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The North Wales Wind Farms Connection Project

Environmental Statement Chapter 1 -
Introduction

Technical Appendix 1.3 Part C

Application reference: EN020014

March 2015



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Environmental Statement

Appendix 1.3 (Part C) Proposed Collector Substation Clocaenog Forest

Environmental Report Appendix C

Traffic and Transport

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The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(a)

The Planning Act 2008

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Note: This Report was submitted to Denbighshire County Council in December 2014 in support of a planning application (Ref 23 / 2014 /1440) for the proposed Collector Substation.



Proposed Collector Substation Clocaenog Forest
Environmental Report

Appendix C

Traffic and Transport

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C. TRAFFIC AND TRANSPORT

C.1 Baseline Context

Local Highway Assessment

C.1.1 Although this report relates to the proposed Collector Substation the information below has been provide for completeness and covers the traffic assessment of the proposed overhead line, which will be the subject of a future application in 2015 for a development consent order under the 2008 Act. The Collector Substation, the proposed overhead line, the underground cable and the works at St Asaph substation are referred to in this Appendix C as the "preferred connection."

C.1.2 The preferred connection can be divided into three distinct sections:

- Clocaenog - from the proposed Collector Substation to south of the Afon Ystrad (described in Chapter 10) (Section 1);
- Central section – from north of the Afon Ystrad to south of River Elwy (Section 2); and
- St Asaph - north of the River Elwy to the existing substation (Section 3).

Central Section

C.1.3 North of Denbigh running to the west is the B5382 through Henllan linking to Llansannan and Llangernyw and the A548.

C.1.4 It has long sections where two lanes are marked and short sections where cars and smaller HGV's can pass but two full size HGV's would pass with care.

C.1.5 Also linking to and through to the east of Denbigh is the A543 route from the south west at Pentrefoelas where it connects to the A5 a high standard classified road.

C.1.6 It has long sections where two lanes are marked and short sections where cars and smaller HGV's can pass but two full size HGV's would do so with care.

C.1.7 A connecting route, the B5428, runs southerly from the B5382 at Henllan to the A543 at Groes. This route is largely unmarked but accommodates two cars and smaller vehicles but larger HGV's pass with care.

C.1.8 Between the A543 and the B4501, the B5382 and A543 and north of the B5382 corridors are a number of unclassified roads connecting to farms and dwellings. These roads vary in width averaging about 3.0m with irregularly located places to allow vehicles to pass. The roads are very lightly trafficked.

St Asaph

C.1.9 North of St Asaph is the A55 North Wales Expressway a dual carriageway running west to Bangor liking to the A5 and Holyhead. To the east it links to the A494 at Ewloe. These routes wrap around the City of Chester and both connect to the M56.

- C.1.10 The A55 at St Asaph's has two junctions 26 and 27. Junction 27 directly links to St Asaph via The Roe. It connects to the B5381 Glascoed Road which has two marked lanes running to the west and Penrefail crossroads. Some 2.2km to the west of St Asaph the route serves the St Asaph Business Park and the existing St Asaph substation.
- C.1.11 The Business Park area connects back to the A55 at Junction 26 via Ffordd William Morgan.
- C.1.12 To the south of the B5381 are a number of unclassified roads connecting to the residential area of Groesfordd Marli, farms and individual dwellings. These roads vary in width averaging about 3.0m with irregularly located places to allow vehicles to pass.
- C.1.13 There is a primary school at Cefn Meiriadog which has associated traffic movement, other than this the roads are very lightly trafficked.

C.2 Baseline flows

- C.2.1 To understand the existing traffic movements on the classified road network a series of automatic traffic counts (ATC) surveying flows over a 24 hour 7 day period have been carried out.
- C.2.2 These include:
- B4501 south west of Denbigh linking to the Collector Substation and the proposed temporary storage area (referenced as compound A on Figure 10.1);
 - A543 west of Denbigh, associated with the Construction Compound at Broadleys Farm (Reference B on Figure 10.1);
 - B5428 south west of Henllan linking to the A543;
 - B5382 west of Henllan;
 - Llannerfydd Road west of Henllan;
 - Unclassified road east primary school at Cefn Meiriadog; and
 - B5381 west of the roundabout with Ffordd William Morgan associated with the exiting St Asaph substation and the proposed temporary storage area (Reference C on Figure 10.1).
- C.2.3 Traffic counts are provided in Table C.1 below

Table C.1: ATC Flows

Location	2014 surveyed 12-Hour Traffic Flows (Two way traffic flows)	
	Total Vehicles	HVs
B5381 west of Jct 26	796	47
Unclassified road	203	4
Llannerfydd Road	653	37
B5382	1603	43
B5428	289	11
A543	2045	66
B4501	531	16

C.3 Assessment of Effects

C.3.1 In order to undertake the assessment an understanding of the construction for each part of the preferred connection and the movements associated with each task is needed, a summary is set out below.

Construction

C.3.2 During the construction phase it will be necessary to establish a temporary construction compound. This compound will include welfare facilities for the workforce throughout the construction phase of the works and will have a number of portable cabins together with a material store with temporary lighting. A site at has been identified at Broadleys Farm (Ref B on Figure 10.1) which fronts the A543 and will hence facilitate the convenient delivery of materials.

C.3.3 At convenient places along the route, temporary lay down areas will be required for the dispersal of plant and equipment. In identifying temporary storage areas care is undertaken to minimise disruption to local traffic and to ensure potential environmental effects are fully mitigated. Typically these lay down areas will measure a minimum of 50m x 50m and will be level such that articulated lorries can be safely unloaded.

C.3.4 It is intended that the existing St Asaph substation and the proposed new Collector Substation at Clocaenog will be utilised as the temporary storage areas (Ref A and C on Figure 10.1). From here, poles will be taken to their individual locations, as close to their final position as possible, by general purpose vehicles with incorporated lifting devices. An advance warning vehicle with flashing beacons may have to accompany the lorry along some routes as some of the poles will overhang the bed of the lorry. Tractors and trailers or excavators will be used if necessary to transport the poles to their individual peg positions. Where practical all large vehicle movements will be minimised to avoid areas of high congestion during busy periods.

- C.3.5 The conductor will be delivered on cable drums by general purpose vehicles as close as possible to the angle or tension pole sites from which the conductors will be pulled. If necessary tractors adapted to carry such loads are used to transport the drums to the pole sites.
- C.3.6 All OHL conductors, steelwork, insulators and fittings will be centrally stored and managed within the secure storage area and delivered to site by a general purpose 4 x 4 lorry. An indicative list of vehicle movements for the construction of a typical 1.5km section of line with 18 structures, two requiring non-standard foundations, is provided in Table C2 below. For each section it is assumed that there are three accesses off the highway with underline access available.

Access Routes

- C.3.7 Access will be required to each pole position on an on-going basis throughout the duration of the works. All vehicle movement will be kept to the minimum practicable. Wherever possible, construction mitigation will be taken to minimise disruption during the construction phase, for example by only using suitably sized vehicles and equipment as is necessary to complete the works.
- C.3.8 Typically access is required for excavators (wheeled JCB and/or tracked 360 degree excavator), 4x4 Lorries (often with a crane) and 4x4 pick-ups. Subject to access constraints the poles will tend to be erected in sequence from one end of the route to the other albeit there may be construction operations at multiple work locations.

Movements

- C.3.9 These are identified into the three sections, to enable a combined assessment as the Collector Substation works will overlap with the overhead line works in the local area and the work to install the underground cable to St Asaph will overlap with the overhead line works in the local area and similarly.
- C.3.10 The overhead line is approximately 17km long and construction is currently programmed to take 16 months from June 2016
- C.3.11 An indicative list of vehicle movements for the construction of a typical 1.5km section of line with 18 structures, two requiring non-standard foundations, is shown in Table C2 below, each 1.5km section will take 10 working days to complete based on a 5 month programme.

Table C.2: Overhead Line - Movements for a 1.5km Section

Activity / Vehicle	Visits off Highway (approx.)	Purpose
Setting Out		
4 x 4 Pickup	3	Surveyor's vehicle
Tree Trimming		
4 x 4 Pickup	5	Tree trimming/removal of logs and waste
Trailer/Wood chipper	5	
Agricultural tractor	5	
Work Area Preparation		
JCB excavator	3	Removal of hedges/persons to site/import of hard stand material/security fencing
4 x 4 pickup	10	
Hiab lorry	2	
6t dumper	3	
Tipper lorry	10	
Foundations/Pole Erection		
JCB excavator	3	Material deliveries/persons to site/excavation of foundations/erection of poles/import of backfill material
Tracked excavator	3	
Low loader		
4 x 4 tractor / trailer	3	
4 x 4 Pickup	20	
Hiab lorry	15	
6t dumper	10	
Tipper lorry	10	
All terrain crane	3	

Activity / Vehicle	Visits off Highway (approx.)	Purpose
Conductor Stringing		
Winches/tensioner (towed)	2	Persons to site/material deliveries/delivery of winches
Agricultural tractor	2	
<i>Hiab lorry</i>	4	
4 x 4 Pickup	12	
Reinstatement		
JCB excavator	3	Reinstatement of excavations/fields/verges etc/removal of all plant and equipment
<i>Tracked excavator</i> Low loader	3	
4 x 4 Pickup	10	
<i>Hiab lorry</i>	4	
6t dumper	3	
<i>Tipper lorry</i>	10	
Road sweeper	As required	
Total movements	153 or av 15 per day doubled for two way flows 30 per day	
Total HGV	64 or av 7 per day doubled for two way flows 14 per day	

Note: HGV have been highlighted in italics for clarity

Assessment of Construction Movements

- C.3.12 From the above, anticipated traffic flows have been identified for each section (note that pole deliveries have not been added as these will be intermittent throughout the programme).
- C.3.13 From the tables above, there will be an average total 30 two way flows with 14 two way hgv movements for the full length of the line. It is assumed this will be the same for each section.

Table C3: Assessment of all Construction Traffic Using Junction 26

Location	2011 Observed 12-Hour Traffic Flows (Two way traffic flows)		Development 12-Hour Traffic Flows (Two way traffic flows)		Percentage Increase	
	Total Vehicles	HVs	Total Vehicles	HVs	Total Vehicles	HVs
A55	10,495	504	30	14	0.28%	2.8%
Ffordd William Morgan	4,448	135	30	14		
B5381 Glascoed Road	3,868	244	30	14		

Table C4: Assessment of all Construction Traffic using Junction 27

Location	2011 Observed 12-Hour Traffic Flows (Two way traffic flows)		Development 12-Hour Traffic Flows (Two way traffic flows)		Percentage Increase	
	Total Vehicles	HVs	Total Vehicles	HVs	Total Vehicles	HVs
A55	10,495	504	30	14	0.28%	2.8%
A525 The Roe	14,867	720	30	14		
B5381 Glascoed Road	3,868	244	30	14		

C.3.14 Assuming a 50% split of construction traffic on each of the two routes, the effect upon the highway is detailed in Table C5 below:

Table C5: Assessment of Construction Traffic using both routes

Location	2011 Observed 12-Hour Traffic Flows (Two way traffic flows)		Development 12-Hour Traffic Flows (Two way traffic flows)		Percentage Increase	
	Total Vehicles	HVs	Total Vehicles	HVs	Total Vehicles	HVs
A55	10,495	504	30	14	0.28%	2.8%
A525 The Roe	14,867	720	15	7		
Ffordd William Morgan	4,448	135	15	7		
B5381 Glascoed Road	3,868	244	30	14		

C.3.15 The % impact for all movements on the A55 is less than the 5% for Trunk road impacts as set out in the methodology in TAN 18. For additional clarity, given the HGV movements have also been assessed to judge the change in HGV flows locally, these are also less than the threshold % figure for detailed assessments.

C.3.16 It should also be noted these are flows across the working day and the % figure is normally used for peak hours.

C.3.17 As outlined earlier, the assessment criteria of '100 two-way trip daily threshold' has been adopted as the basis of a materiality test of traffic impact for the area. None of the above are close to the threshold i.e. 30% therefore:

- Standardised significance criteria would be at worse **minor/negligible**
- Therefore, the impact of constructing the preferred connection is not considered significant.

Table C6: Assessment of Construction Traffic for each Section and In Combination

Location	2014 surveyed 12-Hour Traffic Flows (Two way traffic flows)		Development 12-Hour Traffic Flows (Two way traffic flows)	
	Total Vehicles	HVs	Total Vehicles	HVs
B5381 west of Jct 26	796	47	30	14
Unclassified road	203	4	30	14
Llannerfydd Road	653	37	30	14
B5382	1603	43	30	14
B5428	289	11	30	14
A543	2045	66	30	14
B4501	531	16	30	14

- C.3.18 As above, the assessment criteria of '100 two-way trip daily threshold' has been adopted as the basis of a materiality test of traffic impact for the area.
- C.3.19 For all of the routes assessed none are close to the threshold i.e. 30% therefore;
- Standardised significance criteria would be at worse **minor/negligible**
 - Therefore, the impact of constructing the preferred connection is not considered significant.