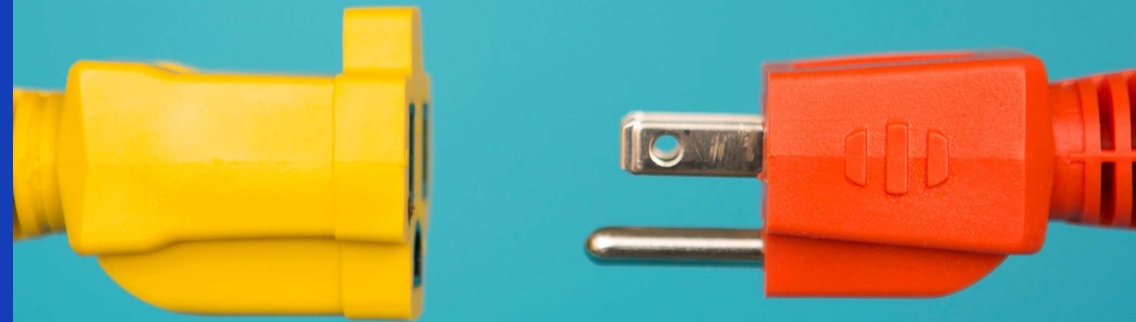


IETS task XIX Electrification of Industry

Current Status and Ongoing Activities

Jonathan Moncada, Puck Wammes



Industrial Energy-Related Technologies and Systems



- Technology Collaboration Programme (TCP) established under the auspices of the International Energy Agency (IEA) in 2005 (functional and legally autonomous).
- Scope: Focuses on energy use across many industry sectors, from processes to whole systems.
- Activities: Work spans technology development, system analysis, and energy efficiency to capture major, often low cost, savings.
- Mission: Strengthen international cooperation to accelerate research and deployment that reduce energy use and GHG emissions in industry.

Members
<ul style="list-style-type: none">• Austria• Canada• Denmark• France• Germany• Italy• Netherlands• Norway• Portugal• Sweden• Switzerland• UK

Sponsors
<ul style="list-style-type: none">• Japan• Ireland• Finland• Spain • Belgium• Colombia

Task XIX

Electrification in Industry

Industrial Energy-Related Technologies and Systems



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

Task XI: Industry-based biorefineries towards sustainability

Task XV: Industrial Excess Heat Recovery

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: Decarbonizing Industrial Systems in a Circular Economy Framework

Task XXII: Climate Resilience and Energy Adaption in Industry under Uncertainty

Task XXIII: Drivers and Barriers for the Transformation of Industrial Energy Systems

Task XXIV: Process and System Integration for Industry Decarbonisation

Why electrification in industry?

- The need to decarbonize and defossilize the industrial sector

$P \propto RT$



Ideal World

Available green electricity

Cheap Electricity

Industry hardly affected by changes



Piece of Cake

Why electrification in industry?

- In an ideal world we wish that the ideal gas equation actually works....

Green electricity is intermittent

There is not enough installed capacity of green electricity

Technologies are still in development, what if they cannot make it to commercial?

Would society accept it?

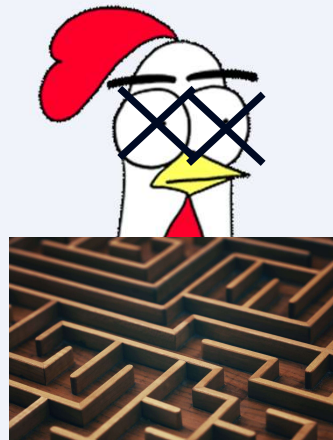
Do we focus on direct electrification first? But, what about electrification for feedstock?

How do we deal with intermittency? Batteries? Hydrogen Storage? But how expensive?

Many industrial operations are not flexible, do we need to rethink how industry is designed?

What are the (negative) impacts of electrifying? Would we deplete scarce resources (water, metals)?

How do we develop the necessary infrastructure to move electricity (or intermediates) around?



IETS task XIX – Electrification in industry

Objective: to establish an international platform for the exchange of information, experiences and lessons learned from research and development projects in participating countries in the field of industrial electrification.

Subtask 1. Mapping of activities

Subtask 2. Enabling a shared view on system aspects of industrial electrification (direct and indirect)

Subtask 3. Electrifying Industry - A Unified Perspective on developments, impacts, and defossilization

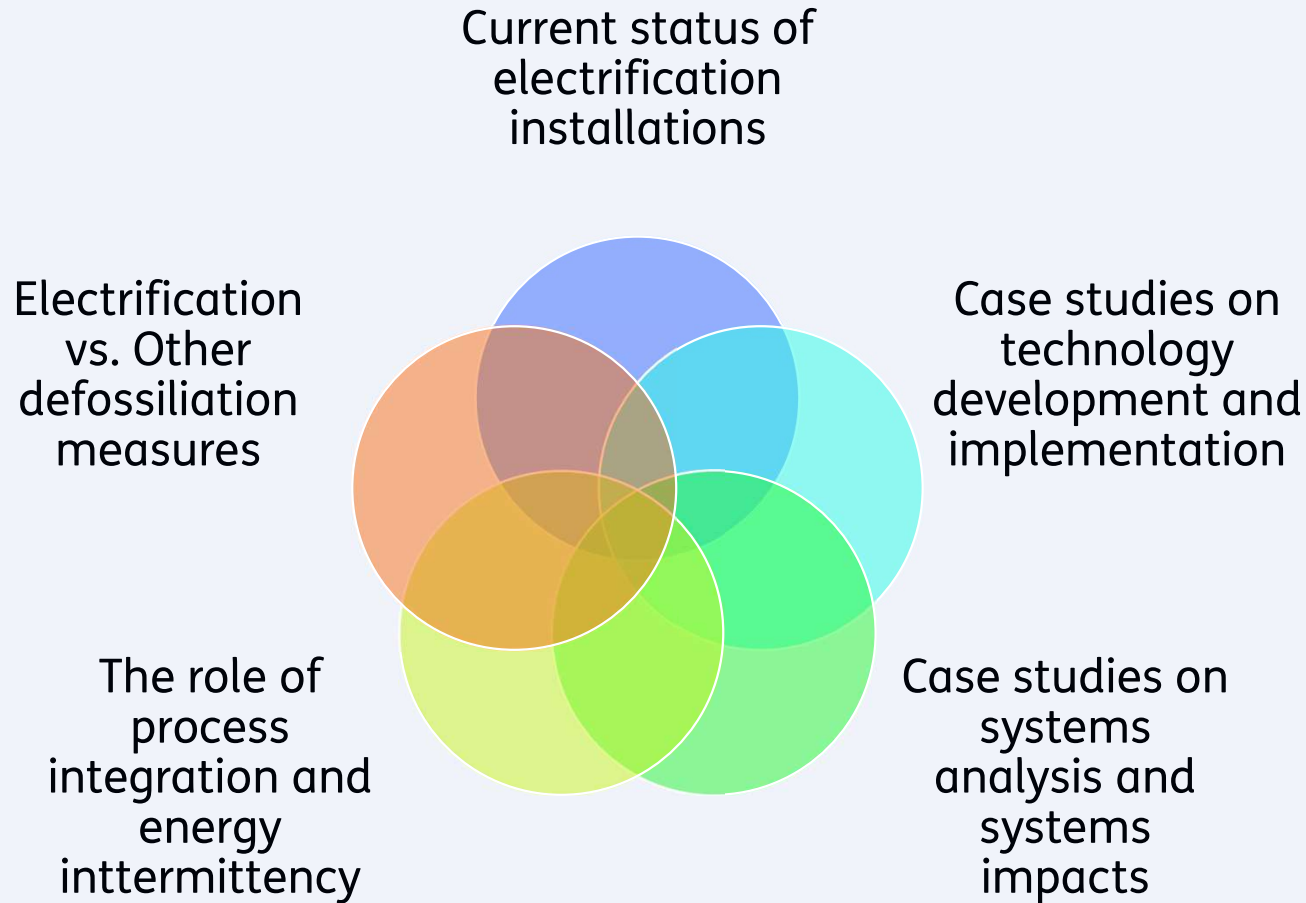
IETS task XIX Subtask 3 – Participating Countries

Participating groups:

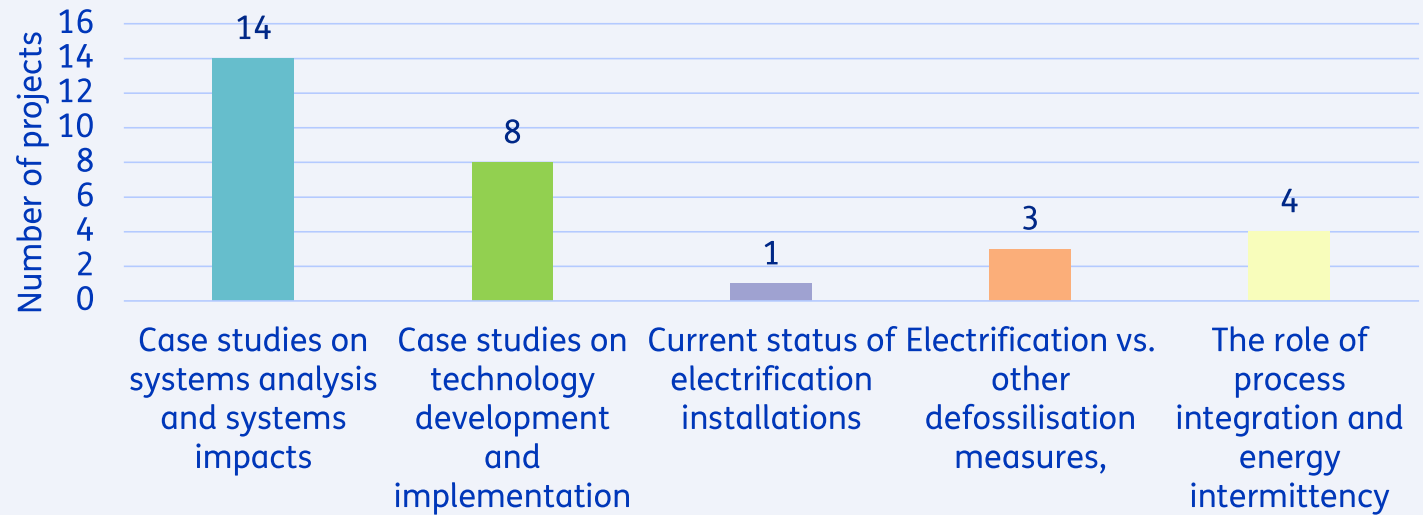
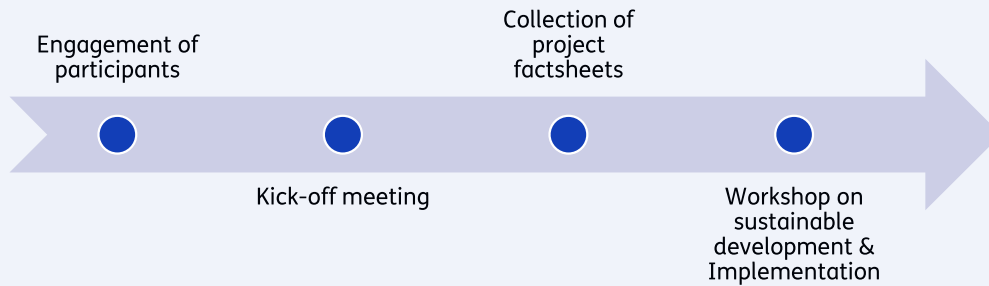
- Government organization
- Research organizations
- Industry



Thematic Areas covered in Subtask 3



Achievements (so far) – subtask 3



Achievements (so far) – Workshop on technology development and technology implementation

- Key take-aways from the discussions

Economics and policy set the pace

- High upfront costs and volatile energy prices slow investment. Stable long term climate policy and support schemes enable projects.

Energy and network infrastructure are hard limits

- Limited grid capacity, slow reinforcement and local spatial constraints often block electrification even when the business case is positive.

Risk perception and company culture are strong barriers

- Missing full scale demonstration plants and a “do not change a running plant” mindset make companies cautious. Proven reference projects reduce this risk.

Collaboration is the main accelerator

- Earlier and stronger cooperation between industry, technology suppliers, grid operators and policy makers improves data sharing, planning and joint implementation.

Task XIX

Electrification in Industry



Thank you for your time

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