

IEA END-USE WORKING PARTY WEBINAR ON DEEP DECARBONIZATION IN INDUSTRY

Reference

Based on the report from the IEA End-Use Working Party Webinar on Deep Decarbonization in Industry, 9th and 10th December 2020

Topic sheet prepared by Per-Åke Franck, IETS TCP Secretariat.

Introduction

The webinar was held as a digital workshop and was attended by approximately 60 participants.

Having a common goal - the deep decarbonization in Industry-its main aim was to identify key areas for collaboration between IETS TCP and other IEA TCPs, and by doing so:

- Technology and System oriented as well as lifecycle approaches were included
- Different key thematic issues were presented, distributed into 5 main areas

Swedish programmes and projects dealing with deep decarbonization in Industry

In a broad range of literature, digitalization, The first day was dedicated to presentations of major Swedish programmes and projects dealing with deep decarbonization in industry. This session described key Swedish

contributions and challenges being addressed in the Swedish context that are covering a wide range of topics. The five main topics included were based on major activities in Sweden.

Carbon capture and storage from fossil (CCS) and biogenic (BECCS) feedstocks and fuels

Considering favourable implementation in general (i. e. close distance to the coast, large fixed emissions sources, access to storage infrastructures), CCS and BECCS could play an important role. One main challenge is financing these technologies, which depends largely on EU-ETS and on possible future incentives on negative emissions.

Industrial Biorefineries

From 2003 till 2017 biofuels have been experiencing a significant progression within the energy use in e. g. domestic transports and several large programmes are ongoing. Use of biomass also for other purposes, materials and chemicals, are investigated.

Electrification in Industry

Different industrial P2X projects were put into perspective in the process industries, e.g., in the steel industry with Hybrit (fossil free steel making), LKAB (C-free ore), Oxy-H₂ (replacing LPG with renewable H₂), and industrial case-studies.

Digitalization and Artificial Intelligence

Although digitalization and AI in industry is a huge and rapidly developing area, the activities specifically for energy efficiency and GHG mitigation in industry are still a

small part of this. However, this potential is investigated.

System aspects and Industrial Symbiosis

Industrial symbiosis is the structured approach being followed to maximise an energy symbiosis along time in industrial facilities, e.g., process integration for advanced heat recovery, and high-level transformative changes by process design and/or energy supply. Studies include scenario approaches and comparative ex-ante evaluations.

Ongoing R&I activity and ‘speed-dating’ networking

On the second day, the session consisted of three parts:

- An IEA Secretariat presentation on the IEA ‘Iron and Steel Technology Roadmap’ by Hana Mandova and Tiffany Vass

- A presentation of the results and suggestions from the Vienna

workshop on “Deep Decarbonization in Industry”, October, 2019, by Thore Berntsson (IETS TCP Chair)

- and, the main part, a ‘speed-dating’ networking session followed by a final discussion.

The ‘speed-dating’ session included predefined short presentations to the group and addressed ongoing research and innovation activity on deep decarbonization in industry. The session enabled the TCP representatives to profit from networking and to showcase opportunities for further discussion and future collaboration. It was demonstrated that IEA, and therein the industry-oriented TCPs, are building a significant body of technical knowledge and expertise on this topic. 11 presentations were given.

Focus Area	TCP
Carbon Capture and Storage (CCS, BECCS)	Monica Garcia, GHG TCP
Industrial Biorefineries (Biofuels, Materials, Chemicals)	Paul Stuart & Marzouk Benali, IETS TCP, Annex XI
	Olle Olsson & Johanna Mossberg, IEA Bioenergy TCP
Electrification in Industry	Thore Berntsson, for IETS TCP, Annex XIX
	Frank Lipnizki, IETS TCP, Annex XVII
	Marina Holgado, Hydrogen TCP
	Monica Axell, HTP TCP
Digitalization and AI (EE, GHG mitigation in Industry)	Mouloud Amazouz & Paul Stuart, IETS TCP, Annex XVIII
System Aspects and Industrial Symbiosis	Elliot Mari, New IETS TCP Annex on Industrial Roadmaps
	Simon Moser, Annex proposal on Industrial Circular Economy
	Rene Hofmann, IETS TCP, Annex XV

Key takeaways from the webinar

At different levels (technology, process, product, company, regional context, ...) system oriented and lifecycle approaches, strategic design, planning and evaluation among different methods and tools, are keys to address the complexity of the challenge on deep decarbonizing industrial processes.

By addressing the deep decarbonization in industry, the IEA and therein the IETS TCP and the other industry-related TCPs, are facing a complex challenge thinking global

and acting local that is a unique opportunity for TCP joint collaborations requiring strong interaction and iteration.

Speed networking was very useful to involve the participants by sharing and discussing information according to their backgrounds, business goals, and to the recent and ongoing activity related to the main topic: deep decarbonization in industry. That interaction however, in order to be effective, requires follow-up initiatives from the participants, such as B2B meetings and more focused workshops.

CONTACT TASK XVIII

Mouloud Amazouz, Task Manager

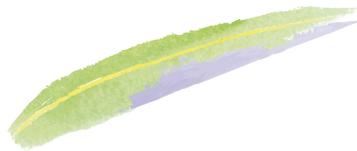
Email:

mouloud.amazouz@NRCan-RNCan.gc.ca

CONTACT IETS TCP

Thore Berntsson, Chair of the IETS TCP

Email: thore.berntsson@chalmers.s



About the IETS TCP

The IEA TCP on Industrial Energy-Related Technologies and Systems (IETS), founded in 2005, is dealing with new industrial energy technologies and systems.

The mission of IETS is to foster international cooperation among OECD and non-OECD countries for accelerated research and technology development of industrial energy-related technologies and systems. In doing so, IETS seeks to enhance knowledge and facilitate deployment of cost-effective new industrial technologies and system layouts that enable increased productivity and better product quality while improving energy efficiency and sustainability.

Through its activities, IETS will increase awareness of technology and energy efficiency opportunities in industry, contribute to synergy between different systems and technologies, and enhance international cooperation related to sustainable development.

Disclaimer

The IETS TCP is part of a network of autonomous collaborative partnerships focused on a wide range of energy technologies known as Technology Collaboration Programmes or TCPs. The TCPs are organised under the auspices of the International Energy Agency (IEA), but the TCPs are functionally and legally autonomous. Views, findings and publications of the IET TCP do not necessarily represent the views or policies of the IEA Secretariat or its individual member countries.