ARCUS

LEVENMOUTH DEMONSTRATION WIND TURBINE

PRE-APPLICATION CONSULTATION REPORT

OCTOBER 2017

Prepared By:

Arcus Consultancy Services

7th Floor
145 St. Vincent Street
Glasgow
G2 5JF

T +44 (0)141 221 9997 l **E** info@arcusconsulting.co.uk
w www.arcusconsulting.co.uk

Registered in England & Wales No. 5644976

TABLE OF CONTENTS

1 INTRODUCTION

Offshore Renewable Energy (ORE) Catapult (the Applicant) are submitting an application for a variation to Condition 1 of the consent for the Levenmouth Demonstration Turbine (the LDT). The variation is for an extension of the operational life of the LDT from five to 15 years; i.e. an extension for ten years (the Variation). There will be no change to any built or physical aspects of the operational Development, which consists of a single 7 megawatt (MW) turbine located off the East Fife Coast at the Fife Energy Park (FEP), Methil.

As agreed with the Marine Scotland – Licence Operations Team (MS-LOT), the Variation is considered as a variation under the Electricity Generating Stations (Applications for Variation of Consent) (Scotland) Regulations 2013 (the 2013 Regulations)[1]. Further, as agreed with MS-LOT, there is no formal requirement for formal pre-application consultation to be undertaken in line with the Maine Licencing (Pre-Application Consultation) (Scotland) Regulations 2013[2]; however, as the Applicant is mindful of relations with the local community, efforts have been made to provide information about the Variation.

This Pre-Application Consultation (PAC) Report prepared by Arcus Consultancy Services (Arcus) presents details on the consultation process undertaken in relation to the Variation. It outlines the efforts undertaken by the Applicant to engage with the local community on the Variation and feedback received.

1.1 The Applicant and the LDT

The Applicant is the UK's leading technology innovation and research centre for advancing wind, wave and tidal energy. The Applicant operates the largest concentration of open access renewable energy test and demonstration facilities in the world, with the LDT complementing the existing open access testing facilities in Blyth, Northumberland.

The LDT is the world's most advanced, open access offshore wind turbine dedicated to research. It offers opportunities for economic growth, training and development of skills essential for the future of offshore wind industry in Scotland and further afield. The Applicant is working closely with key academic and industry stakeholders to align the LDT research programme with industry priorities to continue driving down the costs of offshore wind, whilst maximising UK Supply Chain opportunities and growing the economic benefits arising from vibrant offshore wind sector.

2 PRE-APPLICATION CONSULTATION

2.1 Levenmouth Local Area Committee

The Applicant met with the Levenmouth Local Area Committee on 20 September 2017 to brief them on the programme and the Variation. A site visit was also undertaken with the Committee at the same time.

No concerns were raised by the Committee, who were supportive of the LDT and the Variation.

2.2 Public Exhibition

A public exhibition was held on 05 October 2017 at the Fife Renewables Innovation Centre (FRIC). The event was advertised in the local newspaper (the East Fife Mail during week commencing 25 September 2017, see Appendix 1) and a leaflet providing details of the

[1] Scottish Government (2013) The Electricity Generating Stations (Applications for Variation of Consent) (Scotland) Regulations 2013 [Online] Available at: http://www.legislation.gov.uk/ssi/2013/304/contents/made (Accessed 24/10/17)

[2] Scottish Government (2013) The Marine Licencing (Pre-Application Consultation) (Scotland) Regulations 2013 [Online] Available at: http://www.legislation.gov.uk/ssi/2013/286/pdfs/ssi_20130286_en.pdf (Accessed 24/10/17)

event was distributed to approximately 900 homes, in close proximity to the LDT (Appendix 2).

The event was held between 4pm and 7pm, and, despite being well advertised, was only attended by ten members of the public, all of whom were local residents, suggesting a level of disinterest locally. Members of the project team, from ORE Catapult and Arcus, were present to provide details on the Variation and answer questions raised by attendees. A rolling presentation (Appendix 3) was shown during the event which provided details of the LDT and the Variation, in additional to a Virtual Reality simulator which allowed users to experience some of the technology being developed in relation to the LDT.

The majority of individuals were supportive of the LDT and the Variation; with some residents noting that they now feel a sense of ownership of the LDT. Two residents mentioned that they have experienced issues in terms of shadow flicker and noise. These concerns have been acknowledged by the Applicant and are being managed to ensure no nuisance is caused; further details are provided in the below sections.

2.2.1 Shadow Flicker

The Project Environmental Management Plan (PEMP), produced to discharge Condition 11 of the consent, details the requirements for monitoring and, where appropriate, agreed mitigation of the shadow flicker effects. The Applicant has implemented a manual flicker control procedure, which involves manually switching the turbine off when a shadow is cast over local residences. This is monitored by site personnel and/or closed Circuit Television (CCTV) via the control centre.

It was noted by one resident that their household was being awoken on occasion during the early hours of the morning (i.e. before 7am) by the effects of shadow flicker. The resident indicated that they live to the south west of the LDT, which would correlate with shadow flicker effects occurring at that time. Given that effects tend to only be experienced before 7am, which is generally before site personnel arrive to begin their day's work, it can be concluded that there is a potential risk when shadow flicker is being monitored by CCTV at the control centre.

In order to ensure that shadow flicker effects are not causing a nuisance to local residents, the Applicant is working with the control centre to continue to monitor and manage shadow flicker at all times. Monitoring of shadow flicker effects and implementation of the manual flicker control procedure would continue throughout the extended operational period should the Variation be granted. Automated controls are also being investigated by the Applicant.

2.2.2 Noise

Noise limits are detailed within Condition 13 of the consent and the Applicant must ensure compliance with these limits to ensure they are not in breach of their consent. The PEMP details the requirements for noise monitoring and, where appropriate, agreed mitigation of potential noise effects. Under the PEMP, the Applicant is required to undertake operational monitoring to ensure that the LDT does not exceed the consented noise limits. Since 2014, noise monitoring during the operation of the LDT has been undertaken and reported to MS-LOT. Based on the data recorded, the LDT is shut down under wind speeds and wind directions, when measurements suggest noise levels may exceed consented noise limits.

Two residents from a single property noted that they were experiencing noise effects from the LDT. Measures are currently in place to limit the noise effects from the LDT to within agreed limits and ensure compliance with Condition 13. This would continue throughout the extended operational period should the Variation be granted.

The Applicant is mindful of the concerns raised by these residents and noted that they are currently implementing a new noise reduction code. This is ongoing and is expected to be fully implemented by the end of November.

The Applicant has also undertaken an updated noise assessment as agreed with MS-LOT; the results of which are presented in the EIA Update Report. This updated assessment was undertaken as cumulative baseline has changed since 2012. The aim of this assessment was to ensure that the LDT could continue to operate within the consented noise limits; something which has be proven to be possible through the application of previously agreed mitigation measures.

3 SUMMARY

Whilst there is no legal requirement for the Applicant to undertake pre-application consultation, in the interests of maintaining good relationships with the local community, events were held with both the Levenmouth Local Area Committee, and the wider public through a public exhibition.

In general, most are supportive of the LDT and the Variation, with some individuals even noting that they feel a sense of ownership towards the LDT. Some concerns were raised in regards to shadow flicker and noise effects; however these concerns have previously been acknowledged by the Applicant and will be managed through current and improved management techniques.

APPENDIX 1 – NEWSPAPER ADVERT

LEVENMOUTH DEMONSTRATION TURBINE

COMMUNITY CONSULTATION

The Offshore Renewable Energy (ORE) Catapult is investigating the possibility of extending the operational period for the existing Levenmouth Demonstration Turbine located at the Fife Energy Park, Methil.

As part of this process, ORE Catapult is hosting a community consultation event to allow local residents and businesses to learn more about the activity at the turbine, the proposed extension and to meet members of the project team.

Thursday 5th October | 4pm to 7pm
Fife Renewables & Innovation Centre (FRIC), Ajax Way, Leven KY8 3RS

For further information, email
info@ore.catapult.org.uk

APPENDIX 2 – FLYER

LEVENMOUTH DEMONSTRATION TURBINE

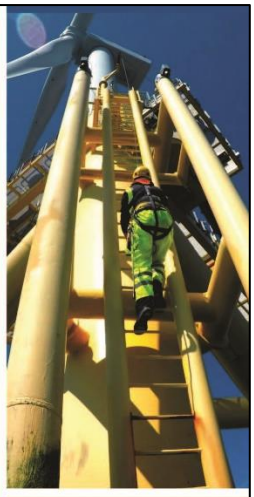
COMMUNITY CONSULTATION

The Offshore Renewable Energy (ORE) Catapult is investigating the possibility of extending the operational period for the existing Levenmouth Demonstration Turbine located at the Fife Energy Park, Methil.

As part of this process, ORE Catapult is hosting a community consultation event to allow local residents and businesses to learn more about the activity at the turbine, the proposed extension and to meet members of the project team.

Thursday 5th October | 4pm to 7pm
Fife Renewables & Innovation Centre (FRIC), Ajax Way, Leven KY8 3RS

For further information, email
info@ore.catapult.org.uk



World-leading

The Levenmouth Demonstration Turbine, operational since 2014, has become the world's largest and most advanced offshore wind turbine dedicated to research.

Owned by the not-for-profit innovation and research body the Offshore Renewable Energy (ORE) Catapult, it is used to increase understanding of how to best capture clean wind energy, whilst simultaneously, with backing from the Scottish Government, providing opportunities for small companies to prove their own innovative technologies and grow their businesses.

Continuing the journey, growing Levenmouth's role

The Turbine is currently consented for operation until 2019, and ORE Catapult is now considering an application to extend this period of operation by a further ten years. Were this to go ahead, it would enable further research into securing low carbon energy for lower cost and could also see the Levenmouth Area continue to grow its role in a vital industry for the future, with opportunities to play a leading role in the development of future technologies such as energy storage.

Local Benefit

To ensure the benefits of the Turbine are felt locally, ORE Catapult sponsors a full time role in Levenmouth Academy, supporting the vital development of STEM skills, and works closely with Fife College on programmes to develop key skills in the growing renewable energy industries.

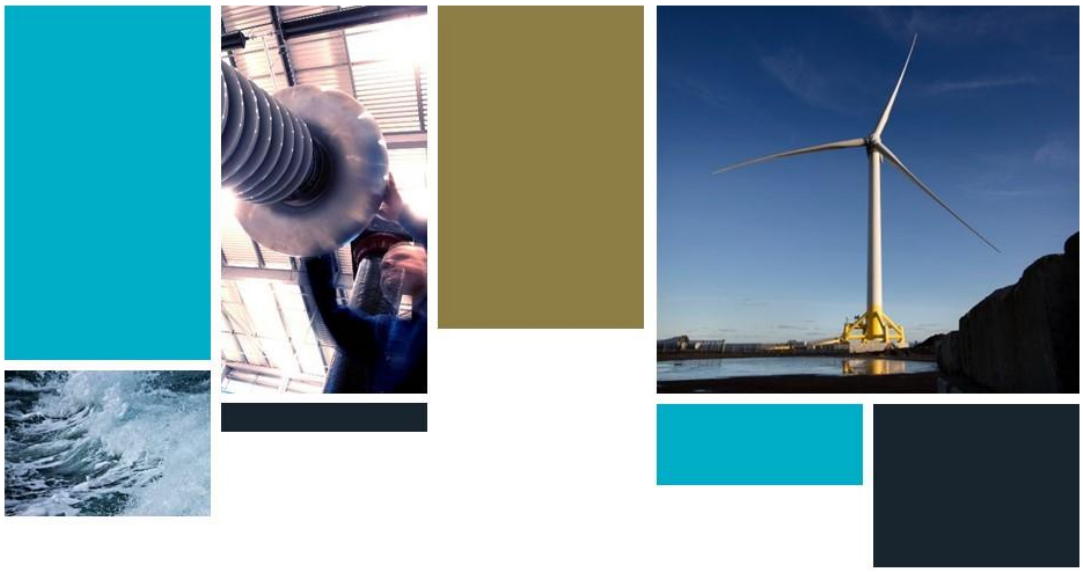
Community Consultation

If you would like to know more, please come along to the Community Consultation event at the FRIC on Thursday 5th October, 4pm – 7pm.

For further information, email **info@ore.catapult.org.uk**

CATAPULT
Offshore Renewable Energy

APPENDIX 3 – PRESENTATION SLIDES



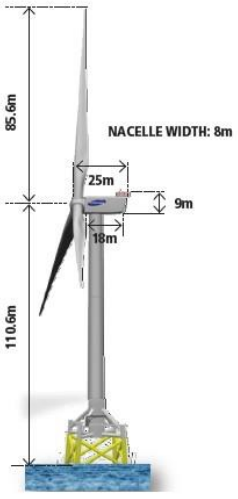
Levenmouth Demonstration Turbine
Proposed Variation to Operational Period

05/10/2017

CATAPULT Offshore Renewable Energy

Levenmouth Demonstration Turbine
Project Background

- Consent granted for the Development on 03 May 2013.
- Development comprises:
  - Turbine - 196m from mean sea level to blade tip;
  - Personnel bridge connection to Fife Energy Park;
  - Onshore crane pad; and
  - Onshore control compound.
- Development became fully operational in March 2014.
- Development is currently due to cease operation in March 2019.



ore.catapult.org.uk
@orecatapult

CATAPULT Offshore Renewable Energy

Typical activities

Typical Activities

- Trial and demonstrate new technologies
- Condition monitoring system (CMS) development
- Wind resource standardisation

Additional services

- Evaluate environment conditions
- Conduct training
- Practice O&M procedures
- Demonstrate remote inspection methods & technologies

Approach to the turbine

Each blade measures 83.5m and weighs 30 tonnes

ore.catapult.org.uk
@orecatapult

CATAPULT Offshore Renewable Energy

Specific activities over past 20 months

- c£2m invested
  - c£700k from the Scottish Government
- 58 UK SMEs engaged in activities
- 18 UK SMEs deployed and/or demonstrated new technologies
- 122 new packages of instrumentation installed on the Turbine
- Multiple international research projects, including radars, blade development

Limpet Technology at the Levenmouth Turbine

ore.catapult.org.uk
@orecatapult

CATAPULT Offshore Renewable Energy

Local benefits

- Currently, 16 FTE jobs and £570k pa in Fife*
- Funding STEM educational role in Levenmouth Academy
- Providing hands-on experience for Fife College turbine technicians
- Teaching the teachers: access to Blyth test facilities
- Supporting Energy Skills Partnership:
  - Develop next generation Immersive Hybrid Reality (iHR) offshore wind training system with Heriot Watt and Fife College
  - Shape and develop renewable energy curriculum across Scottish College Network
- Awarded 2016 Scottish Renewables Green Energy Award for Community Engagement

ore.catapult.org.uk
@orecatapult

* source: BiGGAR Economics, 2017

CATAPULT Offshore Renewable Energy

Levenmouth Demonstration Turbine Proposed Variation

- Variation of Condition 1 to extend operational phase from 5 years to 15 years.
- The proposed variation to the consent would allow ORE Catapult to:
  - Continue research and product validation; and
  - Offer opportunities for training and development.
- No changes are proposed to the as built Development.

ore.catapult.org.uk
@orecatapult

CATAPULT Offshore Renewable Energy

Levenmouth Demonstration Turbine
Environmental Impact Assessment

- Environmental Impact Assessment:
  - Screening
  - Scoping
  - EIA
    - Landscape and Visual
    - Noise
    - Socio-economics
    - Climate Change and Carbon Balance
    - Ornithology

- Submit an application early November 2017

ore.catapult.org.uk
@orecatapult

CATAPULT Offshore Renewable Energy