International Power Technology

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SUB 5 PPM NOx ACHIEVED

SAN JOSE, California – June 29 , 2007 – International Power Technology (IPT) announced today that it has achieved sub 5 ppm NOx at 1895 Deg F. CTIT firing temperature and 3.0/1 steam-to-fuel (s/f) ratio at its Allison 501-KB5(KH) CLN® demonstration cogeneration site located in Menlo Park, California. The SRI CLN® demonstration site has been operational since February 2005 and is continuing to demonstrate the viability and benefits of the CLN® technology. Ultra-low NOx and CO, lower operational costs, lower turbine heat rates, and extended turbine hardware and overhaul lifetimes are among the benefits being demonstrated at the SRI CLN® site.

The sub 5 ppm NOx was achieved by using IPT's specially designed fuel nozzle. The fuel nozzle is designed to allow changes in fuel-steam mixture mass flow, velocity, momentum, and radial and axial direction. Additionally, the testing nozzles can be positioned in different axial locations within the combustion liner. All of these nozzle design characteristics contribute to the ability to achieve ultra-low NOx while keeping CO low enough for flame stability. Because the oxygen distribution from front to back is different from liner to liner, different flow patterns, and thus nozzle configurations, are required for different combustion liners. The combustion liners that IPT has tested include the stock LE-2, LE-3.1, and LE-3.2. In its effort to achieve lower NOx and CO emissions, IPT has deliberately left the combustion liner unchanged during its testing of the CLN system and only OEM liners are required for all emissions levels. The sub 5 ppm NOx that was achieved recently was with the OEM LE3.2 liner and at a steam-to-fuel (sf) ratio of 3.0/1. A level of 15 ppm NOx can be achieved at 1.75/1 sf ratio, and 9 ppm NOx can be achieved at 2.25/1 sf ratio. Carbon Monoxide at all steam-to-fuel ratios is below limits required for stable combustion.

For applications requiring no less than 15 ppm NOX, standard OEM Low Btu fuel nozzles can be used. For NOx level between 5 and 15 ppm, IPT's specially designed fuel nozzles are required. All other engine hardware is stock OEM.

IPT's Cheng Low NOx (CLN®) system uses saturated steam mixed with fuel to produce ultra-low emissions. The steam is mixed with the fuel to a very high level of homogeneity in hardware that is off-engine and compact. Nominal steam pressures of 250 psig and fuel pressures of 275 psig are required to achieve low NOx emissions. Lower steam pressures can be used for higher NOx limits.

IPT retrofitted its SRI CHP Allison 501-KH "Cheng Cycle" gas turbine with the CLN® technology in February 2005 in a move to get off water injection, decrease overall plant fuel consumption, and increase combustion liner lifetime. According to IPT, steam is easier on combustion liners as opposed to water and significantly increases the lifetime of these hot section parts. In addition to increased combustion liner lifetimes there is a significant savings on turbine fuel consumption (6%) due to an improved turbine heat rate on steam, says Randy Turley, IPT's President. This is because the water does not need to be vaporized in the engine which requires less fuel. Since the retrofit has been completed the technology has proven to live up to all its expectations.

Candidates for a retrofit to the CLN® technology include:

1) Existing 501 LE4-DLE customers with engines experiencing DLE maintenance problems such as high heat rates at part load, carbon blasting, and premature failure of combustion liners.
2) Customers seeking to get off water injection,
3) Customers needing to reduce NOx and CO for regulatory reasons,
4) Customers wanting to voluntarily reduce NOx and CO emissions to sell the offsets on the open market, and
5) New source review (NSR) requirements requiring ultra-low NOx and CO.

SRI International is a nonprofit public benefit 501(c)3 corporation organized in 1946 for the purpose of scientific research. SRI conducts contract research and development for public and private organizations throughout the world. SRI employs approximately 1,400 people worldwide, including 1,200 people at its 63-acre campus in Menlo Park, California and has yearly revenues in excess of $200 million.

IPT was formed in 1974 to develop gas turbine steam injection technology. In 1984 IPT co-developed with Detroit Diesel Allison the Allison 501-KH "Cheng Cycle" gas turbine and has authored over 48 U.S. and international patents. Headquartered in San Jose, California, IPT's primary business today is O&M of power plants, engineering, field service, and CLN combustion research.