

PANEL 3: Material Efficiency Panel Description

The Material Efficiency topic is a newer topic for the Industry Summer Study, but in light of this year's Industrial Decarbonization theme, it is important. Much of the discussion around decarbonization has mostly been focusing on energy efficiency, electrification and low carbon fuels and carbon capture. However, there is abundant literature that has demonstrated that materials and the supply chain are significant contributors to carbon emissions and so material efficiency and circular economy strategies will be important to adopt in order to meet decarbonization goals.

This panel is seeking abstracts that addresses what are the industry needs and available resources/mechanisms to be able to identify and implement material efficiency strategies and/or adopt material efficiency technologies.

Relevant topics includes, but are not limited to, the following:

- How to leverage Life Cycle Assessment (LCA), Techno-Economics Assessment (TEA) and other science-based sustainability tools to design novel materials that provide improved efficiencies vs. incumbent solutions AND are commercially viable?
- How to quantify the product sustainability benefits (handprint) in relationship with their carbon footprint in order to understand and communicate their societal value?
- Development of assessment frameworks, metrics, and guidelines to quantify the sustainability benefits of materials.
- How to harmonize the carbon accounting systems from Corporate-level decarbonization goals (*e.g.* GHG Protocol) with ISO standards related to product-level environmental burden accounting schemes
- What additional legislative and regulatory mechanisms are needed to support the efficient transition from a linear to a circular economy and incentivize industry to innovate?
- How to address the IP and confidentiality issues associated with product carbon footprint data sharing across the value chain?
- What materials and technical innovations are needed to reach Net-Zero and Net-Negative technologies?