Dear Sophie,

SNH ADVICE – MARINE LICENCE FOR THE DEPLOYMENT AND OPERATION OF THE SHETLAND TIDAL ARRAY BY NOVA INNOVATION LTD - 6 TURBINES

Thank you for consulting us on 22 February 2018 for the marine licence for the Shetland tidal array by Nova Innovation Ltd at Bluemull Sound. This current proposal includes the deployment of an additional single tidal turbine increasing the total number of turbines from 5 to 6 within the array.

Background

We provided screening advice for a Shetland Islands Council marine works licence and a marine licence with respect to this proposal on 19 December 2017. We subsequently met with Nova Innovation, MS LOT and Shetland Islands Council on 26 January 2018 to discuss this proposal and ongoing monitoring for the Shetland Tidal Array.

Following previous advice (letters of 24 June 2013, 27 August 2015, 26 January 2016) with regard to the licences and discussions at the recent meeting, and taking account of the documents provided in support of the 6 turbine work licence application, we have updated our advice to take account of this proposed additional turbine, notably with respect to collision risk.

We provided updated collision risk assessments for the 6 turbine array to inform this marine licence and related Shetland Islands Council (SIC) works licence application (9 February 2018). We include an assessment for the Bluemull and Colgrave Sounds proposed SPA (pSPA) for breeding red-throated diver qualifying interests. This site has been proposed as a pSPA since the consent of the 5 turbine array and therefore is a relevant consideration in our assessment for the 6 turbine proposal. We note and welcome that the advice we provided on 9 February 2018 has been incorporated into the latest Shetland Tidal Array Extension – Environmental Assessment Report submitted by Nova for this marine licence.
Advice

We consider that the deployment and operation of this array of 6 tidal turbines and associated infrastructure can be implemented without serious adverse effects on natural heritage interests. However, the proposal requires consideration of natural heritage issues of international and national importance. Appendices A, B and C include our detailed advice.

The proposed array is likely to have a significant effect on qualifying interests of:

- Yell Sound Coast Special Area of Conservation (SAC) (harbour seals; see Appendix A)
- Hermaness, Saxa Vord and Valla Field Special Protection Area (SPA) and
- Bluemull and Colgrave Sounds proposed SPA (pSPA) (see Appendix B).

We have concluded that the project **will not have an adverse effect on site integrity for these Natura sites.**

In addition, we advise that a European Protected Species (EPS) will be required with respect to relevant cetaceans for the project construction phase (see Appendix C – Advice on natural heritage interests). We have considered other relevant marine species (see Appendix C) and have concluded that significant adverse effects can be avoided.

Environmental Monitoring and Mitigation Plan (EMMP)

We refer you to our most recent detailed advice relating to the EMMP (letter of 15 August 2017) for the previous works and marine licence applications. This advice remains relevant for the current 6 turbine array application. We recommend continued liaison between Marine Scotland and SIC in the formation of licence conditions, notably with respect to details of monitoring requirements within the EMMP.

Further information and advice

We hope this advice is helpful. If further information or advice is required please contact me in the first instance: tracey.begg@snh.gov.uk or 01876 580236.

Yours faithfully

Dr Tracey Begg
Policy & advice officer - Marine energy and seaweed harvesting

Cc marine.planning@shetland.gov.uk
APPENDIX A

NOVA INNOVATION TIDAL ARRAY, BLUEMULL SOUND, SHETLAND

HABITATS REGULATIONS APPRAISAL – SPECIAL AREA OF CONSERVATION (SAC)

1. Where a plan or project could affect a Natura site, the Habitats Regulations require the competent authority – the authority with the power to undertake or grant consent, permission or other authorisation for the plan or project in question – to consider the provisions of regulation 48. This means that the competent authority has a duty to:

- determine whether the proposal is directly connected with or necessary to site management for conservation; and, if not,
- determine whether the proposal is likely to have a significant effect on the site either individually or in combination with other plans or projects; and, if so, then,
- make an appropriate assessment of the implications (of the proposal) for the site in view of that site’s conservation objectives.

2. This process is now commonly referred to as Habitats Regulations Appraisal (HRA). HRA applies to any plan or project which has the potential to affect the qualifying interests of a Natura site, even when those interests may be at some distance from that site.

3. The competent authority, with advice from SNH, decides whether an appropriate assessment is necessary and carries it out if so. It is the applicant who is usually required to provide the information to inform the assessment. Appropriate assessment focuses exclusively on the qualifying interests of the Natura site affected and their conservation objectives. A plan or project can only be consented if it can be ascertained that it will not adversely affect the integrity of a Natura site (subject to regulation 49 considerations).

4. SACs relevant under this HRA can be determined by (a) species observed at the site during site survey, (b) the distance between SACs and the proposed development site, and (c) the foraging range of species designated as qualifying interests. Consequently, we recommend that the only SAC relevant for consideration under HRA is Yell Sound Coast SAC.

**Yell Sound Coast SAC**

5. Yell Sound Coast SAC is designated for harbour seals and otters. The proposal is approximately 28km from the nearest part of the SAC.

<table>
<thead>
<tr>
<th>Step 1:</th>
<th>Is the proposal directly connected with or necessary for the conservation management of the SAC?</th>
</tr>
</thead>
</table>

6. The proposal is not directly connected with or necessary for the conservation management of the Yell Sound Coast SAC.

<table>
<thead>
<tr>
<th>Step 2:</th>
<th>Is the proposal likely to have a significant effect on the qualifying features of the SAC either alone or in combination with other plans or projects?</th>
</tr>
</thead>
</table>

7. The conservation objectives of the site are:
8. Otters designated as qualifying interests of the Yell Sound Coast SAC are unlikely to have connectivity with the proposal due to the distances and depths involved. Consequently, we advise that there is no likely significant effect upon otters and no further consideration of this species is required within HRA.

9. This distance separating the proposed development site and Yell Sound Coast SAC is well within the foraging range of harbour seals and we therefore advise that there is a likely significant effect upon harbour seals as a qualifying feature of the Yell Sound Coast SAC. As a consequence, Marine Scotland and SIC, as the competent authorities, are required to carry out appropriate assessments (AA) in view of the site’s conservation objectives for this qualifying interest. Impacts upon harbour seals are of particular concern due to declining populations, including a condition status of ‘unfavourable declining’ for the Yell Sound Coast SAC. We provide an appraisal of proposal below, in relation to seals as a qualifying feature of the SAC.

Step 3: Can it be ascertained that the proposal will not adversely affect the integrity of the SPAs either alone or in combination with other plans or projects?

10. Potential sources of impact upon harbour seals are discussed in turn:

Potential disturbance and displacement of seals:

11. The use of gravity-bases, as opposed to rock-drilling, greatly reduces the potential for disturbance by limiting the sources of anthropogenic noise and allowing more rapid deployment of devices. The relatively small size of devices and the vessels therefore required for deployment and maintenance works also limit the potential for disturbance. In addition, the construction programme involves the deployment of devices spaced over an extended period of time, further limiting the potential for any sustained source of disturbance. Overall, we advise that potential disturbance of harbour seals is not of a scale or severity that would lead to an adverse effect on site integrity.

Potential collision with operational tidal turbines:

12. Table 1 below contains the collision risk estimates from the updated ERM model with a 98% avoidance rate applied for the harbour seal qualifying interest from Yell Sound Coast SAC for which LSE was previously identified.
Table 1: Collision risk estimates for the harbour seal qualifying interest of Yell Sound Coast SAC

<table>
<thead>
<tr>
<th>Species</th>
<th>Updated ERM model with updated turbine parameters – BREEDING SEASON (June to August)</th>
<th>Updated ERM model with updated turbine parameters – ALL YEAR</th>
<th>Updated ERM model with updated turbine parameters – Seals-at-sea density (availability accounted for)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harbour seal</td>
<td>0.17</td>
<td>3.96</td>
<td>4.00</td>
</tr>
</tbody>
</table>

13. The rate of collision predicted from the updated modelling during the breeding season is very similar to what was previously calculated (0-1 seal per year) and the current PBR for harbour seals for the Shetland Seal Management Unit \(^1\) is 20 individuals. Furthermore, we are mindful of the underwater camera monitoring undertaken for the deployed turbines in Bluemull Sound for which no collision or near misses were detected during operational periods to date, and the ongoing commitment by Nova Innovation through their EMMP for further collision risk monitoring together with the emergency shutdown protocol in the event of any collision.

14. Through consideration of the above points, our advice is that there will be **no adverse effect on the integrity of the Yell Sound Coast SAC** according to its conservation objectives.

15. **Cumulative / in-combination assessment**: We advise that, based on our appraisal of this proposal and our knowledge of other developments/activities in Shetland, any potential cumulative and in combination effects will not adversely affect the integrity of this SAC.

\(^1\) [http://www.gov.scot/Topics/marine/Licensing/SealLicensing](http://www.gov.scot/Topics/marine/Licensing/SealLicensing)
APPENDIX B

NOVA INNOVATION TIDAL ARRAY, BLUEMULL SOUND, SHETLAND

HABITATS REGULATIONS APPRAISAL (HRA) – SPECIAL PROTECTION AREA (SPA)

See Appendix A for information on the HRA process and role of the competent authority.

SPAs relevant under this HRA can be determined by (a) species observed at the site during site survey, (b) the distance between SPAs and the proposed development site, (c) the foraging range and diving ability of birds designated as qualifying species and (d) the scale of the proposal. Relevant SPAs for consideration under HRA are Hermaness, Saxa Vord and Valla Field SPA and Bluemull and Colgrave Sounds proposed SPA (pSPA).

1. Hermaness, Saxa Vord and Valla Field SPA

1. Hermaness, Saxa Vord and Valla Field SPA is designated for a suite of breeding-bird interests. The proposal is approximately 3km from the nearest part of the SPA.

<table>
<thead>
<tr>
<th>Step 1:</th>
<th>Is the proposal directly connected with or necessary for the conservation management of the SPA?</th>
</tr>
</thead>
</table>

2. The proposal is not directly connected with or necessary for the conservation management of the Hermaness, Saxa Vord and Valla Field SPA.

<table>
<thead>
<tr>
<th>Step 2:</th>
<th>Is the proposal likely to have a significant effect on the qualifying features of the SPA either alone or in combination with other plans or projects?</th>
</tr>
</thead>
</table>

3. The conservation objectives for Hermaness, Saxa Vord and Valla Field SPA are:

   (i) to avoid deterioration of the habitats of the qualifying species or (ii) significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained;
   and to ensure for the qualifying species that the following are maintained in the long term:

   (iii) Population of the species as a viable component of the site,
   (iv) Distribution of the species within site,
   (v) Distribution and extent of habitat supporting the species,
   (vi) Structure, function and supporting processes of habitats supporting the species,
   repeat of (ii) No significant disturbance of the species

4. Qualifying species for Hermaness, Saxa Vord and Valla Field SPA are as follows (*indicates assemblage qualifier only):
   a. Fulmar (*Fulmarus glacialis*)
   b. Gannet (*Morus bassana*)
   c. Great skua (*Catharacta skua*)
   d. Guillemot (*Uria aalge*)
   e. Kittiwake (*Rissa tridactyla*)
   f. Puffin (*Fratercula arctica*)
   g. Red-throated diver (*Gavia stellata*)
   h. Shag (*Phalacrocorax aristotelis*)


i. Seabird assemblage

5. The conservation objectives for which consideration is required are (ii) and (iii) as listed above. The other objectives require no further consideration due to the distance between the SPA and the proposed development site and/or the small scale of the proposal.

6. Conservation objective (ii) is concerned with ensuring that there is no significant disturbance of species designated as qualifying interests of the site, such as through vessel activity or other cause of bird displacement. Although the proposed development would be within the foraging range of all of the above listed breeding populations for Hermaness, Saxa Vord and Valla Field SPA, we advise that there is no likely significant effect in this regard, due to the small scale of the development, the expected limited duration of installation procedures and the distance from nesting sites.

7. In this case, conservation objective (v) is relevant to the risk of collision between birds and operational turbines. Consequently it is only relevant to birds with diving capabilities that may place them at risk of interaction with the device. We advise that there is a likely significant effect for gannets, puffins, red-throated divers, guillemots and shags from Hermaness, Saxa Vord and Valla Field SPA.

2. Bluemull and Colgrave Sounds pSPA

9. Bluemull and Colgrave Sounds pSPA is designated for breeding red throated diver qualifying interests. The proposal is within the pSPA.

| Step 1: | Is the proposal directly connected with or necessary for the conservation management of the pSPA? |

10. The proposal is not directly connected with or necessary for the conservation management of Bluemull and Colgrave Sounds pSPA.

| Step 2: | Is the proposal likely to have a significant effect on the qualifying features of the pSPA either alone or in combination with other plans or projects? |
11. The draft conservation objectives for Bluemull and Colgrave Sounds pSPA are:

<table>
<thead>
<tr>
<th>Step 3: Can it be ascertained that the proposal will not adversely affect the integrity of the SPAs either alone or in combination with other plans or projects?</th>
</tr>
</thead>
</table>

Collision risk assessment

12. Conservation objective a) is concerned with ensuring that there is no significant mortality, injury and disturbance of species designated as qualifying interests of the site, such as through collisions, vessel activity or other cause of bird displacement. In this case, there is risk of collision between red-throated divers and operational turbines that may place them at risk of interaction with the device.

13. For conservation objective b) although the proposed development would be within the foraging range of the breeding population for Bluemull and Colgrave Sounds pSPA, we advise that there is no likely significant effect in this regard, due to the small scale of the development relative to available habitats and food resources within the pSPA.

14. We advise that due to the risk of collisions with operational turbines there is a likely significant effect for breeding red-throated from Bluemull and Colgrave Sounds pSPA.

15. As a consequence, Marine Scotland and SIC, as the competent authorities, are required to carry out appropriate assessments (AA) in view of the site’s conservation objectives for breeding red-throated diver. **We provide an appraisal of potential collision impacts below.**

16. Collision risk impacts for the following European sites and their qualifying interests for which a Likely Significant Effect (LSE) was previously identified are outlined below (Table 1).
Table 1: Bird interests and sites for which LSE is identified with respect to collision risk

<table>
<thead>
<tr>
<th>European site</th>
<th>Qualifying interest(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hermaness, Saxa Vord and Valla Field SPA</td>
<td>Atlantic puffin</td>
</tr>
<tr>
<td></td>
<td>Red-throated diver</td>
</tr>
<tr>
<td></td>
<td>Northern gannet</td>
</tr>
<tr>
<td></td>
<td>Common guillemot</td>
</tr>
<tr>
<td></td>
<td>European shag</td>
</tr>
<tr>
<td>Bluemull and Colgrave Sounds pSPA</td>
<td>Red-throated diver</td>
</tr>
</tbody>
</table>

17. We consider that our original advice still remains relevant (letter dated 24 June 2013), except where it has been updated with respect to the project-specific Environmental Mitigation and Monitoring Plan (EMMP). We refer you to our most recent detailed advice relating to the EMMP (letter of 15 August 2017).

1. **Hermaness, Saxa Vord and Valla Field SPA**

2. **Bluemull and Colgrave Sounds pSPA**

18. Table 2 below contains the collision risk estimates from the updated ERM model with a 98% avoidance rate applied for the SPA / pSPA breeding bird species for which LSE is identified. We have manually extracted the monthly densities for gannet and shag in order to be able to calculate the breeding season more accurately. We have not undertaken this for puffin, red-throated diver or common guillemot, and so the breeding season for these three species is taken as March to October, reflecting the way in which the survey data was presented to us.

Table 2: Collision risk estimates for SPA qualifying interests

<table>
<thead>
<tr>
<th>Species</th>
<th>Updated ERM model with updated 6 turbine parameter – BREEDING SEASON</th>
<th>Updated ERM model with updated 6 turbine parameter – ALL YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlantic puffin</td>
<td>1.45</td>
<td>1.36</td>
</tr>
<tr>
<td>Red-throated diver</td>
<td>0.13</td>
<td>0.15</td>
</tr>
<tr>
<td>Northern gannet</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Common guillemot</td>
<td>0.37</td>
<td>0.36</td>
</tr>
<tr>
<td>European shag</td>
<td>4.87</td>
<td>11.25</td>
</tr>
</tbody>
</table>

19. For all of the above mentioned species, the collision risk estimates (using a 98% avoidance rate) are of a magnitude similar to previous predictions. **We are therefore content that these collision rates will not lead to an adverse effect on site integrity for Hermaness, Saxa Vord and Valla Field SPA and Bluemull and Colgrave Sounds pSPA.**

20. **Cumulative / in-combination assessment:** We advise that based on our appraisal of this proposal and our knowledge of other developments/activities in Shetland, any potential cumulative and in-combination effects will not adversely affect the integrity of these SPAs/pSPAs.
APPENDIX C

NOVA INNOVATION TIDAL ARRAY, BLUEMULL SOUND, SHETLAND

ADVICE ON NATURAL HERITAGE INTERESTS

Below we provide advice on the following natural heritage interests:

- Protected species
- Marine Protected Area qualifying interests

1. **Protected species**

**European Protected Species (EPS)**

European Protected Species (EPS) are species listed in Annex IV of the Habitats Directive and are afforded protection under The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended) and the Conservation of Offshore Marine Habitats and Species Regulations 2017. Marine Scotland provides guidance on the protection of Marine European Protected Species from injury and disturbance for Scottish Inshore Waters\(^2\).

**EPS – Cetaceans**

On 19 January 2018 we were consulted by Marine Scotland regarding an extension to the EPS licence (expiry date 23 January 2018) for the array. We advised that it would be appropriate to issue a short extension to the licence in advance of gaining a better understanding about the results of the monitoring, the potential for activities causing disturbance and also for any further deployment activity associated with the 6 turbine array.

Further information available from the documents submitted for the licence allows us to provide further advice with respect to EPS.

- Disturbance during construction

The construction programme involves the phased deployment of infrastructure and turbines: cable installation Q3, 2019; turbine 4 installation, Q3, 2019; turbines 5 and 6, Q2, 2020; reconfiguration of array relocating turbines 4,5 and 6, Q1, 2021.

There is the potential for disturbance from installation works such as cable and turbine installation and associated vessel movements. However, installation works will be temporary and noise levels are likely to be relatively low and unlikely to cause significant disturbance.

The use of gravity-bases, as opposed to rock-drilling, greatly reduces the potential for disturbance, by limiting the sources of anthropogenic noise and allowing more rapid deployment of devices. The relatively small size of turbines and the vessels therefore required for deployment works also limit the potential for disturbance.

Overall, we advise that installation works including cable and turbine installation / relocation and associated vessel activities could potentially cause disturbance to cetaceans and we advise that an EPS licence for all relevant cetacean species with respect to disturbance during construction is required.

We conclude that for the reasons outlined above, it is unlikely that there will be any significant disturbance, and project will not be detrimental to the maintenance of the populations of relevant cetacean species at a favourable conservation status in their natural range.

We recommend good practice should be applied during all marine and coastal works by following the guidelines associated with the Scottish Marine Wildlife Watching Code (SMWCC)³:

- Collision with operational turbines

There is a potential for injury and mortality due to collision risk with the operational turbines. Due to the current lack of monitoring data from operational tidal arrays, the behaviour of marine mammals around tidal turbines is uncertain and the collision risk estimated.

Table 3 below contains the collision risk estimates from the updated ERM model with a 98% avoidance rate applied for the other marine animal species found in Bluemull Sound. Due to the way the survey information has been supplied we have used an ‘all year’ density figure for all three species presented in the table, apart from grey seal where we have manually extracted the monthly densities to be able to calculate the breeding season more accurately.

Table 3: Collision risk estimates for marine mammals recorded in the Bluemull Sound

<table>
<thead>
<tr>
<th>Species</th>
<th>Updated ERM model with updated turbine parameter – BREEDING SEASON</th>
<th>Updated ERM model with updated turbine parameter – ALL YEAR</th>
<th>Updated ERM model with updated turbine parameters – SCANSII (Area J) (Availability accounted for)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grey seal</td>
<td>2.85</td>
<td>7.15</td>
<td>N/A</td>
</tr>
<tr>
<td>Harbour porpoise</td>
<td>N/A</td>
<td>2.20</td>
<td>1.74</td>
</tr>
<tr>
<td>Minke whale</td>
<td>N/A</td>
<td>0.16</td>
<td>1.06</td>
</tr>
</tbody>
</table>

We have considered the updated collision risk estimates against the population estimates for the relevant management units for harbour porpoise (1-2 per year from a population of 228,000) and minke whale (0-1 per year from a population of 229,000).

The level of predicted collisions for cetaceans is low and will not be detrimental to the maintenance of the populations of relevant cetacean species at a favourable conservation status in their natural range.

We advise that an EPS licence for the operational phase is not required, unless through monitoring the modelled predictions and reality indicated a need to consider this further.

The EMMP should include sufficient detail with respect to ongoing monitoring as agreed with Marine Scotland and SIC. This monitoring should focus on gathering data on the behaviour of marine mammals in close proximity to the tidal turbines. Monitoring results will allow review to inform our EPS advice for cetaceans with respect to future licensing requirements.

EPS - Otters

Otters are EPS commonly seen in various parts of Bluemull Sound. We provided advice in relation to otters for earlier licence applications (letter of 4 June 2013). This advice remains relevant for this application and as a result, we advise that there is no requirement for further EPS licensing considerations in relation to otters.

Basking sharks

Basking sharks receive protection through the Wildlife and Countryside Act 1981 (as amended, including the Wildlife and Natural Environment (Scotland) Act 2010), with licensing requirements similar to EPS.

Although there are no established population estimates for basking sharks, they are a very wide-ranging species. There has been only one basking shark observation for this development since monitoring began in 2010, from the land based or underwater monitoring. Consequently, the applicant will not require a basking shark licence to address potential disturbance during installation or operational collision risk. We consider that the Shetland Tidal Array will not have a negative impact on the conservation status of basking sharks.

Seals

Seals as a qualifying feature of SACs are addressed in Appendix A. However, there is potential for impact upon harbour seal and grey seal interests not connected with Natura sites. Seals are protected under the Marine (Scotland) Act 2010. Impacts upon harbour seals are of particular concern due to their declining status across UK waters. Potential impact types are discussed in turn below:

- Potential disturbance and displacement of seals:

For reasons described in relation to the HRA for harbour seals in Appendix A, for both harbour and grey seals not connected to Natura sites we advise that potential disturbance would not be of a scale or severity of particular concern. We advise on the need for monitoring to improve our knowledge and understanding as to whether any patterns in the distribution and behaviour of seals in Bluemull Sound varies concurrently with the presence and or operation of the turbines. Also, good-practice should be applied during all marine and coastal works by following the guidelines associated with the SMWCC.
• Potential collision with operational tidal turbines:

The outcome of collision risk modelling for harbour seals is detailed in Appendix A. As grey seals also frequently occur in Bluemull Sound, collision risk estimates for this species have been generated (Table 3). The collision risk estimate (between 3-7 animals per year) is within the PBR limits (239) for the Shetland Seal Management Unit. **We are therefore content that these rates of collision do not necessitate mitigation for wider seal interests, as previously advised.**

**Black guillemots**

Black guillemots are the most frequently occurring non-SPA bird species recorded at the development site. The species is also a feature of the nearby Fetlar to Haroldswick nature conservation Marine Protected Area (NC MPA).

• Potential disturbance and displacement:

Due to the small scale of the development compared to the availability of suitable foraging and loafing habitat for black guillemots, disturbance away from the proposed development site is unlikely to be important at the population level.

• Potential collision with operational tidal turbines:

Table 4 below contains the collision risk estimates from the updated ERM model with a 98% avoidance rate applied for black guillemot.

**Table 4: Collision risk estimates for black guillemot**

<table>
<thead>
<tr>
<th>Species</th>
<th>Updated ERM model with updated turbine parameter – BREEDING SEASON</th>
<th>Updated ERM model with updated turbine parameter – ALL YEAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black guillemot</td>
<td>16.27</td>
<td>27.72</td>
</tr>
</tbody>
</table>

Using Seabird 2000 and other recent counts, we consider that Shetland has a regional population of 15,329 black guillemots. If the higher number of predicted collisions is used (28), then this would equate to a small percentage - 0.2% of the population each year. **We consider that the Shetland Tidal Array will not have a negative impact on the conservation status of black guillemot.**