IEA Bioenergy

Bioenergy News

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Contents

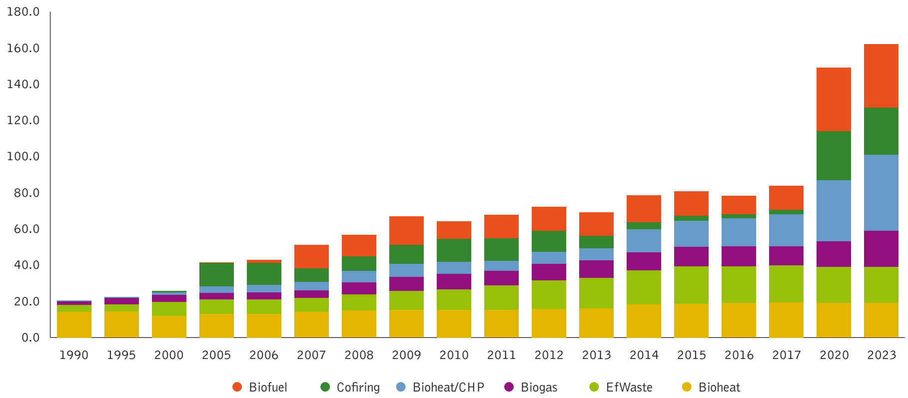
Biobased Energy in the Netherlands

Editorial by Kees Kwant,
ExCo Memebr for the Netherlands

At this moment Bioenergy is the largest renewable energy source (61% of all renewables) in the Netherlands. From being the largest renewable resource it is expected to grow to be the main supporting resource for implementing other renewables, like solar and wind, but also the transition to biobased materials, creating a circular biobased economy. Major research efforts are being undertaken to pave the way and new supporting instruments will enable this transition to the low carbon economy.

The Dutch Energy Policy is presented in the Energy Agenda and a target of 85% GHG reduction for 2050 has been formulated. The new Dutch government has formulated in 2017 a target of 49% GHG reduction in 2030 and a Climate Agreement (2020-2030) is being developed. Biomass is also an important pillar in the transition to the Circular Economy, where a transition path has been developed. At this moment the role of biomass is defined by the Energy Agreement (2013-2023), with the goal to realise 14% Renewable Energy in 2020 and 16% in 2023.

Fig. 1



Financial support is given by the SDE+ scheme, providing a feed-in premium (FIP) subsidy that covers the difference between wholesale market prices of electricity and the cost of electricity from renewable sources. The budget (between 8-12 billion/€ year) is made available in auctions. The budget comes from a levy on the energy consumers. A total budget for bioenergy of 18 Billion € was contracted over the last 10 years. Since 2012 heat projects have also been supported. The contribution of bioenergy has been growing constantly over the last decades (see figure). Energy producers who have been awarded the SDE+ subsidy and who are using wood pellets to produce renewable energy need to demonstrate that the biomass used meets the applicable legal sustainability criteria.

The fraction of bioenergy in the total renewable energy sector is declining and was 61% in 2017 and is expected to be around 50% in 2023, due to the strong growth of wind and solar energy. For Biofuels a blending obligation on the distributors was set at 8.5% in 2018, 12.5% in 2019 and 16.4% in 2020.

Green Growth, Circular Economy, Innovation and the Bio-based Economy are important pillars of the development of bioenergy in the Netherlands. After 2020 the SDE+ scheme for renewable energy will be transformed into an SDE++ scheme where projects will be supported that can reduce GHG emissions. Biomass will also play a role in the Climate Agreement, but not a major one. Biomass can play a role when wind, solar or some kind of storage do not supply energy, but also to produce heat, specifically high temperature, and for biofuels, where electric vehicles are not possible The main utilisation, however, will be in industry as a renewable carbon source. A mission-driven research plan will be started to support the development of this new low carbon material and energy supply system in the circular economy. Research and Innovation, both in agriculture, as well in the chemical industry will lead to new integrated ways of using biomass and create more value from biomass as a sustainable and renewable resource. A lot of hurdles will have to be overcome, but it will also create new opportunities for society and industry.

IEA Bioenergy

Energy Technology Network

ExCo83, UTRECHT, NETHERLANDS

From the Secretariat

PEARSE BUCKLEY

The 83rd meeting of the Executive Committee was held at Meetup Jaarbeurs, Jaarbeursplein 6, 3521 AL Utrecht, The Netherlands on 21-22 May 2019, with Jim Spaeth as Chair, Paul Bennett as Vice-chair and Pearse Buckley as Secretary. The meeting was hosted by Netherlands Enterprise Agency. The Chair expressed the appreciation of the ExCo to Kwant and his 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 Austria were Mr René Albert and Ms Dina Bacovsky respectively: a new Alternate Member for the European Commission was Ms Laura Lonzo; a new Alternate Member for France was Ms Miriam Buitrago; a new Member and Alternate Member for Korea were Mr In-Gu Lee and Mr Hyun Taek Cho respectively: a new Member and Alternate Member for Norway were Mr Per Arne Karlsen and Mr Trond Bratsberg respectively.

ExCo83 Workshop

A successful and well attended workshop was organised in collaboration with the Global Bioenergy Partnership (GBEP), the Food and Agriculture Organization of the United Nations (FAO), the International Energy Agency (IEA), the Biofuture Platform, the International Renewable Energy Agency (IRENA), and below 50, and hosted by the Netherlands Enterprise Agency (RVO). The topic of of the workshop was "Governing sustainability in biomass supply chains for the bioeconomy'. With aproximately 100 attendees, the workshop included two plenary sessions during which fifteen invited speakers gave presentations covering 'setting the scene and policy experience'; and 'collecting the evidence' with views from multi-lateral partnerships, industry and civil society. This was followed by two "World Cafe" sessions during which break-out groups discussed 'actions needed for progressing towards a sustainable, circular bioeconomy', and 'a collaborative way forward'. The workshop concluded with a plenary session collecting the summaries from the "World Cafe" sessions and elaborating on the conclusions and next steps. The presentations from the workshop are available at https://www.ieabioenergy.com/publications/ws24-governing-sustainability-in-biomass-supply-chains-for-the-bioeconomy/.

Progress with current Initiatives

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

An aim of the project was to answer the question – was it likely that advanced biofuels would become affordable or would they always need policy support? The work was continuing with carbon intensity also being looked at, and CO_2 avoided being of importance in the evaluation.

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

The project includes four work packages: WP1 looking at key strategies in 5-7 countries; WP2 looking at technologies and costs; WP3 which will include country assessments using a tool developed by VTT; and WP4 looking at the global context. It is planned to hold a final workshop on the 18th November 2019. The project team recognise that the timescale is quite limited in view of the goals of the project but are confident that useful results would be obtained to guide further work.

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 will identify and disseminate strategies for bioenergy implementation that contribute to societal transition towards the well below 2°C (WB2) target, while simultaneously contributing to other objectives inherent in the Sustainable Development Goals (SDGs). The project will also address trade-offs and concerns about possible negative impacts, but the focus will be placed on identifying synergies between bioenergy deployment and SDG implementation.

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

This Inter-Task project, which was approved at ExCo83 and starts in June 2019, will provide state-of-the-art overviews on prospects, opportunities and challenges for various mechanisms that could help deploying biogas, biomethane and other renewable gases in energy markets in IEA countries (e.g. green gas certificates), and beyond. It will further discuss technological and sustainability issues of renewable gas from a deployment perspective, and will derive respective recommendations for policy-makers. The project is scheduled to be completed in the first quarter of 2021.

▲ Attendees at the ExCo83 workshop

▲ ExCo83 study tour group in Amer Power Plant

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

This Inter-Task project, which started in the second quarter of 2019, will produce four separate case study reports that illustrate good examples of integration of bioenergy in industry for the delivery of high temperature heat. It will also include a policy strategy report that provides information on market opportunities/potential and effective ways to address existing technical and non-technical barriers. The project will be completed in the fourth quarter of 2021

Communication Strategy

The IEA Bioenergy Strategic Communication Plan was approved at ExCo82 in San Francisco in November 2018. Following this a two-phase implementation was agreed with the first phase involving professional support in developing communication messages and publishing reports. The second phase is being rolled out with the publication of a 'Call for Tender – Delivery of Communication Services', which is seeking more substantive communications support over a prolonged period. The details of this Call can be found at https://www.ieabioenergy.com/publications/call-for-tender-iea-bioenergy-delivery-of-communication-services/. In addition to publications on the website (www.ieabioenergy.com), on-going communication activities have continued through social media and webinars. Since ExCo82 three 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

The increasing collaboration with other International Organisations was underscored by the joint effort in delivering the successful ExCo83 workshop described above.

Request for Extension (RfE) of TCP Term

At ExCo83 the RfE documents were approved subject to minor edits. The three documents (Strategic Plan, End of Term Report and RfE Questionnaire) have been forwarded to the IEA Secretariat as the next stage in the RfE process.

ExCo83 Study Tour

Following the ExCo83 meeting a group of 25 IEA Bioenergy attendees participated in the study tour taking in site visits to the Amer Power Plant, the Eneco Heating Plant and the Netherlands Enterprise Agency Office for presentations on the City of Utrecht Energy Plan and the Eneco Heating Plant.

The Amer Power Plant (https://www.group.rwe/en/our-portfolio/our-sites/amer-power-plant) is a 600 MW_e/350 MW_{th} co-fired, cogeneration plant that was built in 1993. Originally run on hard coal, it is now co-fired with biomass. All the fuels are delivered to the plant by inland water vessels. The biomass is supplied as wood pellets. To enable processing of the wood pellets, the power plant has a special biomass unloading quay, with facilities for storing the biomass in a series of silos. Fuel conveying is the only difference between coal handling and biomass handling in the plant. The pellets are brought to the pulverisers using a pneumatic transport system and are then ground to dust in the same pulverisers as the coal prior to combustion. The plant has sufficient capacity to generate electricity for around one million households. The heat is used to heat greenhouses and to provide district heating to local urban areas.

The Eneco Bio Heat Installation (https://www.eneco.nl/over-ons/projecten/biowarmte-installatie-lage-weide/) project will have a capacity of 60-70 MW_{th}, when finished. The plant will be fuelled with biomass – waste wood that is a residue from a composting process. All of the biomass will come from sources within 100 km of the plant. It will be transported to the plant by truck, with 30-40 truck movements per day, between 07:00 hours and 19:00 hours each working day. The biomass will be off-loaded in an enclosed storage area which will be maintained at a partial vacuum to prevent escape of odours to the locality. Each year the plant will consume 170,000 tonnes of fuel, producing 1,600,000 GJ of heat, with an associated 80,000 tonnes of CO_2 savings.

The City of Utrecht Energy Plan (https://www.utrecht.nl/city-of-utrecht/energy-plan/) is an important element of the City's goal to be a clean, sustainable, green and safe city. The implementation of the plan calls for intensive partnership and coordination between different parties in Utrecht. Energy provision in Utrecht is dominated by gas and coal, and the city has a gas-fired power station within its municipal boundaries. In the future, homes in Utrecht will be energy-neutral, comfortable and affordable. The CO_2 emissions of the existing district heating network will be reduced further. This will be achieved by generating heat using sustainable energy sources such as biomass and geothermal energy The power stations will only make use of sustainable and responsibly sourced wood, preferably from the local region.

▲ ExCo83 Study Tour Group at Eneco Heating Plant

Task Focus:

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

Assessing the sustainability of "conventional" and "advanced" biofuels:

A Task 39 led comparison of international Life Cycle Assessment (LCA) biofuels models

Background

The 7th UN Sustainable Development Goal (SDG - https://www.un.org/sustainabledevelopment/sustainable-development-goals/) is for the world to develop affordable, clean energy, with transportation highlighted as one area where the world needs to decrease its dependence on fossil fuels. Although the cost and availability of oil will continue to be of global concern, the increasing worry that fossil fuel emissions are the major contributor to climate change has precipitated the need to better assess the overall sustainability and carbon intensity (CI) of biofuels. However, unlike volumetric targets, such as achieving a 10% or 15% biofuel blend, determining the carbon intensity of a biofuel is much more involved and difficult.

Various national policies, primarily based on volumetric targets, have helped increase global biofuels production from over 37 million tonnes oil equivalent (Mtoe) produced in 2007 (~64 billion litres) to over 84 Mtoe (~145 billion litres) in 2017[1]. Successful policies have taken several forms, including blending mandates, excise taxes and renewable or low carbon fuel standards, fiscal incentives and public financing. These policies have been applied at different stages of biofuel productions and consumptions with blending mandates proving to be particularly effective in establishing biofuels' markets while shielding biofuels from volatile and low oil prices. However, while biofuel mandates have typically helped reduce transportation related greenhouse gases (GHG) emissions, the mandated biofuel obligations have usually been based on the volume or energy content of the biofuels rather than their decarbonisation potential.

More recent policies, such as the adoption of low carbon fuel standards (LCFS), have motivated the development and production of lower carbon intensity biofuels with the State of California and the province of British Columbia at the forefront of implementing these types of policies. As well as encouraging the more efficient production of conventional biofuels, LCFS-based policies have also spurred the development and production of lower carbon intensity advanced biofuels, such as drop-in renewable diesel and biojet/sustainable aviation fuel (SAF). Under LCFS-type policies, those biofuels that can be produced at a lower carbon intensity, compared to petroleum-based gasoline and diesel, generate higher carbon credits. This translates into a higher market value for these low-carbon-intensity-fuels. In addition to helping improve the carbon-intensity of conventional biofuels, such as bioethanol and biodiesel, LCFS policies have resulted in the increased production and use of lower carbon drop-in biofuels such "renewable diesel". The credits generated by these lower carbon drop-in biofuels have made them even more economically attractive, with more than 4.4 billion litres of drop-in biofuels produced globally per year[2].

However, to be effective, both blending mandates and LCFS policies require some type of life cycle assessment (LCA). One of the sustainability criteria for biofuels blending mandates is that the producers must demonstrate a minimum reduction threshold in GHG emissions compared with fossil fuels. In contrast, LCA is primarily used in LCFS to identify the decarbonization potential of biofuels, impacting their market value.

Determining the Carbon Intensity (CI) of biofuels

Several years ago, IEA bioenergy Task 39 (Commercializing Conventional and Advanced Transport Biofuels from Biomass and Other Renewable Feedstocks, http://task39.ieabioenergy.com/) recognized that there would be increasing demand for so-called drop-in biofuels by long-distance transport sectors such as aviation and marine. As well as defining drop-in biofuels ("liquid bio-hydrocarbons that are functionally equivalent to petroleum fuels and are fully compatible with existing petroleum infrastructure") the Task members also recognized that the overall sustainability of these biofuels had to be better defined, with the international nature of long-distance transport meaning that any methods used to assess the carbon intensity of a biofuel had to be comparable and compatible. Fortunately Task 39 has some of the world's top biofuels LCA modelers as part of its core group. The models that are currently used to assess the carbon intensity of biofuels include the US's GREET, Canada's GHGenius, Europe's BioGrace and Brazils' Virtual Sugarcane Biorefinery (VSB) models.

In a Task 39 project led by Dr. Antonio Bonomi and Brazilian colleagues from CTBE (now called LNBR) four LCA models (plus the developing European commission (EC), model) were compared, to see how the various assumptions/criteria within the models might influence the carbon intensity values that were determined for the various biofuels by the different models. As described in the full report accessible on the Task 39 website (http://task39.ieabioenergy.com/) all of the models could also be reconfigured to assess various scenarios such as a well-to-pump through to well-to-wheel.

As briefly summarized in Table 1, the LCA comparison project initially identified the main differences and commonalities between the various models including methodological structures, calculation procedures, assumptions, etc.

As is covered in more detail in the full report and as summarized in Table 2, the team initially assessed how the various LCA models might calculate the carbon intensity of a biofuel when comparing the production of two different biofuels. These included Fatty acid methyl esters (FAME) from palm oil, soybean oil and used cooking oil (UCO), and Hydrotreated vegetable oils (HVO) (commonly referred to as renewable diesel) and hydroprocessed esters and fatty acids (HEFA) from palm oil, soybean oil, and used cooking oil (UCO). When the unaltered assumptions within the various models were used, considerable variation in the carbon intensity of the various biofuels were observed

For example, BioGrace estimated the highest emissions for the soybean and UCO pathways while GHGenius estimated the lowest GHG emissions for UCO and soybean derived FAME. However, when a "higher level" comparison of the models and pathways was carried out the biggest discrepancies were for the carbon intensity of the FAME and HVO/HEFA produced from soybean, palm and UCO. As detailed in the full report, there were several reasons for this lack of alignment between the LCA models. For example the models assumed differences in agricultural processes, such as the location of soybean/palm production, the amount of fertilizer used, etc. As the location of feedstock production and industrial processing are specific for each model, variable results were expected in terms of GHG emissions per MJ of biofuel produced and used. In most cases the differences in the input data and methodological choices were justified and explained in each model. However, as described in the full report, there were several major differences between the various models such as the substitution approach used in the GHGenius model compared to the allocation method used in the other LCA models.

One of the main conclusions that came out of the Brazilian led Task 39 report is that, once the various assumptions within the different model were rationalized, the models all gave quite comparable results. For example, as summarized in Figure 2, when the different models were used to assess the carbon intensity of producing FAME, differences in inputs such as, the base values used and the effect of land use change (LUC), had a considerable impact on the values reported by the various models. However, when the models were harmonized, by using the VSB assumptions and parameters, the CO2 warming potential values determined by each of the models were quite similar

Table 1. Brief summary of some of the criteria used within the various biofuels LCA models

	BioGrace	GHGenius	GREET	New EC	VSB
Model version	4d (2015)	5.0a (2018)	2017	2017	2018
Developed for regulatory use	Yes	No[1]	Yes	Yes	No
IPCC GWP method	2001	1995, 2001, 2007, 2013	2013	2013	2013
Default global warming gases	CO2, CH4, N20	CO2, CH4, N20, CO, VOC, NOx, fluorinated compounds	CO2, CH4, N20	CO2, CH4, N20	CO2, CH4, N20
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[2]	Variable[3]	Energy	Economic
Land use change	C stocks	Internal model	CCLUB/ GTAP	C stocks	–

Table 2: Summary of cradle-to-pump emissions in g CO2eq/MJ biofuel

	BioGrace	GHGenius	GREET	New EC	VSB	Δ GHG emissions[1]
Soybean FAME	56.94	16.90	34.47	42.27	25.03	40.04
Soybean HVO/HEFA	50.63	48.58	47.57	41.94	25.46	25.17
Palm FAME[2]	65.96	78.21	24.15	57.97	30.78	54.06
Palm FAME[3]	36.94	-	-	42.23	-	5.29
Palm HVO/HEFA[2]	58.90	99.06	37.54	55.99	31.57	67.49
Palm HVO/HEFA[3]	28.97	-	-	39.63	-	10.66
UCO FAME	21.27	2.99	-	17.28	4.86	18.28
UCO HVO/HEFA	11.64	-14.85	-	10.71	4.15	26.49

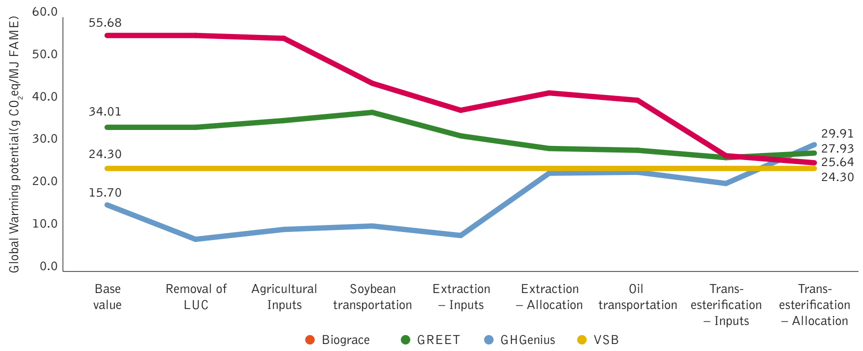
[1] *Difference between the highest and lowest emission*

[2] *Does not include CH4 capture from palm oil mill effluent (POME)*

[3] *Include CH4 capture from palm oil mill effluent (POME)*

As described in the full report, the remaining small differences were likely due to minor, un-harmonized issues such as, with BioGrace, the default emission factor for methanol includes burning (this is usually only considered in the use phase of the lifecycle analysis) and with GHGenius, the model calculates low emissions for the industrial phase and higher emissions for transportation in comparison with other models.

Fig. 2 The influence of "harmonizing" the assumptions within the various LCA models on the carbon intensity of soybean FAME production, when using the assumptions and parameters within the VSB model



1 *BP, 2018. BP Statistical Review of World Energy. 67th Edition,* https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review/bp-stats-review-2018- full-report.pdf

2 *IRENA, 2017. Biofuels for aviation- The Technology Brief.* https://www.irena.org/documentdownloads/publications/irena_biofuels_for_aviation_2017.pdf

This article was prepared by Jack Saddler and colleagues of Task 39.

For more information please visit http://task39.ieabioenergy.com/

Notice Board

Inter-Task Project: Meassuring, governing and gaining support for sustainable bioenergy supply chains

This recently completed Inter-Task project was a collaborative effort between different IEA Bioenergy Tasks and involved a number of studies focusing largely on the agricultural and forestry sectors. The project focused on measuring and quantifying progress towards more sustainable practices, mproving the input, output, and throughput legitimacy of existing and proposed governance systems and engaging more successfully with the broad range of stakeholders so that policies and sustainability governance are perceived as legitimate and helpful for build-up of social capital, trust, and support among all stakeholders. The four summary reports are available for download at https://www.ieabioenergy.com/publications/new-publication-measuring-governing-and-gaining-support-for-sustainable-bioenergy-supply-chains/

Task 43 - Sustainable biomass supply integration for bioenegry within the broader bioeconomy

This Task 43 report introduces "BEAST", the "Bio-Energy Allocation and Scenario Tool". BEAST provides a flexible instrument helping local actors to put across complex land use interactions in the selection of suitable (in economic and ecological terms) sites for lignocellulosic crops. The report can be downloaded at https://www.ieabioenergy.com/publications/new-report-using-beast-to-support-the-local-dialogue-on-lignocellulosic-cropping-for-energy-use-climate-protection-and-sustaining-ecosystem-services/

Inter-Task Project: Fuel pretreatment of biomass residues in the supply chain for thermal conversion

This Inter-Task project report shows how currently available pretreatment technologies and technologies under development can potentially help in improving and enabling the supply chains for available solid biomass resources for thermochemical conversion. Case studies included biomass torrefaction, pretreatment practices of forest residues, treatment of municipal solid waste (MSW) to Solid Recovered Fuel for gasification, steam explosion of biomass, and leaching of herbaceous biomass. The policy report and case studies are available for download at https://www.ieabioenergy.com/publications/biomass-pre-treatment-for-bioenergy/

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

The Task 39 its Drop-in biofuels report is an update to the original 2014, Potential and Challenges of Drop-in Biofuels. It includes expanded sections on aviation and maritime biofuels. It also has a section on the policies that will be required to promote production and consumption of drop-in biofuels; and on the life cycle analysis (LCA) of the production and use of drop-in biofuels. This report, which is initially only accessible to Task members, becomes publicly available for download at Task 39 website (http://task39.ieabioenergy.com/publications/) in July, 2019.

Task 40 - Deployment of biobased value chains

The main aim of this Task 40 report on Socio-economic assessment of the pellets supply chain in the USA was to understand the dynamics between local development and forestry activities related to the production and export of pellets on local communities, in the southeastern region of the USA (particularly in the States of Georgia, Louisiana and Mississippi) where an established sector for exporting pellets is already in place. The report is available for download at https://www.ieabioenergy.com/publications/socio-economic-assessment-of-the-pellets-supply-chain-in-the-usa/

Task 33 - Gasification of Biomass and Waste

The Task 33 report on Hydrogen from biomass gasification gives an overview of possible ways to produce hydrogen via biomass gasification. Two different production routes were investigated in more detail: steam gasification and sorption enhanced reforming. The report is available for download at https://www.ieabioenergy.com/publications/hydrogen-from-biomass-gasification/

IEA Bioenergy Webinar Series

The IEA Bioenergy Webonar Series is continuing with 20 completed and a further two planned. All of the webinars, including recording and presentation slide-deck, can be viewed at https://www.ieabioenergy.com/iea-publications/webinars/

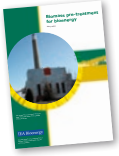
Publications

Margin potential for a long-term sustainable wood pellet supply chain

The existing wood pellet markets face increasing competition – both the large-scale use for co-firing with coal or standalone bio-powerplants and the residential use. On the other hand, wood pellets are seen as a key supply option for Bioenergy with Carbon Capture and Storage/Use (BECCS/U), which may be needed to achieve net-negative greenhouse gas emissions. Given this background, the study presents a cost baseline for pellets, analyses potential supply cost reductions, and evaluates the future market prospects of wood pellets in industrial low- and high-temperature heat, industrial processes (e.g. steelmaking), and for BECCS/BECCU. https://www.ieabioenergy.com/wp-content/uploads/2019/06/Fritsche-et-al-2019-IEA-Bio-T40-Margin-Pellet-Study.pdf

Best practise 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



Biomass Pre-Treatment for Bioenergy

This report summarizes the conclusions of an IEA Bioenergy Inter-Task project on *Fuel pretreatment of biomass residues in the supply chain for thermal conversion*. The report shows how currently available pretreatment technologies and technologies under development can potentially help in improving and enabling the supply chains for available solid biomass resources for thermochemical conversion. Five carefully selected case studies describe key options for pretreatment of solid biomass resources for energy generation, including their costs, effectiveness and commercial status. https://www.ieabioenergy.com/wp-content/uploads/2019/04/Pretreatment_PolicyReport.pdf

Report on expert workshop on variable demand for biofuels – Variable demand as an avenue to sustainable first generation biofuels and biobased chemicals

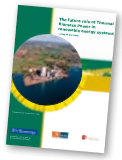
First generation biofuels and biobased chemicals are produced from feedstocks that are also used for food and feed. In many countries, public opinion and many experts think this is undesirable due to their negative impacts on food security, indirect land use change (iLUC), and biodiversity. It has been suggested that a variable demand for biofuels could mitigate these negative effects. This IEA Bioenergy Task 43 report presents the results of a one-day Expert Workshop on "Variable demand as an avenue to sustainable first generation biofuels and biobased chemicals" held on 3 December 2018 in The Hague. https://www.ieabioenergy.com/wp-content/uploads/2019/04/TR2019-02-4.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

The future role of Thermal Biomass Power in renewable energy systems – study of Germany

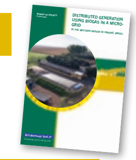


This IEA Bioenergy Task 32 study explores the role of thermal biomass power plants in the future, using a system approach. In this analysis, development of the European power system is projected highlighting a thermal-dominated area, exemplified by Germany. The role of biomass technologies towards 2040 is analysed in two scenarios, Reference and Biomass+, utilizing the Balmorel model, a fundamental mathematical model of power and heat systems reproducing the day-ahead market dispatch and future development of the generation fleet. https://www.ieabioenergy.com/wp-content/uploads/2019/04/Future-of-thermal-biomass-power-final.pdf

Waste Incineration for the Future – Scenario analysis and action plans

This IEA Bioenergy Task 36 report presents narratives of two different configurations of a future circular economy in Sweden, and the journey that led there. The scenarios are not predictive, but should function as discrete, complementary pictures of developments with important consequences for waste incineration. Some overlap between them exists, but the scenarios are based on different fundamental logics and have different implications. https://www.ieabioenergy.com/wp-content/uploads/2019/04/Waste-Energy-for-the-Future-IEA-version.pdf

Distributed Generation using Biogas in a Microgrid: in the Western Region of Parana, Brazil



This IEA Bioenergy Task 37 case story from Parana, Brazil describes distributed generation using biogas in a micro-grid. Circuit breakers are used to create an 'island' micro-grid. Plans are in place for PV combined with dispatchable biogas generated electricity. https://www.ieabioenergy.com/wp-content/uploads/2019/03/IEA_Brazil-Solar-Biogas_Case-Story.pdf

Organic Biogas Improves Nutrient Supply Kroghsminde Bioenergy I/S, Denmark

This IEA Bioenergy Task 37 report describes the organic biogas facility which was established at Kroghsminde organic dairy farm in Ølgod. Conversion of 69t/day of organic feedstock (grass silage, deep bedding & dung) to liquid bio-fertiliser & biogas has led to GHG negative milk production, which is assessed as -0.82 kg CO2/l milk. https://www.ieabioenergy.com/wp-content/uploads/2019/03/IEA_Organic-Biogas-Denmark_Case-Story_end.pdf

Greening the Gas Grid in Denmark

This IEA Bioenergy Task 37 report deals with greening the gas grid in Denmark where more than 10% of gas in the Danish gas grid is green. In summertime the decarbonized share is 25%. A similar amount of biogas is sent to CHP and as such if this went to grid the resource of green gas in the grid could double. Denmark expects full decarbonisation by 2035 (72 PJ) and with the advent of Power to gas systems could reach 100 PJ exceeding national demand. https://www.ieabioenergy.com/wp-content/uploads/2019/03/IEA_Greening-the-Gas-Grid_end.pdf

Please visit the FAQ section of the IEA Bioenergy website at http://www.ieabioenergy.com/iea-publications/faq/.
To view all IEA Bioenergy publications, which are available for free download visit http://www.ieabioenergy.com/iea-publications/.

IEA Bioenergy Events

Executive Committee

ExCo84 will be held in Tallinn, Estonia, 22-24 October 2019

ExCo85 will be held in Sao Paolo, Brazil, 30 March - 01 April 2020

ExCo86 TBD, October/November 2020

ExCo87 will be held in Vienna, Austria, May 2021

ExCo88 will be held in Brisbane, Australia, October/ November 2021

Task Events

Task 32's schedule of upcoming events is
Task meetings TBC

Task 33's schedule of upcoming events is
Task meetings TBC

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
Task meetings TBC

Task 39's schedule of upcoming events is
A Task meeting is planned for Stockholm, Sweden in mid-September in conjunction with Sweden's 2019 Advanced Biofuels Conference (ABC) being held 17-19 September.

A Task meeting is planned for São Paulo, Brazil in late March 2020 in conjunction with the Brazilian Bioenergy Science and Technology Conference (BBEST) 2020 being held 30 March-1 April

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
Task meetings TBC

Task 45's schedule of upcoming events is
Task meetings TBC

Other Items

4th Renewable Energy Sources – Research and Business conference (RESRB) 2019
Date: 8th July 2019 - 9th July 2019
Location: Wrocław, Poland
Website: http://resrb.budzianowski.eu/

BIO World Congress on Industrial Biotechnology
Date: 8th July 2019 - 11th July 2019
Location: Des Moines, Iowa, USA
Website: https://www.bio.org/events/bio-world-congress

Biofuels, Energy and Economy 2019
Date: 17th July 2019 - 18th July 2019
Location: Dubai, United Arab Emirates
Website: https://www.lexisconferences.com/biofuels

8th Asia-Pacific Biomass Energy Exhibition (APBE2019)
Date: 16th August 2019 - 18th August 2019
Location: China Import & Export Fair Complex, Guangzhou, China
Website: http://www.apbechina.com/

10th World Renewable Energy Technology Congress & Expo
Date: 21st August 2019 - 23rd August 2019
Location: New Delhi, India
Website: http://wretc.in/

14th Global Summit and Expo on Biomass and Bioenergy
Date: 26th August 2019 - 27th August 2019
Location: Vienna, Austria
Website: https://biomass.expertconferences.org/

2nd Bioenergy International Conference
Date: 11th September 2019 - 13th September 2019
Location: Portalegre, Portugal
Website: http://www.bioenergy-conference.com/index.html

Algae Biomass Summit
Date: 16th September 2019 - 19th September 2019
Location: Orlando, Florida, USA
Website: https://www.algaebiomasssummit.org/

Advanced Biofuels Conference 2019
Date: 17th September 2019 - 18th September 2019
Location: Stockholm, Sweden
Website: https://www.svebio.se/en/evenemang/advanced-biofuels-conference-2/

8th Annual European Biofuels Seminar
Date: 20th September 2019
Location: Brussels, Belgium
Website: https://www.spglobal.com/platts/en/events/emea/european-biofuel-seminar/summary

International Conference on Biofuels & Bioenergy: Fuels of the future
Date: 23rd September 2019 - 25th September 2019
Location: Barcelona, Spain
Website: http://www.phronesisonline.com/biofuels-conference/

US Biogas 2019
Date: 1st October 2019 - 2nd October 2019
Location: San Diego, California, USA
Website: https://events.newenergyupdate.com/biogas/?utm_source=NEU%20Portal&utm_medium=Li...

tcbiomassplus 2019
Date: 7th October 2019 - 9th October 2019
Location: Rosemont, Illinois, USA
Website: https://www.gti.energy/training-events/tcbiomass/

International Biomass Congress and ExPo
Date: 22nd October 2019 - 23rd October 2019
Location: Brussels, Belgium
Website: https://www.bioenergy-news.com/conference/biomass/biomass_index_2019.php

Lignofuels Americas 2019
Date: 30th October 2019 - 31st October 2019
Location: Omaha, Nebraska, USA
Website: https://www.wplgroup.com/aci/event/lignofuels-americas/

Future of Biogas Europe 2019
Date: 13th November 2019 - 14th November 2019
Location: Amsterdam, The Netherlands
Website: https://www.wplgroup.com/aci/event/future-biogas-europe/

Bioenergy Meet 2019: 11th annual conference on Bioenergy and Biofuels
Date: 28th November 2019 - 29th November 2019
Location: Helsinki, Finland
Website: https://eurobioenergy.enggconferences.com/

14th International Conference on Bio-fuels and Bio-refinery
Date: 5th December 2019 - 6th December 2019
Location: Dubai, UAE
Website: https://biofuelsconference.euroscicon.com/

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