| Question No. | Question asked by | | Topic | Question | Date question asked | Date response required | Date received | Follow up to Question # | Confidential (y/n) | Attachments | Provided Verbally? | Answered Drafted by | Approved by | Approved on | Emailed to OFGEM by | Emailed to OFGEM on | Should pro-forma/Appendicies be updated, if so specifiy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Co | Section 1.4 | Costs | It is noted that there has been a considerable reduction in the project cost in the full submission as compared with the screening submission i.e. total project costs from £51.5 million to £3.38 million, with NIC funding requested reducing from £8.75 million to £2.938 million. Please explain the reasons for this reduction. | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 2 | Co | Section 2.1a | Scalability | What problems do you foresee in the application of the modular approach to transmission voltages in England and Wales, i.e. 275 kV and 400 kV, as compared to the 132 kV substation proposed to be installed in this project. | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 3 | Co | Section 3.6 and 4c | Partners | What discussions have been held with other TOs about this project? What have been the results of such discussions? | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 4 | Co | Section 3.6 and 4c | Partners | What discussions have been held with DNOs about this project (as 132 kV is a distribution voltage in England and Wales)? What have been the results of such discussions? | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 5 | Co | Section 2.1a | Business Case | The calculation of the claimed financial benefits of the MASC methodology is based on the assumption that it could be deployed to 30% to 50% of substations in the GB transmission network. Please explain how these proportions have been derived and indicate the criteria which define whether a substation could utilise the approach or not. | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 6 | Co | Appendix 7a | Business Case | Please provide the underlying figures that Figure 4 "Cost Comparison of conventional AIS substation versus MASC" is based on. | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 7 | Co | Sections 3.8.2 and 4b | Business Case | Please indicate what evidence there is that the MASC approach will result in an up to 20% reduction in costs. | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 8 | Co | Appendix 2 | Equipment suppliers | Other than the letters of support shown in the submission please describe the nature and the results of the contacts that there have been between SHE and these major manufacturers in regard to this project. What confidence do you have that these manufacturers are ready to supply modular solutions to the UK market with appropriate manufacturing facilities in place and why? | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 9 | Co | Section 6 | Equipment suppliers | What other manufacturers are being considered as possible providers of modular solutions? | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 10 | Co | Section 6 | Generators | What discussions have been held with generators about this project? What have been the results of such discussions? | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 11 | Co | Section 6 | Generators | Please explain how the commercial arrangements with the generator that it is planned to connect in this project will operate. Is it expected that the costs of connection will be higher or lower than the conventional approach? If higher how will these additional costs be met? | 31 July 2014 | 04 August 2014 | 31 July 2014 | N/A | N | N | N | FI | SAR | 04 August 2014 | KLJ | 04 August 2014 | No |
| 12 | Co | Section 2 | Benefits | The SHE Transmission submission suggests that, for a number of reasons, there could be a reduction in the time necessary to undertake planning and consent processes when a modularised substation is utilised. In addition it is mentioned that the time for on-site construction may also be reduced as a result of prior factory activity. However the total project time (from inception to commissioning) will also need to include the factory build time. What is SHE Transmission's view of the difference in the average overall time required (again, from inception to commissioning) between the conventional approach and the modularised one. If there is any expected difference please indicate the extent of the expected average difference, the reasons for it and the evidence that supports that view? | 05 August 2014 | 07 August 2014 | 05 August 2014 | N/A | N | Q12_Programme AIS verse MASC | N | FI | SAR | 07 August 2014 | KLJ | 07 August 2014 | No |
| 13 | Co | Section 2.2 and 2.3 | Trials | There are a number of references to "monitoring" within the submission. Please outline what it is intended to monitor in excess of normal monitoring arrangements and indicate what the benefits of such monitoring is expected to be. | 05 August 2014 | 07 August 2014 | 05 August 2014 | N/A | N | | N | FI | SAR | 07 August 2014 | KLJ | 07 August 2014 | No |
| 14 | Co | Section 2.1f and 2.2 | Trials | Please provide further details of the learning that is expected from the NIA project, NIA_SHET_0013 and explains specifically how this will support the MASC project. | 05 August 2014 | 07 August 2014 | 05 August 2014 | N/A | N | Q20_MASC Internal and External Resource Plan | N | FI | SAR | 07 August 2014 | KLJ | 07 August 2014 | |
| 15 | Co | Appendix 6 | Market assessment | Please provide a spreadsheet which shows the detailed calculations that led to the figures shown in Table1 (Average number of projects per annum) and Table 2 (Cumulative number of projects) of Appendix 6. | 05 August 2014 | 07 August 2014 | 05 August 2014 | N/A | N | N | N | FI | SAR | 07 August 2014 | KLJ | 07 August 2014 | No |
| 16 | Co | Section 2.1f | Trials and benefits | In the submission it states that "The MASC project aims to take the best of ..... Modular approaches and seek additional benefits through the adoption of new construction techniques, protection systems, communications and auxiliary services". Please provide some specific examples of the modular approaches, construction techniques, protection systems, communications and auxiliary services that it is aimed to utilise as part of the project. | 05 August 2014 | 07 August 2014 | 05 August 2014 | N/A | N | N | N | FI | SAR | 07 August 2014 | KLJ | 07 August 2014 | No |
| 17 | Co | Section 2.1f | Trials and benefits | In the submission it is stated that "it also aims to challenge the historical standards which drive a traditional design". Please clarify which historical standards are being referred to here and what the impacts of challenging them may be. | 05 August 2014 | 07 August 2014 | 05 August 2014 | N/A | N | N | N | FI | SAR | 07 August 2014 | KLJ | 07 August 2014 | No |
| 18 | Co | Section 2.1f | Trials and benefits | Have any feasibility studies on modular substations been undertaken by SHE Transmission (on either a site specific or generic basis) to help to validate the benefits of the proposed approach and to underpin the business and technical case? If so, please provide details and a copy of the resulting report. | 05 August 2014 | 07 August 2014 | 05 August 2014 | N/A | N | N | N | FI/AVL | SAR | 07 August 2014 | AM | 07 August 2014 | No |
| 19 | Co | Appendix 2 | Equipment suppliers | In response to Question 8 SHE Transmission indicated that **XXXXXXXXXX** who have been supporting the project had provided technical information and previous examples (presumably on the modular approach). Please provide a list of the information that has been provided and some example documents. | 07 August 2014 | 11 August 2014 | 07 August 2014 | Q8 | N | [redacted] | N | FI/AVL | SAR | 11 August 2014 | AM | 11 August 2014 | No |
| 20 | Co | Appendix 10 | Project costs | Appendix 10 states that "Refer to the Resource Plan for the assumed internal and external resource requirements for the project". Please provide a copy of this resource plan. | 07 August 2014 | 11 August 2014 | 07 August 2014 | N/A | N | N | N | FI/AVL | SAR | 11 August 2014 | AM | 11 August 2014 | No |
| 21 | Co | Full submission spreadsheet | Project costs | Please confirm that no contingency allowance has been included within the expected costs for this project | 07 August 2014 | 11 August 2014 | 07 August 2014 | N/A | N | N | N | FI/AVL | SAR | 11 August 2014 | AM | 11 August 2014 | No |
| 22 | Co | Full submission spreadsheet | Project costs | The "Direct Benefits" tab shows "AIS Substation build" costs totalling £6.1 million which seems to suggest that these costs will be saved as a result of this project. However it is indicated elsewhere that the MASC project is intended to cover the additional costs of the first deployment of the MASC methodology and that the remaining costs of the demonstration substation will be covered by normal commercial connection arrangements. Please clarify what the figures in this tab are intended to be. | 07 August 2014 | 11 August 2014 | 07 August 2014 | N/A | N | N | N | FI/AVL | SAR | 11 August 2014 | AM | 11 August 2014 | No |
| 23 | Co | Appendix 7a | Business Case | The answer to question 6 includes a table of substation cost elements. For each line item in the table please explain (1) the reasons for the cost changes between the AIS and MASC substations (2) how the MASC cost estimate for that item has been derived, showing the detailed calculation, the assumptions made, and the sources of those assumptions,. Also include the reasons why you have confidence that such assumptions and calculations are reasonable. | 12 August 2014 | 14 August 2014 | 12 August 2014 | Q6 | N | N | N | AVL/FC/FI | SAR | 14 August 2014 | AM | 14 August 2014 | No |
| 24 | Co | Section 6 | Equipment suppliers | In the response to question 9 it is stated that, as well as **XXXXXXXXXX** who are named as supporters to the MASC project, other providers have been identified and some initial discussions have taken place. Please provide a list of these other providers, specifying those where such discussions have already been undertaken. In each case outine the response of the provider and summarise the information that has been provided that indicates that they would be a potential source of the required equipment. | 12 August 2014 | 14 August 2014 | 12 August 2014 | Q9 | N | N | N | AVL/FC/FI | SAR | 14 August 2014 | AM | 14 August 2014 | No |
| 25 | Co | Appendix 6 | Market Assessment | The estimated number of transmission reinforcement substations in England and Wales has been assessed by pro-rating the expected number of such upgrades in Scotland in line with the relationship between expected transmission reinforcement investment in Scotland and in England and Wales. What steps have been taken to validate that the relationship between investment levels and substation numbers is the same in both Scotland and in England and Wales? | 12 August 2014 | 14 August 2014 | 12 August 2014 | N/A | N | N | N | AVL/FC/FI | SAR | 14 August 2014 | AM | 14 August 2014 | No |
| 26 | Co | Section 2.1a | Aims and objectives | It is suggested in the submission that the smaller size and certain of the characteristics of modular substations may aid and accelerate the planning and consenting process for their construction. Has this suggestion been validated in any way? | 21 August 2014 | 26 August 2014 | 21 August 2014 | N/A | N | N | N | AVL/FC/FI | SAR | 26 August 2014 | AM | 26 August 2014 | No |
| 27 | Co | Spreadsheet - whole project costs | Costs | The table below shows the equipment cost that it is planned to incur under this project. In each case please provides details of equipment that it is planned to purchase. | 21 August 2014 | 26 August 2014 | 21 August 2014 | N/A | N | N | N | AVL/FC/FI | SAR | 26 August 2014 | AM | 26 August 2014 | No |
| 28 | Co | Spreadsheet - whole project costs | Costs | In the table shown in question 27 it indicates the modular substation costs. Please confirm that these are the additional costs of the first use of the modular substation and describe what these costs are expected to be in respect of and how they have been estimated. | 21 August 2014 | 26 August 2014 | 21 August 2014 | 27 | N | N | N | AVL/FC/FI | SAR | 26 August 2014 | AM | 26 August 2014 | No |

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| 29 | Co | Section 3.5 | Operating costs | The submission states that the MASC approach should result in reductions in operating costs. What is the anticipated estimated level of such reductions compared to current operating costs? | 21 August 2014 | 26 August 2014 | 21 August 2014 | N/A | N | N | N | AVL/FC/FI | SAR | 26 August 2014 | AM | 26 August 2014 | No |
| 30 | Co | Section 3 | Substation cost | Please could you provide clarification on how some of the costs of a substation are socialised? And therefore how the savings would flow back to customers? | 18 September 2014 | 26 August 2014 | 18-Sep-2014 | N/A | N | N | N | ML/FI | FC | 26 September 2014 | AM | 26 September 2014 | Included an attachment to show typical MASC subastation showing 132kV breakers |
| 31 | Co | Section 2 | Safety Rules | Please send us a list of the GB safety rules/standards that you expect will need to be changed in order for the MASC design to be deployed in GB. Where these changes require the support of other parties please explain who would need to agree and how this will be achieved. It would also be helpful to explain why these changes could not be achieved through business as usual. | 18 September 2014 | 26 August 2014 | 18-Sep-2014 | N/A | N | N | N | ML/FI | FC | 26 September 2014 | AM | 26 September 2014 | No |
| 32 | Co | Section 6 | Project readiness | Please confirm the view you expressed at the meeting that you see no safety issues that could prevent the deployment of the MASC method. | 18 September 2014 | 26 August 2014 | 18-Sep-2014 | N/A | N | N | N | ML/FI | FC | 26 September 2014 | AM | 26 September 2014 | No |
| 33 | Ofgem | Evaluation criteria (a) | Use of SF6 | How have you considered the increased use of SF6 in substations post project (and its displacement of the use of air insulated switch gear) in your environmental assessment? Is there still a positive environmental case? | 14 October 2014 | 16 October 2014 | 14-Oct-2014 | N/A | N | N | N | AVL/FI | SAR | 16 October 2014 | AM | 16 October 2014 | No |
| 34 | Ofgem | Section 9 | SDRC/Stakeholder Engagement | As part of second bilateral meeting, in response to the "big questions", you explained that the stakeholder engagement for the project, in particular to refine the functional specification of the substation, would involve consultation with all other relevant network licensees (including DNOs). The SDRC 9.1 in you re-submission is less specific. Please confirm what stakeholder engagement would be undertaken to inform the substation specification and how this relates to the revised SDRC. | 28 October 2014 | 30 October 2014 | 28-Oct-2014 | N/A | N | N | N | FI | SAR | 30 October 2014 | AM | 30 October 2014 | No |