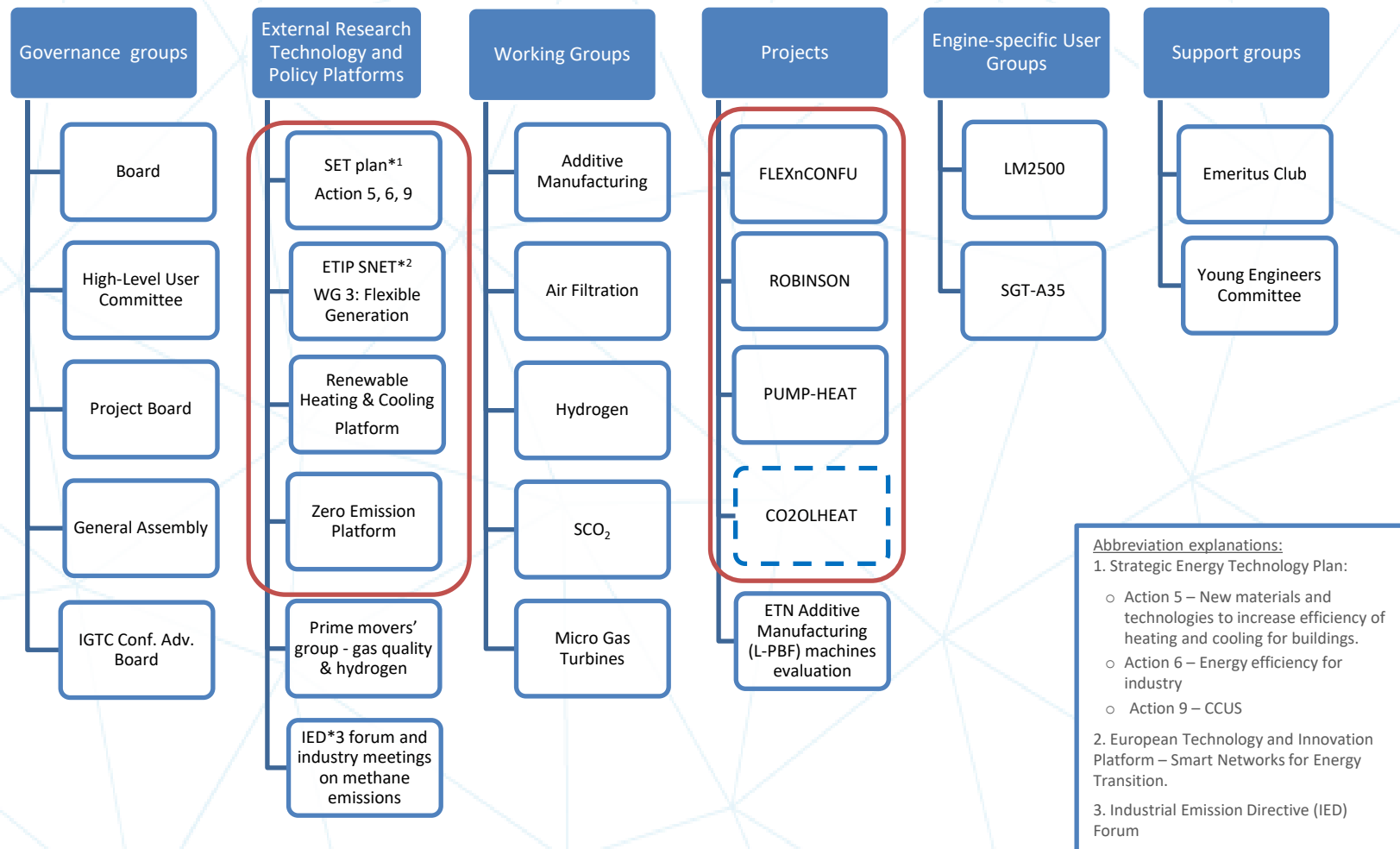




ETN
Global

ETN Activities 2021





ETN's involvement in EU research and innovation activities

ETN
Global



Ugo Simeoni
Research & Innovation Manager
ETN Global



ETN
Global

Horizon Europe

€95.5billion (2021-2027)

SPECIFIC PROGRAMME IMPLEMENTING HORIZON EUROPE & EIT*

Exclusive focus on civil applications



Pillar I
EXCELLENT SCIENCE
€25,8

European Research Council

Marie Skłodowska-Curie

Research Infrastructures



Pillar II
GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS
€52,7

Clusters

- Health
- Culture, Creativity & Inclusive Society
- Civil Security for Society
- Digital, Industry & Space
- Climate, Energy & Mobility
- Food, Bioeconomy, Natural Resources, Agriculture & Environment

Joint Research Centre



Pillar III
INNOVATIVE EUROPE
€13,5

European Innovation Council

European innovation ecosystems

European Institute of Innovation & Technology*

WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA **€2,1**

Widening participation & spreading excellence

Reforming & Enhancing the European R&I system

* The European Institute of Innovation & Technology (EIT) is not part of the Specific Programme



ETN
Global

European Technology Innovation Platform

Smart Networks for Energy Transition



Target to become carbon neutral by 2050 with three main drivers of the clean energy development programmes:

- Protecting the environment
- Ensuring security, reliability and resilience of energy supply
- Affordable and market-based energy services



Flexibility enablers and system flexibility

Generation flexibility
(flexible thermal, RES such as Hydro, PV and wind generators)

Storage flexibility & Energy Conversion flexibility
(PtG&H, PtG, GtP, PtL, LtP, PtW, WtP)



ETN
Global

European Technology Innovation Platform

Renewable Heating & Cooling

RHC Renewable
Heating & Cooling
European Technology and Innovation Platform

Strategic Research and Innovation Agenda for Climate-neutral Heating and Cooling in EUROPE



100% RE Buildings

- RE H&C technologies and systems for cost-effective retrofitting of old buildings, historical and special buildings.
- CHP technologies and systems and their integration in old/historical and future buildings and external connectivity.

100% RE Industries

- Hybridisation of renewable energy systems.
- Innovative technologies for optimised system integration of renewable energies.



ETN
Global



Strategic Energy Technology Plan

Action 5: New materials and technologies for buildings

Action 5.1: new materials and technologies for energy efficient solutions for buildings.

Action 5.2: cross-cutting heating and cooling technologies for buildings.

Activity 5.2

Cost reduction and increase in efficiency of micro CHP/CCHP

Innovation targets:

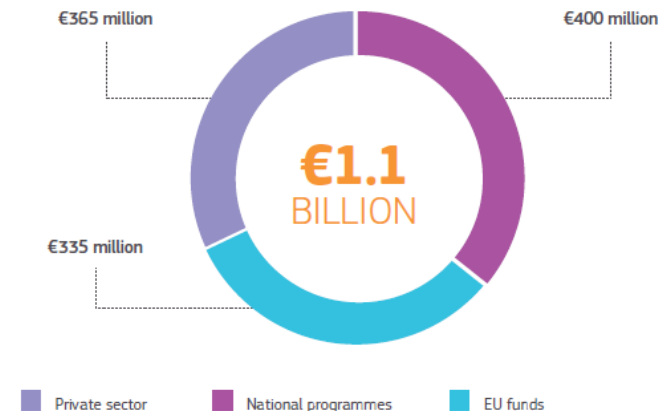
- Cost reduction for equipment and installation by 50% (compared to 2015 market price);
- increase of the energy efficiency of micro CHP/CCHP by 20% (compared to 2015 levels)

by increasing operational electrical efficiency and maintaining thermal efficiency

Research activities

1. Development of hybrid technologies aimed to integrate the micro CHP/CCHP with other processes based on renewable energy sources.
2. Development of energy efficient micro CHP/CCHP technologies for single family house.

OVERALL INVESTMENT TO BE MOBILISED FOR ENERGY EFFICIENCY IN BUILDINGS FOR 2018–2025





ETN
Global

Strategic Energy Technology Plan

Action 6: Energy efficiency for industry



Thematic Group Heat/cold recovery

Activity 5.1 – Heat upgrade from low to high grade

Heat pumps converting low grade heat into higher grade heat.

Activity 5.2 – Waste Heat to power

- Use of low temperature waste heat to generate electrical power at highest efficiencies.
- High temperature waste heat recovery using the sCO₂ cycle to generate electrical power.

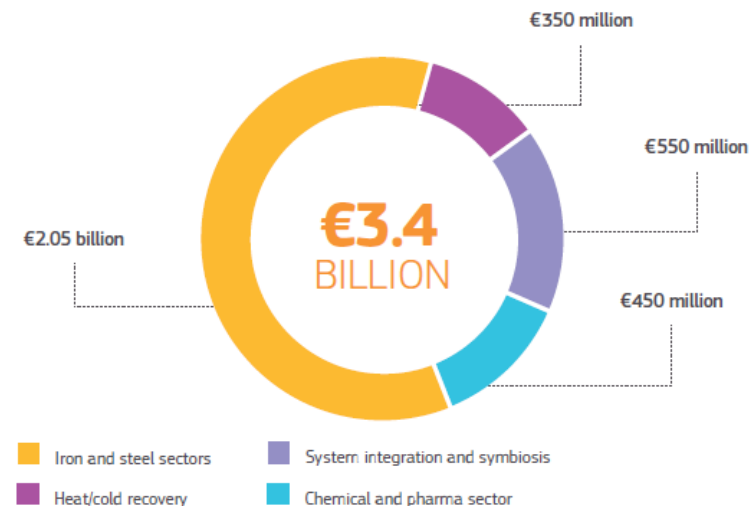
Activity 5.3 – Waste heat to cold generation

Cooling systems in industrial processes.

Activity 5.4 - Polygeneration (heat, cold, electrical power) and hybrid plants

- Hybrid plants for waste heat upgrade integrating renewable energy into industrial plants and processes.
- Advanced compact CHP- plants of industry scale.

OVERALL INVESTMENT TO BE MOBILISED FOR ENERGY EFFICIENCY IN INDUSTRY FOR 2018-2025





ETN
Global

Strategic Energy Technology Plan

Action 9: Carbon Capture Storage/Use



R&I Activity 6

Developing next-generation CO₂ capture technologies

Target

At least 3 pilots on promising new capture technologies, and at least one to test the potential of sustainable Bio-CCS at TRL 6-7 study

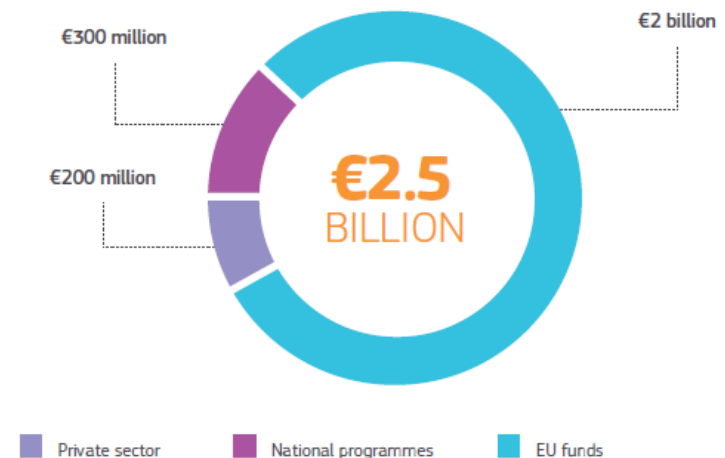
Research activities

Research and development are needed for specific devices in sCO₂ oxy-fired power cycles (i.e. high pressure oxy-combustor, water separation unit, heat exchangers) and or processes (i.e. purification of hot combustion gases, development of quick start-up strategies).

Expected deliverable

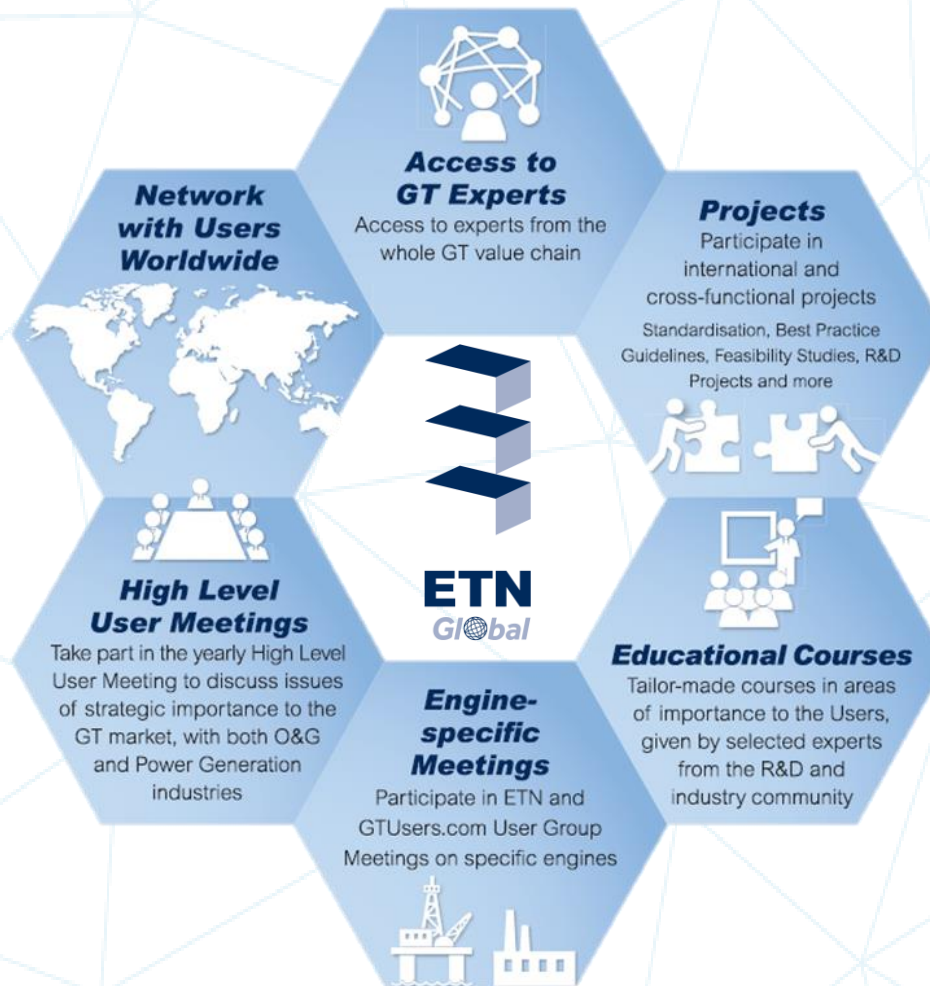
Development of supercritical CO₂ power cycles with oxy-combustion gas turbines, TRL 5-6 [proposed]

OVERALL INVESTMENT TO BE MOBILISED FOR CARBON CAPTURE UTILISATION AND STORAGE FOR 2018–2030





ETN
Global



ETN Global
Chaussée de Charleroi 146-148, 1060 Brussels, Belgium
Tel: +32 (0)2 646 15 77, info@etn.global