



Flexible Power Generation ETN Webinar Series

7th Episode – 04/20/2021

SIEMENS
ENERGY



HYFLEXPOWER

Power-H₂-Power Pilot CO₂-Free Green Energy with H₂ GT

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Siemens Energy

HYFLEXPOWER Power-H₂-Power Project

Overview



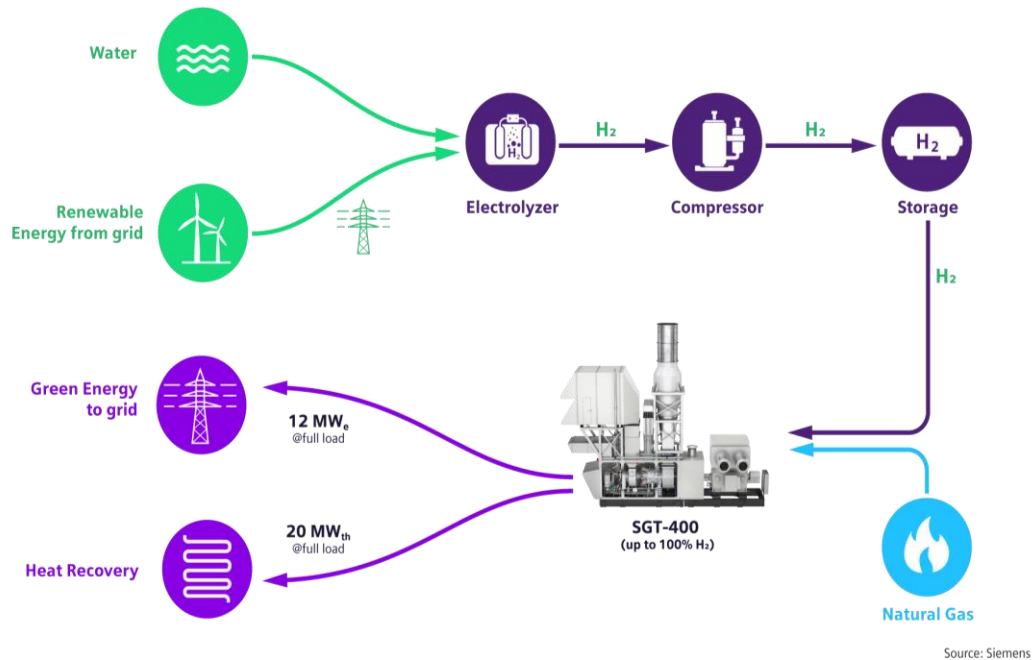
World-first demonstration of a power-H₂-power path for CO₂-free power generation pilot including an advanced H₂ gas turbine

- Decarbonizing papermill by modernizing combined heat and power plant in Saillat-sur-Vienne, France.
- Siemens Energy led consortium with project value of 15.2 M€
- Project Start: May 1st, 2020 - Duration: 4 years
- Partners include: Engie Solutions, Centrax, Arttic, German Aerospace Center, Universities: Duisburg-Essen, Lund-Sweden, University College London, National Technical University of Athens

Customer, academia and OEM formed strong consortium demonstrating CO₂-free power generation

EU Framework Horizon 2020: HYFLEXPOWER

Project Concept & Key Milestones



Smurfit Kappa plant in Saillat-sur-Vienne, France: Pilot Cogeneration SGT-400 Plant

- **Engie:** Develop advanced plant concept with H_2 storage and supply
- **Siemens Energy:** Development H_2 SGT-400; Electrolyser
- **Centrax:** H_2 gas turbine package upgrade
- **Academia:** DLR, Universities UCL, Duisburg-Essen and Lund to support H_2 GT technology development
- **NTUA:** Economic, environmental social assessments
- **Arttic:** Support in PM and communication activities

Milestones

2021

- Installation of the H_2 production, storage & supply facility at site

2022

- Initial demonstration of advanced plant concept with NG/ H_2 mixtures

2023

- Pilot up to **100% H_2 for carbon-free energy production** from stored excess renewable energy (CO₂ saving 65,000t/yr.)

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Expected Results & Next Steps



Expected Results & Impacts

- Industrial scale power-H₂-power solution pilot
 - Importance of H₂ as long-term energy storage technology
 - Decoupling renewable energy power generation from demand and enabling additional revenue streams
 - Utilization of existing assets to produce green power & heat
- Validation of SGT-400 dry low emissions (DLE) high-H₂ technology with up to 100% H₂
- Economic, environmental & social assessments for business case evaluation, carbon footprint, & policy recommendations

Next Steps & Research Direction

- Download DLE high-H₂ technology to GT portfolio
- Drive a sustainable, affordable and secure H₂-based energy transition to net-zero
 - R&D Investments
 - Policy Leadership
 - Acceleration of Commercialization



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Thank you!

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