



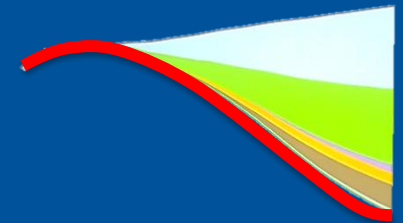
Gas Fired Power Plant Technologies towards Decarbonization

Mauro Moretto

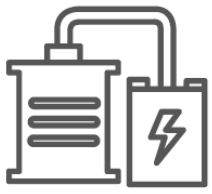
9th International Gas Turbine Conference; Brussels, Belgium

- **Global Energy Demand** prospects: overall growth **slowdown** with differentiation across world regions
- Global Energy Resources Mix Transition: **growth of electrification & gas, less coal and oil, rapid deployment** and falling costs of **renewables technologies**
- **Electrification, Renewables and Efficiency** are the key mechanisms to **drive forward the low-carbon transition** and reduce pollutant emissions

Sustainable scenarios: make the world CO₂ emissions peaking now



(in 2040 from 35 to 18 Gt/yr)




- **Storage → Renewables Gas → High efficiency H₂ gas turbine combustion**



- **“Systems of Systems” → Hybrid Plants**

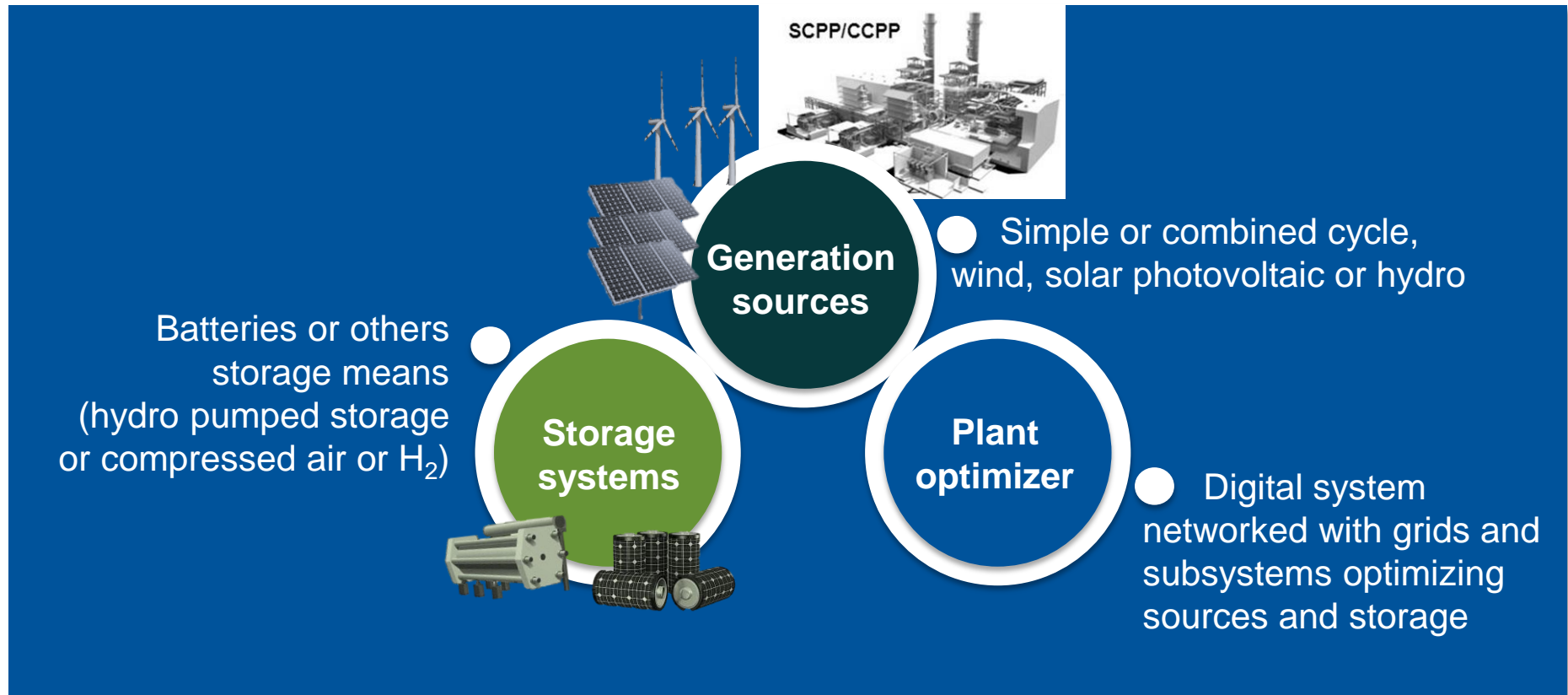
AE Key Enablers for Hydrogen GT combustion

- Proven operating experience (since 2006) on H₂ management (monitoring, functional and safety) on gas fired power island applications
- H₂ combustion technology portfolio on different GT classes for a wide array of applications

 AE Technology	Max vol % H ₂	Load Range
➤ Annular Hybrid Combustor	15 - 20	40 - 100%
➤ Flamesheet™ Combustor	40	30 - 100%
➤ Sequential Combustor	30 - 50	20 - 100%



Virtual power plants with fully interoperable and networked sub systems



- **Power sector is undergoing an unprecedented transition:** different technologies competing to win, economics and speed of change can be driven by policies
- Technology providers have to cope with **differentiations across world regions**
- **Gas fired power plants new technologies have potential to contribute and support fast transition to low carbon society**



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