

2018-06-15

Dear EPC Commissioner,

The following is a brief description of the methodology behind the the Narec Distributed Energy (NDE) Part 1, 2 and 3 reports on the Sark Electricity System (document numbers 18-503-4432, 18-503-4436 18-503-4435 respectively).

Photovoltaic Output

- The software used was PVSyst 6,6,8, a standard commercial package for the design of solar photovoltaic systems. This can be downloaded from <http://www.pvsyst.com/en/>. The weather data was from the Meteonorm 7.1 database, as included in PVSyst. This uses satellite and land based data to provide accurate irradiance levels for Sark.
- Within PVSyst “Databases” section, a new Geographical Site was created at the location of Sark, with Meteonorm 7.1 data imported
- Within the “Project Design” option of PVSyst, a new model was created with the orientation, PV module and inverter data as in the PVSyat reports included within the main documents.
- Having run the simulation, within the “Tables” option of the “Detailed Results” the “E_Grid hourly averages” were downloaded.

Wind Output

- Weather files were downloaded from Weather Underground, using the WU API for the 12-month period up to 9th May 2018
- This data was at approx. 20 minute intervals, and the data was linear mapped using DIAdem into exact 20 minute intervals
- Using a log law, as detailed in 18-503-4435 with the assumptions within that report, data was recalculated at the relevant hub height of the turbine under investigation
- Power curve data for the turbine chosen, and the linear mapped weather data, a look up table was used to provide the electrical output in 20 minute intervals
- This was compiled into monthly electrical outputs

Financial Calculations

- Based on the data from the two above methods, the costs of the system were used along with the PMT financial function within excel to calculate the yearly rate on a bond.
- Based on the generation data, and the profile data, any diesel required was also included.
- This was then compared with the current rate from Sark Electricity.

Yours sincerely,
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Director