Bioenergy Factsheet
An Overview

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What is Bioenergy?

Bioenergy can be defined as any form of energy that is derived from living organisms, either plant or animal. It encompasses a wide range of different types and origins. It can take the form of solid, liquid or gaseous fuel and can be used to provide renewable energy across a variety of sectors including heating, electricity generation and transport sectors.

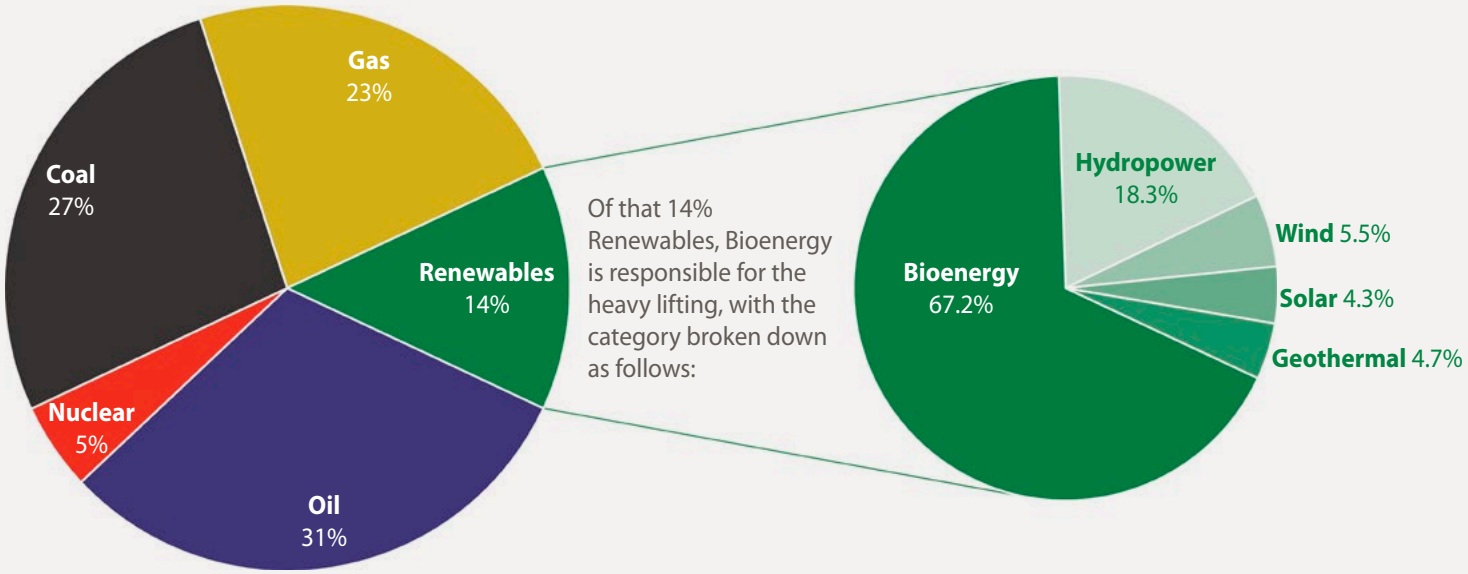
What are the different forms of Bioenergy?

- **Solid biofuels and wood fuels:** Wood pellet, woodchip, energy crops, firewood and biomass briquettes
- **Gaseous Biofuels:** Biogas and Biomethane
- **Liquid Biofuels:** Bioethanol, Biodiesel, Hydrotreated Vegetable Oil and Bio-oil

* IrBEA have a series of factsheets detailing these different forms of Bioenergy

The role Bioenergy plays in existing energy mixes

According to data provided by the World Bioenergy Association, which looks at the World's TPES or Total Primary Energy Supply, in 2018, the energy mix by different sources looked like the following:



At a European level, Bioenergy contributed 10.3% of the TPES in 2018, in comparison to 7.2% contribution from all other forms of renewable technologies combined and with the remaining 82.5% comprising of oil, gas, coal and nuclear. (Source: Bioenergy Europe).

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The ongoing role of Bioenergy in decarbonisation

The Intergovernmental Panel on Climate Change (IPCC) is a United Nations body that was created to assess the science and data behind climate change and use the findings to make recommendations, predictions and modelling for policymakers and Governments. They release regular assessment reports as well as special reports on particular topics.

The IPCC highlights the important role of a well managed Bioenergy sector can play in limiting global temperature increases.

The IPCC forecast that afforestation and reforestation efforts, the use of energy crops, the deployment of Bioenergy systems with carbon capture or the use of organic residues to produce energy are all important components of the energy mix for the future.

The IPCC recognises that Bioenergy represents the largest current contributor to renewable energy and is likely to remain that way for at least the first half of this century. They also highlight the role that Bioenergy can play in carbon removal as well as in the development of biomass-based fuel alternatives for fossil fuels as biorefinery technologies mature. They note the complimentary role Bioenergy can play alongside the food, fibre, and forestry product sectors. They acknowledge that Bioenergy will require investment, support and the right policy measures to be in place to ensure the continued sustainability of the sector. (Source: IPCC).

Sustainability

The European Bioenergy sector is governed by stringent sustainability criteria as set out in the Renewable Energy Directive (RED). The Renewable Energy Directive ensures that biogenic resources for the provision of energy will be carried out in a sustainable, monitored manner while giving rise to the least negative impacts on the environment and on biodiversity.

Ireland's agricultural policy is primarily focused on food production and is recognised as one of the most food secure nations in the world. To continue as a world leader in food production, the inclusion of Bioenergy in a food systems approach can be beneficial in reducing the carbon footprint of both primary and secondary production systems. Bioenergy can complement existing land use and agricultural practices. It enables emission reductions and provides valuable alternatives for various waste and residues from the farming, food and forestry sectors through the provision of renewable energy.

Benefits of Bioenergy

- Bioenergy is capable of decarbonisation of the electricity, heat, and transport sectors.
- Bioenergy can produce continuous, dispatchable energy.
- Bioenergy is a key enabler in the decarbonisation of the agricultural sector through the valorisation of residues and encourages alternative sustainable land use.
- It is considered carbon neutral when feedstocks are sourced sustainably.
- It can reduce the levels of greenhouse gas emissions and other pollutants compared to fossil fuel counterparts.
- It can reduce dependence on fossil fuel imports, offering security of supply.
- Can be produced locally, offering employment opportunities and encouraging economic activity in rural areas.

About IrBEA

The Irish Bioenergy Association (IrBEA) was founded in 1999. IrBEA is the representative voice for those involved in the Bioenergy sector. It is a membership organisation whose role is to lobby, advocate, inform and promote the Bioenergy industry. IrBEA's objective is to develop the important sectors of biomass, biogas, biofuels, biochar, wood fuels and energy crops on the island of Ireland.

Our diverse membership includes farmers and foresters, fuel suppliers, energy development companies, equipment manufacturers and suppliers, engineers, financiers and tax advisers, legal firms, consultants, planners, research organisations, local authorities, education and advisory bodies – anyone with an interest in the Bioenergy industry.

Governance and strategic oversight are provided by a Board of Directors, with the IrBEA Council directing the policy, lobbying and advocacy agendas with support from a small Executive Team. IrBEA is affiliated to Renewable Energy Ireland, Bioenergy Europe, and the European Biogas Association (EBA). IrBEA operates as a not-for-profit company limited by guarantee. IrBEA is funded from member contributions with other income established from projects, sponsorship, and consultancy.