



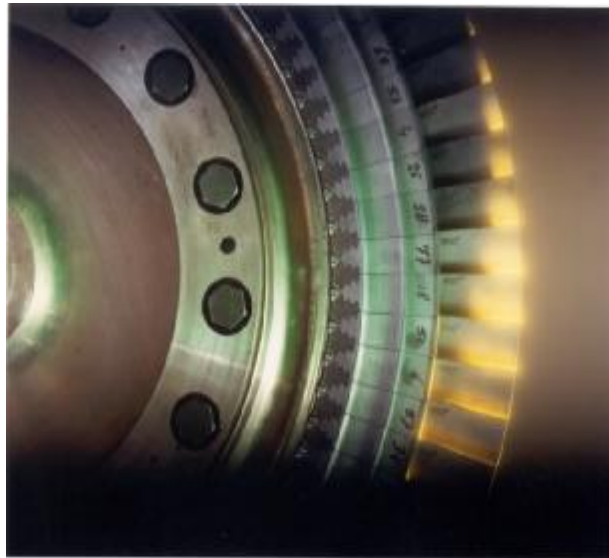
ETN

EUROPEAN
TURBINE
NETWORK

European Turbine Network ETN

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IGTC-07, Tokyo, Japan



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European Turbine Network

**BRINGING TOGETHER
THE WHOLE VALUE
CHAIN AROUND
GAS TURBINE
TECHNOLOGY**

Coal
gasification

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WWW.ETN-GASTURBINE.EU

The brochure cover features a grid of images showing gas turbine components, industrial facilities, and power plants. The text is in a bold, sans-serif font, and the overall design is clean and professional.

- **Users - Power Generation Companies and Oil & Gas Operators**
- **OEM'S - Official Equipment Manufacturers**
- **Equipment Suppliers**
- **Service Providers**
- **Universities/ R&D Inst.**
- **Consultancies**



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ETN's Vision

Promoting Environmentally Sound
Gas Turbine Technology
with Reliable and Low Cost Operation



IGTC-07, Tokyo, Japan



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Goals

- The European GT platform for all stakeholders



- The recognized voice of the European GT community



- Tangible advances in GT-technology





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ETN Strategy

**Influence
EU Policy &
Funding on
Gas turbine
Research**

**Specific
Actions:**

- Data bases
- Matrix
- Studies
- Technology watch

Projects:

- EU-funded
- Industry-funded

ETN Major basis: **NETWORKING**

- TECHNOLOGICAL
- BUSINESS OPPORTUNITIES

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Future GT Technologies – Users' Requirements

- Increased Cycle Efficiency (reduced fuel cost & CO₂)
- Greater Fuel Flexibility (with Emissions-compliance)
- Reduced Maintenance Costs/ Improved Repair Technologies
- Advanced Condition Monitoring, Instrumentation and Control

... whilst complying with increasingly stringent emissions legislation

⇒ Adopted by ETN as Working groups and priority research areas



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ETN Working Groups

Priority research fields

- Cycle Efficiency
- Fuel Flexibility and Emissions
- Materials Degradation & Repair Technology
- Condition Monitoring, Instrumentation & Control





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Working Group Objectives (1)

Cycle Efficiency - WG1

Improved performance of gas turbine components and intelligent system integration to enhance fuel efficiency and environmental performance of future power generation units.



Fuel Flexibility and Emissions- WG 2

To have gas turbines capable of operating in an efficient, safe and reliable manner utilising a wide range of fuels whilst minimising polluting emissions such as NO_x.





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Working Group Objectives (2)

Materials Degradation and Repair Technologies – WG3
To extend the ultimate life and repair interval for key hot section components by 30%.



Condition Monitoring Instrumentation and Control – WG4
3 years of continuous uninterrupted operation of gas turbines.





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ETN Working Groups Activities

Cycle Efficiency

Research Areas

1. Upgrading and retrofitting of existing units
2. Optimisation of GT efficiency
3. Cycle optimisation, including the possibility of CO₂ capture
4. Turbomachines for CO₂ free processes such as fuel cell
5. Hydrogen fuelled gas turbines

Fuel Flexibility and Emissions

Research Areas

1. Development of gas quality detection and automatic combustion system adjustments to enable continuous, low emissions, high efficiency power generation
2. CFD modelling of combustion systems
3. New combustion concept development
4. Use of biomass derived fuels and coal derived syngas etc.

Material Degradation and Repair Technologies

Research Areas

1. Identification of the engine availability and the reliability determining components
2. Identification of the life limiting degradation models of key gas turbine engine components
3. Extension of predictability of key degradation mechanisms etc.

Condition Monitoring, Instrumentation & Control

Research Areas

1. Replacement of boroscope inspection
2. Avoid offline water wash
3. Control and measurement of emissions
4. Damage detection and monitoring of components
5. Management of hot gas path components etc.



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Upcoming International Conference

Future of Gas Turbine Technology

4th International Conference

15-16 October 2008, Brussels, Belgium



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EUROPEAN TURBINE NETWORK

Call for Papers, Deadline 8 January 2008

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ETN General Assembly