



# Compressor Balance of Plant Environmental Study

Value Tracking Case Study



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## Background

The proposed scope of works comprises development of the novel software decision support tool, development of ten best practice guides and a limited programme of training and awareness raising in National Grid and the wider sector (facilitated via the Energy Networks Association (ENA) and as appropriate other sector bodies such as Marcogaz).

**Software Tool:** The development of a software tool which will allow comparison of a range of candidate technology options for each study topic area in order to assist in determining which offers the best environmental cost benefit balance for National Grid and its customers. The tool will then be used to develop a series of generic best practice / BAT case studies which will compare the environmental cost benefit of a range of existing technology options and determine which represents BAT. There is no equivalent tool in use to specifically address the challenge of environmental cost benefit analysis for compressor ancillary equipment. The proof of concept for this approach has already been established, in the form of the Compressor Machinery Train BAT Evaluation Toolkit, which has previously been developed for GTAM. That tool, which also employs environmental cost benefit modelling and assessment techniques has received positive feedback from UK environmental regulators and compressor machinery train Original Equipment Manufacturers (OEMs) for its innovative approach to addressing multi-disciplinary environmental, technical and procurement challenges.

**Best Practice Guides:** The objective in developing the guides is to create a published resource that can be used by National Grid (and the wider sector) to inform designers, support investment decisions, environmental permitting and planning applications and justification on technology choices required by environmental and financial regulators.

## What's new?

A Microsoft Excel spreadsheet tool has been developed, to undertake an environmental cost benefit assessment and support decision making on the selection of balance of plant process equipment. The spreadsheet tool guides users through the following stepwise process:

1. Identify environmental and technical criteria
2. Identify BAT candidates (including pros and cons)
3. Measure BAT candidates (input cost and performance data)
4. Score (automatically calculated from Step 3)
5. Assess (automatically generated graphical outputs requiring interpretation)

The project has produced innovation guides in areas such as a valve actuation, heating/ cooling and pre-heating to provide further guidance.

A Plant Design Forum was held with National Grid framework engineering designers approximately six months into the project, allowing the project team to share the aims and objectives of the project, to demonstrate the spreadsheet tool and to talk through the pilot study. The forum provided an opportunity for an exchange of views between the project team and engineering designers, for the project team to address queries and concerns about the internal standards driving BAT for BoP, and for the project outputs to be refined. This forum replaced the original Innovation Workshop.

This has also resulted in a new specification T/SP/ENV/22 (Specification for Best Available



Techniques (BAT) Assessment for Compressor Balance of Plant) to outline this work and support project outputs.

## The benefits

The approach will ensure reduced cost in project work through the selection of the most efficient equipment. This will also have further benefits of reduced environmental impact and process efficiencies the business which improve current processes.

## Financial savings

The project has recognised £1,085m to date through reduced costs which has been a great success for the business.

## Implementation

The outputs of the project have been rolled out across the business through policy updates and stakeholder communications. Further benefits to be tracked as a part of future project review and implementation work. Further technology reviews to be planned with stakeholders to ensure future developments are considered as part of project considerations.

