

Monthly electricity statistics

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International
Energy Agency

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INTERNATIONAL ENERGY AGENCY

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Principles and definitions

The IEA's Monthly Electricity Statistics provides timely electricity production and trade data for member countries of the Organisation for Economic Co-operation and Development (OECD). It provides electricity production data for a selection of other economies.

These additional countries are not included in the regional groupings.

General Notes

Electricity production and trade data are reported at the individual country level as well as in organisational and regional groupings. These groupings include: OECD Total, OECD Americas, OECD Asia Oceania, OECD Europe and IEA Total.

The units are terawatt hours (TWh) for the regional groupings and gigawatt hours (GWh) for the individual countries.

The grouping of electricity generation by source reflects available monthly data and/or small individual quantities.

Definitions are consistent with the IEA's "Electricity and Heat" annual questionnaire. Statistics are subject to revision on official receipt of the annual questionnaire from national administrations or on improved data becoming available.

To enable timely publication, the IEA may supplement national statistics with data from other sources.

Where adequate information is not available from external sources, estimates have been made by the IEA. Methodological notes are provided in individual country pages or the country notes section.

All figures for individual countries are reported to the nearest whole number and totals may not equal the sum of components due to rounding.

Note that historic data are often recalculated. Therefore, the latest publication should be considered the most accurate. Regional and organisational summaries may also change based on country recalculations.

Countries' submitted monthly data is adjusted proportionately to maintain consistency with the most recent annual data for each generation source.

Publication and further information

This data is released in the middle of each month onto the IEA's Website:

- Data visualisation: <https://www.iea.org/reports/monthly-electricity-statistics-overview>
- Data download: <https://www.iea.org/data-and-statistics/data-product/monthly-electricity-statistics>

The data is made available for download in csv format. It includes data from January 2010 for OECD countries and from January 2015 for other countries. Subscriptions to this publication are available at <https://www.iea.org/subscribe-to-data-services>

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Basic definitions

Net Production: Net generation excludes power station own use.

Combustible Fuels/ Conventional Thermal: Production from fossil fuels (primary coal, coal products, peat and peat products, oil shale and oil sands, crude oil, NGL, oil products, natural gas) and combustible renewables and wastes (solid biofuels, biogases, liquid biofuels, industrial and municipal waste).

Coal: Production from primary coal, coal products, peat and peat products, oil shale and oil sands, and manufactured gas (such as coke-oven gas, blast-furnace gas and gas works gas).

Oil: Production from crude oil, natural gas liquids, refinery feedstocks, and petroleum products (such as refinery gases and fuel oil).

Natural Gas: Production from natural gas (including gas distributed via the grid that may contain very little amounts of blended other gases).

Combustible Renewables: Production from combustible renewables (such as solid biofuels, biogases, liquid biofuels, municipal renewable waste).

Other Combustible Fuels (non-renewables): Production from all other combustible fuels (such as industrial and non-renewable municipal solid waste).

Nuclear: Electricity produced using heat generated from nuclear fission.

Hydro: Net generation from hydro facilities including pumped storage production.

Wind: Electricity generated in on-shore and off-shore wind turbines using kinetic energy of wind.

Solar: Electricity generated using solar radiation. Includes thermal and photovoltaic.

Geothermal: Electricity generated using heat emitted from within the earth's crust, usually in the form of hot water or steam.

Other Renewables: Electricity generated from tide, wave, ocean and other non-combustible sources.

Non-Specified: Not elsewhere reported electricity generation.

Renewables: Includes electricity generation from Hydro, Wind, Solar, Geothermal, Other Renewables and Combustible Renewables

Non-Renewables: Includes electricity generation from Coal, Oil, Natural Gas, Other Combustibles, Nuclear and Non-specified sources.

Total Net Production: The sum of indigenous net electricity production by energy source.

Imports/Exports: Amounts of electricity that have crossed political boundaries of the country, a.k.a. physical flows, whether customs clearance has taken place or not.

Net Exports: Exports minus imports

Electricity supplied: Indigenous production + Imports - Exports. It includes Transmission and Distribution losses.

Used for Pumped Storage: Electricity consumed by pumping water into a reservoir in mixed and pure pumped storage hydro plants.

Transmission & Distribution Losses: All losses due to transport and distribution of electrical energy. Losses in transformers which are not considered as integral parts of the power plants are also included.

Electricity consumed: Electricity available (calculated as: Indigenous production + Imports - Exports - used for pumped storage - Transmission and distribution losses)

Low-carbon Power Generation: Renewables plus Nuclear electricity generation.

Year: Calendar year (January to December) unless otherwise stated.

Year-to-Date: The sum of all months from the start of the calendar year to the latest month.

Regional Groupings

OECD Total includes Australia, Austria, Belgium, Canada, Chile, Colombia, Costa Rica, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, the Slovak Republic, Slovenia, Switzerland, Republic of Turkiye, the United Kingdom and the United States.

Israel is not included in this report.

OECD Americas includes Canada, Chile, Colombia, Costa Rica, Mexico and the United States.

OECD Asia Oceania includes Australia, Japan, Korea and New Zealand.

OECD Europe includes Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Republic of Turkiye and the United Kingdom.

IEA includes all countries included in OECD Total except Chile, Iceland, Latvia and Slovenia.

Country notes

OECD Member Countries

Australia

Excludes the overseas territories.

Monthly data are adjusted according to data submitted on a fiscal year basis beginning 1st of July and ending 30th of June.

Monthly reporting for data prior to July 2016 does not include production from large-scale solar production, therefore it is estimated by the IEA Secretariat. Data reported after July 2016 includes rooftop solar, except for Western Australia and Northern Territory.

Monthly reporting does not include transmission and distribution losses or hydro used for pumped storage, therefore it is estimated by the IEA Secretariat.

Annual data shown are the sum of months and may differ from publications referring to Australian fiscal year (July-June).

Austria

Monthly reporting does not include production from geothermal, solar or other non-combustible fuels, therefore it is estimated by the IEA Secretariat based on annual submission since January 2003.

The last coal power plant in Austria closed in April 2020. From then on, coal production comes from autoproducer CHP plants and is mainly from coal products.

Belgium

The last main activity coal power plant closed in March 2016. From then on, coal production in Belgium comes mainly from manufactured gases.

Canada

Continually increasing levels of wind and solar coverage since January 2017 until December 2018.

New methodology and higher coverage since April 2019 (starting with MES January 2019 publication). Reviewed data back to January 2016.

Monthly reporting does not include the breakdown for conventional thermal production, therefore it is estimated by the IEA Secretariat.

Monthly reporting does not include transmission and distribution losses or hydro used for pumped storage, therefore it is estimated by the IEA Secretariat.

Chile

Chile was added to the MES report in February 2011. Historical data are available only from January 2006.

Colombia

Colombia was included in the MES Report in November 2020 becoming an OECD Member Country in April 2020.

Monthly reporting includes data from January 2014 onwards.

Monthly submissions are presented in gross values. The values in the MES report are net and are estimated by the IEA Secretariat.

Monthly submissions only include autoproduction that is injected back into the grid. Other autoproduction is estimated by the IEA Secretariat. This includes autoproduction from the hydrocarbon sector.

Costa Rica

Costa Rica joined the OECD in May 2021. Data for Costa Rica are available starting in January 2020.

Czech Republic

Monthly reporting did not include production from other non-combustible fuels, therefore it was estimated by the IEA Secretariat based on annual submission from January 2004 until December 2008.

Denmark

Excludes the Faroe Islands and Greenland.

Estonia

Estonia was added to the MES report in April 2011. Historical data are available only from January 2006.

Monthly reporting does not include the breakdown for conventional thermal production, therefore it is estimated by the IEA Secretariat.

Monthly reporting does not include transmission and distribution losses or hydro used for pumped storage, therefore it is estimated by the IEA Secretariat.

Finland

Peat power production is included in other combustible fuels.

Not elsewhere reported electricity generation is estimated based on annual submissions.

France

Includes Monaco. Since January 2018 it includes the French overseas territories: French Polynesia, Guadeloupe, Guyane, Martinique, New Caledonia, Reunion, Saint Pierre and Miquelon.

Monthly reporting does not include production from other non-combustible fuels, therefore it is estimated by the IEA Secretariat based on annual submission.

Production from other renewable sources is estimated based on annual submissions.

Not elsewhere reported electricity generation is estimated based on annual submissions.

Germany

Not elsewhere reported electricity generation is estimated from monthly submissions of production from main electricity producers.

Greece

Monthly reporting does not include production from other combustible fuels, therefore it was estimated by the IEA Secretariat based on annual submission.

Hungary

Net production was estimated from monthly submission of gross production through December 2015.

Not elsewhere reported electricity generation is estimated based on annual submissions.

Iceland

Monthly data is collected on the Eurostat Database.

Not elsewhere reported electricity generation is estimated based on annual submissions.

Ireland

Monthly reporting does not include solar production, therefore it was estimated by the IEA Secretariat based on annual submission.

Italy

Includes San Marino and the Vatican.

Monthly reporting does not include the breakdown for conventional thermal production, therefore it is estimated by the IEA Secretariat.

Monthly reporting does not include transmission and distribution losses or hydro used for pumped storage, therefore it is estimated by the IEA Secretariat.

Not elsewhere reported electricity generation is estimated based on annual submissions.

Japan

M-3 data is not available for Japan so the latest month is estimated by the IEA Secretariat.

Monthly data are adjusted according to data submitted on a fiscal year basis beginning 1st of April and ending 31st of March. Annual data shown are the sum of months and may differ from publications referring to Japanese fiscal year (April-March).

Since April 2017 electricity generation from biomass is reported in the coal category if it's co-fired with this fuel, and in combustible renewables if the combustion is mono-fuel.

Since April 2017 coal category included coal, bituminous mixture, natural gas (other than LNG), coke-oven gas and city gas.

Hydro generation includes plants with capacity of 1MW and over.

Monthly electricity production data does not include trade data.

Transmission and distribution losses or hydro used for pumped storage which are is estimated by the IEA Secretariat.

Korea

Monthly reporting of electricity production does not include autoproducers, therefore it is estimated by the IEA Secretariat based on annual submission.

Latvia

Latvia was added to the MES report in January 2017. Historical data are available only from January 2010.

The strong hydro performance in 2017-2018 agrees with historical patterns and is due to environmental reasons, most notably the increased inflow in the Daugava River.

Monthly reporting does not include solar production, therefore it was estimated by the IEA Secretariat based on annual submission.

Monthly reporting does not include transmission and distribution losses or hydro used for pumped storage, therefore it is estimated by the IEA Secretariat.

Lithuania

Monthly data available since January 2008.

Luxembourg

The Twinerg CCGT plant has been idle since April 2016 and was decommissioned in October 2016. This has caused decreased production from combustible fuels and, consequently, a decrease in exports.

Mexico

Monthly reporting of electricity production does not include autoproducers, therefore it is estimated by the IEA Secretariat based on annual submission.

Installations under 500 kW are not included in the reporting data, therefore it is estimated by the IEA Secretariat based on annual submission.

Electricity trade data is estimated by Mexico administration. It may be inconsistent with US data flows. This data is currently under review.

The data source changed in January 2020 and the data processing was then updated so that data is consistent in the whole set.

Monthly reporting does not include the breakdown for conventional thermal production, therefore it is estimated by the IEA Secretariat.

Monthly electricity production data does not include trade data, transmission and distribution losses or hydro used for pumped storage which are is estimated by the IEA Secretariat.

Netherlands

Excludes Suriname and the territory of the Former Netherlands Antilles.

There was no nuclear production in May and June 2017 due to plant maintenance. The nuclear production resumed in July 2017.

Not elsewhere reported electricity generation is estimated based on annual submissions.

New Zealand

Monthly data does not include solar production; therefore, it was estimated by the IEA Secretariat based on annual submission.

Monthly submissions only include main electricity producers, which supposes a 95% coverage. The rest of the electricity generation is estimated by the IEA Secretariat based on the annual submissions.

Norway

Monthly reporting does not include solar production, therefore it was estimated by the IEA Secretariat based on annual submission.

Natural gas figures since November 2020 are confidential and production from natural gas is reported as other combustible fuels.

Poland

Oil figures are confidential since January 2017 and are reported as other combustible fuels.

Mixed hydro figures are confidential since January 2017 and are reported as pure hydro.

Not elsewhere reported electricity generation is estimated based on annual submissions.

Portugal

Includes the Açores and Madeira since January 2015.

Slovak Republic

Monthly reporting does not include transmission and distribution losses or hydro used for pumped storage, therefore it is estimated by the IEA Secretariat.

Slovenia

Slovenia was added to the MES report in April 2011. Historical data are available only from January 2009.

Spain

Includes the Canary Islands, Balear Islands, Ceuta and Melilla.

Monthly reporting does not include mixed hydro production. It is estimated based on annual submissions.

Monthly reporting does not include production from other renewable sources or not elsewhere specified production. It is estimated based on annual submissions.

Sweden

Monthly reporting does not include production from solar, therefore it is estimated by the IEA Secretariat based on annual submission since January 2000.

Monthly reporting does not include the breakdown for wind production, therefore it is estimated by the IEA Secretariat based on annual submission.

Monthly reporting does not include the breakdown for hydro production and hydro used for pumped storage, therefore it is estimated by the IEA Secretariat based on annual submission.

The last coal-fired power plant in Sweden closed in April 2020.

Switzerland

Excludes Liechtenstein.

Monthly reporting does not include the breakdown for hydro production, therefore it was estimated by the IEA Secretariat based on annual submission.

Türkiye

Monthly reporting does not include transmission and distribution losses, therefore it is estimated by the IEA Secretariat.

United Kingdom

Monthly reporting does not include production from other renewable sources, therefore it is estimated by the IEA Secretariat.

United States

Includes the 50 States, the District of Columbia and Puerto Rico.

Electricity trade data has been estimated by the U.S. administration since July 2017. It may be inconsistent with the trade data from Mexico. This data is currently under review.

Selected Association countries and other non-OECD Economies

Argentina

Monthly data is collected from Argentine Wholesale Electricity Market Clearing Company CAMMESA.

Monthly production data only include main electricity producers. The rest of the electricity generation is estimated by the IEA Secretariat based on the annual submissions.

Monthly reporting includes Paraguayan hydro production from the Yacyreta binational dam. The Paraguayan share is estimated by the IEA Secretariat then discounted from the total Argentinian hydro production.

Brazil

Monthly data is collected from Brazil's power trade chamber CCEE.

Monthly production data only include main electricity producers. The rest of the electricity generation is estimated by the IEA Secretariat based on the annual submissions.

Monthly reporting includes Paraguayan hydro production from the Itaipu binational dam. The Paraguayan share is estimated by the IEA Secretariat then discounted from the total Brazilian hydro production.

Bulgaria

Monthly data is collected on the Eurostat Database.

China

Monthly data is collected from the National Bureau of Statistics.

Raw monthly production data is collected from the National Bureau of Statistics in gross values. All the data in the MES Report is presented in net values, therefore Chinese net production data is calculated based on IEA Secretariat estimates.

Raw production data for the months of January and February is reported combined. The IEA Secretariat have estimated production data for these two months based on annual data and the FGE China Gas Monthly Report.

Monthly reporting did not include disaggregated production from combustible fuels, therefore it is estimated by the IEA Secretariat based on annual data.

Monthly reporting did not include production from geothermal, therefore it is estimated by the IEA Secretariat based on annual data.

Monthly reporting did not include production from other renewables sources, therefore it is estimated by the IEA Secretariat based on annual data.

Croatia

Monthly data is collected on the Eurostat Database .

Monthly reporting did not include production from solar, therefore it was estimated by the IEA Secretariat based on annual submission from January 2015 until December 2016.

From January 2016 onwards solar production was included in the monthly reporting.

Not elsewhere reported electricity generation is estimated based on annual submissions.

Cyprus

Note by Republic of Turkiye:

The information in this document with reference to “Cyprus” relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Republic of Turkiye recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Republic of Turkiye shall preserve its position concerning the “Cyprus issue”.

Note by all the European Union member states of the OECD and the European Union:

The Republic of Cyprus is recognised by all members of the United Nations with the exception of Republic of Turkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Monthly data is collected on the Eurostat Database.

India

Monthly data is collected from the Central Electricity Authority and the National Power Portal.

Raw monthly production data is collected from the Central Electricity Authority in gross values. All the data in the MES Report is presented in net values, therefore Indian net production data is calculated based on IEA Secretariat estimates.

Monthly data are adjusted according to data submitted on a fiscal year basis beginning 1st of April and ending 31st of March.

Monthly production data only include main electricity producers. The rest of the electricity generation is estimated by the IEA Secretariat based on the annual submissions.

Monthly reporting did not include production from other combustible fuels, therefore it is estimated by the IEA Secretariat based on annual data.

Malta

Monthly data is collected on the Eurostat Database.

North Macedonia

Monthly data is collected on the Eurostat Database.

Romania

Monthly data is collected on the Eurostat Database.

Monthly reporting does not include transmission and distribution losses or hydro used for pumped storage, therefore it is estimated by the IEA Secretariat.

No geothermal value to be reported as the production level are too low to be accounted at a monthly scale.

Not elsewhere reported electricity generation is estimated based on annual submissions.

Serbia

Monthly data is collected on the Eurostat Database.