

# MINSMERE LEVELS STAKEHOLDERS GROUP

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## **Response to the Third Stage Consultation of the Proposed Development of Sizewell C Nuclear Power Station**

This response is submitted on behalf of the **Minsmere Levels Stakeholders Group (MLSG)**. Our primary objective is

*‘To identify and then represent matters that are of common interest to those living and working in close proximity to the Minsmere Levels as well to others who have a concern for the future of the marshes’*

### **Background**

In May 2014 the Secretary of State responded to the company’s Environmental Scoping Report setting out the areas on which much more detailed supporting evidence was required. These were, in the main, ones already raised by MLSG at Stage 1 relating to the impact both during the construction phase and long term on:

- The coast and shoreline to the north and south of the development
- The ground water systems within the Levels and Sizewell Marsh
- The Environmental Scoping Report Opinion (ESRO) required the following:
  - Details of the baseline conditions for the main development site and identify land that could be directly or indirectly affected by the proposed development (ESRO 2.77)
  - The SoS considers that the ES should not be a series of disparate reports and stresses the importance of considering interrelationships and cumulative effects (ESRO 3.19 and Appendix 3)
  - The information should be presented so as to be comprehensible to the specialist and non-specialist alike.

- Any proposed mitigation should be well documented in terms of how it will be identified and then secured (ESRO 3.22) for example habitat mitigation (ESRO 3.44)
- The impacts on Sizewell Marshes and other nearby designated sites should be carefully assessed. (ESRO 3.76)
- Air quality and dust levels should be considered not only on site but also off-site, including along access roads, local footpaths and other PRoW (ESRO 3.78)
- The SoS advises that the inter-relationship between groundwater and surface water be presented clearly (ESRO 3.96)

### **Executive Summary**

1. The main area of the construction site is located within an Area of Outstanding Natural Beauty (AONB) and it is surrounded by two Sites of Special Scientific Interest, RAMSAR, a number of Special Protection Area (SPA) and Special Landscape Area (SLA) sites:
  - 5.5 hectares of SSSI will be lost forever to the 55 hectare SZC platform development and construction damage to a further 3 hectares of SSSI and further compensation for loss of fen meadow is still not identified
  - The Aldhurst Site Habitat Creation site, whilst welcome, cannot in anyway be considered as adequate compensation for the ecological losses described above
2. We believe that in consideration of the issues raised by the Secretary of State in the ESRO and the lack of information in the any of the three consultation stage documents, including this Preliminary Environmental Information Report (PEIR), there needs to be a further public consultation once the proposal is better developed and the impacts and mitigations proposed by EDF can be communicated through a much improved PEIR to local and national statutory bodies, relevant organisations and the public so a properly considered view can be formed and communicated. This revised PEIR should be a very advanced draft of the Environmental Statement which EDF intends to submit with its application for a Development Consent Order.
3. In our response to Stage 1 we were glad to see that the planned programme of analysis of the probable environmental impact of the development of the Sizewell C nuclear power stations will be so wide ranging and that it is recognised that a robust understanding of the complex hydrological and hydro-geological conditions is essential. Having progressed through Stage 2 consultation and now to Stage 3, we are dismayed that very little progress has been evidenced and provided in the PEIR, contrary to the requirements of the ESRO referenced above, our responses at Stages 1 & 2 and responses from Suffolk County Council, Suffolk Coastal District Council and Theberton and Eastbridge Parish Council as well as other statutory and organisations such as the Royal Society for the Protection of Birds and Suffolk Wildlife Trust.

4. We are pleased to note that the two jetty proposals have been removed from the proposals thus reducing potential adverse coastal impacts from the structures acting as a groin, as experienced during the Sizewell B construction and reducing significant ecological impacts on the marine environment during construction and removal.
5. We note that the Beach Landing Facility (BLF) permanent structure has been adjusted to take the Hard Coastal Defence (HCD) protected roadway behind the sacrificial dune by extending the temporary road bed pile structure inland. However, we are still concerned that as coastal erosion continues along this part of the coast, this hard point at the northern extreme of the site will contribute adversely to erosion along the northern flank of the site, in front of the proposed access causeway/culvert where the Leiston Drain flows north to the Minsmere Sluice.
6. We are concerned that the current indications for HCD of the main site frontage and BLF of between 0-1m AOD is significantly above Mean Low Water and with Mean Low Water Spring Tides at -2.1m OD poses significant risk for collapse of the sea defences over the operational lifetime of the station. At a current design slope of 1:3 the HCD would have to be extended seaward by at least 10 metres, which would require the existing sacrificial dune to be destroyed and re-established as well as disturbing the beach.
7. Issues with the HCD and suggests that the site, as currently proposed, is too constrained to host two nuclear reactors. This is supported by the fact that EN-6 envisages single nuclear reactors to have a site size of around 30 hectares and Hinkley Point C operational site size is approximately 45 hectares. In order for SZC to reach a nuclear platform size of 32 hectares;
  - Outage, training and visitor facilities for Sizewell B are proposed to be relocated, destroying a mature wood (Coronation Wood) and placing the SZB outage car park on Pillbox Field
  - 5.5 hectares of Sizewell Marsh SSSI is to be permanently lost
  - Four 65 metre tall pylons have been introduced to create a connection between the generators and the National Grid Substation due to the lack of space to run connection cables through underground galleries as proposed in Stage 2 documentation. These will dominate the skyline and have a permanently adverse visual impact for the AONB and Heritage Coast
8. The impact of the Causeway/Culvert on both surface water and groundwater drainage from Sizewell Marsh Site of Special Scientific Interest (SSSI) into South Minsmere Levels and onwards to the Minsmere Sluice is not documented at all in the PEIR despite the impacts being indicated as potentially significant.
9. We are concerned that there are still significant omissions from the PEIR concerning surface water run-off from all areas of the construction site into water management zones (WMZ), the facilities for identifying and dealing with any pollution, which is rated as having significant potential.

10. The understanding displayed in the PEIR of the inter-relationship between surface water and groundwater is completely lacking and, as a result, any proposals concerning how to manage the effects of the site on the overall hydrology of the surrounding designated sites at Sizewell and Minsmere is missing.
11. Despite there being additional qualitative information on the individual impacts of the various aspects of the construction site and the nuclear site platform itself compared to that provided in the previous two stages, it is a matter of regret that there has been no attempt to provide any Type 1 Cumulative Impact assessment and that it has been deferred to the Environmental Statement which will effectively deny the public the ability openly and properly respond to those assessments.
12. Given the comments in 11 above it comes as no surprise that the section on the wider Cumulative Impacts within the Zone of Influence, does little more than define the meaning, method of development and the fact there is potential for cumulative impact.
13. As this is proposed to be the final stage of public consultation, we would have expected the PEIR to be much better developed. We find it quite lamentable that EDF have been unable to provide any assessment of Cumulative Impact, especially within the construction site itself. Despite our repeated requests, and the requirement of the Secretary of State in May 2014, all that has been offered, at this the final stage of public consultation, is statement 13.3 of EDF's approach to assessment of cumulative effects and a flow chart at Figure 13.3 which sets out the four stages of activity that this work will involve.

### **Coast and Shoreline**

14. Changes to the off-shore sand banks and sediment transfer operates on both very long timeframes of decades to centuries but strong tides and storm surges can also have dramatic effects over much shorter time frames from days to months.
  - In the last century the off-shore bank has developed clear maxima off Dunwich and Sizewell, but the entire bank has moved slightly closer to shore.
  - The position and height of the off-shore banks modify the impact of wave action on the coast and sacrificial dune. When combined with the effects from global warming of rising seas and potentially more intense/frequent storm surges makes long term predictions of impact difficult to assess.
15. The HCD shown in the Stage 3 documents hasn't changed since Stage 2. It is currently described as armoured with rock with the toe at 0-1m AOD and topped by a bund. However, with Minimum Spring Low Tide (MSLT) levels at -2.1m (EN-6 Appraisal of Sustainability Report for Sizewell) this leaves the HCD toe >3m above MSLT. Current accepted design criteria require the extension of the toe to below MSLT. At the current 1:3 slope design, this would require the toe to move east by at least 10m, well beyond the current edge of the existing sacrificial dune and into the beach.

16. We note that the permanent roadway structure of the Beach Landing Facility (BLF) has been moved back to a point close to the rear of the existing sacrificial dune, but forward of the main HCD, and that the piled structure for supporting the temporary road bed has been extended shoreward. However, this structure, at the northern end of the platform, is also armoured on all sides as part of the HCD and has a toe which is also 0-1m AOD, albeit at a slope of 1:4. In order to reach below MSLT it will also need a similar extension through the sacrificial dune and into the beach.
17. Extensions of the HCD toe to below MSLT would also result in the HCD being uncovered earlier than currently expected in Stage 3 documentation and present a new and extensive hard point on coast affecting sediment transport both north and south of the SZC site.
18. We note that EDF has done some modelling of a breach of coastal defences some 2-300m north of the position of the BLF. However, the model (Figure 2.12.5) does not take account of areas within Flood zones 2 and 3 immediately to the rear of the sacrificial dune (Figure 2.12.2) that would see the initial track of the breach proceed south to the position of the BLF and main HCD and then west along the northern edge of the site to the position of the Causeway/Culvert and the Leiston Drain.
19. It is also the case that the existing sacrificial dune at the BLF position is at the lowest point compared to points both north and south and would contribute to any such breach. Whilst the breach may initially occur as part of the natural erosion of the coast at this point, the effect of the BLF, HCD of the SZC platform and Causeway/Culvert will change the characteristics of any permanent breach and embayment at this point. This has not been recognised in the current model presented in the Stage 3 PEIR.
20. There is an indication that the soft coastal defence in front of the Sizewell C development may be replenished through recycling or nourishment, however, should accelerated embayment occur just north of the BLF as described in 19 above, EDF should consider what strategy should apply there to avoid accelerated saline encroachment to Leiston Drain, potential compromise of the Minsmere Sluice and saline encroachment into the southern Minsmere Levels.
21. We wish to see a properly researched baseline map for the offshore seabed and coastal dune defences that show the variations that have been observed over the past 5-10 years based on the work that EDF and CEFAS have been conducting. Predictive models should be developed to explore coastal retreat without and with the construction of these permanent structures
22. During Stage 2, two bridge designs were offered and would create less disturbance to the natural hydrology and to preserve the wildlife corridor. As such we still believe that Option 3 of the Stage 2 consultation offers the least disturbance overall and is preferred to a causeway. The fact that the bridge will take an extra 6 months to be completed is not a valid reason for taking additional SSSI land permanently and the wildlife corridor of the causeway proposal is significantly less effective than that which will result from a bridge construction.

23. The proposal to cross the SSSI with a causeway that will be across a peat basin that has no associated coastal defence feature, unlike the main operating platform, raises a question as to its long term viability.
24. The only causeway stabilising feature that is discussed in the documents are those needed for the culvert that allows the Leiston Drain to pass unimpeded towards the south Minsmere Levels and Minsmere Sluice. Without some stabilising piling or underpinning, the effect of such a large causeway laid over a peat basin is likely to be gradual sinking into the peat basin, damage to the culvert and ultimately significant structural failure over time. We are concerned that this option has not been fully explored and compared properly to the bridge option preferred above.
25. The expectation that with sea level rise and coastal erosion both South Minsmere Levels and Sizewell Marsh are likely to become estuarine during the lifetime of the station, it is astonishing that no comments about how the access road across the causeway can be protected against erosion from the encroaching sea.

### **Surface, and Ground Water Management**

26. There is no mention in the consultation document regarding supply and usage of potable water or other abstracted water for use during the construction or onwards into operation of the site.
  - The accommodation site, at capacity, will require a minimum of 250,000 litres per day
  - No figures are given for construction activities such as concrete batching plant, although an estimate of the total requirement for concrete batching is at least 150 million litres
  - In production the two power stations will need about 1.6 million litres per day of mains water
  - New housing in the area will add significant burden to the existing potable water supply and this should be considered in the cumulative impacts assessment

To have a significant short and long term addition to requirements for potable water from the local supply has to be demonstrated as both available and not detrimental to the overall water supply situation as clearly stated in EN-1 5.15.3.

27. The construction development area will consist of permeable, semi-permeable and some hard standing. We note that three of the Water Management Zones (WMZ) have been expanded to attenuate flows to the existing drainage network and enable potential treatment of any pollution. However, we are concerned that these changes have been made prior to a full assessment of the '*potential for significant adverse effects on the SSSI*' and encourage EDF to complete these assessments and revisit the design of all the WMZs once the assessment is complete.

28. Table 2A, 2.11.1 summarises the potential for significant adverse effects on the Leiston Drain, IDB Drain DRN163G0201, The Sizewell Marshes, Sizewell Belts and Minsmere South Levels later summarised (2A, 2.11.41 and 2A, 2.11.42) with the conclusion that:

*'With ongoing design and embedded mitigation it would be possible to avoid significant effects on surface water features. However until further modelling and assessment work has been completed there remains potential for significant adverse effects on the SSSI'*

29. Whilst there is an aspiration (2A, 2.11.23) to replicate existing run-off rates into the drainage system there is no mention of potential impacts of either increased or decreased flow rates relative to current baseline flows which could exacerbate effects on the ecology of both SSSIs and, during increased flows, impact the capacity of the Minsmere Sluice in respect clearance of the Leiston Drain. EDF should state clearly both the monitoring regime and mitigation plans for both such scenarios.
30. There is a significant potential for permanently raised water levels in the Sizewell Marsh SSSI as a result of both the cut-off wall of the production platform and the proposed causeway crossing. Two groundwater related maps are provided (3, 2.10.1 and 3, 2.10.2) and reference is made to the realignment of Sizewell Drain and a sluice control structure to mitigate groundwater effects in Sizewell Marsh but modelling is clearly incomplete despite there being a significant risk of adverse effects on groundwater levels and the natural hydrological flow regime within groundwater, particularly at the causeway crossing due to ground.
31. We are also concerned that little information is given about how water from within the cut-off wall during de-watering and whilst the construction phase progresses will be treated. Much of the water will be from the very acidic Sizewell Marsh and also presumably have some saline content, it needs to be clear what treatment is to be used and where this water is destined to be released back into the inland drainage or out to sea and a full environmental impact assessment needs to be completed. The additional mitigation statement "*Monitoring and maintenance of groundwater removal system to preserve integrity and maintain design standard.*" really gives no indication of any more than ensuring the pumps are still working effectively.
32. We are also concerned as to how foul water from the construction site and eventually from the operational site will eventually be discharged as there is no mention of this in the PEIR.
33. Whilst the PEIR recognises potential surface water run-off issues affecting the southern Minsmere Levels area, there is no mention of the potential for consequential groundwater effects in this area. No baseline monitoring would appear to have been completed for the south Minsmere Levels despite the fact that the area is intimately linked to the outfall from Sizewell Marshes via the Causeway crossing and that two large WMZs are based above or on the south Minsmere Levels. This omission needs to be rectified and properly modelled as discussed in 24 and 27 in this document.

34. All this combined will constitute a dramatic challenge to the hydrology of the Sizewell Marshes SSSI and Minsmere-Walberswick Heaths and Marshes SSSI. It is regrettable that this work is far from complete and that EDF are unable to provide a more complete statement of impact and mitigation within this Stage 3 consultation despite being asked to do so at Stage 1 and Stage 2 consultations
35. We repeat our request from the Stage 2 consultation as it remains clear that there are too many unknowns, incomplete studies and modelling referenced in the Stage 3 consultation;
- The natural water levels in both Sizewell Marshes and Minsmere Levels (south of Minsmere New Cut) need to be monitored and documented through at least five full annual cycles along with the flows into the Leiston Drain and through the Minsmere Sluice
  - Monitoring of all these areas needs to be planned for the entire development phase and onwards into the operational phase to be able to determine any deviations from the existing natural hydrology and to detect any long term pollution arising from the borrow pits
  - Mitigation needs to be planned for any deviations from the pre-development status and clear trigger points documented to ensure such mitigation is acted upon

### **Borrow Pits**

36. Three borrow pits, totalling approximately 17 hectares have been selected by EDF to provide materials for the site as well as a repository for excavated materials that cannot be utilised during construction of the dual reactor platform. It is stated that the borrow pits, excavated to a depth of 2 metres above groundwater level, will both increase surface water run-off and have a significant risk of pollution associated with the excavation and management of them whilst they are open. It is not clear, apart from a vague statement about the use of engineered drainage, how the excess run-off will be managed or any pollution will be detected and managed.
37. Once the borrow pits are refilled with excavated material, including treated acidic materials such as peat, there is a long term risk of pollutants being leached out of the borrow pits into the groundwater and potentially into Minsmere Levels, yet no long term monitoring of these pits and surrounding groundwater is proposed.

## Spoil, Sand & Gravel Heaps

38. 25 Hectares of spoil heaps, sand and gravel resources are to be between 20 and 35 metres high at their maximum and their position in the local landscape straddles the highest contour line in the Ordnance Survey at 15 metres with valleys to north and south, only a metre or so above sea level, and sea to the east. Only directly to the west does the next contour line of 20 metres appear at a distance of around 1 kilometre. This is a very exposed site for spoil heaps that are twice the height of ground above sea level and will be both unsightly and a real concerns for fugitive dust

- The heaps will be on site for up to 8 years in total
- The heaps will be visible for most of the development time from Eastbridge, Minsmere, Leiston, Sizewell, Dunwich Heath, Leiston Abbey Monument and most of the PRow that criss-cross the area including the Sandlings Walk and Suffolk Coast Path (soon to be incorporated into the national Coastal Path)
- Throughout the late autumn to mid-spring this area has significant periods with high winds (30-45mph, gusting occasionally to >60 mph) from both the west/south west and east/north east
- With winds from the south and south west the natural travel for dust and sand pollution will be directly across Minsmere-Walberswick Heaths and Marshes SSSI and Minsmere Bird Reserve and onwards to National Trust Dunwich Heath property that has the ability to significantly impact the ecology of these areas

39. EDF so far have failed to provide any credible proposals as to how sand and dust will be contained and prevented from becoming ‘fugitive’ (ESRO 3.76) and indeed during high winds it is difficult to see how the very sandy soils that are characteristic of the construction site and platform will be adequately controlled

## Adequacy of Preliminary Environmental Information Report

40. The two volumes of PEIR are regrettably long on non-specific mitigation promises and, unfortunately, not supported by in-depth or at times even cursory baseline data substantiation. It only remains for MLSCG to repeat for the third time that insufficient information is being provided for a properly considered view to be reached as to the ability of EDF to ensure that the proposed SZC project can be initiated and completed without risking significant damage to the sensitive environments and coastline surrounding the SZC construction and operational site.
41. We continue to insist how it is essential that a properly researched baseline water level map for both the Sizewell Marshes and the Minsmere Levels south of the Minsmere New Cut is produced. These needs to show annual variations throughout the year based on at least 5 years of historic data and have comprehensive flow rates through the corridor where the Sizewell Marshes drains into the Minsmere Levels to the north of the proposed site for the SSSI causeway crossing.

42. The relationship between surface water and groundwater is still not documented by EDF despite this being a requirement in ESRO 3.96
43. Using the baseline referred to in 36 and groundwater in 37 above, models, agreed with the Environment Agency, should be used to explore the potential effects of enhanced surface water run-off from the main construction site, impacts from the cut-off wall, drain realignments and the SSSI causeway crossing and the ability of any mitigation measures such as sluices and permeation and/or controlled release from WMZs to manage the water levels to ensure minimal impact relative to the baseline can be achieved.
44. Whilst the effect of climate change is referenced to 2008 Climate Change Data, the models should also be capable of accounting for the effects of sea level rise, the increased risk of extreme rainfall events and increased frequency and intensity of storm surges. When the 2018 Climate Change Data is released, the models need to be rerun to ensure that the results are updated and appropriate adjustments to mitigation plans are made.
45. Included in these scenarios must be the modelling of how the station and its road access, would function should the Minsmere Levels and Sizewell Marsh become estuarine and SZC operational platform become an island on at least three sides. SZC will remain on the site for a century or more, and it is vital the above analyses are projected over the construction, operational and decommissioning time frames.
46. Actual data must continue to be collected during the development, into the operational and later to the decommissioning stages of SZC which can then be compared to the predictions to ascertain whether SZC has impacted the expected behaviour of the landscape and trigger mitigation and/or compensation by EDF.
47. The inadequacy of the coastal breach modelling to take into account the actual landform as evidenced in the flood map referenced in 17 & 18 above, calls into question the impact of the HCD on the northern boundary of the operational platform and the potential for medium and long term adverse impacts on the causeway crossing of the SSSI which are not discussed at all in the PEIR.

### **Cumulative Impacts**

48. In our Stage 1 and Stage 2 responses we said that it would be essential that a preliminary assessment of the cumulative impact of SZC development on the Heritage Coast, Minsmere Levels and Sizewell Marshes SSSI should be provided by EDF, with the evidence underpinning these judgements properly documented.
49. Regrettably, little or no attempt by EDF has been made in this consultation to document the cumulative impacts across the construction and operational site other than the reference to proposed future assessments in 13.1 and Figure 13.1 as referenced in item 11, 12 and 13 above.

## Summary

50. As we have said repeatedly since responding to the Stage 1 consultation, we believe that the impact for the Minsmere coastal frontage, the inland drains, ground water systems and the functioning of the Minsmere sluice are of major concern, particularly during the construction phase but also during the many years that the station will be in place, both whilst operational and also subsequently in decommissioning.
51. Stage 3 PEIR documents have improved the communication of impacts within the different categories of potential impact. However, regrettably despite our concerns expressed at Stage 2, EDF has still failed at Stage 3 to meet our requests and too much remains to be done in terms of assessments to be confident that a proper understanding of the potential impacts, both at the coast and inland, are yet informing the design and mitigations for those impacts.
52. It is clear that significantly more attention is being paid to the area immediately west of the proposed SZC platform and the construction area but significant studies and assessments of potential impacts into the south Minsmere Levels are completely absent with the exception of some surface water impacts and a comment about potential effects of breaching the cut-off wall. This is completely unacceptable and we expect EDF to initiate these studies and ensure that they feed into baseline conditions that will enable proper monitoring of any adverse effects caused by the construction and operational phase of the SZC development.
53. In our Stage 2 response, MLSG said;
- We consider it to be essential that the data relating to all the investigations of possible environmental impact on the Minsmere coastal frontage and the inland hydrology systems should be modelled in systems that are agreed with organisations such as the Environment Agency, Marine Management Organisation and Internal Drainage Board. The outcomes should be made public at the earliest opportunity and well in advance of the Stage 3 consultation*
- Unfortunately, not only has this not been done, but neither has this been done prior to this Stage 3 consultation.
54. Whilst we have been pleased that the jetty has been removed from proposals put forward at Stage 3, we are also concerned that the clarity concerning the two replacement strategies “Rail-led” and “Road-led” have been proposed without sufficient confidence, supporting information or reasoning behind the options that those strategies imply.

## Conclusion

55. MLSG believe that the current proposal does not make an adequate case for a two reactor development on the 32 hectare platform as there are significant issues surrounding the HCD and the ability of EDF to manage all the elements into such a confined space.
56. In this response we also detail a significant number of omissions, shortcomings and safety concerns contained within this third stage of public consultation.
57. MLSG are also concerned that the impacts on the hydrology and ecology of the designated sites surrounding the development are insufficiently understood and will inflict much longer term damage to this sensitive environment than is currently assessed in this consultation.
58. We have been through three stages of public consultation over a period of six years. On each occasion the absence of supporting information and evidence has made it impossible for us to make any adequate assessment of EDF's proposals.
59. The scope for community groups, such as MLSG, to engage effectively in the formal proceedings of the public inquiry will be very limited.
60. MLSG supports the SCDC and SCC in their response which states "At this, final public round of consultation, the Councils and the public should have far greater assurances of any option being presented. This work should have been completed by EDF Energy before Stage 3 to ascertain exactly what infrastructure is required to deliver the rail option and that it is deliverable within the required timescales." This statement could just as easily be applied to other aspects and options that are proposed or have been rejected over the course of the three stages of consultation.
61. MLSG therefore considers it imperative that EDF undertakes a further stage of public consultation, having rectified the omissions and completed the studies referred to above, and produce a PEIR which is effectively a draft of the Environmental Statement prior to any application for a DCO in order to satisfy the requirements of its Statement of Community Consultation