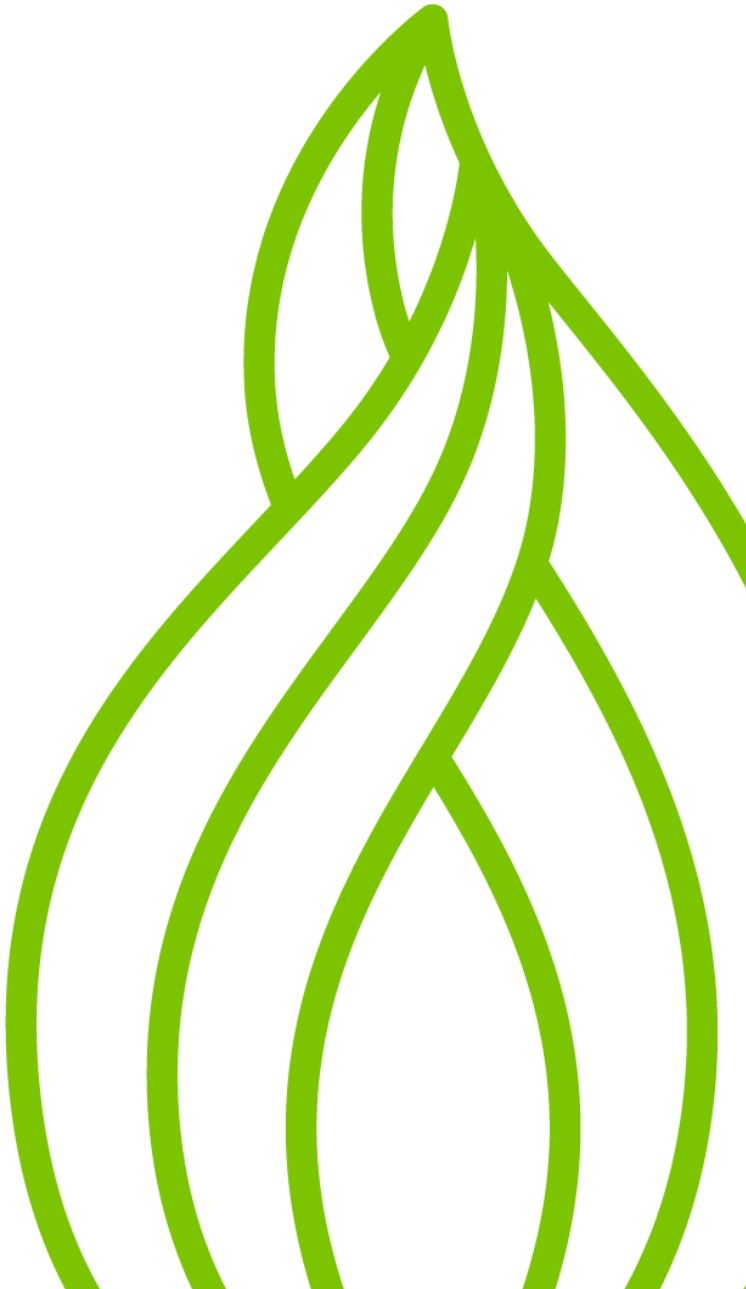
national gas transmission

SCR Selective Catalytic Reduction

Value Tracking Case Study



SCR Selective Catalytic Reduction

Background

The entire existing fleet of standard Rolls-Royce RB211 and Rolls-Royce Avon gas turbine driven compressors will ultimately be noncompliant with tightening environmental emissions standards without accepting derogations severely restricting running hours or restricting operating life ('emergency 500 hours use' or 'limited life derogation').

National Gas has sought, in general, to address the issue of environmental improvements through the installation of new electric Variable Speed Drive (VSD) compressor equipment or new Dry Low Emission (DLE) gas turbine drivers. These two technologies have been generically identified as Best Available Technique (BAT) for the gas transmission system for some 10 years, in agreement with the UK environmental regulators.

Retrofitting of DLE systems to existing turbines may not be viable because of the age of the assets (up to 40 years) and other alternative emissions control techniques, such as water or steam injection, are periodically reviewed (most recently in 2015) and have limited applicability and potentially introduce a number of operational difficulties.

The use of catalytic technologies for new build gas turbines has previously been considered and rejected as a candidate BAT option for mainstream applications as they are largely unproven in gas transmission applications and do not offer the potential for realising the wider benefits that can be achieved when installing new compressor machinery train (e.g. increased operating efficiency and better compressor matching to site duty).

The aim of the project was to understand the technical challenges of implementing an SCR approach, develop an outline design for identified sites and update existing models for technology comparisons.

What's new?

The project reviewed SCR opportunities and where it could be utilised within Operations. It also highlighted that there would be no blockers to introducing this approach but there may require certain updates to the system to implement such a solution.

The benefits

The project is aligned to our environmental theme and improvements to technology application that will offer potential financial and carbon benefits to customers. This will also provide an alternative technique if existing options are unsuitable or costly.

Financial savings

The technique has not been used onsite yet but is part of the BAT assessment completed and any usage will be tracked for benefits compared to existing techniques.

Implementation

The approach has been added to the Best Available Technique (BAT) Assessment and provides another technique to utilise across the business.