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INTERNATIONAL CHAMBER OF COMMERCE

Discussion Paper



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International Bioenergy Policy

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I. Introduction

Bioenergy in many forms is one component of the global energy supply today, and is expected to grow. Bioenergy represents 10% of primary energy consumption but largely in conventional form for heating and cooking. According to estimates by the International Energy Agency, 18% of bioenergy use is for modern heat and electricity production, and 4% for biofuel production.

Modern bioenergy has become an increasingly important energy source with the support of subsidies and mandates in several countries. Moreover, national and local authorities, industrial operators and households are increasingly turning to modern bioenergy seeking more sustainable and environmentally friendly sources of energy. Therefore, future demand is increasing and playing a key role in scenarios such as the BLUE Map IEA scenario and the European Union's proposed a 20% emissions reduction target.

However, it will only achieve its long-term potential if research successfully delivers advanced options that demonstrate commercial feasibility with improved environmental, economic and social performance at scale. For bioenergy, the markets include those related to commodities and land use, as well as the market for energy. Bioenergy has potential to advance economic, social and rural development, energy access and energy diversification as well as for climate change mitigation. Bioenergy applications can create new revenue options for farmers, and offer energy resources to respond to growing energy demand. However, while it has much potential, it is not a panacea for climate change nor the solution to energy security in all countries.

All use and production of energy has environmental costs. In particular, combustion techniques for energy production can be environmentally harmful irrespective whether input fuels are renewable or fossil. Additionally, the combustion of biomass and the use of biofuels could create a number of indirect negative environmental impacts. It is therefore of vital importance that the complete environmental impact be considered. The International Chamber of Commerce (ICC) urges governments to consider total environmental impact such as land-use, biodiversity, food crops, agricultural trade etc. prior to intensive bioenergy development. Not all biomasses and physical and social environments are equally suited for developing biofuels. Identifying the right places for biofuel production in the agricultural economy is a policy challenge.

These challenges should be assessed and managed by policymakers with input from industry. They should also be addressed through research and innovation. Policymakers should also bear in mind the particular challenges bioenergy faces concerning land and water use, agriculture and biodiversity.

This paper draws on the experience of businesses from a wide range of sectors in international markets and jurisdictions. It calls for:

- ***Effective policy frameworks that create synergies throughout the supply chain;***
- ***Bioenergy policies that, a) allow flexibility for national circumstances; b) are consistent with the ability for markets' and technologies to deliver on those policy objectives c) and do not result in trade or market access barriers;***
- ***Supportive policies to advance progress in innovation and deployment of effective bioenergy options, including international standards and R&D ventures;***
- ***Partnerships and international cooperation to support and advance bioenergy, while avoiding unfeasible or market-distorting government mandates;***
- ***The development of objective criteria relating to bioenergy that integrate and balance long-term energy supplies, food security, the environment, land-use, water-use, social and economic considerations.***

II. Supply-chain synergies through common approaches, partnerships and cooperative measures

Bioenergy is part of a much wider process of substituting biological resources and process for fossil resources and chemistry-based processes in industry, and as such is part of an emerging bio-energy based economy. International bioenergy policy has implications for bio-energy feedstocks, and as these become more utilized in green chemistry, policy burdens and market distortions should not discourage this promising area.

While different countries and sectors do face different challenges and opportunities with regard to biofuels, ICC is convinced that there is an important role for inter-governmental common approaches, partnerships and cooperative measures in international markets. Effective policy frameworks to advance bioenergy should seek to create synergies throughout the supply chain via international cooperation and partnerships and work within evolving markets as part of the global energy mix. They should not approach bioenergy from solely environmental, climate, energy or agricultural standpoints, but should deploy a suite of reinforcing approaches following an integrated assessment.

In light of these complexities, evolving technologies and scientific understanding, we recommend avoiding a one size fits all approach at international levels. Instead, ICC underscores the need for frameworks that enable technological innovation, energy efficiency and cleaner energy at the international level. We caution against imposing unwarranted expectations or burdens on bioenergy options. Narrowly defined single-issue solutions or limitations are likely to fail or create negative externalities because they do not consider impacts in other areas. In this case, unwarranted mandates or subsidies could result in unnecessary costs and obstacles with broad consequences on competitiveness and the international market, potentially hampering progress in a strategic source of energy. Policies should create incentives and reward energy, water and environmental performance, rather than specifying particular feedstocks, processing technologies, and fuel types.

III. Bioenergy for Energy Diversification and Security

Many governments are engaged in developing and adopting innovative means to reconcile the often-competing challenges of reducing fossil fuel dependency in order to address global warming, promote energy security and diversification while sustaining economic development.

Bioenergy can and does play a role in addressing growing energy demand, contributing to energy security, and the need for access to energy. Bioenergy exists in various forms and applications, and the experiences and issues that are encountered depend on the application and national circumstances, as well as the scale of use, relevant market conditions, water availability, social and environmental acceptance and other contexts. Overly broad generalizations and criteria for the wide range of bioenergy options can only go so far. For example, the use of biomass in stationary applications can offer greater green house gas emissions savings per hectare of land use than conventional biofuels. In addition, the use of bioenergy-based power plants fitted with Carbon Capture and Geological Storage (CCS) offers the opportunity to remove carbon dioxide already in the atmosphere. Governments should seek early opportunities to deploy and demonstrate this technology.

When assessing policy or market frameworks to advance bioenergy, the specific applications should be taken into account (electric power generation and space heating, co-generation, transportation). Furthermore, encouraging development of biofuels as part of an energy mix, policy decisions should not create market distortions, for example in contributing to trade discrimination and distortion of agricultural markets. A stepwise technical approach should be undertaken with representatives from industry, suppliers and consumers, across impacted sectors. Associated modifications to infrastructure should be taken into account in forming a realistic view of costs, timing, environmental and societal acceptance and uptake. Where targets or mandates are defined, careful assessment of feasibility and comparison to other energy sources that would be displaced is necessary. All energy

sources should compete equally against a common set of objective criteria for performance and environmental and social costs.

IV. Technological innovation and business's role in the production and use of bioenergy

Technological innovation is critical to society's transition to cleaner and more sustainable energy paths. As they are developed, new forms of energy and energy technologies, such as bioenergy, will have to deliver results in global markets while addressing their environmental, social and economic impacts. Enabling international policy and market frameworks, stakeholder dialogue and realistic expectations will be critical in promoting advanced energy sources. The potential benefits and impacts of biofuels should be carefully analyzed to enable informed policy-making, and to highlight areas to target for technological invention, innovation and improvement.

In this regard, sound science and risk assessment/management should be the basis for such analysis, reflecting:

- realistic and harmonized life cycle emissions and impacts
- technical feasibility at scale
- commercial feasibility at scale
- environmental risk and benefit at scale
- water availability risk and use
- land availability at scale
- energy consumption and efficiency in the production of bioenergy
- the pace of technological innovation in this area
- cost effectiveness
- implications of large-scale deployment (land use, water, biodiversity, agriculture, ...)
- life-cycle comparisons to other forms of energy

For example, if advanced biofuels are to realize their potential, governments should consider allocating funding towards the research needed to enable their development based on their respective performance in a balanced and carefully considered manner. Government support should focus on research and development (R&D), funding and technology demonstration, especially for pre-commercial leads that may create options to become self-sufficient. In this regard, it is important to give due attention to interim technologies to enable a smoother transition from first to second generation biofuels. Finally, if bioenergy is to become more viable in international markets, we encourage governments to take account of the need to encourage investments in necessary related infrastructure.

V. Role of markets and trade/investment rules for bioenergy

Markets for bioenergy do not exist in a vacuum; they interact with other markets for energy and across sectors such as the markets for agricultural commodities, land and water. The economic viability of alternative energy sources depends on the efficiency of the process used, co-product recycling and the markets for other sources of energy, notably those of various fossil fuels. The shifting prices and performance of other forms of energy, and changes in terms of trade will lead to continuous

adjustment in the expectations for bioenergy in the near and medium terms.

Since ambitious domestic policy objectives in many nations are not attainable solely through domestic production, at large scale, bioenergy will likely become an important factor in international trade. In this regard, clear and transparent rules should be established to facilitate this trade. ICC supports the development, ultimate adoption of internationally recognized, transparent and accepted certification schemes for feedstock and final products such as pellets or biofuels. This is evidenced in efforts like the International Biofuels Partnership and Roundtable on Sustainable Biofuels (RSB) which builds from lessons learned in promoting standards and implementation that balance the interests of agriculture, energy, land and water use, and the environment, as well as others, in promulgating the use of bioenergy. Such schemes should include a fair and complete assessment of the greenhouse gas footprint, an assurance on food competition and availability, and an assessment of the environmental and social issues associated with their production.

VI. Sustainability Realities: Playing to Strengths, Resolving Challenges

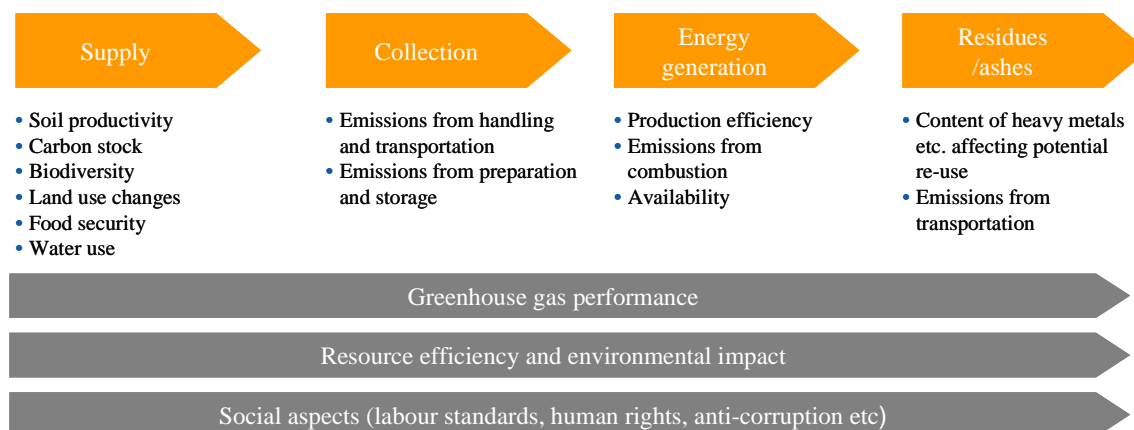
In addressing and advancing bioenergy options as part of a diverse energy mix, the objective should be to maximize the benefits, and identify, avoid and address unintended consequences of bioenergy, and for all energy forms in general, in the following areas:

- Climate Change (greenhouse gas performance)
- Agricultural, land and water use and biodiversity considerations
- Industrial use (towards a bio-based economy) and biotechnology
- Food production and impact on costs for consumers, farmers income, communities
- Infrastructure and vehicle compatibility
- Broader economic benefits and impacts

Mandates and subsidies, limits and bans in the name of sustainability on some forms of bioenergy have often focused on single-issue factors, and not fully assessed the broader sustainability issues. Criteria which do not take a broad view of the economic, environmental and social benefits and impacts will not be helpful, and could undermine the sustainability potential of bioenergy as well as/ and therefore discourage innovation.

There is also a need to continually increase the understanding of sustainability aspects of bioenergy, including how different aspects relate and interact. The complexity of this issue and aspects to consider is exemplified in the biomass fuel chain for heat and electricity in the figure below.

Sustainability focus areas in the biomass fuel chain for heat production and electricity generation:



Policymakers should also bear in mind the particular challenges bioenergy faces concerning land and water use, agriculture and biodiversity. Increasing amounts of corn, wheat, rapeseed, soy, palm oil and sugar are being used for ethanol and bio-diesel production. This impacts crop and food prices and indirectly, through higher feed costs, the prices for livestock products. There are several cross-sectoral impacts related to increased biofuels production, for food and animal feed industries as well as for other sectors that depend on biomass as industrial feedstock. However, these commodities are also subject to other factors, related to weather, energy costs, subsidies, tariffs, consumer demand for food and feed as well as to non-market forces such as government policies and regulations. Impacts from the use of food crops for biofuels can be reduced by using other types of biomass, including wood and wood residuals. Growing demand for bioenergy has been one of several factors in increasing demand for a number of agricultural commodities which, combined with supply disruptions and domestic policies, have contributed to higher food prices.

Bioenergy production is an integral part of agriculture and siculture, which should be efficient and productive in terms of natural resource use. Complementary aspects such as crop and tree breeding (including biotechnological ones), integrated crop and farm management practices, including integrated pest and nutrient and water management have to be balanced sustainably.

The water-related and climate change impacts of energy in general and biofuels production in particular could significantly affect economic viability and sustainability. These considerations could bear direct impacts for the allocation of land and water to energy and other uses. A rapid increase of land and water used for plants to be transformed into biofuels, for example as in programmes subsidised and supported in other ways could have a massive impact on freshwater withdrawals as in some estimates to grow one calorie, one litre of water is required. Regardless whether crops today are being used for food or as feedstock for energy production, they require enormous amounts of water to be grown. The efficiency of this water use can and should be improved significantly.

VII. Conclusions

Bioenergy production and use are clearly emerging processes, and growing adoption and cross-sector impacts in OECD and non-OECD economies require careful examination of potential impacts, both beneficial and otherwise. This source of energy and related feedstocks is a strategic one for business in many countries, and we believe it can be viable and sustainable. Additional research on the economics of biofuels, their lifecycle environmental impacts, their implications for other sectors, as well as the impact of further scientific and technological advancements are essential to help policy makers base their decisions on an objective and comprehensive analysis.

As the international policy debate on bioenergy progresses, ICC recommends that governments:

- Support market-oriented bioenergy approaches based on integrated and balanced policy objectives;
- Engage business experts across sectors to better understand economic, technological, energy, land use, water use, environmental, labour and market realities of bioenergy development and deployment;
- Pursue public-private partnerships and international cooperation to support a responsible use, technological progress and commercialization of bioenergy, avoiding mandates and subsidies;
- Establish voluntary technical standards to ensure appropriate and effective use of bioenergy with associated criteria for sustainable land and water use and emissions, and provide for mutual recognition of compatible products;
- Support enhanced R&D and information sharing that can respond to emerging innovations or new findings relating to bioenergy; within the framework of intellectual property right protection;
- Emphasize performance-based and technology-neutral policies in connection with bioenergy.

The International Chamber of Commerce (ICC)

ICC is the world business organization, a representative body that speaks with authority on behalf of enterprises from all sectors in every part of the world.

The fundamental mission of ICC is to promote trade and investment across frontiers and help business corporations meet the challenges and opportunities of globalization. Its conviction that trade is a powerful force for peace and prosperity dates from the organization's origins early in the last century. The small group of far-sighted business leaders who founded ICC called themselves "the merchants of peace".

ICC has three main activities: rules-setting, dispute resolution and policy. Because its member companies and associations are themselves engaged in international business, ICC has unrivalled authority in making rules that govern the conduct of business across borders. Although these rules are voluntary, they are observed in countless thousands of transactions every day and have become part of the fabric of international trade.

ICC also provides essential services, foremost among them the ICC International Court of Arbitration, the world's leading arbitral institution. Another service is the World Chambers Federation, ICC's worldwide network of chambers of commerce, fostering interaction and exchange of chamber best practice.

Business leaders and experts drawn from the ICC membership establish the business stance on broad issues of trade and investment policy as well as on vital technical and sectoral subjects. These include financial services, information technologies, telecommunications, marketing ethics, the environment, transportation, competition law and intellectual property, among others.

ICC enjoys a close working relationship with the United Nations and other intergovernmental organizations, including the World Trade Organization and the G8.

ICC was founded in 1919. Today it groups hundreds of thousands of member companies and associations from over 130 countries. National committees work with their members to address the concerns of business in their countries and convey to their governments the business views formulated by ICC.



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Policy and Business Practices

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