



Turbo Expo

Turbomachinery Technical Conference & Exposition

ASME IGTI *Coal, Biomass, Hydrogen & Alternative Fuels* Committee Tutorial of Basics
**Life Cycle Assessment Basics and Application to Optimize the Environmental Sustainability of Gas
Turbines During New Product Development**

December 16, 2020 * 03:00 - 5:00 pm Eastern Time

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Abstract

Gas Turbines market, especially for the applications in energy sector, is demanding rising sustainability requirements. Manufacturers are therefore required to implement actions and policies to continue playing a strategic role for the global goals of sustainable development and reduction of global warming. The application of environmental life-cycle assessment from the early stages of product design is becoming a critical driver to develop a competitive product also from an environmental perspective. As a matter of fact, the earlier application of design-for-environment techniques can effectively influence the decisions towards a comprehensive sustainability.

The tutorial session will provide basic insight on:

- Introduction on Sustainability
- Challenges for gas turbine environmental sustainability;
- What is Environmental Life Cycle Assessment?
- LCA Milestones and Methodology with reference to available ISO standards (ISO 14040, ISO 14044, ISO 14067);
 - Goal and scope, functional unit, system boundaries;
 - Inventory phase, attributional vs consequential LCA;
 - Impact assessment, impact categories, end point vs mid-point;
 - Interpretation, single score, product category rules;
- Applications for the energy sector, specifically on Gas Turbines;
 - case study on the application of LCA during a new product development at Baker Hughes;
 - potentiality to reduce the environmental impact during the design phase;
 - The cost of being environmentally friendly
 - Is it possible operate a Gas turbine environmentally friendly with profit?
 - Carbon Footprint vs. mid points, priority setting
- Conclusions and future development