Offshore Wind Evidence + Change Programme

Headroom in Cumulative Offshore Windfarm Impacts for Seabirds

Legal Issues and Possible Solutions

THE CROWN ESTATE

WOMBLE BOND DICKINSON

Contents

Document Control

Revision	Date	Description of change
0.1	23 March 2021	Draft issued for review by The Crown Estate and DTA Ecology
0.2	01 April 2021	Draft issued for review by Project Advisory Group (Natural England, The Crown Estate, Crown Estate Scotland, DTA Ecology and RenewableUK)
1.0	15 July 2021	Updated based on comments received, updated template for final issue by The Crown Estate

Foreword

In November 2020, the government announced its ten point plan for a green industrial revolution; intended to accelerate the path to net zero by 2050, and enable our recovery from COVID-19 to build back better and greener. Critical to this was the government's commitment to producing 40GW of offshore wind by 2030. The scale of the target – enough to power every home in the country – is hugely ambitious.

Offshore wind is one of the UK's most successful growth industries. We have become a world leader in green energy, with an increase from 1GW of installed capacity in 2010 to 10GW in 2019, the largest installed capacity of offshore wind in the world. And all whilst continually innovating to drive down the cost of electricity generation and ensure that energy bills remain affordable for all.

In December 2020, the government released its Energy White Paper, *'Powering our net zero future'.* The transition to low carbon transport and heat to meet net zero means electricity demand could double by 2050. This explains why clean electricity is the bedrock to decarbonisation, and a key enabler to grow the economy and level up the country.

To deliver on the commitment of 40GW by 2030, a sustainable approach to the development of offshore wind is needed. The Crown Estate's Offshore Wind Evidence and Change Programme - together with its programme partners, the Department for Business, Energy and Industrial Strategy (BEIS) and the Department for Environment, Food and Rural Affairs (Defra) - is facilitating the sustainable and coordinated expansion of offshore wind whilst supporting clean, healthy, productive and biologically diverse seas by bringing together key stakeholders across England, Wales, Scotland and Northern Ireland to gather and share evidence.

This project seeks to identify potential solutions to legally securing the as-built parameters of offshore windfarms to facilitate better assessment of the cumulative impacts of offshore wind. To realise the potential momentum generated by this report, it is vital that organisations with policy or regulatory authority take account of the outcomes by considering and, if appropriate, implementing the series of tangible recommendations contained herein.

Olivia Thomas
Head of Marine Planning
The Crown Estate

1. The Headroom Issue

Offshore windfarm applications tend to be submitted at an early stage in the process of project design, at which time developers are unlikely to know the precise nature and arrangement of turbines and associated infrastructure that make up the proposed development. Assessments are therefore typically presented using a "Rochdale Envelope" approach to ensure that the impact assessment encompasses the worst case project design. This is particularly important in the offshore wind sector where technology evolves at a rapid pace and the ability to construct developments depends on maturing supply chains. This approach is also necessary for a sector where delivery is dependent on securing a contract for difference (CfD). The competitive nature of the CfD scheme has seen costs of offshore wind fall substantially, with associated benefits to the consumer, but to continue in this trajectory, flexibility must be retained in consenting documents to promote continuous innovation.

Flexibility allows generating capacities to be attained with fewer, larger dimension turbines and constructed windfarms, particularly more recent windfarms, rarely use the maximum number, or precise model, of turbines which were used in setting the parameters for the Rochdale Envelope, or which are secured in the consent as the worst case. However, in-combination seabird collision estimates for offshore windfarms are predicted on a precautionary basis, made up of the worst case mortality for each contributory windfarm, taken either from the relevant windfarm Environmental Statement or consent document (Development Consent Order (DCO), Section 36 Consent or Marine Licence). This is because Habitats Regulations Assessment must be undertaken in accordance with the precautionary principle. Where an appropriate assessment is required, the application of what is referred to as 'the integrity test' means that a proposal can only be consented where no reasonable scientific doubt remains as to the absence of adverse effects on site integrity.

Changes in turbine number and height can make a significant difference to the predicted number of seabird collisions for an individual project. Hence using 'as-built' instead of 'consented' or 'assessed' scenarios for operational windfarms in cumulative and in-combination assessments may make a significant difference to the cumulative and in-combination collision risk (and potentially, other impacts as well). Where the 'as-built' impact is less than (rather than equal to) the consented impact, and rapid development in turbine technology means that this is often the case, the difference between the assessed or consented impact and the 'as-built' impact is known as 'headroom'.

For early offshore windfarms the difference between parameters applied for, consented and as-built were minimal. This reflected the slower pace of technological advancements in engineering of offshore windfarms. However, more recently, as the pace of technological advancements rapidly increases, project design envelopes can be refined between submission of application and consent, and then again between consent award and construction. In England, the consequence is that reductions in impacts from post-consent design revisions are not reflected in the figures used by other windfarm developers in their cumulative and in-combination assessments. The requirement for assessed/consented values to be used in cumulative and in-combination assessments, as opposed to as-built reductions following revisions to a windfarm design's worst case Rochdale Envelope,

potentially over-estimates the reality of seabird collision risk assessments, which are already undertaken on a precautionary basis for the reasons explained above.

In spite of the 'consented' impacts being used for assessments in England, until very recently, the in-combination impacts of offshore windfarms have not been found to give rise to adverse effects on the integrity of European sites for the purposes of Habitats Regulations Assessment. However, the growth of offshore windfarms in England has led to statutory nature conservation bodies advising that, for certain European sites, it is not possible to conclude, beyond reasonable scientific doubt, that there will be no adverse effect on site integrity. The Habitats Regulations provide for a derogation on the grounds of overriding public interest, with appropriate compensatory measures being secured. Given the statutory nature conservation bodies advice, it is becoming increasingly common to see offshore windfarm applications supported by a derogation case with potential compensatory measures (albeit not yet at the point of application submission) in the event that the decision maker cannot rule out adverse effects on the integrity of a European site. Development consent has recently been granted for Hornsea Project Three, which is the first offshore windfarm in England where the decision maker concluded that in-combination effects would adversely affect the integrity of a European site and compensatory measures were secured in accordance with the derogation case provided.

In England, there has been a number of submissions made on headroom at recent DCO examinations but it has been difficult to agree an approach which accurately reflects the as-built, as opposed to consented, parameters in subsequent cumulative and in-combination assessments. Regulators currently advise that the as-built turbine parameters need to be 'legally secured' before they can be used for the purposes of environmental impact and Habitat Regulations Assessment, and this has only been demonstrated in very limited circumstances in England. However, in Scotland there is a different approach taken in the way consents are drafted which secures final parameters on submission of detailed plans. In practice, parameters used in final plans have not then differed to as-built parameters. Published guidance in Scotland also supports the use of these final parameters in subsequent cumulative and in-combination assessment.

Not being able to rely on as-built parameters in cumulative and in-combination assessments has the potential to prematurely trigger the derogation provisions; increasing costs and potentially delaying or preventing delivery of nationally significant renewable energy infrastructure which is urgently needed to meet climate change obligations and commitments, including delivering 40GW by 2030 on the path to net zero. As a result, industry members, regulators and statutory bodies agreed to attend workshops to explore whether it might be possible to reach a consensus on the process by which as-built parameters could be legally secured, to give confidence that these parameters can be used in cumulative and in-combination assessments (where not already included), thereby creating headroom for those future assessments.

There had originally been two proposals for workshops on the headroom issue with similar aims – one put forward by Natural England and the other by RenewableUK Offshore Consents and Licensing Group. A group chaired by The Crown Estate (TCE) agreed a combined scope and approach, which

was then circulated and approved by The Crown Estate, Crown Estate Scotland, Natural England and RenewableUK.

The agreed scope for the workshops included specific consideration being given to the lawfulness of re-calculating effects using recent data and analysis methods, and/or density data obtained from sources other than the original characterisation surveys, rather than simply re-running the original calculations with the as-built parameters. In many cases, as-built parameters are not available to inform updated assessments and there is no current consensus on how assessments can be undertaken without this information. However, this is being considered separately as part of the Cumulative Effects Framework (CEF) project. CEF is developing a tool for the assessment of cumulative effects for key receptors using a consistent and transparent approach to the collation and analysis of the best available data. As a result, the workshops and this report do not address how assessments could be re-calculated using as-built parameters, and only consider the question of whether as-built parameters can be legally secured.

Through their Offshore Wind Evidence and Change Programme, TCE arranged, funded and hosted two workshops held in January 2021 and February 2021, which were chaired and facilitated by DTA Ecology. GoBe Consultants recorded views expressed during the workshops, which were supplemented by responses to a short questionnaire issued to participants by TCE between the two workshops. The first workshop was informed by a discussion paper, drafted by Womble Bond Dickinson (UK) LLP, which presented the issue, identified the legislative background and differing consenting regimes, and offered some potential solutions. Whilst the purpose of the discussion paper was only to inform discussion, its contents are reflected in this report where relevant. At the first workshop, the key differences in approach between regulators across jurisdictions, and the reasons for this, were discussed by participants. The second workshop focused on potential solutions and recommendations in order to address the issues identified in the first workshop. Workshops were attended by regulators, industry members and other relevant stakeholders. A full list of participants can be found at Appendix A. This report was subsequently authored by Womble Bond Dickinson (UK) LLP.

Prior to the workshops it was acknowledged that it may not be possible for all participants to reach a consensus on potential solutions. Where differing views were apparent, these have been stated in this report along with an explanation of the different positions held.

Whilst recommendations have been made in this report, the process for implementing any potential solution identified is outside the scope of the report. Mechanisms have been suggested based on the outcome of the workshops, but the positions of workshop participants are not binding, and it is for each regulator to determine whether, and if, to implement any approach considered appropriate. In addition, the methodology for undertaking cumulative and in-combination assessments using as-built parameters is outside the scope of this report. If an approach to legally securing headroom is taken forward by regulators, it will then be necessary to agree the methodology for collision risk modelling before any headroom in historic consents can be applied in subsequent assessments. Likewise, the way in which headroom from historic consents may be allocated or used by subsequent, or potentially, consented projects which have yet to be constructed or operated, is outside the scope of this report.

2. Consenting Regimes

The marine licensing system in England, Wales, the Scotland offshore region (12 to 200 nautical miles) and Northern Ireland is governed by Part 4 of the Marine and Coastal Access Act (MCAA) 2009 (as amended), although the concept of Deemed Marine Licences only operates in connection with the DCO regime. In the Scottish inshore region (within 12 nautical miles) the Marine (Scotland) Act 2010 applies the concept of Marine Licences. Similarly, whilst there are separate Environmental Impact Assessment (EIA) Regulations for DCO projects and marine works, as well as separate EIA and Habitat Regulations Assessment (HRA) Regulations across England & Wales, Scotland and Northern Ireland, the broad principles of the EIA and HRA Regulations apply equally across all jurisdictions and for both DCO projects and marine works.

When considering the practical implications of the various consenting regimes in the marine environment, these vary as between England, Wales, Scotland and Northern Ireland.

- For England and Wales the relevant consents were, formerly, Section 36 Consents and FEPA (Food and Environmental Protection Act) Licences. For England offshore windfarms above 100MW are classed as Nationally Significant Infrastructure Projects (NSIP) and Section 36 Consents have been superseded by the NSIP regime. A Marine Licence is also required and, although a Marine Licence can be sought separately, it is usually deemed as part of the DCO. Below 100MW in English waters, offshore windfarms fall outside of the NSIP regime and a Marine Licence and Section 36 consent are required from the Marine Management Organisation (MMO).
- In Wales, only generating stations with a capacity of more than 350MW are caught by the NSIP regime. Following the Wales Act 2017 associated development in Wales (i.e. the offshore export cable and any onshore works) may only be included in a DCO if related to such a generating station. However, a Marine Licence for the export cable may only be included in the DCO as a Deemed Marine Licence (DML) if situated in Welsh offshore waters (beyond 12 nautical miles) or in English territorial waters (and if situated in both, separate DMLs would be required due to the different licensing and enforcement authorities across the two jurisdictions). An export cable through Welsh inshore waters (within 12 nautical miles) will require a Marine Licence from Natural Resources Wales (NRW), which cannot be 'deemed'. Outside of the NSIP regime (i.e. for projects of 350MW and below), a Section 36 Consent is required from Welsh Ministers and separate Marine Licences will be required from NRW.
- For Scotland, where projects are above 1MW in the Scottish inshore region and above 50MW in the Scottish offshore region, the relevant regime is Section 36 Consent together with separate Marine Licences from Scottish Ministers. Outside of the Section 36 regime, Marine Licences are required from Scottish Ministers for any licensable marine activity.
- For Northern Ireland the consenting regime is currently to submit an application to the Department of Enterprise, Trade and Investment in Northern Ireland under Article 39 of the Electricity (Northern Ireland) Order 1992, coupled with a Marine Licence from the

Department of Agriculture, Environment and Rural Affairs, both of which can be determined together (but no offshore windfarms have been consented under that regime to date).

As set out above, the Rochdale Envelope approach is employed in order to maintain flexibility within the final consent, based on the limits of deviation and/or specific parameters/details referred to in the relevant application. In addition, it potentially allows non-material changes post consent where the impact of those changes do not give rise to new likely significant effects or materially different significant effects from those originally assessed. This approach originated from a case concerning an outline planning permission under the Town and Country Planning Act (TCPA) 1990. In the case of an outline planning permission, the principle of the development is established even though certain matters may be 'reserved' for subsequent approval. Separately, conditions may be attached to planning permissions (both outline and full) which require the approval of details not specified at the time of the original application and, depending on the nature of the details to be approved, consultation may be required with relevant consultees in advance of those details being approved.

The same approach requiring approval of final details is adopted through conditions attached to Section 36 Consents and Marine Licences, and through 'requirements' attached to DCOs, and conditions attached to DMLs. In all cases, the resulting grant is for 'full' consent. There is no concept of an 'outline' consent for an offshore windfarm under the NSIP regime, or where permission is deemed in the case of the grant of a Section 36 Consent, or in the case of Marine Licences.

Section 36 Consents and Marine Licences are drafted by regulators in Scotland (Scottish Ministers and Marine Scotland respectively), England (MMO), and Wales (Welsh Ministers and NRW respectively). However DCOs, including DMLs, are initially prepared by developers, albeit with input from other stakeholders, and subject to modification by the Secretary of State during decision making. In practice these different consenting regimes have led to a different approach being taken to the drafting of the consent documentation and therefore the extent to which regulators are content that as-built parameters are legally secured.

3. Relevant Legal Principles

Prior to the first workshop, consideration was given to whether approaches taken in other industries or under comparable legislative regimes could offer any potential solutions, for example under the TCPA system.

3.1 Crystallisation

One relevant consideration was the point at which a permission crystallised such that future flexibility was then lost. Under the TCPA regime, where prior approval is required to exercise permitted development rights, this is taken to be the point when the Local Planning Authority (LPA) issues a favourable response to detailed plans submitted for their prior approval. At that point, the rights can be relied upon and implemented even if there is a subsequent policy change. In practice, the same approach applies to reserved matters and approval of details under a planning permission. Once reserved matters are approved this will limit the scope of the permission from what may have been consented in outline, and approval of details submitted under conditions will limit this further.

There appears to be no reason why conditions of a Section 36 Consent or Marine Licence, or requirements of a DCO/ conditions of a DML could not be drafted in the same way, to secure the final design of an offshore windfarm, at which point the consent crystallises to limit further flexibility. In fact, during a recent DCO examination for ScottishPower Renewables' East Anglia ONE North and East Anglia TWO projects, a 'close out condition' to be included in the generation and transmission DMLs has been agreed with the MMO and Natural England. This requires the submission of a report within three months of completion of construction which confirms the date when construction completed and which makes clear that following completion of construction, no further construction activities can be undertaken under the DML. In the case of the condition included in the generation DML, the report must also include the final number of wind turbine generators and their parameters relevant for ornithological collision risk modelling.

3.2 Spent permissions

There is a general principle in planning law that planning permission may be partially implemented. The only requirement is that the planning permission is begun within a specified period, such that it remains extant. Save to the limited extent that a completion notice is served requiring the completion of the development, there is generally no requirement that the permission be completed within a certain timeframe, or at all.

However, once operational development has been constructed, the permission does not authorise its demolition and rebuilding. Similarly, once a change of use has been implemented, there cannot be a resumption to the previous use without a fresh planning permission. In essence, a planning permission allows one scheme of development to be carried out once. There is no reason why that principle should not be equally applicable to development permitted under a Section 36 consent/Marine Licence and DCO/DML provided that it can be established that construction works have been completed. Although participants were not aware of any settled case law on this precise point, it

would seem therefore, that there is no ability to amend or vary approved details following completion of construction unless this is dealt with as a formal variation through the prescribed process or an application for a new consent. This is because once construction has been completed, this element of the permission is regarded as 'spent'.

3.3 Phasing of permissions

Where phasing of a permission is permitted under the TCPA regime, this is generally made clear at the outset by the inclusion of a condition which requires details of the phases to be submitted and approved, or which refers to an existing phasing plan. In practice, a similar approach has been taken to phasing within recent DCOs – the potential for phasing is assessed and the DCO and DML require confirmation of the approach to phasing to be notified at the outset. In some cases, separate DMLs have been granted to allow the number of phases to be confirmed post consent, and for separate phases of development to be implemented at different times. Where separate phases are implemented, conditions have required the development to meet the overarching parameters which secure the worst case, which allows flexibility on the number of phases that can be taken forward. Therefore, to the extent that phases are included in a Section 36 Consent, Marine Licence or DCO/DML, this should not present a bar to securing the as-built parameters if conditions or requirements are drafted appropriately. The precise drafting would need to be considered, but it may be beneficial for there to be clarity that once a phase has been completed, no further works in respect of that phase would be authorised without a formal variation. Notwithstanding this, where there is flexibility as to the number or size of phases, it would not be possible to rely on any reduction between consented and as-built parameters until the final phase of construction has been completed (or the parameters for the final phase are established).

Historically, offshore windfarm consents did not always expressly consider the potential for phasing, or therefore expressly provide for this in the drafting of the relevant consents. This potentially complicates the extent to which any remaining capacity, theoretically, could be built out as a subsequent phase and therefore whether 'as-built' parameters can be treated as legally secured. For this reason, legally securing 'as-built' parameters for earlier windfarms which have already been consented and constructed is potentially challenging.

3.4 Competing permissions

Under the TCPA regime, any number of applications for planning permission may be made on the same area of land for which permission has already been granted, irrespective of whether the resulting permissions would be mutually inconsistent if implemented. Once granted, the developer may then choose which planning permission to implement. However, if planning permissions are inconsistent, it is not possible to implement both, and the implementation of one planning permission may invalidate the other. Further, the implementation of a subsequent planning permission which prevents the completion of a previously, partially implemented, planning permission will cause that earlier planning permission to lapse, even though previously, lawfully implemented. A developer is not entitled to pick and choose different parts of inconsistent planning permissions to implement. However, this principle has limited utility in the case of offshore windfarms, where competing consents do not appear to have featured to date. In cases where more than one Marine Licence has been issued, these tend to be compatible with, and to supplement, the overarching scheme of marine works, rather than compete with it.

4. Interface with Cumulative Effects Framework

To the extent that a consensus can be reached that as-built parameters can be legally secured such that they can be used in cumulative and in-combination assessments, it will be necessary for updated collision risk models to be run. However, site specific information for some offshore windfarm sites may not be in the public domain. For offshore windfarms which were constructed some time ago, it may be necessary for the effects to be re-calculated using more recent data and analysis methods, and/or density data obtained from sources other than the original characterisation surveys.

In principle, there is nothing currently in law or best practice which requires the original data to be re-used for subsequent cumulative or in-combination assessments. Indeed, the Cumulative Effects Framework project is proceeding on the basis that it is likely to need to rely on the use of a different data set and methodology to that used in original EIAs and HRAs to calculate cumulative and in-combination impacts. Regulators will need to be satisfied that the data sets used for cumulative and in-combination assessments represent the 'best scientific knowledge in the field' at the particular point in time that the assessment is undertaken, and this may mean that the original data or methodologies used should be updated. Any assessment undertaken will need to be robust, and comply with the precautionary principle, noting, of course, that models will provide predictions on impacts and not absolutes. If the data used is imprecise or inconclusive it may not be possible to determine the potential risk of impact with sufficient certainty in order to rule out likely significant effect or an adverse effect on integrity.

5. Workshop one

During the first workshop it became apparent that regulators in Scotland were content to rely on parameters specified in the final scheme approved for use in subsequent cumulative and in-combination assessments. Regulators had confidence in relying on these parameters given the specific controls which were included in Marine Licences and Section 36 consents, as well as the policy support provided for their use in cumulative and in-combination assessments.

Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications states, *"If a project is consented with a design envelope, the final design will be determined through the multi-stage regulatory approval / discharge of conditions such as the provision of a construction method statement, the design specification and the layout plan."*

In Scotland, a typical Marine Licence and/or Section 36 consent is likely to contain:

- A condition which requires the submission of a "Development Specification and Layout Plan" (DSLP) which must be submitted no later than six months prior to commencement of the works for the Licensing Authority's written approval. The DSLP must include a plan showing the location of each individual Wind Turbine Generator (WTG) (subject to micrositing) and a table of WTG dimensions. The reason specified for providing the DSLP is *"To confirm the final Works specification and layout"*.
- A condition which requires notification of completion of the works within one month of completion.
- A condition which requires, within one month of completion of the works, the submission of a final written audit report stating the nature and quantity of all substances, objects placed below Mean High Water Springs (MHWS), and materials used in construction within the Scottish marine area under the Marine Licence.
- A condition which requires, within one month of completion of the works, provision of the as-built positions and maximum heights of all WTG, along with any sub-sea infrastructure, to the UK Hydrographic Office (UKHO) for aviation and nautical charting purposes.

"Completion of the Works" is also usually defined in Marine Licences as *"the date on which the Works have been installed in full, or the Works have been deemed complete by the Licensing Authority, whichever occurs first"*.

This approach appears to draw on some of the legal principles identified in section 4 above, to give certainty as to the point at which a consent will crystallise as well as the point at which construction will be taken as complete. In practice, those in attendance could not recall an instance where a licence holder had sought to vary or amend the DSLP after its written approval, and the final as-built parameters therefore mirrored the final parameters approved under the DSLP. Participants also noted that in Scotland, there was as yet no experience of phasing construction of offshore windfarms, although in practice there was no reason why a similar approach to refining and securing the final

design of each phase could not be adopted if phasing was proposed. In Wales, a similar approach to that in Scotland was adopted outside the DCO regime.

Under the DCO regime, the DCO typically describes the authorised development with an upward limit of electrical export capacity (in MW) and the maximum number of WTGs. Historically, the majority of windfarms have been built out to their maximum consented capacity albeit using fewer, larger turbines. However, following a number of non-material amendments for capacity boosts or removal of the cap on electrical capacity this is unlikely to be a limiting factor for offshore windfarms in the future. The DCO includes requirements (akin to conditions) which secure the offshore design parameters, controlling such matters as the maximum turbine height to blade tip, hub height, rotor diameter, minimum separation distances and draught height. The requirements also tend to include the maximum rotor swept area where there is no upper limit on electrical export capacity. These parameters are also secured in the DMLs for generation assets.

The manner of implementation of the offshore works is controlled by the conditions attached to the DMLs for generation assets. A condition (relating to pre-construction plans and documentation) customarily provides that the licensed activities or any part of those activities must not commence until a number of plans, protocols or schemes (as relevant to that part) have been submitted to, and approved in writing by, the MMO (often following consultation with statutory consultees). There will be limited grounds on which the MMO can decline to approve plans or details submitted, given that the principle of detailed consent has already been established through the grant of the DCO and DMLs, and noting that EIA and HRA will have been undertaken and considered at the point when the original consent was granted using Rochdale Envelope principles. The final plans to be approved usually encompass:

- A design plan showing the proposed location, spacing, layout and grid coordinates of all WTGs (which is similar to the DSLP included in the Scottish approach);
- A construction programme for all WTGs;
- A construction method statement;
- A project environmental management plan;
- A scour protection and cable protection plan; and
- An offshore operations and maintenance plan.

It is to be noted that in many instances such conditions refer to:

- A design plan which shows the location, height, rotor diameter and spacing for all WTGs;
- The proposed layout of all WTGs;
- Ensuring conformity with the description in Work No.1; and
- An indicative written construction programme for all WTGs comprised in the licensed marine activities, insofar as not shown in the proposed mobilisation programme.

The initial discussion paper presented the view that it is implicit, if not express, from these conditions that if the developer intends to complete a first phase of offshore development, to be followed by a second phase of development at a later stage, both phases must be shown in the submitted design plan, and included in the submitted construction programme, not least to enable the MMO to appreciate the full extent of the licensed activities to be undertaken pursuant to the consents and the timing of those activities. If they are not, the only way that a second phase could come forward would be to amend the design plan at a subsequent stage. However, the design plan would need to be amended prior to completion of construction of the first phase, and the second phase would need to come forward in a timescale contemporaneous with the first phase so that it did not give rise to a separate project which had not been assessed. Otherwise, it would be necessary to submit a further marine licence application, potentially accompanied by new environmental information and an updated HRA. Of course, if there was a separate condition (or a separate licence) which authorised a second phase, the final layout plan for this phase would need to be approved separately before the parameters and consent crystallised for the purposes of cumulative assessment.

The discussion paper also noted that there are provisions in DMLs requiring the UK Hydrographic Office be notified of completion of construction in order that all necessary amendments to nautical charts are made (similar to the Scottish approach), and requiring post-construction surveys to be undertaken.

However, and whilst elements of the Scottish approach feature in DMLs, the existing process of approving and securing the final design under a DML was not considered by regulators to be as robust as, or offer the level of clarity afforded under, the Scottish approach. Regulators felt that clarity on the face of the decision documentation was essential for the following reasons:

- The potential for enforcement action and criminal liability in the event of any breach means that there is no room for ambiguity when interpreting the extent of any consent; and
- In order to be able to rule out adverse effects on the integrity of a European site, the decision maker must be satisfied beyond reasonable scientific doubt. Therefore, if there was any doubt whether the final design could be changed (for example through a non-material amendment or subsequent approval of revised plans), the as-built parameters could not be relied upon for the purposes of HRA.

Accordingly, the ability for future changes to be made to the DCO and related DML compared to Section 36 Consents and Marine Licences was also a factor considered by participants. Whilst the Rochdale Envelope approach allows flexibility to be retained in DMLs and Marine Licences, the operation of the EIA Regulations will limit this flexibility in practice, such that amendments can only be made if they are unlikely to give rise to materially new or materially different environmental effects to those originally assessed. It is becoming more commonplace to see this stated on the face of the relevant consent.

In summary, the approach to varying consents differs across the consenting regimes as follows:

- Section 36 Consents can be varied through formal application, and any deemed planning permission can be varied in connection with that application. However, the intention is not to permit a development that would differ fundamentally from the existing authorisation, as this should be consented by way of a new application.
- There is no specified application process to vary a Marine Licence under the MCAA 2009, but the licensing authority can vary a Marine Licence if they consider it relevant to do so. In this way discretion can be exercised to vary a related Marine Licence to maintain consistency with any Section 36 Consent that has been varied, or DCO that has been amended. In England and Wales, if an application is made by a licence holder to vary a Marine Licence, this will be considered by the licensing authority under their MCAA power and is facilitated through the licensing authority's standard processes. In Scottish inshore waters, there is a separate process under the Marine (Scotland) Act 2010 to vary Marine Licences which operates for non-material changes, with material variations requiring a new Marine Licence application. At the time of writing, there did not appear to be any similar, formal, process for non-material variations of Marine Licences in England, Wales, Scottish offshore waters or Northern Ireland, all of which operate under the MCAA 2009.
- DCOs are subject to a specific non-material or material amendment process set out in the Planning Act 2008 (PA 2008). There is no statutory definition as to what amounts to a non-material or material amendment under the DCO regime. Guidance indicates that an amendment which requires an update to an Environmental Statement or HRA, an additional or new European Protected Species Licence, or the compulsory acquisition of additional land or rights, will be treated as material. Potential impacts on local people and businesses are also considered in determining whether a change is material. Material amendments to a DCO cannot be made after four years beginning with the date that the development was substantially completed, at which point a new DCO application will be required. The DCO amendment process, whether material or non-material, does not apply to a DML, which must be varied separately. As set out above, the licensing authority will generally vary a licence in response to a licence holder's request where the licensing authority is satisfied that it is appropriate to do so.

Overall, participants felt that the Scottish approach enabled a fix on the final design plan, whereas the DCO regime retained flexibility to deviate from the design plan if the change proposed could be shown to be within the Rochdale Envelope, even if the change was proposed during construction, or potentially after construction was completed, provided the change could still be shown to be non-material.

The initial discussion paper noted an option for developers to seek non-material amendments/ variations to their consents to secure the as-built parameters, this having been accepted previously by regulators as a way to legally secure those parameters. The discussion paper noted that this was unlikely to present a satisfactory solution, given there was no obligation on developers to vary their consents post-construction, and given that the process would incur additional costs and time for

developers. During discussions, some participants felt that it was important to acknowledge a perceived commercial value to headroom which developers might not wish to give up unless there were direct benefits in doing so. If headroom did have a commercial advantage, companies had a duty to their shareholders not to release headroom unless benefits could be realised, i.e. the use of the released headroom for their future projects. However, some developers noted that the release of headroom was important for the industry as a whole and advocated that releases should not be used for tactical advantage. One option proposed was to include a mechanism in the DCO to allow developers to serve a notice which would secure as-built parameters and release any resulting headroom. The potential for the release of headroom to be a regulator-led process was also considered, although no obvious mechanism to achieve this was identified within the existing legislative regime.

Another solution proposed in the initial discussion paper was for regulators to formally advise that a separate consent (or a formal variation to the original consent) would be required for any works undertaken following construction in accordance with plans previously approved. This could be by way of a practice note or direction, potentially issued jointly with relevant Statutory Nature Conservation Bodies (SNCBs). It could also confirm that changes made during the operational period of the offshore windfarm and required for the purposes of repair or maintenance would be limited to like for like replacement, which would be confined to the as-built parameters unless a formal variation to the consent was sought. Whilst participants acknowledged this might help to provide clarity, there was concern that it could only offer broad guidance which was not determinative of, and would not avoid the complexity of, considering each set of individual circumstances on its own merits. For these reasons, regulators felt it would not offer the necessary certainty that as-built parameters could be relied upon in subsequent assessments.

The initial discussion paper also queried whether the sign off or certification process for completion of the offshore windfarm under the terms of The Crown Estate leases might offer additional comfort that the as-built parameters were secured, especially in circumstances where subsequent phases could not be carried out without the need for a new agreement for lease or The Crown Estate's prior consent, potentially triggering the need for HRA. Whilst participants agreed this should not be ruled out as an option, it was felt unlikely that a commercial agreement between TCE and project companies would offer sufficient certainty to regulators, notwithstanding TCE's role as competent authority during leasing rounds.

Towards the end of the first workshop a fundamental question was raised on the approach taken to cumulative and in-combination assessment for offshore windfarms which differed to the approach taken in other sectors. This concerned the extent to which operational offshore windfarms should be assessed as part of the existing baseline as opposed to within the list of cumulative or in-combination projects to be assessed. A view was expressed that any existing headroom could then be considered as a separate element within the cumulative/ in-combination assessment (i.e. not as part of the baseline) and given appropriate weight by the decision making authority in determining the extent to which the headroom was likely to be utilised, and therefore the extent to which it should be taken into account in the cumulative/ in-combination assessment. In Scotland, it was confirmed that the current approach was to include operational offshore windfarms within the baseline for assessment purposes. This topic was explored further in the second workshop.

6. Workshop one questionnaire

Following the first workshop participants were invited to respond to a short questionnaire. This was intended to shape discussions at the second workshop and to capture any points which had arisen as a result of the first workshop.

The questionnaire consisted of four questions as follows:

- *Are there any differences in consenting regimes which are not captured in the discussion document but which could influence how the legal principles are implemented in different devolved administrations?*
- *Have you received legal advice on this topic to date?*
- *Do you consider that there is a clear route to legally securing the as-built parameters of constructed offshore windfarms?*
- *Do you foresee any significant concerns from a legal perspective of using new data / methodologies in re-calculation of impacts for the purposes of in-combination assessment?*

For the purposes of this report, key points raised against each of the questions are captured below. This is not a full analysis of the responses, but rather it is intended to summarise issues and areas of consensus/difference between participants.

6.1 Question 1: Key differences in consenting regimes

Whilst the majority of responses felt that the key differences had been captured, a small number of respondents highlighted some variations in the consenting regimes of the devolved administrations, specifically Wales and Northern Ireland. Where relevant, these differences have been noted in this report.

6.2 Question 2 and Question 3: Legal advice and routes to securing as-built parameters

Although not all organisations had received legal advice prior to the workshops, there was a general consensus that there is potential to secure as-built parameters in future DCOs/DMLs where the wording of requirements/conditions can make this intention clear. Generally respondents felt that this new approach to drafting would need to be supported by policy, require clarity on completion of construction activities and require submission of as-built details following completion of construction. One respondent proposed that drafting clarity could be achieved through using separate DMLs for construction activities and for Operation & Maintenance (O&M) activities. The construction DML could require confirmation of completion of construction, after which all future operations would be governed under the O&M licence. Any works outside of the O&M licence would then require a new application. Respondents felt that policy documents should also confirm the appropriateness of using the as-built parameters in cumulative and in-combination assessments where these were secured.

When considering the potential for securing the as-built parameters of historic consents, the responses were less emphatic, with some uncertainty. Some participants considered that a process to release the headroom should be developer led, whilst others took the view that it should be regulator led. One respondent suggested that a mechanism could be established for project owners to enter into a moratorium on future development under existing Rochdale Envelopes. Another respondent identified the need for a case-by-case assessment of the status of as-built offshore windfarms to be conducted by regulators/SNCBs, enabling relevant project owners to then confirm whether they would be willing to secure (at no cost) as-built parameters through the non-material amendment process. The respondent also considered that project owners should be given the option to transfer any residual headroom to a forthcoming project.

One respondent felt that there was value in understanding the requirement to consider as-built projects in an in-combination assessment for the purposes of HRA, rather than including operational projects in the baseline. The respondent acknowledged that an approach of longer term in-combination assessments had been taken because of the practical difficulties of re-evaluating the baseline; however the respondent felt that the headroom issue could be addressed potentially by acknowledging that the in-combination assessment is a proxy for change to the baseline.

6.3 Question 4: Legality of re-calculating project level effects

Responses varied on this topic. Over half of the responses raised a number of often discrete concerns, specifically around:

- the responsibility for undertaking re-calculations;
- the validity of generic data/methodologies used to inform the calculations;
- the potential consequences of re-calculating effects on operational offshore windfarms; and
- the potential risks of introducing additional precaution.

Notwithstanding the above, a large number of responses confirmed that given the requirement to base an assessment upon the best available data, the potential for recalculation using a tool developed with, and endorsed by, SNCBs and regulators would not introduce any significant concerns, provided this did not increase uncertainty, and therefore precaution in assessments, with the result that any headroom gained is then lost.

One respondent also raised concerns that SPA population counts were not kept up to date. The respondent noted that keeping counts as up to date as possible would assist in understanding the effects of operational impacts and may enable operational offshore windfarms to be included in baseline assessments with more certainty.

The overarching themes from the questionnaire responses were used to inform further discussions at the second workshop.

7. Workshop two

At the outset of the second workshop it was clear that a different approach would be needed to deal with:

- Historic consents – where offshore windfarms had been consented and constructed some time ago;
- Recent consents – where consents had recently been granted but construction was yet to commence, or if it had commenced, was yet to complete or had been recently completed; and
- Future consents – where offshore windfarm applications were pending consent.

For headroom arising from future consents, participants felt there was an obvious solution following the existing Scottish approach.

However, the solution for legally securing as-built parameters where consents had already been granted was less clear. For historic consents, some participants questioned the extent to which headroom actually existed. It was felt that older offshore windfarms were more likely to have been built out to their full capacity using the full extent of the original Rochdale Envelope. Where this was not the case, some participants believed it would not now be feasible to alter them given the substantial changes in technology – in which case, they considered that as-built parameters should be treated as legally secured.

However, for more recently constructed or consented offshore windfarms, it was generally acknowledged that headroom was likely to exist and there was no obvious mechanism as to how as-built parameters for these recently constructed/ consented offshore windfarms could be considered legally secured. Therefore, participants acknowledged and agreed that a different solution was likely to be required for this class of consents.

During the second workshop, participants collectively considered the following key themes arising out of responses to the questionnaires:

- *When should parameters crystallise?*
- *How and where should this be captured in drafting of the DCO/DML?*
- *Whether operational offshore windfarms should be assessed as part of the baseline in cumulative and in-combination assessments?*
- *How could headroom be legally secured in already consented offshore windfarms?*

7.1 When should parameters crystallise?

All participants agreed that future consent documentation should include a certain point at which parameters crystallised, and that this could be achieved by attaching requirements/conditions to DCOs/DMLs similar to the approach currently being used in Scotland.

Overall, participants felt that parameters should crystallise, at the latest, following completion of construction and on submission of as-built plans. This differed from the current approach in Scotland, where the DSLP secured parameters on submission of details at least six months prior to construction. Whilst some participants felt that crystallisation following completion of construction ensured no flexibility was lost during the construction period, others commented that it may be preferable to crystallise consents at the start of construction. This would avoid having to wait until the end of construction (potentially a lengthy period) before updated parameters could be adopted in assessments by others, especially if the potential for changes during the construction period was limited. Some felt that there may be merit in considering a staged approach to refinement of parameters at certain defined points. One benefit of submission of as-built parameters, was that this could extend the requirement for submission of final parameters beyond turbine parameters alone. As an example, one participant noted that drafting of requirements/conditions may need to allow for the submission of final as-built plans and details post construction to account for any micrositing of offshore cables or other changes required during construction.

7.2 How and where should this be captured in drafting of the DCO/DML?

Under the NSIP regime, the Order granting development consent, including any Deemed Marine Licence, is drafted by the applicant, albeit that interested parties have an opportunity to comment upon it and therefore influence the drafting approach taken. Ultimately, the final form of the Order is determined by the Secretary of State who may make modifications to the draft Order if considered appropriate. The Model Provisions on which Orders were originally based have been revoked, albeit consideration is given to whether precedents from recent Orders have been followed during examinations. Where a novel approach to drafting has been adopted, the rationale for this needs to be explained and justified by the applicant.

The MMO noted that under the DCO regime their remit was limited to the deposit and removal of substances in the marine environment. It is the Secretary of State who authorises the construction and operation of the generating station. Given this, some participants felt that any controls on the as built design which would limit the capacity and functionality of the generating station should be matters determined by the Secretary of State. Therefore, dependent on the approach to drafting, some participants considered that it may be appropriate to secure further controls through the DCO rather than being regulated and controlled through the DML.

In Scotland, the requirement for a DSLP and conditions relating to completion of construction and submission of as-built plans are often included in both section 36 consents and Marine Licences. Some participants felt that it would be appropriate for completion conditions to be included within DMLs only, and that the MMO were best placed to regulate and enforce whether the as-built parameters were in accordance with design plans previously approved by the MMO under the DML.

7.3 Whether operational offshore windfarms should be assessed as part of the baseline in cumulative and in-combination assessments?

Consideration was also given to the approach taken to assessment of in-combination collision and displacement effects. The approach taken in England is not to include as-built offshore windfarm

projects in the baseline when assessing the effects of a proposal 'alone', which is different to the approach taken in other industries, and also to the approach taken for offshore windfarms in Scotland, where the as-built parameters are included in the baseline.

Whilst it was recognised that the actual effects on ornithological receptors will always be difficult to identify, it was acknowledged that predicted effects from as-built offshore windfarms could be used as a proxy for the baseline conditions. It was suggested that a change to the current model of assessment could use the estimated baseline from which to then model impacts 'alone', allowing any headroom to be treated as a separate project which is taken into account as part of the in-combination assessment. Such an approach may offer advantages, because the decision maker could then exercise discretion in deciding how to treat the headroom in the assessment. For example, the decision maker may be able to discount any impact from the headroom in the in-combination assessment if it was considered not feasible for this to come forward.

No consensus was reached on whether this might offer a solution to the headroom issue. Some participants raised concerns that this would involve a significant departure from the recognised, and tried and tested, approach to assessment in England. It was felt that the implications of such a fundamental change needed to be fully explored and understood before a decision could be reached on its utility. Participants also queried whether it would address the key issue – if there was no certainty that it was not feasible for headroom to come forward (because as-built parameters were not legally secured), the decision maker would not be able to exercise discretion to discount headroom irrespective of whether this was dealt with separately in the assessment.

7.4 How could headroom be legally secured in already consented offshore windfarms?

Under the PA 2008 material amendments to a DCO cannot be made after four years beginning with the date that the development was substantially completed, at which point a new DCO application will be required. However, participants felt that this time frame was unlikely to assist in legally securing the as-built parameters of historic offshore windfarms. For any given windfarm it may not be clear whether construction had substantially completed, and changes within the Rochdale Envelope may be non-material in which case the requirement for a new application would not apply.

For headroom from consents which had been built out many years ago, participants noted that in practice it may not be feasible for further changes to be made (i.e. the deployment of modern turbines) without a new consent. It was also likely that a new consent would be required given the passage of time since any construction works had last been undertaken and because previous EIAs and HRAs would be out of date. However, there was some concern that these older projects may not hold much if any headroom, and therefore establishing their as-built parameters were legally secure would offer limited progress in the release of any available headroom. As a next step, there was general consensus that the extent of headroom potentially available in historic offshore windfarms should be established. Once this was known, regulators could establish, on a case by case basis, whether it was feasible that any headroom available could be used without a new consent and therefore whether it was possible for any headroom to be applied in subsequent assessments.

For more recent offshore windfarms, the same exercise of establishing exactly what headroom existed and reviewing the relevant consents on a case by case basis to see if the as-built parameters were legally secured was seen as a valuable exercise and first step. Where specific headroom was identified, some participants felt that project companies may be willing to release this, i.e. through the non-material amendment process. Building on the themes from the first workshop, some participants felt that it was important for policy to recognise the commercial value of headroom. One participant referred to the positive role policy could play by rewarding the early release of headroom (e.g. by allowing it to be used towards other forthcoming projects). However, there was no clear consensus from participants on how any release of headroom should be treated, albeit this was not the focus of the discussions held. One participant queried whether there was an opportunity to manage the wider release of any headroom through the Offshore Wind Industry Council.

Following an open discussion of these issues, separate breakout sessions were held for regulators/SNCBs and industry members to discuss possible solutions, before feeding back to the wider group with a view to reaching a consensus as far as possible. In summary, the following feedback was received from breakout groups, for which there appeared to be general consensus amongst participants:

- Future Consents
  - A collaborative approach to drafting new DCO requirements/DML conditions was needed between regulators, SNCBs and industry – with industry taking the lead but supported by policy and guidance. No final position was reached on whether the as-built parameters should be secured through the DCO or the DML, and this may be dependent on the precise drafting of the further controls proposed.
  - The extent to which guidance could inform the specific approach to drafting of requirements/ conditions was considered. Some participants noted that any guidance issued would need to support the mechanism which ensured as-built parameters were legally secured. A potential opportunity was identified to strengthen the approach to best practice in drafting through policy and/or guidance, to provide clarity to applicants and enable the decision maker to make modifications where necessary to give effect to the approach.
  - Final as-built parameters should crystallise after completion of construction to allow all receptors to be captured. However, noting the period of time between the issue of consent and completion of construction could be considerable, one participant also suggested an approach which narrowed parameters using a staged process over time. For example, policy/ drafting could make it clear that parameters could be reduced on submission of the design plan and then again post completion of construction.
- Historic Consents
  - Further work was required to understand the scale of the headroom issue in consented projects to date, including which projects had headroom, and to what extent those projects had built out to their full capacity (e.g. installed capacity or maximum number of turbines) or

could not now do so, such that regulators had confidence to treat their as-built parameters as legally secured.

- Some participants noted that this could build on the 2017 MacArthur Green report, 'Estimates of Ornithological Headroom in Offshore Wind Farm Collision Mortality', commissioned by TCE, which calculated potential headroom for six collision risk species (gannet, kittiwake, lesser black-backed gull, great black-backed gull, herring gull and sandwich turn), and estimated that reductions in cumulative mortality would range from around 14% to 40% (depending on the species considered) if as-built parameters were used in cumulative assessments.

- Recent Consents
  - Again, a requirement for further work was identified to understand the scale of the headroom issue for projects which had either recently been constructed, or for which design plans had been submitted or approved and were in the course of construction. Some participants felt that there was a role for policy to provide clear guidance on the approach to be taken towards headroom and setting out the circumstances for determining whether as-built parameters could be treated as legally secured. Some felt that policy/ guidance had a role to acknowledge the potential commercial value of headroom and encourage its early release in circumstances where as-built parameters could not be treated as legally secured.
- Cumulative Effects Framework
  - Subject to formal consultation, there was general support for the Cumulative Effects Framework project and participants felt that this could play a valuable role in the re-calculation of effects once as-built parameters were legally secured and submitted post construction, provided it did not adopt an overly precautionary approach. Regulators and SNCBs generally agreed that the methodology should be designed centrally and then applied by developers. There was an acknowledgement that the tool would need to be continually reviewed and updated with new scientific evidence as it becomes available.

In summary, participants generally felt there was a clear pathway to legally securing as-built parameters in future consents, and whilst more exploration of the headroom issue was needed to fully resolve historic and recent headroom issues, potential solutions were available.

At the outset of the workshops, it was made clear to participants that the scope of the project did not cover collision risk modelling methodology or, if as-built parameters could be legally secured, how headroom could be applied in subsequent assessments. Therefore these issues also remain to be considered in the future.

8. Recommendations and next steps

Based on the outcome of discussions during the workshops, key recommendations are set out below. These are intended to develop further understanding of the headroom issue and provide a pathway towards a solution which secures as-built parameters and enables the release of headroom. It is for each regulator to determine whether, and if, to implement any approach considered appropriate, and the recommendations identified below are therefore non-binding.

Recommendation 1 – Understand the extent of the headroom issue

There is a clear need to conduct a full audit of consented windfarms to establish the difference between their consented and as-built parameters, building on the work already undertaken by MacArthur Green (2017). The purpose of this will be to identify which projects have created headroom and, if possible or to the extent helpful, identify at a high level which species/European sites a re-calculation of predicted impacts is most likely to affect. The first step should be a relatively straightforward task for a working group to undertake based on the extent to which offshore windfarms have been built out to their full consented capacity.

Regulators should also be tasked with identifying, on a case by case basis, those offshore windfarms where they think that as-built parameters are, or are not, legally secure.

Depending on the progress made by the Cumulative Effects Framework project, it may also be possible to re-calculate the predicted impacts for certain species at certain European sites using the as-built parameters (but note Recommendation 4 Below).

Following the initial audit, reviews could be prioritised on certain windfarms, e.g. with the largest differences between consented and as-built parameters, or where there may be the greatest potential to enable future development if as-built parameters can be legally secured.

Recommendation 2 – Provide policy support for the approach

Government policy and guidance needs to provide the framework to support the approach taken forward to securing as-built parameters in future consents, as well as the approach that will be taken by regulators when determining whether historic as-built parameters are secured.

This could include:

- Recognising the headroom issue, the commercial sensitivities for release of headroom, and encouraging the early release of headroom by providing policy support for securing as-built parameters using the non-material change process;
- Setting an expectation that consents will be drafted to secure as-built parameters through the ratcheting of the Rochdale Envelope as design is refined post consent; advising where this should be secured (i.e. in DCO requirements or DML conditions, or both); and setting the approach to drafting that should be followed to secure this in future consents;

- Requiring DML conditions for the notification of completion of construction, and explaining when construction will be deemed substantially complete if not previously notified (i.e. a close out condition);
- Requiring variation of historic Marine Licences (through powers under the MCAA 2009) or DCOs (such as if required as a HRA mitigation measure during a Review of Consents process) to include a close out condition (see above), or to deem through policy a close out condition and/ or clarify through policy that a new consent will be required for further works of construction where construction has long since been completed;
- Where not already included, requiring insertion of a close out condition (see above) on any non-material change application for a DCO (whether as a requirement of the DCO or through the corresponding variation of an associated deemed Marine Licence by the relevant regulator);
- Providing clarification that it will not be possible to use the previously consented Rochdale Envelope to justify a non-material change, and that the materiality of any change will be judged by reference to the as-built parameters once the Rochdale Envelope is refined post consent and/or notification received that construction has been completed;
- Advocating the use of legally secured as-built parameters in cumulative and in-combination assessments; and
- Providing guidance as to the circumstances in which headroom arising from previously issued consents should be taken into account in in-combination assessments and if it is taken into account, guidance as to how that headroom will then be treated by the competent authority.

There may be an immediate opportunity to achieve this through the planned updates to the National Policy Statement for Renewable Energy. This would have the advantage of prior consultation and setting a timeline for implementation of any change in approach so as not to disadvantage those with applications pending determination.

Recommendation 3 – Draft appropriate controls

Further cross-party engagement will be required to ensure that controls can be drafted which are fit for purpose.

A working group comprised of representatives from industry, SNCBs and regulatory bodies should be set up to draft and recommend appropriate requirements/ conditions to be used as standard practice for future consents under the DCO regime.

Recommendation 4 – Update collision risk estimates

How headroom might be treated or applied in future assessments was not within the scope of this report. In practice, this is a fundamental point to consider before any approach can be applied.

Following completion of the actions proposed in Recommendation 1, the implications of updating collision risk estimates to reflect as-built parameters will need to be considered. A further study

should be conducted to consider the extent to which updates might affect previous conclusions made on predicted impacts (if at all) as well as how any potential reductions in predicted cumulative and in-combination impacts should be treated or applied by future projects.

Recommendation 5 – Explore a new approach to in-combination assessment

There is currently a difference in approach, between jurisdictions and within industries, to assessment of cumulative and in-combination assessments. In the offshore wind sector as-built projects are treated as 'other plans and projects'; no distinction is made between operational windfarms and those which are not yet consented but 'on the table'. The question of whether as-built projects should be treated as falling within the baseline or as 'other plans and projects' for the purposes of in-combination assessment may assist in unlocking headroom from previously consented projects.

As this was not fully explored during the workshops, it is appropriate to consider further whether this might offer a solution, as well as considering any other potential implications which might result from such a fundamental change in approach.

9. Acknowledgements

With thanks to The Crown Estate's Offshore Wind Evidence and Change Programme, Womble Bond Dickinson (UK) LLP, DTA Ecology and GoBe, and for the many contributions of all those who attended the workshops, without which this report would not have been possible.

Appendix A: List of Participants

- Crown Estate Scotland
- Department of Agriculture, Environment and Rural Affairs
- DTA Ecology
- GoBe
- Joint Nature Conservation Committee
- Marine Management Organisation (Workshop 2 only)
- Marine Scotland
- Natural England
- Natural Resources Wales
- NatureScot (Workshop 1 only)
- Orsted
- RenewableUK
- RWE
- ScottishPower Renewables
- The Crown Estate
- Vattenfall
- Womble Bond Dickinson (UK) LLP
- Burges Salmon LLP