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Extract

Biomass to Power

The World Market for Biomass Power Plants 2024/2025

15th edition, 2024

ecoprogram GmbH

Biomass to Power 2024/2025

The leading standard reference in the Biomass to Power industry. The 15th edition includes:

- An analysis of more than 4,600 biomass power plants and about 600 projects worldwide
- Global market development forecast 2024–2033, including new constructions, shutdowns and investment volumes based on more than 500 cost examples
- Country-level analysis of market factors, support schemes and existing plants and projects for 50 of the world's most important biomass markets
- Investment and operational costs and revenues with an exemplary calculation
- Description and market shares of all important operators and technology providers

In addition, you will get access to **ecoprogram's waste & bio Data** (BtP module) for 1 year. The database contains details on all plants and projects, including capacity, status, start of operation, technology and more. This also includes our weekly updated BtP Project Tracker and a list of active plants.

The study is available starting from **3,400.- € net**.

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[Read more on ecoprogram.com](https://www.ecoprogram.com)



[waste & bio Data, trial version](#)



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Japan

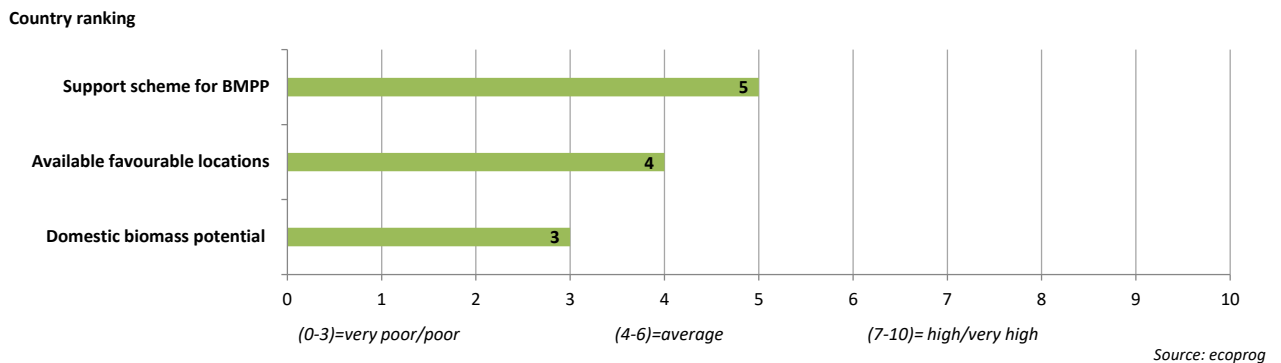
Update: 09-2024

Key figures			
Population 2023 [UN est. in million]	124.37	Number of BMPPs	[...]
Goal: Biomass electricity generation (2030) [TWh]	47	Installed electrical capacity [MW _{el}]	[...]
Electricity from biomass 2021 [GWh]	26,893	Share of total electricity generation 2021 [%]	2.66
<i>Forecast 2024-2033</i>		<i>Forecast 2024-2033</i>	
Total market investment [mln EUR]	[...]	Capacity of new commissionings [MW _{el}]	[...]

Management summary

Japan will remain one of the most dynamic BMPP markets worldwide. There is a large project pipeline. Electricity generation from biomass should be further increased. Domestic biomass potential is limited, which is why biomass is increasingly being imported. [...]

Figure 85: Ratings for the biomass market in Japan



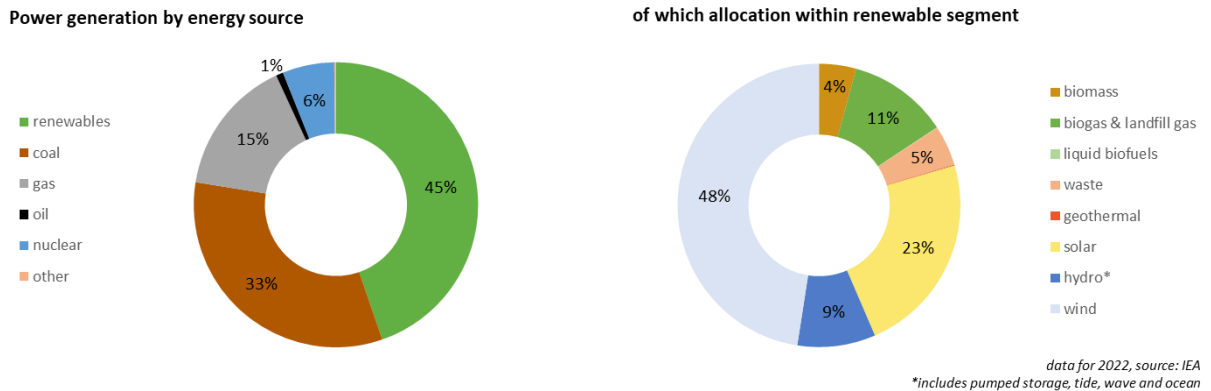
Background, market factors, legal framework

Electricity generation

- Japan has few domestic energy sources and thus strongly depends on imports. This is also the reason why nuclear power had been one of the country’s most important energy resources until the nuclear disaster at the power plant in Fukushima in March 2011. In the last years, Japan started to gradually restart nuclear power. As of November 2024, 13 of the country’s 54 nuclear reactors are operating. By 2030, 20% of the country’s electricity need shall be met with nuclear power, compared to 30% before 2011.

[...]

Figure 189: Electricity generation in Germany



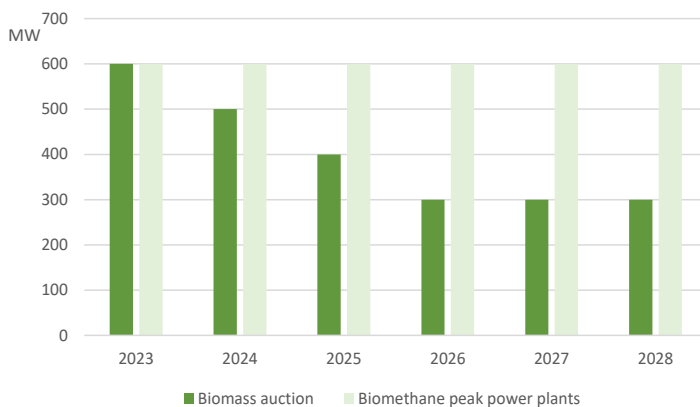
Market factors

- Germany has been subsidising electricity from renewable energies since 1991. [...]
- A National Biomass Strategy was planned to be published in autumn 2023 but has not been released as of October 2024. In February 2024, a draft was leaked that mentions a possible CO₂ pricing of wood biomass firing. [...]
- In November 2023, the so-called Heat Planning Act has been adopted, aiming for the decarbonisation of district heating grids. Biomass heat is eligible as renewable energy source in district heating grids. For networks with a length over 50 km, biomass-based heat will be limited to 25%. [...]

Support scheme

- With the EEG 2017, the feed-in tariff was replaced by biomass auctions for solid biomass and biogas. [...]
- With the new EEG 2023, the auction volume for biomass will be gradually reduced again, because the focus of the support for bioenergy should be on biomethane peak power plants that will be awarded in separate auctions (see graph below). From 2023 until 2025, two annual auctions will take place, between 2026 and 2028, there will be one annual auction.

Figure 190: Biomass auction volumes under the EEG 2023



[...]

Market development

Projects

- As of November 2024, there are [...] projects in different planning phases with a total combined capacity of around [...]
- The largest individual project is the 400 MWe [...]
- In 2024, we added further large-scale projects such as the ones in [...]

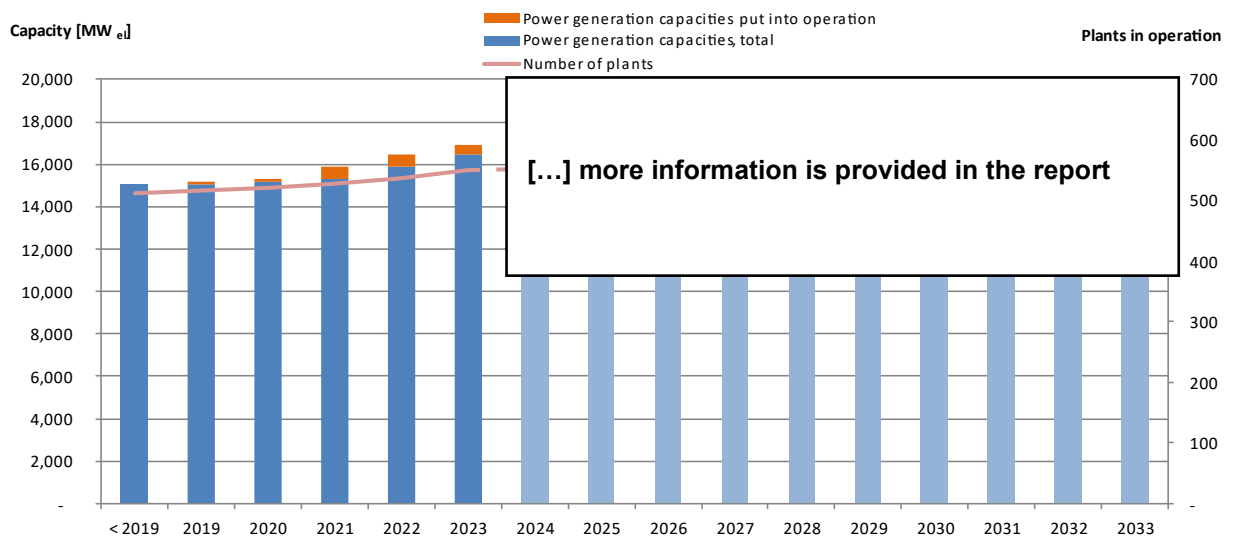
[...]

Forecast

- The Brazilian market for BMPPs is mainly dominated by the strong sugar and ethanol industry. In recent years, the market development was stimulated by the PPAs awarded by regulatory authority ANEEL.
- However, the level of the PPAs is comparatively low. The advantage of a 20-year PPA awarded in the auctions is more the certainty of income in contrast to selling the energy on the free market.

[...]

Figure 318: Market forecast Brazil

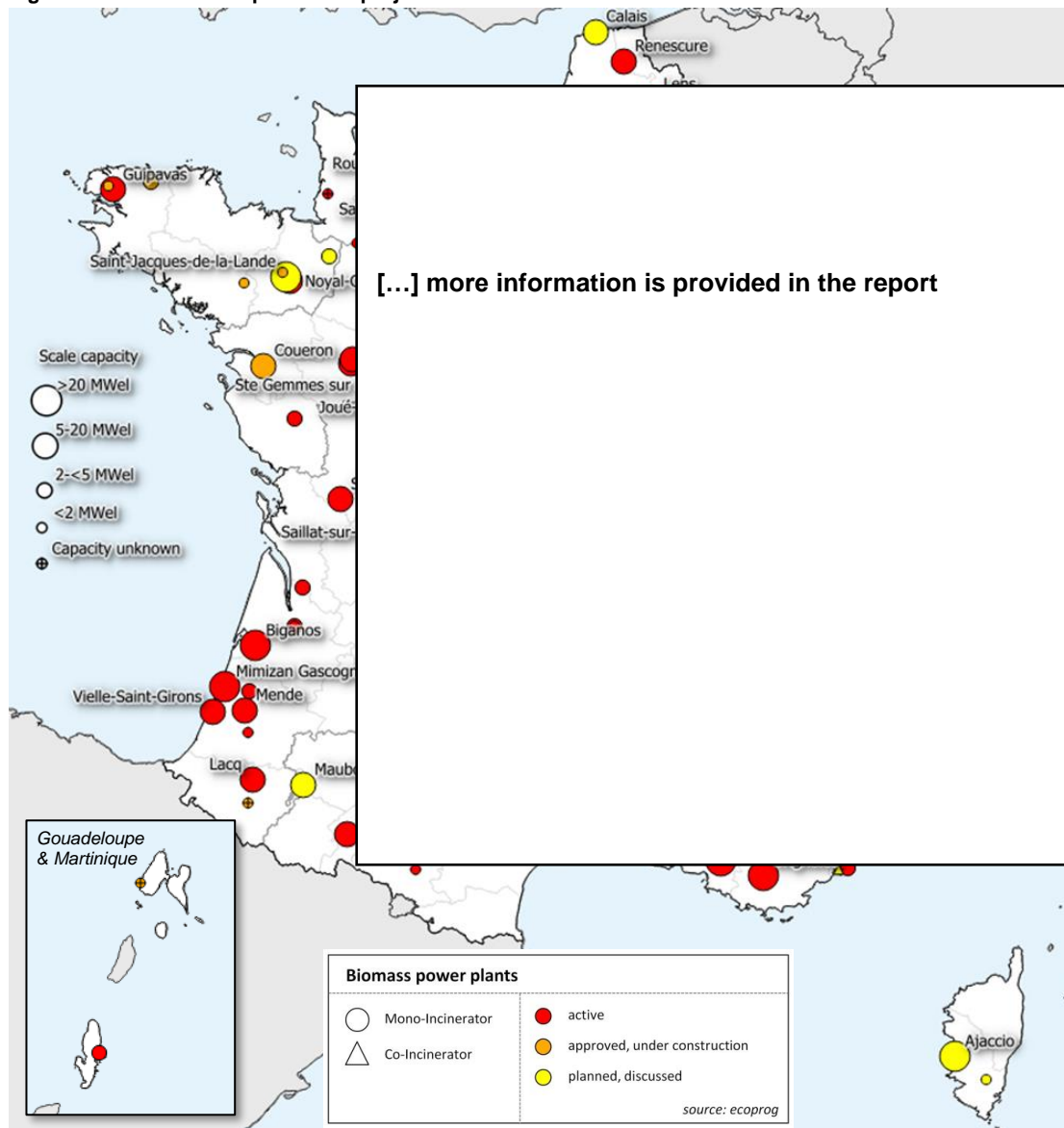


Data estimated up until 2023 and forecasted from 2024 onwards, source: ecoprog

Competition

- As most Brazilian biomass power plants are operated by ethanol producers, the largest among them are also the most important operators in the electricity generation from solid biomass segment, such as [...]
- Additionally, Brazilian sugar and ethanol producer Copersucar announced plans to enter the bioenergy market in August 2023, with plans to produce both electricity from biomass combustion as well as biomethane. [...]

Figure 185: Locations of plants and projects in France



[...]

Figure 186: Project outlook France

Name	Type	Project units	Capacity [MW _{el}]	Start	Status
Grenoble 3	mono-incinerator	1	n/a	n/a	under construction
Le Moule II	mono-incinerator	1	n/a	0	under construction
Le Rheu	mono-incinerator	1	0.53	n/a	under construction
Oloron-Sainte-Maine	mono-incinerator	1	n/a	2025	under construction
[...]					
Augan	mono-incinerator	1	0.8	n/a	approved
[...] more information is provided in the report					

Active Plants

As of November 2024. You can find further information on all plants, such as specifications on technical equipment, manufacturer, or fuel, for 12 months at <https://ecoprolog.com/plants/overview?type=biomas>. This database is updated every week. Please use your login credentials to access the database.

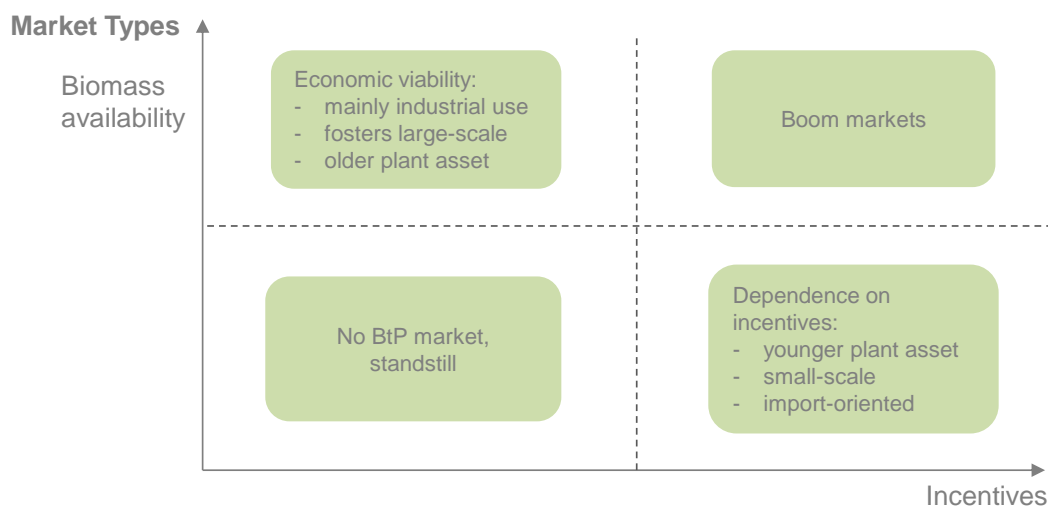
Name	Type	Active units	Operator	Capacity [MW _{el}]	Start
Ajax 1	mono-incinerator	1	Energy+2000 Ltd.	0.7	2012
Ajax 2	mono-incinerator	1	n/a	25	2015
Armstrong 1	mono-incinerator	1	Tolko Industries Ltd.	20	2000
Atholville	co-incinerator	1	AV Cell	17	1985
[...] more information is provided in the report					

10 Framework/market factors

10.1 Economic viability and biomass potential

In general, the two most important factors for the economic viability of a biomass to power project are the biomass fuel availability and the subsidies available in the country. With these two factors, a rough categorization of market types can be done. Examples for all these market types can be found in the country analysis of this report.

Figure 348: Biomass to Power market types

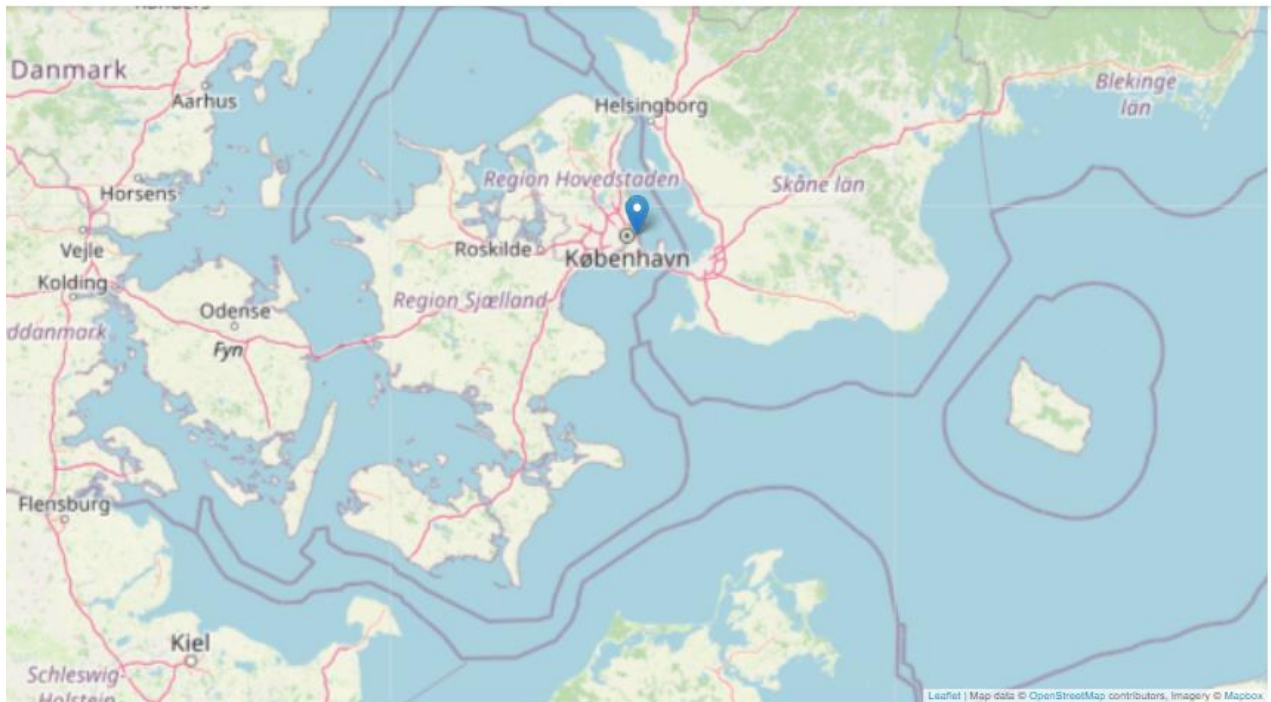


Source: ecoprolog

Compared to fossil energy sources, biomass fuels are inferior in terms of calorific value. Without considering the adverse climate effects, it is more profitable to incinerate coal or natural gas. Due to their low calorific values, transporting biomass fuels is usually not economically viable and local availability is important.

Several preconditions have to be met for electricity generation from biomass to be economically viable without financial incentives from third parties:

- The existence of larger biomass amounts, without valuable options for an economic use competing at the location where the biomass emerges.
- A high energy demand at this location, ideally both for heat and electricity. This energy need becomes even more important as a location factor if other energy sources can only be tapped at high costs at peripheral sites.



< 1/1 >

Category

- 1 Waste-to-Energy
- 2 MBT plants
- 3 Sorting Plants
 - 3.1 Dry Recyclables
 - 3.2 Packaging
 - 3.3 Plastics
 - 3.4 Metal
 - 3.5 Paper
 - 3.6 Glass
 - 3.7 Bulky Waste
 - 3.8 Batteries
 - 3.9 E-Scrap
 - 3.10 Construction & Demolition
 - 3.11 Other Sorting Plants
- 4 Recycling plants
 - 4.1 Plastics, material
 - 4.2 Plastics, chemical
 - 4.3 Paper
 - 4.4 Other Recycling Plants
- 5 Biomass-to-Power**
- 6 Anaerobic digestion
- 7 Hazardous waste

Plant

Name	Amagerøerket
Country	Denmark
Type	Biomass to Energy
Province/Region	Hovedstaden
Status	active
Investments	EUR 150 million (new unit)
Start of operation	2010
Heat use category	district heating CHP
Input, capacity [t/a]	n/a
Input real	n/a
Input real (year of data)	n/a
Power generation capacity [MW]	219.00
Heat production capacity [MW]	251.00
Gross heat production [MW]	n/a
Mono-/Co-Incineration	mono-incinerator

Remarks: The Amagerøerket went operational in 1971 as coal power plant with 4 units. One unit (unit 2) is operating on wood pellets. Another unit (unit 3) became operational in April 2020, after several delays of the start of operation and runs on wood chips.

As of August 2020, Danish utility Hofer A/S is tendering the procurement of an outdoor woodchip storage for its AMV4 biomass CHP unit.

Unit 1

Status	shut down
Start of operation	1972
End of operation	n/a
Unit fuel	straw pellets, oil
Fuel category	agricultural biomass
Technology	n/a
Mono-/Co-Incineration	co-incinerator

Search

Country

Downloads

- [BTP Project Tracker](#)
- [BTP, List Of Active Plants](#)

ecoprogram's [waste & bio Data](#). Please find a trial version [here](#)