



IEA Bioenergy

Technology Collaboration Programme

Task 39
IEA Bioenergy



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Proposed Program of Work for 2022-2024 triennium

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IEA Bioenergy ExCo88 Virtual Meeting- 13 October 2021

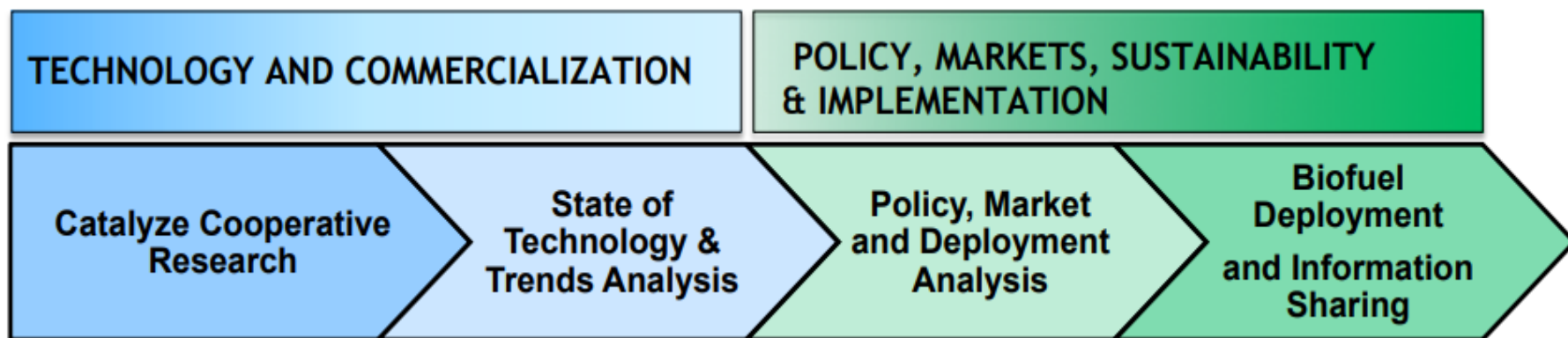
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Technology Collaboration Programme

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IEA Bioenergy Task 39

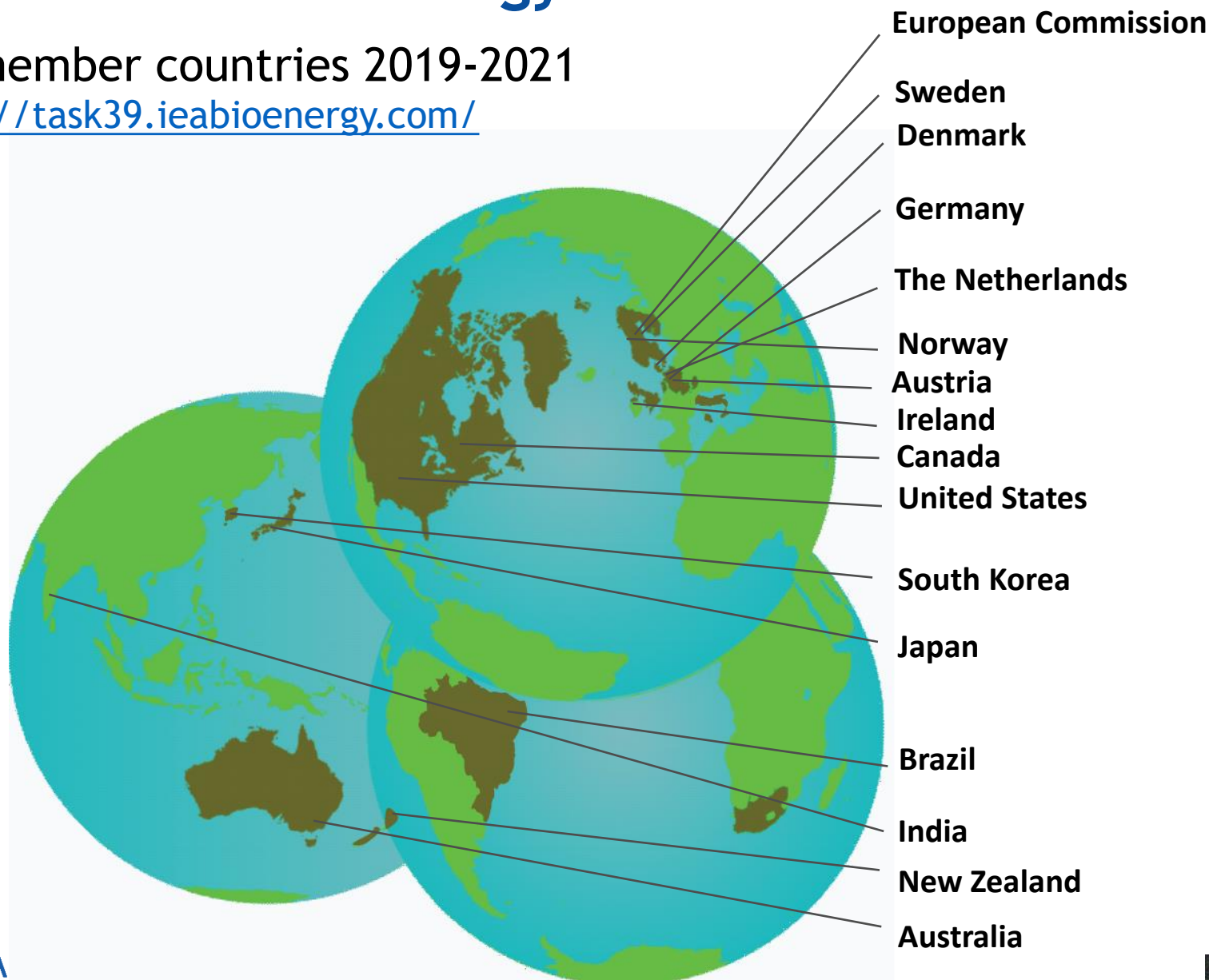
- “To facilitate commercialization of **conventional and advanced transport biofuels**”
- Collaboration between **16 member countries** (Hopefully!)
- Analyze **policy, technology and markets** and sustainable biofuel implementation
 - Focus on **Technical and Policy** issues
 - Catalyze **cooperative research and development**
 - **Disseminate information & outreach** with / to engage stakeholders



Current IEA Bioenergy Task 39

16 member countries 2019-2021

<http://task39.ieabioenergy.com/>



2022-2024 Triennium Task Leadership & Title

- McMillan/Saddler will step down as Task leaders at the end of this triennium.
- For the 2022-2024 triennium the Task will be led by Sweden (Tomas Ekblom/SVEBIO) with support from Brazil (Glaucia Mendes Souza/USP)
- Proposed shortened Task title for 2022-2024 triennium: “Biofuels to Decarbonize Transport”

Proposed Program of Work, 2022-2024 Triennium

The Task will continue to lead and coordinate activities in the **three main program areas of: 1) technology and commercialization; 2) sustainability; and 3) policy**, seeking to leverage, as much as possible, related activities being pursued within member countries

1) Technology and Commercialization

Task 39 will continue to address the technical/commercial aspects of producing and using low carbon intensity (CI) liquid and gaseous biofuels for transport, including both “conventional” and “advanced” biofuels (with a focus on advanced biofuels, e.g., biomass and carbonaceous waste derived biofuels)

2) Sustainability

As sustainability and carbon intensity metrics are playing an ever-increasing role in the policies used to develop and use biofuels, sustainability/LCA assessment will continue to be a priority for the Task

3) Policy

The “right” policies (such as LCFSs) significantly influence the rate and extent of development, deployment and use of biofuels (e.g., bioethanol, biodiesel, renewable diesel, drop-in biofuels, etc.)

Proposed “Deliverables”- Technology and Commercialization (1)

Develop decarbonization strategies for **long distance transport sectors**

- Extend development of decarbonization strategies for the **aviation transport sector** (Lead: Canada/US/Norway/Japan/NZ/Australia?)
- Extend assessment of decarbonization of the **marine transport sector** and evaluate the commercial production and use of biofuels in the marine sector (Lead: Denmark/Australia/Canada/NZ?)

Assess technology and market development of drop-in and advanced biofuels

- Update the “**potential and growth of drop-in biofuels**”, particularly **co-processing of lipids, biocrudes and bio-intermediates** in petroleum refineries, and its potential to reduce the carbon intensities (CIs) of the final fuels (Lead: Canada/Norway/Germany/EC?)
- Evaluate **successes and lessons learned** for commercialization of **advanced biofuels technologies**, including cellulosic ethanol. **Build on work currently being led by India and in the Lessons Learned InterTask** (Lead: Sweden/Germany?)
- Assess and map **demonstration plants and commercialization progress** (Lead: Austria/US (Biomass Digest)?)
- **The potential to synergise “green” hydrogen and bioenergy deployment** (Lead: Germany, Austria, Brazil?) (InterTask with Task 44)

Proposed “Deliverables”- Technology and Commercialization (2)

Assess technology and market development, continued (if resources permit)

- Update on **algal biofuel technologies** assuming a multi-product biorefinery co-product approach (Lead: US/Australia?)
- **Key issues limiting the efficient integration/use of advanced biofuels into existing infrastructure and engines for transport** (e.g., available engine technologies, existing policy frameworks) (Lead: US/Germany)
- **Cost/benefit analysis and comparison of drop-in** (fungible but less commercialized) **versus conventional ethanol/biodiesel biofuels** (more commercialized but less fungible) to better understand feedstock versus infrastructure integration challenges (Lead: India/US?)
- **Biogas as a transportation fuel** for light and heavy-duty vehicles (possible collaboration with Task 37) (Lead: ??)
- **Conversion of cellulosic (2G) ethanol industry wastes to biogas**, examining potential for reductions in OPEX and GHG emissions and production of additional transport fuel (possible collaboration with Task 37) (Lead: ??)

Proposed “Deliverables”- Sustainability, Policy, Markets and Implementation

Policy, Markets and Implementation

- Update Implementation Agendas report - **compare-and-contrast of each member country's biofuels policies** that have been/are being used to develop, deploy and expand biofuels production and use (Lead: Canada; contributions from all member countries)
- **Policies optimised for decarbonizing the aviation and marine sectors** based on their distinctive international character relative to other transport sectors.
(Lead: EC/Canada/US?; only if resources permit; may be incorporated in other reports)
- Feedstock-to-biofuel supply chain **cost reduction/financial risk reductions/TEA** of advanced biofuels. Possible links to Task 42 TEA methodology and Task 43 feedstocks.
(Lead: not yet identified; only if resources permit)

Sustainability

- Assessment of the **sustainability of biofuels pathways**, incorporating social and environmental aspects of sustainability, compare and harmonize leading LCA models (possibly joint with Task 45) (Lead: Canada/ US/EC/Brazil?)
- **Emerging/proposed certifications for oleochemical/lignocellulosic feedstock-to-biofuel supply chains**. Opportunities to improve and extend supply chain certification schemes (Lead: Netherlands?)
- Extend analysis of status of **biofuel** production and use **potentials in emerging countries/markets** (e.g., China, India, Southeast Asia, etc.) (Lead: Brazil?)

Information/Dissemination Activities

Continue the Task's strong track record of disseminating information, with a highly accessed website, publishing 2-3 newsletters a year, heavily cited commissioned reports, publications in the peer reviewed literature, well attended conferences and workshops and active engagement by industry

Major communication and dissemination activities will include:

- Continue improvements and updating of the Task 39 website
- Publish 2-3 newsletters per year, featuring country reports, hyperlinks to recent Task 39-relevant media stories and research and analysis reports (distributed to over 2500 biofuels stakeholders)
- Maintain a demonstration plants database and website which provides a compilation of advanced biofuels production facilities and selected conventional biofuels plants in member countries and the rest of the world (<https://demoplants.best-research.eu/>)
- Organise and facilitate several business meetings, conferences and joint seminars in the 2022-2024 triennium (some virtually)
- As well as published proceedings of technical meetings, any commissioned reports prepared by the Task will (typically after 3 months) be made freely available and circulated in the public domain

Collaborations and Linkages

Collaboration with other IEA Bioenergy Tasks

Tasks 33 and 34: Thermochemical routes to low CI transport fuels: gasification (Task 33), pyrolysis/HTL and co-processing of biocrudes (Task 34); timeline, costs for likely low CI “biocrude” feedstocks

Task 37: Anaerobic digestion (AD) of biomass feedstocks to biogas/biomethane and bio-SNG used as transportation fuels; demonstration plants database

Task 43: Sustainable feedstocks

Tasks 40, 43 and 45: Assessing sustainability and supply chains; investigating the concept of low-iLUC-fuels in the development of any new crop-based fuels

Task 44: Assessing the potential of electrofuels (or power-to-liquids/gases, PTL/G) particularly the strategic relevance and potential of electrofuels

Collaboration with other IEA TCPs, other international organizations, networks and industry

- Continue good rapport with allied stakeholder groups (e.g., IEA HQ, IRENA, FAO, GBEP, CEM/BP), other TCP's (e.g., AMF, Hydrogen, etc.) and national programs
- Continue to benefit from the extensive industry involvement of companies and institutions at the forefront of biofuels development such as Boeing, Borregaard DSM, ENI, Neste, REG, GoodFuels, IATA, IFPEN, ISCC, Novozymes, UPM, etc.

Contribution of Task 39's Proposed Program of Work to the IEA Bioenergy Strategic Plan

- Championing the greater production and use of **sustainable, low-carbon intensity transport biofuels** to decarbonize the global economy
- Assess the progress in **developing low Carbon Intensity (CI) biofuels** from various sustainable biogenic / circular economy feedstocks with a focus on the “hard-to-decarbonise” long distance transport sector (all modes)
- Contribute to **the development of existing / emerging LCA models and certification schemes** used to ensure the sustainability of low CI fuels
- Assess and help with **market development of low CI biofuel value chains**
- The Task's Implementation Agenda's report **compares and contrasts policies that have been successfully developed** and used in some member countries to assess their applicability to other global regions
- **Publishing world class, state-of-the-art, reports** on various aspects of biogenic, low CI transportation fuels
- **Collaborate with other IEA Bioenergy Tasks and allied international agencies** (e.g., IRENA, GBEP, US DoE, etc.) as well as other IEA TCPs

Task 39 Triennium Budget Table

TRIENNium 2022 - 2024					
TASK	39				
BUDGET					
			2022	2023	2024
Number of participants			16	16	16
Annual cost per participant			15,000	15,000	15,000
Task income			240,000	240,000	240,000
Less 10% to Strategic Fund			24,000	24,000	24,000
Net Task income			216,000	216,000	216,000
Funds carried forward			0	0	0
Outstanding funds for preceeding year(s)			0	0	0
Other income			0	0	0
Net available funds			216,000	216,000	216,000
SPEND vs BUDGET BREAKDOWN					
			Budget Year 1	Budget Year 2	Budget Year 3
1a Salaries / benefits - Task Management			40,000	40,000	40,000
1b Salaries / benefits - Dissemination			0	0	0
2. Support services			0	0	0
3. Materials / supplies			2,000	2,000	2,000
4. Travel			10,000	10,000	10,000
5. Other expenditure			0	0	0
6. Overhead			19,000	19,000	19,000
7. Projects / Subcontracts / Consultants			145,000	145,000	145,000
TOTAL			216,000	216,000	216,000

Deliverables Gantt Chart

Project No.		Topic	Status	2022				2023				2024			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
REPORTS	T39-T1	Continuation/further work on Drop in biofuels/Co-Processing (possibly with Task 33 &34)	Planning												
			Actual												
	T39-T2	Continuation/further work on Decarbonisation Strategies for the Aviation Sector	Planning												
			Actual												
	T39-T3	Continuation/further work on Decarbonizing the Marine Sector	Planning												
			Actual												
	T39-T4	Assessment of Large-scale Demonstration Plants	Planning												
			Actual												
	T39-T5	Phase 2 - Successes and Lessons Learned for Advanced Biofuel Technologies Commercialization (possibly InterTask with Tasks 40 and 45)	Planning												
			Actual												
	T39-T6	Synergies of green hydrogen and bioenergy) (InterTask with Task 44)	Planning												
			Actual												
	T39-P1	Update Biofuels Implementation Agendas: Policies Compare and Contrast report covering member country policies and deployment success	Planning												
			Actual												
	T39-P2	Extend assessment of the Sustainability of Biofuels Pathways (LCA)	Planning												
			Actual												
	T39-P3	Review existing and proposed Certifications for oleochemical and lignocellulosic-based biofuels and other potential renewable fuel supply chains; identify certification scheme improvement opportunities	Planning												
			Actual												
	T39-P4	Extend assessment on the status of Biofuels in Emerging Markets - potential for sustainable production and consumption	Planning												
			Actual												
		Task 39 Newsletters	Planning												
			Actual												
		IEA Bioenergy Progress and Annual Reports (Task progress)	Planning												
			Actual												

Thanks for your attention!

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