

Broad Oak Preservation Society

Planning Act 2008 Planning Inspectorate Examination of Richborough Connection Submission to Examining Authority for Deadline Eight

In this final submission to the Examining Authority we wish to offer comments on aspects of the subject of alternatives to the Richborough Connection (RC) as proposed by National Grid (NG). Our intention is to put these matters on record and to question whether they have been given adequate consideration. Our first comments relate to a possible increase in pylon height adjacent to the proposed Broad Oak Reservoir site, with further comments regarding alternatives to all or part of the proposed overhead line.

Possible Increases in Pylon Height

Initially we wish to address the question of increased pylon heights. We were very concerned to learn that at one of the Issue Specific Hearings looking at the clash between the proposals by NG and South East Water (SEW) both organisations had been asked to examine the implications of moving pylon PC10 to a new location where it would not conflict with SEW's provisional plans for the fish pass associated with the proposed new reservoir. Both NG and SEW disclaimed responsibility for originating this proposal, which we must therefore assume comes from an enquiry by the Examining Authority as to whether it might be possible to resolve the conflict between the two authorities' schemes by a simple adjustment to pylon positions. We trust this question does not imply that the Examining Authority has already pre-judged the outcome of the examination, but was merely seeking information as to whether a resolution of this particular conflict might be possible.

We understand that neither NG nor SEW have looked on this proposal favourably. The evidence given by SEW at the most recent ISH appears to suggest that the relocation of pylon PC10 would make the situation worse with the cables coming closer to the stream diversion line at the point of lowest sag.

Our concern is that if this proposal was to be taken forward, it would involve raising the height of pylons PC8 and PC9, in addition to PC10. These changes would increase the perceived visual intrusion of the pylons from a number of locations within Broad Oak by approximately 10%. NG say the change would be within the limits of variation; notwithstanding that we consider the changes would be of such significance as to warrant further public consultation. All the illustrative material prepared by NG for the earlier consultations was based on the planned height of the pylons, not the maximum height possible within the limits of variation.

To illustrate the impact of increasing pylon heights, we will consider pylon PC8. This pylon is located 160m from the corner of the garden of Nook Farm. The pylon base is on the 44m contour while Nook Farm is on the 51m contour, so part of the height of the pylon is lost down the slope against the background vegetation and the far side of the valley. If we assume a line of sight from an observer at eye level 1.5m above ground level, the top of a 50m pylon will be 41.5m above the horizontal line of sight, and the line of sight to the top will

be at an elevation of 14.5°. If the pylon height is raised by 4m, the corresponding figures become 45.5m and 15.9° respectively, increases of approximately 10%.

The increase in height may be sufficient to make the pylon top visible above the sky-line when it previously would not have been so prominent. These effects should be thoroughly evaluated for PC8, PC9 and PC10 before any decision is made to adopt this proposal. The visual receptors potentially affected are Nook Farm and other properties on Mayton Lane, The Golden Lion public house and properties at the western end of Sweechgate, and Foxhill House and other properties in Herne Bay Road.

Alternatives

At one of the ExA open hearings the question was asked if alternatives to the RC had been adequately considered, as is required by the planning framework under which NG operate. Assurances were given to the ExA that there had been compliance with the rules concerning the exploration of alternatives, but we remain unconvinced. There is little direct evidence that other options have been evaluated in the detail which has been applied to the RC, and for the most NG's assurances remain just that - assurances. It is beyond the resources of a small local community group of volunteers to challenge NG in detail on all aspects of their proposals, but there are some issues related to possible alternatives that we would like to touch on in this submission.

Costs of Undergrounding

We have made a number of proposals to NG that parts or all of the RC should be routed underground to mitigate its worst impacts, particularly around Broad Oak. We still consider that undergrounding the last 3km into Canterbury would solve a number of issues including the visual impact on Broad Oak properties and the clash between NG and SEW proposals. It seems obvious to us that the advantages of going underground are that the route chosen can be more flexible, with gentle curves instead of the straight lines from point to point of an overhead line. It would be possible to avoid the ancient woodland of Kemberland Wood. The route could be closer to the northern tip of Broad Oak village, thus avoiding the land reserved by SEW for the Reservoir and its associated works.

Every time we have made such proposals, NG has said that undergrounding is not viable because of the additional cost. They cite their obligations under the Licence which governs their operations *to ensure the efficient, economic and co-ordinated operation of the national electricity transmission system*. NG appear to interpret this obligation as requiring them to do everything at the cheapest possible cost without any real consideration of the impact on communities.

From what little data we could obtain from NG regarding comparative costs of underground and overhead lines, we made some tentative estimates of the cost of undergrounding the last 3km of the RC route around Broad Oak and into Canterbury. We estimated the additional cost at £100m with an impact on the average consumer's bill of 18p/year for 20 years. NG have themselves published plans to replace extensive stretches of existing overhead lines; a report in the Guardian newspaper (15 September 2015) said that 25km of lines "in sensitive

areas” would be placed underground at a cost of £500m, which would increase the average bill by 22p/year. These figures suggest our estimates were too high – it must be more expensive to replace existing overhead lines than to put new lines underground at the start. We would now suggest that, based on NG’s own figures the additional cost of undergrounding the last 3km will be no more than £50m, with a consequential impact on the average electricity bill of 2.5p/year. This cost cannot be considered excessive or to be in breach of NG’s duty to run an economic transmission system.

When the scheme to replace overhead lines in sensitive sites was announced George Mayhew, Director of Corporate Affairs at NG, said that the mistakes of the 1950s would not be repeated when installing new transmission lines would not be repeated. It seems to us that is exactly what NG are proposing to do in building the Richborough Connection.

Undergrounding Design

Another factor which is frequently introduced by NG whenever the possibility of undergrounding is raised is their claim that a trench 50m wide is required to replace a twin circuit overhead line. This implies that the individual conductors in the underground line are spaced 10m apart. We have searched for a technical justification for this spacing and have not been able to discover one. Wide spacing is required for an overhead line because bare conductors are used and wind could cause closely spaced conductors to touch. This is not a consideration in an underground installation. There can be no question of leakage from one conductor to another when placed underground as insulated and shielded conductors are used. We doubt there are EMF factors to be taken into account; in urban areas power is distributed using relatively high voltages with all conductors within a single sheath. Is a 10m spacing for a 400Kv underground line used because that’s how it has always been done, and the possibility of closer spacing has not been evaluated? A cynic might consider the requirement for a 50m trench is used by NG to dissuade local communities from campaigning for underground lines.

If there are good technical reasons why 10m spacing is required, why is it necessary to dig a 50m trench – the “blot on the landscape” which NG frequently quotes. Empirically it would appear easier and cheaper to dig six parallel trenches 1m wide spaced 10m apart. Much less spoil and infill to handle.

Of course these issues disappear if HVDC technology is used for the link from Richborough to Canterbury. Effectively the Nemo undersea cable would continue uninterrupted from its landfall at Sandwich to a converter station at Canterbury, where the output would be fed directly into the 400Kv network. That such a solution is practicable is shown by the deployment of exactly this technology for the Western Link where it runs through the Wirral peninsular. This possibility was briefly alluded to in the studies of alternative landfall sites carried out by Nemo Ltd and mentioned below. It was dismissed because, it was claimed, there was not enough space within the existing sub-station site for the converter station to be built. We would like to draw attention to a large parcel of vacant land at the corner of Vauxhall Road and Broad Oak Road; this is sited between a car dealership and the local municipal waste tip, and is contiguous with the existing NG site. It would appear to be an

ideal location for a converter station. The site is already blighted by the presence of existing 400Kv pylons and is remote from any habitations.

The obvious advantage of using HVDC technology is that a narrower trench is required (only one or possibly two cables) which can be readily routed around sensitive sites. It would not have to follow the exact route of selected for the OHL solution, and could be routed in field margins and other vacant land with minimal disruption.

One possible objection to the HVDC option could be that there would be no new power supply for Thanet and therefore the PX pylon line could not be removed. We suggest it might be possible to take a tapping off an HVDC line and use a converter station at Richborough to supply Thanet. However this imposes additional costs of two converter stations. Bringing the Nemo connection direct to Canterbury avoids the cost of removing the PX line; if NG are genuine in considering the economics of the RC, this possibility should be given serious and detailed study. It should be remembered that removing the PX line is not the purpose of the RC, it is a consequence of the undersea link providing an alternative supply of power for Thanet. NG confirmed early on in the Examination that the sole purpose of the Richborough Connection is to join the Nemo Link to the grid – it has no other function. There is no demand from the local community for the removal of the PX line, which has been in place for many years.

Existing Connections

One further option for the Richborough Connection which has not been given any real consideration is the use of the existing infrastructure. In justifying the RC NG are always keen to emphasise their duty to connect to the national 400Kv transmission network (the grid) any new generator which presents itself. This overlooks the fact that Richborough is already connected to the grid by the 132Kv lines which now supply power to Thanet from Canterbury. There are two such links, both overhead lines on 25m towers. One is the PX line with which we are all familiar because of the proposal for its removal if and when the 400Kv line is completed. The second alternate line (which we believe is known as the PY line) runs south from Canterbury passing east of Lower Hardres; it then follows the approximate line of the Elham Valley to a junction close to Etchinghall. From this junction it runs north and then east to Shepherdswell, turning north again to pass to the west of Sandwich into the site of the former power station at Richborough. This 360MW generating station operated from 1962 to 1996, when it closed on environmental grounds. The PX and PY lines were seen as Richborough's link to the grid, as well as distributing power to the various communities of South Thanet, Dover and Folkestone. It was only when the Richborough Power Station was closed down that the 132Kv lines started feeding power from the grid at Canterbury to the rest of East Kent.

The option which we think deserves a full technical evaluation is to upgrade these lines to provide the connection for the Nemo Link. When this possibility was raised with NG at one of the public consultations it was dismissed out of hand on the grounds that the PX line (alone) was not of sufficient capacity to carry the 1GW of power which is the maximum capacity of the Nemo Link. While we accept that initial judgement it is not that simple. Firstly there are the two lines (PX and PY). Both could be upgraded to have twin conductors, and could also

possibly have their operating voltage increased. In conjunction with the high voltage laboratories at Manchester University (which we understand are supported by NG), the company Arago Technology have developed and successfully tested a replacement for the steel lattice cross arm on pylon towers. This new cross arm is fully insulated and allows the conductors on the tower to be carried at an increased height without the use of vertical insulators. Use of this technology would enable the 132Kv lines to be upgraded to 275kv. Two lines together if upgraded as described, would offer power transmission capacity in excess of the proposed 400Kv line.

It should also be borne in mind that the RC will not in practice carry the full 1GW power of the Nemo Link. There has been some confused reasoning regarding the flow of power following the potential completion of the RC and the removal of the PX line. The PX line is not redundant because the RC carries power back to Thanet, having transported it from Richborough to Canterbury. Power cannot flow in two directions at once along the same conductor. The PX line is redundant because in future the power needs of Thanet will be met by supplies from the Nemo Link and the offshore wind farms that have been developed in the area. The RC will carry the net balance of the output from Nemo less the power required by Thanet, which in practical operating conditions will be considerably less than 1GW. We think the QC representing NG fell into this trap at the most recent ISH when arguing against the requirement which SEW wanted to have written into the draft DCO, that they could when necessary ask for the RC to be shut down for an extended period. It was said that a prolonged shut-down would deprive Thanet of power supplies. Not so – Thanet would continue to receive power from local sources.

Upgrading the existing lines would be less disruptive to local communities and much cheaper, thus allowing NG to meet its commitment to providing an economic distribution system. We therefore propose that the option of upgrading the existing lines be fully evaluated before any decision is taken to approve the Richborough Connection DCO.

Alternative Landfall Sites

It still feels to us that the various studies conducted by Nemo Link Ltd (NEL) into possible landfall sites used criteria which systematically reduced the feasibility of all other options so that Richborough was the only choice remaining. The 11 sites it is said were originally considered, and the rationale for rejecting all except Richborough. We have been unable to access the original studies carried out by NEL, but a summary of them is contained in Appendix 3.2 of the Environmental Statement published by NEL in February 2013. It is instructive that the considerations given to many of the options appear biased so as to lead to the selection of Richborough. For example when the question of land for a converter station was considered, several sites were rejected because there was uncertainty over the acquisition of land and the granting of planning consent for the converter station. That factor was ignored at Richborough, presumably because the site had previously been a power station and because it was in the ownership of NG. As an aside it seems an anomaly that the site passed into the ownership of NG on the break-up of the old CEGB – surely it should have gone to a new operator of the power station?

Of 11 potential landfall sites which were investigated, 9 had ready access to existing 400Kv grid substations; only two (Richborough and Shellhaven) did not have access. Even so reasons were found to reject each site until only Richborough remained. For example, a landfall at Grain was considered; NEL looked at how the connection to the nearby grid sub-station would be made. They concluded that it would require a new 400Kv line between Grain and Kingsnorth substations which presented planning and consent risks. It was mentioned that there were already a number of existing OHLs in the vicinity. It was concluded -

*As a result of uncertainties and risk associated with the potential need to reinforce the transmission system, the location of Grain was not considered at that time suitable for the Nemo Link. Consequently, there has been no detailed investigation of an acceptable converter station site and DC subsea cables route for Grain.**

However when it came to Richborough NEL ignored such considerations, saying these were all a matter for NG to take care of. The requirement for a new OHL was not factored into the selection of Richborough, and the presence of existing OHLs, far from being a reason to reject a location, is used to justify yet another one – if the landscape is already affected by OHLs in the distance, it doesn't matter if it is further degraded by having yet another line with a much larger impact. Thus an argument was carefully constructed to leave only Richborough as a possible landfall site, with NG being left to manage all the issues involved with the creation of the connection to the grid.

This process illustrates the conflict of interest which arises when NG partners with European transmission systems to jointly develop undersea interconnectors. We have commented before on how in our view this has led to an abuse of the planning system, in that the whole of the Nemo/Richborough scheme has not been subjected to scrutiny as a whole. Presenting the choice of Richborough as the terminal point for Nemo was intended by NG to present the Examining Authority with a fait accompli to limit the examination to NG's preferred solution. Although we hope that we have shown that alternatives do exist, the fact remains that the *Chinese walls* within NG do not give rise to an objective outcome. In the latest National Grid Annual Report, the Chief Executive makes explicit reference to the expected profitability of the Nemo Link and other interconnectors, which have only been made possible by the expenditure of what is effectively public money. We were interested to note that the House of Commons Energy and Climate Change Select Committee has criticised National Grid in its report published since this Examination started. The Commons Committee in their report "Low Carbon Network Infrastructure" published 17 June this year said that there was a conflict of interest in NG owning interconnectors (p.108). In the recommendations of the report they reiterate that NG's ownership of interconnectors gives the company an unfair advantage and calls for the creation of an independent systems operator (para.17 of the recommendations).

* These studies were carried out prior to the closure of the Kingsnorth and Grain coal-fired power stations.

Conclusion

With the Examination drawing to a close, we wish to remind the Examining Authority that the proposals by NG to complete the Richborough Connection by means of a high voltage overhead power line will have a severe impact on our local community through its overpowering visual intrusion into the surrounding landscape, and the destruction of the ancient woodland of Kemberland Wood. It is not only designated areas of outstanding natural beauty which need to be protected from the depredations of NG. Once the overhead line is in place, it will be very difficult and expensive to make changes later. We hope that we have adequately demonstrated there are viable alternatives which either obviate the need for the connection or mitigate its worse effects.

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