OWA – S4Y2 – E – Condition Based Monitoring and Predictive Maintenance for HVDC and HVAC Substation Equipment [CBM-S] – Clarification questions and responses

Question No.	Question	Response
1	Will any of these reports/deliverables be published by the Carbon Trust at the end of the project?	At present there are no confirmed plans to publish the deliverables for this project. However, in some cases the TWG-E will publish documents where there is clear industry benefit. The decision is at the discretion of the OWA steering committee.
2	With reference to the market and literature review, have any of the relevant stakeholders been made aware of this project? Have they indicated a willingness to participate and share an appropriate level of data?	Relevant stakeholders are to be identified and will be made aware by the contractor following commencement of the project. All developers within the OWA are aware of the project and may provide information at their own discretion.
3	We realise the commercially sensitive nature of the data that will need to be shared with the successful contractor. Is there currently any anonymised data available from the OWA and/or CBM vendors, with some data classifiers? If not, is there a repository of anonymised data that the Carbon Trust would be able to share?	Although there is the possibility of TWG-E members sharing data, bidders should assume that no data is available from the TWG-E. In the proposal, the bidder should outline expected sources of data to be used for the work packages.
4	WP5 relates to developing a strategy to develop a pilot project for integrating CBM into a substation. What are the estimated timings for the implementation of this pilot project following the delivery of the strategy?	This would be decided by the successful contractor if the TWG-E decide to proceed with the optional work package. It should be noted that although a strategy is to be devised. There is no guarantee that this project will proceed; however, it will advise the OWA on solutions for a follow-on project if the benefit of doing so is sufficient.
5	Is the tender for software solutions?	The tender is not for software but for more of a market evaluation of condition-based monitoring techniques in the market – as well as some numerical evaluation as detailed in the work packages. The contractor should conduct market engagement of software solutions available in the market.
6	Does the £100-120k budget range include the optional work package?	The budget range includes optional work packages.

7	WP1 and WP3 focus on identifying and analysing "critical equipment". Many items items of substation equipment are listed in the ITT document. Is there an expectation regarding how many of these would be assessed? Or is the consultant expected to come up with (and defend) its own definition as part of this project?	The successful contractor is not required to provide detail on all items of substation equipment listed. The substation equipment chosen should be decided by the contractor with sufficient reasoning and will be agreed with the TWG. Justification should be provided on the choice of substation equipment.
8	What is the intended TRL output from the body of work in this tender?	The TRL of CBM of the works identified is likely to vary and there is no expectation of a specific TRL. There is an expectation to identify CBM methods of varying TRL; however, the methods chosen for analysis should be decided on overall benefit.
9	Does the following tender act as solely a desk-based assessment?	This tender is a desk-based assessment.
10	Is the intended tender looking to account for a holistic approach to CBM or are the contractors able to focus on a single marker (e.g. temperature)?	This tender intends to perform a market review and analysis of CBM methods available and in development. There is no expectation to look at one specific driver. The TWG would like to obtain a greater understanding of substation equipment and which would benefit most from CBM solutions installed.
11	Is there a defined maximum operating temperature for the critical assets under investigation?	This would be asset specific and may be identified by the contractor.
12	Is there to be a follow-on tender at the next stage to cater for the deployment of CBM?	The optional work package requires the contractor to devise a strategy for the deployment of CBM. There is no guarantee that this project will proceed; however, it will advise the OWA on solutions for a follow-on project if the benefit of doing so is sufficient.

13	WP1 - Would the TWG-E members provide introductions into the technical personnel of the manufacturers of HVDC equipment to enable a rapid and fruitful stakeholder engagement?	Although there is the possibility that the TWG can provide contacts, bidders should assume that none are available. In the proposal, the bidder should outline an expected stakeholder engagement strategy to be used for this work package.
14	WP1 - On the analysis report element, what is meant by safety? Is it the safety of the monitoring equipment in normal service? Is it the installation of said devices? Or is some other aspect?	The term safety is open ended and may be interpreted in a variety of ways. One suggestion is that safety may include the risk of critical damage as a result of failure of equipment.
15	WP2 - "*The root cause failure shall be based on real life/field examples*". Does the TWG-E members have any root cause failures on HVDC (suitably anonymised) that they would be willing to share?	There is no guarantee that the TWG can provide this information.
16	WP3 - What will be the basis of the cost benefit analysis in terms of the windfarm size(s)?	This is to be proposed by the successful contractor and agreed with the TWG.
17	WP3 - If multiple windfarms are being analysed, how many different windfarm sizes are expected to be modelled?	See question 16.
18	WP3 - What topography is expected to be modelled?	See question 16.
19	"*The Contractor should identify and evaluate innovative technologies and methods for measurement and data analytics for the real-time condition monitoring of power converters to enable a predictive maintenance strategy*." This appears to be very specific to the power convertors	This is intended to say substation equipment and should advise on methods which can replace conventional maintenance regimes.

	rather than to the electrical system as a whole. Is it meant to be this specific?	
20	"*economic life expectancy of the component incorporating a depreciation cost*." – Will a standard depreciation rate be provided by the TWG?	This value can be assumed by the contractor and agreed with the TWG.