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| Network Innovation Competition 2020 Supplementary Answer form | | |

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| Project Name | Constellation | | |
| Question number | #13 | Pro forma section | 10.2.6 |
| Question date | 08/09/2020 | Answer date | 10/09/2020 |
| Question summary | Please provide further information on assumptions used to estimate carbon costs of the Methods and Base Cases, mentioned on page 59. | | |

## 

## Answer (please retain document formatting and do not exceed 2 pages unless otherwise agreed with Ofgem)

The carbon benefits were derived from our cost benefit analysis which is in line with the FSP Guidance requirements. The carbon cost in page 59 refers to the carbon impact in terms of reduced CO2 emissions per year, as we have not included a financial equivalent cost for the environmental benefits.

The key assumptions which underpin the environmental benefits are:

* Constellation protects capacity (through resilience against loss of central comms and nuisance generation protection operation) which would otherwise have been supplied by the existing generation mix (base case);
* Constellation releases capacity for more low carbon generation to connect as part of decarbonising towards Net Zero;
* We have assumed Constellation`s capacity benefits (protected and released) support generation that has a lower carbon impact than the existing power generation mix;
* The carbon emissions associated with conventional power generation (the existing mix) is assumed to be 233kgCO2/MWh as per the conversion factors for greenhouse gas reporting published by BEIS in 2020[[1]](#footnote-1);
* The linear decarbonisation pathway applied to reach 10 gCO2.e/kWh by 2050 for carbon emissions associated with power generation as per the RIIO-ED1 cost benefits analysis template; and
* A load factor of 30% is assumed for low carbon power generation, as per the energy statics published by BEIS[[2]](#footnote-2). We have included this factor in the sensitivity analysis for the carbon benefits as the load factor largely depends on the type of generation technology.

We believe the lifecycle carbon impact of the equipment required for Constellation compared to the equipment used traditionally is negligible and has been excluded from the calculation of carbon benefits. Furthermore, our existing operational practices rely on staff physically visiting our sites to carry out tasks such as settings validation and device firmware updates. The logistics of these tasks contribute to our operation carbon footprint.

While not quantified within the business case, Constellation’s central management system unlocks remote capabilities for settings validation and device updates which will reduce a portion of our business carbon footprint offsetting the lifecycle carbon impact of the Constellation equipment.

1. Greenhouse gas reporting: conversion factors 2020, BEIS, 2020 [↑](#footnote-ref-1)
2. DIGEST OF UNITED KINGDOM ENERGY STATISTICS 2018, BEIS, 2018 [↑](#footnote-ref-2)