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NIA Project Annual Progress Report Document

Date of Submission

Jul 2023

Project Reference Number

NIA2_NGESO040

Project Progress

Project Title

DETECTS II

Project Reference Number

NIA2_NGESO040

Project Start Date

March 2023

Project Duration

1 year and 0 months

Nominated Project Contact(s)

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Scope

The work is to comprise:

- Licensing of software and model.
- Setup of software and model on ESO computer.
- Training of ESO employees to use the model of the South East Coast.
- Use of the model to determine stability limits of South East Coast; includes ongoing technical support by Transmission Excellence.

Objectives

The objectives of this project are to:

1. Deliver practical tools for the application of advanced grid modelling for system operations.
2. Validate the stability limits in the South East Coast by utilising suitable high-fidelity models of converters and applying EMT based analysis.
3. Deliver training and support to the ESO in the use of the advanced modelling tools developed.

Success Criteria

This project will be regarded as successful if:

1. The software is successfully installed on ESO equipment and training is provided to all relevant ESO employees.
2. The software enables the ESO to more accurately calculate the stability limit(s) for the South East Coast.

Performance Compared to the Original Project Aims, Objectives and Success Criteria

National Grid Electricity System Operator ("NGESO") has endeavoured to prepare the published report ("Report") in respect of DETECTS II, NIA2_NGESO040 ("Project") in a manner which is, as far as possible, objective, using information collected and compiled by NG and its Project partners ("Publishers"). Any intellectual property rights developed in the course of the Project and used in the Report shall be owned by the Publishers (as agreed between NG and the Project partners).

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The work is to comprise the following steps:

1. Licensing of software (python based tool developed by Transmission Excellence) and EMT model of GB system with more focus and details on the South East Coast network.
2. Setup of tools and models on ESO computer.
3. Training of ESO employees to use the model and the tools.

Use of the model to determine stability limits of South East Coast; includes ongoing technical support by project partner, Transmission Excellence. At this stage of the project the first two steps are being progressed. The model has been licensed and transferred to the ESO. The special hardware has been sourced and the models and tools are being set up. Transmission Excellence and the ESO are working together to debug and test the models and tools. The discussion with the relevant manufacturers has been kicked off to refresh South East Coast 'black box' models.

Required Modifications to the Planned Approach During the Course of the Project

No modifications to the approach have been required to date, however the tools versions compatibilities have been investigated and additional validations are required to ensure the results are matching between the older version PSCAD v4.6 (DETECTS I model environment) and the newer version of the tool PSCAD v5.

Lessons Learnt for Future Projects

Ensure versions and tools compatibilities and IT system restrictions are agreed at early stages in the project

Note: The following sections are only required for those projects which have been completed since 1st April 2013, or since the previous Project Progress information was reported.

The Outcomes of the Project

At this stage of the project, the main outcomes are:

- The procurement and set up of the High Performance Computers (HPC) to run the DETECTS model efficiently
- Licensing the full DETECTS model to the ESO and transferring all the required scripts to the ESO HPC
- Perform full testing and debugging of the model after the transfer to the ESO

Data Access

Details on how network or consumption data arising in the course of NIA funded projects can be requested by interested parties, and the terms on which such data will be made available by National Grid can be found in our publicly available "Data sharing policy related to NIC/NIA projects" and www.nationalgrideso.com/innovation.

National Grid Electricity System Operator already publishes much of the data arising from our NIC/NIA/SIF projects on the Smarter Networks Portal (www.smarternetworks.org) and National Grid ESO Data Portal (data.nationalgrideso.com). You may wish to check these websites before making an application under this policy, in case the data which you are seeking has already been published.

Foreground IPR

No foreground IPR expected to be generated in the project.