

Industrial Energy-Related Technologies and Systems

*A Technology Collaboration Programme
established under the auspices of the International Energy Agency*

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Chair IETS TCP



The IETS is an IEA Technology Collaboration Programme (TCP)

- The TCPs are unique global networks that drive cutting-edge energy technology research through international cooperation.
- The TCPs bring together governments, industries, and leading experts, to accelerate energy innovation and shape the future of energy solutions to support energy efficiency and decarbonisation.
- There about 40 TCPs – and the IETS TCP is the only one focusing on industrial application for energy transition.



About the IETS TCP

- Strategic objective: drive the development and implementation of efficient technologies and system solutions that enhance energy and resource efficiency in industry, reduce carbon emissions, and boost competitiveness
- Broad scope covering all industrial sectors, and key technology pathways (e.g. resource efficiency, biorefineries, electrification, hydrogen, CCUS).
- Spans technology specific as well as cross-cutting themes and system-level approaches (e.g. process integration, industrial symbiosis, ex-ante analysis, drivers and barriers).
- Promotes international cooperation, networking, and knowledge sharing across industry, academia, and policymakers.



The IETS Tasks



Task XI	Industry-based Biorefineries towards Sustainability
Task XVII	Membrane Processes in Biorefineries
Task XVIII	Digitalization, Artificial Intelligence and Related Technologies for Energy Efficiency and GHG Emissions Reduction in Industry
Task XIX	Electrification in Industry
Task XXI	Net-zero Industrial Processes in a Circular Economy Framework
Task XXII	Climate Adaptation and Energy Resilience in Industry under Uncertainty
Task XXIII	Drivers and Barriers for the Transformation of Industrial Energy Systems
Task XXIV	Process Integration for Industry Decarbonisation

Available Publications

- Final Reports from Tasks/Subtasks
- Executive summaries
- Topic sheets
- Annual Reports

<https://iea-industry.org/publications/>

ALL
TOPIC SHEETS
TASK REPORTS
IETS REPORTS
ANNUAL REPORTS

Publications

IETS TCP Annual Report 2025

The Annual report summarizes the work and progress in the IETS Tasks, and includes information about special events, future plans and other highlights. [Read more »](#)

Topic Sheet: Lessons Learned and Value Created with Digitalization

Topic Sheet no 23, October 2025, based on the final report from Subtask 3 in Task XVIII – Digitalization, Artificial Intelligence and Related Technologies for Energy Efficiency and GHG Emissions Reduction in Industry. [Read more »](#)

Topic Sheet: Net-Zero Industrial Systems in a Circular Economy Framework

Topic Sheet no 22, September 2025, based on the final reports from Subtasks 2 and 3 in Task XXI – Net-zero Industrial Processes in a Circular Economy Framework. [Read more »](#)

Pathways Towards Net-Zero and Negative-Emission Biorefineries

Joint Deliverable Report from the Subtask on Technology Pathways towards Negative and/or Net-Zero Emission Biorefineries. [Read more »](#)

Final Report: Energy- and Carbon-oriented Industrial Symbiosis

This Subtask focused on industrial symbiosis as a concept for decarbonizing industrial sites. [Read more »](#)

Final Report: Circular Carbon

This Subtask focused on the integration of carbon capture technologies and systems in industry and potential technical and techno-economic pathways for the reuse of the carbon through CCU. [Read more »](#)

Membranes in Biorefineries: Guideline 3.0

Guideline for the integration of emerging membrane separation processes in biorefineries for research, industry and decision-makers. [Read more »](#)

IETS TCP Annual Report 2024

The Annual report summarizes the work and progress in the IETS Tasks respectively, and includes information about special events, future plans and other highlights. [Read more »](#)

Final Report: Methods and Applications of Digital Twins

Subtask 2 in Task XVIII has focused on methods and applications of Digital Twins (DT) to promote the application of DTs in industry, improving energy efficiency, and reducing GHG emissions. [Read more »](#)

Final Report: Lessons Learned and Created Values by Digitalization

Subtask 3 in Task XVIII has focused on exploring the transformative role of digitalization in enhancing energy efficiency, operational performance, and sustainability within

Digital Twins – Reports from Task XVIII

The work within Task XVIII Digitalization, Artificial Intelligence and Related Technologies for Energy Efficiency and GHG Emissions Reduction in Industry, Subtask 2 – Methods and Applications of Digital Twins

Topic Sheet: Climate Resilience and Energy Adaptation in Industry under Uncertainty

Task XXII aims at promoting understanding and progression in digitalization, Artificial Intelligence, and related technologies, thus facilitating climate resilience (extreme



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About the IETS TCP and how to join the collaboration

Tasks
All ongoing and completed projects/tasks

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List of participating countries and Member login

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News

Watch our webinar on CCUS!

The Industrial Transition Series presents actual projects in the areas that the IETS TCP cover in the Tasks. [Read more »](#)

Ireland has joined!

Publications

IETS TCP Annual Report 2025

The Annual report summarizes the work and progress in the IETS Tasks, and includes information about special events, future plans and other highlights. [Read more »](#)

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