Marine Licensing
EIA Consent Decision

1. Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended), Regulation 22 - EIA Consent Decision

1.1 **Title:** Minesto Deep Green Holyhead Deep Project Phase 1 (0.5 MW)

1.2 **Regulatory Approval**: Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)

1.3 **Operators**: Minesto UK Limited

1.4 **Marine Licence Application No**: ORML1618

1.5 **Location**: Holyhead Deep, west of Anglesey

2. Index

3. Purpose

3.1 This document constitutes an EIA consent decision under Regulation 22 of the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended) (MWR), in respect of a Marine Licence application (ref: ORML1618) submitted by Minesto UK Limited (Minesto). The application was supported by an Environmental Statement. The Marine Licensing Team (MLT) in Natural Resources Wales (NRW) Permitting Service has considered the application and information provided in support of the application and is now in a position to make an EIA consent decision to Minesto

3.2 In accordance with Regulation 22 of the MWR, the Natural Resources Wales Marine Licensing Team, as appropriate authority have considered the application, environmental statement (ES), representations of consultation bodies and members of the public and have had regard to the relevant legislation. Following the conclusion of a Transboundary Screening Assessment it was determined that consultation with other EEA states was not necessary.

4. Application

4.1 The applicant is Minesto, a marine energy technology company with their headquarters in Sweden and offices in the UK including Anglesey, North Wales.

4.2 Minesto have developed a tidal stream energy device known as a Deep Green Utility (DGU) unit. The device resembles an underwater kite made up of a wing with a small turbine attached to the underside, tethered to a foundation fixed to the seabed. The device can also be attached to a barge or similar structure and operate in an "upside-down" mode. The DGU unit moves through the water column in a figure-of-eight, taking advantage of hydrodynamic lift created by the wing as the current flows past. This allows the device to operate in areas of relatively low current velocity. Each DGU unit has a generating capacity of 0.5 MW.

4.3 This proposal is to install, operate, maintain and recover a single 0.5 MW DGU unit at Holyhead Deep, to the west of Anglesey. This is comprised of the following major components:

- DGU unit: composite materials, 12 metres (wing span) by 3.3 metres, weighing between 10 and 16 tonnes;
- Tether: Dyneema cable with plastic casing, 105 metres length;
- Subsea umbilical: Braided steel cable, 200 metres on seabed + water depth (maximum of 100 metres) 100 mm width;
- Gravity Base Structure Foundation: Concrete, 12 metres by 25 metres, approximately 1000 tonnes;
- Scour protection: Rock armour, 15 metres^2, approximately 1 metre in height around foundation;
- Anchor clump weights for barge, hook up barge or self-contained barge: Concrete or steel, 9 metres^2 per clump weight, eight anchors totalling 72 metres^2
- Drilling for pin-piles (if pin-piled tripod foundation preferred option): removal of seabed sediments 3 metres in diameter and 20 metres in length, total of 424 metres^2

4.4 The applicant secured an Area for Lease (AfL) from the Crown Estate in June 2014 for up to a 10 MW commercial demonstration installation of an array of tidal devices. The AfL is within an existing designated disposal site known as Holyhead Deep IS040. To avoid a conflict between activities, that of disposing of dredge material and the operation of DGU unit, the MLT have considered re-designating the disposal site to exclude the AfL as part of this application.

5. The Environmental Statement (ES) – MWR 12 (1)(d)

5.1 The Deep Green Holyhead Deep Project Phase 1 (0.5 MW) Environmental Statement (June 2016) outlined the possible impacts of the proposed project organised under the following topic headings:

5.2 Technical chapters:

- Introduction
- Need for Project
- Planning & Legislative Requirements
- Site Selection & Assessment of Alternatives
- Project Description
- Stakeholder Engagements
- Environmental Overview
- EIA Methodology
- Physical Processes
- Benthic Ecology
- Marine Mammals
- Offshore Ornithology
- Fisheries
- Navigation & Shipping
- Marine Archaeology & Cultural Heritage
- Seascape, Landscape & Visual Impacts
- Socio-Economics
- Hydrocarbon & Chemical Release
- Other Sea Users
- Environmental Management & Monitoring

5.3. The ES is considered to satisfy the requirements of Regulation12 (1)(d) and Schedule 3 of the MWR

6. Public Notices – MWR Regulations 16(2)(g)

6.1 These were advertised to notify interested parties of the proposed works and give any interested parties or members of the public an opportunity to make representation on the application as necessary.

6.2 The application documents were made available as follows;

- A translated public notice was placed in the Holyhead and Anglesey Mail and Daily Post, London Gazette and Caernarfon Herald on 6th July 2016 & 13th July 2016
- The application documents were made available to the public at: Anglesey County Council Offices, Council Offices, Llangefni, Anglesey, LL77 7TW and Holyhead Library Council Offices, Llangefni, Anglesey, LL77 7TW, for 49 days following the publication of the first public notice.

6.3 No public representations were received.

7. Consultation – MWR Regulations 17(1)(a)(iv)

7.1 The Marine Licence application was consulted upon on 22nd June 2016 for a period of 42 days. It was sent to the following consultation bodies:

- Natural Resources Wales Technical Experts (NRW) ,
- The Centre for Environment, Fisheries and Aquaculture Science (Cefas),
- Ministry of Defence (MoD),
- Maritime and Coastguard Agency (MCA),
- The Crown Estate (TCE),
- Local Planning Authority (LPA) for Isle of Anglesey,
- Local Harbour Authority (LHA) of Holyhead Stena Line,
- Local Biodiversity Officers (LBO) for Isle of Anglesey,
- Royal Yachting Association (RYA),
- Royal Society for the Protection of Birds (RSPB),
- Trinity House (TH),
- Cadw,
- Welsh Government Fisheries Branch, Marine Enforcement Officers (MEO),
- The Royal Commission of Ancient Historic Monuments Wales (RCAHMW)
- The Department for Transport (DfT)
- Chamber of Shipping
- NERL Safeguarding
- Civil Aviation Authority
- Health and Safety Executive (HSE)
- Office of Communications (OFCOM)
- Welsh Government Energy Department

7.2 The following organisations submitted comments:

- NRW, Cefas, TCE, MCA, TH, RYA, LBO, RSPB, Cadw, RCAHMW and HSE

7.3 Consultees who did not provide a response were assumed to have no comment

8. European Protected Sites

8.1 The proposal is located within a European Protected Site, the North Anglesey Marine pSAC.

8.2 However, the effects of proposal on the following European Sites, their features and conservation objectives have been considered by NRW MLT during the licence determination:

- North Anglesey Marine pSAC
- West Wales Marine pSAC
- Bristol Channel Approaches pSAC

- North Channel pSAC
- Pen Llyn a'r Sarnau SAC
- Cardigan Bay SAC
- Rockabill to Dalkey Island SAC
- Pembrokeshire Marine SAC
- Anglesey Terns pSPA
- Ynys Feurig, Cemlyn Bay and The Skerries SPA
- Aberdaron Coast and Bardsey Island SPA
- Ribble and Alt Estuaries SPA
- Howth Head Coast SPA
- Ireland's Eye SPA
- Lambay Island SPA
- Rathlin Island SPA
- Skokholm and Skomer SPA
- Skomer, Skokholm and the seas off Pembrokeshire pSPA
- Wicklow Head SPA
- Grassholm SPA
- Saltee Island SPA
- Alisa Craig SPA
- Morecambe Bay and Duddon Estuary pSPA
- Morecambe Bay SPA
- Liverpool Bay (extension) pSPA
- Liverpool Bay SPA

8.3 It should be noted, that since the time of drafting the HRA some of the pSPAs have now become fully designated SPA.

8.4 A Test of Likely Significant Effect (TLSE) was undertaken and potential significant effects on features of the European Sites listed above could not be ruled out. An Appropriate Assessment was therefore carried out.

8.5 The Appropriate Assessment concluded, taking into account advice received from relevant protected site advisors, the project would not cause adverse effect to the integrity of any European Protected Site either alone or in-combination with other plans and projects, providing the conditions, restrictions and mitigation measures on the marine licence were adhered to.

8.6 Further details are described within the Habitats Regulations Assessment.

9. Issues arising for consideration of the Environmental Statement, Marine Licence Application and representatives received

9.1 In taking a Regulation 22 EIA consent decision, we have considered the issues that have been identified following consideration of the ES, representations from consultation bodies, and any resultant supplementary information provided in response by the applicant.

9.2 The material issues that were highlighted by the ES and consultation process and the extent to which they have been addressed are detailed in this section.

9.3 Ornithology

Consultation responses regarding ornithology were received from both the RSPB and NRW. These are detailed further in section 9.3.

9.3.1 RSPB Comments

RSPB objected to the application on the basis that the Environmental Impact Assessment (EIA) and Environmental Statement (ES) were deficient as no bird surveys had been undertaken by the developer. The RSPB stated that this contravened guidance relating to marine renewables, particularly the *Guidance on Survey and Monitoring in Relation to Marine Renewables Deployments in Scotland Volume 4: Birds* produced by Scottish Natural Heritage (2011). The ES conclusions are based upon desk studied and Encounter Rate Modelling (ERM) and not on contemporary bird surveys. The RSPB considered the predicted impacts to seabirds to be unreliable.

This advice differed from the NRW ornithology experts, who were content that modelling would be suitable in this instance, given the scale and nature of the proposals.

A meeting was held between NRW ornithology experts, RSPB and MLT to understand why differing advice had been received. Following the meeting, the RSPB maintained the objection to the proposal, stating that it may set a precedence if the project approved in the absence of bird surveys.

The MLT consider, in this instance, for the installation of a single DGU unit, the conclusions of the ES and further ornithology clarification notes are adequate, and consider the predicted impact on birds to be acceptable. Therefore, consider that the project can proceed.

9.3.2 Manx Shearwater

NRW requested that Manx Shearwater were screened in for further assessments. Recent studies suggest that the species dive to a mean maximum depth of 31 metres and a maximum depth of 55 metres. This is greater than previously assumed and this creates potential collision risk between the DGU unit and receptor species.

Minesto undertook Encounter Rate Modelling (ERM) for an assumed density of 2 birds per km² at a 90% avoidance rate. This indicated that there is potential for one bird to be killed each year as a result of operating the DGU unit in “upside-down” mode and would be much lower in normal mode. This would be highly unlikely to impact on Manx Shearwater adult mortality rate.

NRW reviewed the Manx Shearwater ERM data and requested that, in the absence of contemporary data, NRW maintain a highly precautionary approach for bird densities. Manx shearwater are associated with rafting behaviour which could increase the bird density significantly.

Minesto provided a further ornithology clarification note (L-1001940S21-REPT-003, February 2017) which displayed a range of bird densities and avoidance rates, in both normal and upside-down mode of the DGU unit for Manx shearwater. This showed that even at a precautionary avoidance rate of 90%, this would not approach the 1% change in population that has potential to adversely affect the site integrity of European protected areas.

NRW considered that the ornithology clarification note set out clearly the number of encounters with Manx shearwater and agreed with the conclusions.

MLT consider that Manx shearwater concerns have been adequately addressed. No further action is required.

9.3.3 Other ornithology comments

NRW sought clarification on a number of points in relation to ornithology, including on density values and predicted encounters for the different flight modes of DGU.

Minesto had used mean density values for the number of birds per km² as a realistic worst case scenario. NRW stated that at adjusted peak densities from previous survey data (ESAS surveys) should be used as this may change the surface density to give the worst realistic case scenario.

Minesto provided further clarification (L-1001940S21-REPT-003, February 2017) which displayed a range of seabird densities, in both flight modes and at a range of avoidance rates.

NRW considered that the ornithology clarification note set out clearly the number of encounters for all potentially impacted species and agreed with the conclusions. NRW recommended, in relation to Razorbill, that the DGU unit is installed in normal mode (seabed foundation) as data showed if at 16 birds per km², at a 98% avoidance rate this could exceed the 1% threshold to affect population. However, this is a highly precautionary approach and densities at that level are unlikely in Welsh waters. The development site is also beyond the mean maximum foraging range (MMFR) from the SACs where Razorbill are a feature.

MLT do not consider it appropriate to condition the marine licence stipulating that DGU unit can only operate in normal mode. A condition for an adaptive environment management strategy will be on the marine licence, as stated within the ES. This should include management plans to reduce potential effects to birds. This must be submitted to MLT for written approval prior to the commencement of the works.

9.4 Marine Mammals

NRW stated that marine mammals had been identified as a key receptor potentially sensitive to impacts from tidal renewable energy developments. NRW comments in relation to marine mammals have been divided into Cetaceans and Grey Seal within section 9.4, including the resolutions.

9.4.1 Cetaceans

NRW raised concerns in relation to the risk to marine mammals, in particular Bottlenose Dolphin.

NRW requested clarification on the following:

a) Further information on the proposed adaptive management strategy
b) How encounter rates (passage rates) were calculated
c) Calculation of the “passage rate predicted for the project area” for each species listed in Table 11.16 in the ES
d) How values for the “comparison of predicted passage rate with CRM passage rates” are calculated and colour coded.

Minesto responded to NRW’s concerns providing further explanation within a clarification note (L-100194-S21-REPT-001, November 2016). A summary of the response to NRW comments are set out below:

a) Minesto is currently reviewing all active tidal technology monitoring strategies which have been adopted worldwide and use this information to inform the monitoring strategy at the Deep Green site. Minesto are in discussion with SEACAMS on potential collaboration with regards to environmental monitoring.

b) Two modelling exercises were undertaken. First, a collision risk simulation model was constructed which estimated the probability of an animal that was passing through the section of the water column occupied by and colliding with the kite and tether. Secondly, a Potential Biological Removal (PBR) and Population Consequences of Disturbance (PCOD) assessment was undertaken to understand a theoretical number of animals that could be removed from the relevant population without effecting a decline in the population. These two numbers can then be combined to understand how many animals must travel through the area of the kite and tether for there to be a population level effect; for example, if there is a 1% chance of collision and 100 animals can be removed from the population without effect, then 10,000 animals would have to pass through the kite/tether area for 100 animals to collide with the device. A precautionary assumption of each collision equals removal from population was used.

c) Minesto provided details of how the known information on animal densities in the project area was converted into actual predicted passage rates to establish the environmental baseline. This was done through calculating a theoretical maximum number of passages in a day, then correct this for the number of animals that could be within the swept area of the device. The monitoring strategy will assist in confirming the predicted passage rates.

d) The coloured cells in Table 11.16 are passage rates at which a population level effect may occur. These were compared against estimated passage rates at the site. Green is assigned to cells where the site-specific passage rate is below the predicted passage rate that would result in population level effects and yellow to cells where

the site-specific passage rate is above the predicted passage rate that would result in population level effects.

NRW reviewed the clarification note and were satisfied with the explanations and clarification. NRW agree with the submitted information and no further information required in relation to marine mammals.

MLT are satisfied that NRW's concern has been addressed. MLT consider it appropriate to condition an adaptive environment management strategy and environmental monitoring plan on the marine licence, as stated within the ES, to ensure the predicted effects on marine mammals are not exceeded. This must be submitted to MLT for written approval prior to the commencement of the works.

9.4.2 Grey Seal

NRW raised concerns regarding the lack of information that had been received within the report to inform an HRA on the impacts to Grey Seals.

The applicant responded stating that grey seals had been screened out of the assessment based on a screening distance to marine protected sites, Special Areas of Conservation (SAC) designated for grey seal.

NRW advised that grey seals should be screened in on the basis of Management Units, as opposed to the distance of 200 km.

Minesto provided a clarification note (L-100194-S21-REPT-001, November 2016) which assessed the potential impacts to grey seal SACs that may occur as a result of the development. This included collision risk modelling (CRM). The assessment concluded that the project would not adversely affect the site integrity for grey seal SACs as population levels were unlikely to be impacted, either alone or in-combination with other projects.

NRW were satisfied with the clarification note and their concerns had been adequately addressed. No further information was requested.

MLT updated the HRA with the additional information on grey seal. NRW commented on the HRA and were satisfied that no adverse effect on site integrity would occur. MLT consider this satisfactory and no mitigation required on the marine licence for grey seal.

9.5 Navigation

Consultation comments relating to navigation were received from the MCA and Trinity House. These are detailed in section 9.5.

9.5.1 Under keel clearance depth

Trinity House raised significant concerns regarding the minimum clearance depth between the device and surface. Within the application, Minesto had stated the minimum clearance depth would be -12.5 metres to the Lowest Astronomical Tide (LAT). Trinity

House stated that it is possible for vessel with a keel clearance of greater than -12.5 m could transit the project development area, therefore the device may present a risk to navigation.

A meeting was held between Minesto, their consultants Anatec and Trinity House, the MCA, the MMO, Chamber of Shipping, RYA, UK Hydrographic Office and The Cruising Association to discuss potential navigational issues. It was agreed that the minimum clearance depth would be increase to -20 m LAT.

Minesto provided the meeting minutes to the MLT. Trinity House confirmed to MLT that their concerns had been satisfied by increasing the depth to -20 m LAT and that this no longer creates a navigational risk.

The MLT are satisfied that the concerns have been addressed and consider it appropriate to condition the marine licence to ensure that a minimum clearance depth of -20m LAT is maintained to avoid danger to navigational safety.

9.5.2 Other navigational comments

The MCA requested a number of conditions to be included on the marine licence to reduce navigational risk. This included the production and implementation of an Emergency Response Co-operation Plan (ERCoP) and verification by a third party of the mooring arrangement of the barge, buoy or similar platform is undertaken. The ERCoP must be approved by the MLT in consultation with the MCA

Minesto agreed with the comments raised and stated that these would be produced in line with the marine licence conditions.

The MLT are satisfied that the concern has been resolved and consider it appropriate to condition that an ERCoP is submitted to the MLT for written approval prior to the commencement of the works.

9.6 Archaeology

The RCAHMW provided general comments highlighting archaeological interest sites around the project development area. RCAHMW requested that a Written Scheme of Investigation (WSI) undertaken. The WSI should include any archaeological exclusion zones (AEZ), details of watching briefs and scour monitoring around the DGU foundations.

Minesto agreed with the comments raised and stated that these would be produced in line with the marine licence conditions.

The MLT are satisfied that the comments raised by RCAHMW can be addressed through condition of a WSI that is submitted to the MLT for written approval prior to the commencement of the work.

Cadw did not raise any concerns, stating that no designated historic assets would be affected by the project.

9.7 Invasive Non-Native Species (INNS)

NRW recommended that a Strategic Biosecurity Risk Assessment is in place to minimise the risk of spreading INNS.

Minesto agreed and stated that these would be produced in line with the marine licence conditions.

The MLT are satisfied that a Biosecurity Risk Assessment can be conditioned as part of a marine licence, which must be submitted to the MLT for written approval prior to the commencement of the works.

9.8 Physical Processes

NRW sought clarification on the scour protection proposed for the project foundations and the confidence of the umbilical cable remaining static.

Minesto responded stating that the maximum scour protection required would be 15 metres² (section 10.7.1.1 of ES).

With regards to the umbilical cable, the design specification sent to the manufacture of the armoured steel cable cover is to weight it and minimise motion to within a few centimetres. From a technical perspective the cable should not move at all and the design has reflected this.

NRW raised no further comments, other than a recommendation that monitoring was put in place to assess any scour from the project.

MLT consider it appropriate to condition a scour monitoring plan to be submitted to MLT for written approval, in consultation with NRW, prior to the commencement of the works.

9.9 Holyhead Deep IS040 Disposal Site

As outlined in section 4.5, the Minesto AfL is located within the site designated for the disposal of dredge material, Holyhead Deep IS040. The applicant requested that the disposal site be reduced in size to exclude the AfL.

The MLT stated that Holyhead Deep IS040 could not be reduced and re-designated until after the marine licence had been determined. This was to avoid any pre-determination of the application and not to unduly affect users of the site if the application did not progress.

In the consultation process the MLT request consultees to provide views on the re-designation of the disposal site. Cefas commented stating that they had no objection to the closure of IS040 and designation of a new disposal site covering the northern half of IS040.

MLT are now in a position to formally request in writing that Cefas close the existing site and open a new disposal site with the following coordinates:

Description	Easting (WGS84 30N)	Northing (WGS84 30N)	Longitude (WGS84 – DD)	Latitude (WGS84 – DD)
South west	378459.13	5910979.13	-4.825264 E	53.333997 N
South east	382895.20	5910889.67	-4.758646 E	53.334194 N
North east	383054.32	5917298.88	-4.758628 E	53.391813 N
North west	378622.82	5917412.23	-4.825276 E	53.391832 N

MLT will inform any affected Licence Holders of the boundary changes to the disposal site and, where necessary, vary existing licence.

10. Regulatory Evaluation and EIA consent decision

In considering the application for the installation, operation and recovery of a single 0.5 MW DGU unit by Minesto UK Limited the following has been considered:

- The ES, including the mitigation measures proposed;
- The relevant provisions of Marine and Coastal Access Act 2009 and
- The representations received.

The NRW Permitting Service, Marine Licensing Team has determined that the environmental impacts of the DGU unit installation, operation and recovery have been adequately identified, described and assessed and that mitigation can be secured which would be sufficient to allow the marine renewable licence application to be approved.

11. Sign off

Produced by: Katherine Route-Stephens –Permitting Officer, Marine Licensing Team

Signed: 

Date: 6th April 2017

Approved by: Eleanor Smart –Senior Permitting Team Leader, Marine Licensing

Signed: 

Date: 12th April 2017