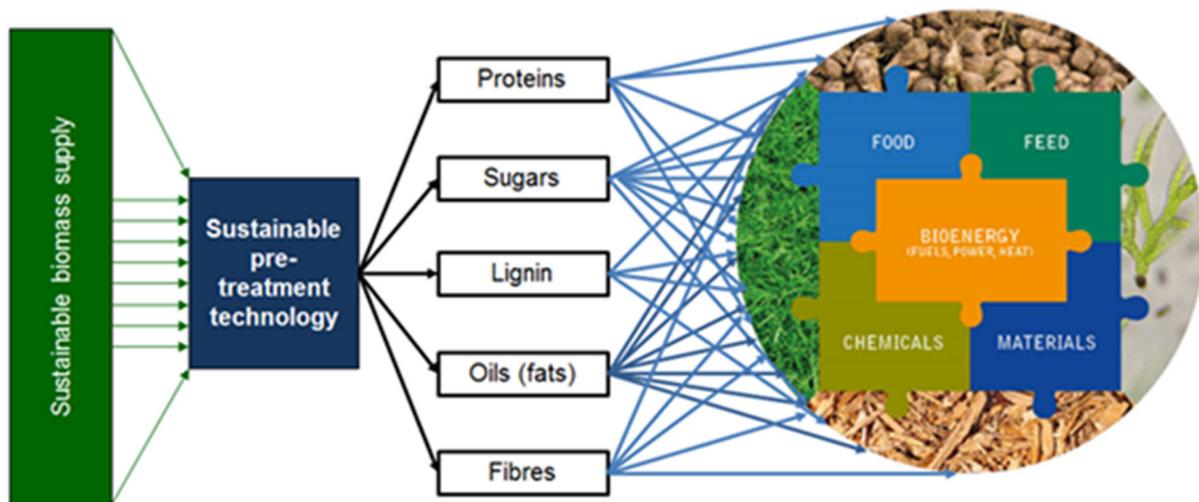


## Newsletter IEA Bioenergy Task42

Number 4, July 2019

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### Website

More information on the activities of IEA Bioenergy Task42 'Biorefining in a Circular Economy' can be found on our new website: [www.task42.ieabioenergy.com](http://www.task42.ieabioenergy.com)



## Introduction

November 2018 the extension of the IEA Bioenergy Task42 'Biorefining in a Circular Economy' was approved for another triennium by the Executive Committee of IEA Bioenergy. As new Task42 leader I am very happy that the ExCo again acknowledged the important role of biorefineries in the transition towards a sustainable circular co-production of bioenergy and biobased products. You will find more information about our work programme 2019-2021 in this newsletter.

In the 2019-2021 Triennium Task42 welcomes Sweden as a new full member, and also Brazil and the European Commission as observers for the first year. Unfortunately, Canada and the USA have left Task42. We would like to thank Marzouk Benali, Eric Soucy and Borka Kostova for their excellent inputs during the previous Triennium. We will miss your enthusiasm during our meetings. At the end of this newsletter you will find the list of national contact points for Task42. Please do not hesitate to them if you have any questions or suggestions.

Especially, I want to thank René van Ree who was our Task42 leader for nine years (2010-2018). René you did an excellent job organising all the work of our team, representing Task42 at all sorts of international events and supporting us to produce various reports on biorefineries. So thank you very much for all your efforts, and I am glad that you will be available to support us as new management team to get a smooth transition of tasks.

Fortunately, Ed de Jong is still on board as assistant Task leader. Michael Mandl will be our new assistant Task leader this triennium. Thanks for supporting me.

Bert Annevelink

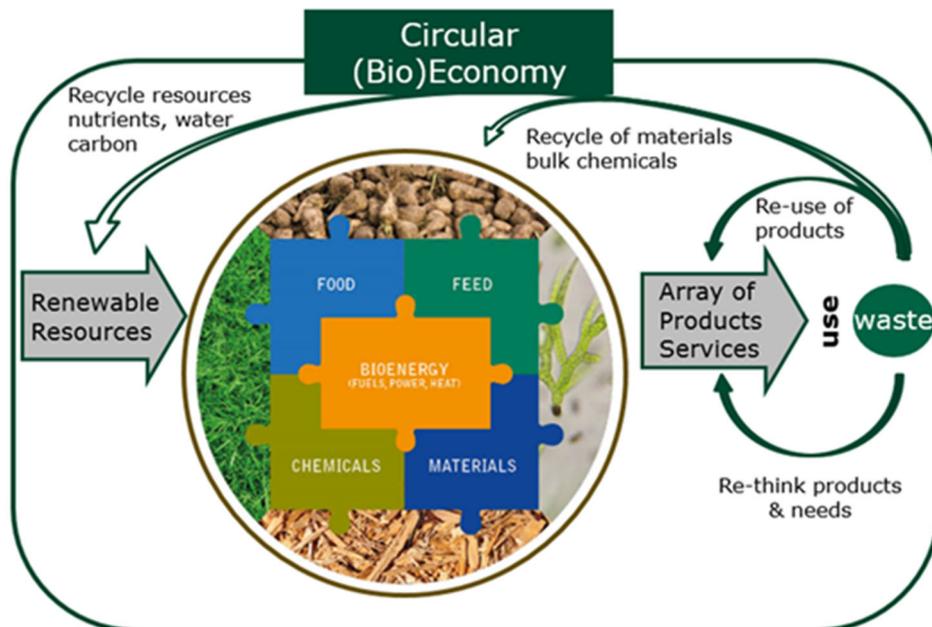
Task42 Leader 2019-2021



## IEA Bioenergy Task42 Work Programme 2019 – 2021

### Aim

The aim of IEA Bioenergy Task42 'Biorefining in a Circular Economy' 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. Task42 provides an international platform for collaboration and information exchange between industry, SMEs, GOs, NGOs, RTOs and universities concerning biorefinery research, development, demonstration and policy analysis. This includes the development of networks, dissemination of information, and provision of science-based technology analysis, as well as support and advice to policy makers, involvement of industry, and encouragement of membership by countries with a strong biorefinery infrastructure and appropriate policies. Gaps and barriers to deployment will be addressed to successfully promote sustainable biorefinery systems market implementation.



### Focus of the activities for the 2019-2021 triennium

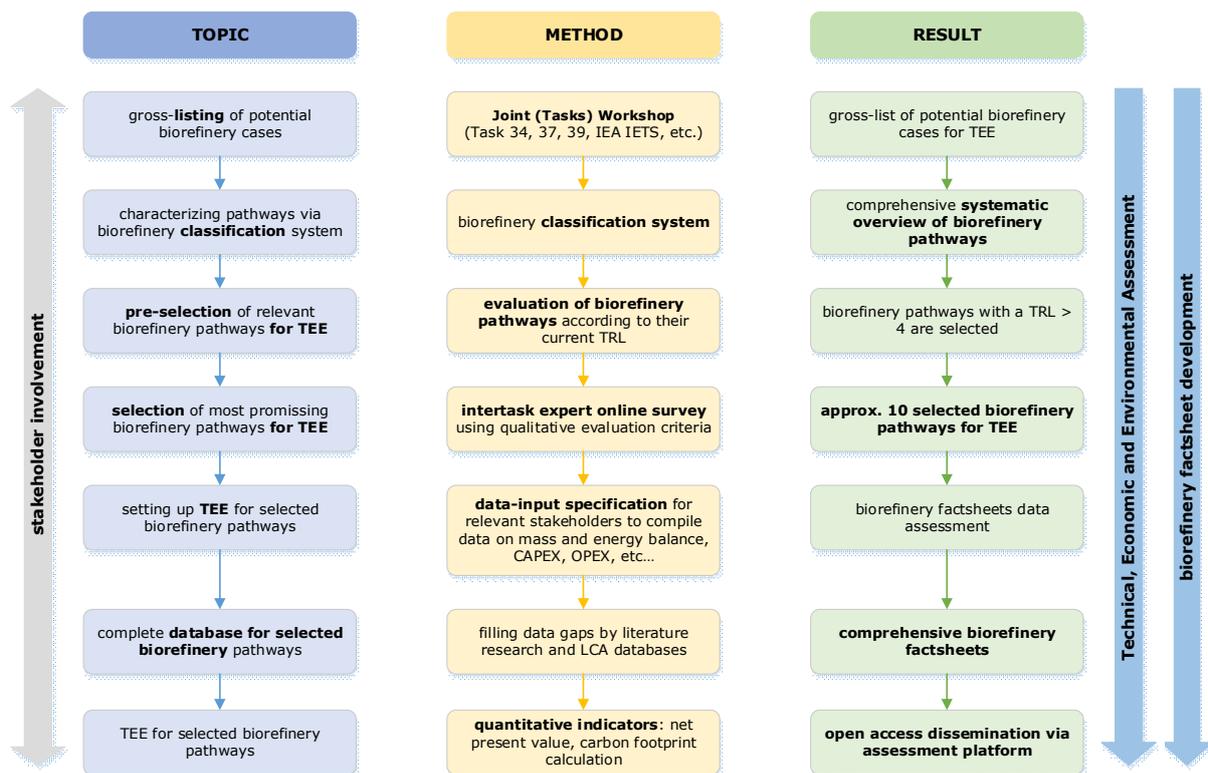
The focus of the activities will be on:

- provision of 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 (Biorefinery Assessment Platform, Biorefinery Fact Sheets, Reports on sustainable lignin valorisation);
- provision of global implementation status, major deployment barriers and market data (Biorefinery Country Reports, Global Biorefinery Status Report, Report on major non-technical deployment barriers, monitoring of international developments in biobased products certification and standardisation);
- provision of an international platform for cooperation and information exchange (Task42 website, newsletters, lectures, webinars, thematic workshop on the role of biomass, bioenergy and biorefining in a Circular Economy, national stakeholder events, training).

## Collaborative Inter Task Project (CITP) Technical, Economic and Environmental (TEE) assessment of integrated biorefineries

The goal of the Collaborative Inter Task Project (CITP) is to 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.

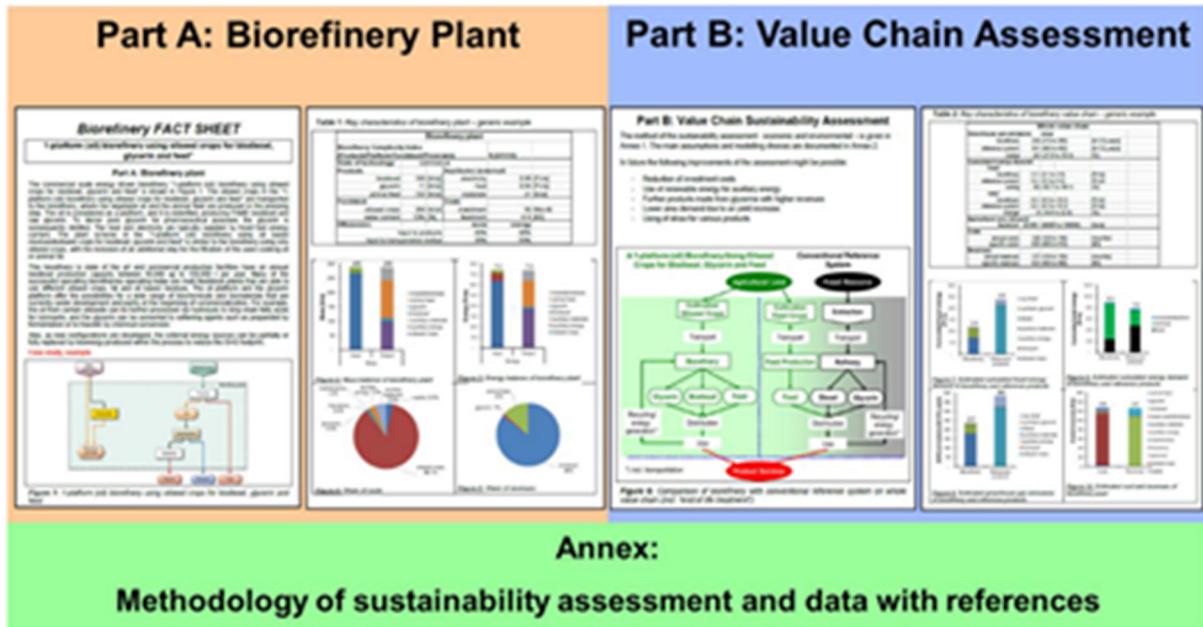
The biorefineries that will be assessed are gross-listed by Task42 in close cooperation with other more technology specific Tasks like 33, 34, 37, and 39, and IEA IETS. The gross-listed biorefineries will be characterised by T42 using T42’s classification system, resulting in a comprehensive systematic overview of these biorefinery pathways which will be disseminated over the Task web page to stimulate a common understanding and wording of biorefineries.



In this triennium the Biorefinery Assessment Platform that has been developed by the Austrian National Task42 Team (see news item on TEE-report in this same newsletter) will be filled by the TEE-assessment of minimally 10 biorefinery pathways. The provision of (the right) data is a key success factor for the coverage of the TEE-assessments and the amount of Biorefinery Fact Sheets that can be produced.

T42’s BAP targets a standardized basis for the characterization of biorefineries in terms of technical aspects and environmental, economic and social criteria. The methodology

developed by Task42 will be used in this triennium to prepare minimally 10 additional factsheets providing open access on used primary data. The factsheet format will be further optimised and extended with other relevant info.



## Biorefinery news from Australia

### Bioenergy and Biorefining continues to underperform in Australia

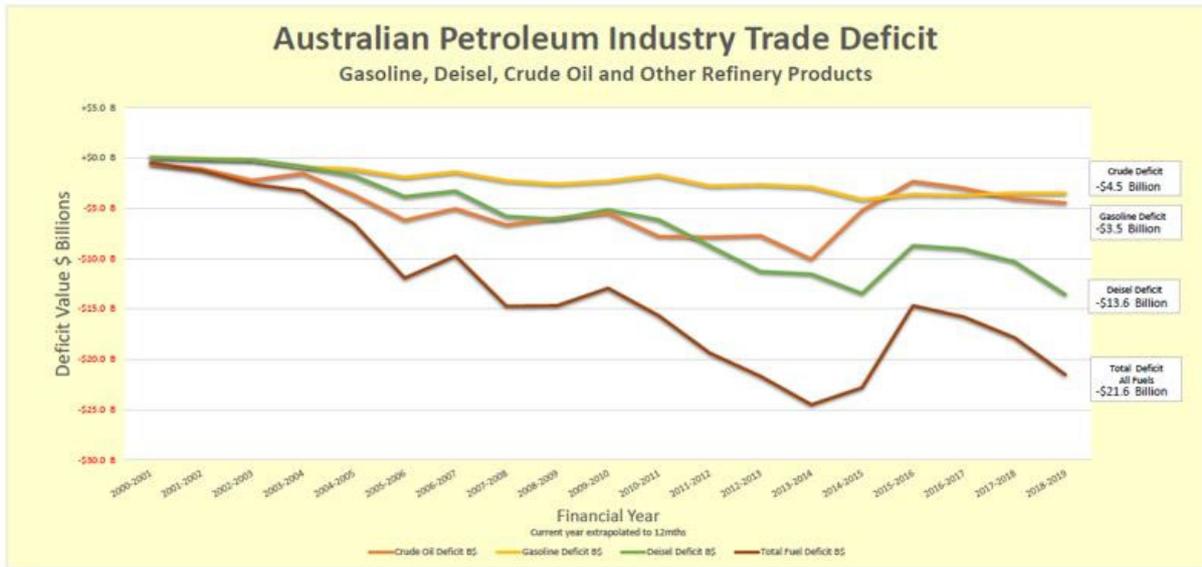
The Australia people recently (May 2019) re-elected a conservative Government that arguably has less ambitious targets with respect to renewable energy and thus also bioenergy and biorefineries. Despite the lower ambition, there are still policies that are expected to continue some momentum towards the greater utilisation of renewables:

- a 26% to 28% reduction of CO<sub>2</sub> emissions compared to 2005 by 2030;
- a 2 billion dollar Climate Solutions Fund that builds on the previous Emissions reduction Fund;
- Snowy 2.0: a pumped hydro scheme with enough storage to power 0.5 million homes;
- improve energy efficiency;
- develop a national Electric Vehicle Strategy.

### Biofuel usage declines and dependence on liquid fuel imports increases

Biofuel usage is declining despite lower cost and environmental benefits:

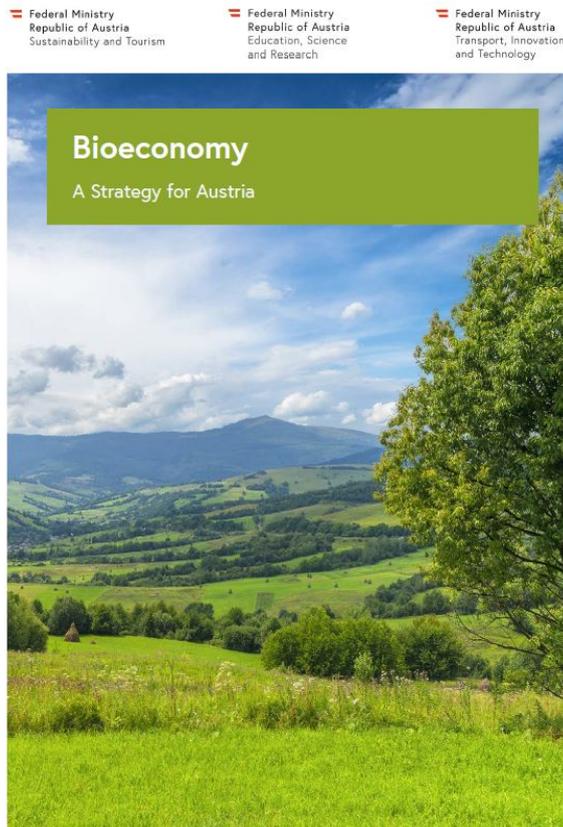
- in New South Wales, ethanol use in fuel has declined 35% since its peak in 2011/12;
- in Queensland, ethanol use in transport has declined 39% since its peak in 2010/11;
- in total, Australian ethanol use in transport has declined 39% over the past 8 years.



## Biorefinery news from Austria

### Bioenergy policies and status of implementation

In 2018 four Austrian Federal Ministries presented a working document on the bioeconomy and the respective roles and fields of research<sup>1</sup>.



The 'National Bioeconomy - RTD Strategy' will underpin innovation and R&D to move towards circular economy and regional development. Research and innovation is seen as the basis for a structural change from fossil energy to sustainable economy. In May 2018 the climate and energy strategy<sup>2</sup> (Mission 2030) was decided by the Austrian Federal Government. Bioeconomy is a flagship project to boost growth for bio-based products, energy, processes and services. To emerge bioeconomy further stimulus is needed in bioenergy, efficiency measures, biorefining of materials from agriculture & forestry, moving toward circular economy. In March 2019 the National Bioeconomy Strategy<sup>3</sup> Austria was decided by the Austrian cabinet.

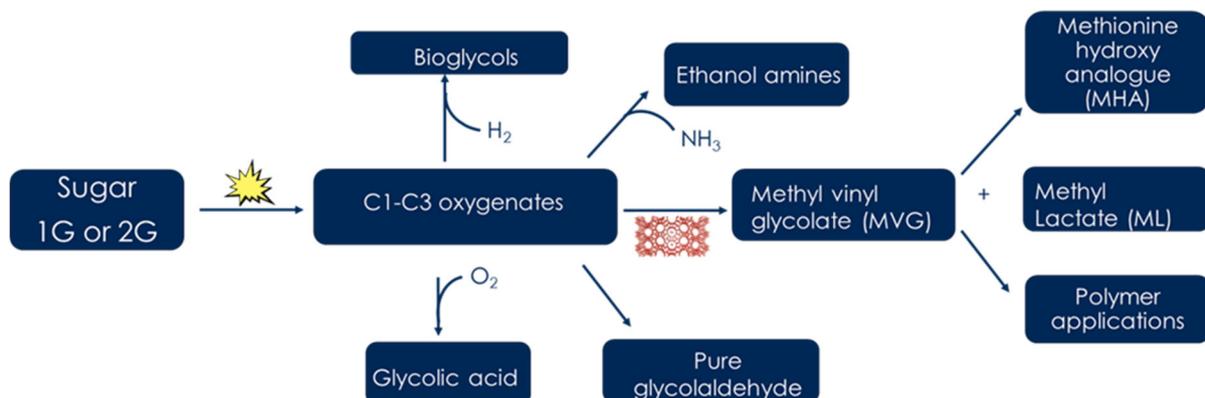
More information:

1 [https://nachhaltigwirtschaften.at/resources/nw\\_pdf/biooekonomie-fti-strategie-ag2-2018.pdf](https://nachhaltigwirtschaften.at/resources/nw_pdf/biooekonomie-fti-strategie-ag2-2018.pdf), 2 <https://mission2030.info/> and 3 <https://www.bmvit.gv.at/innovation/publikationen/energieumwelttechnologie/biooekonomiestrategie.html>

## Biorefinery news from Denmark

### Pilot scale plant for production of MEG

End of 2017, the Danish company Haldor Topsøe announced a partnership with Braskem to validate the MOSAIK™ catalyst technology from Haldor Topsøe for production of MEG (monoethylene glycol) from sugar in demonstration scale. MONoSaccharide Industrial Cracker (MOSAIK) is a solution for catalytic cracking of sugars to an intermediary product, which can be further converted to chemicals such as MEG or MVG (methyl vinyl glycolate) using Haldor Topsøes patented process and catalysts.



The agreement with Braskem included construction of a demonstration plant in Denmark, which was put into operation in March 2019. The pilot plant is located at Haldor Topsøe in Lyngby, Denmark. Capacity of the plant is 100 tonnes of glyceraldehyde per year. Glyceraldehyde is in the next step converted to MEG.

More info is available at: [www.topsoe.com](http://www.topsoe.com)

### **Danish focus on sustainable protein**

The Danish National Bioeconomy Panel, established in 2017, released its first report in June 2018 entitled "Proteins for the future". In the report, the panel describes challenges, opportunities and provides 15 recommendations for how to increase the production in Denmark of protein from agricultural and marine biomass, agro industrial residues and some types of biowaste. Particularly there is focus on establishing new value chains based on green biomass (grass, clover etc.). The report was in autumn 2018 followed up by an action plan from the Ministry of Environment and Food prepared - "Action plan for new sustainable protein". In spring 2019 a new network "Danish Protein Innovation" – with members from industry, academia and NGOs was established. The aim of the network is to "promote and coordinate research and innovation to increase a markets based sustainable Danish production of protein for food and feed". The report is available at: <http://mfvm.dk/miljoe/anbefalinger-om-bioekonomi/>

### **New energy agreement 2020-2024**

The Danish Parliament has made a new energy agreement for the years 2020-2024. The focus of the energy policy is on increasing the renewable electricity production by establishment of new offshore wind farms. In relation to bioenergy, the new policy will gradually reduce the support to biomass fired heat and power plants. The support for biogas production will for new plants established after 2020 be changed and it will generally result in lower subsidies. From 2020-2023 funds to support expansion and upgrading of biogas for transport and industrial uses will be made available – 240 million DKK annually. The new energy agreement do not contain new initiatives regarding biofuels for transport. However 100 million DKK annually from 2020-2024 will be allocated to initiatives to promote "green transportation" and reduce the CO<sub>2</sub> emissions from the transport sector. Finally, the support for RD&D within energy technology and climate will gradually increase in the period, aiming at 1 billion DKK annually in 2024. Late in 2018 the previous Government presented a climate plan, but in June 2019 Denmark got a new government. A new climate plan now has to be drafted. The government has presented an ambitious overall aim of 70% reduction in GHG emissions by 2030, but no details are yet available.

## **Biorefinery news from Germany**

### **New alliance agricultural research between Germany and Brazil**

On the fringes of the bio-economy trade fair 'GreenRio' at the end of May, a research alliance between the Federal Research Institute for Cultivated Plants at the Julius Kühn Institute (JKI) and the Brazilian agricultural research institute EMBRAPA was signed. The cooperation focuses on the sustainable production of cultivated plants. More information at: <https://biooekonomie.de/en/nachrichten/agricultural-research-new-alliance-brazil>

### **EU funds bioplastics research**

With a total of 8.4 million euros, the European Union is backing a project coordinated by Hamburg University of Applied Sciences that aims to initiate innovations in bioplastics production. More information at:

<https://biooekonomie.de/en/nachrichten/eu-funds-bioplastics-research>

## Biorefinery news from Italy

### **Novamont starts the second unit for bio-polyesters production in Patrìca**

On October 19th, 2018, there was the grand opening for Mater-Biopolymer: the Novamont Group revamped site for the production of Origo-Bi®. Origo-Bi® is a family of biodegradable polyesters with an increasing content of renewable raw materials, which enter the production process of the Mater-Bi® bioplastic family.



The ribbon-cutting ceremony was preceded by the conference 'The Regeneration Comes On' which saw the participation and speeches of some of the major national and international experts in the field of Bioeconomy. At the end of the conference, all the guest, including representatives of the institutions, local administrations, universities and research and industrial partners of the Group, visited the plant to discover its production process. Mater-Biopolymer, in line with the Novamont strategy of revitalizing no longer productive industrial sites, is a virtuous example of industrial development in a logic of territorial regeneration and enhancement of infrastructure and skills existing. It comes from the conversion of a plant dedicated to the production of PET. Thanks to Novamont innovative technologies and know-how, the various sections of the plant were regenerated to allow the production of biodegradable polyesters from vegetable oils and sugars - with a production capacity of 100,000 tons per year. The plant also include a section that made it possible the recovery of a chemical product with high added value, tetrahydrofuran (THF).

### **The unexpected failure of the Joint-Venture Novamont-ENI: the case of Matrìca (Porto Torres)**

In November 2018, the Matrìca reconversion project to green chemistry suffered a drastic setback due to an incurable disagreements between the two partners of the Joint-Venture: Novamont and ENI. All the re-industrialization initiatives in the area of the ex-petrochemical in Porto Torres (Sardinia) were slowed down.

### **Versalis (ENI) acquires the "bio" activities of the Mossi&Ghisolfi Group**

With effect from November 1, 2018, Versalis (ENI) acquired the business units relating to the "bio" activities of the Mossi&Ghisolfi Group, which includes the human resources and the instrumental, tangible and intangible assets, related to development and

industrialization activities , licensing of biochemical technologies and processes based on the use of renewable biomass sources. The operation includes assets and resources relating to development, industrialization, licensing of bio-chemical technologies and processes based on the use of renewable sources, in particular biomass, of the four companies BioChemtex, Beta Renewables, Ipb (Italian Bio Products) and Ipb energy.

## More and more start-ups in the field of Bioeconomy and Green Chemistry

Italy registers a significant number of new-born start-ups in the industrial biotech and bioeconomy sector. One of these, is the award-winning Orange Fiber that creates fabrics from oranges. In November 2018, Orange Fiber launched an equity crowdfunding campaign with a minimum objective of 250,000 euros to create a production plant capable of extracting up to 30 tons of cellulose per year and a maximum objective of 650,000 euros to increase investments for the construction of a production plant capable of extracting up to 60 tons of cellulose per year.

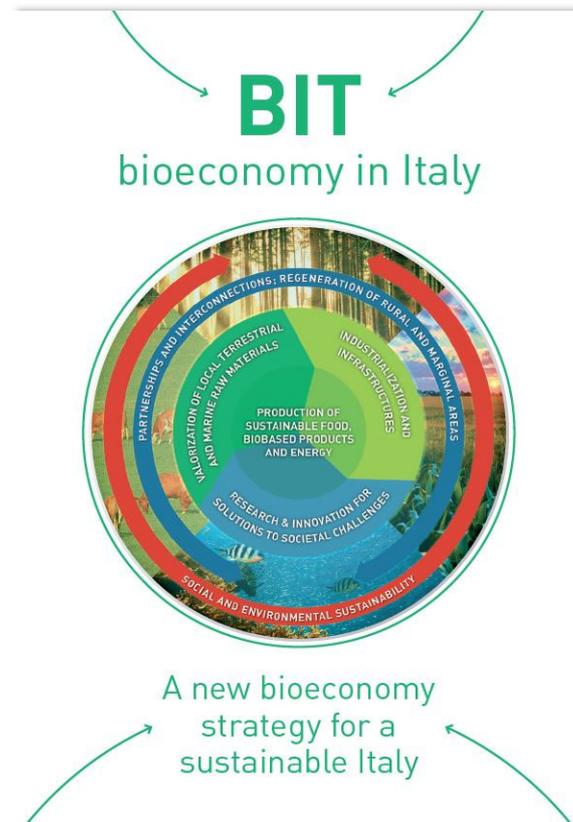


A special mention also goes to Bio-on for its new generation of high-performance biodegradable polyesters, made from co-products. Bio-on and ITALERI confirmed their alliance for the toys of the future with new Minerv Supertoys, an eco-sustainable, child- and environmentally friendly, natural and 100% biodegradable biopolymer based line of toys (Bioplastics for toys). Bio-on launched a brand-new line of cosmetic ingredients for sun protection made from biodegradable bioplastic (Bioplastics for cosmetics). The Minerv Bio cosmetics brand gains a new line of eco-friendly SPF (Sun Protection Factor) Booster products called MinervPHB RIVIERA which are made with micro powders made with Bio-on's bioplastic, obtained from renewable plant sources and 100% biodegradable.



## The launch of the new Italian Bioeconomy Strategy

On May 14th, the new Italian Bioeconomy Strategy (BIT) was presented in Rome by the will of the Presidency of the Council through the coordination table initiated within the National Committee for the Biosecurity, Biotechnology and Life Sciences.



The Italian Bioeconomy currently making about EUR 330 billion/y of turnover and 2 million jobs. The new Strategy aims at achieving an increase of 15% in the current performance of the Italian Bioeconomy by 2030. The focal points of the Strategy are: A) Improving the sustainable production and quality of products in each of the sectors and interconnecting and leveraging the sectors more efficiently; allowing an effective valorization of national terrestrial/marine biodiversity, ecosystem services and circularity by creating longer and more locally routed value chains, where the actions of public and private stakeholders integrate across the board at the regional, national and EU level; regenerating abandoned/marginal lands and former industrial sites; B) Creating: i) more investments in R&I, spin offs/ start-ups, education, training, and communication, ii) better coordination between regional, national and EU stakeholders/policies, iii) better engagement with the public, and iv) tailored market development actions. The document also underlines the importance of defining sustainability standards to support the bio-based market and creating a 'level playing field' between bio-based products and conventional products. The document can be found here:

[https://ec.europa.eu/research/bioeconomy/pdf/bit\\_en\\_strategy\\_2019.pdf](https://ec.europa.eu/research/bioeconomy/pdf/bit_en_strategy_2019.pdf)

## Biorefinery news from the Netherlands

### European network stimulates industrial applications of lignin

As a natural adhesive, lignin has enormous potential in a wide range of applications. Its full industrial potential has yet to be exploited so far, however. LignoCOST, a large European network coordinated by Wageningen Food & Biobased Research, aims to change that. The objective is to develop a pan-European network which covers the entire value chain, from raw materials to cost-effective and sustainable end products.



LignoCOST is supported by the EU COST programme and focuses primarily on creating and sharing knowledge. This information should give a considerable boost to practical deployments of lignin that add value in the framework of industrial applications. More information at:

<https://lignocost.eu/>

## Biorefinery news from Sweden

### Preem and Svea Skog becomes part owners of SunCarbon aiming to add value to lignin

Refinery company Preem and forest owner Svea Skog both join SunCarbon as partners and plans for another lignin plant for biofuels. The new plant is expected to produce about 45,000 tonnes of lignin per year and be operational in early 2022. Today, 85 per cent of all biofuels are imported into the Swedish market. One of the solutions for increasing domestic production is to invest in lignin. The potential is a few million cubic meters only in Sweden. Formerly, Preem collaborates with Ren Fuel and Rottneros, among others, on constructing a lignin plant for biofuels at the pulp mill in Vallvik, Söderhamn. The plant is expected to produce about 25,000-30,000 tonnes of lignin per year and be completed by 2021. More info at:

<https://www.di.se/hallbart-naringsliv/preem-okar-satsningen-pa-biodrivmedel/>

<https://www.landskogsbruk.se/skog/sveaskog-gar-in-i-bolag-som-ska-foradla-lignin/>

### Sekab to supply technology for Nordfuel's Finnish bioethanol project

Swedish clean-tech company SEKAB E-Technology has been selected to supply technology for Nordfuel's biorefinery in Finland. In 2021, the biorefinery Nordfuel is planned to open in Northern Finland. The facility will produce bioethanol and biofuel from soft wood residues, an investment worth EURO 150 million. Swedish clean-tech company SEKAB E-Technology will provide the technology. More info at:

<https://www.nsenergybusiness.com/news/sekab-to-supply-technology-for-nordfuels-finnish-bioethanol-project/>

**Upcoming: Advanced Biofuels Conference**

The Swedish Bioenergy Association (SVEBIO) heartily welcomes participants across the globe to the beautiful city of Stockholm to attend our 5th Advanced Biofuels Conference on 17-19 September, 2019. Pre-conference study visits will be followed by two full conference days, a conference dinner cruise, a workshop, and cover all land, aviation and maritime transport sectors. Including a workshop, 19 September: Policy, institutional framework and the role of the financial sector for deployment and upscaling of biorefineries for large scale biofuel production – what is needed to propel the development? More information:

<https://www.svebio.se/evenemang/advanced-biofuels-conference-2/>

**Main conclusions from the 2016-2018 Triennium**

1. IEA scenario calculations have shown that efficient and sustainable use of biomass will be the key driver to reach 2050-2060 GHG-emission reduction targets, and the uptake of biorefineries at industrial level will be required to achieve this. **Co-production of biobased products and bioenergy by industrial symbioses can have highest impact on both meeting the climatic goals and economic growth.** Both governmental facilitation, communication and education will be needed to support large-scale market deployment.

2. Optimal sustainable biomass valorisation approaches to Food and Non-food (incl. Energy/Fuels) are countless; however, biorefining/bio-cascading is always the approach to use to maximise full sustainability. **Bioenergy can be the main driver – biofuel/energy-driven biorefinery approach – or a secondary product** (product-driven biorefinery approach), but it will always be part of the optimised biomass valorisation path.

3. There are several international organisations (IEA Bioenergy, IRENA, OECD, FAO, EERA Bioenergy, ETIP Bioenergy, EC DG JRC, etc.) often working separately in the bioenergy, biorefinery and BioEconomy areas. **Cooperation** by joint activities and dissemination potentially **will increase the quality of the output of the work programmes, will use available budgets more efficiently, and will reach a broader public for knowledge dissemination.** Cooperation with other International Organisations on the first sight will potentially result in synergy, i.e. in time and budget

reduction, however, it will sometimes also lead to a more inefficient and unclear approach with an uncertain final result [reference: AA3 BioEconomy Survey in cooperation with EC DG JRC].

4. Specifically for the energy sector, Task 42 recommends that **upstream protein extraction prior to the conversion of biomass into “energy”** and/or co-valorisation of protein-rich agro or process residues adds value and **improves the business case**.

5. **Building a Biorefinery Assessment Platform (BAP)** for the technical, economic and environmental (TEE) assessment of integrated biorefineries is **difficult but can be done**. However, **getting the right input data** to be able to do the assessments **is an even more challenging** and time consuming activity, and will need the support of the more technology specific Tasks. Broad support of the use of the BAP for these kind of assessments will be necessary by strong cooperation with other Tasks (Sustainability Assessment etc.) [reference: AA1 activities].

6. Concerning the assessment of the market deployment aspects of integrated biorefineries, it can be concluded that **there are still many technical AND non-technical barriers to be solved** before large-scale implementation of biorefineries within the circular (bio)economy will become a reality. IEA Bioenergy Task42 can play an important role to overcome these barriers by knowledge dissemination on international best-practices, bringing together full chain stakeholders and stakeholders normally operating in different market segments, providing clear Biorefinery Fact Sheets, and producing reports on added-value products (chemicals, proteins, fibrous materials) potentially to be coproduced with bioenergy to improve its overall sustainability.

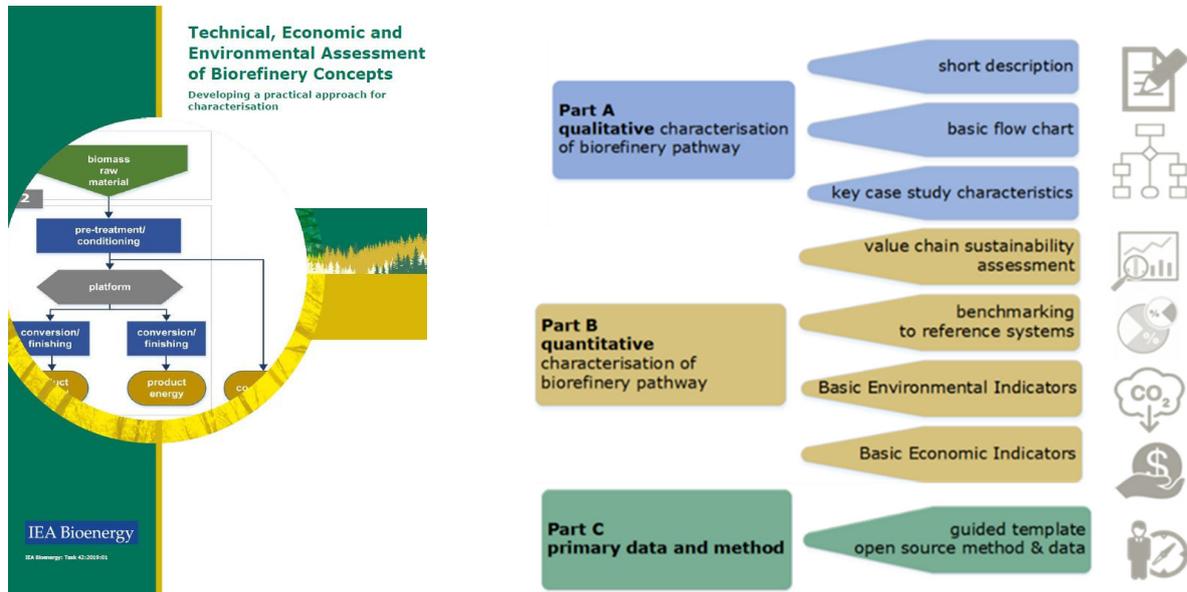
7. Industrial/SME stakeholders can be best supported finding their way in a future BioEconomy by showing them for example by the Country Reporting and the BAP/BFSs the **international developments and clear facts on biorefinery technology** opportunities as part of full sustainable value chains.

8. Policy advice on further biorefinery deployment needs to be formulated taking into account the **market point-of-view**. IEA Bioenergy Task42 could provide the platform to bring together market players to discuss implementation barriers and potential policies to be developed. These recommendations can be transferred to ExCo to discuss with the international/national governmental organisations.

9. Both **knowledge dissemination and training** are very important for further expertise building and technology development to provide the (technical) foundation for further biorefinery deployment feeding the circular (bio)economy.

## New report IEA Bioenergy Task42

IEA Bioenergy Task 42 is pleased to announce the release of its latest report, 'Technical, Economic and Environmental Assessment of Biorefinery Concepts - Developing a Practical Approach for Characterisation'.



Currently, biorefining is seen as a promising method for processing biomass into a variety of bio-based products and bioenergy. However, due to the complexity and diversity of biorefining systems, there is a need for quantitative, scientifically sound, and transparent data on biorefining's technical, economic, and ecological benefits. Currently, there are two main challenges related to assessing the environmental and economic components of biorefining processes: data availability and stakeholder participation. To address these issues, Task 42 examined assessments currently underway to determine the capability of biorefineries in creating a sustainable future. Such assessments aim to highlight the potential of biorefineries to enhance the use of biomass in generating both products and energy.

On the 3<sup>rd</sup> of July a webinar was organized to explain methodology background of the technical, economic and environmental (TEE) assessment of biorefineries. Using concrete examples biorefineries can be benchmarked with fossil based processes and products. The TEE assessment initiative of the IEA Bioenergy Task 42 is an open access approach to share information, data and results.

The report can be found here:

<http://task42.ieabioenergy.com/publications/tee-2019/>

The recorded webinar can be found here:

<https://www.ieabioenergy.com/publications/iea-bioenergy-webinar-technical-economic-and-environmental-assessment-of-biorefineries/>

## Recent publications IEA Bioenergy Task42

Task42 has produced and actively distributed several glossy reports showing the importance of the biorefining approach for the sustainable (co)production of food and feed ingredients, chemicals, materials, transport fuels, and energy as foundation of a (future) Circular BioEconomy. Please visit the Task42 website for links to these publications. See: <http://task42.ieabioenergy.com/publications/>

Annevelink, B., 2018. The IEA Bioenergy Task 42 Perspective for Biorefining in a Growing BioEconomy. BIOFOR International Conference, Montréal, Canada, 6 February 2018.

Elbersen, W., Ree van, R., 2018. The need for biocommodities to link the available biomass potential to the European feedstock and fuel needs in the coming decades. ETIP Workshop "Bioenergy towards 2030" @ EUBCE-2018, Copenhagen, Denmark, 16 May 2018.

Jong de, E., Avantium Chemicals, the Netherlands, 2018. Biobased Chemicals – Current Status & Future Perspectives. IEA Bioenergy EoT Conference, San Francisco, US, November 2018.

Jong de, E., 2018. Zambezi Biorefinery: Pure Glucose from 2nd Generation Feedstocks. BIOFOR International Conference, Montréal, Canada, 6 February 2018.

Kwant, K., Pelkmans, L., Ree van, R., Berntsson, T., 2018. The Role of Biorefineries in a Low-Carbon Economy, EUBCE-2018, Copenhagen, Denmark, 15 May 2018.

Lindorfer, J., Energy Institute at the Johannes Kepler University Linz, Austria, 2018. Biorefinery Systems Analysis and Factsheets. IEA Bioenergy EoT Conference, San Francisco, US, November 2018.

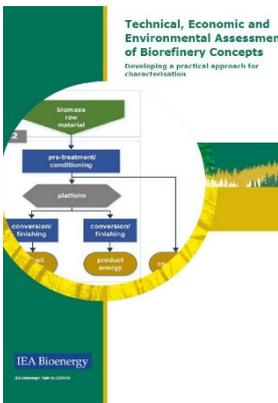
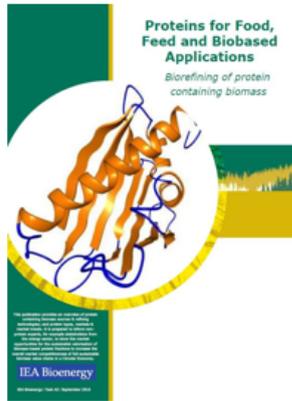
Lindorfer, J., M. Lettner, F. Hesser, K. Fazeni, D. Rosenfeld, E. Annevelink & M. Mandl, 2019. Technical, Economic and Environmental Assessment of Biorefinery Concepts; Developing a practical approach for characterisation. IEA Bioenergy Task42, ISBN: 978-1-910154-64-9, July 2018.

Motola, V., Bari de, I., Pierro, N., and Giocoli, A. of ENEA, with input of T42 NTLs, 2018. Bioeconomy and biorefining strategies in the EU Member States and beyond, Reference Year 2018, IEA Bioenergy Task42, ISBN: 978-1-910154-60-1, December 2018.

Motola, V., Bari de, I., ENEA, Italy, 2018. Global BioEconomy Survey with a focus on Biorefineries. IEA Bioenergy EoT Conference, San Francisco, US, November 2018.

Stichnothe, H., with input other Task42 NTLs, Standards and Labels related to Biobased Products, IEA Bioenergy Task42, ISBN 978-1-910154-51-9, 2018.

Wenger, J., Stern, T., Schöggel J.P., University of Graz, with input of T42 NTLs, 2018. Natural Fibers and Fiber-based Materials in Biorefineries, Status Report 2018, IEA Bioenergy Task42, ISBN: 978-1-910154-53-3, December 2018.



## Introducing the new Task42 management

### **Bert Annevelink (NL) – Leader Task42**

Bert has been working as senior scientist at Wageningen Food and Biobased Research (WFBR) since 2006. He holds an MSc Degree in Forestry from Wageningen Agricultural University, and a PhD in Agricultural Mathematics/Operational Research also from Wageningen Agricultural University. He was co-founder of the Dutch Biorefinery Knowledge Network, project coordinator of the EU FP6 CSA project BIOPOL (on the assessment of BIOrefinery concepts and the implications for agricultural and forestry POLicy) and member of the editorial board of the Dutch Roadmap Biorefinery, that was produced for the Dutch Government. Furthermore, he participated in the EU FP7 CSA project StarColibri where he was co-author of the Biorefinery vision 2030, and the European Research Roadmap 2020. Recently he was coordinator at Wageningen UR of the research theme Circular & Biobased Economy. Bert has been participating in Task42 since 2010.



### **Michael Mandl – Assistant Leader Task42**

Born 1967 Michael is an environmental engineer (MSc) graduated at University of Life Science and Natural Resources (BOKU) Vienna. He is currently managing director of tbw research GesmbH, a non-profit RTD-SME based in Vienna. He focuses on applied research in the field of process development for renewable resources in close cooperation with industry, R&D and academia. Prior to joining tbw research in 2015, he was working with JOANNEUM RESEARCH Forschungsges mbH for more than 17 years holding a position as a senior researcher in biorefining projects both on national and international levels. Internationally recognized Michael is an expert in green biorefining for valorisation of grass and legumes for value added products. Between 2007-2012 Michael was part of Task42. Since 2016, he has been acting as Austrian NTL within Task42.



### **Ed de Jong (NL) – Assistant Leader Task42**

Ed graduated at Agricultural University Wageningen, the Netherlands, and also defended his PhD thesis there on the degradation of lignocellulose by white-rot fungi (1993). He has been research associate for 3 years at the University of British Columbia on the use of softwood species for biofuels application. He has been Head of the Department of Fibre and Paper Technology, Wageningen Food and Biobased Research. He joined Avantium Chemicals in 2007. He is currently VP Development – responsible for Public-Private partnerships of Avantium, feedstock selection and pre-treatment (Avantium's Zambezi technology) and Catalytic Biomass Conversion of carbohydrates into building blocks for polyesters, such as PEF. He is also involved in the production of aromatics from furanics via the so-called Diels-Alder chemistry, and the valorisation of side products of the YXY & Zambezi Processes, lignins, humins and levulinates. He is part of the management team of the Stichting Topconsortium voor Kennis- en Innovatie - Biobased Economy (TKI-BBE). He is involved in drafting the annual work program (AWP) of the European BioBased Industries (BBI) JTI, via the Biobased Industries Consortium (BIC).



## National Contact Points IEA Bioenergy Task42

Country	NTLs	Organisation	Phone	Email
Australia	Geoff Bell	Microbiogen Pty Ltd	+ 61 2 9418 3182	geoff.bell@microbiogen.com
Austria	Michael Mandl	tbw Research GesmbH	+43 699 144 452 11	m.mandl@tbwresearch.org
	Johannes Lindorfer	Energie Institut an der Johannes Kepler Universität Linz	+43 732 2468 5653	lindorfer@energieinstitut-linz.at
	Franziska Hesser	WoodKplus	+43 1 47654 735 18 +43 676 897 445 31	f.hesser@kplus-wood.at
Brazil	Guy Capdeville	Embrapa Agroenergia	+55 61 34484246	guy.capdeville@embrapa.br
Denmark	Henning Jørgensen	University of Copenhagen	+45 353 319 89	hej@plen.ku.dk
	Solange I. Mussatto	DTU Biosustain	+45 935 118 91	smussatto@biosustain.dtu.dk
EC	tbd			
Germany	Heinz Stichnothe	Thünen Institute of Agricultural Technology	+49 531 596 4163	heinz.stichnothe@thuenen.de
Ireland	J.J. Leahy	University of Limerick	+353 61 202649	j.j.leahy@ul.ie
	Bart Bonsall	Technology Centre for Biorefining and Bioenergy	+353 862 413 081	bart@bartbonsall.com
Italy	Isabella De Bari	ENEA C.R. TRISAIA	+39 083 597 4618	isabella.debari@enea.it
	Vincenzo Motola	ENEA C.R. ISPRA	+39 033 278 8226	vincenzo.motola@enea.it
The Netherlands	Bert Annevelink	Wageningen Food & Biobased Research (WFBR)	+31 317 488 700	bert.annevelink@wur.nl
	Ed de Jong	Avantium B.V.	+31 634 347 096	ed.dejong@avantium.com
	Rene van Ree	Wageningen Food & Biobased Research (WFBR)	+31 317 480 710	rene.vanree@wur.nl
Sweden	Johanna Mossberg	RISE Research Institutes of Sweden (RISE Innventia AB)	+46 8 676 72 29 +46 76 876 72 29	Johanna.mossberg@ri.se

## Secretariat IEA Bioenergy Task42

Wageningen Research, The Netherlands  
 e-mail: [secretariaat.bbp@wur.nl](mailto:secretariaat.bbp@wur.nl)  
 Phone no.: +31 317 481 165 (Carla Bruil)  
 Website: [www.task42.ieabioenergy.com](http://www.task42.ieabioenergy.com)

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