



ENTSO-G Workshop Interoperability Network Code & Gas Quality

Introduction

- **EUTurbines represents the European gas & steam turbine industry**not the owners of gas-fired power plants
- **Gas turbines** are used in different applications, but the vast majority is used in power generation (electricity, but also combined heat & power for district heating or industrial purposes)
- **Gas-fired power plants** are among the most efficient power plants, but most existing plants run only occasionally and do not earn money. The main reason: the relative costs compared to other primary energy sources like coal and nuclear.



Doosan Škoda Power



Solar Turbines
A Caterpillar Company

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European Gas Quality General Considerations

Electricity generation with gas is an important solution to provide flexibility and stability to an electricity grid dominated more and more by volatile renewables ...

... but has a **cost-problem due high relative costs of gas**

The consequences:

- 1. Ensure gas supply by using many possible sources**
- 2. Ensure a harmonised gas quality at an early stage of the chain, as costs for adapting the gas quality are lower than at site level**
- 3. Avoid adding costs that negatively impact the relative competitiveness of gas-fired power generation**

All players in the gas value chain should be interested to ensure that gas-fired power generation is a competitive solution – or will lose an important market segment!

Gas Quality & Turbines

Turbine-based power plants can be designed for very different gas qualities, but are optimised for a specific gas composition especially with regard to safety aspects and emission limits of NO_x.

Consequences:

1. New plants can be designed for certain eg Wobbe Index values – high or low. The **challenge** is not, if the value is high or low, but **larger %-variations after the design**.
2. Existing plants were contracted and designed for a defined gas quality. **Changes in the defined gas quality require adaptations/retrofitting** to ensure the safety (explosions) and accordance with emission legislation. This means costs for utilities, which are in a very difficult economic situation!
3. **Emission legislation** for power plants have become very strict – **variations in gas quality can lead to a loss of permit**