



Lowering Costs by Improving Efficiencies in Biomass Fuelled Boilers: New Materials and Coatings to Reduce Corrosion

Edition: February 2023

Dear Readers,

Every 4 months a newsletter is shared with all stakeholders and the scientific community that are involved and or interested in the field of bioenergy, including plant developers, plant operators, and technology suppliers, as well as governmental bodies. Furthermore, members of the public who are interested in one or more of the topics related to BELENUS, such as bioenergy and materials engineering, will also gain from these newsletters.

They cover the overall project progress, special topics, news, relevant impacts, information and where to meet us in person at important events. In this edition, you will learn about the place of bioenergy in the Net Zero Scenario from the IPCC Sixth Assessment Report (AR6) and BELENUS project advances.

We invite you to visit our website and get in touch, through the information available at the end of this document. Enjoy reading!

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Introduction of the topic:

The Synthesis Report (SYR) of the IPCC Sixth Assessment Report (AR6) summarised the climate change state of the art, and the available solutions to mitigate the catastrophic climate drift. Indeed, multiple opportunities can be taken for scaling up climate action.

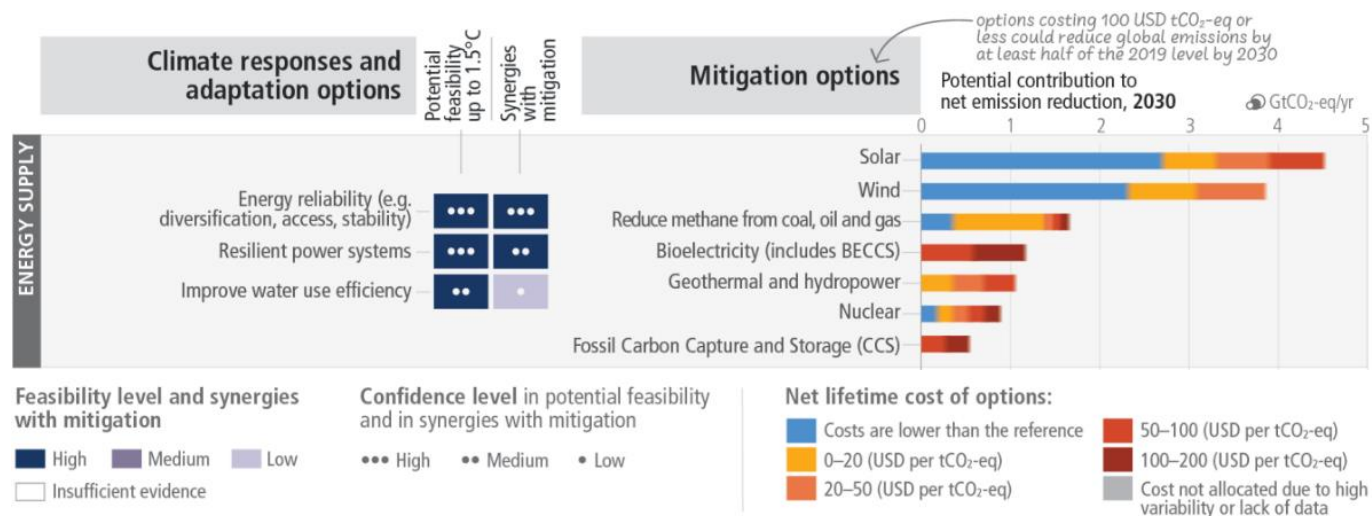


Figure 1 - Feasibility of climate responses and adaptation, and potential of mitigation options in the near-term - Ref : <https://report.ipcc.ch/ar6sy/>

The left hand side of panel a shows climate responses and adaptation options assessed for their multidimensional feasibility at global scale, in the near term and up to 1.5°C global warming. As literature above 1.5°C is limited, feasibility at higher levels of warming may change, which is currently not possible to assess robustly. The term response is used here in addition to adaptation because some responses, such as migration, relocation and resettlement may or may not be considered to be adaptation. Forest based adaptation includes sustainable forest management, forest conservation and restoration, reforestation and afforestation. WASH refers to water, sanitation and hygiene. Six feasibility dimensions (economic, technological, institutional, social, environmental and geophysical) were used to calculate the potential feasibility of climate responses and adaptation options, along with their synergies with mitigation. For potential feasibility and feasibility dimensions, the figure shows high, medium, or low feasibility. Synergies with mitigation are identified as high, medium, and low.

The right hand side of Panel a provides an overview of selected mitigation options and their estimated costs and potentials in 2030. Costs are net lifetime discounted monetary costs of avoided GHG emissions calculated relative to a reference technology. Relative potentials and costs will vary by place, context and time and in the longer term compared to 2030. The potential (horizontal axis) is the net GHG emission reduction (sum of reduced emissions and/or enhanced sinks) broken down into cost categories (coloured bar segments) relative to an emission baseline consisting of current policy (around 2019) reference scenarios from the AR6 scenarios database. The potentials are assessed independently for each option and are not additive. Health system mitigation options are included mostly in settlement and infrastructure (e.g., efficient healthcare buildings) and cannot be identified separately. Fuel switching in industry refers to switching to electricity, hydrogen, bioenergy and natural gas. Gradual colour transitions indicate uncertain breakdown into cost categories due to uncertainty or heavy context dependency. The uncertainty in the total potential is typically 25–50%.

Over a third of the bioenergy used in 2021 was from biomass, however, for traditional cooking methods, that need to be stopped for the Net Zero Scenario goal by 2030. The objective is to replace them by biogas digesters, bioethanol, and solid biomass used in modern cookstoves, providing a source of clean cooking for over 350 million households.



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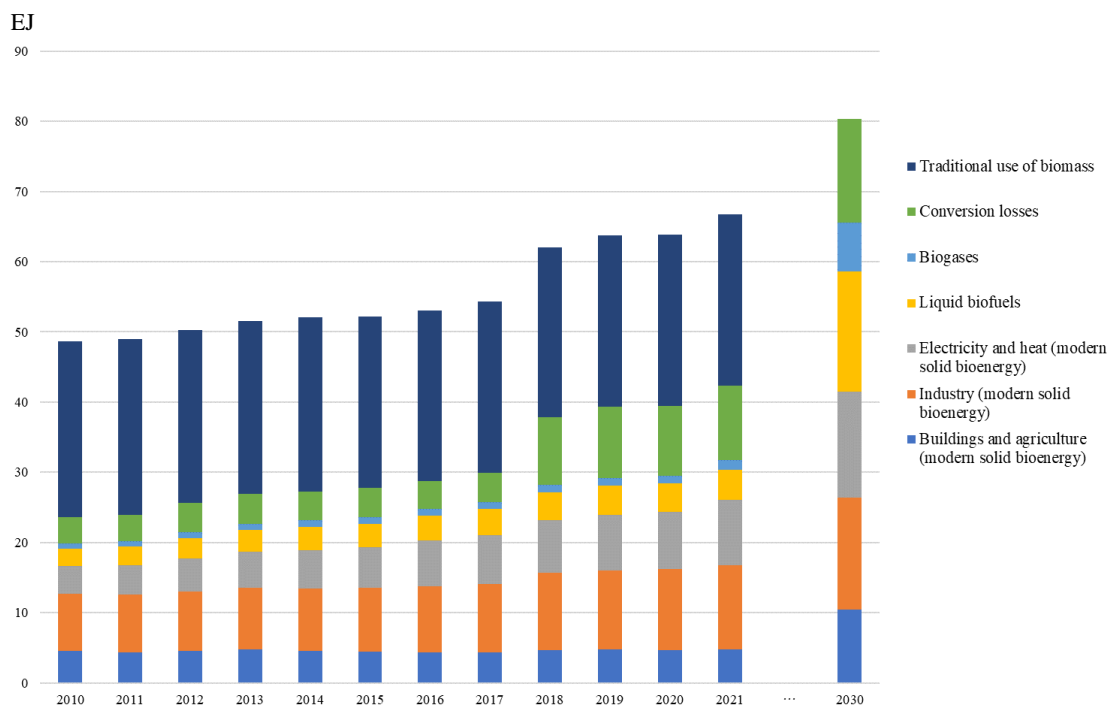


Figure 2 - Bioenergy use by sector and share of modern bioenergy in total final consumption in the Net Zero Scenario, 2010-2030 (Arranged from Ref : IEA [<https://www.iea.org/data-and-statistics/charts/bioenergy-use-by-sector-and-share-of-modern-bioenergy-in-total-final-consumption-in-the-net-zero-scenario-2010-2030>] License: CC BY 4.0)

On the BELENUS project:

Long-term testing of 16 different coated materials were performed, exposed in fireside up to 2000 hours with three different biomass fuels: eucalyptus chips, wheat straw and industrial waste wood. It is important to highlight the good behaviour of the bubbling fluidized bed pilot plant throughout nearly 5000 hours of operation, an installation that is not prepared for continuous and autonomous operation. The gravimetric results of all the coated specimens tested with fuel 1 for 342, 740, 985, 1294, 1678 and 2000 hours and fuel 2 for 311, 501, 738, 978, 1470, 1740 and 2000 hours were measured and the results with fuel 3 will be presented when the expected number of hours is reached.

Sectorial Breaking News

Date	Headline	Source
9 th November 2022	Bioenergy Europe: EU could rely on bioenergy “for 52 days”	Bioenergy-news
23 rd November 2022	Raw biomass helps “support near-zero CO2 steel-making” in new process	Bioenergy-news
20 th December 2022	LG Chem and GS EPS invest €234.6m in South Korea biomass plant	Bioenergy-news
4 th January 2023	Dominican Republic grants final concession to 7-MW biomass project	Renewables now
9 th January 2023	Valmet wins EUR-25m coal-to-biomass conversion job in Hungary	Renewables now



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12 th January 2023	TotalEnergies starts up 160 GWh biogas facility in France	Renewables now
27 th January 2023	EDF Colombia and Refocosta to develop eucalyptus-fed biomass plant	Bioenergy-news

Remarkable Upcoming Events.

1. Biomass Congress & Expo

- 16-17 May 2023
- Brussels, Belgium

Brought to you by Bioenergy Insight magazine, this year's conference will be held in Brussels, Belgium and co-located with the

Biogas Congress & Expo as well as the renowned Biofuels International Conference & Expo, now in its 14th year, making this series of bio events our largest gathering yet of bio related companies, giving participants unrivalled coverage. Previous attendees include: Shell, Nature Energy, Engie, Enagas, Gasum, Drax, Orsted, Titan LNG, Cobalt Energy, Rohegas OU, Severn Trent Green Power, Olyx, Ompex AG, Prima LNG, BMP Greengas, European Biogas Association, Biokraft, Cedigaz, E.ON, Erdgas Suedwest...plus many more



BRUSSELS | 16-17 MAY 2023

Bringing biomass markets closer

2. EUBCE 2023 – 31st European Biomass Conference and Exhibition

- 05-08 June 2023
- Bologna, Italy and Online

Each year, EUBCE brings together the greatest minds and latest advancements in biomass, with the aim of accelerating research and market uptake across the globe. During the conference, over 1500 experts from both academia and industry share and discuss groundbreaking ideas, technologies,

applications, and solutions for the sourcing, production, and utility of biomass. Its 31st edition will be the first in-person event in over 3 years; but will, by no means, be a return “back” to anything. Rather, EUBCE 2023 will be hybrid, to continue the global reach enabled by the virtual platform used in recent years. It will be focused on six relevant conference topics. Since its 30th edition, the event has been complemented by the Circular Bio-based Europe Joint Undertaking efficacy at identifying innovation, stimulating investment, and mobilising the bio-based industry sector. The Technical Programme is coordinated by DG Joint Research Centre of the European Commission.



3. Carbon Capture & Storage Summit

- 12-14 June 2023
- Omaha, Nebraska



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Capturing and storing carbon dioxide in underground reservoirs has the potential to become the most consequential technological deployment in the history of the broader biofuels industry. Deploying effective carbon capture and storage at biofuels plants will cement ethanol and biodiesel as the lowest carbon liquid fuels commercially available in the marketplace. The Carbon Capture & Storage Summit will offer attendees a comprehensive look at the economics of carbon capture and storage, the infrastructure required to make it possible and the financial and marketplace impacts to participating producers.



Stay in contact with us. Visit our website.

BELENUS website www.BELENUS-project.eu is available since the early beginning of the project. It shows the scope and objectives of the project along with outstanding results. You can find out more interesting information about the project and the impact of the results achieved, including all dissemination activities carried out.

If you have any question, feel free to drop us a line at contact@BELENUS-project.eu or on social medias

LinkedIn  and Twitter 



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