Emission Control Trim

SGT-600 with 3rd generation DLE combustion system and SGT-700

Reduce NOx emissions & maintain high combustion stability

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Background

- Environmental requirements have increased in recent years and will continue to set even tougher demands on gas turbine emissions.
- The portion of renewable energy sources in the energy mix has increased, yet electricity demand remains variable. This has led to increased need for flexible operation while retaining low emissions at all power output ranges.
- Gas turbines should have the flexibility to meet environmental requirements within a broad range of operation to give the possibility to run based on operational demand.
- Emission Control Trim is a new product based upon Siemens Energy's patented combustion technology - a step forward to achieve low NOx emission at a wider load range on an annual basis.

Fleet applicability and capability

Emission Control Trim is available for all SGT-600 with 3rd generation DLE combustion system and SGT-700, and worthwhile for:

- Any sites looking to operate with low NOx emission levels while maintaining high combustion stability.
- Any sites that need to operate with stable NOx emissions over a wider load range and ambient conditions.
- Any installations where local emission regulations are challenging future operation.
- Any customer looking for extended, faster and improved remote support for combustion tuning.

Product Overview

The key principles behind the Emission Control Trim product are as follows:

- An adaptive Pilot Fuel Ratio (PFR) which searches for an optimum NOx emission level at a wider load range, see **Figure 1**.
- Operation at emission-compliant levels while maintaining high combustion stability over a wide load range.
- Improved combustion dynamics measuring system using Fast Fourier transform (FFT), enables remote support for combustion tuning and troubleshooting.

Benefit

- An opportunity to operate with low NOx emission levels. Emission Control Trim can reduce the annual NOx emissions by up to 25%.
- With Emission Control Trim, high combustion stability can be maintained despite temperature fluctuations.
- Emission Control Trim is easy to implement during any scheduled inspection, even at a minor inspection.
- Emission Control Trim also offers an improved possibility for remote support on combustion tuning, meaning reduced personnel on site for future inspections.
- No change in performance, since the system concerned only controls fuel split (PFR).
- Reduced cost for Selective Catalytic Reduction (SCR). Less ammonia consumption due to more stable NOx emissions.

Support Services and Implementation

- Implementation of Emission Control Trim can be done during any planned inspection. The estimated time at site is 2 days for installation of modules for the combustion dynamics measuring system, implementation of new logic and tuning.
- All installation and commissioning shall be carried out by Siemens Energy qualified field service engineers.
- It is recommended to plan for this upgrade at least 6 months prior to your next inspection or overhaul.
- A well-functioning remote connection is highly recommended, so that supportive actions such as combustion tuning can be performed remotely.
- Please contact your Siemens Energy Sales Representative for further information.

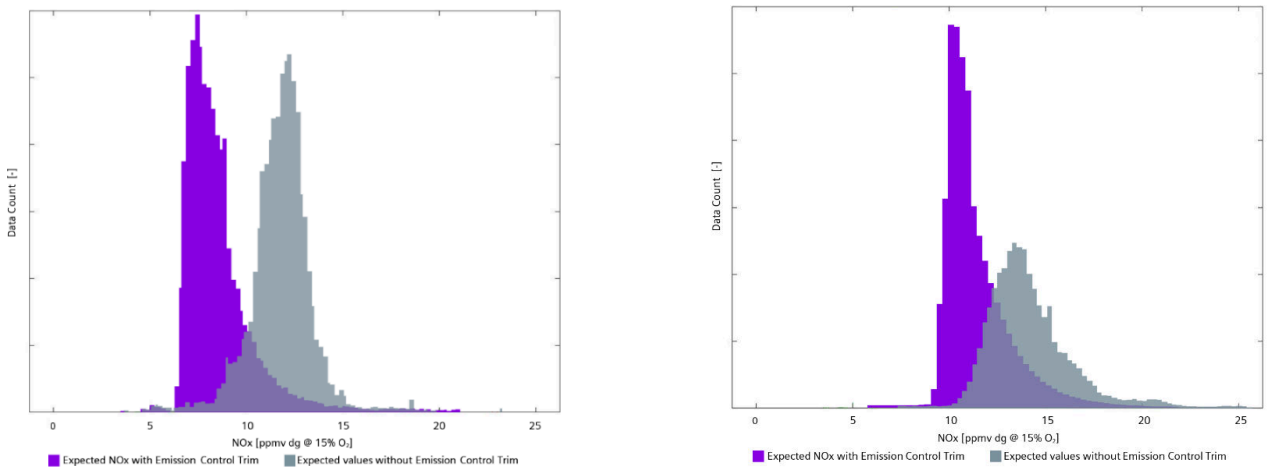

Figure 1: Potential differences, with and without Emission Control Trim. The histogram presenting at the left are collected values from SGT-600 and whereas on right the values are collected from SGT-700. NOx reductions based on ISO conditions and an installation with maximum allowed NOx, 15 ppmv

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