Transparency, trust and best practice of responsible biomass use

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“Bioenergy is widely acknowledged to be an essential tool for reaching net zero emissions, but only when delivered under the right conditions.”

Christian Rakos, President of the World Bioenergy Association
Foreword

In 2021, along with dozens of leaders from the global bioenergy industry, I attended the United Nations’ COP26 conference in Glasgow, Scotland. We were there to reiterate our commitment to achieving a net zero emissions economy, and to explain how we intend to do so in a sustainable way.

Our contribution to this global event was the Glasgow Declaration on Sustainable Bioenergy, a statement of sixteen principles by industry players, setting out what needs to be in place for bioenergy to be considered sustainable.

Ensuring the “right conditions”

According to the UN’s Intergovernmental Panel on Climate Change (IPCC), “Most mitigation pathways [for limiting climate change] include substantial deployment of bioenergy.” It is clear that well-regulated, transparent supply of sustainably sourced biomass is a central requirement. The International Energy Agency sets out a similar case, whilst calling for the rapid phase-out of unsustainable bioenergy.

In short, bioenergy is widely acknowledged to be an essential tool for reaching net zero emissions, but only when delivered under the right conditions.

The Glasgow Declaration sought to lay out, at a high level, what we mean by the ‘right conditions’, in the form of principles that should apply wherever modern bioenergy is in operation.

A more nuanced debate

In some parts of the world, the debate has become increasingly polarised: bioenergy is claimed to be either ‘wholly good’ or ‘wholly bad’ for the planet. The truth, as scientific bodies have repeatedly set out, is more nuanced.

Polarisation is not helpful as it leads to misdirected regulation and misunderstanding of the realities on the ground. Nuance and dialogue are critical. The Glasgow Declaration is one step towards that. It shows the proactive role the biomass industry - producers, users and those in between - is playing in ensuring this becomes a reality.

18 months after COP26, this document is intended to continue the dialogue and discuss what comes next.

No single document can capture the diverse regulations and certifications necessary to ensure bioenergy is always sustainable. But the Glasgow Declaration attempts to provide a starting framework for doing so. It does so by simplifying the core concepts of sustainable bioenergy, and asking how they can apply internationally. This makes it more possible to open dialogue about the systems that can make them so.

This document aims to explain the Glasgow Declaration, some of the nuances of our public debate on sustainability, and the importance of getting bioenergy right.

Christian Rakos
President of the World Bioenergy Association
Background to the Glasgow Declaration on Sustainable Bioenergy

The Glasgow Declaration on Sustainable Bioenergy was launched in November 2021, at the UN’s climate conference COP26, which took place in Glasgow, UK.

The Declaration originated in conversations between private sector bioenergy operators and third-sector stakeholders, who saw the need for a more unified international approach to sustainability in bioenergy. The World Bioenergy Association (WBA) took a leading role in its development.

The Declaration was signed by 13 commercial operators within the bioenergy sector. A number of organisations with scientific or public policy backgrounds advised on its development.

The Glasgow Declaration document comprised two sections:

• The first section set out a “very ambitious”, science-based vision for bioenergy’s growth over the next 30 years, reflecting the Net Zero Emissions projections of the International Energy Agency, and based on the IPCC’s 1.5°C pathway.

• The second section provided 16 principles, which “must continue to apply as the sector expands.” These cover four key areas of bioenergy operations: Managing natural resources responsibly; Transparency and science-based carbon accounting; Protecting biodiversity; Supporting and protecting communities.

Industry players and stakeholders alike are now invited to use the Glasgow Declaration as a starting framework to advance sustainability best practice by taking part in a dialogue within and beyond the industry, so that the principles are spread in meaningful, consistent and mature regulations wherever bioenergy is in use.

Key Supporters

The Glasgow Declaration on Sustainable Bioenergy is an initiative convened by the World Bioenergy Association. A number of leading bioenergy organisations have supported its development, including:

Drax Group

Enviva

Graanul Invest

Lynemouth Power Limited

RWE
Sustainability Principles

These are the 16 principles for sustainable bioenergy, which were set out in full in the Glasgow Declaration in 2021.

### Managing natural resources responsibly

<table>
<thead>
<tr>
<th>Promote healthy lands and forests</th>
<th>Support forests to store more carbon</th>
<th>Only use sustainably sourced feedstocks</th>
<th>Avoid and disincentivise negative land use change</th>
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### Transparency and science-based carbon accounting

<table>
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<tr>
<th>Adhere to internationally accepted carbon accounting rules</th>
<th>Comply with robust and independent certification systems</th>
<th>Provide transparent and independently audited sourcing data</th>
<th>Account for full lifecycle emissions</th>
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### Protecting biodiversity

<table>
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<tr>
<th>Contribute to healthy forest ecosystems</th>
<th>Respect conservation zones</th>
<th>Support the protection of unique habitats</th>
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### Supporting and protecting communities

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<tr>
<th>Protect and invest in our communities</th>
<th>Support land managers in delivering sustainability</th>
<th>Ensure safe operations</th>
<th>Demand employment best practice throughout the supply chain</th>
<th>Respect the rights of Indigenous Peoples</th>
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Polarised debate and the need to demonstrate the direction of the industry

This decade is a crucial inflection point for action on climate change. It is therefore not surprising that debates on the merits of different technologies or systems are characterised by increasing urgency. Bioenergy is a notable case in point, where scrutiny has often turned into anti-bioenergy campaigning.

In some parts of the world, the political debate has become increasingly polarised: bioenergy is claimed to be either ‘wholly good’ or ‘wholly bad’. This polarisation risks misdirected regulation and misunderstanding of the realities on the ground, such as claiming that isolated scenarios are normal practice. The truth, as scientific bodies such as the IPCC have repeatedly set out, is somewhere in between. In other words, bioenergy has a vital role to play but only when it is done so in a sustainable way.

All scientific, regulatory and public support for the use of bioenergy is conditional, as it should be. It is accepted that bioenergy must be done sustainably if it is to be a part of the solution to tackling climate change. If there is a perception that these conditions of sustainability are not being met, then the sector risks losing its social licence to operate.

There is an increasing expectation from stakeholders that the bioenergy industry is fully engaging with the urgency of the climate crisis and is helping to drive forward the net zero transition. The bioenergy sector must therefore make it clear to all stakeholders, whether policymakers, regulators, the third sector, or the public that the sector is committed to high standards. Industry leaders have a vital role to play in raising sustainability ambition across the board. This includes broadening best practice across the industry, to all participants.

The Glasgow Declaration on Sustainable Bioenergy sets out sixteen high-level principles on biomass sustainability which should serve to guide and support sustainability best practice, as well as giving a framework for driving the right conversations on improving and widening its adoption throughout the sector.

The aim of the principles is to create a simplified framework version of regulations and requirements needed in sustainable bioenergy, to enable a more nuanced debate about what makes the right conditions for sustainability.

The need for a global framework with local nuances

Bioenergy is a global sector. The global trade of biomass is only expected to increase in volume as demand grows for biomaterials to replace fossil resources across a range of applications.

The international biomass market of 2050, or even 2035, is likely to look very different. Beyond energy, biomass is increasingly used for other purposes, from bioplastics to innovative solutions in aviation, construction, food, clothing and other bio-based products. The development of a global bioeconomy will be a key part of a transition to a sustainable future, but will require collaboration across a wide range of existing and nascent sectors.

As different geographies and sectors expand their use of biomass, sustainability is mission-critical. As an established industry, especially in markets where modern bioenergy has been a key decarbonisation tool already, the bioenergy sector has a responsibility to be part of the vanguard in popularising sustainability best practices, in both sourcing and use.

The global nature of biomass creates diverse regulatory systems, with a range of national, supranational and technology-specific governance rules. Bioenergy is a highly controlled sector, as the industry must meet a range of regulations across territories and jurisdictions. This does, however, make it more complex for stakeholders to understand the bioenergy system. The Glasgow Declaration on Sustainable Bioenergy aims to help navigate that complexity by providing a simplified version of the key regulatory principles, and how these principles are being fulfilled in practice.

By communicating the complexities and nuances of bioenergy in a more accessible way, the Glasgow Declaration enables a better conversation about sustainability and how it can progress as the sector expands.

A Net Zero energy system will require far less fossil fuel use and far more renewable sources - including sustainable bioenergy

“Bioenergy could be a high-value and large-scale mitigation option to support many different parts of the energy system.”

UN Intergovernmental Panel on Climate Change (2022). “Climate Change 2022: Mitigation of Climate Change”
Principles in Action

The sustainability principles set out by the Glasgow Declaration on Sustainable Bioenergy are, by design, intended to apply wherever bioenergy is sourced and used. However, what matters is whether or not these principles are being operationalised. And if so, how on-the-ground best practices can be demonstrated and verified.

When the Glasgow Declaration was launched in 2021, much of the focus was on biomass producers. However, sustainable bioenergy must involve the whole supply chain. For the industry to be sustainable (and to be respected as such by its stakeholders), every participant must follow clear principles of transparency, compliance and best practice. Users of biomass, such as energy generators, must insist on these principles being in place throughout their own supply chains, even when national regulations are not yet in place, or are not yet mature.

The following pages set out some of the considerations involved in each area, and examples of how these principles are being applied in the real world by some of the world’s larger bioenergy operators.
GLASGOW DECLARATION SUSTAINABILITY PRINCIPLES

Managing natural resources responsibly

- Promote healthy lands and forests
- Support forests to store more carbon
- Only use sustainably sourced feedstocks
- Avoid and disincentivise negative land use change

Exploring the issues

As we advance along the path of decarbonisation, the world’s natural resources will come under increasing pressure to deliver a wide range of services, from food production to environmental services, and from carbon sequestration to biodiversity enhancement.

Increasing demands on natural resources will require sustainable and responsible management and collaboration across sectors and stakeholder groups.

Bioenergy must be a part of this wider framework of sustainable management, whether feedstocks are being sourced from forests, agricultural land or other sources. Sourcing of bioenergy feedstocks must support and incentivise responsible management, and dovetail with other objectives such as increasing carbon stocks, protecting biodiversity and avoiding negative land use change.

In practical terms, this means working with other sectors who are also actively involved in land management decisions, whether that’s farmers, timber companies, public bodies, academics, NGOs or others. Bioenergy plays an important role in the wider bioeconomy by using the low-grade biomaterials, working in conjunction with other industries to maximise efficient use of bioresources.

As the bioenergy sector expands globally in line with the increasing need to displace fossil fuels, it must ensure that it is helping to drive best practices on the ground, incentivising continual regeneration of natural resources and only using feedstocks which lead to good carbon and nature outcomes.

Best practice must always be underpinned by robust regulation and certification systems which allow all stakeholders to be confident that bioenergy (and other sectors active in land management) are delivering on their promises.
How are these principles being applied in the real world?

These principles on managing natural resources responsibly are often enshrined in local, national and international laws and regulations. They're also put into practice through sourcing and procurement policies of individual companies and strong working partnerships with stakeholders, such as in the case study from Enviva below. We're collating a database of best practice. To submit your own case study, contact us at contact@sustainablebioenergy.org

Enviva sources wood according to its Responsible Sourcing Policy. It only sources from a supplier when: the landowner intends for the tract to be replanted or re-generated as forest at the time of harvest; water quality is protected through Best Management Practices (BMPs) (or equivalent); High Conservation Value areas (HCVs) are not threatened by the harvest.

As an additional safeguard to confirm that Enviva’s suppliers meet its sustainability requirements, Enviva developed Track & Trace®, a monitoring programme that tracks all in-scope wood received directly from the forest to the production plant and publishes that information online.

As part of Enviva’s approach to responsible management of natural resources, it works closely with stakeholders and partners on conservation.

Enviva Forest Conservation Fund

To help protect HCVs and bottomland hardwood working forest landscapes, Enviva created the Enviva Forest Conservation Fund (EFCF), a $5 million, 10-year programme designed to preserve 35,000 acres of bottomland forests.

Administered by the U.S. Endowment for Forestry and Communities, EFCF awards grants to nonprofit groups to protect ecologically sensitive areas.

One recent project is the conservation of a 421-acre easement of mature cypress gum swamp with high ecological value, along the Chowan River in North Carolina. As a recipient of the grant, the North Carolina Coastal Land Trust secured the land, permanently protecting it.

Longleaf Restoration

Enviva and The Longleaf Alliance signed a five-year partnership to protect and restore longleaf pine forests, one of North America’s most biodiverse ecosystems.

Appropriate biomass removals are a critical step in the longleaf restoration process because many existing longleaf forests need thinning and millions of acres of former longleaf forests have been converted to other forest types.

Through this partnership, Enviva has already supported the restoration of thousands of acres of longleaf on state and federal lands.

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3 https://www.envivabiomass.com/sustainability/forests/conservation/
Exploring the issues

The scale of the climate crisis continues to grow. If we are to deliver a net zero transition, our efforts must be founded on the best available science and clear metrics. Accurate carbon accounting ensures that we are not “flying blind”.

Accurate carbon accounting is also critical for bioenergy, due to a complex range of supply chains, end uses and system boundaries. As the carbon accounting framework of the UN Intergovernmental Panel on Climate Change (IPCC) notes, “The overall IPCC approach to greenhouse gas emissions from combustion of biomass or biomass-based products at the national level allows for complete coverage of emissions and sinks, and involves all IPCC sectors, including in particular, Energy, Agriculture, Forestry and Other Land-Use (AFOLU), and Waste.”

Understanding the impact of bioenergy use requires looking across the whole life cycle, from initial growth, through to end use. Academics in the IEA Bioenergy network note that, “a systems approach should be used, that considers the whole life cycle of bioenergy systems, including effects on land carbon balances, production of wood products, and impacts on sectors affected by bioenergy deployment, including transport, building and energy.”

Successful management of the accounting complexities for bioenergy requires transparent monitoring, reporting and verification processes to be in place wherever bioenergy is in use. All stakeholders need to be able to trust and verify that the use of bioenergy is having a positive impact.

Bioenergy is unique in its ability to simultaneously deliver renewable energy and negative emissions through bioenergy with carbon capture and storage (BECCS). As one of the more mature options for greenhouse gas removal, BECCS will play an important role, alongside emission reductions, in getting to Net Zero, compensating for residual emissions in sectors which will struggle to fully decarbonise.

BECCS can be deployed across multiple sectors, including power, industry, and sustainable fuels. In every use case, accurate carbon accounting across the entire supply chain is critical in order to understand the true scale of the carbon dioxide removals, and accurately factor into company, regional and national emissions profiles.

How are these principles being applied in the real world?

These principles on transparency and carbon accounting require the UNFCCC as the key framework. However, countries need to have additional mechanisms to regulate the lifecycle emissions of bioenergy, such as emissions from transporting biomass, as is the case in places like the EU and UK.

In addition, industry must use certification schemes to provide extra transparency, standards and independent auditing, as shown in the case study below about the Sustainable Biomass Program. We’re collating a database of best practice. To submit your own case study, contact us at contact@sustainablebioenergy.org.

Data Transfer System tracks woody biomass transactions along the supply chain, collecting and collating data to enable life-cycle greenhouse gas emission calculations to be made.

As the contribution of biomass towards meeting global climate targets grows in significance, it is imperative that it is sustainably sourced. SBP is the promise of good biomass, which is defined by the SBP Feedstock Compliance Standard. The Standard respects labour rights, land use rights and harvesting requirements, and adheres to them. It recognises traditional and customary rights and acts to protect them. It requires that SBP-certified biomass is deforestation-free, that biodiversity is maintained or enhanced through protecting key species, habitats and ecosystems, that water quality and soil quality are maintained or enhanced, and that carbon stocks are stable or increasing. Third-party oversight provides independent scrutiny of all practices and decisions. And with clear and proportionate auditing requirements in place, stakeholders can have confidence in the SBP claim.

SBP-certified biomass accounts for the majority of imports of woody biomass into the EU and UK, which are the largest users of industrial wood-based bioenergy. In 2021, some 83% of the industrial pellets consumed in geographic Europe were SBP-certified. Globally, around 40% of biomass pellet production was SBP-certified.

The Sustainable Biomass Program (SBP) is an independent, multi-stakeholder certification scheme for woody biomass used in industrial, large-scale energy production. SBP has achieved international recognition as a solution for biomass producers, traders and end-users to demonstrate responsible sourcing practice.

As a sourcing standard, SBP focuses on the legality and sustainability aspects and attributes of feedstock used in biomass production. Its unique
GLASGOW DECLARATION SUSTAINABILITY PRINCIPLES

Protecting and enhancing biodiversity

Contribute to healthy forest ecosystems  Respect conservation zones  Support the protection of unique habitats

Exploring the issues

As a participant in the land sector, it’s vital that biomass supply does not damage, but rather supports, ecosystems. It can do so by avoiding sensitive ecosystems (hence the Glasgow principle to respect conservation zones), but also by investing in positive land management systems, such as responsible forestry, or making better use of waste materials.

The importance of reversing biodiversity loss and implementing effective conservation of the world’s ecosystems is clear. The recent COP15 saw the agreement of the Kunming-Montreal Global Biodiversity Framework, with ambitious goals including effective conservation and management of at least 30% of the world’s habitats by 2030.

In 2020, the UN’s IPBES - its biodiversity body - identified five leading drivers of biodiversity loss. In the right conditions, as articulated in the principles of the Glasgow Declaration, sustainable biomass sourcing can have a positive effect on each of the five factors. For example:

- **Climate change**: Sustainable bioenergy is recognised by the world’s leading scientific authorities as having a key role to play in fighting climate change, through decarbonising energy systems and delivering negative emissions through BECCS.

- **Pollution**: Sustainable bioenergy makes economic use of the low-grade residues and wastes left by other industries, such as food or timber production, creating greater efficiency in resource use and actively reducing waste. By doing so, it reduces humanity’s overall footprint and pollution.

- **Destruction of habitats**: Bioenergy can provide an additional income stream for forests to remain as forests, thereby avoiding land use change. The Glasgow Declaration also includes principles that commit to respect for conservation zones and other sensitive ecosystems.
• **Invasive alien species**: Invasive species can be introduced by various means and can lead to infections, infestations or competition for domestic species. One form of protection is responsible land and forest management. If the right systems are in place then sustainable bioenergy, through certification and regulations, can help to provide incentives for such responsible management.

• **Over-exploitation of the natural environment**: Over-exploitation can lead to pressure on sensitive ecosystems or land use change. Bioenergy can provide efficiency in the use of natural resources without adding pressure. In the Southern USA, for example, biomass supply constitutes less than 0.1% of the overall forest stock, but applies regulatory conditions that prevent land use change.

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How are these principles being applied in the real world?

These principles on protecting ecosystems are often enshrined in laws and regulations. They’re also protected through individual company initiatives, like the case study from Graanul Invest below. We’re collating a database of best practice. To submit your own case study, contact us at contact@sustainablebioenergy.org.

Graanul Invest uses a Woodland Key Habitats protection system, which guarantees that no feedstock from unique sites can be used for pellet production.

One of the most extensive measures for protecting and enhancing biodiversity in Graanul Invest’s Baltic supply region is its Woodland Key Habitats (WKHs) protection. These are unique sites where conditions are suitable for rare species to thrive, but are often located outside protection zones.

Graanul Invest has developed a system using the harvest permit’s geographical details to cross-check the site against a verified WKH database. The system is accurate down to the forest management unit (FMU) sub-compartment level and details can be checked live, before deliveries reach the gate.

In 2020, gate systems detected that 93% of deliveries did not affect WKHs. In the remaining 7% of cases, when verification was not certain about a delivery’s origins, the wood was rejected by the mill.

Graanul Invest has now created an additional level, identifying potential WKHs, where site conditions have good potential for becoming a suitable habitat for rare species in the medium term. Keeping pellet sourcing out of these areas further reduces ecological risks where sites are not yet verified or officially protected. This extra layer of protection uses field observations, pre-harvest on-site surveys, NGO-driven forest databases, and certification schemes.

The system is in place at 10 pellet plants, each covering 20-150 WKHs. Similar approaches have allowed Graanul Invest to implement measures for sites meeting other criteria, such as potential NATURA forest habitats.

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8 https://vep.lank.ee/
9 https://ee.fsc.org/ee-et/kontrollitud-puit#v%C3%A4%C3%A4riselupaigad
GLASGOW DECLARATION SUSTAINABILITY PRINCIPLES

Supporting and protecting communities

- Protect and invest in our communities
- Support land managers in delivering sustainability
- Ensure safe operations
- Demand employment best practice throughout the supply chain
- Respect the rights of Indigenous Peoples

Exploring the issues

Bioenergy supply chains are almost uniquely placed to support a wide range of communities, because they stretch from very rural locations through to industrial facilities and densely populated regions.

Biomass can be sustainably supplied from forests, agriculture, industry by-products and waste streams. It can therefore provide additional jobs in communities that often find it difficult to achieve economic growth.

With this important economic role also comes a responsibility to such communities. The Glasgow Declaration sets out principles designed to support best practice that leads to investment in, and not exploitation of, the people who live on and near the land that supplies biomass for energy.

This begins with investment in good land management. It means acting alongside and in partnership with communities as good stewards of their natural resources.

Further along the supply chain, sustainable bioenergy operators can demand high employment standards in biomass processing, providing training and high-quality health and safety systems. These increase broader economic outcomes for communities too, by improving health and access to things like education.

Importantly, the communities that host bioenergy facilities and infrastructure must be supported. Among the most vulnerable communities are indigenous groups, who are often under-represented in government or regulatory systems. This can extend to dispossession of land and natural resources that rightfully belong to indigenous groups. There is a responsibility within the bioenergy supply chain to ensure these groups and communities have their rights respected, which is set out in the Glasgow Declaration. A guiding document for such respect is the UN’s Declaration on the Rights of Indigenous Peoples (UNDRIP), which also sets out the right of all people to be different and to be respected as such, including their “right to development in accordance with their own needs and interests.” Such questions must be considered carefully by sustainable bioenergy operators, including where local state laws do not offer these groups protection.
How are these principles being applied in the real world?

These principles on supporting communities are often enshrined in local, national and international laws and regulations. They’re also protected through individual company initiatives, such as the examples below from Drax Group.

Drax takes seriously its commitment to supporting and protecting the communities in which it operates. This is underpinned by its Community Engagement Plans. This year the company also launched the Drax Foundation, which provides grant funding to support STEM education and skills development, and nature positive projects across its geographical footprint.

Drax provides active support for land managers in delivering sustainability. For example, it has entered into a partnership with the Federation of Southern Cooperatives (FSC) to help minority and underserved small landowners in the U.S. South with greater access to the biomass market, further encouraging sustainable forestry management.

Drax also works to protect and respect the rights of indigenous communities where it operates. For example, in Canada, it is working closely with the Tsideldel First Nation in British Columbia through Tsideldel biomass, which provides Drax with fibre for its pellet operations.

Drax also makes the safety, health and wellbeing of its employees and contractors a primary focus. Its Group-wide Safety, Health and Wellbeing policy is supported by its OneSafeDrax vision that all employees have a role to play in safety for themselves and colleagues.

The company’s relationships with suppliers are governed by contracts that include its minimum standards including compliance with relevant regulatory and legal requirements, anti-bribery and corruption, modern slavery and supplier code of conduct.

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13 http://tsideldel.org/
Join the Glasgow Declaration on Sustainable Bioenergy

As set out within this paper, sustainable bioenergy is a vital part of the solution to help meet the global challenge of net zero emissions by mid-century.

To find out more about the Glasgow Declaration on Sustainable Bioenergy, and to get your organisation involved in the development of sustainability best practice, please visit www.sustainablebioenergy.org

You can sign up to our ‘interested parties’ list and receive notifications about upcoming events and discussions around bioenergy sustainability.
“For bioenergy to survive, thrive, and help beat climate change, it must be sustainable. That means working together to improve trust, understanding and best practice.”

Christian Rakos, President, World Bioenergy Association