residential addresses whose postcode sector falls within a 2-mile radius of the proposed onshore development search area, as illustrated in green on Figure 4. The leaflet provided a brief overview of the proposal and invited local residents to attend the PAC event on November 14th 2022. The leaflet was delivered during the two week-period between 31st October 2022 and 13th November 2022 to give people a chance to plan their attendance at the event, (Please see Appendix 2: Mail drop leaflet).

² <https://www.communitycouncils.scot/community-council-finder>

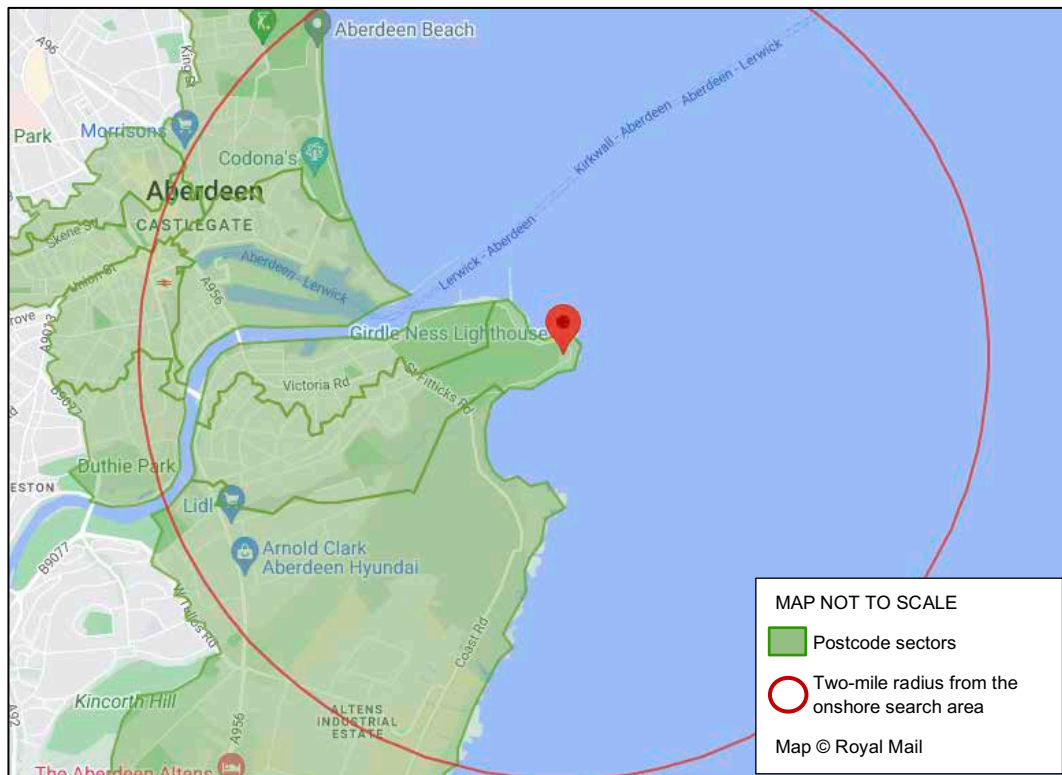


Figure 4: Postcode sectors targeted for leaflet delivery³

2.7. Website

Vattenfall's website includes a section dedicated to the HT1 project. Key documents are available to download including the CEP, PAC Notice, mail drop leaflet, community questionnaire, and event brochure which replicates the information contained in the display boards used at the event.

<https://www.vattenfall.co.uk/HT1>

2.8. Broader stakeholders

In addition to the above, the following organisations were also sent copies of the PAC Notice six weeks prior to the community consultation event to ensure that they were aware of the consultation:

- Aberdeenshire Council
- Department of Business Energy and Industrial Strategy (BEIS)
- Crown Estate Scotland
- Historic Environment Scotland
- Marine Scotland – Licensing Operations Team (MS-LOT)
- Maritime and Coastguard Agency
- North Sea Transition Authority (formerly OGA)
- Northern Lighthouse Board
- Nature Scot (formerly Scottish Natural Heritage)
- Port of Aberdeen
- Scottish Environment Protection Agency (SEPA)
- Scottish Fishermen's Federation
- North East Regional Marine Plan Area

³ <https://www.royalmail.com/business/marketing/mail/door-to-door>

3. PAC event

3.1. Venue

The venue for the PAC event was chosen as it is in a central location and has appropriate facilities to host an event of this size. It is served by public transport, is fully accessible with Changing Places toilets and has a free car park.

3.2. Format

The format of the event was an informal face-to-face drop-in session scheduled across a lunchtime, afternoon and evening (12noon to 7.30pm) to allow people with different commitments to attend at a time that suited them best. The drop-in format encourages participation by people who may be discouraged from contributing in the forum of a conventional public meeting. Visitors were able to stay for as long as they liked and refreshments were provided.

The event was staffed by members of the project team from Vattenfall, RSK and Facilitating Change with a range of skills and areas of expertise. Visitors were able to chat with the project team and ask any questions they had. If issues were raised that could not be answered at the event, the project team offered to take contact details and investigate with a view to following up thereafter.

3.3. Content

An exhibition of display boards covered the following topics:

- details about the project
- introduction to Vattenfall and its Aberdeen Offshore Wind Farm
- how green hydrogen works including its uses and safety aspects
- the role of hydrogen in addressing climate change
- onshore and offshore development and marine licensing and consenting
- onshore and offshore environmental assessment processes and topics
- the stakeholder engagement process and how to provide feedback
- next steps, the project timeline and how to get in touch

The information on the display boards was also replicated in an A5 brochure that visitors could take away with them (see Appendix 3: Event brochure). This included full contact details and a freepost address for returning paper copies of the community questionnaire.

Visitors to the event were asked to indicate where they lived by placing a sticky dot on a map of the local area. This helped to understand whether the event was reaching impacted individuals and if the venue was in an appropriate location with a view to potentially revising the approach to improve inclusivity in future.

3.4. Community questionnaire

Obtaining feedback from stakeholders is the overarching aim of the engagement process and it is critical that the data collected is managed and analysed effectively. A two-page community questionnaire was used to seek feedback on the project as well as the engagement process (see Appendix 4: Community questionnaire). Visitors were invited to complete the questionnaire at the event.

They were also offered the options of returning the paper questionnaire at a later date via the freepost address or completing it online by scanning the QR code or visiting the website. Although the paper version included limited space for open-ended questions, participants were invited to expand their responses on plain paper should they wish.

4. PAC event output

4.1. Attendees

The PAC event was attended by 113 people. The first visitors arrived at 11.53am and the last visitors left at 7.29pm. Most people stayed for extended periods of time, engaging in detailed discussions with members of the project team. A number took information away with them to share with friends and family including the event brochure, the mail drop leaflet and paper copies of the questionnaire.

4.2. Map output

Figure 5 shows the map used to illustrate where visitors live. Each coloured dot represents one attendee (or more as some couples only applied one sticky dot) at the PAC event. This information has not been used to identify individual addresses but rather provides a snapshot of where people have come from to attend the event. This is important to understand where they are from in relation to the onshore search area and to ensure that the consultation is reaching those communities most likely to be impacted by the proposals.

4.3. Respondents' postcodes

As an additional means of verifying the reach of the engagement, respondents who completed the questionnaire were asked for their postcodes. A total of 44 responses were received. The number of responses for each postcode sector are illustrated in Figure 6. In addition, two responses were received with incomplete postcode sectors, two were received from the wider Aberdeen city area and one was received from Fife. These are not included on the figure. The figure confirms the data from the map used at the PAC event and illustrates good representation from local communities with residents attending from across the greater Aberdeen area.

Feedback received during and after the PAC event would suggest that communities adjacent to the onshore site search area have particular concerns about the precise location and potential impact of the onshore elements. We appreciate that these communities, particularly Torry, would like to have the opportunity to participate in more local consultation activities. As we explained at the event, no decision has yet been taken regarding the location of any onshore infrastructure that the project might include. We are currently exploring a number of different options and undertaking a range of associated assessments and investigations to identify an appropriate site. Once we have greater clarity on a potential onshore location, we anticipate conducting further consultation activities with the relevant local community.



Figure 5: Map - where do you live?

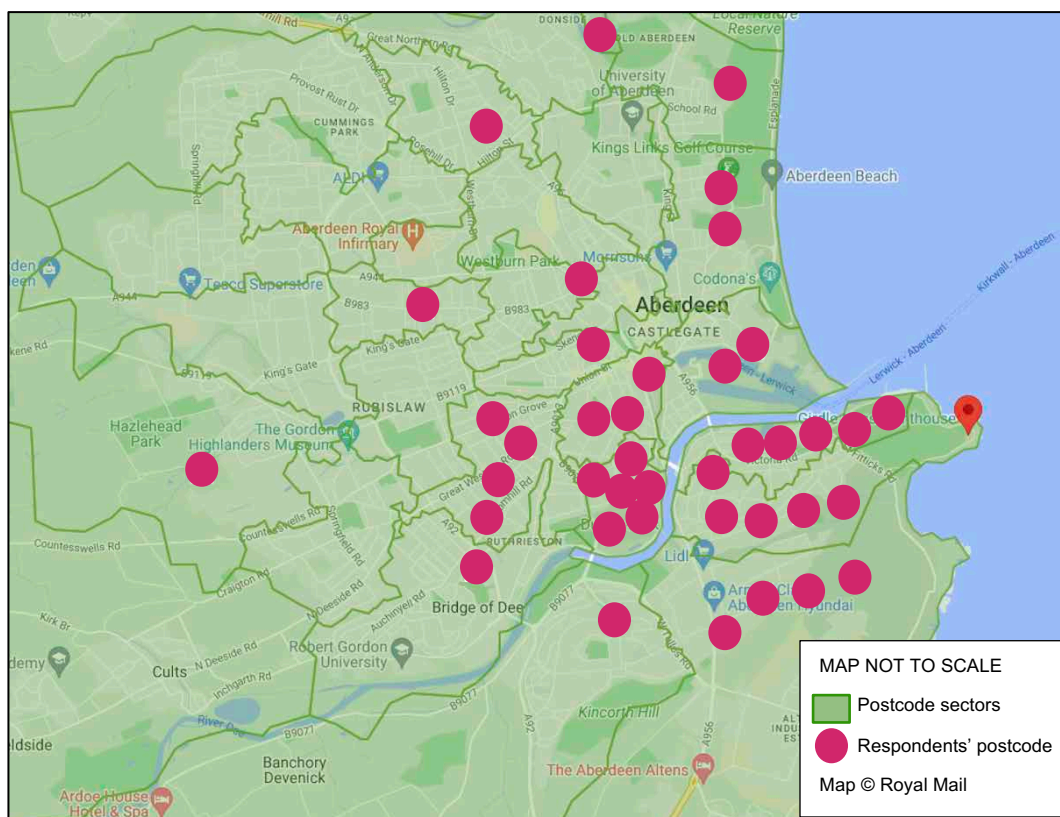


Figure 6: Respondents' postcodes by postcode sector

4.4. Questionnaires completed

The questionnaire was completed by 43 people at the event, with an additional completed questionnaire subsequently received via the freepost address and a further three completed online. The majority of respondents answered every question but, where they did not, the number of responses received is indicated on the charts presented in the following sections.

4.5. Attitudes to climate change

Figure 7 illustrates very strong support for action on climate change among respondents.

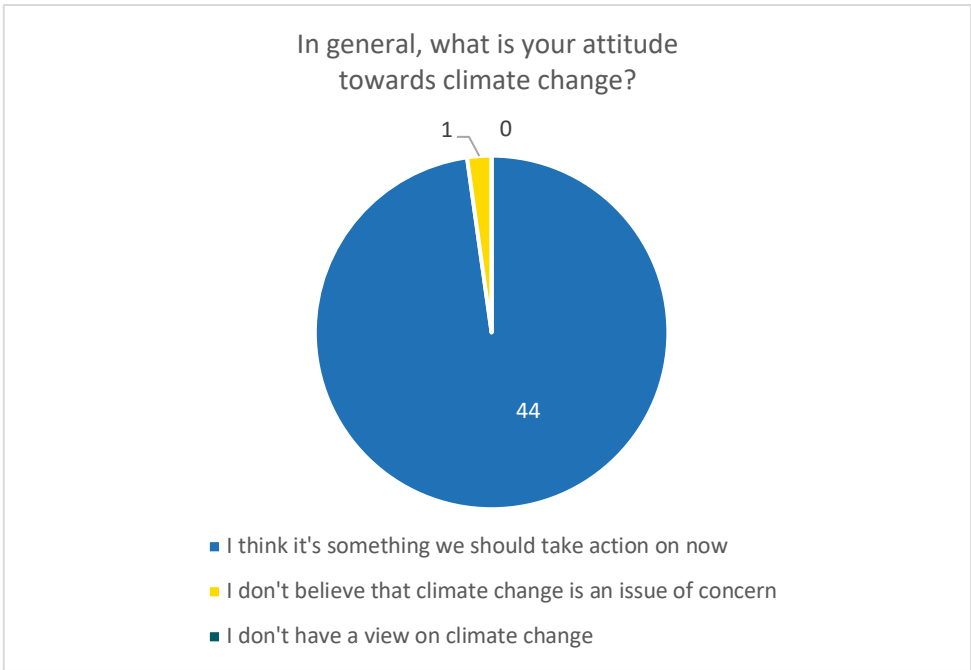


Figure 7: Attitudes towards climate change

4.6. Attitudes to green hydrogen projects

Figure 8 shows less definitive support for green hydrogen projects which is perhaps not surprising given that the concept is still relatively new. Opposition remains very low at just one respondent.

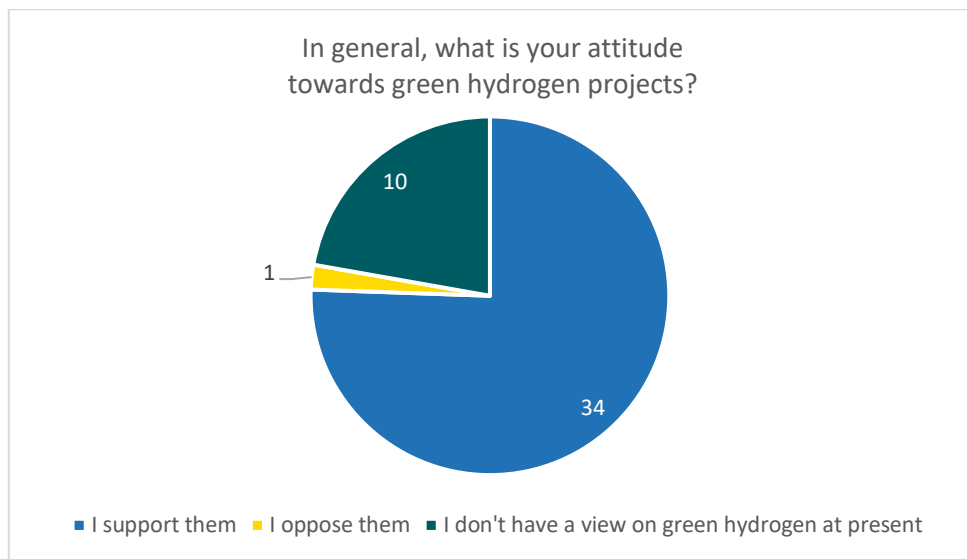


Figure 8: Attitudes towards green hydrogen projects

4.7. Perceived effects of HT1

Respondents were asked to indicate what effect they think the proposed HT1 project will have on a number of aspects should it go ahead. Their responses are quite varied as illustrated in Figure 9.

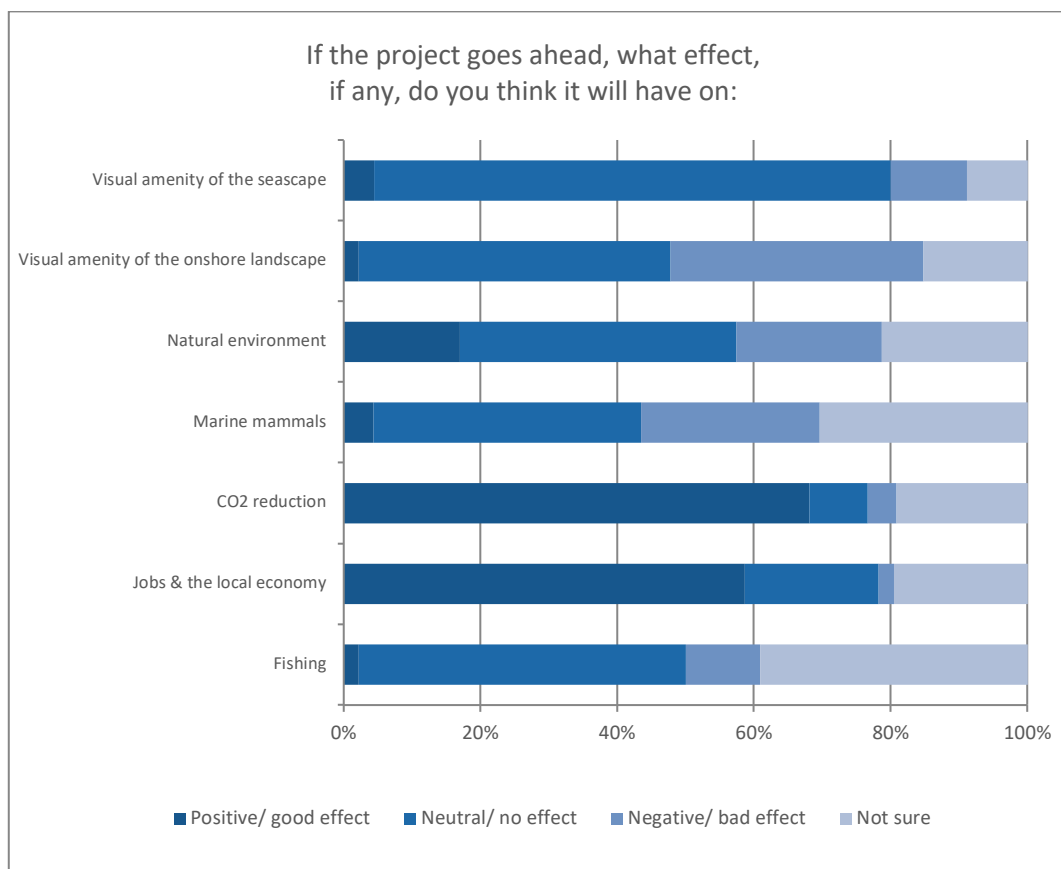


Figure 9: Perceived effects of project

4.8. Reactions to the HT1 project

Reactions to the proposed HT1 project were relatively positive with almost two thirds of respondents saying that they support the project (only two respondents did not answer this question.) Over a quarter of respondents indicated that they neither support nor oppose it with only 4 people opposing it, as illustrated in Figure 10.

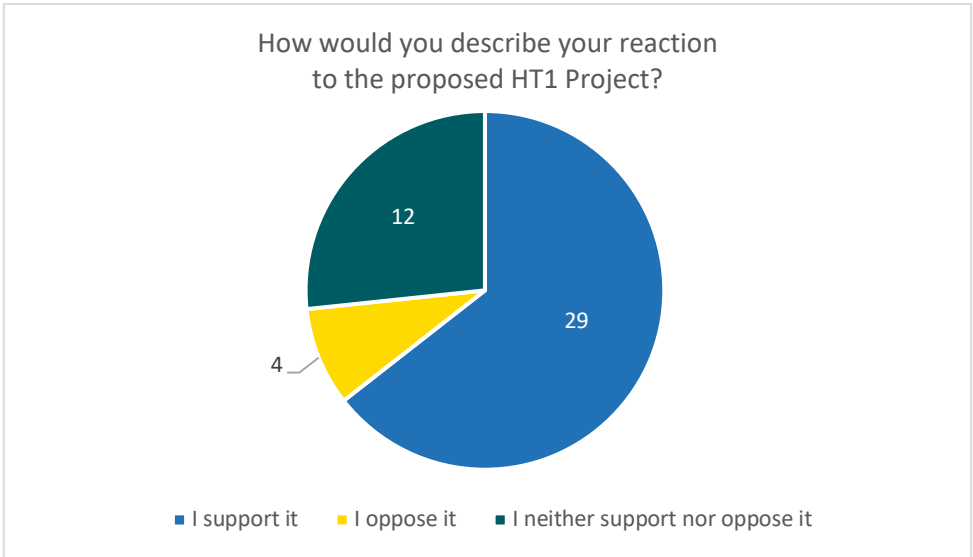


Figure 10: Reactions to HT1 Project

The comments list in Figure 11 represent a summary of the reasons people gave for their reactions. Where quotation marks (") are used, this means that the words are direct quotes from a questionnaire. Full transcripts of the comments received have been collated, anonymised and will be included in the Pre-Application Consultation (PAC) Report to be submitted with the planning/ marine licence applications.

Reasons for support:
Energy transition
"Green hydrogen should have been set up years ago"
Renewable energy
Decarbonisation of industry & transport/ reducing CO2
"Technology needs proven"
More green power to offset electric wheelchair use
"Seems like a sustainable way to help reduce CO2"
"Necessary development work, Vattenfall should be praised for taking this on (and incurring the associated costs)"
"Well-reasoned"
"Climate change"
"Putting the north-east at the heart of energy transition and hydrogen technology"
"Renewable energy is the most important way forward so implementing it now is a positive"
"It's important to go green coz of the need to save the planet, and the people"

Reasons for support:
"I am keen to see more innovation like suggested by this project in order to reduce our CO2 emissions"
"This is a good opportunity for proof of concept as much of the infrastructure is already in place"
"I support any development which can reduce carbon emissions to the environment. However, I have reservations about the location of the onshore facility"
"We need to explore all possible paths to CO2 reduction"
Reasons for neither supporting not opposing/ not answering:
"Insufficient hard numbers for convincing argument"
Questions over energy balance of project versus that of wind farm
Insufficient information regarding onshore facility/ landfall
"Not convinced we should be relying on hydrogen"
Insufficient data re: long term and net impact on carbon emissions
Loss of green space
Depends on location of onshore facility
How much hydrogen will be retained locally?
"I think the climate crisis requires immediate alternatives to fossil fuels being burnt (a complete waste of their potential!) However, destruction of a crucial green space is a very high price to pay"
Questions over efficiency of creating hydrogen offshore rather than onshore
Reasons for opposition:
"Pure greenwash and subsidy mining"
"Greg Ness was promised to be returned to the community as planning mitigation by the Harbour"
Loss of green coastal pathway at Greg Ness
Loss of environmental amenity at Greg Ness
"Onshore land grab of St Fittick's Park and Donnies Farm for storage"

Figure 11: Reasons for reactions

4.9. Comments on the onshore elements

An indicative selection of the 35 comments received regarding the onshore elements of the project is provided below:

LOSS OF GREEN SPACE/ ENVIRONMENTAL IMPACT/ PRIOR COMMITMENTS
"The offshore aspect should be transparent regarding future expansion projects"
"Concern about decreasing accessibility to the coast/cliffs"
" <u>NOT</u> on St Fittick park. Why not Altens?"
"There are significant objections from local residents about loss of green space to industry especially the energy transition zone."
"It must avoid the green space which provide ecological services, health and wellbeing amenity as well as being a biodiversity node."
"South Harbour has ripped up natural bay and SSSI. This is potentially adding to it."
"The facility should have a small footprint and avoid encroachment on the natural coastline."
"Greg Ness is a contested site, adjacent to a residential area with high levels of multiple deprivation, currently facing the loss of their only green space at St Fittick's Park. Vattenfall could locate their project at an already industrialised location rather than imposing further disbenefits on Torry."
"The landfall and storage tank should not be at Greg Ness - ACC + ETZ Ltd are pressurising Vattenfall towards the land next to the South Harbour to (???) all activity for it. All activities proposed so far - wind turbine construction, lay down, turbine anchor actually need more land than is available."

LOSS OF GREEN SPACE/ ENVIRONMENTAL IMPACT/ PRIOR COMMITMENTS
"Torry as a community has a higher death rate than Aberdeen as a whole and needs green space for health."
"Visual nature of facility - south coastline is quite undeveloped - impact on first impression of cruise ships arriving in new harbour."
Lack of suitability of St Fittick's Park - better industrial brown sites at Tullos or Altens
Concerns over negative environmental impacts of development and associated infrastructure.
"The green space in and around the bay is hugely valued by the local community. Key promises about reinstatement have been broken + the rerouting of the coastal path needs to be honoured at Greg Ness."
"Make them [aesthetically pleasing] oh and use as little greenfield land as possible, to minimise any impact on wildlife."
"Yes: the commitments made when the new harbour was consented should be kept."
Proposed position will be detrimental to the already damaged green space in Torry area.
PROXIMITY TO TURBINES
"Should be nearer to turbines. Blackdog or Balgownie. Torry has enough COMAH sites"
"You said that the bulk of turbines are on the grid already so the hydrogen can be plugged in anywhere."
"It is not clear why Bridge of Don has been discarded"
SAFETY/ ROAD ACCESS
"Tullos woodland 'Gramps' see frequent fires - could be a safety concern."
"On-shore element looks good. Just ensure sufficient protection against intruders."
"I am confident standard fire safety will be observed"
"Final location + H2 truck transportation risks through city to bus refuelling area."
OTHER COMMENTS
"Quite a number of 'environment' projects are centred on the Torry/Torry South area of Aberdeen. eg. sewage treatment plant, waste incinerator, new harbour, recycling centre, etc. (??) to residents?"
"Great use of new harbour"
"For each of MW of electricity generated offshore, how much H2 energy is generated how much energy is used onshore for compression etc?"
"No, all questions where answers by the great staff"

Figure 12: Comments on onshore elements

4.10. Considerations for onshore site selection

Respondents were asked what they think Vattenfall's main considerations should be when selecting a final onshore site in the vicinity of Aberdeen South Harbour. A total of 39 comments were received, as detailed in Figure 13. Topics covered reflected the comments raised in the previous question about the onshore elements of the project and included reference to:

- visual impact/ loss of green space/ environmental amenity
- safety issues/ proximity to residential areas/ businesses, etc
- accessibility/ impact on existing infrastructure
- utilising existing brownfield space
- proximity to turbines/ route to shore

Onshore site selection considerations

"Green space, local residents, transportation infrastructure not in place at present"

"There should be consideration given to utilising existing space in the Peterseat + Cutler industrial estates and preserving green space in Torry"

"Environment"

"Why [Aberdeen] South Harbour?"

"Closeness, local people"

"Access/ not impacting on local infrastructure"

"Visual effect"

"Safe distances from homes/ businesses/ recreation. Landscape impacts."

"Don't"

"Listen to local residents' objections. If the site at Gregness goes ahead, work to reduce the visual impact of the site."

"Happy"

"Impact on local traffic. Environment impact."

"Security of the site. Low environment impact. Safety in event of emergency."

"Nearness to turbines."

"Noise pollution."

"Away from residential areas."

"Balancing the need for projects such as this with the needs/ wants of local residents."

"It should not be intrusive and safety measures should be prioritised."

"Accessibility. Ability to service marine fleet with hydrogen as they shift away from diesel. Space to support development projects."

"Awareness of fishing zone, leisure zones & sea lanes."

"I am not convinced the onshore site needed to be in the vicinity of ASH."

"The green space which is the only area for Torry residents must be preserved, the coast road walks should be maintained, biodiversity should be protected."

"It should not be near the South Harbour - see above. Shortest route, avoiding areas the community objects to very strongly."

"Use original brownfield area - Altens Industrial Estate."

"Minimising impact upon plant and animal diversity."

"Above storm water levels!"

"I think Vattenfall diminishes the generally positive view of its Aberdeen operations by locating near Greg Ness. The Torry community and others concerned with the loss of civic and environmental amenity in Aberdeen will continue to challenge the proposed industrialisation of this part of the coast, which runs counter to the Scottish Government's own policies on well-being and nature recovery."

"Use Gregness and reinstate the coastal path: in which case good luck!"

"H2 fuel tank + associated risks at site."

"Minimal impact on quality of life in the deprived local area."

"Proximity to 'Gramps' woodland. Road access."

"Safety & minimise reduction to local residents particularly in construction phase."

"Disturbance to natural environment during construction."

"Possibly underground storage. If not I am sure it will be in a very safe manner."

"Should not be sited in former conservation area or replace Accrupode site with other industrial units."

Figure 13: Site selection considerations

4.11. Comments on the offshore elements

Fewer responses were received relating to the offshore elements of the project with only 18 people answering this question. Comments were mixed and included reference to efficiency of the process, safety considerations, impact on marine life, and the length of the pipeline. Positive comments referred to the project as “promising” and “encouraging”. The full list of comments received is provided below:

Comments on OFFSHORE elements:
“Concerned about the effect on marine wildlife esp dolphins which frequent this area. What is the risk of explosion?”
“Don't know enough to comment.”
“Impact on marine life.”
“Life cycle sounds promising.”
“Using an existing turbine platform seems ideal. The monitoring system sounds efficient. The security, safety and environment impact of the pipeline need to be assessed.”
“Ridiculous length of pipeline compared to nearest land.”
“How much bigger would the platforms need to be in order to be producing the hydrogen/compressing it - keeping it at a sustainable level?”
“Main concern is that oxygen an important gas, and a by-product of the process is not collected.”
“Potential to store hydrogen? Efficient transfer to shore is essential.”
“Very inefficient use of energy.”
“Encouraging.”
“Seems like the pipeline could come onshore at another location closer to the turbines.”
“Careful with the sewage outfall! I'm not an expert on the impact on marine life but value our local marine and bird life.”
“No, I don't visualise much visual impact

Figure 14: Comments on offshore elements

4.12. Health & Safety precautions

The final question about the project asked respondents to indicate to what extent the information provided has given them confidence that the Health & Safety precautions associated with the project are appropriate. Figure 15 illustrates the responses with 1 being ‘very confident’ and 5 being ‘not confident at all’.

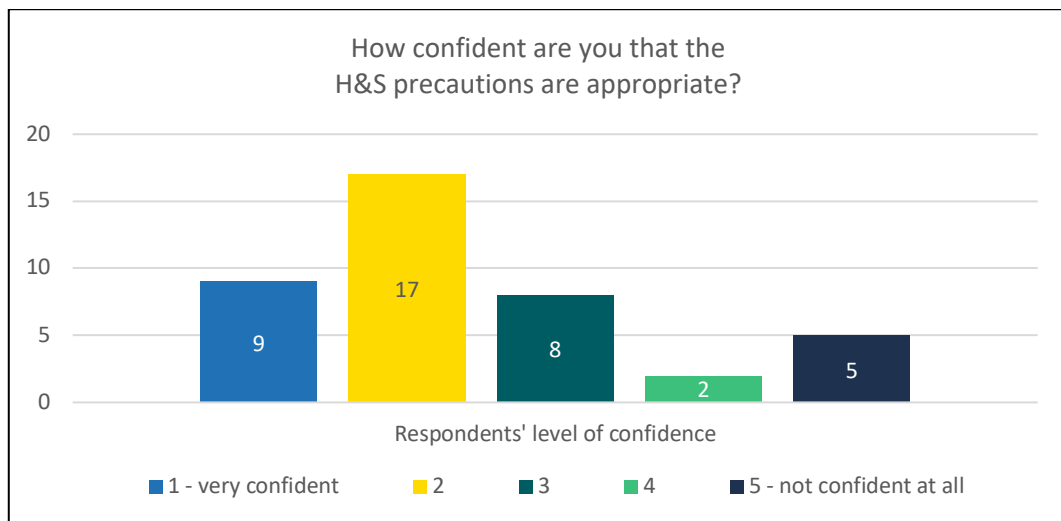


Figure 15: Confidence in H & S precautions

4.13. Knowledge levels amongst respondents

Feedback on the engagement process itself was also sought. This started with two questions about knowledge levels amongst respondents both before and after attending the event/ accessing the information online. Responses are illustrated in Figure 16. In relation to the section relating to AFTER attending the event/ accessing the information online, two people did not answer and a number of respondents added the word 'more' after ticking the box 'know a lot'.

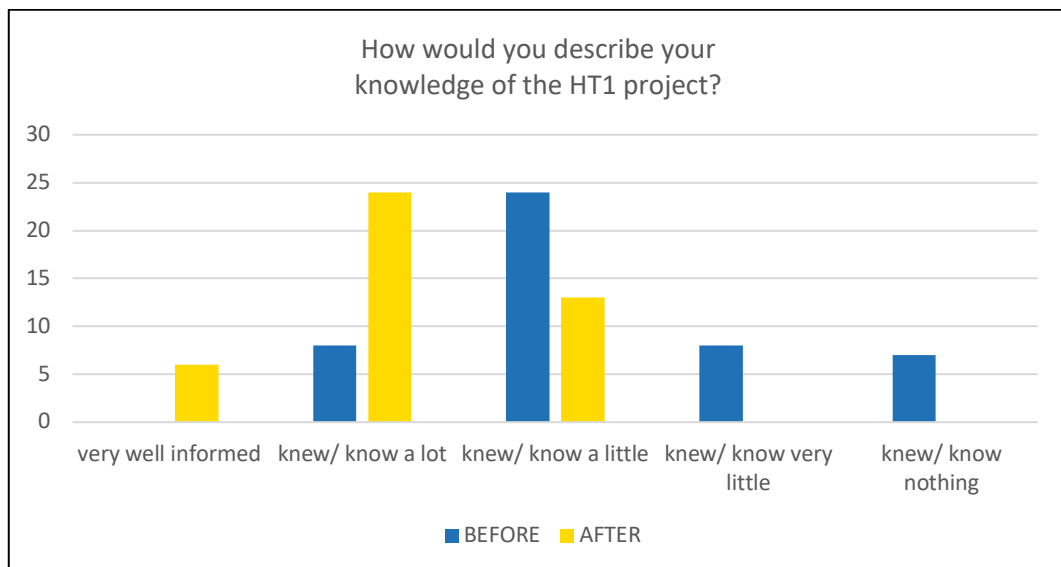


Figure 16: Knowledge of HT1

4.14. Experience of engagement

Respondents were also asked to indicate to what extent they agreed or disagreed with a series of statements describing their experience of the engagement. Only two people did not respond to the first statement and only three people declined to respond to the second two statements. The results were generally very positive and are presented in Figure 17.

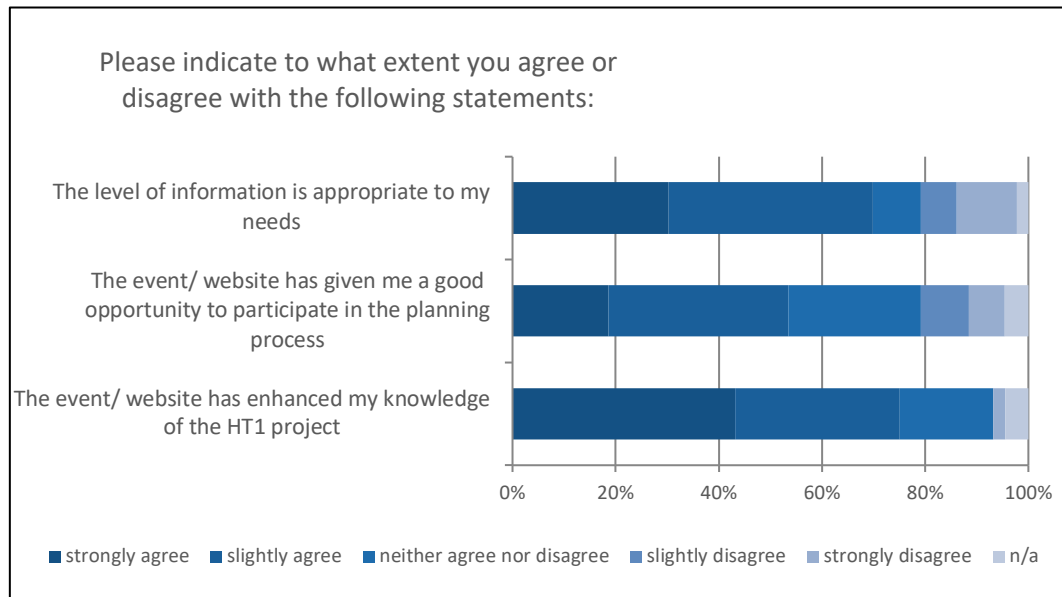


Figure 17: Experiences of the engagement

4.15. Comments on engagement approach

Local people are typically best placed to advise on engagement approaches that will work in their communities. Respondents were therefore asked for any further comments they might have on how Vattenfall engages with the local community. A total of 28 comments were received and these are detailed according to theme in Figure 18 below:

Comments on engagement approach
COMMUNICATION
"Flyering worked effectively."
"Better advertising of the events social media etc. I find it hard to find out timings, location act."
"Here from the flyer in the mail. Good location and clear information."
"Local advertising! Webinars, pop-up centre in a Union Street or Bon Accord site."
"Advertising."
"Have a liaison officer."
"Local radio could be utilised to raise awareness. Northsound or Original 106."
"Further flyers with updated info as process progresses would be helpful."
LOCATION OF EVENTS
"To actually come to Torry and engage with the community it could potentially effect. Various areas are free. Deemouth artist studios, church free church community hall."
"The communities most effected are Torry and to the South; Cove so consultations located there should be considered."
"Visit it. Why was this consultation not held in Torry?"
"Yes. Why this location? So far away from Torry. In Torry next time - Torry Community Centre or Balnacask Golf Club."
"You have not engaged with the local community who will be most affected by the project by holding your consultation in Torry, at a time when residents could attend (ie: the weekend)."
"Bring info into Torry."

Comments on engagement approach
“Staff at the consultation were very helpful but the location is not as accessible as it needs to be for e.g. Torry residents. Venues in Torry are available. I spoke to Mimi & suggested venues at e.g. churches in Walker Rd/ Walker Lane, Old Torry Community Centre or community rooms at Tullos Primary.”
INFORMATION/ DATA
“They may need reassurance that this particular project will not add significantly to their area as a recycling/waste area for Aberdeen.”
“Yes by providing meaningful data.”
“Staff not able to answer questions on this (1) energy use to construct (2) to store & (3) to transport => NOW there may not be a carbon reduction??”
“Yes: transparency in data is vital. AND as a company Vattenfall should not be party to ACC (planners) releasing Aberdeen Harbour Board from their legal obligations.”
“Make explicit which sites are definitely NOT on your radar (eg: St Fittick’s). Will improve levels of trust.”
“It’s time to local activists were educated about these projects, instead of ranting, stupid comments, miss guiding the local community.”
GENERAL
“Listen to the local people’s valid objections to losing their green space.”
“Conversations have been very informative. I hope the information we have given you will be listened to.”
“I appreciate your presentations and engagement. the VR presentation when original wind turbines were proposed was very impressive.”
“I have taken away some of the QR codes in order to further my knowledge on the proposal.”
“I have not looked at the website - the display at the consultation event was very helpful.”
“Engagement looks alright. but I assume more can be done.”
“We will act as a community to oppose this onshore development.”

Figure 18: Comments on engagement approach

4.16. Ages of respondents

Respondents were asked to indicate their age with a view to understanding whether or not the engagement is reaching all age groups and 46 people answered this question. The results are presented in Figure 19. Based on these results, Vattenfall may wish to consider ways in which to reach younger people.

4.17. Project update preferences

Respondents were presented with a range of potential ways in which project updates could be provided and asked to indicate their preferences. All respondents answered this question and the results are presented in Figure 20.

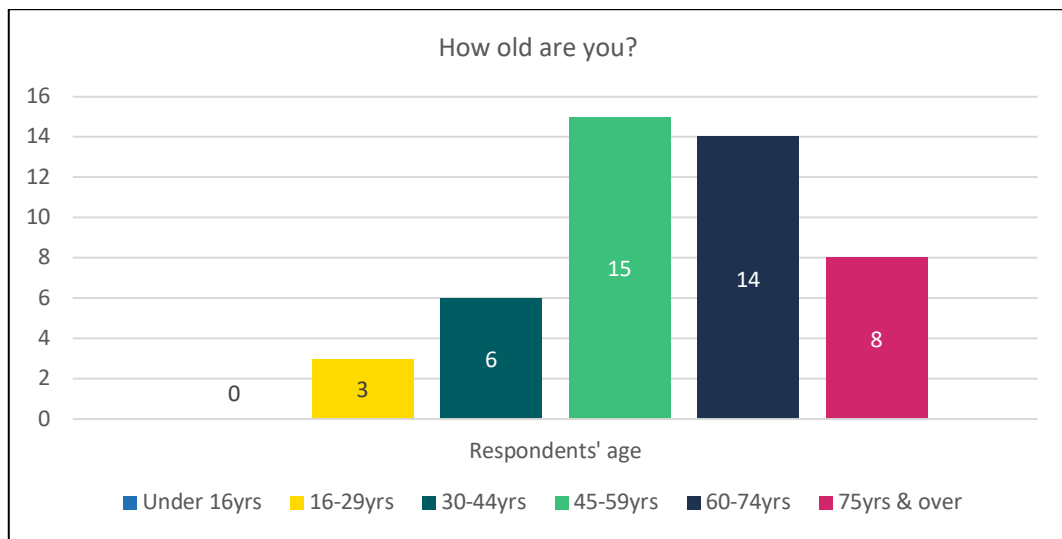


Figure 19: Age of respondents

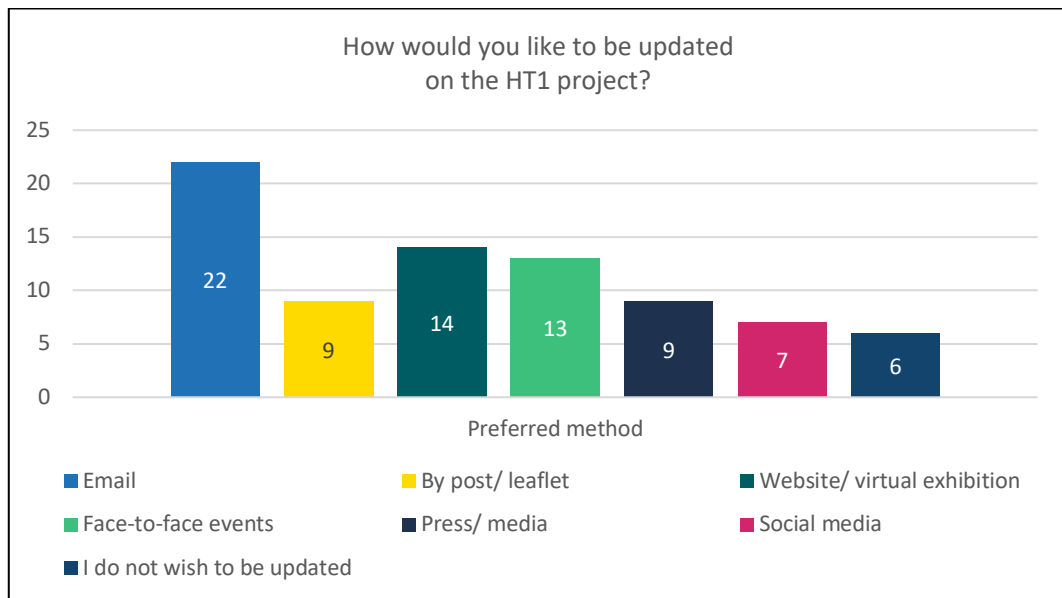


Figure 20: Project update preferences

4.18. Contact details

In line with the above, 36 respondents provided their contact details to receive project updates. This data has been processed and will be retained in accordance with the Data Protection Act and the General Data Protection Regulations (GDPR). It will not be shared or used for any other purpose without first seeking further consent from respondents.

5. Next Steps

Vattenfall's pilot is an important step towards the development of potentially game-changing, offshore green hydrogen generation, helping to deliver experience for regulators, the sector and citizens. The project aligns with the Scottish and UK Government's energy strategies, which note the role of Hydrogen production in addressing the energy needs of harder-to-electrify industries.

We are encouraged by the feedback received via this very early public consultation and would like to thank the local communities for their time and expertise. Following this interim consultation report, Vattenfall are reflecting on the comments received and working on technology design. During 2023 we'll progress a roadmap towards implementing green hydrogen generation offshore.

An indicative project programme which features the pre-application consultation activities was prepared for the PAC event and reproduced in Figure 22. It should be noted that this is likely to be updated in early 2023, to take into consideration comments received as part of the PAC event.

5.1. PAC Reporting

Formal reporting will be used to demonstrate that the engagement has been meaningful and proportionate and has met the engagement objectives set at the outset. A Pre-Application Consultation (PAC) Report will be prepared for submission with the relevant licence and consent applications in accordance with the legislation. The reporting processes will cover the components illustrated in Figure 21 in line with the legislation.

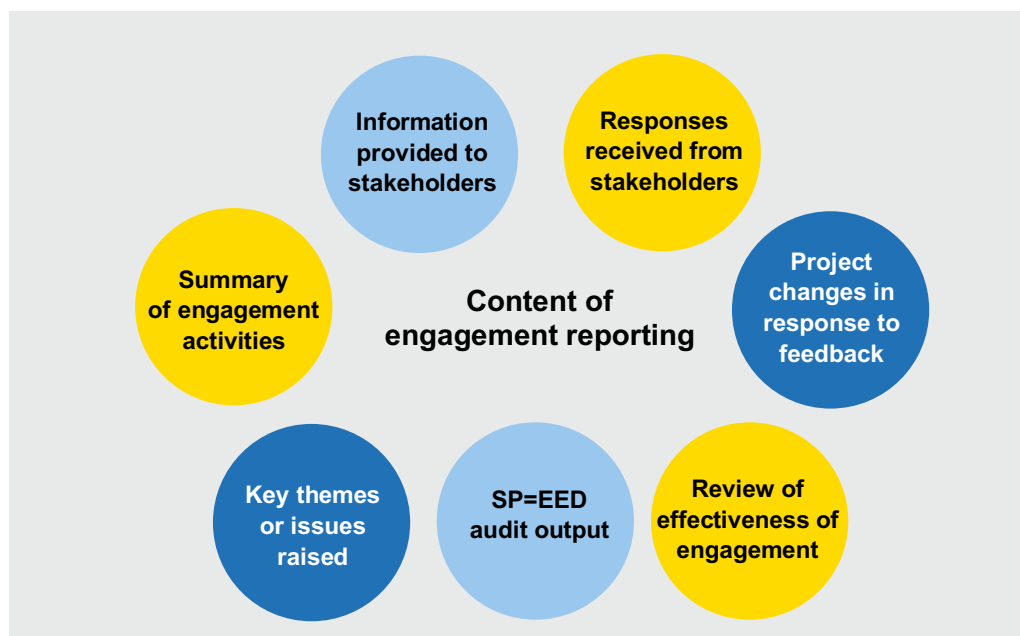
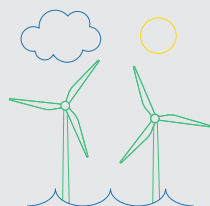


Figure 21: Content of PAC Report



Project development, in dialogue with national, regional and local stakeholders – from statutory bodies, to land owners to marine users and local residents – we are preparing a project that is technologically innovative and efficient, environmentally sensitive and works in the local setting, contributing to the socio-economic aspirations of the region. The route to getting all the correct consents and permits, is something the project is pioneering, and this in itself is part of its value as a pathfinder project. We anticipate being awarded relevant permissions in Q3 2023.

The pathway to consent should be even quicker for subsequent projects seeking to follow a similar process, or even new offshore wind developments that want to generate “energy molecules” rather than electrons.

HT1 Project – Indicative Timeline

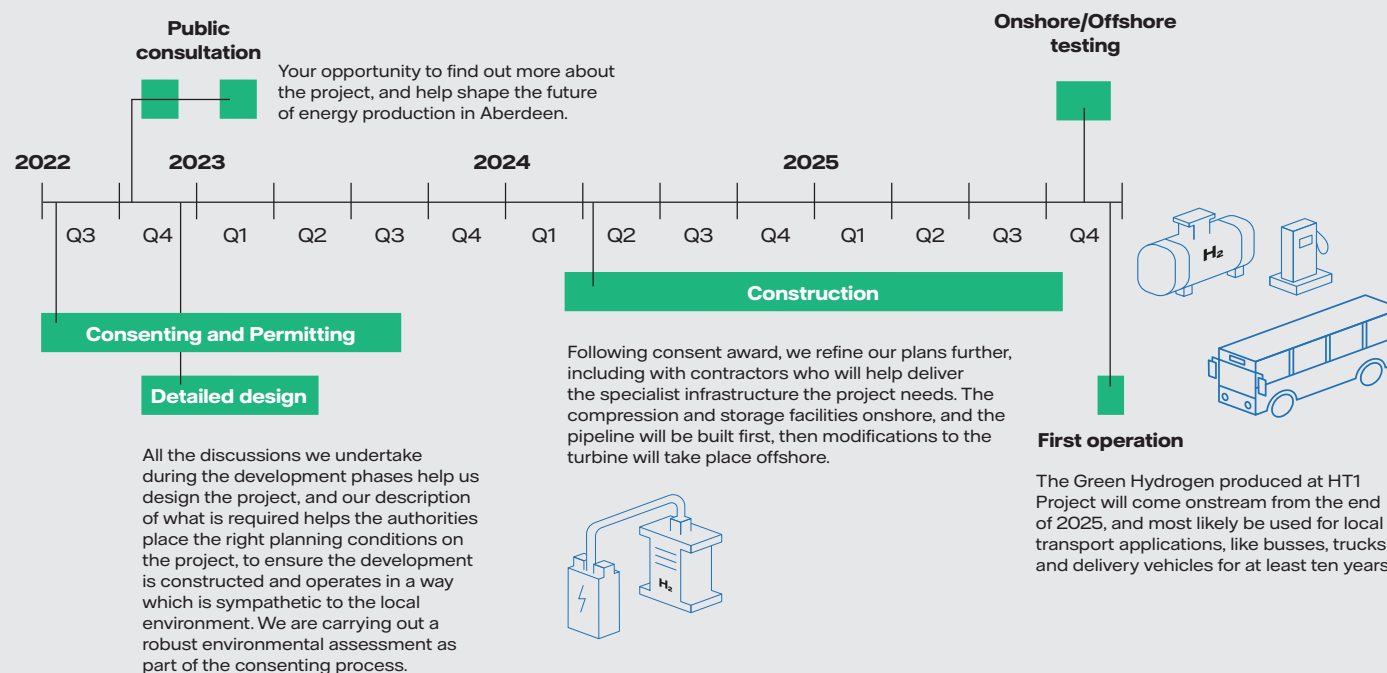


Figure 22: Indicative project programme


6. How to contact us

Vattenfall welcome your comments on the HT1 project and this Pre-Application Consultation Event Interim Report. Please do not hesitate to get in touch by contacting the Stakeholder & Community Engagement Manager.

Name:	Mimi Mwasame
Title:	Stakeholder & Community Engagement Manager
Phone:	+44 (0) 1786 820 111
Email:	HT1info@vattenfall.com
Address:	Freepost FCHANGE
Website:	www.vattenfall.co.uk/HT1

Appendix 1: PAC Notice

Statutory Pre-Application Consultation (PAC) Notice as published in the *Aberdeen Evening Express* 03/10/2022:

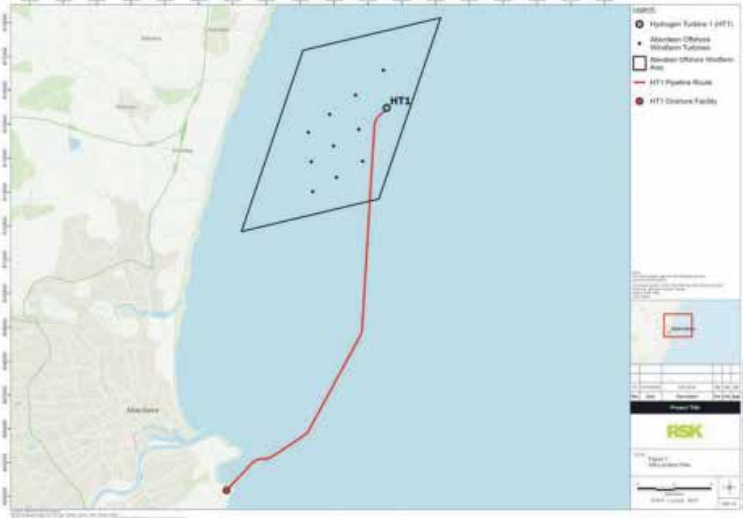
VATTENFALL 

Marine (Scotland) Act 2010
Marine Licensing (Pre-Application Consultation) (Scotland) Regulations 2013
Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017
Town and Country Planning (Scotland) Act 1997 (as amended)
Town and Country Planning (Development Management Procedure) (Scotland) Regulations 2013 (as amended)

Vattenfall is proposing to submit an application for a marine licence to carry out hydrogen production at its Aberdeen Offshore Wind Farm (AOWF - also known as the European Offshore Wind Deployment Centre). This process will turn seawater into hydrogen through electrolysis which will be piped ashore for use as a sustainable energy source. Vattenfall also proposes to submit a planning application for the onshore infrastructure associated with this project. The key components of the project are:

- Extension to transition platform on one of the existing AOWF wind turbines;
- Installation of hydrogen generating equipment and associated infrastructure in containers on the extended platform;
- Laying of approximately 12km of buried subsea flowline to bring the hydrogen ashore;
- Laying of a fibre optic control line adjacent to flowline to control equipment at turbine remotely;
- An onshore storage and offtake facility in the vicinity of the new Aberdeen South Harbour.

The plan below identifies the location of the proposed HT1 Hydrogen Demonstrator Project:



Vattenfall Wind Power Limited is holding a pre-application public consultation (PAC) event which will provide an opportunity for stakeholders, including local residents, to hear more about the project and make comments on the proposals. Members of the project team will be available to answer questions. The details of the event are:

Date: Monday 14th November
Venue: Aberdeen Science Centre
 179 Constitution St
 Aberdeen
 AB24 5TU
Time: 12noon - 7.30pm
Format: Informal drop-in session

As a marine licence/planning application has not yet been submitted, written comments should be made to Vattenfall Wind Power Ltd by 28th November 2022. Comments made to Vattenfall are not representations to Scottish Ministers or the Planning Authority. Representations to Marine Scotland and/or the local Planning Authority can be made when formal marine licence and/or planning applications are made. Vattenfall's contact details are as follows:

Email: HT1info@vattenfall.com
Postal address: Freepost FCHANGE
Phone: 01786 820 111

Further information can also be obtained visiting the project website:
<https://group.vattenfall.com/uk/what-we-do/our-projects/european-offshore-wind-deployment-centre/aberdeen-hydrogen>

Appendix 2: Mail drop leaflet

A5 leaflet delivered to all addresses within 2-mile radius of proposed onshore development site during the two-week period commencing 31st October 2022:

How to get involved

We'd really like to hear your views and so we are inviting you to come to a community consultation event at the Aberdeen Science Centre. The event will be a great opportunity to meet specialist members of the project team and ask any questions you may have about the proposal.

When?	Monday 14 th November 12noon - 7.30pm
Where?	Aberdeen Science Centre 179 Constitution St Aberdeen AB24 5TU
How?	No need to book - just drop in

If you can't make it or would rather not attend the event, there are a number of ways you can find out more or provide your feedback. You can get in touch by phoning, emailing or writing to us using the contact details below.


You can also visit our website to find out more:
<https://www.vattenfall.co.uk/HT1>

Please note

As a marine licence/planning application has not yet been submitted, written comments should be made to Vattenfall Wind Power Ltd by 20th November 2022. Comments made to Vattenfall are not representations to Scottish Ministers or the Planning Authority. Representations to Marine Scotland and/or the local Planning Authority can be made when formal marine licence and/or planning applications are made.

Contact us


01786 820 111
HT1info@vattenfall.com
Freeport FCHANGE



INVITATION TO ATTEND

COMMUNITY CONSULTATION EVENT

Monday 14th November



VATTENFALL


Hydrogen Turbine 1 Project

Vattenfall plans to apply for a marine licence for the construction and operation of green hydrogen equipment on one of the turbines on its Aberdeen Offshore Wind Farm (AOWF - sometimes also called the European Offshore Wind Deployment Centre).

Vattenfall will use seawater and electricity from the wind turbine to create hydrogen through a process called electrolysis. The hydrogen will be transported to shore using a pipeline where it can be used as a source of sustainable energy. We will also be applying for planning permission for the onshore facility.


The plan below shows the location of the Hydrogen Turbine 1 Project:




VATTENFALL

What is Green Hydrogen?

Green hydrogen is hydrogen which has been generated using renewable energy and is recognised as a means of decarbonising energy intensive industries like steel, chemicals, refineries, and heavy transport. The Scottish Government has set out its vision for Scotland to become a leading hydrogen nation in the production of reliable, competitive, sustainable hydrogen. This project is a demonstrator project, which aims to provide a technical and regulatory pathway to help meet this ambition, and is aligned with Vattenfall's mission to make fossil free living possible within one generation.



The picture above shows the key parts of the project which include:

- Extending the platform on one of the existing AOWF wind turbines and adding risers (vertical pipes) to the foundation, including for intake of seawater
- Installing innovative hydrogen generating equipment in containers on the extended platform
- Laying around 12km of pipeline under the seabed to bring the hydrogen to the shore
- Laying a fibre optic cable on the pipeline so that the equipment at the turbine can be controlled remotely
- Building an onshore facility including compression and storage near the new Aberdeen South Harbour and Energy Transition Zone for use in the local area

Appendix 3: Event brochure








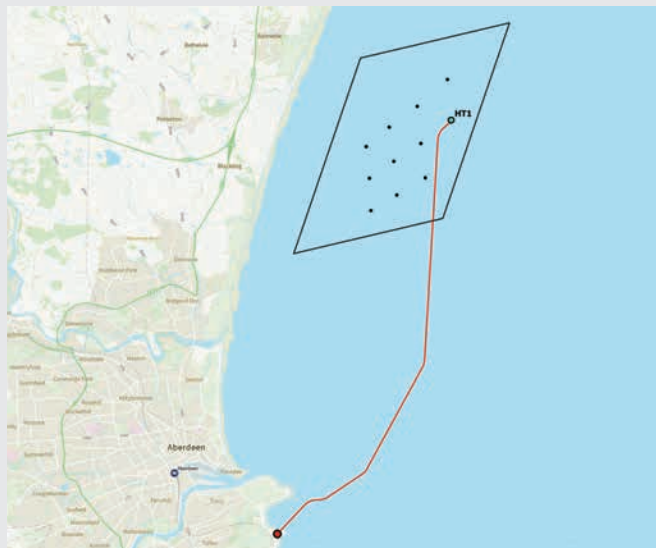
Hydrogen Turbine 1

Aberdeen Offshore Wind Farm

Location of the proposed HT1 project

Legend:

-  Hydrogen Turbine 1 (HT1)
-  Aberdeen Offshore Wind Farm Turbines
-  Aberdeen Offshore Wind Farm Area
-  Proposed HT1 Pipeline Route
-  Proposed HT1 Onshore Facility



Who is Vattenfall?

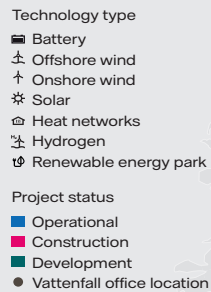
Vattenfall is one of Europe's largest producers and retailers of electricity and heat with approximately 19,000 employees.

For more than 100 years we have electrified industries, supplied energy to people's homes and modernised our way of living through innovation and cooperation. We are determined to enable fossil-free living within one generation. To succeed we must become fossil-free ourselves. But that's not enough. We are looking beyond our own industry to see where we can really make a difference. Together with our partners, we are taking on the responsibility to find new and sustainable ways to enable electrification

and green energy production for transportation, industries and heating.

Vattenfall is a key partner in enabling the UK to reach net zero. As well as our existing onshore and offshore wind farms, we are co-developing the Muir Mhòr offshore wind farm in Scotland, and we'll shortly start construction on the Norfolk offshore wind farms. We're on track to help save eight million tonnes of CO₂ every year by 2030, the same as taking 4,000,000 cars off the road.

Vattenfall in the UK - at a glance



2 Hydrogen Turbine 1 – Aberdeen Offshore Wind Farm



Aberdeen Offshore Wind Farm (AOWF)

The AOWF comprises eleven 8.8 MW turbines and is located off the coast of Aberdeen. The turbines were the most powerful in the world when built. Vattenfall employs an Aberdeen based team to look after the turbines.

The project started producing electricity in July 2018 and annually displaces over 134,000 tonnes of CO₂, which is the equivalent of removing approximately 35,000 fossil-fuel cars from UK roads. The wind farm has an installed capacity of 96.8 megawatts: enough to power

around 80,000 homes. The wind farm has been awarded up to €40m of European Union funding and is supported by Aberdeen Renewable Energy Group.

In May 2022, Vattenfall was awarded £9.3m in innovation funding from the Net Zero Innovation Portfolio Low Carbon Hydrogen Supply 2 fund, by the UK's Department for Business, Energy and Industrial Strategy. The funding will be used to develop the world's first hydrogen-producing offshore wind turbine (HT1) at the AOWF.

Unlock our Future Fund

The Unlock our Future Fund in Aberdeenshire and the City of Aberdeen invests in projects that look to the future, clearly demonstrate a lasting impact and contribute to a climate smarter world. Our aim is to continue to benefit the local area. Vattenfall invests £150,000 every year in the Unlock our Future Fund. This annual payment will continue for the life of the wind farm.

To find out more about the Fund and how to apply, please scan the QR code.



Unlock our Future Fund Community Project

Hydrogen Turbine 1 – Aberdeen Offshore Wind Farm 3

Project overview

Scotland was one of the first countries in the world to declare a climate emergency and has reduced greenhouse gas emissions by half in the last 30 years. The Scottish Government has set a world-leading target to reach net zero emissions by 2045 as part of its ongoing commitment to protect people and our planet.

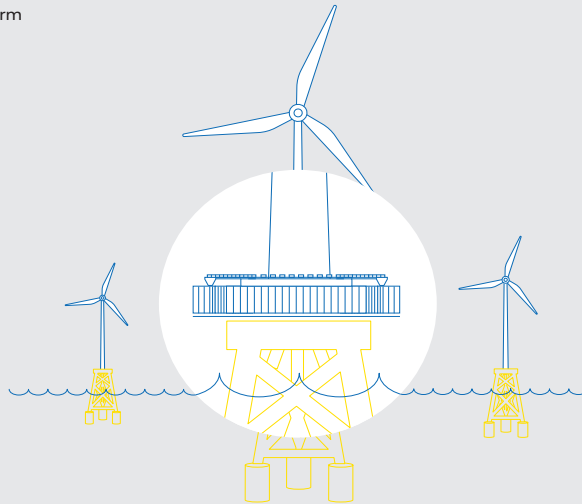
In recognition of this ambition, Vattenfall is developing the world's first green hydrogen-producing offshore wind turbine at its existing Aberdeen Offshore Wind Farm (AOWF – sometimes also called the European Offshore Wind Deployment Centre). The hydrogen generating equipment will be installed on one of the existing 8.8 MW turbines; it will be known as Hydrogen Turbine 1 (HT1).

By installing hydrogen production equipment on an extended platform on the turbine, Vattenfall will be able to use seawater and electricity from the

wind turbine to create green hydrogen through a process called electrolysis. The hydrogen will be transported to shore via a subsea pipeline where it can be used as a source of sustainable energy. The HT1 project will be able to produce enough hydrogen every day to power a hydrogen bus to travel 15,000 miles, which is the equivalent of 50 return trips from Aberdeen to Glasgow.

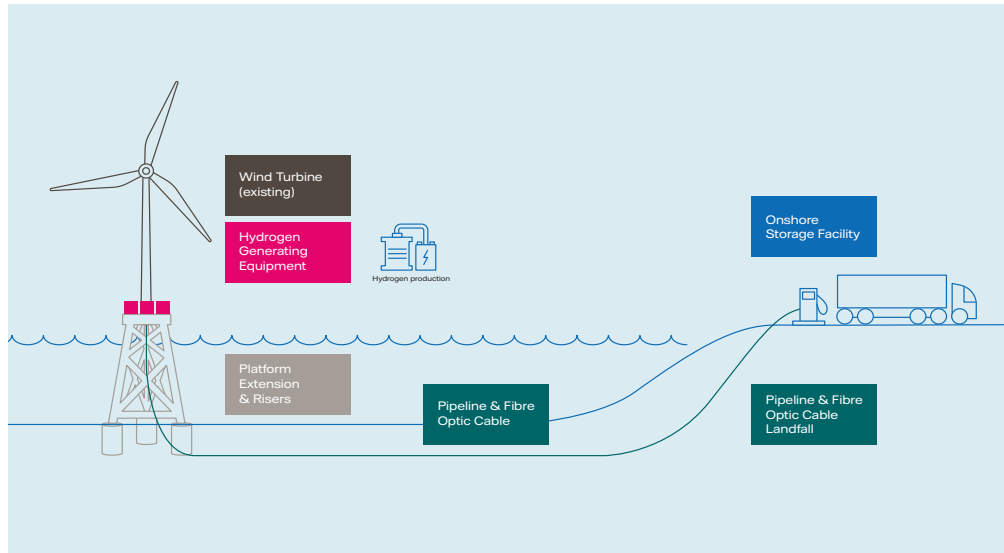
The HT1 project will examine how fossil-free hydrogen can be produced and piped to shore safely and efficiently and identify what needs to be done to enable large-scale commercial production. By proving that it is possible to efficiently produce hydrogen at industrial volumes, HT1 will provide generators, consumers and investors with the confidence to apply this game-changing technology for the decarbonisation of industrial processes which cannot be electrified.

Wind turbine platform



4 Hydrogen Turbine 1 – Aberdeen Offshore Wind Farm

Hydrogen Turbine 1 (HT1)



Schematic of HT1 hydrogen process

The figure illustrates the various components of the project which include:

- extending the platform on one of the existing AOWF wind turbines and adding risers (vertical pipes) to the foundation, including for intake of seawater. The turbine proposed for the hydrogen production equipment is BO6, the furthest turbine from shore
- installing hydrogen production equipment in containers on the extended platform
- laying around 12 km of pipeline under the seabed to bring the hydrogen to the shore
- laying a fibre optic cable on the pipeline so that the equipment at the turbine can be controlled remotely
- building an onshore facility including compression and storage near the new Aberdeen South Harbour for use in the local area

Hydrogen Turbine 1 – Aberdeen Offshore Wind Farm 5

Green hydrogen

How it works

Green hydrogen is a source of clean energy where water is split into hydrogen and oxygen. It is proposed that seawater, one of the most abundant resources on earth, will be taken from the sea, desalinated, treated and then electrolysed to create hydrogen using power from the wind. The hydrogen will be transported to shore by subsea pipeline.

Why generate hydrogen?

Green hydrogen does not emit polluting gases when it is produced or used and is relatively easy to store. It is a key way of reducing greenhouse gas as it does not have a negative effect on the climate.

Uses:

Traffic & transport

Hydrogen can be used to power hydrogen fuel cell vehicles. It can be used in heavy-duty vehicles such as buses, heavy goods vehicles, trains and ships. Shifting our dependence from fossil fuels to such alternatives would help reduce carbon dioxide (CO₂) emissions from traffic and help us to protect the planet.

Heavy Industry

Hydrogen can be used within heavy industry environments, such as steel manufacturing. Heavy industry is traditionally reliant on fossil fuels, such as coal. Energy use from industry currently accounts for 24.2% of global greenhouse gas emissions. However, Vattenfall has been working in collaboration with European partners through projects such as HYBRIT to replace traditional fossil fuels used within heavy industry with fossil-free electricity and hydrogen. The outcome of this is the world's first fossil-free steelmaking technology.

Safety aspects

Similar to other fuels such as natural gas, hydrogen is flammable and must be properly handled in line with relevant safety requirements. Vattenfall is drawing on lessons and solutions from the offshore oil and gas industry to help ensure the safe production, transportation and storage of the hydrogen.

The most important aspect of hydrogen safety is the capacity to depressurise the hydrogen system in an emergency situation. By so doing, the potential risk posed by the hydrogen is significantly reduced. For the HT1 project, we are proposing an automatic safety system which will depressurize the system and bring it to a safe state in the unlikely event of an emergency.

Vattenfall has a high standard when it comes to safety. We use modern international safety standards from the process industry (where raw materials are extracted, transported and processed to create end products using a formula or recipe). We also demand that our suppliers and contractors maintain these same high standards.

We are discussing the design of the offshore and onshore parts of the project with the safety authorities in the UK to make sure that all concerns and potential hazards are addressed and that the protection level is the best in the industry. Discussions with environmental regulators are helping us to ensure that all necessary environmental permits and consents are also in place.

To find out more about the HYBRIT project, please scan the QR code.



6 Hydrogen Turbine 1 – Aberdeen Offshore Wind Farm



Aberdeen Offshore Wind Farm

Hydrogen & climate change

Hydrogen policy

The Scottish Government has set out short, medium and long term goals and when they are to be achieved by in the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019.

In 2020 the Scottish Government set a vision for Scotland to become a leading hydrogen nation and help move the country away from fossil fuel reliance. This will help to achieve 'net zero' of 'greenhouse gas' emissions by 2045.

The Scottish Government published its Hydrogen Policy Statement in December 2020 which recognises the importance

of hydrogen in a decarbonised energy system. Within this document, an initial ambition of generating 5 Giga Watts (GW) of renewable and low-carbon hydrogen by 2030 was announced. (A GW is equal to one billion watts which could power around 725,000 homes, equivalent to more than the number of homes in Glasgow, Edinburgh and Aberdeen combined.

The Scottish Government published a more detailed 5-year Draft Hydrogen Action Plan in November 2021. The plan recognised that demonstration projects like HT1 would play a key role in this green energy transition.

Hydrogen and Aberdeen

Aberdeen is already home to the world's first hydrogen powered double decker buses which emit water from their exhausts, helping to reduce air pollution. The forthcoming Aberdeen Local Development Plan will include other initiatives, including an Energy Transition Zone, to encourage renewable energy and support the transition towards a more sustainable future. These will help ensure the continued economic success of the city.

The proposed onshore elements of the HT1 project are expected to be located in the region of Aberdeen's new South Harbour, which welcomed its first vessel in July 2022. The project will also help support the transition from oil and gas to a renewable energy future with Aberdeen's highly skilled workforce supporting the project and benefiting from its delivery.

Hydrogen Turbine 1 – Aberdeen Offshore Wind Farm 7



Dolphin and Aberdeen Offshore Wind Farm (image: Ian Hastie/AREG)

Consenting

All new projects need appropriate planning approvals and consents. These requirements are different for the elements that are on the land and those offshore.

Offshore consenting

Projects in Scotland that are within inshore waters (12 nautical miles of the shore) are primarily consented on behalf of the Scottish Ministers by Marine Scotland. Consents may also be required from other organisations such as the Scottish Environment Protection Agency (SEPA).

Developers like Vattenfall (helped by advisors like RSK Environment Ltd) apply for relevant development consents supported by environmental assessment reports. The reports are based on surveys carried out of the area and assessment of any impacts that the project may have on the environment.

As Vattenfall already holds consents to operate their existing wind farm, they

intend to apply to vary the agreements in place to include any new elements related to the hydrogen aspects of the project. Additional consents (including a marine licence) will also be obtained for the construction, operation and decommissioning of HT1.

Onshore consenting

The onshore elements of the hydrogen project also require consent. A planning application for the hydrogen storage site in the region of Aberdeen South Harbour and any ancillary infrastructure will be submitted under the Town and Country Planning (Scotland) Act 1997 (as amended).

8 Hydrogen Turbine 1 - Aberdeen Offshore Wind Farm



Gannets (*Morus bassanus*)

Environmental assessment

Environmental Impact Assessment (EIA)

Environmental Impact Assessment (EIA) is a process which identifies and assesses the potential environmental effects of a development. It informs the design of the project from an environmental perspective and identifies mitigation measures to minimise and manage the impacts of the project on the surrounding environment. Through the EIA process, there is also an opportunity to identify amendments to project proposals to make the project more locally appropriate.

Under current legislation, not all projects require an EIA and it is up to the consenting authority (Marine Scotland or the local planning authority) to decide whether an EIA is required. Sometimes other forms of environmental assessment are considered more appropriate, depending on the scale and nature of the proposals.

Managing Impacts

Several offshore environmental assessment studies already have been undertaken. These have improved understanding of what animals and plants may be present in the area and what impact the project might have on them. Mitigation measures to reduce or remove any impacts will be identified throughout the assessment process.

These will include:

- Environmental Management Plan
- Marine Mammal Mitigation Protocol
- Navigation Risk Assessments
- Exclusion Zones

Hydrogen Turbine 1 – Aberdeen Offshore Wind Farm 9



Offshore assessments

Screening Report

Vattenfall submitted an EIA Screening Report to Marine Scotland in November 2021 to ask them if they or their principal advisors considered that an EIA would be required for the marine elements of the project. Given the minor nature of the proposed changes, they did not think that a full EIA would be needed. Vattenfall still proposes to submit a detailed environmental assessment report with all licence and consent applications. This report will be available for anyone to read. Please scan the above QR code.



Aberdeen Offshore Wind Farm

Assessment topics

Vattenfall has been collecting information about the presence of plants and animals below and above the waves, including marine mammals (dolphins, seals, whales, etc.) and sea birds at the site since before the original marine licence was granted in 2014. In particular, the following factors will be assessed as part of the HT1 project:



Offshore Physical Environment

Water quality
Sediment quality
Hydrodynamics²

² The scientific study of the motion of fluids, for example, water.



Offshore Biological Environment

Habitat and biodiversity
Disturbance and accidental injury to marine mammals
Water quality and sediment quality



Human Environment

Commercial fisheries
Shipping and navigation
Marine archaeology
Visual sight lines
Infrastructure and tourism

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Developments along coastal path around Greg Ness (image: RSK)

Onshore assessments

Screening Report

Vattenfall will also submit an EIA Screening Report to Aberdeen City Council (ACC) with a request to provide an EIA Screening Opinion to determine whether an EIA is required. Should an EIA be required, then an EIA Scoping Report will be submitted to agree with statutory consultees on the scope and methodology of surveys and assessments. An EIA Report will then be submitted with the planning application to allow ACC to take the environmental information into account in their planning decision. Regardless of whether an EIA

is required, Vattenfall will carry out a proportionate environmental assessment and have discussed likely supporting information requirements with ACC and statutory advisors.

Vattenfall's consultants have undertaken feasibility studies to choose an area of study that is less environmentally sensitive. The Area of Study is currently a construction area around Greg Ness and ecology surveys have indicated that there is no evidence of protected habitats or species on site. Supporting information required to be submitted with the planning application is likely to include:



Onshore Physical Environment

- Drainage Impact Assessment
- Flood Risk Assessment



Onshore Biological Environment

- Ecological Appraisal Report

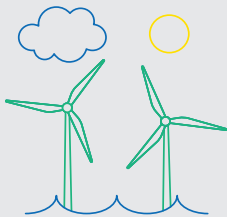


Human Environment

- Noise Impact Assessment
- Transport Statement
- Landscape Visual Impact Assessment

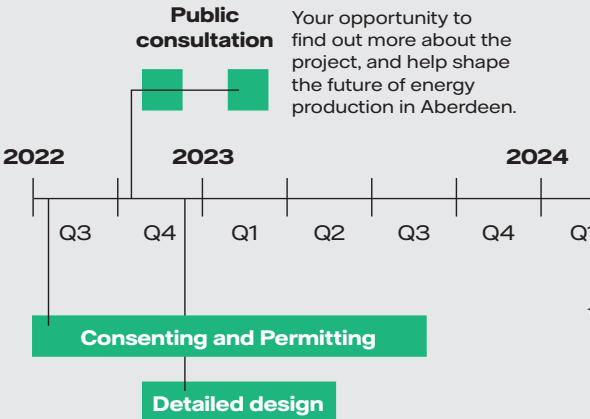
The project timeline is indicated below. Environmental studies commenced in 2021 with the goal of first hydrogen production as early as 2025:

HT1 Project – Ind



Project development, in dialogue with national, regional and local stakeholders – from statutory bodies, to landowners to marine users and local residents – we are preparing a project that is technologically innovative and efficient, environmentally sensitive and works in the local setting, contributing to the socio-economic aspirations of the region. The route to getting all the correct consents and permits is something the project is pioneering, and this in itself is part of its value as a pathfinder project. We anticipate being awarded relevant permissions in Q3 2023.

The pathway to consent should be even quicker for subsequent projects seeking to follow a similar process, or even new offshore wind developments that want to generate “energy molecules” rather than electrons.



All the discussions we undertake during the development phases help us design the project, and our description of what is required helps the authorities place the right planning conditions on the project to ensure the development is constructed and operates in a way which is sympathetic to the local environment. We are carrying out a robust environmental assessment as part of the consenting process.

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Indicative Timeline

The timeline shows the project schedule from Q1 2024 to Q4 2025. A green bar labeled 'Construction' spans from Q1 2024 to Q4 2025. A green square labeled 'Onshore/Offshore testing' is positioned at the end of the timeline, around Q4 2025. A green square labeled 'First operation' is positioned below the timeline, around Q4 2025. Illustrations include a hydrogen turbine, a hydrogen storage tank, a hydrogen bus, and a hydrogen truck.

Construction

Following consent award, we refine our plans further, including with contractors who will help deliver the specialist infrastructure the project needs. The compression and storage facilities onshore and the pipeline will be built first, then modifications to the turbine will take place offshore.

Onshore/Offshore testing

First operation

The green hydrogen produced at HT1 project will come onstream from the end of 2025 and most likely be used for local transport applications, like buses, trucks and delivery vehicles for at least ten years.

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Aberdeen Offshore Wind Farm

Stakeholder engagement

Good dialogue with people interested in our proposals, including local residents and businesses, is the best way to deliver a sustainable project that maximises economic and environmental benefits. Vattenfall is committed to building long-term relationships based on mutual understanding and transparent communication. Whilst a key objective is to obtain relevant consents with minimal delays, our main aim is to create the best possible project by securing local insights and views alongside expert technical knowledge.

Vattenfall has a long track record of listening to and involving a broad range

of people and organisations to deliver successful projects such as the Aberdeen Offshore Wind Farm. As we've been talking with relevant people in the region since around 2002 when the AOWF was first conceived, this has given us a strong basis for discussing and agreeing the topics for environmental assessment.

Vattenfall is now keen to meet with local communities to share information about the proposals and find out your views. We have prepared a Community Engagement Plan outlining our approach to engaging with local communities and you can read this on our website.

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Stakeholder groups



Hydrogen Turbine 1

Landowners

- Crown Estate Scotland
- Aberdeen City Council
- Port of Aberdeen

Strategic

- Commercial fisheries
- BEIS
- Marine ornithology
- Ports, shipping & navigation
- Scottish Enterprise
- Lobbying groups

Regulators

- Marine Scotland Licensing Operations Team (MS-LOT)
- Department of Business & industrial Strategy (BEIS)
- North Sea Transition Authority (NSTA)
- Aberdeen City Council
- Scottish Environment Protection Agency (SEPA)
- Health and Safety Advisors/Regulators

Political

- Members of UK Parliament
- UK Hydrogen Champion
- UK Hydrogen Advisory Council
- UK Hydrogen Regulators Forum
- Scottish Government
- Aberdeen City Council

Community

- Local residents
- Community interest groups
- Community Councils
- Wider community
- Media

EIA Consultees

- Historic Environment Scotland
- NatureScot
- Commissioners of Northern Lighthouses
- Maritime and Coastguard Agency
- Aberdeen City Council

Supply chain & skills

- Supply chain
- Skills & training (colleges/ training providers)
- Government agencies/ NGOs
- Local businesses

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How to get involved

We are very interested in hearing your views and would encourage you to complete our community questionnaire. Please ask a member of the team for a copy or scan the QR code. You can also contact us directly using the details below.

Contact us

Email: HT1info@vattenfall.com

Post: Freepost FCHANGE

Phone: 01786 820 111

<https://www.vattenfall.co.uk/HT1>



Note: As a marine licence/planning application has not yet been submitted, written comments should be made by 28th November 2022. Comments made to Vattenfall Wind Power Ltd are not representations to Scottish Ministers or the Planning Authority.

Representations to Marine Scotland and/or the local Planning Authority can be made when formal marine licence and/or planning applications are made.

Appendix 4: Community questionnaire

Community Questionnaire



We are keen to hear your views about Vattenfall's proposed Hydrogen Turbine 1 Project which we will use to inform our approach to the development. This short questionnaire is one of the ways in which you will be able to express your opinion about the project. We would also welcome your feedback on our consultation and any suggestions you may have for future engagement activities.

To find out more about the Hydrogen Turbine 1 project, please visit: <https://www.vattenfall.co.uk/HT1>

This is an anonymous survey and the results will be summarised.

Please note: as marine licence/ planning applications have not yet been submitted, written comments submitted on this form will be received by Vattenfall only. Representations to Marine Scotland and the Local Planning Authority can be made when formal marine licence and/ or planning applications are made.

Your views... (Please ✓one box only)

Q1 In general, what is your attitude towards climate change?

- ☐ I think it's something we need to take action about now
- ☐ I don't believe that climate change is an issue of concern
- ☐ I don't have a view on climate change

Q2 In general, what is your attitude towards green hydrogen projects?

- ☐ I support them
- ☐ I oppose them
- ☐ I don't have a view on green hydrogen at present

The proposed Hydrogen Turbine 1 Project...

Q3 If the Hydrogen Turbine 1 Project goes ahead what effect, if any, do you think it will have on:

Please ✓one box only for each category below	Positive/ good effect	Neutral/ no effect	Negative/ bad effect	Not sure
The visual amenity of the seascape				
The visual amenity of the onshore landscape				
The natural environment				
Marine mammals (dolphins, seals etc.)				
CO ₂ reduction				
Jobs & the local economy				
Fishing				
Other marine users				

Q4 How would you describe your reaction to the proposed Hydrogen Turbine 1 Project?

- ☐ I support it
- ☐ I neither support nor oppose it
- ☐ I oppose it

Q5 Please provide a reason for your reaction...

Q6 Do you have any particular comments about the ONSHORE elements of the project?

Q7 What do you think should be our main considerations when selecting a final onshore site in the vicinity of Aberdeen South Harbour?

Please turn over 

Q8 Do you have any particular comments about the OFFSHORE elements of the project?

Q9 To what extent has the information we provided given you confidence that the H&S precautions associated with the project are appropriate??

Very confident 1 2 3 4 5 Not confident at all

☐ ☐ ☐ ☐ ☐

Your experience of our engagement...

It is important that we take into account the views of local people when developing this proposal and we would value your input on how best to engage with local communities.

Q10 How would you describe your knowledge of the Hydrogen Turbine 1 Project?

BEFORE attending the event or visiting the website:

☐ I was very well informed ☐ I knew a lot ☐ I knew a little ☐ I knew very little ☐ I knew nothing at all

AFTER attending the event or visiting the website:

☐ I am very well informed ☐ I know a lot ☐ I know a little ☐ I know very little ☐ I know nothing at all

Q11 Please indicate to what extent you agree or disagree with the following statements:

Please ✓one box only for each statement	Strongly agree	Slightly agree	Neither agree nor disagree	Slightly disagree	Strongly disagree	Not applicable
The event/ website has enhanced my knowledge of the Hydrogen Turbine 1 Project						
The event/ website has given me a good opportunity to participate in the planning process.						
The level of information is appropriate to my needs.						

Q12 Do you have further comments about how we engage with the local community?

About you...

So that we are able to ensure that we include the views of people from across the community, please tell us a bit about yourself. (This information will only be used for reporting purposes to indicate the reach of this engagement and will NOT be used to identify you or your address.)

Q13 What is your postcode (we will NOT use this to identify you)?

Q14 How old are you?

☐ Under 16yrs ☐ 16-29yrs ☐ 30-44yrs ☐ 45-59yrs ☐ 60-74yrs ☐ 75yrs & over

Project updates...

Q15 In future how would you like us to keep you updated on the progress of the project?

Email Post/ leaflet through the door Website/ virtual exhibition Face-to-face events Press/ media coverage Social media I do NOT want updated

☐ ☐ ☐ ☐ ☐ ☐ ☐

Q16 To receive project updates, please provide an email or postal address:

Name: _____ Email: _____

Address: _____

Thank you for completing this questionnaire

All the information that you have provided will be processed in accordance with your rights under the Data Protection Act and the General Data Protection Regulations in line with our privacy policy which can be accessed here: <https://group.vattenfall.com/uk/site-assets/privacy-policy-general>. By providing us with your contact details, you are giving us your consent to use your data to keep you updated on the Hydrogen Turbine 1 project only. We will not use your data for any other purpose without first seeking further consent.