

BIOENERGY

THE POWER OF RENEWABLE BIOMASS

A JUST TRANSITION TO A NET POSITIVE WORLD



RSB
Roundtable on
Sustainable Biomaterials
www.rsb.org



Over half of global renewable energy generation is already produced from biomass — supplying heat and power to homes, factories, and large-scale power generation plants — and its use is growing rapidly due to global demands for decarbonisation as well as social and environmental sustainability.

However, processing the biomass used for bioenergy can have negative impacts on the environment — such as deforestation, increased greenhouse gas (GHG) emissions, and soil disturbance. In order to be sure that bioenergy is truly sustainable, a reputable sustainability certification is needed to demonstrate that the claimed GHG reductions are real.

BIOMASS SOURCES

Biomass is any source of renewable organic feedstock, such as specially grown energy crops, municipal solid waste, agricultural or forest residues, and wood chips.



MANY DIFFERENT TYPES OF BIOMASS ARE AVAILABLE FOR ENERGY PRODUCTION



POWER GENERATION



STEAM, ELECTRICITY, PROCESS HEAT



THE BIOENERGY SECTOR TODAY

The bioenergy sector accounts for about **10% of total energy production** (based on 2017 figures) – covering the spectrum from large-scale power plant generation right down to home generation for cooking and heating (particularly in emerging economies) – and **the majority of renewable energy consumption, while employing 3.2 million people within its supply chains.**



Bioenergy use for electricity is **growing quickly**, at around 9% per year, and its use for heating is growing at around 1.8% per annum globally.



The International Renewable Energy Agency (IRENA) estimates that bioenergy will account for **half of the renewable energy needed in 2030** to meet climate targets.



There are multiple potential benefits to the use of bioenergy, including rural development, waste management, and the enablement of short supply chains through local biomass sourcing.



A current industry trend sees companies seeking to switch from fossil feedstocks to renewable ones, for powering their industrial processes in order to decrease their overall GHG emissions and meet their climate change mitigation goals. This transition is also made possible thanks to an increasing number of manufacturers producing more efficient boilers that are suited to processing different types of woody biomass – such as wood pellets and chips or agricultural waste.





SUSTAINABILITY AND THE BIOENERGY SECTOR

While bioenergy usage has numerous benefits, there is no guarantee that switching from fossil fuel to biomass fuel will contribute to social and environmental sustainability or the reduction of GHG emissions.



KEY SUSTAINABILITY RISKS FOR BIOENERGY INCLUDE:

- 1 *The sustainability of the biomass production itself: e.g., are forests well-managed?*
- 2 *The traceability of the whole supply chain.*
- 3 *The eligibility of wastes: are they true wastes and residues, or are they being diverted from other industries?*
- 4 *The sustainability of the industrial processes.*
- 5 *The real GHG emissions along the supply chain may be higher than that of the fossil fuel they are replacing, due to inefficiencies and unintended impacts.*





THE RSB STANDARD

The Roundtable on Sustainable Biomaterials (RSB) Standard has been developed by a multi-stakeholder group composed of biomass producers, supply chain companies, brands, social and environmental NGOs, intergovernmental agencies, and academic organisations. Applicable to fuels, energy, and materials, this uniquely adaptable approach is used worldwide by sector leaders to demonstrate robust and credible sustainability.

RSB's Standard comprises a variety of procedures and normative standards that cover sustainability, traceability, and GHG emissions. These requirements are applied on a risk basis, with biomass producers and industrial operators required to implement some or all of the 12 Principles & Criteria – as determined by the specific context of their operation.



Principles for investment under "Sustainable management of living natural resources and land use" recommend RSB as one of the recognised standards for sustainable agriculture projects

Development Bank of Latin America Green Bond Framework

Principle 1 Legality	Principle 2 Planning, Monitoring & Continuous Improvement	Principle 3 Greenhouse Gas Emissions	Principle 4 Human and Labour Rights	Principle 5 Rural and Social Development	Principle 6 Local Food Security
Principle 7 Conservation	Principle 8 Soil	Principle 9 Water	Principle 10 Air Quality	Principle 11 Use of Technology, Inputs & Management of Waste	Principle 12 Land Rights



RSB CERTIFICATION FOR BIOENERGY

RSB's certification provides essential assurance to companies using biomass for industrial heat and power plants generating energy for the electricity grid – as well as their final users – so that they can have full confidence in their sustainable supply chains and that they are contributing to overcoming the climate crisis.



Internationally recognised and robust sustainability criteria.

Approved by a multi-stakeholder process and code compliant with ISEAL (a group of the world's most credible sustainability standards).



Sustainability along the entire supply chain, right up to the point of delivery at facilities for power or heat generation.

RSB's environmental and social sustainability requirements apply to industrial operators as well as crop-based feedstock producers, ensuring high levels of confidence in social and environmental claims along the entire supply chain right up to the point of delivery at facilities for heat and power generation.



Certification of a full range of feedstocks for heat and power generation.

RSB can certify agricultural and forestry residues, fossil-based wastes such as waste plastics, end-of-use tyres and waste gases, biomass crops including short rotation forestry and grasses, and vegetable oils.



A risk-based approach for wastes and residues.

RSB's risk-based approach enables eligible feedstocks used in energy supply chains to apply the simplified requirements and be considered as 'zero GHG emissions' at their point of origin.



RSB GHG Calculator Tool.

This is a tool developed by RSB which can easily be used by operators to calculate their GHG emissions and report the levels to their customers.



Chain of custody certification that allows different traceability options.

This enables operators to make highly specific and credible claims about their products.



Support in communicating sustainability to stakeholders and the public.

RSB provides claims and general support in developing sustainability impact messages that producers and end-users can share with their investors, civil society, and the general public.



RSB GLOBAL STANDARD

RSB's Global Standard can be used by biomass and bioenergy producers globally.

The certification covers crop-based biomass — including short rotation woody crops — as well as bio-based and non-bio-based, wastes and residues.



The German Öko-Institut has benchmarked sustainability standards for palm oil supply chains in Indonesia and RSB has scored best.



RSB'S APPROACH TO WASTE & RESIDUES

In addition to certification of crop-based biomass, RSB also offers a framework for assessing the sustainability of waste-based biomass used for heat and power. The RSB Advanced Fuels Standard provides criteria for evaluating the eligibility of wastes and residues, as well as for ensuring that the negative environmental, social, and economic impacts of using such materials are minimised.

RSB applies a risk-based system which means that many tools and mechanisms are available to ensure that the focus of the implementation and auditing is on areas that matter most in a specific context while removing barriers to certification for low-risk feedstocks.



RSB'S APPROACH TO WOODY BIOMASS

During 2020 and 2021, RSB revised its approach for woody biomass in order to further strengthen the credibility and climate impact of our standard.

This revision is based on scientific evidence and advice obtained through consultation with our members — who include leading global NGOs and industry experts — showing that the overall GHG reduction benefits of using whole trees for energy production is insignificant or inexistent.

Accordingly, the use of whole trees for energy production is not allowed within the RSB Standard (with an exception for short rotation plantations).





RSB EU RED

In order to ensure that biomass and bioenergy producers working in or trading with the EU-regulated market are in compliance with the EU Renewable Energy Directive (RED), RSB provides a recognised regional adaptation of its global certification. Under the recast (EU RED II) requirements, bioenergy (or solid and gaseous 'biomass fuels' in EU terminology) is included, with specific GHG-reduction requirements from 2021 onwards.

➤ *EU RED II is a regulatory standard for the EU market, while the RSB Global Standard caters to bioenergy sector needs in other parts of the world.*

➤ *RSB was recognised by the EU RED in 2011 and re-recognition was issued in 2016. We are in the process of approval under RED II which will come into force in July 2021.*

RSB JAPAN FIT

RSB's certification for Japan's Feed in Tariff (FIT) system is an adaptation of the RSB Global Scheme that has been developed to enable biomass producers and traders to demonstrate compliance with the sustainability requirements of Japan's FIT system and access this incentivised market.

➤ *FIT sets out a system of incentives for the production of renewable electricity in Japan, in which subsidies are offered for the procurement of biomass – including vegetable oils as well as various agricultural and industrial residues and end-of-life products*

➤ *Japan's Ministry for Economy, Trade and Industry (METI) published specific guidance for biomass under the FIT system in April 2020. The guidance recognises RSB for the certification of palm residues, including palm kernel shells (PKS) and palm trunks.*

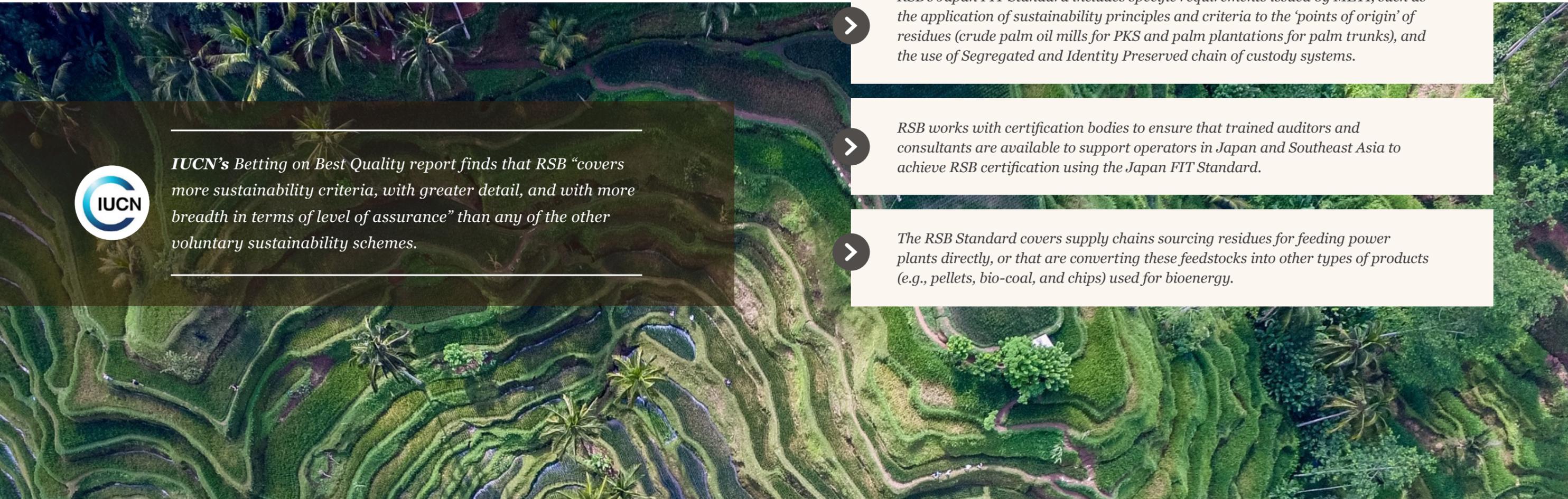
➤ *RSB's Japan FIT Standard includes specific requirements issued by METI, such as the application of sustainability principles and criteria to the 'points of origin' of residues (crude palm oil mills for PKS and palm plantations for palm trunks), and the use of Segregated and Identity Preserved chain of custody systems.*

➤ *RSB works with certification bodies to ensure that trained auditors and consultants are available to support operators in Japan and Southeast Asia to achieve RSB certification using the Japan FIT Standard.*

➤ *The RSB Standard covers supply chains sourcing residues for feeding power plants directly, or that are converting these feedstocks into other types of products (e.g., pellets, bio-coal, and chips) used for bioenergy.*



IUCN's Betting on Best Quality report finds that RSB "covers more sustainability criteria, with greater detail, and with more breadth in terms of level of assurance" than any of the other voluntary sustainability schemes.





RSB offers trusted, credible tools and solutions for sustainability and biomaterials certification that mitigate business risk, fuel the bioeconomy, and contribute to the UN Sustainable Development Goals – in order to enable the protection of ecosystems and the promotion of food security.

RSB is a member-led organisation, representing **a worldwide movement of businesses, NGOs, academics, government, and UN organisations** that have demonstrated their commitment to the development of the sustainable bioeconomy by working together to create our Standard.

The RSB Standard is the strongest and most trusted of its kind, recognised as such by leading global NGOs, including the World Wildlife Foundation (WWF), Blue Angel, and the Natural Resources Defense Council (NRDC).



Through its **sustainability Standard**, RSB enables companies across the bio-based and circular economy – incorporating liquid fuels, energy and material products from bio-based and recycled carbon, including fossil waste – to demonstrate real and credible sustainability.



RSB provides expert advice and support through its **advisory services**, grounded in the highest levels of social and environmental sustainability and designed to support our clients as they transition their supply chains to a circular, positive-impact economy. We bring extensive expertise to assist companies, policy makers, and others to translate their sustainability goals into real, measurable action with the development of sustainability protocols, sustainable feedstock resource mapping, policy advice, and much more in order to unlock opportunity and overcome the challenges of creating meaningful and sustainable transformation.



RSB supports **policy makers** around the world in embedding meaningful and trusted sustainability – as outlined in the RSB Standard – into legislation, policy, and regulations. By providing expertise and guidance at the national and global levels, as well as for specific sectors, RSB uses its resources to support awareness, knowledge sharing, and action with multiple stakeholders.



WWF Germany acknowledges RSB as having best practice among sustainability standards for water stewardship in agricultural supply chains.



Sustainability is inherent to our business model and the right thing to do. RSB offers Tasma a great platform to foster customer trust by verifying our commitment to sustainable operations.



Harshad Bhat, Vice President, Tasma Bioenergy





ARE YOU READY TO TRANSFORM THE BIOENERGY SECTOR?

REACH OUT TODAY

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