HORIZON NUCLEAR POWER

WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Wylfa Newydd Project

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Wylfa Newydd Project

Horizon Nuclear Power

Transport Assessment Scoping Note

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2.0	20/04/2017	Final	KGB	SNM	SNM	ARW
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4.0	02/08/2017	Final (incorporating client comments)	MF	DP	DP	RB
5.0	29/09/2017	Minor updates for policy changes	SNM	HT	HT	RB

Contents

Disclaimer

1. Introduction

The purpose of this Scoping Note is to provide a high level outline of the principles and methodology for the Transport Assessment (see App C2-4 - DCO Transport Assessment (Application Reference Number: 6.3.14)) that would support the Development Consent Order (DCO) submission for the Wylfa Newydd Project. In addition it has been discussed with stakeholders (including the Transport Focus Group meetings) so that it meets their requirements and, where appropriate, accommodates other comments received during the Stage Two Pre-Application Consultation. It contains a proposed structure for and outlines the information that is likely to be provided under each heading.

Where appropriate, comments from Stage Two Pre-Application Consultation and Stage Three Pre-Application Consultation will be incorporated into App C2-4 (Application Reference Number: 6.3.14).

2. Methodology

2.1 Overview

The overarching methodology for the production of App C2-4 (Application Reference Number: 6.3.14) is outlined below and is based on the proposed structure of App C2-4 (Application Reference Number: 6.3.14) report, which is consistent with relevant guidance and broadly follows that produced for the Hinkley Point C project.

2.2 Proposed Transport Assessment Report Structure

1) Chapter 1 – Executive Summary

2) Chapter 2. Introduction.

   This will outline the background to the Wylfa Newydd Project and the purpose of App C2-4 (Application Reference Number: 6.3.14). It will describe the Wylfa Newydd Project itself, introduce the transport proposals that form the overaching App C2-4 - DCO TA Appendix F - Integrated Traffic and Transport Strategy (Application Reference Number: 6.3.20) and explain that App C2-4 (Application Reference Number: 6.3.14) assesses the impacts of App C2-4 Appendix F (Application Reference Number: 6.3.20).

3) Chapter 3. Policy Context.

   This will summarise the relevant policy, legislation and guidance documents used to produce App C2-4 (Application Reference Number: 6.3.14), such as the overarching National Policy Statement for Energy (EN-1), the National Policy Statement for Nuclear Power Generation (EN-6), Planning Policy Wales *Technical Advice Note 18* (TAN18), Design Manual for Roads and Bridges, the Highways Act and the Supplementary Planning Guidance document produced by the Isle of Anglesey County Council for the Wylfa Newydd Project. In particular, the following extracts from EN-1 and EN-6 are relevant to App C2-4 Appendix F (Application Reference Number: 6.3.20) and the App C2-4 (Application Reference Number: 6.3.14):-

   EN-1, para 5.13.7: *"Provided that the applicant is willing to enter into planning obligations or requirements can be imposed to mitigate transport impacts identified in the NATA/WebTAG transport assessment, with attribution of costs calculated in accordance with the Department for Transport's guidance, then development consent should not be withheld, and appropriately limited weight should be applied to residual effects on the surrounding transport infrastructure."*

   EN-1, para 5.13.8: *"Where mitigation is needed, possible demand management measures must be considered and if feasible and operationally reasonable, required, before considering requirements for the provision of new inland transport infrastructure to deal with remaining transport impacts."*

   EN-1, para 5.13.9: *"The IPC should have regard to the cost-effectiveness of demand management measures compared to new transport infrastructure, as well as the aim to secure more sustainable patterns of transport development when considering mitigation measures."* The current strategy regarding water-borne transport is based on the provision of the MOLF. App C2-4 Appendix F (Application Reference Number: 6.3.20) provides further details on water-borne transport.

   EN-1, para 5.13.10: *"Water-borne or rail transport is preferred over road transport at all stages of the project, where cost-effective."* The App C2-4 Appendix F (Application Reference Number: 6.3.20) sets out the methodology for the modes of transport that were chosen for freight movements.

   EN-6, para 3.15.2: *"Applications should demonstrate that the proposed development would not have an unacceptable adverse impact on significant infrastructure. The IPC should take into account any local authority impact report, advice from the relevant Nuclear Regulators and relevant policy in NPSs in assessing impacts on significant infrastructure and resources."*

EN-6, para 3.15.3: *"In particular, the Nuclear AoS identified that there may be adverse effects during the construction and decommissioning phases on regional transport networks that may already be under stress, particularly where there are clusters of potentially suitable sites for new nuclear power stations. In considering this issue the policy set out in Section 5.13 of EN-1 (Transport and Traffic impacts) applies."*

In further recognition of NPS EN-1 para 5.13.3 the modelling of the traffic effects of the Wylfa Newydd DCO Project will have due regard for modelling guidance set out in WelTAG.

4) Chapter 4. Existing Situation.

This section will define the study area and identify the key routes of interest. The proposed study area covers relevant transport infrastructure in North Wales. For the highway network, this is currently the A55 from Junctions 1 to 11, the A487 from its junction with the A4087 to its junction with the A5 at The Antelope public house, the A5 from its junction with the A487 at The Antelope public house to Junction 8a of the A55 (commonly referred to as the Menai loop), the A5025 between Valley and the proposed site access into the Wylfa Newydd Development Area, the A5025 from the proposed site access into the Wylfa Newydd Development Area to Amlwch, the A5025 from Amlwch to Menai Bridge and the B5111/B5112 through the centre of Anglesey. This chapter would also clearly state the baseline information on all transport modes within the study area. Diagrams would be provided to aid the above descriptions. This section would also detail the different traffic surveys that have been undertaken to identify existing traffic flows on the key routes within the study area. This section would also review the number of accidents that occurred in the study area over the most recent five year period (01 January 2011 to 31 December 2015).

5) Chapter 5. Proposed Development.

This section would provide relevant detailed information on the Wylfa Newydd Project associated with traffic and transport, which would be assessed within App C2-4 (Application Reference Number: 6.3.14). Such information would include:

a) Wylfa Newydd Power Station. This would briefly describe the new Power Station and associated on-site facilities.

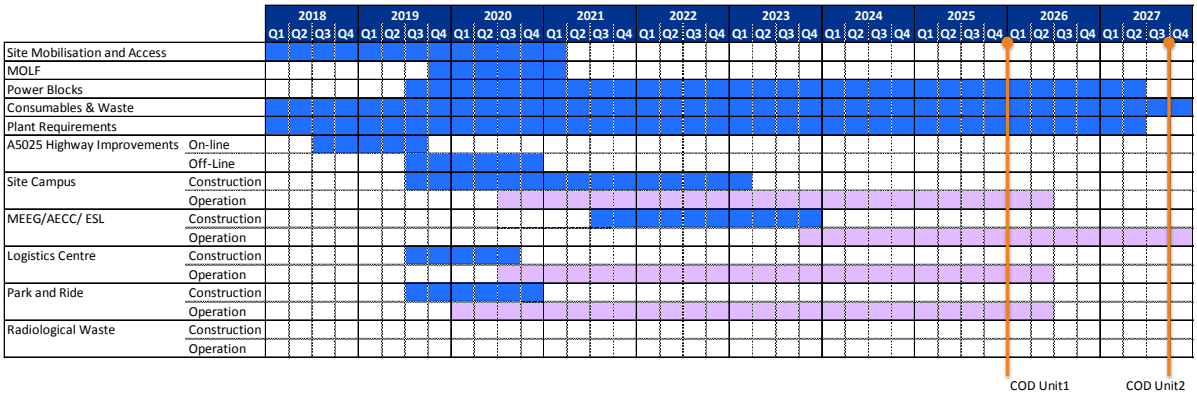
b) Associated Development. This would briefly explain the roles and locations of the Park and Ride, Logistics Centre and the Site Campus;

c) Operational facilities. This would briefly explain the roles and locations of the off-site Mobile Emergency Equipment Garage, Alternative Emergency Control Centre and Environmental Survey Laboratory.

d) Scheduled outage. This would explain that there would be periods where each Generating Unit undergoes routine maintenance.

e) Timeline diagram. In order to construct Wylfa Newydd Power Station, a number of other developments need to be constructed and become operational. These developments are to be constructed at different times within the overall programme and each have their own construction durations, i.e. one development might take nine months starting in Year 1, whereas another development might take 18 months starting in Year 2. The Timeline diagram summarises this in one simple diagram, as Figure 1.

Figure 1: Proposed Construction Programme



f) Embedded Mitigation measures. This section would reiterate that the design of the Wylfa Newydd Project contains embedded mitigation measures as a result of the App C2-4 Appendix F (Application Reference Number: 6.3.20) described above i.e. the Marine Off-Loading Facility, Logistics Centre, Temporary Workers' Accommodation, Park and Ride (and its associated shuttle buses), shuttle buses from Bangor, Caenarfon and Holyhead, car sharing, A5025 Off-line Highway Improvements; App C2-4 (Application Reference Number: 6.3.14) would demonstrate how this is linked to the policy. App C2-4 Appendix F (Application Reference Number: 6.3.20) would include a description of all mitigation proposed and the justification for each measure included. The A5025 On-line Highway Improvements are the subject of a separate application in advance of the DCO application and hence are considered separately from the DCO application. However, the A5025 On-line Highway Improvements have no effect on traffic flows once they become operational as the improvements are minor highway realignments. For these reasons, the A5025 On-line Highway Improvements are considered to be embedded mitigation but will not be considered further within App C2-4 (Application Reference Number: 6.3.14) for the DCO application.

g) Committed Development. This section will outline all permitted development within the study area.

h) Other transport improvements. This section identifies any proposed transport infrastructure improvements in Anglesey and/or North Wales that are likely to be completed before and/or during construction of the Wylfa Newydd Project.

6) Chapter 6. Integrated Traffic and Transport Strategy.

This section would summarise the overarching transport proposals being developed and which are embedded within the design of Wylfa Newydd Project to reduce the associated transport effects. It would describe how the proposals integrate with each other to provide a comprehensive strategy and assesses the proposals against local, regional and national policy. App C2-4 Appendix F (Application Reference Number: 6.3.20) will reflect feedback received on the Project through formal consultation and ongoing stakeholder engagement. It would provide brief descriptions of the Marine Off-Loading Facility, Logistics Centre, Temporary Workers' Accommodation, Park and Ride (and its associated shuttle buses), shuttle buses from Bangor, Caernarfon and Holyhead, car sharing and the A5025 Off-line Highway Improvements. A review of existing facilities such as HGV parking, welfare and refuelling would be assessed and included in the Wylfa Newydd CoCP. App C2-4 (Application Reference Number: 6.3.14) assesses the effects of App C2-4 Appendix F (Application Reference Number: 6.3.20).

7) Chapter 7. Trip Generation

This section would provide detailed information on the derivation of the construction worker trips, construction Heavy Goods Vehicle (HGV) trips, operational worker trips and operational HGV trips; other transport modes were considered as part of App C2-4 Appendix F (Application Reference Number: 6.3.20). It would clearly explain that a realistic worst case scenario is being considered, such as worst case scenario for construction worker numbers (9,000 instead of the potential for 8,000), worst

case numbers of HGVs (due to only 60% of materials by the MOLF instead of the potential for 80%), worst case scenario for HGVs due to the inclusion of contingencies and worst case scenario in assuming that all road deliveries are by HGV (instead of the potential for LGVs). Such information would include:

a) Construction workers. Advice has been sought from contractors and construction management companies who have experience of construction projects of this size. The estimated numbers of construction workers has been derived from first principles i.e. an assessment would be made of all the various types of construction needed across the entire construction programme, the types of workers' trades needed, and the overarching construction programme. Estimates have also been made of the numbers of workers required to operate the other facilities such as Temporary Workers' Accommodation. For assessment purposes, a peak worker requirement of 9,000 workers is assumed. A profile of the worker numbers would therefore be provided in this section of App C2-4 (Application Reference Number: 6.3.14). A proportion of the construction workers would commute on daily basis to work on both day shifts and night shifts, and with staggered starts and hence staggered finishes. This section of App C2-4 (Application Reference Number: 6.3.14) would therefore include simple information on the numbers of construction workers on the various shift patterns. In addition to the daily commute described above, there would also be travel associated with construction workers returning to their permanent homes i.e. there would be a 'weekend effect' associated with worker travel.

b) Construction freight traffic. The estimated numbers of HGVs and LGVs have been derived from first principles i.e. an assessment is made of all the various types of materials needed and their associated tonnages. Consideration has then been given to the likely origin of the materials. This information, together with the construction programme for Wylfa Newydd Project, has then been used to estimate the monthly profiles of the numbers of marine vessels and HGVs and LGVs over the entire construction programme. A significant proportion (60% to 80%) of the total materials required for the Wylfa Newydd Project would be delivered by marine vessels via the Marine Off-Loading Facility directly into the Wylfa Newydd Development Area. Accordingly these materials would not utilise the road transport network on Anglesey or elsewhere in the UK. Delivery 'windows' have been used to estimate the numbers of HGVs and LGVs per hour (allowing for peaks at the start of the delivery windows when HGVs and LGVs have parked up overnight at the Logistics Centre so that they can deliver their loads as soon as the delivery window opens).

c) Operational workers. Estimates have been made of the likely numbers of workers required to operate Wylfa Newydd Power Station, and their associated shifts. This includes estimates of the numbers of security staff etc. In total, it is expected that approximately 850 operational workers would be required. During periods of scheduled outage an additional 1,000 staff would be required. All the above information would be provided in this section of App C2-4 (Application Reference Number: 6.3.14).

d) Operational freight traffic. At this stage, exact numbers of HGV and LGV deliveries associated with the operation of the Wylfa Newydd Power Station are not known. Estimates would therefore be made by relating numbers for the new Power Station to their equivalent for the Existing Power Station.

e) Parking demand. This section will investigate the level of parking demand required for daily use (including night shift) and weekend parking at the Wylfa Newydd Development Area and the Park and Ride.

f) Daily and weekend travel profiles. This section investigates the travel profiles on a daily and weekend basis.

g) Abnormal Indivisible Loads (AILs). This section identifies the anticipated number of AILs that will use the existing road network to travel to the Wylfa Newydd Development Area.

8) Chapter 8. Trip Distribution

This section would provide detailed information on how the construction and operation vehicles are distributed across the study area. Such information would include:

a) Construction Workers. A proportion of the construction workers would be home-based on Anglesey or the mainland, whilst the remainder would live in Temporary Workers' Accommodation on-site or in non-home-based accommodation. For those construction workers living outside the Temporary Workers' Accommodation, a gravity model has been produced to estimate where such workers would live. The distribution of those workers by Ward would inform the worker travel proposals within App C2-4 Appendix F (Application Reference Number: 6.3.20), hence indicating the associated numbers of vehicles and their access routes.

b) HGVs. The HGV access route has been identified, with the vast majority of HGVs expected to use the A55 across North Wales, and a small minority from the A5, then travelling from the mainland via the A55 Britannia Bridge and then the A5025 between Valley and the Wylfa Newydd Development Area. All HGVs would be routed via the Logistics Centre to ensure deliveries are managed in order to manage numbers travelling along the A5025.

9) Chapter 9. Assessment Methods

This section would provide detailed information on how the assessments would be undertaken. Such information would include:

a) Growth factors. This section of App C2-4 (Application Reference Number: 6.3.14) would clearly set out how the future scenario without the Wylfa Newydd Project in place would be established, using a combination of growth factors (National Trip End Model(NTEM)/Regional Traffic Forecasts (RTFs) etc) and committed developments (but avoiding double-counting).

b) Strategic Traffic Model. A bespoke macro-based spreadsheet traffic model has been produced, covering the study area, to forecast the future traffic flows both with and without the Wylfa Newydd Project in place. This has been the subject of stakeholder liaison as part of the Transport Focus Groups. The model is capable of outputting hourly turning flows for any quarter year for any scenario for use within the assessments to be undertaken and presented as part of App C2-4 (Application Reference Number: 6.3.14). Extensive checking procedures will be undertaken of the inputs and the structure of the macros that form the model, with logic checks undertaken of the outputs.

c) VISSIM Model. A micro-simulation traffic model has been produced to assess the impacts of additional Wylfa Newydd Project traffic on the operational of the A55 Britannia Bridge and the A5 Menai Bridge, together with the surrounding junctions. This has been the subject of stakeholder liaison as part of the Transport Focus Groups. The results of the modelling would be summarised in App C2-4 (Application Reference Number: 6.3.14), but reported in detail in a separate report that is likely to form an Appendix to App C2-4 (Application Reference Number: 6.3.14).

d) Detailed junction assessments. In advance of detailed junction assessments being undertaken, a 'threshold' assessment would be undertaken. Hourly flows from the Strategic Traffic Model would be used to undertake Design Manual for Roads and Bridges (DMRB) priority junction and roundabout junction calculations to give a preliminary indication of the change in Ratio of Flow to Capacity (RFC) with the Wylfa Newydd Project in place compared to those without Wylfa Newydd Project in place. For those junctions that exceed capacity (taken to be an RFC of equal to or greater than 0.85) or approach capacity (taken to be an RFC of equal to or greater than 0.70) in any scenario, detailed junction assessments where required would then be undertaken using Junction 9 software or LinSig v3.2.18. In this way, a threshold is set to focus detailed assessments only on those junctions where greater scrutiny is required. It is proposed to assess the busiest hour at each junction. As traffic flows with and without the Wylfa Newydd Project would vary within the year, due to seasonality of non-Project traffic and due to hourly variations in the Wylfa Newydd Project traffic,

the detailed junction assessments would be based upon the busiest hour for the combined flows for Wylfa Newydd Project traffic plus non-Wylfa Newydd Project traffic (between 05:00-10:00 and 15:00-20:00 for weekdays and for the entire days at weekends). As a consequence, each junction would be tested at its busiest in each scenario. For example, this could mean that the busiest hour at a junction without the Wylfa Newydd Project could be 08:00-09:00 in the weekday AM peak period, but could be 07:00-08:00 with the Wylfa Newydd Project.

e) Merge/ diverge assessments. Capacities at merges on the A55 Junctions 2 to 9 will be assessed using *Design Manual for Roads and Bridges Volume 13 Section 1 Chapter 6 Queuing Delay* (Department for Transport, May 2002). Regard would also be given to *TD 22/06 Layout of Grade Separated Junctions* (Department for Transport, February 2006) and in particular, figure 2/3 AP All-Purpose Road Merging Diagram. As with the junction assessments, merge/ diverge assessments would be undertaken for the busiest hours with and without the Wylfa Newydd Project and hence could be different hours as described above.

f) Safety/accidents. Accident analysis would be based on the latest available complete five years of STATS19 data. Key routes would be identified within the study area and the average numbers of accidents per route identified. Estimates of the increases in accidents along each route would be based upon the percentage change in total Annual Average Daily Traffic (AADT) flows with and without the Wylfa Newydd Project in place. The assessment would also include consideration of the change in percentage of HGVs on the routes. Accident cluster sites would be identified and common causes considered.

g) Stage 1 Road Safety Audits. These would be undertaken for all highway improvements.

10) Chapter 10. Assessment Scenarios.

This section would clearly state the assessment scenarios considered within App C2-4 (Application Reference Number: 6.3.14). For the Wylfa Newydd Project scenario, one single scenario would be assessed, namely the realistic worst case scenario described above for HGVs, worker numbers and their distribution. The most realistic shift pattern would also be used. The Wylfa Newydd Project scenario would be compared against a Reference Case scenario (i.e. the future situation without the Wylfa Newydd Project in place). Assessments would be undertaken for three years, all of which would compare the Wylfa Newydd Project traffic after the opening of the A5025 Off-line Highway Improvements against a baseline of no Project traffic and no Off-line Highway Improvements:

a) **Year A (2020):** opening year of the A5025 Off-line Highway Improvements;

b) **Year B (2023):** year for peak construction traffic; and

c) **Year C (2033):** year for peak operational traffic.

There are two other projects that are dependent upon the Wylfa Newydd Project going ahead, namely the North Wales Connection project by National Grid and the Wylfa Newydd Potable Water Supply project by Welsh Water. If the Wylfa Newydd Project does not go ahead, neither of these projects would go ahead. A targeted assessment would be undertaken of the Cumulative scenario to consider the traffic impacts of Wylfa Newydd Project plus the two dependent developments. This would be undertaken by making best use of publically available information .

11) Chapter 11. Assessment Results.

This section would summarise the results of the assessments for the three assessment years. Traffic flows would be summarised in a series of diagrams; junction assessment results would be summarised in a series of tables, whilst the detail would be contained in a series of appendices.

12) Chapter 12. Mitigation.

As described above, a series of mitigation measures are embedded within the design of the Wylfa Newydd Project i.e. the Marine Off-Loading Facility, Logistics Centre, Temporary Workers' Accommodation, Park and Ride (and its associated shuttle buses), shuttle buses from Bangor, Caenarfon and Holyhead, car sharing, A5025 Off-line Highway Improvements. The results of the VISSIM modelling for Britannia Bridge/Menai Bridge would identify the need (or otherwise) for mitigation in that area. Other localised mitigation that may be required would be considered as the effects are assessed.

13) Chapter 13. Code of Construction Practice (CoCP) and Code of Operation Practice (CoOP).

The DCO Application would be supported by a CoCP that would identify the standards and measures required to plan, manage and control all construction activities during the development of the Wylfa Newydd Project. The CoCP for the Project would also include the HGV and worker vehicle access routes and state the number of parking spaces at the Wylfa Newydd Development Area. Site specific sub-CoCPs would provide additional construction mitigation measures relating to specific locations, such as the Park and Ride. Contractors would be required to provide their Construction Environmental Management Plan to demonstrate how they would manage their works in accordance with Horizon's CoCP and (where relevant to specific locations) the sub-CoCPs. Contractor's Construction Traffic Management Strategies (CTMSs) would form part of the Construction Environmental Management Plan. These would include both bespoke and industry standard measures. A CoOP would also be produced, setting out the same principles but for the operational stage, including an Operational Travel Plan (OTP).

14) Chapter 14. Conclusions.

This section would provide a summary to all the above and draw out key conclusions.