

Bioenergy News

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IEA Bioenergy launches new website and graphic identity



Editorial by
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ExCo Chair



Luc Pelkmans
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IEA Bioenergy launched its new redesigned website along with a new brand identity and logo in a [webinar](#) presented on the 20th May 2020. IEA Bioenergy collaborated with the website development and marketing team of [ETA-Florence Renewable Energies](#) to provide a more comprehensive, intuitive, and user-friendly source of information and browsing experience, adapted to reflect the organization's main purposes and core values.

The new website features a fresh and clean design with a new menu structure delivering information in an easy to navigate and aesthetically pleasing approach. The new website's improved features include a quicker and easier access to central information such as publications, reports and events, offering a more comprehensive understanding of the organizations' mission and objectives.

The webinar, presented by Jim Spaeth, Chair of IEA Bioenergy, and the Technical Coordinator, Luc Pelkmans, included an overview of the challenges to and opportunities for bioenergy in the context of the prevailing Covid19 global pandemic and its impacts on energy markets around the world. It touched on the broader role that bioenergy plays in the overall supply of sustainable energy now and in the medium and long term.

The mission of the IEA Bioenergy TCP is to increase knowledge and understanding of bioenergy systems in order to facilitate the commercialisation and market deployment of environmentally sound, socially acceptable, and cost-competitive, low-carbon bioenergy systems and technologies, and to advise policy and industrial decision makers accordingly, in its capacity as an independent collaborative body focused on delivering clear and verified information on bioenergy. The IEA Bioenergy TCP realises the mission by providing platforms for international collaboration and information exchange in bioenergy research, technology development, demonstration, and policy analysis—including through network development and information dissemination. The IEA Bioenergy TCP's work programme is carried

out through Tasks and Special Projects, covering the full value chain from feedstock to final energy product.

IEA Bioenergy Tasks

As described in its 2020–2025 Strategic Plan, the IEA Bioenergy TCP's strategic objectives are:

- Enabling the development and application of innovative bioenergy technologies to provide substantial contributions to future global energy demand and serve a major role in decarbonising transport, heat, power, and electricity.
- Support increased sustainable biomass production and establishing efficient biomass supply chains based on transparent, science-based criteria.

- Fully explore bioenergy's potential to deliver significant greenhouse gas savings across all energy sectors and its capacity to deliver negative emissions.
- Engage stakeholders and expand collaboration to pursue objectives and enhance and optimise communication channels to disseminate outputs widely and increase engagement with emerging and developing countries.

Collaboration with other IEA Technology Collaboration Programmes and international organisations is a key part of the work of IEA Bioenergy. Through these collaborations a broader range of expertise is leveraged to provide clear and fact based information. The critical role of communications then comes into play to convey the information in a readily accessible form to the stakeholder community and IEA Bioenergy has put in place a range of communication tools to achieve this end.

Further information:

ieabioenergy.com



IEA Bioenergy
Technology Collaboration Programme

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Creating trust through fact based communication is key for deployment of sustainable bioenergy



Luc Pelkmans
ExCo Technical Coordinator

Bioenergy is considered to play an important role in future scenarios that keep climate warming well below 2°C, while achieving also many of the other Sustainable Development Goals (SDGs). IEA's Technology Roadmap on Sustainable Bioenergy states that modern bioenergy in 2060 final energy consumption should be four times the 2015 level, with particular high scale up needs in transport and industry, and focusing on sustainable supply and use. A recent IPCC report¹ states that 'Bioenergy use is substantial in 1.5°C pathways with or without BECCS due to its multiple roles in decarbonizing energy use', thereby also recognizing that land use governance will be important, which was underlined in the 2019 IPCC Special Report on Climate Change and Land.

Bioenergy has some specific assets to contribute to the transition away from fossil fuels in the energy system:

- bioenergy is available now, so it can replace fossil energy at the short term;
- it is versatile, and applicable in different sectors (electricity, heating, transport fuels), and there is flexibility to redirect bioenergy to sectors that are difficult to electricity, such as long haul transport or high temperature heat in industry;
- bioenergy can be integrated in existing infrastructure, for instance transport fuel distribution, natural gas distribution networks, or co-processing in existing refineries;
- biomass is storable, so bioenergy can support the expansion of intermittent renewable energy carriers, like solar or wind;
- it can provide negative CO₂ emissions (= extracting CO₂ from the atmosphere) when combined with carbon capture and storage.

Yet, bioenergy deployment is currently off-track in the transport and heating sectors to reach long term decarbonisation goals, as shown in the figure below. There is a heated debate on bioenergy in several countries, particularly related to the use of forest biomass or the use of agricultural land for biomass production. Negative views about bioenergy can be due to bad examples of bioenergy implementation causing negative impacts in certain locations, but are often also related to misinformation, and emotional connotations. While we have to recognize the risks and explore how to mitigate those, there is an urgent need to address misconceptions about biomass and bioenergy, to provide scientific evidence and to raise awareness on what sustainable bioenergy means, to point to the various types of biomass/bioenergy, how bioenergy can be deployed and may be scaled-up, and how it connects to the overall bioeconomy - ultimately, building trust and acceptance for ensuring a lasting change in citizen's view regarding deployment of sustainable bioenergy.

The IEA Bioenergy TCP has a long track record of global collaboration in every aspect of the bioenergy value chain, with experts from the research community, education institutions, government agencies and industry. Next to technology aspects, deployment and sustainability are high on the agenda. It is important to raise awareness about the work carried out in our network among policy makers, industry decision makers and other experts, but also strategic communication is needed to bring the key messages and the nuances of the results of this work more effectively into societal debates, inform policy and influence public perceptions. That is why collaboration is sought with communication experts such as ETA Florence to define, design and implement concrete

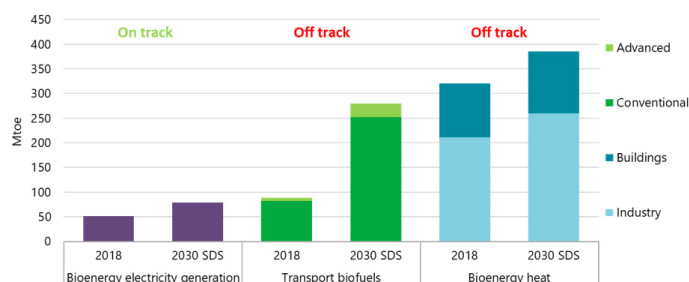
strategic communication actions.

A recent IEA Bioenergy project² looked into perceptions of different stakeholder groups, concluding a.o. that public awareness of bioenergy is generally low, and that information from academia/experts is most trusted, while social media is less trusted but much more influential. A recommendation was to address the role and modes of communication for creating trust and confidence among different groups of actors; considering which messages are most impactful if delivered by credible messengers in an engaging format for each target group chosen, additionally adjusting the strategy to whether communication takes place at local, regional, national or international levels.

The importance of communication and dialogue was confirmed in an interactive workshop held in Utrecht, the Netherlands, in May 2019 about 'Governing sustainability in biomass supply chains for the bioeconomy'³, where following suggestions were made:

- involve all stakeholders in future dialogues, including policymakers and the financing sector;
- discuss what are real risks, what is actual practice, and how can sustainability governance help de-risking;
- bring forward social and local economic opportunities more prominently, and showcase good examples to make the case for bioeconomy developments that properly balance multiple objectives;
- employ modern ways of targeted strategic communication efforts towards mainstream media and the public, especially aiming at young people who will be in the driver's seat in the coming decades to steer the transition to a low-carbon economy.

The workshop was a first step to reach a wider audience in order to explain what biomass can mean for society and economy. Further events will be organized and, together with communication experts as well as other international organisations (e.g. GBEP, IRENA, the Biofuture Platform, UNCCD), steps will be taken to ensure outreach via effective strategic partnerships to bring fact-based key messages to the societal debates in support of the further deployment of sustainable bioenergy, thereby counteracting misinformation and emotion-based perceptions.



Global bioenergy production in 2018 versus 2030 contribution in the IEA Sustainable Development Scenario (source: IEA)

¹ IPCC (2018). Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development.

² IEA Bioenergy (2019). Measuring, governing and gaining support for sustainable bioenergy supply chains Available at: www.ieabioenergy.com/publications/new-publication-measuring-governing-and-gaining-support-for-sustainable-bioenergy-supply-chains

³ Summary report available at: www.ieabioenergy.com/wp-content/uploads/2019/05/ExCo83-Governing-sustainability-in-biomass-supply-chains-for-the-bioeconomy-Summary-and-Conclusions.pdf



From the Secretariat



Pearse Buckley
ExCo Secretary

ExCo85, Virtual Meeting

The 85th meeting of the Executive Committee had been planned to be held in São Paulo, Brazil on 2 April 2020. However, due to the Covid19 pandemic, which resulted in severe restrictions on travel and physical meetings, the ExCo85 in person meeting was cancelled. In its place a Virtual Meeting was held on the 27th April at 21:00 CEST with Jim Spaeth as Chair, Paul Bennett as Vice-chair and Pearse Buckley as Secretary.

Changes to Executive Committee

A new Member for Belgium was Dr Thibaut Masy; a new Member and Alternate Member for China were Dr Dongming Ren and Dr Kejun Dou respectively; a new Member for Denmark was Ms Laerke Skov Hansen; a new Member and Alternate Member for the European Commission were Mr Eric Fee and Mr Nicolae Scarlat respectively; a new Member for Japan was Mr Shinji Furukawa.

Progress with current Initiatives

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

The work is complete and the final report is in preparation. A key message from the project is that decarbonisation of the transport sector can only be reached with a set of measures and fuel/energy options, and biofuels constitute an important part. There is sufficient biomass available to support the large-scale roll-out of biofuels, and current vehicles can accommodate these amounts. It is expected that the final project report will be published in the 3rd quarter of 2020.

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

At a workshop in Berlin in November 2019, hosted by the German Federal Ministry of Food and Agriculture and German Federal Ministry for Environment, Nature Conservation and Nuclear Safety, 44 participants discussed results and conclusions from recent studies that investigate how bioenergy and associated technologies may contribute to achieving the reductions in greenhouse gas emissions that are needed to meet the WB2 target. The studies presented were specific to a region or nation, or of global scope and focused on one individual sector or covered several energy sectors. A workshop report is expected to be published in the 2nd / 3rd quarter of 2020. While Covid19 is having a major impact on how the work is carried out, the project is expected to be completed on time in the 4th quarter of 2021.

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

Data collection for the case studies has been completed and the first drafts of the case studies have been prepared. These will be finalised and presented at the ExCo86 workshop in Lyon in October 2020. The preparation of the policy report will begin in the 3rd quarter of 2020, based on the lessons learned in the case studies and a general assessment of the global market potential for the application of bioenergy in industry. The project will be completed in September 2021.

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

There was an initial delay in finalising the budget for the project, which has since been resolved. Covid19 has added some additional challenges and these are being addressed. The project lead has collected various materials (studies, articles, etc.) in a virtual file repository. Colleagues from Task 37, Task 40 and Task 45 have drafted work plans for the work packages, taking into account the 'Task 41 Project II – Renewable Gas- Hydrogen in the grid' content – see following.

Task 41 Project II – Renewable Gas- Hydrogen in the grid

This project is complementary to the Inter-Task project on Renewable Gas – deployment, markets and sustainable trade'. The objective is to carry out a thorough study on renewable gas and the effect of H₂ addition in the grid, as well as applications at increased concentrations of H₂ up to 100%. The expertise of IEA Bioenergy and national experts will be fundamental to the success of this study which could be of significant value in the decarbonisation policies by 2050 and beyond. The project will identify and discuss the numerous challenges and hurdles for the gradual replacement of natural gas by renewable gas, with emphasis on hydrogen addition to the gas grid and dedicated hydrogen grids. The budget has still to be finalised and this together with the impact of Covid19 will delay completion of the project into 2021.

Further Inter-Task Project Proposals

At the ExCo85 Virtual Meeting the ExCo approved the preparation of Inter-Task Project proposals on 'BECCS' and on 'Lessons Learned Biofuels'. These proposals will be submitted for approval in the 3rd quarter of 2020.

Communication Strategy

Communications support from ETA Florence has continued and their contract has been renewed

to the end of February 2021. ETA Florence have developed a communication and dissemination action plan, supported the launch of IEA Bioenergy reports and provided the platform for IEA Bioenergy webinars. They have also been active on social media on behalf of the TCP and the profile of IEA Bioenergy has been significantly enhanced on Twitter and LinkedIn as a consequence. ETA Florence have also developed new visuals for IEA Bioenergy and a refresh of the website. With regard to IEA Bioenergy webinars, between ExCo84 and ExCo85 four have been presented. All of the IEA Bioenergy webinars can be viewed [here](#).

IEA Bioenergy, Global Collaboration on Sustainable Bioenergy, A Look Forward – Webinar

IEA Bioenergy launched its new redesigned [website](#) along with a new brand identity and logo. IEA Bioenergy collaborated with the website development and marketing team of ETA-Florence Renewable Energies to provide a more comprehensive, intuitive, and user-friendly source of information and browsing experience, adapted to reflect the organization's main purposes and core values. The new website features a fresh and clean design with a new menu structure delivering information in an easy to navigate and aesthetically pleasing approach. The new website's improved features include a quicker and easier access to central information such as publications, reports and events, offering a more comprehensive understanding of the organizations' mission and objectives. The webinar also highlights IEA Bioenergy's strategic focus for the next five years as well as the planned key enabling research areas. It gives insights into the latest technologies available and into the policies that can support bioenergy as well as into the role of IEA Bioenergy for its development. The webinar recording and PowerPoint presentation can be viewed [here](#).

Collaboration with other International Organizations

Collaboration with the IEA, other IEA TCPs and International Organisations has continued.

Further information:

[IEA bioenergy.com](https://www.iea-bioenergy.com)

Task Focus:

IEA Bioenergy Task 34 – Direct Thermochemical Liquefaction

Liquid fuels and commodities

It is the fundamental concept of a bioeconomy to replace fossil based production pathways by using biomass that can be regrown, be it dedicated crops or residues e.g. from food production. The variety of commodities used in everyday life demands for a transformation of these biomass resources in one or the other way. With very few exceptions, all conversion processes for biomass produce solid, liquid, and gaseous products in varying yields and composition. Task 34 defines 'Liquefaction' as conversion process with the aim to produce liquids as primary product and/or with the highest yield.

Liquid commodities are visible to the customer primarily in the form of transportation and heating fuels, but they are also of utmost importance to many industrial processes. Liquids are easy to handle and store; many basic chemicals for the production of everyday goods are liquids, too. Due to these reasons, conversion of biomass to liquid products is often associated with a higher value addition than the analogue processes of carbonization (for solid products) and gasification (for gaseous products).

The commodities used in a bioeconomy need to be derived from a vast variety of feedstocks. It is obvious that there will be no single biomass source that is capable of mobilizing the large mass potential to supply a cross-regional economy; especially with large scale, industrial production. Instead, there are diverse sources of biomass feedstocks even at regional level. Different woods and perennial energy crops can be grown in a sustainable manner and could represent a fairly homogeneous feedstock for a local conversion unit. Alternatively, it is desirable to use by-products and residues from agriculture and forestry to avoid land use competition. The arising challenge is to enable refining of such a multitude of sometimes complicated feedstocks (heterogeneity, ash content, water content, low bulk density etc) to a limited and well-defined range of commodities such as the fuels and chemicals used today.

Direct Thermochemical Liquefaction

Direct Thermochemical Liquefaction (DTL) is using heat to break down the polymers in solid biomass to form a liquid that can be used as an energy carrier or chemical feedstock. Fast pyrolysis and hydrothermal liquefaction are two examples of DTL to form bio-oils and bio-crudes respectively. It is also possible to degrade and solve bio-

mass feedstocks in organic solvents, which can be referred to as solvolysis. DTL produces a large variety of fragments from the initial biopolymers and the resulting bio-oil is a multi-component mixture of chemically different molecules. However, it intrinsically avoids the use of chemicals and is viewed robust enough to decompose a large variety of different feedstocks.

The complexity of DTL bio-oils as a general characteristic is similar to fossil oil; however, the chemical nature of the organic compounds is very different between fossil and bio-based oils. Also similar to fossil oil, bio-oil needs to be processed (i.e. upgraded) in order to allow specific applications. Naturally, bio-oil should be upgraded as little as possible but as much as required for the intended application. Currently, bio-oil produced with fast pyrolysis from wood can be viewed as state of the art for the use as boiler fuel, meaning that there are first commercially operating units and an emerging market for the product(s). Based on this success, the next challenges are to increasingly add this technology to sustainable wood based value chains, expand product applications (especially targeting those with high value added) and enable the multitude of feedstock options.

Achievements

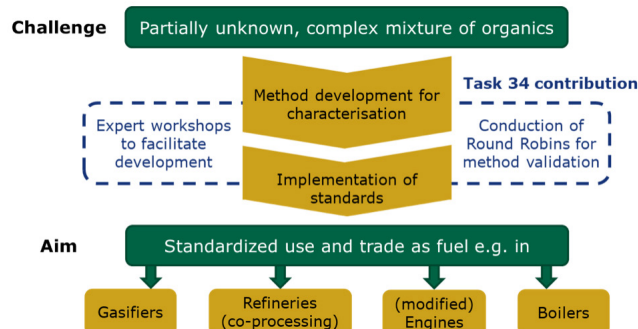
The objective of Task 34 is to advance the international implementation of bioenergy technology through strategic information analysis and dissemination in the area of biomass DTL for applications such as heat, power, transportation fuel, and the production of chemicals. Core is the maintenance of a close link between rel-

evant stakeholders from research and industry, translating latest developments to industry and enabling feedback loops from application to identify further research challenges. Task 34 has a dedicated technological focus due to the present challenges such as e.g. ongoing development of efficient DTL processes and new bio-oil applications.

One important example is the successful implementation of standards for application of fast pyrolysis bio-oil in boilers and stationary internal combustion engines (ASTM D7544, EN 16900, and CEN/TR 17103). As described above, bio-oils from direct thermochemical liquefaction represent largely unknown mixtures with different properties than fossil oils and fuels. This fact imposes a barrier for market entry that is difficult to tackle for small and medium size enterprises (see Figure 1):

1. customers need to make sure how these products can be used safely
2. relevant quality requirements need to be identified for safe application
3. reliable test methods need to be chosen and/ or developed to meet said quality parameters

Task 34 facilitated the process of standardization by enabling close interaction between active researchers in the field of bio-oil analysis and industrial partners. Critical was (and still is) creating a feedback loop between application requirements from industry, resolving the unknown nature of bio-oil, familiar standard methods, and



Challenge for introducing DTL bio-oils as marketable products for different uses by standardization

ongoing developments in analytical possibilities. Task 34 actively mitigated identified challenges by conducting Round Robins to develop a better database for method reliability and reproducibility given this special sample matrix. The resulting reports have been published as scientific articles that show significant impact in the field. Recent publications include an article on bio-oil property ranges resulting from different pyrolysis processes (Elliott et al. Energy & Fuels 31: 5111–5119). Bio-oil applications are still expanding and new processes such as hydrothermal liquefaction are getting closer to commercialization, which result in a liquid product with yet different properties. Task 34 will continue facilitating market entry for these new bio-based products by supporting standardization with Round Robins addressing relevant analytical questions. Another important contribution to advance implementation of DTL, specifically on an international level, is the establishment of a knowledge base around DTL technology, product applications, and latest developments. A comprehensive website section explaining basic principles and technological solutions is maintained to provide an open access information platform for interested laymen. Expert information analysis translated to the public will remain an important task in the upcoming years due to the ongoing developments in DTL technology. Latest R&D findings, industrial activities, and other developments in the field are also disseminated to a broader audience with the bi-annual Task 34 newsletter ('PyNe'). Finally, Task 34 is keeping close track of DTL commercialization activities. This information is provided to the public in a demoplant database and with more detailed reports from participating countries.

Task 34 will be extending its website to serve as information and knowledge hub around DTL technology. Next major addition will be technical notes around experiences with DTL processing and product handling. It has been realized among Task 34 members that much valuable knowledge exists around DTL processing that has not been published in scientific literature for different reasons. However, such experience



still represents an important contribution to the field in the sense that it helps to advance work by avoiding repeated mistakes and inefficiencies. As with any technology this list can be exhaustive. Task 34 will start with covering following key areas by collecting and disseminating state of the art experience:

- Bio-oil storage and safety
- Materials compatibility
- Process balancing issues
- Quenching media for fast pyrolysis condensation

These technical notes will be accompanied and/or based on workshops, which also aid to foster exchange between experts in the field of DTL.

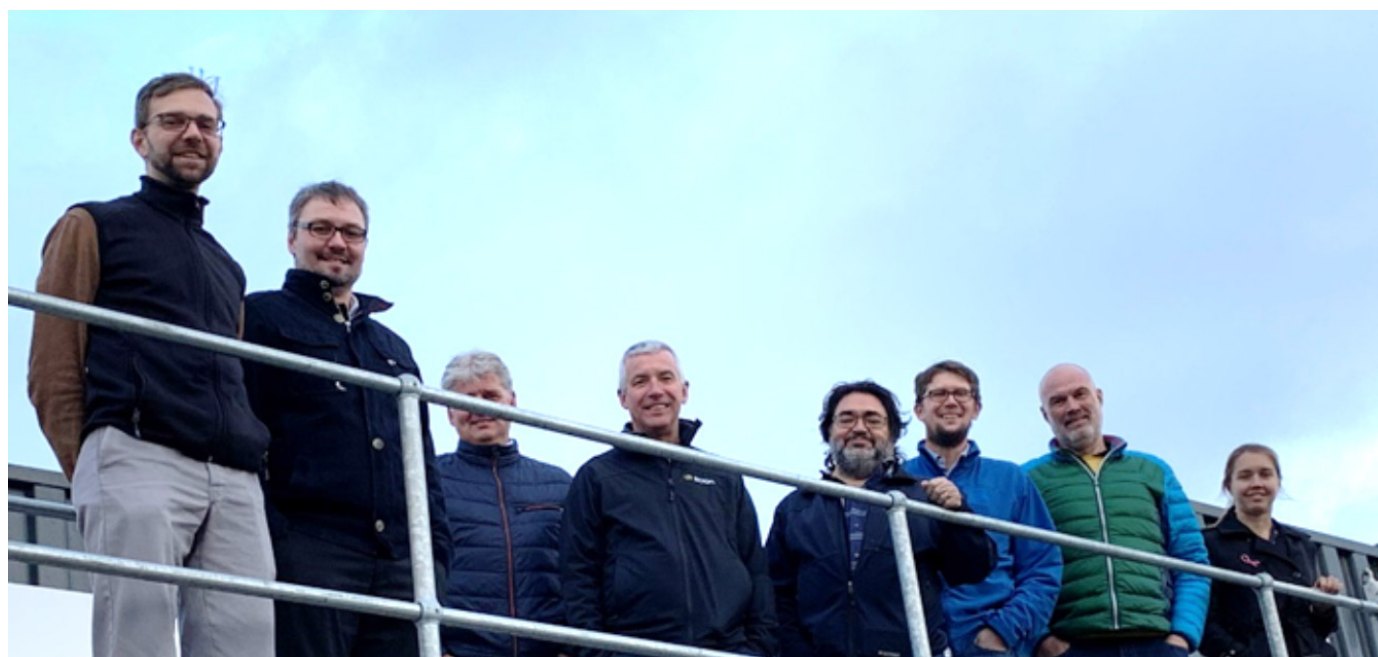
Further Development

We currently observe a tremendous increase in industrial DTL activities, much of it happening in Northern America and Northern Europe. It is surely an exciting time to see these developments and how the topics Task 34 has been working on for so many years is experiencing such an increase in market interest. Task 34 will continue to meet biannually and organize workshops with experts of the field and/ or relevant stakeholders from industry in conjunction with these meetings. It

is important for us to actively involve regional stakeholders as much as possible to increase networking in this community. Results from these meetings and workshops are made available on our website continuously.

This article was prepared by Axel Funke.
Further information on Task 34:

task34.ieabioenergy.com



Task 34 members during the visit of Steepers HTL pilot unit at Aalborg University/ Denmark

Notice board

Task 32 Biomass Combustion

Workshop: Residential Wood Combustion

On 23rd of January, the combustion task of IEA Bioenergy organised an expert workshop on domestic wood combustion within the framework of the Central European Biomass Conference in January 2020 in Graz (Austria).

Following an interesting general introduction by the Swiss Task 32 representative, the first part of the workshop focused on local space heaters (stoves). Guidelines for the optimal design of efficient and clean stoves were discussed as well as the factors influencing the behaviour of users. As a special highlight at the end of the first part, the new Blue Angel (D) quality label for stoves was presented to the public for the first time. This certification programme does not rely on existing standards as before but prescribes its own test procedure with particularly high practical relevance.

In the second workshop part, current developments in the field of domestic biomass boilers were presented. In addition to technical combustion concepts for greater fuel flexibility, work on additives for biomass combustion systems was also presented. Reduction of emissions by secondary measures and the experiences with the use of separators in domestic boilers in practice were the contents of the presentation by a representative of a Swiss company, which has been developing and marketing electrostatic separators for small combustion systems for many years. Finally, another Austrian contribution summarized the advantages of completely new control concepts for small-scale furnaces.

All presentations of the workshop will be available for download on the [task website](#) under the menu item "Events".

Task 33 Gasification of Biomass and Waste

On January 30th IEA Task 33 organized a webinar dedicated to the past, present and future of gasification. In this webinar Jitka Hrbek and Berend Vreugdenhil displayed where we currently stand and what the foundation for that is. Also a possible future was discussed in which an important role for gasification is foreseen. However, not without a warning, to not think that this would be an easy pathway. The webinar was well attended and a lively discussion took place afterwards. The whole session can be found [online](#).

Task 34 Direct Thermochemical Liquefaction

IEA Bioenergy Task 34 (Direct Thermochemical Liquefaction) country reports 2019 have been published. This report provides an overview of research activities, demonstration activities and commercial applications of Direct Thermochemical Liquefaction in Finland, Germany, the Netherlands and Sweden. The full report is available [here](#).



Task 37 Energy from Biogas

On March 26th, 2020, speakers representing the IEA Bioenergy Task 37 group shared their work and expertise in seven distinct presentations. These experts shared their biogas and renewable natural gas (RNG) experiences in well-developed biogas sectors on a variety of topics, from feedstock, policy, technology issues, to the circular economy. Symposium participants had the opportunity to learn about the history of, and lessons learned in, the biogas-renewable natural gas-green gas industry in specific countries as well as future perspectives for the development of this industry. This symposium, which was held online to an audience of over 200 participants was hosted by the Canadian Biogas Association and Agriculture and Agri-Food Canada.

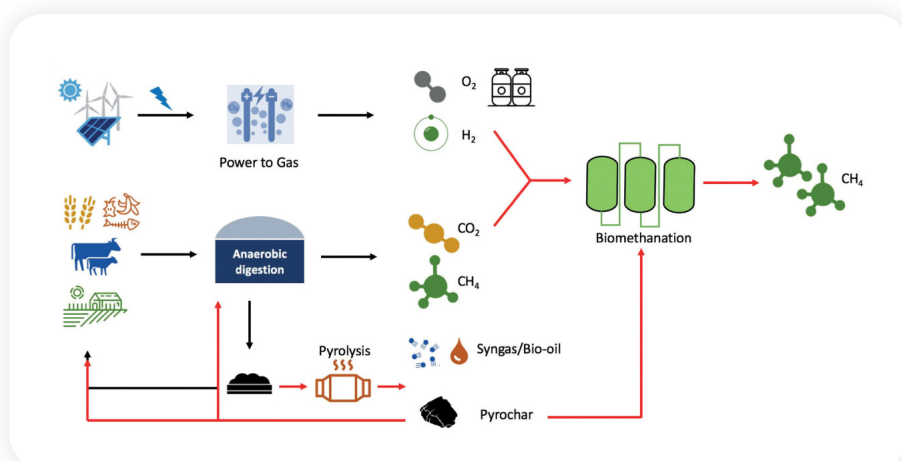
The proceedings are available [on line](#) and will be available as a publication as Wellisch, M., Green, J., McCabe, B., Rasi, S., Siemens, W., Ammenberg, J., Liebetrau, J., Bochmann, G., Murphy, J.D. (2020). *Drivers for Successful and Sustainable Biogas Projects: International Perspectives Symposium*. Green, J., Wellisch, M., Szlachta, P., Murphy, J.D. (Ed.) IEA Bioenergy Task 37, 2020: 5.

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






- Task 39 contributed sections to the IEA Bioenergy InterTask project report, "Advanced Biofuels – Potential for Cost Reduction". The full report is available on Task 39's website

(click [here](#)). Task 39's management team (Drs. McMillan, Saddler and Ebadian) distributed/ followed up a project questionnaire sent to 25 advanced biofuels companies in North America. This insightful feedback was summarized and incorporated into the final report. Task 39 also contributed to two other sections, one on feedstock cost/availability in North America and the other on how policies can impact potential cost reduction and uptake of advanced biofuels.

- Task 39 recently published a report entitled, "Comparison of biofuel life cycle analysis tools, Phase 2, Part 2: biochemical second generation (2G or cellulosic) ethanol production and distribution". This study was part of a Task 39 project that compared leading LCA models that are used to assess the "overall sustainability" of various biofuels pathways. The goal was to better understand and quantify why different leading life cycle assessment (LCA) models – the EU's BIOGRACE, Canada's GHGENIUS, USA's GREET and Brazil's VSB – sometimes provide differing results, particularly when they are ostensibly based on the same scenarios and model inputs. The report focuses on cellulosic ("second generation") ethanol produced from either corn stover, wheat straw, sugarcane bagasse and/or straw, and forest residues. The [full report](#) is available at Task 39's website.



Advanced gaseous biofuel produced by integrating biological, thermo-chemical and power to gas systems in a circular cascading bioenergy system

	BioGrace 	GHGenius 	GREET 	New EC 	VS8 
Model version	4d (2015)	5.0a (2018)	2017	2017	2018
Developed for regulatory use	Yes	No	Yes	Yes	No
IPCC GWP method	2001	1995, 2001, 2007, 2013	2013	2013	2013
Default global warming gases	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O, CO, VOC, NO _x , fluorinated compounds	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O	CO ₂ , CH ₄ , N ₂ O
Lifecycle data	JRC (2008)	Internal	Internal	JRC (2017)	Ecoinvent
Functional unit	MJ	km, MJ	km, mile Btu, MJ	MJ	km, MJ
Default allocation	Energy	Mostly substitution	Variable	Energy	Economic
Land use change	C stocks	Internal model	CCLUB/GTAP	C stocks	-

Five leading life cycle assessment (LCA) models compared by IEA Bioenergy Task 39

- Task 39 also recently published a report entitled, "Implementation Agendas: 2018-2019 Update - Compare and Contrast Transport Biofuels Policies". IEA Bioenergy Task 39 periodically publishes its Implementation Agendas report which summarizes the policies being used around the world to promote greater production and use of biofuels. The 2018-2019 updated report describes current national/regional policies and levels of biofuels market penetration being achieved within Task 39 member countries. In the most recent issue, policies in China and India, two of the world's major countries who aspire to increase their production and use of biofuels, were also included. The [full report](#) and its [executive summary](#) are available at the Task 39's website.

Task 40 Deployment of Biobased Value Chains

The IEA Bioenergy collaborative intertask project 'Deployment of BECCS/U value chains' is led by IEA Bioenergy Task 40 and has now been running for about a year. The project organized a BECCS session as part of the ["Developing business models for efficient use of biomass" workshop in Tallinn, Estonia in October 2019](#). On 16 June 2020, the team hosted a [webinar](#) centred around the first publication emanating from the project, a scoping report entitled ["Deployment of BECCS value chains: technological pathways, policy options and business models"](#).

Task 42 Biorefining in a Circular Economy

Bio-based Chemicals – A 2020 Update

Since the first issue of the IEA Bioenergy Task 42 report on bio-based chemicals in 2011, the importance of a circular economy has become evident. In the transition to a circular economy, chemicals

and materials produced from biomass will play a key role. This update of the 2011 report addresses the main biobased chemicals that could potentially be co-produced with secondary energy carriers in integrated biorefinery facilities. This report highlights all bio-based chemicals with immediate potential as biorefinery 'value added products'. For commercial products, market sizes are given where available. The selected products are either demonstrating potential market growth or have significant industry investment in development and demonstration programmes. This report shows that by far the biggest biochemical produced today is bioethanol with more than 80% share of total combined production capacity. The [report](#) introduces companies actively developing bio-based chemicals and provides information on potential greenhouse gas emission savings and how the co-production of bio-based chemicals with biofuel can influence the economics of biofuel production.

Task 45 Climate and Sustainability Effects of Bioenergy within the Broader Bioeconomy

- Under the IEA Bioenergy Inter-task project "The Role of Bioenergy in a WB2/SDG world" a workshop was held in Berlin, Germany on 25th November 2019 aimed to examine, synthesize and distribute information from recent studies that investigate how bioenergy and associated technologies may contribute to achieving the reductions in greenhouse gas emissions that are needed to meet the WB2 target. A follow-up report will be published that summarises the workshop contributions and discussions, assesses the role of bioenergy in WB2 strategies, identifies the current state of knowledge as well as gaps in knowledge that need to be addressed. Report available soon.

- T45 arranged a virtual workshop 13-14 May, which replaced a planned side event to the 2nd International Conference on Negative CO₂ Emissions. This conference was postponed to May 18-21, 2021, due to the outbreak of Covid-19. The workshop addressed issues related to the role of forests in climate change mitigation and it was part of the inter-task project Role of bioenergy in a WB2/SDG world. Seven presentations were given, which can be downloaded [here](#).

IEA Bioenergy Webinar Series

The IEA Bioenergy Webinar Series is continuing with 28 completed. All of the webinars, including recording and presentation slide-deck, can be viewed at <https://www.ieabioenergy.com/iea-publications/webinars/>.

Publications

Drivers for Successful and Sustainable Biogas Projects: International Perspectives Report of a Symposium Held on March 26, 2020



On March 26, 2020, speakers representing IEA Bioenergy Task 37 (Energy from Biogas) group shared their work and expertise in seven distinct presentations. These experts shared their biogas and renewable natural gas (RNG) experiences in well-developed biogas sectors on a variety of topics, from feedstock, policy, technology issues, to the circular economy. This report provides a summary of the ideas, presentations, and lessons that presenters shared with the wider biogas community via this symposium.

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Deployment of BECCS/U Value Chains – Technological Pathways, Policy Options and Business Models



It is becoming increasingly clear that substantial amounts of negative emissions – essentially, the removal of carbon dioxide from the atmosphere – will likely be required if global climate change is to be limited to 2°C above pre-industrial levels. Among the different negative emissions options, bioenergy with carbon capture and storage, or BECCS, is arguably one of the most commonly discussed in climate policy debates. This report focuses on the potential and challenges associated with deploying BECCS systems and value chains in the near to medium term.

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Trends on Use of Solid Recovered Fuels



This IEA Bioenergy Task 36 report analyses the trends on the use of solid recovered fuels (SRF) in a selection of countries in Europe, Asia and Africa. Solid Recovered Fuels (SRFs) are a subset of the large family of Refuse Derived Fuels (RDFs), consisting of processed fuels that meet specific quality requirements defined in a standard. The report looks at the current role of SRF (production and final end uses) in the waste-to-energy value chains, with the main drivers and barriers. It also looks into future perspectives of the use of SRF for energy recovery, within circular economy developments.

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IEA Bioenergy Annual Report 2019



The IEA Bioenergy Annual Report 2019 includes a special feature article 'Gasification – a versatile technology' prepared by Task 33. 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.

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Case Story: Compact and Automated On-Farm Biogas Production in Ontario, Canada



This IEA Bioenergy Task 37 case story of a micro biogas concept installed in a relatively small scale dairy farm in Ontario shows how compact and automated AD systems offer an affordable and practical option for smaller farms to reduce their environmental footprint, provided the supportive policy framework exists.

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IEA Bioenergy Task 34 (Direct Thermochemical Liquefaction) Country Reports 2019



This report provides an overview of research activities, demonstration activities and commercial applications of Direct Thermochemical Liquefaction in Finland, Germany, the Netherlands and Sweden. Direct Thermochemical Liquefaction includes technologies such as Pyrolysis, Hydrothermal Liquefaction and Solvent Liquefaction of Biomass.

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Compare and Contrast Global Transport Biofuels Policies – 2018–2019 Update of Implementation Agendas Report



IEA Bioenergy Task 39 strives to encourage the increased production and use of sustainable transport biofuels, and periodically issues its Implementation Agendas report to summarize policies being used around the world to promote greater deployment of biofuels. The 2018–2019 update of this report describes the policies being used and levels of biofuels market penetration being achieved within Task 39 member countries as well as within China and India, which are two of the world's major countries also aspiring to increase their production and use of biofuels.

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Bio-Based Chemicals – A 2020 Update



This IEA Bioenergy Task 42 report shows that global bio-based chemical and polymer production is estimated to be around 90 million tonnes. However, the relatively low price of fossil feedstocks as well as its volatility together with optimized fossil-based production processes has hampered the acceleration of the commercial production of bio-based products as projected in the previous bio-based chemicals report from 2011. In addition to increased recycling, enlarged chemical and polymer production from renewable resources is an essential part of the transition to a circular economy. As it is evident from this report, not many major chemical players are actively pursuing this approach and that deployment over the last several years has been much slower than expected.

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Advanced Biofuels – Potential for Cost Reduction



Decarbonising transport will require a range of bio-based transport fuels, and especially advanced low carbon fuels which are suitable for long-haul transport applications including aviation. The costs of these advanced biofuels are currently higher than those of the fossil fuels which they can displace and of more conventional biofuels such as ethanol from sugar or corn, or biodiesel. This report considers what scope there is to reduce the production costs of a range of advanced biofuels, and to identify under what conditions they could become affordable.

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ExCo84 Workshop: Developing Business Models for Efficient Use of Biomass – Summary and Conclusions



This publication provides the summary and conclusions from the workshop 'Developing business models for efficient use of biomass' held in conjunction with the meeting of the Executive Committee of IEA Bioenergy in Tallinn, Estonia on 22 October 2019.

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Dry Matter Losses during Biomass Storage: Measures to Minimize Feedstock Degradation



The degradation of biomass during storage leads to several unfavourable outcomes including greenhouse gas (GHG) emissions, feedstock/energy losses, and economic losses. Different types of biomass and storage alternatives lead to different dry matter loss outcomes. Several strategies are discussed in this report that can be used to reduce dry matter loss and should be considered during pile management.

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IEA Bioenergy Events

Executive Committee

- 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 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 will be virtually held on 29 June 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 on 9–11 September 2020 in Geneva, Switzerland

Task 39's schedule of upcoming events is
The BC-SMART Biofuels Consortium and IEA Bioenergy Task 39 are co-sponsoring a free, "virtual", panel discussion "How do we decarbonise long distance transport during/after COVID-19?" involving senior representatives of Canada's oil refining, aviation, marine, rail/trucking and feedstock sectors. The virtual panel discussion will be held via Zoom, on Tuesday, 7:30–9:00 PST (10:30– noon EST), 30 June 2020.

Task 40's schedule of upcoming events is
Task meetings TBC

Task 42's schedule of upcoming events is
Task meetings TBC

Task 43's schedule of upcoming events is
Task meetings TBC

Task 44's schedule of upcoming events is
A Task meeting will be held on 16–17 November 2020 in Leipzig, Germany, in connection with the Global Bioeconomy Summit.

Task 45's schedule of upcoming events is
Due to the corona virus planned events with contribution from the task have been postponed.

BBEST 2020 – Brazilian Bioenergy Science And Technology Conference, São Paulo, Brazil, planned for 30.3 – 1.4, 2020, postponed to Nov 30 – Dec 2.

The 2nd International Conference on Negative CO₂ Emissions at Chalmers University of Technology, Gothenburg, Sweden planned for May 12–15, 2020, postponed to May 18–21 2021.

Webinars

Trends and drivers in alternative thermal conversion

16th September 2020 at 4:00 p.m. CEST/ 3:00 p.m. BTS/ 10:00 a.m. EST

Other Items

28th European Biomass Conference and Exhibition (e-EUBCE 2020)

Date: 06th July 2020 – 9th July, 2020
Location: Virtual Conference & Exhibition

[website](#)

ABLC 2020

Date: 08th July 2020 – 10th July, 2020
Location: Washington D.C; USA

[website](#)

2020 Algae Biomass Summit

Date: 12th August 2020 – 2nd October, 2020
Location: Virtual Conference

[website](#)

9th Asia-Pacific Biomass Energy Exhibition (APBE2020)

Date: 16th August 2020 – 18th August 2020
Location: Guangzhou, China

[website](#)

Biomass PowerOn 2020

Date: 22nd September 2020 – 23rd September 2020
Location: Copenhagen, Denmark

[website](#)

Future of Biofuels 2020

Date: 22nd September 2020 – 23rd September 2020
Location: Copenhagen, Denmark

[website](#)

Gasification 2020 Summit

Date: 23rd September 2020 – 24th September, 2020
Location: Lyon, France

[website](#)

COASTAL Biogas Conference

Date: 30th September, 2020
Location: Neringa, Lithuania

[website](#)

Oleofuels 2020

Date: 6th October, 2020 – 7th October, 2020
Location: Marseille, France

[website](#)

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