UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

GN SEC Global Network Sustainable Energy Centres

10 May 2022 | 15:00-17:00 (CEST)

Webinar

Bioenergy for Energy Access, Security and Industrialization

THE PROGRAMME

CONTENT

THE POTENTIAL OF BIOENERGY TECHNOLOGIES

Many developing countries have a strong agricultural sector, which can generate huge amounts of biodegradable wastes and residues. In 2010 traditional methods of space heating and cooking, such as burning firewood, animal waste or charcoal, accounted for two-thirds of the total biomass use worldwide. However, the potential to apply circular economy principles and generate by-products such as clean energy is enormous. By 2030, large share of traditional biomass (60%) could be replaced by modern bioenergy technologies. In all sectors of the global economy there is potential for biomass-derived products.

Business opportunities are to be found along the entire value chain of agro-industries. For example, agro-processing is an important instrument to add value to agricultural products. Agricultural residues as well as the waste from agro-processing industries can augment energy demand (electricity, heat and transport). This can also reduce post-harvest losses, thereby increasing the productivity and profitability of industries and related value chains. By adopting best practices in improving yields and improved land management, biofuel generation from local resources can help to reduce the import of fossil fuels, and in turn improve domestic energy security.

According to IEA's Net Zero Roadmap substantial changes can be made in the context of electricity generation, industrial and household energy and transport applications. Developing local bioenergy industry improves the access to affordable and modern energy (SDG 7); brings significant economic benefits, and contribute to job creation (SDG 8 and SDG 1). Moreover, there will be less pollution during cooking, and improve overall health for women and children, who are still over proportionally affected by household activities (SDG 3).

Modern bioenergy comprises of liquid biofuels produced from cassava, bagasse, corn, or sugarcane. Biogas is produced through breaking-down of crop residuals and animal waste. Application of bioenergy technologies range from mini-grids supporting energy access, to industries and cooking, heat and fuel blending in the transport sector. The assessment of the feedstock potential for biofuel production of a country is essential to the success of a bioenergy project. Competing uses for the raw material of a bioenergy plant and the price paid for these alternative uses must be carefully examined.

Liquid Biofuels

Liquid biofuels, produced from organic matter, are the most portable of fuels. They are an efficient and affordable way to transport energy to distant areas. The most developed of liquid biofuels are ethanol, methanol, and biodiesel. Traded globally they have been used in transportation, lighting, heating, cooking and electricity generation. Liquid biofuels have recently regained popularity for fuel blending and flex-fuel engines. Ethanol and methanol have the potential to be renewable and to recycle waste. Ethanol can be produced easily from sugar and starch feedstock, which are often by-products or wastes of other agro-industrial processes, such as food and beverage production. In short, liquid biofuels can be produced in almost every country, and thus can be used for wide-ranged applications in meeting the local energy demand.

Solid Biofuels

Solid biofuels can be distinguished between processed and unprocessed. Unprocessed biofuels are firewood, charcoal and dung which are considered traditional household fuels in many DCs and LDCs. In Africa, traditional solid biofuels cover more than 80% of the energy demand, especially for cooking. Processed solid biofuels were developed in the 1970s after the first oil crisis and include wood chips, pellets and briquettes made from industrial, agricultural and forestry residues, and energy crops.

Gaseous Biofuels

The production of biogas is a natural process to be observed in wetland soils as well as during the digestion process of livestock. Biogas is produced by breaking down organic matter in an anaerobic (oxygen free) environment. Its main components are methane (55%) and carbon dioxide (45%) and traces of other gases. Methane is the energy carrier. Through advanced waste treatment technologies and purification techniques it is possible to upgrade the biogas to a 95% methane concentration, thus, having an energy content comparable to natural gas. Biomethane can be used as fuel for electricity and/or heat generation, for cooking and for transport.

BIOENERGY STRATEGY

To facilitate the successful development of local bioenergy industries, countries need to establish a market enabling environment. Coherent policy frameworks and regulations need to be in place to overcome barriers and reduce risks of investment. Data for planning and monitoring different parts of the value chain as well as providing financing solutions to ease the market entry for SMEs.

Transport fuels and household fuels are the two major potential markets for biofuels especially ethanol and biodiesel. Transport fuel markets are primarily policy-driven aiming to reduce imports of fossil fuels, avoid GHG emissions and improve rural development. Although, numerous countries in Africa , Asia and Latin America have a biofuel mandate, most of them have not met their targets over the years due to myriad of reasons. By linking agriculture, industry, energy, and transport sectors, developing countries can create domestic markets and possibly expand to regional markets.

Moreover, an adequate policy framework needs to be accompanied by an enhanced focus on social acceptance of biofuels through public information campaigns. Such activities should emphasize the benefits of fuel switching and the implementation of a sustainable bioeconomy via the reduction of dependence on imported fossil fuels, mitigation of greenhouse gas emissions, and stimulation of local economic growth and job creation, while maintaining food security and conserving natural resources.

THE WEBINAR

Venue

The webinar will be held online through ZOOM.

Objectives of the webinar

The objective of the webinar is to share up-to-date knowledge on the potential of bioenergy for DC, LDC and SIDS. The webinar will introduce strategies for developing local bioenergy industries which have the opportunity to support self-reliance and energy security as well as achieving SDGs and NDC commitments. The webinar will also identify opportunities for the joint implementation of the UNIDO bioenergy strategy in various regions of the Global Network of Regional Sustainable Energy Centres (GN-SEC).

Audience

- Representatives of the GN-SEC;
- Public administrators and relevant stakeholders from the private sector covering projects in bioenergy.

The GN-SEC programme

The webinar is organised under the umbrella of the UNIDO GN-SEC Programme, which assists regional organisation in the establishment of renewable energy and energy efficiency centres. The GN-SEC Platform facilitates south-south and triangular cooperation on sustainable energy solutions and market-upscale.

Language

The webinar will be conducted in English, with a French channel (simultaneous translation) available.

Time and duration

10 May 2022, 15:00-17:00 (CEST)

Registration

The link is HERE.

Agenda

	Moderation Mr. Ludovic Lacrosse, Executive Chairman at Full Advantage Co
	Welcome Remarks Mr. Tareq Emtairah, Director, Department of Energy, UNIDO
	UNIDO's Bioenergy Strategy Mr. Jossy Thomas, Industrial Development Officer, UNIDO
	Unlocking the Ethanol Potential: Pathway to Energy Security and Self-Reliance Ms. Dina Bacovsky, Head of the Unit Biofuels, BEST
	GIP CC & Tanzania Experiences Mr. Paul Harris, Director and Principle Consultant at Integrated Energy Solutions (Pty)
	Potential for Sugar Industries in Augmenting Energy Supply Mr. Ludovic Lacrosse, Executive Chairman at Full Advantage Co
	Biofuels Blending in Transport Sector: Thailand Experience Ms. Supatchalee Sophonthammaphat , DEDE
	Questions and Answers

CVs OF SPEAKERS

Mr. Tareq Emtairah

Mr. Tareq Emtairah is the Director of the Department of Energy at UNIDO. His work experience spans over 26 years in developed and emerging economies with a progressive focus on sustainable industrial transformation, energy transition, policy advocacy, applied research and capacity development. Before joining UNIDO, he worked as a senior research fellow at the International Institute for Industrial Environmental Economics (IIIEE) at Lund University, Sweden, and prior to that served as the executive director of the Regional Center for Renewable Energy and Energy Efficiency (RCREEE) based in Cairo, from 2012-2015. Mr. Emtairah holds a PhD in Industrial Environmental Economics from Lund University in Sweden; a Master's degree in Environmental Management and Policy also from Lund University; a Diploma in Engineering (Materials Science) from Tokyo Institute of Technology in Japan and a Bachelor's degree in Engineering, also in Materials Science from the State University of New Jersey in the United States of America.

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Mr. Jossy Thomas

Mr. Jossy Thomas is an industrial development officer at the Energy Department of UNIDO. As a sustainable energy practitioner, he has over 22 years of international technical cooperation experience with UN ESCAP and UNIDO in Asia and Africa. Mr. Thomas' current focus is on supporting developing and least developed countries in fostering bioenergy resources leading to resilience economy, self-reliance in energy and de-carbonization in the households and transport sectors. Mr. Thomas holds a Bachelor's degree in mechanical engineering (National Institute of Technology, India), M.Sc. in Energy Technology (Asian Institute of Technology, Bangkok), and an MBA from the Open University, UK.

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Ms.Dina Bacovsky

Ms. Dina Bacovsky graduated from Vienna University of Technology in Process Engineering, and has worked on the harmonisation of GHG calculations for biofuels in the EU. Ms. Bacovsky is an active member of the international community on bioenergy R&D. Her different roles include but not limited to, the head of the Biofuels unit at the Bioenergy and Sustainable Technologies (BEST), Vice-chair of the IEA´s Bioenergy TCPP, Austrian representative in IEA Bioenergy Task 39 on Liquid Biofuels, and the Chair of WG2 on Conversion Technologies of the European Technology and Innovation Platform ETIP Bioenergy. Ms. Bacovsky and her team consult on the production, use, and policy implementation of biofuel in over 20 countries.

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Mr. Paul Harris

Mr. Paul Harris, principle consultant and managing director, has worked in the energy industry for over 36 years. Mr. Harris has an energy focused mechanical engineering degree (University of Cape Town), and an MBA from Stellenbosch University. In a career of 15 years with South Africa's utility Eskom, he work at a 3,000MW coal fired power station before shifting to end-use of fuels. In 2002, he founded the consulting company Integrated Energy Solutions (Pty) Ltd, which focuses on the right stewardship of energy resources, with specific focus on the sustainable delivery of modern energy, such as clean cooking, for least developed countries.

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Mr. Ludovic Lacrosse

During more than 40 years of professional experience in the energy and environment sector, Dr. Ludovic Lacrosse has been acting as advisor to renewable energy and energy efficiency policy makers, and facilitating business in the clean energy space, especially in bioenergy. From 1991 to 2005, he acted as Co-ordinator of the EC-ASEAN Cogen Program, a regional economic cooperation and public-private partnership for the promotion and implementation of clean and efficient biomass cogeneration projects. Since 2005, he has led several biomass energy projects in the Asian and African regions. He recently worked as International Bioenergy Expert in Pakistan and in Nigeria to evaluate the potential for the sugar industry in optimizing the use of their bio-resources for energy. He has also been the Team Leader and Biomass Expert of World Bank Renewable Energy Resource Mapping Projects in Pakistan and in Vietnam. He is currently the Executive Director of LL Green Energy, based in Belgium.

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Ms. Supatchalee Sophonthammaphat

Dr. Supatchalee Sophonthammaphat has an extensive academic research background, with B.Sc. in Environmental Science (1996) and in Law (2003); as well as M.Sc. in Environmental Management (2006). She also graduated from the University of Sheffield Energy for Futures (E-Futures) postgraduate programme (2015), and continued to complete a Ph.D. in Chemical and Biological Engineering. Dr. Sophonthammaphat has 10 years of experience as environmental officer at Air Quality and Noise Management Bureau (PCD, Thailand), and she currently sits at the Bureau of Biofuel Development at the Department of Alternative Energy and Efficiency (DEDE), Ministry of Energy, focuses on biodiesel and bioethanol research, the effects of electric vehicles and government incentives in relation to bio-markets.

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