

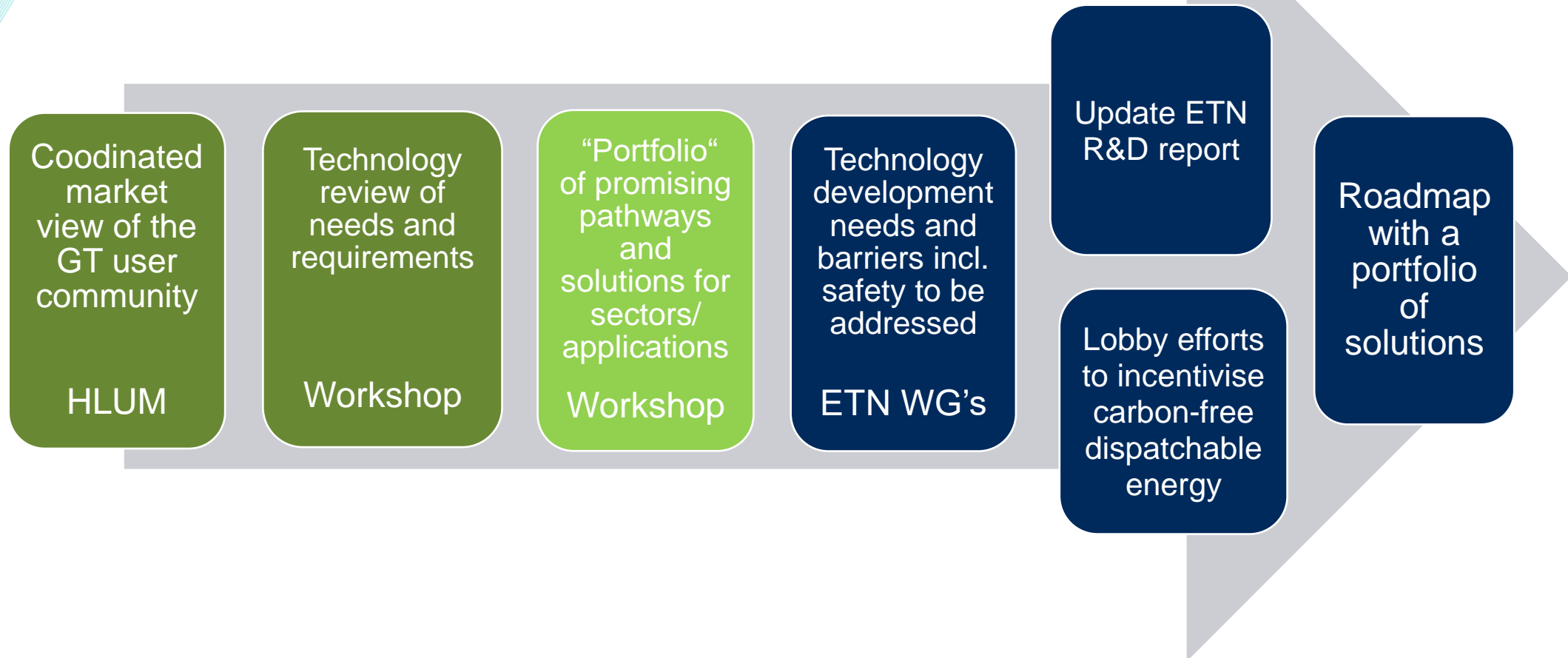
Conclusions/final remarks

Christer Björkqvist/Rene Vijgen, ETN

ETN's Roadmap 2022

“Efficient, flexible and low carbon pathways towards net-zero solutions”

Strategy to accelerate the energy transition



Main Gas Turbine Pathways

Low carbon fuels & CCS solutions

- Alternative low-carbon fuels – GT retrofit solutions
 - Hydrogen (Blue, green,...) and blends with natural gas
 - Ammonia
 - Bio-/ E-methane (renewable H₂+captured CO₂)
 - Sustainable liqued fuels - methanol (limited to small distributed power generation –MGT, small GT)
- Improvement and deployment of CCS solutions – NG/LNG + CCS/CCUS
 - Exhaust Gas Recirculation (EGR)
 - Post-combustion solvents (liquid/solid)
 - Pre-combustion
 - Oxy-fuel cycles

Main Gas Turbine Pathways

Energy efficiency, performance & decentralised energy systems

- Increased energy efficiency and performance
 - Increased operational flexibility within emissions regulations (part-load and full load)
 - Centralised more efficient power hubs
 - Alternative GT cycles: Light and compact bottoming cycles (sCO₂)
 - Air filtration
 - CHP (district heating etc.)
- Hybridisation of gas turbines with renewables and energy storage to provide flexible and dynamic solutions
 - Demonstration of cost-competitive carbon-neutral systems
- Performance and reliability
 - Life-time extension programs for aging assets in the energy transition
 - New inspection techniques to access the reliability of critical components

Save the dates!

Upcoming ETN meetings 2023

- **ETN Annual General Meeting (AGM):**

- 28-30 March 2023
- London, UK

- **International Gas Turbine Conference (IGTC):**

- 10-12 October 2023
- Brussels, Belgium



IGTC
International
Gas Turbine Conference



IGTC
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Gas Turbine Conference

- ✓ World renowned event in the global GT community
- ✓ Gathers experts from across the whole value chain
- ✓ 5 keynote sessions
- ✓ 9 technical sessions
- ✓ 30 technical papers
- ✓ Call for IGTC-23 papers: summer 2022



Next conference: 10-12 October 2023, Brussels, Belgium

Call for Reviewers & Abstracts: due date 07 December 2022



IGTC
International
Gas Turbine Conference



Conference Advisory Board (CAB) 2023

- Felix Güthe, Phoenix Biopower
- Jafar Al-Zaili, City, University of London
- Dan Reitz, Solar Turbines
- Jan Slagter, VBR
- Luc Gooren, Laborelec/Engie
- Peter Kutne, DLR
- Paulo del Turco, Baker Hughes

Welcome additional volunteers



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Reviewers 2023

- Jan Schulteiss, Siemens Energy
- Andrew Moffat, Solar Turbines
- Dieter Krapp, ETN Emeritus Member
- Manfred Klein, ETN Emeritus Member

Calling for more reviewers!

Please send an email to Viktorija if you volunteer vc@etn.global

January 2023-review of abstracts

May/ June 2023 review of technical papers (3-5/Reviewer)



Call for papers: need to know

- Types of papers:
 - **Technical papers** describing technology advances and innovative solutions
 - **Review papers** giving a comprehensive technology overview of the past 2 years
 - **Case study papers** describing recent experiences
- All papers should demonstrate:
 - **high importance and interest to GT user community**
 - should be **related to one or several of 5 categories**

Abstracts: due date 07 December 2022

5 categories



Decarbonisation & emissions reduction

- Power-to-X-to-power technologies
- Retrofit and newly built H2 power plants
- Integration of GT hybrid solutions
- GT advanced cycles (wet cycles, sCO2, exhaust gas recirculation, hybrid cycles, integration of storage solutions, heat pumps etc.)
- Environmental life cycle assessment
- Emission reduction on existing gas turbines
- Decentralisation and distributed generation
- Carbon capture and storage
- WHR (Waste Heat Recovery)
- Additive Manufacturing for Energy Transition

Flexibility

- Extended fuel spectrum (hydrogen, biomass, ammonia, LNG/LPG...)
- Operational GT flexibility
- Maintenance flexibility
- Emission at flexible load and cycling
- Efficiency at partial and minimum load conditions
- Reliability (material and life impact)
- Plant and system flexibility

Digitalisation

- Condition monitoring and lifing
- Digital engine modelling, digital twins
- Plant and system integration
- Integration in virtual power plant
- Data management, architecture & security
- Artificial Intelligence and Data Driven Design

Asset optimisation through life cost

- Overall system efficiency
- Condition-based maintenance
- Extension of service intervals and total engine life
- Component lifing
- Predictive maintenance
- Sensors & instrumentation
- New component developments
- Additive manufacturing and repair

Economic, policy, market

- Economic impact on technical solutions in line with the market conditions and policy framework
- System analysis
- Emissions legislation
- Regulatory framework



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Key dates

- Submission of abstracts: **7 December 2022**
- Notification of abstract acceptance: 09 February 2023
- Submission of final papers: 26 April 2023
- Notification of paper acceptance: 23 June 2023



Thank you for coming and for participating!

See you soon!