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# ETN's Virtual AGM & Workshop Week

## 29 June - 3 July 2020

*Please note that all times are in Central European Summer Time (CEST)*

<b>Monday 29 June</b>	14:00 - 16:00	Additive manufacturing and new materials
<b>Tuesday 30 June</b>	11:00 - 12:45	Annual General Meeting (AGM) 2020
	14:00 - 16:00	AGM panel session "Research and innovation challenges for gas turbines in a low-carbon world"
<b>Wednesday 1 July</b>	14:00 - 16:00	Gas turbines operational and fuel flexibility
<b>Thursday 2 July</b>	14:00 - 16:00	Next generation power cycles
<b>Friday 3 July</b>	14:00 - 16:00	Condition monitoring and asset management for energy transition



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# ETN Annual General Meeting 2020

Tuesday 30 June 2020 11:00 - 12:45

10:50 - 11:00	Connection & instructions
11:00 - 11:10	<b>Opening and President's speech</b> , Bernard Quoix, ETN President/TOTAL
11:10 - 11:35	<b>Approval of the previous AGM minutes</b>  <b>Annual report of activities and proposed strategy</b> , Christer Björkqvist, Managing Director, ETN <ul style="list-style-type: none"><li>• ETN Working Groups, projects and activities</li><li>• Upcoming meetings and activities</li><li>• Young Engineers Committee launch</li></ul>
11:40 - 12:00	<b>Discussion on proposed strategy and way forward</b> , ETN Board
12:05 - 12:15	<b>Financial report</b> , Andy Williams, ETN Treasurer/Chromalloy  <b>Adoption of accounts</b>
12:20 - 12:25	<b>Discharge of ETN Board 2018-2020</b>
12:25 - 12:30	<b>ETN Board election 2020-2022: Results of voting and presentation of the newly elected Board</b>
12:30 - 12:45	<b>AGM closing remarks</b>



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## AGM panel session

# “Research and innovation challenges for gas turbines in a low-carbon world”

Tuesday 30 June 2020 14:00 - 15:40

13:50 - 14:00	Connection & instructions
14:00 - 14:10	<b>Short introduction</b> , Peter Jansohn, Paul Scherrer Institute, Chairperson of ETN Project Board
14:10 - 14:30	<b>European Research &amp; Innovation Strategy – Horizon Europe</b> <i>Eric Lecomte, Policy Officer, Director General for Energy, European Commission</i>
14:30 - 14:45	<b>Carbon Removal and Return – Can it help?</b> <i>Laurent Mariac, CO<sub>2</sub> Capture Leader for Power Gen. and Cement, Research &amp; Development, TOTAL</i>
14:45 - 15:00	<b>Carbon and Energy Management in the Energy Transition</b> <i>Wilfried Maas, Principle Technical Expert Carbon and Energy Management, Shell</i>
15:00 - 15:15	<b>Innovation Program from a Utility Perspective</b> <i>Stefano Sigali, Innovation, Enel</i>
15:15 - 15:30	<b>Questions and answers</b>
15:30 - 15:40	<b>Closing remarks</b> , Peter Jansohn, Paul Scherrer Institute, Chairperson of ETN Project Board



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## Additive manufacturing and new materials

Monday 29 June 2020 14:00 - 16:00 (1h40 presentations and Q&A)

Chaired by John Oakey, Professor of Energy Technology, Cranfield University

**Perspective about the deployment and the implications potential of NEXTOWER materials for applications in high temperature CSP and CO<sub>2</sub>-based technologies** - High temperature materials resistant to liquid metal corrosion and carburising atmospheres (15 min + 5 min Q&A)

*Antonio Rinaldi, Scientist, ENEA*

**Additive Manufacturing in Shell - 2020 Activity Update** (15 min + 5 min Q&A)

*Jan de Roos, Senior Rotating Equipment Engineer, Shell*

**Additive Manufacturing Research Roadmap for the energy sector** (15 min + 5 min Q&A)

*Ferenc Pankotai, Manager, Combustion Engineering and Additive Manufacturing, Solar Turbines*

**ETN Additive Manufacturing Equipment Evaluation Initiative** - Productivity and product quality levels reached with Laser Power Bed Fusion technology, and usage of commercially available AM equipment for applications in the energy sector (15 min + 5 min Q&A)

*Vladimir Navrotsky, Chief Technology Officer, Siemens*

**The use of composite material in gas turbines components** (15 min + 5 min Q&A)

*Daniel Mack, Team Leader "High-Temperature Protective Coatings", Jülich Research Center*

**Way forward, actions, follow-up calls**



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## Gas turbines operational and fuel flexibility

Wednesday 1 July 2020 14:00 - 16:00 (1h30 presentations and Q&A)

Chaired by Peter Kutne, Head of Department Gas Turbine, DLR

**ETN Hydrogen Gas Turbines Report: Updates and feedback** (10 min+ 5 min Q&A)

*Peter Kutne, Head of Department Gas Turbine, DLR*

**Ammonia utilization to support Global Decarbonization** (15 min + 5 min Q&A)

*Burak Goktepe, Research Associate, Cardiff University*

**Roadmap to CO<sub>2</sub> free flexible power** (15 min + 5 min Q&A)

*Jeffrey Haspels, Project Manager, Vattenfall, and Peter Stuttaford, CEO, Ansaldo Thomassen*

**First outcomes of H2020 PUMP-HEAT Project: optimised solution for EU CC flexibility** (15 min + 5 min Q&A)

*Stefano Barberis, Project Manager, RINA-C*

**FLEXibilize combined cycle power plant through Power-to-X solutions using non-CONventional fuels –**

**Short Introduction to FLEXnCONFU Horizon 2020 project** (10 min + 5 min Q&A)

*Alessandra Cuneo, Project Technical Coordination Corporate Research & Development, RINA-C*

**Way forward, actions, follow-up calls**



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## Next generation power cycles

Thursday 2 July 2020 14:00 - 16:00 (1h40 presentations and Q&A)

*Chaired by Marco Ruggiero, External Funding & Technology Development, Baker Hughes*

**ETN sCO<sub>2</sub> advisory committee** (10 min + 10 min discussion)

*Marco Ruggiero, External Funding & Technology Development, Baker Hughes*

**ETN sCO<sub>2</sub> deployment in the heavy industry study** (15 min + 5 min Q&A)

*Ambra Giovannelli, Assistant Professor of Fluid Machinery & Energy Conversion Systems, University of Roma Tre*

**Thermal energy harvesting** (15 min + 5 min Q&A)

*Piero Colonna, Professor Propulsion and Power, Delft University of Technology / KCORC Chairman*

**MGTs for single households** (15 min + 5 min Q&A)

*Eleni Agelidou, Scientist, DLR*

**Innovative MGTs for industrial applications** (15 min + 5 min Q&A)

*Matti Malkamäki, CEO, Aurelia Turbines*

**Way forward, actions, follow-up calls**



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# Condition monitoring and asset management for energy transition

Friday 3 July 2020 14:00 - 16:00 (1h35 presentations and Q&A)

Chaired by Chris Dagnall, General Manager, DNV-GL Energy

**Hydrogen Injection into the UK National Transmission System** (15 min + 5 min Q&A)

*Peter Flanagan, Senior Rotating Machinery Engineer, DNV-GL*

**Safety requirements for hydrogen gas turbines** (15 min + 5 min Q&A)

*Stefano Rossin, Chief Engineering Office Manager, Baker Hughes*

**Requirements for retrofitting and for new-built, hydrogen-ready GT-power-plants** (15 min + 5 min Q&A)

*Konrad Meyer, R&D manager, Siemens*

**Safety aspects for hydrogen gas turbines** (15 min + 5 min Q&A)

*Ferenc Pankotai, Manager of Combustion and Additive Manufacturing, Solar Turbines*

*Terry Tarver, High Hydrogen Program Manager, Solar Turbines*

**ETN study on gas turbine component life assessment** (10 min + 5 min Q&A)

*Alfonso Pandolfi, Student, University of Salerno*

**Way forward, actions, follow-up calls**



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# ETN Young Engineers Committee – Launch meeting & panel discussion

Monday 6 July 2020 15:30 - 17:00

*Additional Workshop meeting open to all ETN members*

This meeting will be an opportunity for both “young engineers” and senior representatives of ETN member organisations to discuss the benefits each organisation is expecting from this ETN initiative.

## **Part 1. ETN Young Engineers Committee (YEC) Inauguration (15:30-16:30)**

- Introduction to YEC’s initiative
- Mission, vision, aims and objectives
- YEC survey amongst ETN members – results and way forward
- First collaborative YEC initiative: Strategic paper on energy transition
- New visibility opportunities
- Q&A

## **Part 2. Panel session: *Turbomachinery’s role in the energy transition – Combined perspectives from ETN’s Emeritus Members and ETN’s Young Engineers Committee* (16:30-17:00)**

Panellists:

*André Mom (ETN President Emeritus / YEC advisor)*

*Dieter Krapp (ETN Emeritus member)*

*Felix Heerbeck (Uniper / YEC member)*

*Brandon Kemerling (Solar Turbines / YEC member)*

**More information is available on [our website](#).**