



SMITH brothers

Case Study

Electricity Connections:

Drayton Manor Solar Farm
Western Power Distribution (WPD)

Construction Dates: October 2015 - August 2016

Objectives and purpose

The benefits of a turnkey package in any sector are widely acknowledged – communication is clear, consistency is achieved as standard and project coordination is far more efficient to manage. But when it comes to high voltage electrical engineering projects, end-to-end service providers can fulfill more than just efficiency requirements.

Therefore, when Anesco required a contractor to complete a 66/11kV 65MW fully adopted outdoor substation for Drayton Manor – a solar farm which now generates enough energy to power more than 14,000 homes – turnkey specialist Smith Brothers was a clear choice. With decades of experience working on high voltage electrical assignments, the firm was enlisted to carry out the entire design-to-commission project.

Turnkey provisions

A 25-strong team was deployed on the job, conducting all required works from start to finish – including design, cabling, civil construction, primary plant procurement and installation, main and remote substation construction, full commissioning and testing.

Spanning 96 hectares, the terrain was largely flat, even and straightforward to navigate. Nevertheless, before the design stage could be conducted, a significant number of studies were required to establish key specifications for the build and connections. These included geotechnical, topographical, harmonic and P28 analysis, with the commencement of the electrical, primary plant, civil and protection designs taking place shortly afterwards.

The overall project was then divided into two key phases, covering the construction of the primary 66kV hub and the further build of nine remote 11kV adoptable substations, to reinforce its ability to cope with demand. Phase one involved the construction of the first five contestable assets, along with the connection of a transformer, while a second transformer entailed the installation of a further four WPD-owned substations.

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Fast turnaround works

With the assignment requiring extensive construction works, intuitive project scheduling and a fast turnaround was required by the Smith Brothers team. Alongside the build of the main protection and switchgear unit, the works also entailed all procurement of 11kV switchgear, Battery Tripping Unit (BTU), protection panels. Additionally, as part of the remote substation works, integral switch panels were also installed in each.



Alongside the civil works, the installation of all primary plant including Disconnectors, switchgear, transformers and protection was completed as part of the primary plant procurement. HV cabling infrastructure was also delivered within this package, with the team connecting a high voltage 1000mm 66kV cable to take the line capacity from the Point of Connection (POC) to the primary hub.



Fully commissioned on behalf of WPD, the 66kV/11kV project also included the G59 testing on-site for the client. The end-to-end aspect of the contract meant that transitions between the design, civils and cabling could be conducted smoothly and without hold ups, and the team achieved the completion deadline.

Strengthening the renewables reputation

Commenting on the successful results of the Drayton Manor Solar Farm assignment, director David Ogden said: "Given the unmovable deadline, this was undeniably a challenging project. But thanks to the nature of the site, the team's expertise and the excellent collaboration from both Anesco and WPD, we completed the end-to-end contract within the timescale required, to the high standard for which we are increasingly recognised."



The high voltage specialists have been contracted by Anesco for nine separate projects now, thanks to their efficient executions and commitment to working collaboratively to achieve the best results.

David continued: "The nature of our turnkey services means that we focus on solutions rather than problems. It is in everyone's best interests to work together to get the job completed effectively, safely and on time, and that is precisely what we achieved with this project."

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