

ATTACHMENT 4

7FA GAS TURBINE TUNING

Tuning is a process that optimizes and validates the configuration of a gas turbine's control parameters and settings. The F-class Dry Low NO_x (DLN) combustion system was designed to meet lower emissions levels while maintaining stable combustion dynamics. Occasional retuning may be required to maintain proper operating margins for NO_x, CO, POC, and combustion dynamics levels. Compressor inlet temperature, humidity, variations in fuel properties, and drift in fuel valve calibration are among the primary drivers of combustion dynamics and emissions levels and need for periodic retuning. Historically, retuning has been accomplished manually either on-site or remotely by GE experts.

Typical tuning variables for the 7FA gas turbine may include but are not limited to combustion fuel staging, the part load exhaust temperature control curve, the base load exhaust temperature control curve, and inlet guide vane (IGV) angle.

The following is a list of potential tuning activities that may be performed in 5 MW increments for the 7FA gas turbine:

FSNL to 25%

- Low load testing in Mode 1, IBH on
- Mode 1 to Mode 3 transfer optimization
- Mode 3 testing, IBH on

25% to 50%

- Mode 3 to Mode 1 transfer optimization
- Mode 4 testing
- Mode 3 to Mode 4 transfer optimization
- Mode 4 to Mode 3 transfer optimization

50% to 75%

- Mode 4 to Mode 6 transfer optimization
- Mode 6 to Mode 4 transfer optimization

75% to 100%

- Mode 4 to Mode 6 transfer optimization
- Low-load Mode 6 testing
- Mode 6 to Mode 4 transfer optimization

Final Optimization

- DLN split schedule optimization at base load
- Mode 6 to Mode 4 transfer operation
- Control curve optimization
- IBH-off operation
- Final constant adjustments and verification of all combustion and turbine control settings, auto load to base, and fired-shutdown from base