CETP Pitching & Matchmaking Event for Integrated Industrial Energy Systems

Pitch template for new projects

EUROPEAN PARTNERSHIP

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Pitch for Tom Wirtanen 1/5

Name of the project idea (and acronym if you already have one)

Value chains towards CO_2-based organic monomers (CO_2-Mers)

ACRONYM

Consortium partners

- Coordinating organisation: VTT or VTT as a partner
- Main contact person: Dr. Tom Wirtanen – tom.wirtanen@vtt.fi

- VTT proprietary platform to electroupgrade CO_2 to value added monomers.
- Partners in integration and system assessment, CO_2 capture TEA&LCA, electrolysis are currently of interest.
- Call specifics: either CCU **TRI3** or industrial energy systems **TRI6**

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Pitch for the CO_2-Mers project 2/5

Challenge

- Chemical industry in 2035: Increasing demand for CO_2-based bulk monomers
  - Carbon footprint of SoA bulk chemicals production (embedded and associated emissions)
  - Adipic acid – **8 kg CO_2 eq** / kg produced, 2.5+MT annual volume
  - New feedstocks/conversions path needed to reduce emission intensity
  - Economic viability shall not be compromised (minimal green premium)

- Targeted industry sectors
  - Pulp & Paper Industry
  - Petrochemical Industry
  - Plastic industry
  - Chemical Industry

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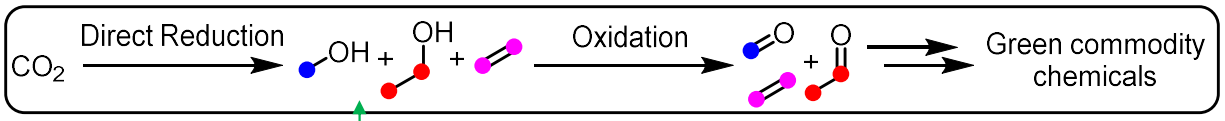
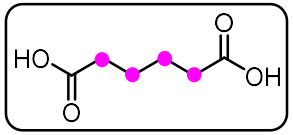
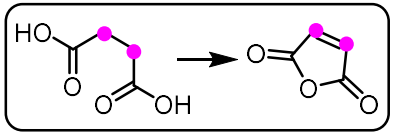
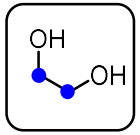
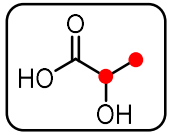
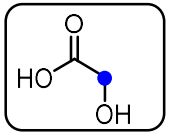
Solutions proposed

- (Biogenous) CO_2, or alternative bio-based feedstocks to high volume monomers in electrified intensive processes
- Partially of fully CO2 based
- Current TRL 2-3, several patents pending



Bio or P2X alcohols

Adipic acid:	Maleic anhydride:	Ethylene glycol:	Lactic acid:	Glycolic acid:
				
Volume: ~2.5 Mt a^{-1}	Volume: >2.5 Mt a^{-1}	Volume: 60 Mt a^{-1}	Volume: 1.5 Mt a^{-1}	Volume: 40 kt a^{-1}

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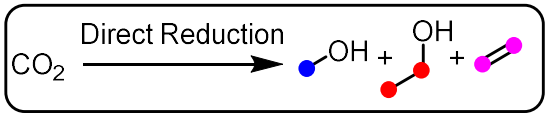
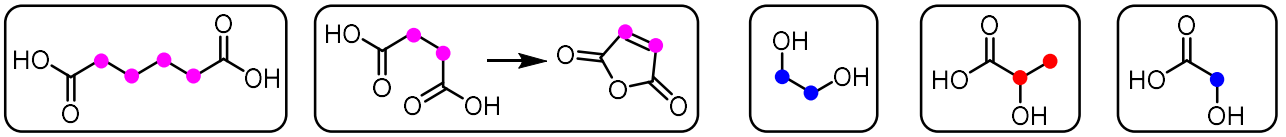
Our next step activities for proposal submission to CETP JC2025

Our project is looking for partners to reach (at least) TRL 5 for the whole value chain:

Upstream – Carbon capture and reduction of CO_2 to key intermediates (methanol, ethanol, ethene)



Downstream – Testing the performance of CO_2-based chemicals in different applications or using them as platforms for other products



Integration, system assessment, TEA & LCA – Validate the economic and ecologic feasibility of the different routes

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Thank you & contact information

Thank you for your interest

For more information contact:

Dr. Tom Wirtanen

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