

## Network Innovation Allowance Closedown Report

*Notes on Completion:* Please refer to the appropriate NIA Governance Document to assist in the completion of this form.

Network Licensees must publish the required Project Progress information on the Smarter Networks Portal by 31st July 2014 and each year thereafter. The Network Licensee(s) must publish Project Progress information for each NIA Project that has developed new learning in the preceding relevant year.

### Project Closedown

#### Project Title

Backup DC drive electronic starter

#### Project Reference

NIA\_NGGT0010

#### Project Licensee(s)

National Grid Gas Transmission

#### Project Start Date

Jun 2012

#### Project Duration

2 Years 9 Months

#### Nominated Project Contact(s)

Mark Allatson (box.innovationtransmission@nationalgrid.com)

#### Scope

Most compressor station Gas Turbine units have a number of battery powered emergency back up dc motors driving the vent fans, lube pumps etc. which are started in the event of a mains power failure. Currently these motors are started from resistor type starters located within each compressor unit's dc motor control centre.

At a number of compressor stations these resistor starters have overheated causing damage to the control equipment and constituting a fire risk.

It is proposed to replace these with a new dc electronic motor starter. DC electronic motor starters are not available as off the shelf products for a dc battery supply and will therefore require design and development. A prototype will be designed and tested and then a working unit will be installed at Wooler compressor station for a trial followed by the installation of the remaining 2 within the unit.

#### Objective(s)

The objective of the project is to develop a safer and more reliable alternative to the resistance type motor starters currently installed on compressor sites.

#### Success Criteria

The project success will be a successful trial of the performance of the dc electronic starter motors on a National Grid Compressor site. A successful starter design will provide a simplified motor starter with less discrete electro-mechanical components.

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

#### Updated 2013/14

Thus far the project has met all the performance criteria set at the outset. However, delays have been encountered associated with obtaining the necessary system outages to undertake onsite testing.

The project is currently at the Factory Acceptance Test (FAT) phase, which will continue into 2014.

#### **Update 2014/15**

The project has met all the performance criteria set at the outset. The new DC drive successfully completed its factory acceptance test (FAT) and progressed to installation at Wooler compressor station in September 2014.

The installation was successful and the drive passed the commissioning and performance testing phase and is now operational. The drive is now being rolled out to other sites on the network. Currently it is in the design phase for Aberdeen and Felindre compressor stations. The project is now complete. Please see the attached report for full details of project outcomes.

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

##### **Updated 2013/14**

No modifications have had to be made to the original aims during the project so far. However, the project schedule has been adjusted to accommodate some delays encountered as a result of outage limitations.

##### **Update 2014/15**

The basic approach and design have not been modified during the project, however at the FAT some problems were encountered with overheating during testing. These were resolved by altering the physical configuration of the drive board, heat sink and cooling fan.

#### **Lessons Learnt for Future Projects**

##### **Updated 2013/14**

The research and development approach has proven to be a successful venture in terms of technical development and one that this project team are prepared to repeat for future technical problems that require a different solution.

In terms of future projects more time allowance will be made for acquiring the necessary outages.

##### **Update 2014/15**

No further learnings to add to the above mentioned.

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

#### **The Outcomes of the Project**

A single DC electronic drive was manufactured as a prototype and tested on a load bank. Following successful completion of the test phase three units were manufactured and installed on an operational site. These are now fully installed and operational. The project is now closed.

#### **Planned Implementation**

Further units have been manufactured to complete the installation at the original site and more designs are in progress for two further sites.

#### **Other Comments**

The project has met all initial aims and has proven a success.