



## Wylfa Newydd Project

### 6.9.3 ES Volume I - Cumulative effects I3 - Methodology

PINS Reference Number: EN010007

---

Application Reference Number: 6.9.3

---

June 2018

Revision 1.0

Regulation Number: 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

[This page is intentionally blank]

# Contents

3	Methodology .....	1
3.1	Approach to assessment .....	1
	<i>Intra-project effects</i> .....	1
	<i>Inter-project effects</i> .....	8
	<i>Mitigation</i> .....	13
	<i>Significance of effects</i> .....	13
3.2	Limitations .....	13

[This page is intentionally blank]

## 3 Methodology

### 3.1 Approach to assessment

#### *Intra-project effects*

- 3.1.1 The assessment process starts with the predicted effects of ‘minor’, ‘moderate’ or ‘major’ significance, from the construction, operation and/or decommissioning of each of the individual developments within the Wylfa Newydd Project (as listed in appendix I3-1 master table of residual effects, Application Reference Number: 6.9.8). An assessment is then undertaken to evaluate the potential for the developments to interact with each other and thereby lead to potential cumulative effects. The topic-specific approaches to the assessment of intra-project cumulative effects are summarised below.

#### **Socio-economics**

- 3.1.2 Within the socio-economics topic, project-wide effects relate to wide-reaching effects such as the amount of local investment that would occur on Anglesey from the project; whilst individual development effects look at more specific, localised effects, such as worker spending in businesses in the vicinity of a development.
- 3.1.3 The project-wide socio-economic effects in chapter C1 (socio-economics) (Application Reference Number: 6.3.1) are already intra-project effects, affecting the economy across Anglesey and onto the north Wales mainland. For this reason, the intra-project Cumulative Effects Assessment (CEA) is limited to more localised effects on the communities near to the various Wylfa Newydd Project developments, and how these may act cumulatively.

#### **Traffic and transport**

- 3.1.4 The strategic traffic model includes all vehicle trips generated by, and associated with, each development within the Wylfa Newydd Project. The outputs from the strategic traffic model informed the assessments in chapter C2 (traffic and transport) (Application Reference Number: 6.3.2). Therefore, the effects presented in chapter C2 (Application Reference Number 6.3.2) are the intra-project cumulative effects and no further assessment of these effects is needed in this chapter.

#### **Public access and recreation**

- 3.1.5 The assessment of intra-project effects has considered effects on receptors located within the public access and recreation study areas of two or more of the developments within the Wylfa Newydd Project and/or the study area for assessment of project-wide effects on public access and recreation relating to traffic. Where receptors would be affected in more than one way, it has been determined whether the effects on access or recreational amenity would be increased in either severity or duration as a result of the spatial and/or temporal overlap of individual effects.

## Air quality

- 3.1.6 The methodology used for the CEA requires consideration of all residual effects that are minor adverse or greater. However, as explained in chapter B5 (air quality) (Application Reference Number: 6.2.5), the conclusions of the air quality assessments (dust, odour and air pollutants) predict either a significant or not significant level of effect across the specific study area rather than a determination of the significance on an individual receptor basis. The air quality assessment does not provide for any sub categorisation of the level of significance beyond 'significant' or 'not significant' (i.e. there is no categorisation of the significance into negligible, minor, moderate or major). Therefore, professional judgement has been exercised in order to determine which effects were taken into consideration in the assessment of cumulative effects.
- 3.1.7 For the assessment of dust, only the medium- or high-risk dust effects identified in the assessment for human receptors were considered within the CEA, and the appropriate receptors within the study areas close to the developments meeting these criteria were included within the matrix in appendix I2-1 (matrix of receptors affected by Wylfa Newydd Project and which developments affect them) (Application Reference Number: 6.9.6). Where a negligible or low risk of effect is identified, these are considered not substantive, particularly with the implementation of the good practice mitigation measures and are not likely to combine with dust effects from other developments to result in a larger cumulative effect. Therefore, negligible or low risk of effects identified in the assessment for human receptors are not considered within the CEA as the effects would remain not significant.
- 3.1.8 Similarly, for the assessment of odours, an approach has been adopted where only the small, medium or large adverse odour effects identified in the assessment for human receptors were considered within the CEA and set out in appendix I2-1 (Application Reference Number: 6.9.6). Where a negligible effect is identified, this is considered not substantive and would not combine with odour effects from other developments to result in a larger cumulative effect. Therefore, negligible adverse effects identified in the assessment for human receptors are not considered within the CEA, as the effects would remain not significant.
- 3.1.9 For exhaust emissions from plant, machinery and marine vessels, project-wide road traffic emissions or operational combustion plant emissions, only the medium and large adverse effects (i.e. the effect descriptors as described in chapter B5 (Application Reference Number: 6.2.5) which are not directly representative of the significance of effect) predicted for the changes in pollutant concentrations at human receptors were considered within the cumulative assessment, and set out in appendix I2-1 (Application Reference Number: 6.9.6). Negligible or small adverse effects would not contribute to significant cumulative effects. The results of the assessments presented in chapter C4 (air quality effects of traffic) (Application Reference Number: 6.3.4) and chapter D5 (air quality) (Application Reference Number: 6.4.5) show that at locations where there are predicted to be negligible or small adverse effects the total concentration remains well below the relevant air quality objectives. Therefore, even if these were considered within a CEA the effects would

remain not significant. Given the potential for increases in pollutant concentrations in close proximity to the Wylfa Newydd Development Area (based on the medium and large adverse effect descriptors predicted for the changes in nitrogen dioxide concentrations at human receptors due to emissions from plant, machinery and marine vessels as set out in chapter D5, Application Reference Number: 6.4.5), it was considered prudent to determine the intra-project effects of emissions associated with the construction and operation of the Power Station, other on-site development, the Site Campus and Marine Works combined with the project-wide road traffic emissions from the nearby A5025. It should be noted that the effects due to the project-wide road traffic emissions were predicted to be negligible at all human receptors within 200m of the A5025 within 2km of the Wylfa Newydd Development Area (see individual assessment in chapter C4, Application Reference Number: 6.3.4).

- 3.1.10 The combined effect was quantified for the emitted pollutants which are common to emissions associated with the construction and operation of the Power Station and road traffic emissions (i.e. NO<sub>x</sub>, NO<sub>2</sub> and PM<sub>10</sub>/PM<sub>2.5</sub>). The assessment of this specific intra-project effect is provided in appendix I4-2 (project-wide and WNDA Development intra-project air quality assessment) (Application Reference Number: 6.9.10). For all other intra-project developments, the emissions to air of the pollutants associated with construction and operation of each development were screened out from requiring a detailed assessment and were considered to be negligible (see air quality chapters E5, Application Reference Number: 6.5.5; F5, Application Reference Number: 6.6.5; G5, Application Reference Number: 6.7.5; and H5, Application Reference Number: 6.8.5). Therefore, an assessment of the intra-project cumulative effects with the Wylfa Newydd Project-wide road traffic emissions was not required and the human receptors in the study areas close to these developments with regard to pollutant emissions are not included within the matrix shown in appendix I2-1 (Application Reference Number: 6.9.6). Similarly, the predicted effects due to project-wide road traffic emissions were not required as the majority of effects were negligible at all human receptors within 200m of the affected road network within the Isle of Anglesey and mainland Wales study areas. Only a very small number of receptors were predicted to experience a small adverse effect close to the A5025. On this basis, human receptors relevant to the assessment of project-wide road traffic emissions on the Isle of Anglesey and on mainland Wales were not required to be included within the matrix in appendix I2-1 (Application Reference Number: 6.9.6).
- 3.1.11 It should be noted that the potential for significant effects on population and human health, including the combined effects, are considered separately in the comprehensive Health Impact Assessment report (Application Reference Number: 8.19).
- 3.1.12 Where potential intra-project cumulative effects were identified for human receptors (i.e. where the potential for a cumulative effect was identified based on the scale of the effect as described above, and there are common human receptors in the zones of influence of the Wylfa Newydd Project developments) an assessment was required. The significance of the

cumulative effects was determined using professional judgement based on a number of factors, including:

- the proximity of the identified human receptors within the zones of influence to the intra-project developments;
- the level of risk identified (dust and odour emissions);
- consideration of the embedded good practice and additional mitigation measures applied to each development; and
- the outcome of any quantitative modelling and predicted concentrations of pollutants using the same approach to assessing significance as described in chapter B5 (Application Reference Number: 6.2.5).

3.1.13 The intra-project effects on ecological receptors are covered within the terrestrial and freshwater ecology assessment, and these take into account contributing effects from a range of topics (i.e. not just air quality effects).

### **Noise and vibration**

3.1.14 For each receptor that is predicted to experience effects from more than one of the developments, or from at least one development and the project-wide road traffic noise effects, all the component noise levels (from each development or road traffic) were normalised to the  $L_{Aeq}$  noise indicator. Component contributions were then added together (using logarithmic addition) to provide a combined noise level in  $L_{Aeq}$  at each receptor.

3.1.15 Some receptors would have a dominant noise source (i.e. the noise from that one source would be within 2dB(A) of the combined noise level). In such cases, the assessment criteria for the dominant source were used to determine the cumulative significance of the effect (i.e. minor, moderate or major adverse).

3.1.16 For receptors with no dominant noise source, the combined noise level was assessed against each individual assessment criterion associated with the contributing sources to determine the significance of the cumulative effect. The most significant of the resulting cumulative effects for each receptor was then reported.

3.1.17 When compared to the individual development assessments reported in volumes C to H (Application Reference Number: 6.3 to 6.8), only predicted noise effects that would be more significant than those reported individually (e.g. moderate adverse rather than minor adverse for the same receptor) have been reported as intra-project cumulative noise effects. Predicted differences in noise levels within one significance category are considered too minor to be recognised as cumulative effects.

3.1.18 Please refer to chapter B6 (noise and vibration) (Application Reference Number: 6.2.6) and appendix B6-2 (Noise and Vibration Modelling and Assessment Methodology Report) (Application Reference Number: 6.2.21) for the technical basis for the assessment methodologies and criteria.



### **Conventional waste and materials management**

- 3.1.19 The effects relating to waste and materials are project-wide effects and cannot be attributed to individual developments. Therefore, all effects have been reported at a project-wide level in volume C (Application Reference Number: 6.3); therefore, the effects reported in chapter C6 (waste and materials management) (Application Reference Number: 6.3.6) are the intra-project cumulative effects.

### **Soils and geology**

- 3.1.20 The approach taken for soils and geology with regards to the intra-project CEA relied on professional judgement to evaluate the cumulative effects on each soils and geology receptor. The methodology was qualitative, taking into account the magnitude of the effects in the context of the geographic areas over which each receptor was considered (refer to chapter I2, scope, Application Reference Number: 6.9.2).

### **Surface water and groundwater**

- 3.1.21 In the assessment of intra-project cumulative effects, the individual effects identified for each development have been considered. With regard to surface water and fluvial geomorphology the method involves identifying surface water catchment areas and potential receptors within these and then determining if these receptors are likely to be affected by individual aspects and activities associated with the Wylfa Newydd Project. The spatial extent is therefore limited to the identified catchment areas. The assessment of effects focuses on changes to water quality and flow (including the timing of that flow), in addition to changes to flow mechanisms that could affect stream morphology. These individual effects are detailed in the surface water and groundwater chapters D8 (Application Reference Numbers: 6.4.8), E8 (Application Reference Numbers: 6.5.8), F8 (Application Reference Numbers: 6.6.8), G8 (Application Reference Numbers: 6.7.8) and H8 (Application Reference Numbers: 6.8.8). In chapter I4 (intra-project cumulative effects) (Application Reference Number: 6.9.4), the potential for an intra-project cumulative effect was then considered by looking at all of the individual effects, even where possible effects from individual activities are minor. This included the potential effect on a receptor from different elements of the Wylfa Newydd Project, and whether there are multiple effects via the surface water pathway, or via another pathway such as groundwater or air.
- 3.1.22 For groundwater, the method involved identifying receptors that are sensitive to changes in groundwater recharge, movement and quality, including the groundwater body itself (i.e. the groundwater is a sensitive receptor and also a pathway to other receptors). The spatial extents of the effects of each element or activity associated with the Wylfa Newydd Project have been defined, and in all cases none exceeded the study areas defined in chapter I2 (Application Reference Number: 6.9.2). Where possible effects were identified, even if they would be minor, the potential for several individual effects to combine to give a significant cumulative effect was considered. This is detailed in chapter I4 (Application Reference Number: 6.9.4).

- 3.1.23 To assess the intra-project cumulative effects, for surface water (including fluvial geomorphology) and groundwater, the individual effects which have been identified have been considered, and professional judgement (as defined in chapter B8, surface water and groundwater, Application Reference Number: 6.2.8) has then been applied to determine the magnitude of change that the cumulative effect could bring about. Where there is uncertainty in the assessment, a conservative approach has been followed and a potential significant effect has been identified.

### **Terrestrial and freshwater ecology**

- 3.1.24 Cumulative effects were considered for receptors predicted to experience a minor, moderate or major effect by more than one individual development within the Wylfa Newydd Project and where a spatial (primarily based on a 500m buffer) and temporal overlap exists with other individual developments.
- 3.1.25 The assessment also takes into account the spatial extent of effects relevant to other disciplines if these extended beyond the 500m study area described above and if receptors were potentially vulnerable to effects beyond this distance. The extent of these areas and how they were selected is discussed in the relevant topic chapters (e.g. see chapter B5 for air quality, Application Reference Number: 6.2.5; B6 for noise and vibration, Application Reference Number: 6.2.6; B8 for surface water and groundwater, Application Reference Number: 6.2.8; and chapter B9 for terrestrial and freshwater ecology, Application Reference Number: 6.2.9), although a summary of relevant topics is provided below.
- 3.1.26 The effects of changes to air quality were assessed based on good practice study areas described in chapter B5 (Application Reference Number: 6.2.5) (e.g. 350m for the effects of dust; 200m for the effects of traffic emissions; and 2km for emissions from construction plant, machinery and marine vessels (increased to 15km for European Designated Sites)). For individual developments that may result in changes to air quality, designated wildlife sites which may be sensitive to the effects of emissions from construction plant and machinery, and which have a spatial and temporal overlap with any other individual developments within the Wylfa Newydd Project, were identified. Further methodology information relating to the determination of significance and how this is interpreted in a CEA is provided in chapter B5 (Application Reference Number: 6.2.5).
- 3.1.27 The effects of changes to surface water and groundwater were assessed based on an identification of all sensitive ecological receptors with hydrological connectivity to an affected waterbody (see chapter B8, Application Reference Number: 6.2.8). For individual developments that may result in changes to the quality or quantity of surface water or groundwater, an assessment was undertaken to identify if hydrological connectivity existed with any other individual developments within the Wylfa Newydd Project. If connectivity existed and minor, moderate or major residual effects were predicted from an individual development alone, a cumulative assessment was undertaken, and professional judgement was applied to determine the magnitude of change that the cumulative effect could bring about. Where required, a precautionary approach was adopted to identify potential effects.

### **Landscape and visual**

- 3.1.28 An assessment has been made as to whether, cumulatively, the interaction of effects from each of the individual developments would lead to an increase in the overall significance of effect.
- 3.1.29 Two types of potential cumulative landscape and visual effect have been considered: those that result in more than one effect on the same receptor in a single location, for example, on a specific viewpoint; or those that arise from sequential effects, for example, more than one visual impact on a receptor at different sections of a route, or landscape impacts on a designated landscape in more than one location.

### **Cultural heritage**

- 3.1.30 The assessment of intra-project cumulative effects for cultural heritage was undertaken using professional judgement, based on the residual effects reported in the cultural heritage chapters D11 (Application Reference Number: 6.4.11), E11 (Application Reference Number: 6.5.11), F11 (Application Reference Number: 6.6.11), G11 (Application Reference Number: 6.7.11) and H11 (Application Reference Numbers: 6.8.11) of this Environmental Statement and their supporting appendices. Where residual effects of minor significance and above were identified in these assessments, the potential for intra-project cumulative effects was assessed.
- 3.1.31 Taking into account the residual significance of effect from these assessments, where there was the potential for an intra-project cumulative effect, professional judgement was used to assess the significance of this effect.

### **Coastal processes and coastal geomorphology**

- 3.1.32 The only effects arising from the Wylfa Newydd Project have been reported in the coastal processes and coastal geomorphology chapter D12 (Application Reference Number: 6.4.12); hence, there are no intra-project cumulative effects to report for this topic.

### **Marine environment**

- 3.1.33 The only effects arising from the Wylfa Newydd Project have been reported in the marine environment chapter D13 (Application Reference Number: 6.4.13); hence, there are no intra-project cumulative effects to report for this topic.

### **Radiological effects**

- 3.1.34 The only effects arising from the Wylfa Newydd Project have been reported in the radiological effects chapter D14 (Application Reference Number: 6.4.14); hence, there are no intra-project cumulative effects to report for this topic.

### **Shipping and navigation**

- 3.1.35 The only effects arising from the Project have been reported in chapter D15 (shipping and navigation) (Application Reference Number: 6.4.15); hence, there are no intra-project cumulative effects to report for this topic.

### **Inter-project effects**

- 3.1.36 The assessment process starts with the predicted effects of minor, moderate or major significance of the Wylfa Newydd Project as a whole (as listed in appendix I3-1, Application Reference Number: 6.9.8). An assessment is then undertaken to evaluate the potential for the Wylfa Newydd Project to interact with the projects on the short-list of Reasonably Foreseeable Future Projects (RFFPs) and thereby lead to potential cumulative effects.
- 3.1.37 The assessments are based on environmental information prepared by third parties, where available; where not available, professional judgement has been used. The topic-specific approaches to the assessment of inter-project cumulative effects are summarised below.

### **Socio-economics**

- 3.1.38 The type and scale of the socio-economic effects of the shortlisted projects were considered together with the identified effects of the Wylfa Newydd Project. Professional judgement was used to identify the potential for cumulative effects and the possible significance of these effects.

### **Traffic and transport**

- 3.1.39 Committed developments that are proposed to use sections of road within the study area defined in chapter C2 (Application Reference Number: 6.3.2) were included within the strategic traffic model and are therefore included in the effects presented in chapter C2 (Application Reference Number: 6.3.2). The exceptions to this were committed developments for which there was a lack of available information regarding traffic generation and distribution. For these, a qualitative assessment, based on professional judgement, was adopted. This approach was primarily applied to the National Grid North Wales Connection project.

### **Public access and recreation**

- 3.1.40 The assessment of intra-project effects has considered the individual effects identified in the public access and recreation chapters C3 (Application Reference Number: 6.3.3), D4 (Application Reference Number: 6.4.4), E4 (Application Reference Number: 6.5.4), F4 (Application Reference Number: 6.6.4), G4 (Application Reference Number: 6.7.4) and H4 (public access and recreation) together with the likely effects of the shortlisted RFFPs on any of the same receptors. Where receptors would be shared, it has been determined whether identified effects on access or recreational amenity would be increased in either magnitude or duration as a result of any spatial and temporal overlap of effects.

### **Air quality**

- 3.1.41 The approach for the assessment of inter-project cumulative effects relating to construction dust, odours and air pollutants is the same as that set out for the intra-project cumulative effects. The scale and likely risk of dust, odour or air pollutant effects associated with the RFFPs were estimated based on the proposed works and activities associated with each RFFP, including road traffic movements (based on available information such as Environmental Statements). It has been assumed that any RFFP with the potential to cause significant dust effects would also be required to follow the same assessment process to determine the required level of mitigation to reduce dust effects to a level that is considered to be not significant (and to have developed or agreed the mitigation with the appropriate regulators such as the Isle of Anglesey County Council or Natural Resources Wales).
- 3.1.42 Inter-project effects on ecological receptors are covered within the terrestrial and freshwater ecology assessment which considers the significance of the cumulative effects from a range of topics.

### **Noise and vibration**

- 3.1.43 Where sufficient information was available, and a potential spatial and temporal overlap with the Wylfa Newydd Project effects were identified, the noise sources associated with, and assessment methods used by each RFFP were identified.
- 3.1.44 Professional judgement was used to determine whether there was likely to be a dominant noise source at each receptor.
- 3.1.45 Professional judgement was used to identify the potential for inter-project cumulative effects that would be more significant than those identified for the Wylfa Newydd Project alone. Only predicted noise effects that would be more significant than those reported for the Wylfa Newydd Project (e.g. moderate adverse rather than minor adverse for the same receptor) have been reported as inter-project cumulative noise effects. Differences in noise levels within one significance category are considered too minor to be recognised as cumulative effects.

### **Conventional waste and materials management**

- 3.1.46 The assessment of inter-project cumulative effects considers the effect of waste and materials generated by the Wylfa Newydd Project and RFFPs on the receiving waste management facilities located within the study area. Residual effects that were assessed as being of minor, moderate or major significance in the topic chapter C6 (Application Reference Number: 6.3.6) have been reviewed for their potential to contribute to cumulative effects.
- 3.1.47 Due to lack of available waste and materials information for the RFFPs, professional judgement has been used to evaluate the interaction of the Wylfa Newydd Project with RFFPs to determine the potential inter-project cumulative effects.
- 3.1.48 Where projects have the potential to generate similar types of waste and materials over similar timescales, professional judgement has been used to

determine the likely effect on receiving waste management facilities within the study area.

### Soils and geology

- 3.1.49 The approach taken for soils and geology with regards to the inter-project CEA has relied on professional judgement to evaluate the cumulative effects on each soils and geology receptor. The methodology is qualitative, taking into account the magnitude of the effects in the context of the geographic areas over which each receptor was considered (refer to chapter I2, Application Reference Number: 6.9.2).

### Surface water and groundwater

- 3.1.50 In the assessment of inter-project cumulative effects, the individual Wylfa Newydd Project effects identified in the surface water and groundwater chapters D8 (Application Reference Number: 6.4.8), E8 (Application Reference Number: 6.5.8), F8 (Application Reference Number: 6.6.8), G8 (Application Reference Number: 6.7.8) and H8 (Application Reference Number: 6.8.8) have been considered alongside those which could potentially arise from each RFFP. The likely spatial extent of each of the potential effects from the Wylfa Newydd Project and the RFFP has then been considered to determine if they overlap. In order to assess the inter-project cumulative effects, the likely individual effects which have been identified for each RFFP within the identified study area have been considered and professional judgement has then been applied to determine the magnitude of change that the combined effect could potentially bring about. Where there is uncertainty in the assessment, a conservative approach has been applied.
- 3.1.51 Where there is detailed information regarding the RFFP (e.g. decommissioning of the Existing Power Station) this has been considered. However, for most of the RFFPs, detailed design of the works and proposed mitigation measures are not known in any detail. As such, in the assessment of inter-project cumulative effects on groundwater and surface water, it is assumed that good construction practice would be applied, as appropriate to the type of project, and that the works would conform to legal requirements. This approach also applies to the operation of the RFFP. For example, it is assumed that:
- a Flood Consequence Assessment would be undertaken, with measures identified to ensure that the project would not increase the flood risk;
  - operations would follow the requirements of the Water Resources (Control of Pollution) (Oil Storage) (Wales) Regulations 2016; and
  - construction works would be undertaken in line with published guidance, such as that produced by the Construction Industry Research and Information Association.

### **Terrestrial and freshwater ecology**

- 3.1.52 The inter-project CEA used the same study areas as described for intra-project effects, above. As a minimum, a 500m study area was considered around each RFFP. The study area was increased accordingly if the RFFPs were considered likely to result in changes to baseline conditions beyond 500m, as per the spatial extents described for intra-project effects (above) and as detailed in the relevant topic chapters (e.g. see chapter B5 for air quality, Application Reference Number: 6.2.5; B6 for noise and vibration, Application Reference Number: 6.2.6; B8 for surface water and groundwater, Application Reference Number: 6.2.8; and chapter B9 for terrestrial and freshwater ecology, Application Reference Number: 6.2.9). If the potential for cumulative effects to occur was considered likely, professional judgement was used to determine the magnitude of change that the cumulative effect could bring about. Where required, a precautionary approach was adopted to identify potential effects.

### **Landscape and visual**

- 3.1.53 The methodology used to establish spatial extent of landscape and visual effects is set out in chapter I2 (Application Reference Number: 6.9.2). The effects of the Wylfa Newydd Project have been reviewed in conjunction with each of the RFFPs for construction and operation. The significance of RFFP landscape and visual effects identified by third parties has been reviewed in conjunction with the cumulative effects of the Wylfa Newydd Project to assess the significance of inter-project cumulative effects.
- 3.1.54 Two types of potential cumulative landscape and visual effect have been considered: those that result in more than one effect on the same receptor in a single location, for example, on a specific viewpoint; or those that arise from sequential effects, for example, more than one visual impact on a receptor at different sections of a route, or landscape impacts on a designated landscape in more than one location.

### **Cultural heritage**

- 3.1.55 Where no assessment was available for RFFPs, design information, online aerial photography and professional judgement were used to assess the potential impact of RFFPs. Where design information for RFFPs was limited, professional judgement based on the scale, location and nature of projects was used to predict the potential effect on shared cultural heritage receptors.
- 3.1.56 Residual effects of minor or above significance identified from these assessments were taken forward and the potential for inter-project cumulative effects was assessed using professional judgement.

### **Coastal processes and coastal geomorphology**

- 3.1.57 The methodology used to identify and assess potential cumulative effects upon coastal processes and coastal geomorphology receptors is fully described in chapter B12 (coastal processes and coastal geomorphology) (Application Reference Number: 6.2.12). In short, where applicable, this has involved the combined modelling of hydrodynamic changes (for waves and

tidal currents) to evaluate the potential effects upon sediment mobilisation, transport and deposition.

- 3.1.58 For inter-project effects, this approach has been applied at the offshore disposal site, Holyhead North, which lies adjacent to an existing disposal site, Holyhead Deep. Here the combined effects of disposal operations of each site have been investigated using the Delft 3D hydrodynamic model. The methodology used, including the use of information and zones of potential influence have been presented to Natural Resources Wales as part of ongoing consultations.
- 3.1.59 The conclusions, detailed in appendix D13-8 (Marine Hydrodynamic Modelling Report – Wylfa Newydd Development Area) (Application Reference Number: 6.4.90), indicate that the proposed disposal activities associated with the Wylfa Newydd Power Station development are significantly smaller in volume and frequency when compared to the licensed volumes at the Holyhead Deep site. When these additional volumes are included within modelled scenarios, the magnitude of the potential increase in effect is negligible.

### **Marine environment**

- 3.1.60 The assessment has taken each marine environment receptor in turn and examined published evidence for all the shortlisted projects, in order to determine whether there is potential for inter-project cumulative effects to occur.
- 3.1.61 Where no formal assessment was available for a shortlisted project (indicative or otherwise), potential inter-project cumulative effects have been assessed by taking into consideration the scale and likely timescales of the project (commissioning, operation and decommissioning) as well as knowledge of similar projects and Environmental Impact Assessments. Where there is uncertainty in the assessment, a precautionary approach has been taken.

### **Radiological effects**

- 3.1.62 No minor, moderate or major radiological effects were identified for the Wylfa Newydd Project (with the Existing Power Station taken into account) and so no cumulative effects have been assessed.

### **Shipping and navigation**

- 3.1.63 The approach taken for shipping and navigation to assess inter-project effects has relied on professional judgement to evaluate the cumulative effects on each shipping and navigation receptor.
- 3.1.64 The individual Wylfa Newydd Project effects identified in chapter D15 (Application Reference Number: 6.4.15) have been considered alongside those which could potentially arise from each shortlisted RFFP. The likely vessel movements for each RFFP have been considered to determine whether vessels are likely to transit the study area. The likely individual effects which have been identified for vessels within the study area for each RFFP have then been considered and professional judgement has been applied to



determine the magnitude of change that the combined effect could potentially bring about.

### ***Mitigation***

- 3.1.65 In cases where the identified cumulative effects would be more significant than the contributing individual effects, additional mitigation measures for cumulative effects are identified, where practicable. The reasons why any such additional mitigation is required, or why none is proposed for some effects, are described in chapters I4 (Application Reference Number: 6.9.4) and I5 (inter-project cumulative effects) (Application Reference Number: 6.9.5).
- 3.1.66 It will not always be possible for Horizon to mitigate inter-project cumulative effects without the input of third-party developers. At the time of submission of the application for development consent, consultation is ongoing with relevant developers regarding the development of mitigation measures.

### ***Significance of effects***

- 3.1.67 This CEA has used the professional judgement of competent experts suitably experienced in the environmental assessment of complex projects. The approach to the CEA has been consistent with the Environmental Impact Assessment methodology and uses the same sensitivity, magnitude and significance criteria. Additive and combined cumulative effects have been identified where appropriate.
- 3.1.68 It should be noted that the assessment presented in this chapter has considered all the minor, moderate and major residual effects likely to arise from the Wylfa Newydd Project (i.e. effects that would remain following the application of mitigation measures as detailed in volumes C to H, Application Reference Number: 6.3 to 6.8). The inclusion of minor effects is in recognition of the fact that effects that are not considered significant individually, have the potential to contribute to significant cumulative effects.
- 3.1.69 When assessing whether a receptor would be affected by other developments or projects, consideration was given to the likely residual effects upon a receptor as a result of each development or project, and whether those residual effects would be likely to contribute to cumulative effects.

## **3.2 Limitations**

- 3.2.1 The inter-project CEA presented in this report relies upon environmental information and assessments reported by third-party developers for their projects. No further survey, modelling or assessment of those projects has been undertaken to fill any information gaps. Where no information is readily available, professional judgement has been used, based on the scale, location and nature of the project in question. Sources of information or assumptions where appropriate are identified in chapter I5 (Application Reference Number: 6.9.5).
- 3.2.2 It should be noted that the certainty associated with the assessment of cumulative effects is necessarily lower than that associated with non-

cumulative assessments. This is due to the variable quantity and quality of data available for other projects considered in the CEA and the difficulties of considering cumulative effects on receptors, particularly ecological receptors.

- 3.2.3 Levels of significance are given for effects, where possible. Where this is not possible, a reason is provided.