

IEA Bioenergy

Bioenergy News

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Biobased Energy in Estonia

Editorial by Liisa Mällo,
ExCo Member for Estonia

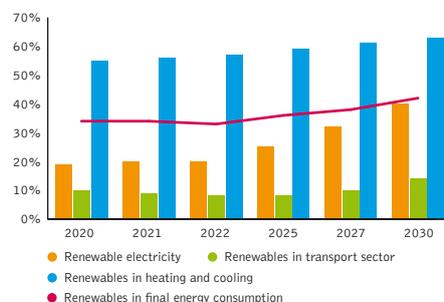


Estonia has set ambitious targets for transitioning into a low-carbon economy. In 2017, the Estonian Parliament adopted the General Principles of Climate Policy Until 2050, where we committed to reducing greenhouse gas emissions by at least 80% by 2050, compared to 1990. In October 2019, the Government of Estonia endorsed setting the climate neutrality target across the EU. This increased level of ambition can only be met by a combination of increased uptake of renewables, energy efficiency and innovative technologies. In Estonia – country 50% covered in forests – biomass will play a key role in transitioning towards climate neutrality.

Estonia's renewable energy share of gross final energy consumption was 29.2% in 2017, well above the country's mandatory EU 2020 target of 25%. Looking to 2030, Estonia has established goals for renewable energy shares of up to 50% in both gross final energy consumption and electricity generation and renewable energy shares of 63% in heat production and 14% in transport (Figure 1.). To reach the 2030 targets, Estonia plans to increase strongly the wind energy and solar energy in their energy mix (2020 wind 670 GWh; 2020 solar 100 GWh -> 2030 wind 2640 GWh; 2030 solar 415 GWh).

Yet, so far bioenergy has been the dominant source of renewable energy, accounting for 95% of renewables in TPES in 2018 (Figure 2.). Biomass from domestic forestry is the main source of renewable energy in Estonia. Well over 90% of the growth in bioenergy is based on consumption of biomass from domestic forestry. Bioenergy also remains the dominant source of renewable heat production. In 2017, renewable energy covered 51.6% of Estonia's heat consumption, with over 95% coming from bioenergy and 4.6% covered by heat pumps using renewable energy. In contrast, 2018 renewable electricity generation was more evenly divided between bioenergy (66%) and wind generation (33%), with small contributions from hydropower.

Figure 1. Renewable energy trajectories 2020-2030

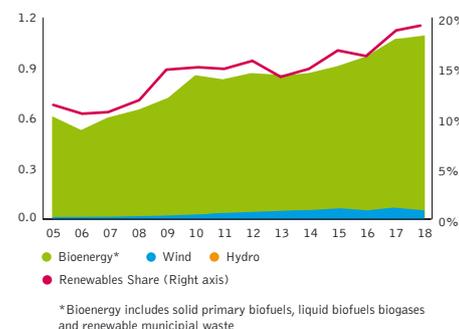


Estonia's current renewable energy support scheme is based on a floating market feed-in premium that is automatically given to qualifying producers of electricity from renewable energy. This system was established in 2007 and Estonia is in the process of replacing it with competitive auctions, which are planned to start in 2019.

Most heat-related policy is set on a regional or municipal level. However, the government has periodically introduced small support schemes for renewable heat, often in relation to the renovation of buildings or heating systems.

Estonia aims to increase rapidly 2nd generation biofuel production. Estonia's minimum 2030 target is to produce and consume 40 Mm³ (ca 375 GWh) of locally produced biomethane in the transport sector. This will be reached with a multipronged approach where local biomethane production, consumption (refuelling stations, vehicles purchase support for local governments etc) is supported. Additional to the support schemes, Estonia has in place the GO (guarantees of origin) system for the biomethane.

Figure 2. Renewable energy in TPES, 2005-18



Estonia has built one of the world's most advanced digital societies and many of the IT-companies have a high profile on environmental awareness. For example, during the Tallinn Digital Summit this year, 33 Estonian IT-companies signed a declaration to use only environmentally friendly solutions by 2030. Already today, over 20 additional IT-companies throughout the world have joined the declaration. Hopefully this is inspiring for other sectors and environmentally friendly solutions will be a prerequisite in order to compete on the world-wide market.



From the Secretariat

PEARSE BUCKLEY



The 84th meeting of the Executive Committee was held at Swissotel in Tallinn, Estonia on 22-24 October 2019, with Jim Spaeth as Chair, Paul Bennett as Vice-chair and Pearse Buckley as Secretary. The meeting was hosted by the Estonian Ministry of Economic Affairs and Communications. The Chair expressed the appreciation of the ExCo to Mällo and her colleagues for the excellent meeting arrangements. Some of the outcomes of the meeting are detailed below.

Changes to Executive Committee

A new Member and Alternate Member for Denmark were Ms Annika Fischer and Mr Jan Büniger respectively; a new Alternate Member for The Netherlands was Mr Dinand Drankier; a new Member for Sweden was Mr Jonas Lindmark.

ExCo84 Workshop

A successful and well attended workshop was organised in collaboration with the Estonian Ministry of Economic Affairs and Communications. The topic of the workshop was 'Developing business models for efficient use of biomass'. With approximately 75 attendees, the workshop included three plenary sessions during which eleven invited speakers gave presentations. The sessions covered 'Setting up biomass supply chains', 'Examples of developing biobased business models' and 'CO₂ capture as part of future biomass business models'. Each session was closed by reflections from a rapporteur. The workshop concluded with a panel discussion addressing

- ▶ Challenges and opportunities to expand biomass mobilization in a sustainable way and setting up supply chains
- ▶ Main barriers for industry investments in biobased business models and BECCS
- ▶ Recommendations to overcome these barriers.

The presentations from the workshop are available at <https://www.ieabioenergy.com/publications/ws25-developing-business-models-for-efficient-use-of-biomass/>.

Progress with current Initiatives

Task 41 Project 9: Potential Cost reduction for novel and advanced renewable and low carbon fuels

The draft report was currently being reviewed by the review group. One of the findings for the medium-term cost reduction potential was that advanced biofuels became competitive with existing biofuels but not directly competitive with current fossil fuels except where waste feedstocks were used. However, carbon prices could have an important impact.

Task 41 Project 10: The contribution of Advanced Renewable Transport Fuels to transport decarbonisation in 2030 and beyond

The key question to be addressed was 'How much could advanced renewable transport fuels contribute to the decarbonisation of the transport sector'. The project included seven work packages. The country assessments would focus on Brazil, Finland, Germany, Sweden and the USA and it was hoped to also include China, Japan and India. The project would be completed by year end.

Inter-Task project – The role of bioenergy in a WB2/SDG world

This 3-year Inter-Task project started in the first quarter of 2019 and includes four activity areas. For the first workshop under Activities A1 and A2, the call for contributions closed in August 2019 and the responses were being evaluated. The 2nd workshop under Activities A1 and A2, would

probably be held in conjunction with the Negative Emissions Conference in May 2020. Studies were already underway, including one on 'forests as long term C sinks' which addressed the view that forests should remain uncut. The project was on schedule to be completed in the 4th quarter of 2021.

Inter-Task project – Renewable Gas-deployment, markets and sustainable trade

This Inter-Task project was approved at ExCo83. The main objective of the project was to see greater deployment of renewable gases and to underpin their sustainability. Three work packages would cover (i) status of regulatory issues, (ii) status/perspectives of non-bioenergy renewable gases and (iii) the sustainable potential for renewable gas trade. Collaboration was foreseen with IEA GHG, IEA Hydrogen, EC DG ENER and the JRC, and industrial partners. The project was scheduled to be completed in the first quarter of 2021.

Inter-Task project – Bioenergy for high temperature heat in industry

This Inter-Task project was started in the second quarter of 2019. The project focus would be on process heat. A case study template had been developed and each of the technical Tasks would be responsible for a single case study. The policy report would be coordinated by Task 40. The plan for dissemination included the IEA Bioenergy websites, a webinar, presentations at major bioenergy conferences and through scientific journals. The project would be completed in September 2021.



▲ Attendees at the ExCo84 meeting



▲ Attendees at the ExCo84 workshop



▲ Timo Tatar, Estonia Deputy Secretary General for Energy presenting to the workshop



Task 41 Project 11 Proposal – Renewable Gas – Hydrogen in the grid

This Task 41 project was approved at ExCo84. The project would be complementary to the Inter-Task project on Renewable Gas, with a number of objectives including the identification of barriers to the gradual replacement of natural gas by renewable gas with an emphasis on hydrogen addition to the gas grid and dedicated hydrogen grids. There were two work packages. It was planned to have collaboration with industry, involvement with Tasks 33 and 43 and to engage with the IEA Renewable energy Working Party (REWP) in Paris.

Communication Strategy

The first phase of the IEA Bioenergy Communications Strategy implementation had been completed with a number of outputs including a guidance document for communication of Tasks' reports, a report launch guide and a media template for regular Tasks' publications. The second phase had begun with the appointment of ETA Florence following a tender process in the 2nd and 3rd quarters of 2019. Some of the primary actions to be carried out include a redesign of the website and the development of proposals for a new logo. Communications through social media has continued with a steady increase in followers, particularly on Twitter. Since ExCo83 two IEA Bioenergy webinars have been presented. All of the IEA Bioenergy webinars can be viewed at <https://www.ieabioenergy.com/iea-publications/webinars/>

Visit the FAQ section of the IEA Bioenergy website here <http://www.ieabioenergy.com/iea-publications/faq/>.

Collaboration with other International Organizations

Collaboration with other IEA TCPs and International Organisations has continued.

Request for Extension (RfE) of TCP Term

The IEA Bioenergy RfE had been approved by the IEA REWP and went to the Committee for Energy Research and Technology (CERT) for a final decision. CERT has since approved a new term for the IEA Bioenergy Technology Collaboration Programme from 01 March 2020 to 28 February 2025.

ExCo84 Study Tour

Following the ExCo84 meeting a group of 20 IEA Bioenergy attendees participated in the study tour taking in a site visit to Estonian Cell AS (<https://www.estoniantcell.ee/en/>).

Estonian Cell AS is part of the Heinzl Group (<https://www.heinzl.com/en/>). It commenced operation in 2006 and produces high quality pulp from aspen using a Bleached Chemi-Thermo Mechanical Aspen Pulp (Aspen BCTMP) process. The process uses 450,000 m³ of wood per year, which is collected primarily within 150 km of the plant, and produces 170,000 tonnes of pulp.

The capacity will be increased to 180,000 tonnes by 2020 and subsequently increased further to 200,000 tonnes. All of the production is exported, with 75% going to markets in Europe and the balance going to markets in Asia. The annual turnover of this fully automatic production facility is €90.5 million. While Estonian Cell AS directly employs 94 people, another 500 are involved in the value chain.

The industrial wastewater from the plant is high in energy based on the wood and chemicals it contains. As it was recognised as a good feedstock for anaerobic digestion, Estonian Cell AS invested €11 million in a biogas plant. The plant, which went into normal operation in May 2018, produces 7.8 million m³ of biogas per year. This is upgraded to biomethane at a quality of 98% natural gas and injected into the gas grid at 30-40 bar. All of the biomethane is used in transport, being compressed to 250 bar at the fuelling stations. The digestate leaving the biogas reactor is put through full stage aerobic treatment before being directed to the Mahu Bay.



▲ Estonian Cell AS biogas plant

Overview of IEA Bioenergy Tasks for the 2019-2021 Triennium

The current triennium commenced on the 1st January 2019 and will run to the end of December 2021 with the following 11 Tasks with three-year programmes of work.

Task 32 – Biomass Combustion – <http://task32.ieabioenergy.com/>

The objective of Task 32 is to collect, analyse, share, and disseminate strategic, technical and non-technical information on biomass combustion and co-firing applications, leading to further acceptance and performance in terms of environment, costs and reliability, and to support the existing momentum in market introduction of improved combustion and co-firing systems and finally find its role in the future energy system in its member countries. The Programme of Work includes the following focus areas:

- Improvement of small scale biomass combustion
- Biomass combustion in industry
- Integration and deployment of efficient and flexible large-scale biomass CHP
- Communication and dissemination activities

Task 33 – Gasification of Biomass and Waste – <http://task33.ieabioenergy.com/>

The objectives of Task 33 are (i) to promote commercialisation of biomass gasification, including gasification of waste, to produce fuel and synthesis gases that can be subsequently converted to substitutes for fossil fuel based energy products and chemicals, and lay the foundation for secure and sustainable energy supply; (ii) to assist IEA Bioenergy Executive Committee activities in developing sustainable bioenergy strategies and policy recommendations by providing technical, economic, and sustainability information for biomass and waste gasification systems. The Programme of Work includes the following:

- Task Projects focused on technical and commercialization aspects of gasification.
- Semi-annual workshops organized by the Task
- Continued updates of Task website and biomass gasification facility database
- Publication of semi-annual Task newsletter
- Task meetings
- Updated Country reports from member countries

Task 34 – Direct Thermochemical Liquefaction – <http://task34.ieabioenergy.com/>

The objective of Task 34 is to advance the international implementation of bioenergy technology through strategic information analysis and dissemination in the areas of direct thermochemical liquefaction of biomass (including bio-based waste) for bioenergy applications such as heat, power, transportation fuel, and the production of chemicals. The Programme of Work includes the following focus areas:

- Support technical and economic assessment of biomass liquefaction technologies
- Validate applicable analytical methods for bio-oil/biocrude product evaluation
- Support commercialisation through standards and lessons learned
- Facilitate information exchange with stakeholders

Task 36 – Material and Energy Valorisation of Waste in a Circular Economy – <http://task36.ieabioenergy.com/>

The objective of Task 36 is to collect, analyse, share, and disseminate best practice technical and strategic non-technical information on the material and energy valorisation of waste in a circular economy. This includes the valorisation of the biomass/biogenic fraction of waste into different bioenergy products (heat, power cooling, liquid and gaseous biofuels) but also the possibility of producing renewable chemicals. The Programme of Work includes the following focus areas:

- The role of waste and energy from waste (EfW) in circular economy
- Co-processing of waste to lower the cost of “raw materials”/low quality feedstocks – topic report
- Flexibility
- Communication and dissemination activities
- Country updates and developments on policy and best practice
- Task meetings and associated field trips

Task 37 – Energy from Biogas – <http://task37.ieabioenergy.com/about-task-37.html>

The main objective of Task 37 is to communicate and advance the knowledge of anaerobic digestion systems and their application via circular economy processes to decarbonisation and environmental improvement. The specific objectives include (i) providing expert advice on the optimal role of biogas in future energy systems; (ii) informing policy makers and developers on sustainability of biogas systems and on methods to ensure good practice; (iii) providing expert advice on the integration of anaerobic digestion into processes; (iv) providing technical support to policy makers and to the public. The Programme of Work includes the following focus areas:

- The optimal role of biogas in future energy systems
- Sustainability of biogas systems and methods to ensure good practice
- Integration of anaerobic digestion into processes
- At least once each year country updates presented by the members published on the website
- The general public informed through webinars and evidence of exemplar technologies in case stories

Task 39 – Commercialising Conventional and Advanced Transport Biofuels from Biomass and Other Renewable Feedstocks – <http://task39.ieabioenergy.com/>

The objective of Task 39 is to facilitate commercialization of conventional and advanced transport biofuels (spanning technical, policy and sustainability considerations) produced from biomass and other renewable feedstocks that contribute to sustainable mobility and transport-related emissions reduction. The Programme of Work includes the following focus areas:

- Technology and Commercialization
- Policy, Markets, Implementation and Sustainability
- Communication Strategy to facilitate knowledge transfer and disseminate information

Task 40 – Deployment of biobased value chains – <http://task40.ieabioenergy.com/>

The core objective of Task 40 is to support the deployment of viable, efficient and biobased value chains in the context of (i) sustainable regional, national and international markets, (ii) reflecting on policy developments, and economic aspects, including financing, (iii) international, national and regional trade of biomass, recognizing the diversity in biomass resources, value chains and competitive applications for bioenergy, biobased materials and products (bioeconomy context). The Programme of Work includes the following focus areas:

- Market developments
- Industrial Heat and Processes
- Deployment Strategies
- Communication and dissemination activities

Task 42 – Biorefining in a Circular Economy – <http://www.task42.ieabioenergy.com/>

The objective of Task 42 is to facilitate the commercialisation and market deployment of environmentally sound, socially acceptable, and cost-competitive biorefinery systems and technologies, and to advise policy and industrial decision makers accordingly. The Programme of Work includes the following focus areas:

- Provide quantitative, scientifically sound, and understandable data on the technical, economic and environmental added value of biorefining to co-produce bioenergy and bio-products in a sustainable way
- Monitor the biorefineries deployment and market potential, including non-technical deployment barriers, in the Circular Economy
- Provide an international platform for cooperation and information exchange

Task 43 – Sustainable biomass supply integration for bioenergy within the broader bioeconomy – <http://task43.ieabioenergy.com/>

The Task is exploring technical and economic strategies to increase the quantity of biomass available, improve the quality of the biomass delivered for different energy purposes, and explore strategies to increase the value and foster confidence in biomass supply, for both direct and cascade use of biomass for bioenergy. The Task focus is on the production and supply of biomass feedstock for energy leading to value creation within the broader context of the bioeconomy. It is looking for innovative biomass supply chains that would facilitate the transition of the bioenergy sector towards the bioeconomy. The Programme of Work includes the following focus areas:

- Biomass production systems for sustainable bioenergy within the bioeconomy
- Integrated supply chain and logistics for sustainable bioenergy within the bioeconomy
- Engagement and communication

Task 44 – Flexible bioenergy and system integration – <http://task44.ieabioenergy.com/>

The objective of Task 44 is to contribute to the development and analysis of flexible bioenergy solutions for a low carbon energy system. The aim is to improve understanding of the types, quality and status of flexible bioenergy, and to identify barriers and future development needs in the context of the entire energy system (power, heat and transport). The Programme of Work includes the following focus areas:

- Flexible bioenergy concepts for supporting low-carbon energy systems
- Acceleration of implementation
- System requirements for bioenergy concepts
- Communication and dissemination

Task 45 – Climate and sustainability effects of bioenergy within the broader bioeconomy – <http://task45.ieabioenergy.com/>

The objective of Task 45 is to identify and address critical issues related to the climate and other sustainability effects of bioenergy and biobased products and systems. The aim is to promote sound development for bioenergy as an integral component of the overall bioeconomy. A key goal is to increase understanding of the environmental, social and economic impacts of producing and using biomass for bioenergy, within the broader bioeconomy. The Programme of Work includes the following focus areas:

- Metrics, methods, and tools for assessing climate change effects of bioenergy
- Metrics, methods and tools for assessing sustainability effects of bioenergy (excluding climate change effects)
- Sustainability stakeholders and implementation approaches (governance)
- Contribution to Inter-Task projects:
- Strategic outreach

For further information see <https://www.ieabioenergy.com/wp-content/uploads/2019/08/IEA-Bioenergy-Work-Programme-2019-2021-Triennium-Rev-30-September-2019.pdf>

Notice Board

Task 43 Sustainable biomass supply integration for bioenergy within the broader bioeconomy

Bio-hubs as keys to successful biomass supply integration for bioenergy within the bioeconomy

A Joint IEA Bioenergy Task 43 & BioEast Initiative Workshop took place on 10th October 2019 in Sopron, Hungary.

The workshop was well attended with 55 participants from 17 countries of which 64% of participants came from the BioEast macro-region, 90% of participants being from the EU with some from as far as Australia, Canada and New Zealand.

Participants had the opportunity to familiarize themselves with how different biomass supply chains (forestry, agriculture, SRC) can evolve into bio-hub concepts. In the second part a SWOT analysis of bio-hub as an alternative to the existing biomass supply was evaluated jointly, capturing inputs from 30 workshop attendees using Sli.do application.

To access presentations, please visit the [IEA Bioenergy Task 43 website](#).

Task 42 Biorefining in a Circular Economy

On the 21st of November 2019 a successful workshop was held in the ENEA Headquarters in Rome on 'New industrial models in the bioeconomic era: the biorefineries'. About 70 Italian stakeholders participated from industry, research institutions, technological clusters, and associations. The workshop was organized by IEA Bioenergy Task 42 'Biorefining in a Circular Economy' in cooperation with ENEA and supported by Novamont.

The workshop aimed at sharing knowledge and having discussions at national level on the current status and future challenges of biorefineries within the bioeconomy. The participants were welcomed by Isabella de Bari and Gian Piero Celata of ENEA, then followed by an introduction on the Italian participation in the various tasks of the IEA Bioenergy TCP by Vito Pignatelli.

Besides direct production of bioenergy, the development of novel integrated value chains for the production of value-added bio-based products is advisable and necessary, requiring the development of biorefineries, namely complex industrial platforms producing biofuels, bioenergy and other valuable goods from biomass.

The use of biomass for the chemical sector could provide novel inputs to the development of chemistry in Italy not only as a contribution to increase the sustainability of the sector, but also as an opportunity to re-launch it in some areas facing severe crisis situations.

Session 1 included several presentations by international delegates of Task 42 – an overview of Task 42 activities, an update of the biobased chemicals report, the role of future energy mixes on the environmental performance of biobased products and the newly developed Technical, Economic & Environmental assessment method (including biorefinery factsheets).

Session 2 provided policy and industry perspectives on the following topics: Industrial biotechnology as a driver for the sustainable and circular bioeconomy, Set plan perspective for renewable fuels and bioenergy, an Innovative Bio-refinery for absorbent hygiene products, a circular approach to the bioeconomy to



▲ Workshop on 'New industrial models in the bioeconomic era: the biorefineries'

close the carbon cycle, the updated Italian Bioeconomy strategy and Biorefinery contribution to a sustainable bioeconomy.

An EU funded project, aimed at closing the loop for absorbent hygiene products, reducing greenhouse gases emission and increasing sustainability in Europe was covered.

The use of gasification to produce intermediates for green chemistry and energy is also the subject of a recent national project, COMETA, coordinated by Novamont. ENEA illustrated some recent national R&D projects coordinated by industrial partners including Biochemtex, Novamont and ENI Versalis.

Session 3 dealt with the research perspectives: Research and innovation in biorefineries (opportunities and challenges), Innovation in biomass collection and supply, Lignin in sustainable and circular bioeconomy (advances and challenges), Adding new value to bio-based products (biocatalysis for new functional polyesters and materials), Catalysts development for biorefineries and Biotechnologies for biorefineries.

More information can be found on the website of Task 42: www.task42.ieabioenergy.com

Task 40 – Deployment of biobased value chains

The webinar "Future Prospects for Wood Pellet Markets" presented the findings of the report "Marginally potential for a long-term sustainable wood pellet supply chain". The report shows that further technological development can reduce wood pellet costs along international supply chains significantly and broaden the feedstock base to low-cost material (e.g. bagasse, wood wastes), while torrefaction can, compared to traditional white pellets, improve energy, GHG and cost performance of long-distance supply, allowing for more widespread applications. More information is available at: <http://task40.ieabioenergy.com/iea-bioenergy-task-40-webinar-future-prospects-for-wood-pellet-markets/>

The full report can be found at the following address: <http://task40.ieabioenergy.com/wp-content/uploads/2019/05/Fritsche-et-al-2019-IEA-Bio-T40-Margin-Pellet-Study.pdf>

As part of an inter-task project with the IEA Bioenergy Tasks 40, 43, 44 and 45, a workshop with external experts introduced the role of bioenergy in WB2/SDG scenarios and it was assessed with the aim of identifying and disseminating strategies for the implementation of bioenergy that contribute positively to a societal transition towards the WB2 objective and at the same time contribute to other SDG objectives. Results will be published in the course of the current triennium.

Task 36 Material and Energy valorisation of waste in a Circular Economy

IEA Bioenergy Task 36 held its second series of face-to-face meetings and workshops in November in Brisbane, Australia. These meetings were held in conjunction with Bioenergy Australia's annual 'Bioenergy Strong' conference, and allowed the task to undertake some Australian-specific engagement activities, with a theme of bringing some global best practice to the Australian bioenergy sector.

The workshop's focus was to consider technology pathways available for energy recovery from waste in the context of a circular economy, and to discuss what that could mean for the sector and for public/government engagement. With this in mind, the workshop was held in two parts: a closed session, where the Task explored some technical aspects of emerging products and feedstocks and how these might link in with activities being undertaken in other tasks, followed by a more open session with some invited participants.

The open session allowed the Task to engage with local bioenergy and CE experts from government and industry, and explore Queensland's biofuture strategy in some detail with members of the respective government departments. The Task also heard from some new industry and research projects that are demonstrating how Australia is moving towards more circular economy principles by integrating energy and materials recovery with urban waste management. A particularly interesting aspect of the workshop was a presentation reporting some recent findings considering social attitudes towards waste-to-energy projects, and some of the factors that influence public acceptance. These insights will form critical inputs to the overall work of the Task.

Task 32 Biomass Combustion

Upcoming Workshop – Residential wood combustion

This workshop organized by IEA Bioenergy Task 32 will be held on 23 January 2020 as part of the 6th Central European Biomass Conference (CEBC) in Graz, Austria. It covers highly relevant topics for residential wood combustion: direct-heating and central-heating technologies as well as operational performance and certification methods for high quality products. For more details see <http://task32.ieabioenergy.com/ieaevent/iea-workshop-residential-wood-combustion/>

IEA Bioenergy Webinar Series

The IEA Bioenergy Webinar Series is continuing with 23 completed. All of the webinars, including recording and presentation slide-deck, can be viewed at <https://www.ieabioenergy.com/iea-publications/webinars/>

Publications

Fuels for Efficiency/Advanced Fuels for Advanced Engines

The trend of vehicle electrification might dominate the global vehicle industry within a foreseeable future; however, a seamless transition needs to be addressed. Internal Combustion Engine technology has been developed for almost 100 years. Most automotive engineers are aware of the need to achieve maximum thermal efficiency while keeping emissions low, but more focus is needed to enable the highest efficiency of advanced engines in combination with new advanced fuels. https://www.ieabioenergy.com/wp-content/uploads/2019/11/AMF_Annex_52.pdf



Drop-in biofuels: The key role that co-processing will play in its production

This 2019 update of the 2014 IEA Bioenergy Task 39 "drop-in" biofuels report reviews the status of technologies, the progress of the various technical approaches and updates the successes, challenges and obstacles that have been encountered during the commercialization of low carbon intensity (CI) drop-in biofuels. The report has assessed the opportunity to use petroleum refinery infrastructure to co-process feedstocks/intermediates such as lipids, oleochemicals, bio-oils and biocrudes to finished, lower CI drop-in biofuels. <https://www.ieabioenergy.com/wp-content/uploads/2019/09/Task-39-Drop-in-Biofuels-Full-Report-January-2019.pdf>



Sustainable Landscape Management for Bioenergy and the Bioeconomy – Report from Joint IEA Bioenergy Task 43 & FAO Workshop, 11-12th October 2018, Rome, Italy

Bioenergy uptake is greatly influenced by the social aspects of sustainability, both in terms of the dynamic nature of bioenergy pathways along the social dimensions of sustainable development (jobs, health, energy access, etc.) and societal perceptions of the general sustainability of bioenergy (encompassing the environmental, economic and social dimensions). Past failures of bioenergy policy for forming positive synergies with agriculture, forestry and waste management tend to attract much more attention than prevalent best practices supported by scientific evidence. General knowledge of biomass issues among policy makers, the scientific community as well as civil society associations must be improved to enable a worldwide transition to a decarbonized society. https://www.ieabioenergy.com/wp-content/uploads/2019/07/FAO_T43_workshop_REPORT_final.pdf



Attractive Systems for Bioenergy Feedstock Production in Sustainably Managed Landscapes – Contributions to the Call

IEA Bioenergy Task 43 launched an initiative to identify attractive examples of landscape management and design for bioenergy and the bioeconomy. The aim of this initiative was to catalogue and highlight world-wide examples of biomass production systems, throughout all stages of production, that can contribute positively to biodiversity and the generation of other ecosystem services. Information about biomass production systems and their impacts, as well as information about governance and policy initiatives that encourage adoptions of solutions leading to positive outcomes were welcomed. https://www.ieabioenergy.com/wp-content/uploads/2019/07/Contributions-to-the-Call_final.pdf



Comparison of Biofuel Life Cycle Analysis Tools: FAME and HVO/HEFA

This IEA Bioenergy Task 39 report aims to identify the main differences and commonalities in methodological structures, calculation procedures and assumptions of different biofuel greenhouse gas (GHG) calculation models. The scope of this study is restricted to vegetable oil based biofuels: biodiesel/ Fatty Acid Methyl Esters (FAME) and Hydrotreated Vegetable Oil/Hydroprocessed Esters and Fatty Acids (HVO/HEFA), produced from either soybean oil, palm oil and used cooking oil (UCO). Five models were considered in the study: BioGrace (EC), GHGenius (Canada), GREET (US), New EC (JRC dataset 2017) and VSB (Brazil). <https://www.ieabioenergy.com/wp-content/uploads/2019/07/Task-39-CTBE-biofuels-LCA-comparison-Final-Report-Phase-2-Part-1-February-11-2019.pdf>



Technical, Economic and Environmental Assessment of Biorefinery Concepts: Developing a practical approach for characterisation

The idea of biorefining in general is considered a promising concept for the processing of biomass into a spectrum of bio-based products and bioenergy. It is seen as one of the enabling technologies of the circular economy, closing loops of streams and aiming at the valorisation of multiple outputs. Due to its complexity and diversity there is a demand for quantitative, scientifically sound and transparent data on the technical, economic and ecological added-value of biorefining. In this IEA Bioenergy Task 42 report four case studies on biorefinery pathways are investigated via a technical, economic and environmental (TEE) assessment. The results will be presented in the structure of biorefinery fact sheets. https://www.ieabioenergy.com/wp-content/uploads/2019/07/TEE_assessment_report_final_20190704-1.pdf



Measuring, governing and gaining support for sustainable bioenergy supply chains

These reports summarize the efforts of an IEA Bioenergy inter-task project designed to address the challenges associated with measuring and governing, as well as communicating, how bioenergy systems contribute to sustainable development. Beginning in 2016 and concluding in late 2018, the project was a collaborative effort between different IEA Bioenergy Tasks that involved a number of studies focusing largely on the agricultural and forestry sectors. <https://www.ieabioenergy.com/wp-content/uploads/2019/06/Intertask-Sustainability-Main-findings-and-recommendations-17.5.2019-1.pdf>



IEA Bioenergy Annual Report 2018

The IEA Bioenergy Annual Report 2018 includes a special feature article "Measuring, governing and gaining support for sustainable bioenergy supply chains – lessons and messages from a three-year Inter-Task" prepared by the Inter-Task team, which was led by Task 40. The Annual Report also includes a report from the Executive Committee and a detailed progress report on each of the Tasks. Also included is key information such as Task participation, Contracting Parties, budget tables and substantial contact information plus lists of reports and papers produced by the Technology Collaboration Programme. <https://www.ieabioenergy.com/wp-content/uploads/2019/04/IEA-Bioenergy-Annual-Report-2018.pdf>



Best practice report on decentralized biomass fired CHP plants and status of biomass fired small- and micro-scale CHP technologies

A combined heat and power (CHP) plant is a facility for the simultaneous production of thermal and electrical energy in one process. Compared to power plants, the overall process efficiency is higher as the otherwise rejected heat is also transferred to consumers. Applications range from very small appliances for domestic use, so called "micro scale CHPs" via "small scale CHPs" for larger buildings and local heating grids to "medium-" and "large scale CHPs" for industrial sites or district heating grids (ranging up to some 30 MWe). https://www.ieabioenergy.com/wp-content/uploads/2019/05/T32_CHP_Report_01_2019.pdf



Executive Committee

- ExCo85** will be held in São Paulo, Brazil, 02 April 2020
- ExCo86** will be held in Lyon, France, 20-22 October 2020
- ExCo87** will be held in Vienna, Austria, May 2021
- ExCo88** will be held in Sydney, Australia, October/November 2021

Task Events

Task 32's schedule of upcoming events is

A Task meeting and workshop, in conjunction a Task 44 meeting and the Central European Biomass Conference 2020, will be held in Graz, Austria, 22-24 January 2020

A Task meeting and workshop will be held in Copenhagen, Denmark, June 2020

A joint Task meeting with Task 33 will be held in Whitehorse, Canada, November 2020

Task 33's schedule of upcoming events is

A Task meeting, in conjunction with 7th International Symposium on Gasification and its Applications (ISGA7), will be held in Nancy, France, June-July 2020

A joint Task meeting with Task 32 will be held in Whitehorse, Canada, November 2020

Task 34's schedule of upcoming events is

Task meetings TBC

Task 36's schedule of upcoming events is

Task meetings TBC

Task 37's schedule of upcoming events is

A Task meeting will be held in Toronto, Canada, 25-27 March 2020

Task 39's schedule of upcoming events is

A Task meeting, in conjunction with BBEST 2020, a Task 45 meeting and IEA Bioenergy ExCo85, will be held in São Paulo, Brazil, 2-3 April 2020

Task 40's schedule of upcoming events is

Task meetings TBC

Task 42's schedule of upcoming events is

A Task meeting will be held in Stockholm, Sweden, 24-26 March 2020

Task 43's schedule of upcoming events is

Task meetings TBC

Task 44's schedule of upcoming events is

A Task meeting, in conjunction a Task 32 meeting and the Central European Biomass Conference 2020, will be held in Graz, Austria, 22-23 January 2020

Task 45's schedule of upcoming events is

A Task meeting, in conjunction with BBEST 2020, a Task 39 meeting and IEA Bioenergy ExCo85, will be held in São Paulo, Brazil, 2-3 April 2020

Other Items

6th Central European Biomass Conference CEBC 2020

Date: 22nd Jan, 2020 – 24th Jan, 2020

Location: Graz, Austria

Website: https://www.cebc.at/oesterreichischer-biomasse-verband/6_mitteuropaeische_biomassekonferenz_cebc_2020/?lang=englisch

13th Annual Biomass Conference & ExPo

Date: 3rd Feb, 2020 – 5th Feb, 2020

Location: Nashville, Tn, USA

Website: <http://biomassconference.com/ema/DisplayPage.aspx?pageId=Home>

5th Biomass Trade & Power Europe

Date: 5th Feb, 2020 – 6th Feb, 2020

Location: Copenhagen, Denmark

Website: <https://www.cmtevents.com/aboutevent.aspx?ev=200202&>

9th IEA-CCC Workshop on cofiring biomass with coal

Date: 25th Feb, 2020 – 27th Feb, 2020

Location: Kokura, Japan

Website: <https://www.cofiring-workshops.org/>

Lignofuels 2020

Date: 26th Feb, 2020 – 27th Feb, 2020

Location: Helsinki, Finland

Website: <https://www.wplgroup.com/aci/event/lignocellulosic-fuel-conference-europe/>

Biomass PowerOn 2020

Date: 4th Mar, 2020 – 5th Mar, 2020

Location: Stockholm, Sweden

Website: https://fortesmedia.com/biomass-poweron-2019_4_en_2_1_3.html

Gasification 2020 Summit

Date: 18th Mar, 2020 – 19th Mar, 2020

Location: Lyon, France

Website: <https://www.wplgroup.com/aci/event/gasification/>

ABLC 2020

Date: 25th Mar, 2020 – 27th Mar, 2020

Location: Washington, D.C., USA

Website: <http://biofuelsdigest.com/ablc/>

Argus Biomass 2020

Date: 20th Apr, 2020 – 22nd Apr, 2020

Location: London, UK

Website: <https://www.argusmedia.com/en/conferences-events-listing/biomass>

42nd Symposium on Biomaterials, Fuels and Chemicals

Date: 26th Apr, 2020 – 29th Apr, 2020

Location: New Orleans, La, USA

Website: <https://advancedbiofuelsusa.info/42nd-symposium-on-biomaterials-fuels-and-chemicals-april-26-29-2020-new-orleans-la/>

28th European Biomass Conference and Exhibition (EUBCE 2020)

Date: 27th Apr, 2020 – 30th Apr, 2020

Location: Marseille, France

Website: <http://www.eubce.com/conference/call-for-papers.html>

REGATEC 2020

Date: 14th May, 2020 – 15th May, 2020

Location: Weimar, Germany

Website: <http://regatec.org/>

7th International Symposium on Gasification and its Applications (ISGA7)

Date: 29th Jun, 2020 – 3rd Jul, 2020

Location: Nancy, France

Contact: Guillaïn Mauviel

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Website: <http://isga-7.inviteo.fr/>

14th International Conference on Biofuels and Bioenergy Theme: Global scenario of Biofuels and Bioenergy

Date: 17-18th Sep, 2020

Location: Osaka, Japan

Website: <https://biofuels-bioenergy.conferenceseries.com/>

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Task 33: Gasification of Biomass and Waste

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Task 34: Direct Thermochemical Liquefaction

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Task 36: Material and Energy valorisation of waste in a Circular Economy

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Task 37: Energy from Biogas

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Task 39: Commercialising Conventional and Advanced Transport Biofuels from Biomass and Other Renewable Feedstocks

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Task 42: Biorefining in a Circular economy

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Task 43: Sustainable biomass supply integration for bioenergy within the broader bioeconomy

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Task 44: Flexible bioenergy and system integration

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