

# Inch Cape Offshore Wind Farm

New Energy for Scotland

Offshore Environmental Statement:  
**VOLUME 2C**  
**Appendix 10E: Stakeholder  
Consultation**



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Our Ref: 005/OW/SER-10  
008/OW/MainS-10  
18 April 2011

Dear Ms Gassner,

Thank you for your email requesting comments from Marine Scotland on the proposed Coastal Processes methodology. The document, *proposed methodology for metocean and coastal processes assessments* (p1476\_rn2550\_rev1), was circulated to consultees. Marine Scotland has the following comments to offer on your proposals.

The proposed methodology is rigorous and well thought out. The proposed modelling methodology is particularly impressive. Many statements within the document are, however, quite general and there is a lack of evidence that specific issues and *sensitive receptors* have been identified and considered. For example, it is mentioned that the impacts will be assessed "with specific reference to sensitive receptors" and how key sensitive receptors *will* be identified (pages 5 and 17). Also, whilst the proposed methodology is very rigorous, it is somewhat lacking in reasoning behind why certain things will be done. For example it is not clear why certain measurements will be taken during the survey campaign (page 13). Identifying specific issues and sensitive receptors at this early stage would probably enable a more rigorous assessment of what parameters need to be measured, monitored and/or modelled.

It is understood that the document outlines the methodology to be adopted during the coastal processes assessment for an EIA. The early identification of specific issues and sensitive receptors is, however, highly advised for the reasons given above.

One potential issue that is not mentioned within the document is that of the underlying sandbank stability. It is understood that it is intended that a literature review will help establish a good conceptual understanding of sediment transport rates, pathways, sources and sinks within the region. You may find that it will be



necessary to address this issue within the survey campaign and modelling work. There is, for example, no mention of measurements being made of the bed forms and features that may change as a result of the construction of wind farms.

Finally, the proposed consideration of the cumulative impacts of multiple wind farms within the region is considered to be timely and a very important part of an EIA.

### Specific comments about the document:

Please define "Sedimentological conditions/regimes/environment" in more detail. For example, does this include bed sediments; bed forms/features including sandbanks; and sediment transport including pathways, erosion, deposition, bed load and suspended load?

Please explicitly define the difference between "cumulative" and "in-combination" impacts. Within this document it seems to do with spatial scale, i.e. cumulative impacts of the individual pillars/gravity bases/foundations and in-combination effects due to multiple farms and other developments, but this is not clear from the outset.

P.8 (bottom of page) The different impact assessment scenarios are not in Section 3.6.

P.9 "Similarly, sediment transport, fluxes, sources, ..." Please rephrase this rather long sentence. If you mean to say that offshore wind developments are likely to have a small effect on large scale sediment pathways, please provide some justification.

P.31 Section 4.5.2 It is not clear whether the potential increase in suspended and bed load sediment transport as a result of scour is considered.

P.33 Section 4.5.3 (9) should "...developments will be **referred to** the baseline conditions ..." actually be "...developments will be **compared with** the baseline conditions ..."?

Sections 4.5.1 and 4.5.3 explicitly mention what range of conditions will be considered (i.e. meteorological and metocean conditions). For example in Section 4.5.1 "the range of current speeds and wave conditions likely to be encountered during installation" will be considered, and in Section 5.4.3 the "same range of environmental conditions will be modelled as during the baseline study". Please make similar explicit statements within Sections 4.5.2 and 4.5.4.

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If you require further clarification of any of the points made above please feel free to contact Marine Scotland.

Yours sincerely



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**Subject - Response to Marine Scotland's comments on the STW regional metocean and coastal processes Methodology Statement**

Dear Ms Mullan,

Thank you for providing a response on behalf of Marine Scotland and other consultees to our proposed coastal processes methodology:

*Inch Cape and Neart na Gaoithe Offshore Wind Farms: Proposed Methodology for Metocean and Coastal Processes Assessments. Intertek METOC on behalf of SeaEnergy Renewables Limited. Report P1476\_RN2550\_Rev1, 16 February 2011.*

We were very pleased to see the positive acceptance of the significant aspects of the methodology and have addressed below the queries and clarifications that were raised.

**General Issues**

**Sensitive receptors.** A detailed list of sensitive receptors was not included in the methodology report because the data were still under review (for example, the results from some of the field surveys). This process is ongoing, but by way of guidance the coastal processes study, and the broader EIA, will consider:

- Designated and draft designated sites including SPAs, SACs, Ramsar sites, SSSIs, NNRs etc.
- Potential impacts on habitats and species not covered by existing designations, including, for example, fish spawning areas.
- Potential impacts on key anthropogenic sites, such as wrecks.
- Areas not covered by existing designations which are considered to be potentially sensitive to changes in the sedimentary environment, as determined during the coastal processes baseline assessment.

Please note, confirmation of the above sensitive receptors was requested from Marine Scotland on the 6<sup>th</sup> May, along with any further guidance, if considered necessary.

**Measurement parameters.** The purpose of the measurement campaign was to support the general characterisation of the wind farm areas. The parameters measured provide sufficient point references for input into the hydrodynamic model and sediment transport assessment such that these can then be used to extrapolate conditions across the sites, including any potentially environmentally sensitive areas.

The current and wave measurements provide site specific inputs into the hydrodynamic models and this will be fully referenced in the model build and calibration report.

The suspended sediment, grab samples and sediment trap data allow for the general characterisation of the sediment types and size distributions to be used in sediment transport predictions once the potential shear stress changes are known from the hydrodynamic model.

The water quality data collected was intended to confirm the expected levels of water quality parameters and the likely absence of specific issues. See also below for the geophysical measurements undertaken.

**Sandbank stability.** The issue of underlying sandbank stability will indeed be covered by the proposed assessment, in addition to sediment transport rates, pathways, sources and sinks. The presence of bed forms and features will be identified as part of the baseline assessment, based on available sources (literature review, historical data and field survey campaign). Geophysical measurements (including bathymetry, sidescan sonar and sub-bottom geology) have been undertaken at both sites which will inform the seabed features study. The potential impact of the wind farm developments on these bed forms will then be evaluated based on outputs from the modelling work.

### **Specific Issues**

**Sedimentological conditions/regimes/environments.** The assessment will cover all aspects of the sedimentary environment and coastal processes regime that might be impacted by the proposed developments. This will include (but not necessarily be limited to): bed forms and features (including sandbanks); sediment transport pathways; erosion; deposition; bed load and suspended load.

**“Cumulative” and “in-combination”.** The definitions of these as defined by the Forth and Tay Offshore Wind Developers Group are as follows:

*Cumulative* – the effects of one type of development with other types of the same development (i.e. wind farms and other wind farms).

*In-combination* – the effects of the above in combination with other, different projects and activities (e.g. wind farms in combination with dredging or wind farms in combination with shipping).

**Section 2.2, bottom of page 8.** “Note – a detailed list of the impact assessment scenarios is provided in Section 3.6.” This should read Section 4.5.

**Section 2.3, page 9.** “Similarly, sediment transport, fluxes, sources...” We would rephrase this sentence as follows:



Information on sediments (including sediment type, transport pathways and bed forms) will typically be sparser in deeper water, offshore areas than in near-coast areas. The effects of the proposed developments on the sedimentary environment will be assessed as part of the proposed coastal processes study.

**Section 4.5.2, page 31.** The potential changes to bed load and suspended sediment concentrations will be considered as part of the general coastal processes assessment and the scour assessment.

**Section 4.5.3 (9), page 33.** The first sentence should read "...developments will be compared with the baseline conditions...", rather than "...developments will be referred to the baseline conditions...".

**Sections 4.5.2 and 4.5.4.** These sections refer to scour potential and post-construction, long-term impacts, respectively. For both of these impact assessments, we will model the same range of environmental (i.e. metocean) conditions as during the baseline study. This will allow the potential impacts of the developments to be determined.

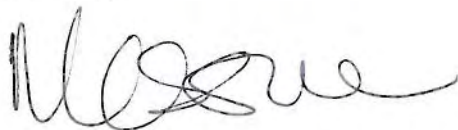
The comments and text changes above will be reflected in both the hydrodynamic modelling and methodology sections of the technical report and environmental statement chapter respectively.

#### Additional Comments

**Model resolution (Section 4.2.3).** Construction and calibration of the Forth and Tay Modelling System is well underway, and we can offer more detail on the specification of the model than is included in the methodology report. Having evaluated a) the high resolution bathymetry and metocean data obtained across the development areas, and b) outputs from the model, we have determined our preferred model resolution. The spatial resolution will be approximately 70 m across the Inch Cape and Neart na Gaoithe development areas. This resolution is suitable for accurately representing wave and current processes, and for providing hydrodynamic input to the sediment studies. The stated resolution represents the optimum balance between the requirement for accuracy in modelling outputs, and the need for a model with manageable run-time and data storage requirements.

I hope that the above responses adequately address the points you have raised. Please contact me if you have any further queries.

Yours sincerely,



Martina Gassner

On behalf of STW offshore wind farm developers Mainstream Renewable Power and SeaEnergy Renewables