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Energy Statistics Pocketbook



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Department of Economic and Social Affairs

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The designations employed and the presentation of the material in the present publication do not imply the expression of any opinion whatsoever on the part of the United Nations concerning the legal status of any country or of its authorities, or the delimitations of its frontiers. The term “country” as used in this report also refers, as appropriate, to territories or areas. The designations of country groups are intended solely for statistical or analytical convenience and do not necessarily express a judgement about the stage reached by a particular country, territory or area in the development process. Mention of the names of firms and commercial products does not imply endorsement by the United Nations. The symbols of United Nations documents are composed of capital letters and numbers.

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Introduction

This publication is the eighth in a series of pocketbook compilations on energy statistics designed to highlight the availability of data on various aspects of energy production, transformation and use and its linkages to other key statistics. Energy is central to the achievement of the 2030 Agenda for Sustainable Development and the Paris Agreement on climate change, and sound energy statistics are the basis for the reliable measurement of progress, thereby assisting the formulation of policy measures to achieve international and national sustainable development goals.

The information in this publication is primarily based on the energy data collection carried out by the Energy Statistics Section of the United Nations Statistics Division (UNSD). The data are available in the 2022 editions of the Energy Statistics Yearbook, the Energy Balances and the Electricity Profiles, three annual UNSD publications that present energy data in basic indicator formats, as well as formats that show a more detailed picture of production, trade, transformation and consumption of energy products in more than 200 countries and territories.

The present publication aims to synthesize this information by highlighting key indicators and using different visualizations to show developments, dependencies and distributions in a way that standard data tables cannot convey.

More information about the data collection process, as well as the other three annual publications sourced from the same database as this pocketbook, are available at <https://unstats.un.org/unsd/energystats>.

Acknowledgements

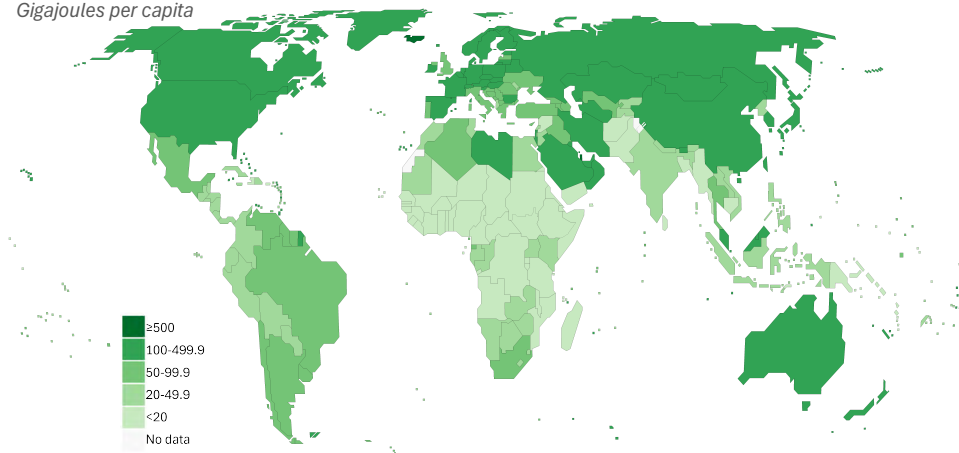
This publication has been compiled by the Energy Statistics Section of UNSD, which is headed by Leonardo Rocha Souza. The conceptual design of this pocketbook has been carried out by Leonardo Rocha Souza, Agnieszka Koscielniak and Costanza Giovannelli. Costanza Giovannelli took the lead in the graphic design, supported by Graham Osborn and Peng Guo, while Jessica Ying Chan contributed to the preparation of the supporting text of the pocketbook. The energy data used for the pocketbook have been collected and processed by the staff of the Energy Statistics Section.

Enquiries, comments and suggestions for improving this publication are welcome and should be addressed to: energy_stat@un.org.

Total energy supply

1. Total energy supply per capita, 2022

Gigajoules per capita



Source: UN Energy Statistics Database / UN Geospatial. The designations employed and the presentation of material on the maps in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

FACTS AND FIGURES

World total energy supply¹ (TES) was 619.2 EJ in 2022, increasing by 1.7% compared to 2021. The increase affected all regions but Oceania and Europe, and was most intense in Asia (+4.0%) and Northern America (+1.7%). In China alone, TES increased 7.0 EJ (+4.7%) between 2021 and 2022.

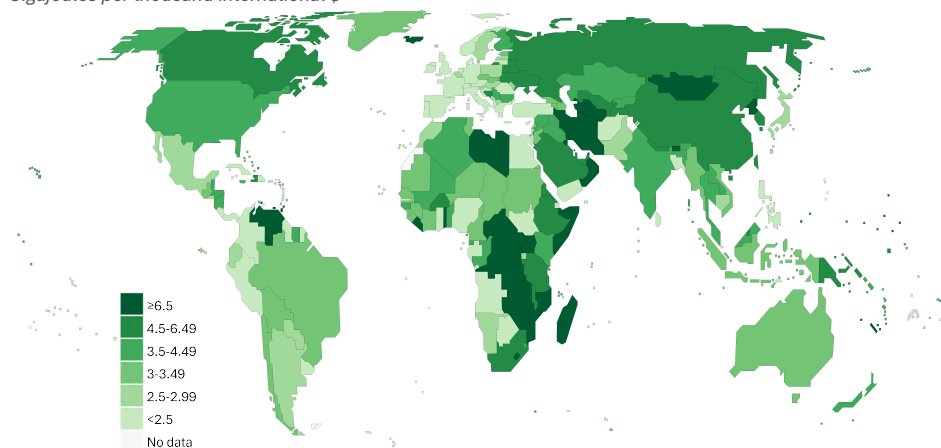
The Asian share of TES was more than half of the world total in 2022 (52.6%) with China accounting for more than a quarter of the world TES (25.1%). While 2021 saw a brief resurgence of Europe's TES, increasing by 7.4% from 2020 to 2021, this increase seems largely the product of the recovery from the pandemic, as Europe's TES decreased by 5.2% from 2021 to 2022.

International bunkers were equal to 14.3 EJ in 2022 (corresponding to 2.3% of world TES), showing a substantial increase compared to 2021 (+10.8%) but remaining well below the levels reached before the pandemic.

(1) See notes on pages 68-73.

2. Energy intensity², 2022

Gigajoules per thousand international \$



Source: UN Energy Statistics Database / UN Geospatial. The designations employed and the presentation of material on the maps in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

3. Energy supply (total, per capita and energy intensity²), major countries, 2022

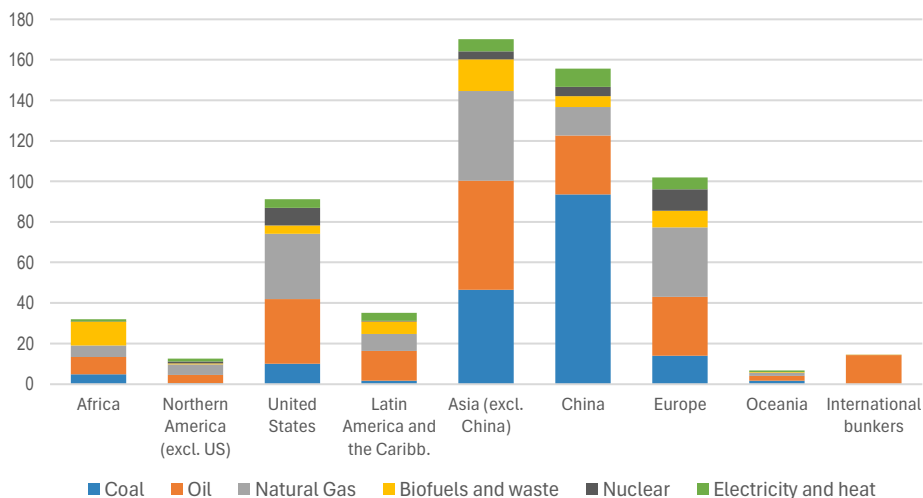
Exajoules, gigajoules per capita and gigajoules per thousand international \$

Country	TES	Country	TES per capita	Country	Energy intensity ²
China	155.6	Iceland	968.8	Trinidad and Tobago	15.4
United States	91.1	Qatar	637.7	Iceland	14.6
India	44.1	Trinidad and Tobago	439.7	Turkmenistan	13.8
Russian Federation	33.5	Bahrain	438.7	Liberia	12.5
Japan	16.5	Brunei Darussalam	395.6	New Caledonia	11.6
Indonesia	12.5	Kuwait	386.0	Palau	11.0
Canada	12.5	United Arab Emirates	349.6	Dem. Rep. of the Congo	10.4
Brazil	12.3	Canada	320.9	Mozambique	10.2
World	619.2	World	77.2	World	3.8

(2) See notes on pages 68-73.

4. Total energy supply by region and source, 2022

Exajoules



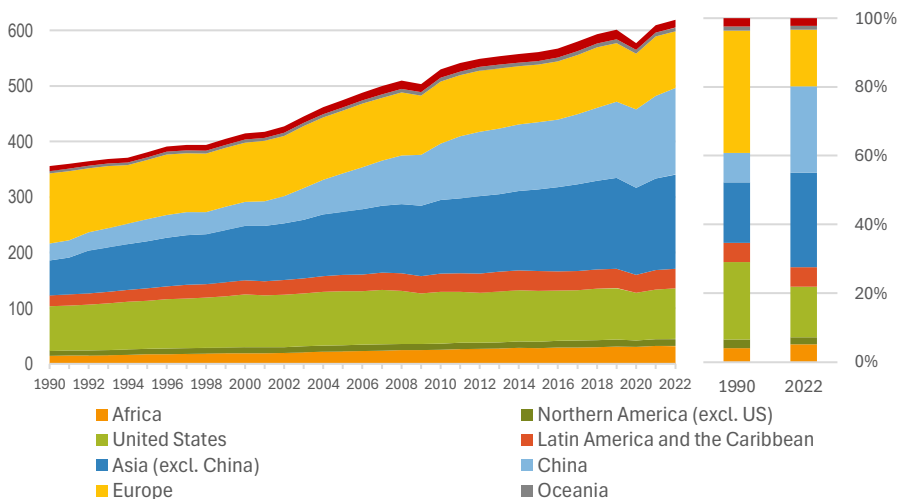
5. Total energy supply by region and source, 2022

Exajoules

Region	Coal	Oil	Natural gas	Biofuels and waste	Nuclear	Electricity and heat	TES
Africa	4.7	8.5	5.7	11.9	0.1	1.0	31.9
Northern America (excl. US)	0.3	4.2	5.1	0.5	0.9	1.4	12.5
United States	10.0	31.8	32.3	4.2	8.7	4.2	91.1
Latin America and the Caribbean	1.6	14.7	8.4	6.1	0.4	4.0	35.1
Asia (excl. China)	46.5	53.7	44.2	15.7	3.9	6.0	170.1
China	93.6	29.0	14.1	5.4	4.5	9.0	155.6
Europe	13.9	29.1	34.2	8.3	10.5	5.9	102.0
Oceania	1.7	2.3	1.6	0.3	0.0	0.7	6.6
<i>International bunkers</i>	<i>0.0</i>	<i>14.3</i>	<i>0.01</i>	<i>0.02</i>	<i>-</i>	<i>-</i>	<i>14.3</i>
World	172.3	187.5	145.7	52.4	29.0	32.2	619.2

6. Total energy supply by region, 1990-2022

Exajoules and percentage



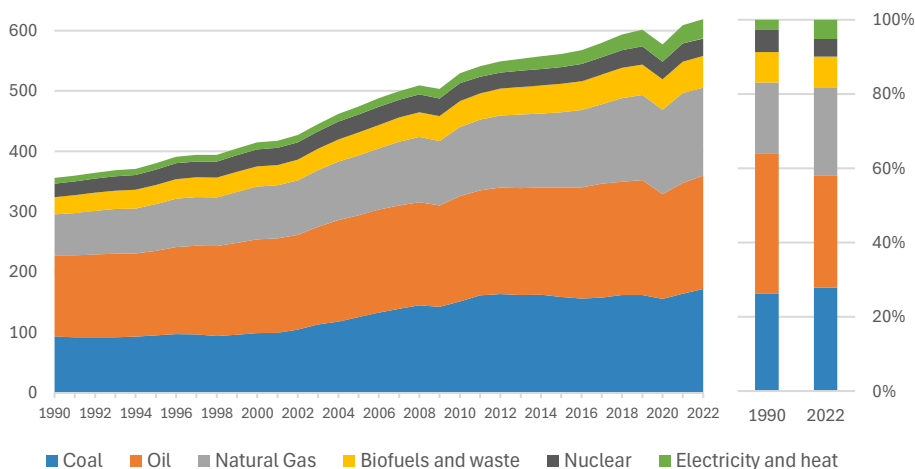
7. Total energy supply by region, 1990, 2000, 2010, 2020 and 2022

Exajoules

Region	1990	2000	2010	2020	2022
Africa	14.3	18.8	25.3	30.0	31.9
Northern America (excl. US)	8.9	10.6	10.9	11.9	12.5
United States	80.3	95.3	92.9	85.4	91.1
Latin America and the Caribbean	19.7	25.5	33.1	32.4	35.1
Asia (excl. China)	62.8	98.1	132.3	156.8	170.1
China	30.5	43.0	101.6	141.2	155.6
Europe	126.3	106.7	112.0	100.1	102.0
Oceania	4.4	5.5	6.5	6.9	6.6
International bunkers	8.8	11.2	14.9	12.2	14.3
World	355.8	414.8	529.5	576.9	619.2

8. World total energy supply by source, 1990-2022

Exajoules and percentage



9. World total energy supply by source, 1990, 2000, 2010, 2020 and 2022

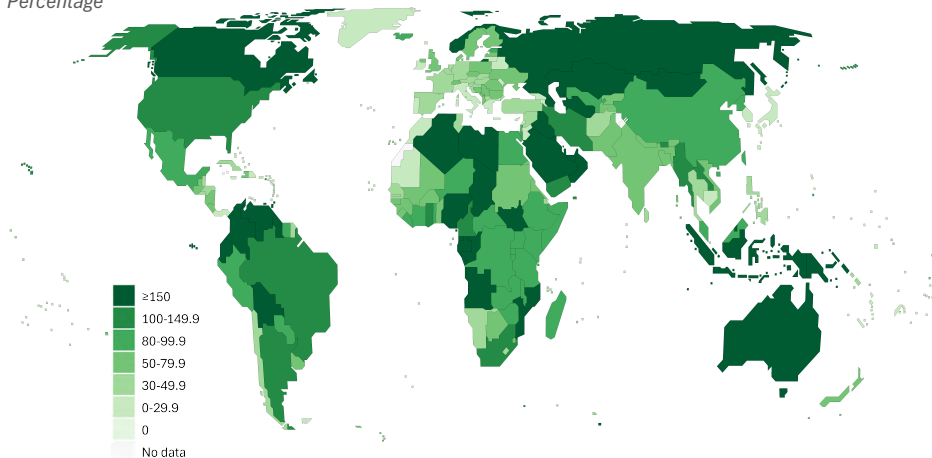
Exajoules

Source	1990	2000	2010	2020	2022
Coal	93.5	99.2	151.6	155.8	172.3
Oil	134.5	155.1	173.9	173.0	187.5
Natural gas	67.7	87.3	114.7	140.1	145.7
Biofuels and waste	29.0	33.5	42.7	50.4	52.4
Nuclear	21.8	28.0	29.8	28.9	29.0
Electricity and heat	9.3	11.7	16.7	28.7	32.2
Total	355.8	414.8	529.5	576.9	619.2

Primary energy production

10. Energy self-sufficiency³, 2022

Percentage



Source: UN Energy Statistics Database / UN Geospatial. The designations employed and the presentation of material on the maps in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

FACTS AND FIGURES

World primary energy production increased to 627 EJ in 2022, a 3.5% increase compared to 2021. Since 1990, primary production increased by 74.4%, corresponding to an average compounded yearly growth of 1.8%. Oil, coal and natural gas, in this order, are the largest energy sources, together representing 82.0% of total primary energy production.

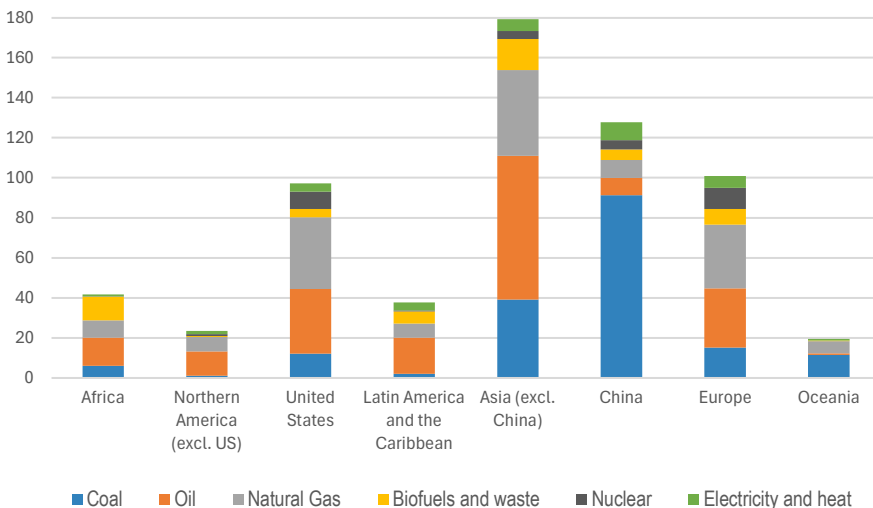
A significant share of 2022 primary energy production occurred in a handful of countries:

- Six countries produced 88.2% of all primary coal, with China alone producing more than half (51.2%) of the world's coal;
- Five countries concentrated more than half of all primary oil production (54.2%), with the United States topping oil production with 17.3% of world production;
- Four countries (United States, Russian Federation, Iran and China) produced more than half of all natural gas (52.5%). Of the major four producers, the largest increase between 2021 and 2022 was in the United States, where natural gas production rose by 1.8 EJ (+5.2%). On the other hand, the largest decrease was in Russia, where natural gas production dropped by 3.1 EJ (-11.4%).

(3) See notes on pages 68-73.

11. Primary energy production by region and source, 2022

Exajoules



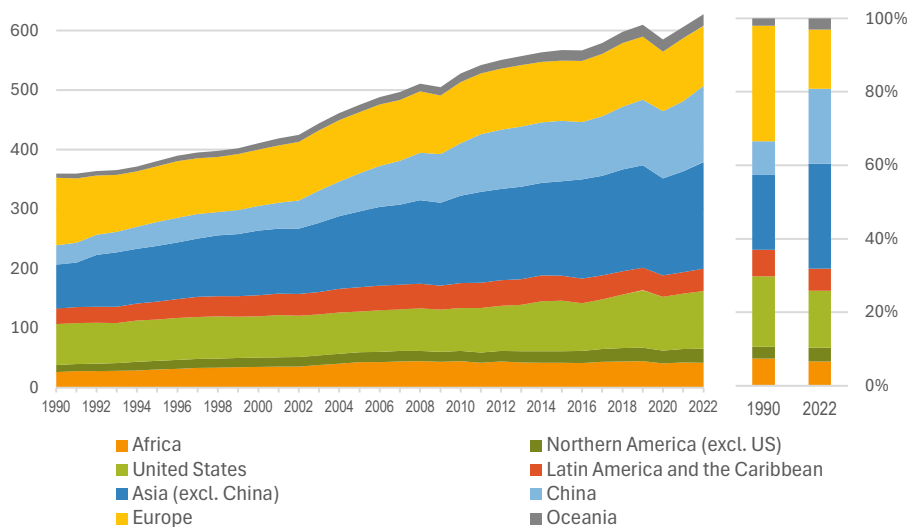
12. Primary energy production by region and source, 2022

Exajoules

Region	Coal	Oil	Natural gas	Biofuels and waste	Nuclear	Electricity and heat	Total
Africa	6.1	14.1	8.7	11.8	0.1	1.0	41.7
Northern America (excl. US)	1.1	12.1	7.2	0.5	0.9	1.6	23.5
United States	12.1	32.3	35.8	4.2	8.7	4.0	97.1
Latin America and the Caribbean	2.1	18.0	7.0	6.2	0.4	4.0	37.7
Asia (excl. China)	39.1	71.8	42.8	15.6	3.9	5.9	179.2
China	91.3	8.6	8.9	5.4	4.5	9.0	127.8
Europe	15.2	29.6	31.7	7.8	10.5	6.0	100.9
Oceania	11.5	0.9	6.1	0.3	0.0	0.7	19.5
World	178.5	187.4	148.2	51.9	29.0	32.3	627.2

13. Total primary energy production by region, 1990-2022

Exajoules and percentage



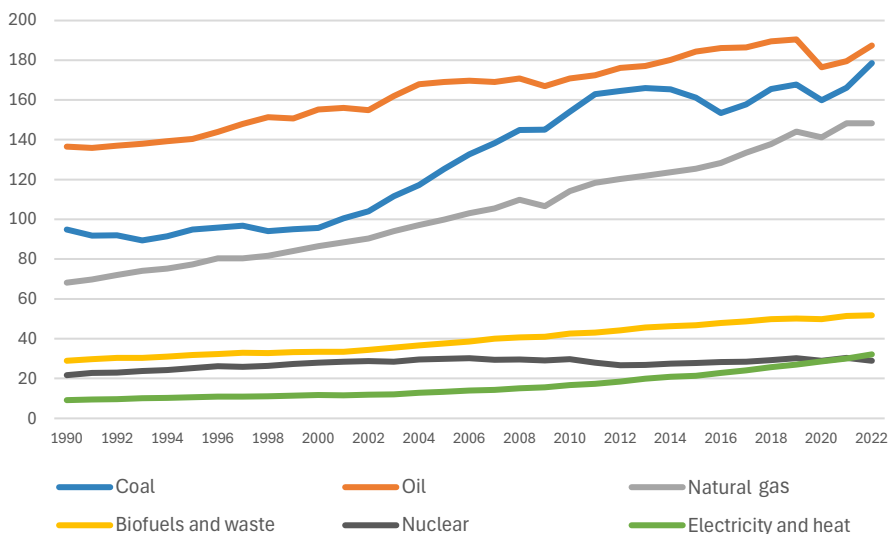
14. Total primary energy production by region, 1990, 2000, 2010, 2020 and 2022

Exajoules

Region	1990	2000	2010	2020	2022
Africa	26.5	34.4	44.6	40.4	41.7
Northern America (excl. US)	11.6	15.6	16.7	21.7	23.5
United States	69.1	69.7	72.3	90.4	97.1
Latin America and the Caribbean	25.8	35.4	41.8	35.7	37.7
Asia (excl. China)	73.5	108.4	146.7	163.2	179.2
China	32.8	41.3	88.6	112.7	127.8
Europe	112.9	95.0	102.7	100.2	100.9
Oceania	7.4	10.6	14.5	20.3	19.5
World	359.6	410.6	528.0	584.7	627.2

15. World primary energy production by source, 1990-2022

Exajoules



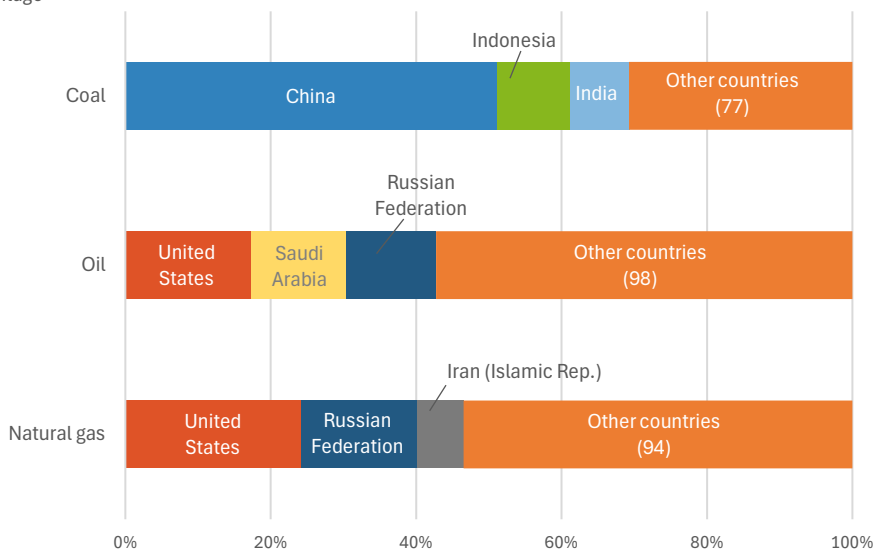
16. World primary energy production by source, 1990, 2000, 2010, 2020 and 2022

Percentage

Source	1990	2000	2010	2020	2022
Coal	26.4%	23.3%	29.2%	27.3%	28.5%
Oil	38.0%	37.8%	32.3%	30.2%	29.9%
Natural gas	19.0%	21.1%	21.6%	24.1%	23.6%
Biofuels and waste	8.1%	8.2%	8.1%	8.5%	8.3%
Nuclear	6.1%	6.8%	5.6%	4.9%	4.6%
Electricity and heat	2.6%	2.8%	3.2%	4.9%	5.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

17. Primary production of coal, oil, and natural gas, major countries, 2022

Percentage

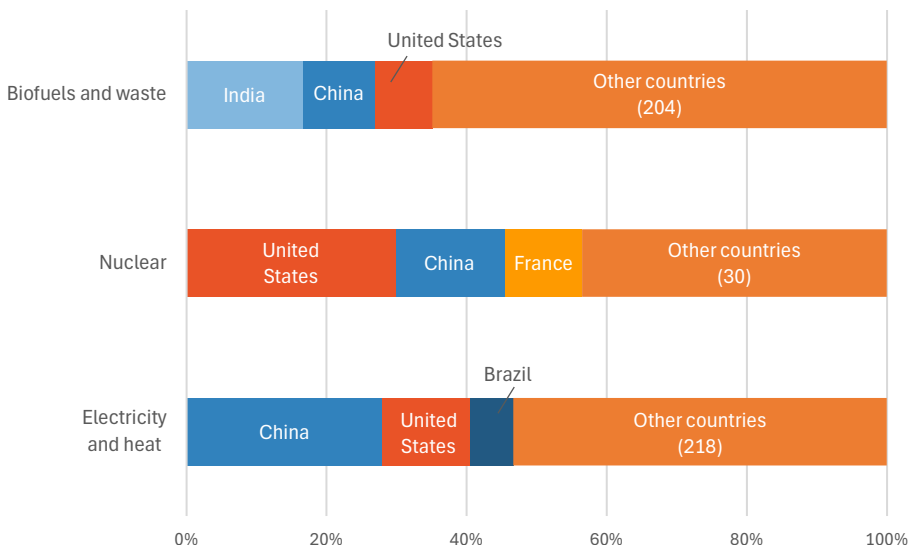


18. Primary production of coal, oil, and natural gas, major countries, 2022

Exajoules

Coal		Oil		Natural gas	
China	91.3	United States	32.3	United States	35.8
Indonesia	17.8	Saudi Arabia	24.6	Russian Federation	23.7
India	14.6	Russian Federation	23.1	Iran (Islamic Republic of)	9.4
United States	12.1	Canada	12.1	China	8.9
Australia	11.4	Iraq	9.3	Canada	7.2
Russian Federation	10.2	China	8.6	Qatar	6.3
South Africa	5.4	United Arab Emirates	8.1	Australia	5.5
Kazakhstan	2.1	Brazil	6.6	Norway	4.6
Others	13.6	Others	62.6	Others	46.8
World	178.5	World	187.4	World	148.2

19. Primary production of biofuels and waste, nuclear, and electricity and heat, major countries, 2022 – Percentage

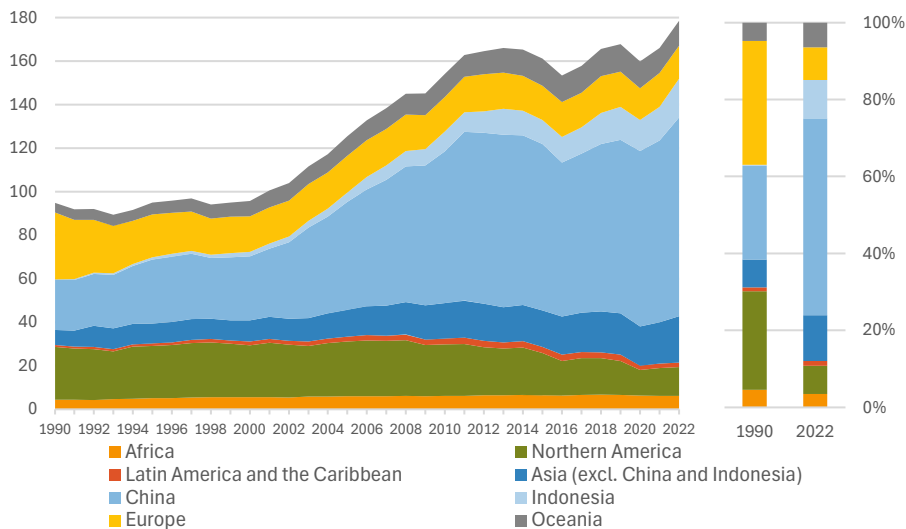


20. Primary production of biofuels and waste, nuclear, and electricity and heat, major countries, 2022 – Exajoules

Biofuels and waste		Nuclear		Electricity and heat	
India	8.6	United States	8.7	China	9.0
China	5.4	China	4.5	United States	4.0
United States	4.2	France	3.2	Brazil	2.0
Brazil	3.8	Russian Federation	2.4	Canada	1.6
Ethiopia	1.7	Republic of Korea	1.9	India	1.3
Germany	1.4	Canada	0.9	Türkiye	0.9
Dem. Rep. Congo	1.4	Ukraine	0.7	Germany	0.8
Indonesia	1.2	Spain	0.6	Japan	0.8
Others	24.2	Others	6.0	Others	11.9
World	51.9	World	29.0	World	32.3

21. Primary production of coal by region, 1990-2022

Exajoules and percentage



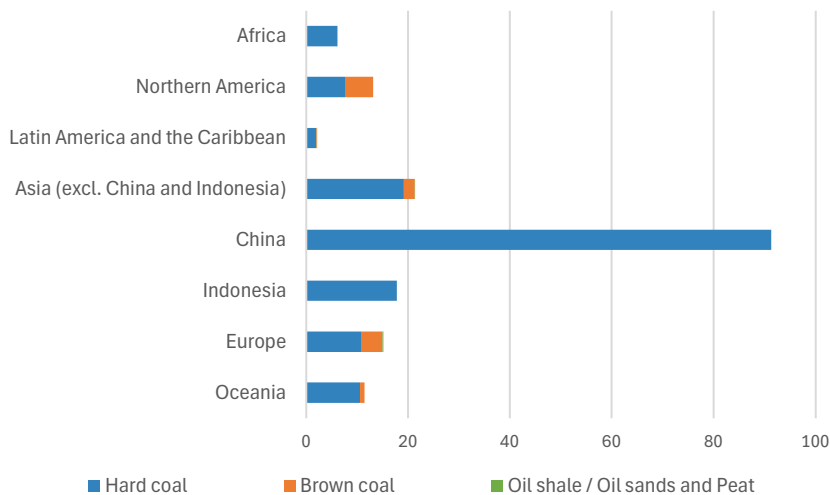
22. Primary production of coal by region, 1990, 2000, 2010, 2020 and 2022

Exajoules

Region	1990	2000	2010	2020	2022
Africa	4.3	5.5	6.1	6.3	6.1
Northern America	24.3	23.9	23.7	11.8	13.1
Latin America and the Caribbean	0.9	1.6	2.5	1.9	2.1
Asia (excl. China and Indonesia)	6.9	9.8	16.4	18.1	21.4
China	23.1	29.5	69.7	80.5	91.3
Indonesia	0.2	1.9	9.2	14.3	17.8
Europe	30.6	16.5	15.9	14.5	15.2
Oceania	4.5	7.0	10.6	12.4	11.5
World	94.8	95.7	154.0	159.8	178.5

23. Primary production of coal by region and type of fuel, 2022

Exajoules



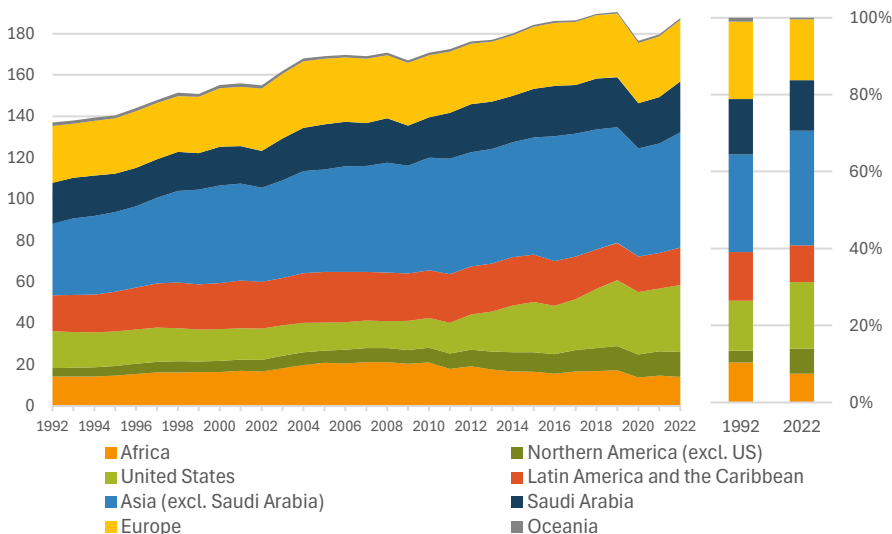
24. Primary production of coal by region and type of fuel, 2022

Exajoules

Region	Hard coal	Brown coal	Oil shale/ Peat	Total
Africa	6.1	0.0	0 ⁺	6.1
Northern America	7.7	5.5	0.0	13.1
Latin America and the Caribbean	2.0	0.1	0 ⁺	2.1
Asia (excl. China and Indonesia)	19.2	2.2	0 ⁺	21.4
China	91.3	0.0	0.0	91.3
Indonesia	17.8	0.0	0.0	17.8
Europe	10.8	4.2	0.2	15.2
Oceania	10.6	0.9	0.0	11.5
World	165.5	12.8	0.2	178.5

25. Primary production of oil by region, 1992-2022

Exajoules and percentage



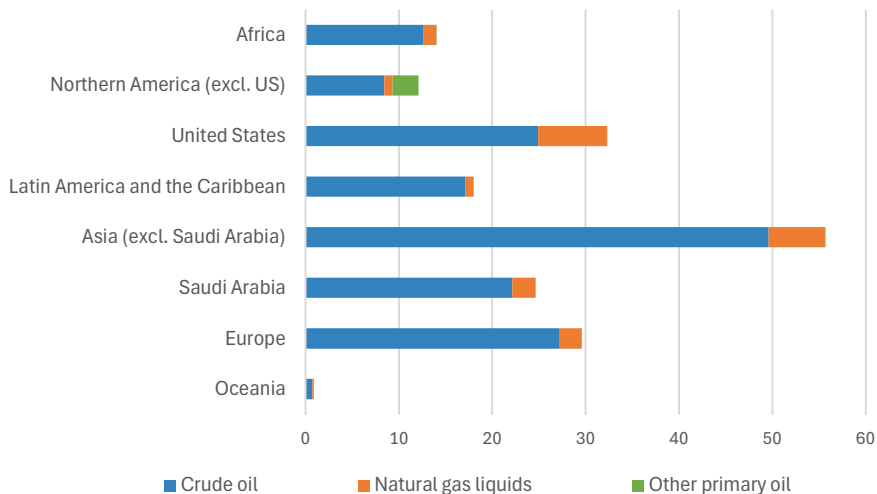
26. Primary production of oil by region, 1992, 2000, 2010, 2020 and 2022

Exajoules

Region	1992	2000	2010	2020	2022
Africa	14.2	16.4	21.1	13.8	14.1
Northern America (excl. US)	4.1	5.4	7.0	11.1	12.1
United States	17.8	15.3	14.4	30.2	32.3
Latin America and the Caribbean	17.3	22.3	23.1	17.2	18.0
Asia (excl. Saudi Arabia)	34.7	47.2	54.3	52.2	55.7
Saudi Arabia	19.7	18.7	19.6	21.8	24.6
Europe	27.5	28.3	30.0	29.2	29.6
Oceania	1.5	1.7	1.2	1.0	0.9
World	137.0	155.2	170.8	176.4	187.4

27. Primary production of oil by region and type of fuel, 2022

Exajoules



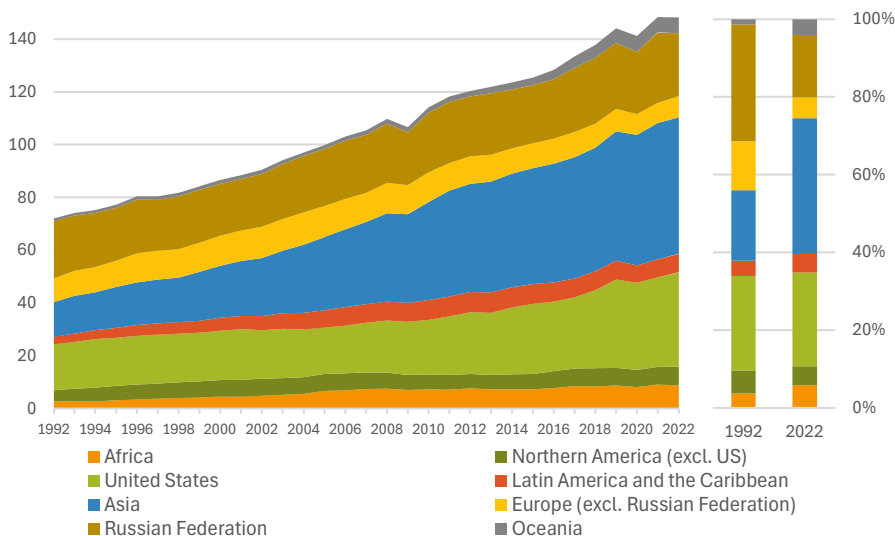
28. Primary production of oil by region and type of fuel, 2022

Exajoules

Region	Crude oil	Natural gas liquids	Other primary oil	Total
Africa	12.7	1.4	0.02	14.1
Northern America (excl. US)	8.4	0.9	2.8	12.1
United States	24.9	7.4	0.0	32.3
Latin America and the Caribbean	17.1	0.9	0.01	18.0
Asia (excl. Saudi Arabia)	49.6	6.0	0.1	55.7
Saudi Arabia	22.1	2.5	0.0	24.6
Europe	27.1	2.4	0.1	29.6
Oceania	0.7	0.2	0.0	0.9
World	162.8	21.6	3.0	187.4

29. Production of natural gas by region, 1992-2022

Exajoules and percentage



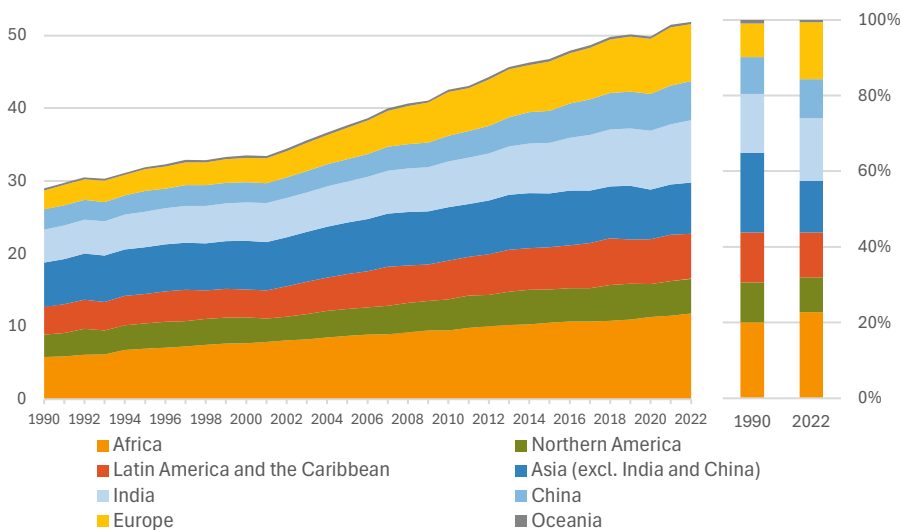
30. Production of natural gas by region, 1992, 2000, 2010, 2020 and 2022

Exajoules

Region	1992	2000	2010	2020	2022
Africa	2.6	4.5	7.3	8.1	8.7
Northern America (excl. US)	4.3	6.2	5.5	6.5	7.2
United States	17.5	18.7	20.7	33.0	35.8
Latin America and the Caribbean	2.8	5.0	7.5	6.6	7.0
Asia	13.1	19.7	37.1	49.5	51.8
Europe (excl. Russian Federation)	9.0	11.4	11.3	7.9	8.0
Russian Federation	21.7	19.7	22.6	23.6	23.7
Oceania	1.0	1.4	2.0	6.0	6.1
World	72.0	86.6	114.1	141.1	148.2

31. Primary production of biofuels and waste by region, 1990-2022

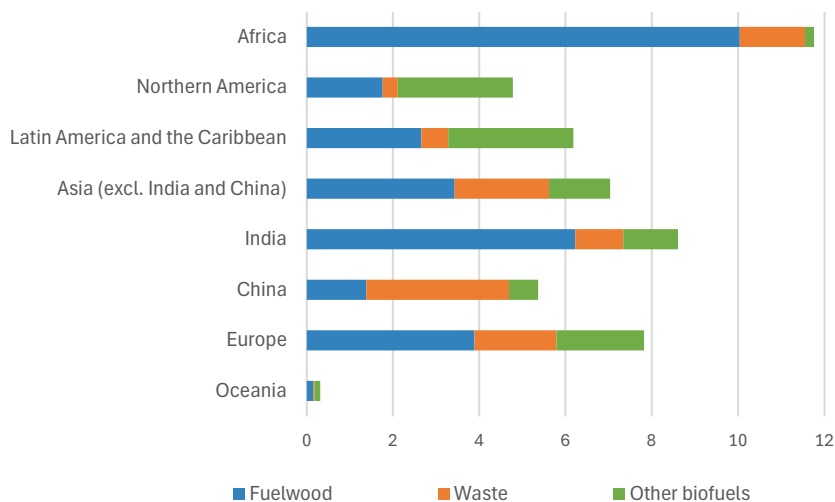
Exajoules and percentage



32. Primary production of biofuels and waste by region, 1990, 2000, 2010, 2020 and 2022

Exajoules

Region	1990	2000	2010	2020	2022
Africa	5.8	7.6	9.4	11.3	11.8
Northern America	3.1	3.6	4.3	4.5	4.8
Latin America and the Caribbean	3.8	3.8	5.3	6.2	6.2
Asia (excl. India and China)	6.1	6.7	7.3	6.8	7.0
India	4.5	5.3	6.3	8.1	8.6
China	2.8	2.8	3.5	5.1	5.4
Europe	2.6	3.3	6.0	7.6	7.8
Oceania	0.3	0.3	0.3	0.3	0.3
World	28.9	33.5	42.5	49.8	51.9

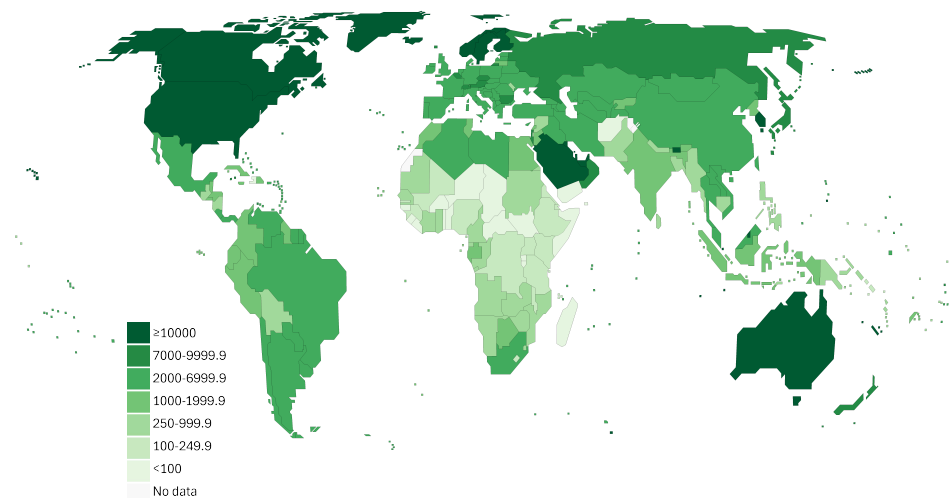
33. Primary production of biofuels and waste by region and type of fuel, 2022*Exajoules***34. Primary production of biofuels and waste by region and type of fuel, 2022***Exajoules*

Region	Fuelwood	Waste	Other biofuels	Total
Africa	10.0	1.5	0.2	11.8
Northern America	1.8	0.4	2.7	4.8
Latin America and the Caribbean	2.7	0.6	2.9	6.2
Asia (excl. India and China)	3.4	2.2	1.4	7.0
India	6.2	1.1	1.3	8.6
China	1.4	3.3	0.7	5.4
Europe	3.9	1.9	2.0	7.8
Oceania	0.2	0.02	0.1	0.3
World	29.5	11.0	11.3	51.9

Electricity

35. Electricity generation per capita, 2022

Kilowatt hours per capita



Source: UN Energy Statistics Database / UN Geospatial. The designations employed and the presentation of material on the maps in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

FACTS AND FIGURES

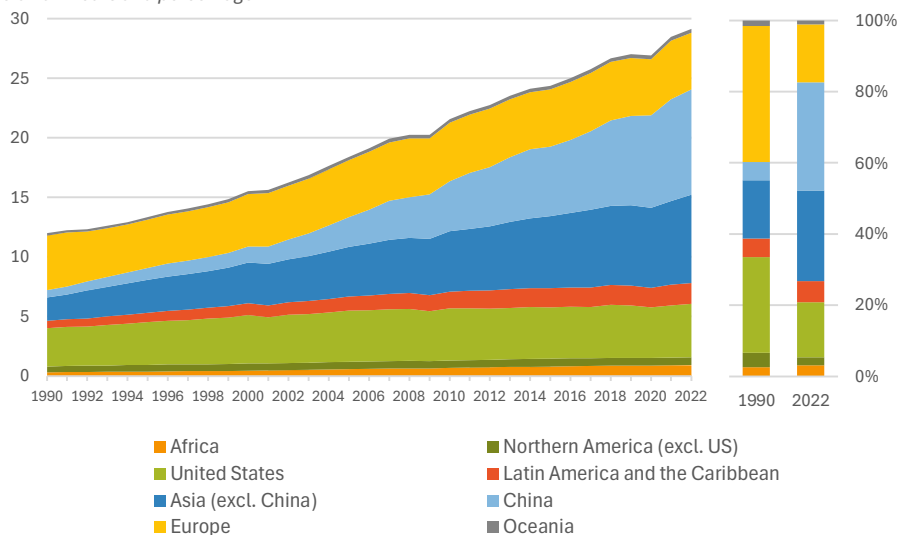
In 2022, total electricity generation reached 29.1 PWh, a 2.5% increase from 2021. Overall, electricity from renewable sources kept increasing in 2022 at a much faster pace than thermal electricity; for example, solar grew by 26.4%, and wind grew by 13.5%, while electricity generated from thermal sources increased by 1.3% in comparison to 2021.

In the long run, electricity production increased by 143.3% between 1990 and 2022; the largest absolute growth was observed for electricity generated from coal (+6,046 TWh or +136.0%) and natural gas (+4,820 TWh or +269.4%). However, the fastest growth was recorded for electricity generated from solar, wind and other sources⁴ (+5,702.8% or +3,507 TWh). In 2022, 70.8% of all electricity was generated from non-renewable sources (20,623 TWh), mainly from non-renewable thermal (61.4% or 17,891 TWh) and nuclear sources (9.2% or 2,682 TWh). In addition, renewable electricity accounted for 66.2% of global electricity capacity additions since 2010, growing to 3,544 GW in 2022 and reaching 41.5% of total electricity capacity.

(4) See notes on pages 68-73.

36. Total electricity generation by region, 1990-2022

Petawatt hours and percentage



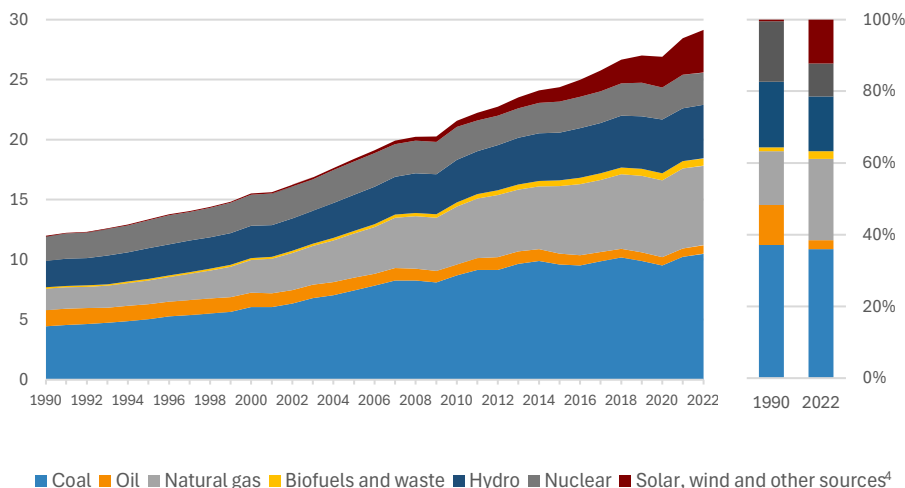
37. Total electricity generation by region, 1990, 2000, 2010, 2020 and 2022

Terawatt hours

Region	1990	2000	2010	2020	2022
Africa	311.6	437.3	677.6	851.7	912.3
Northern America (excl. US)	483.3	607.2	604.2	652.7	652.6
United States	3,218.6	4,052.7	4,378.4	4,260.0	4,495.4
Latin America and the Caribbean	624.5	1,010.7	1,405.4	1,625.5	1,744.2
Asia (excl. China)	1,957.5	3,402.7	5,069.1	6,713.5	7,407.3
China	621.2	1,355.6	4,207.2	7,779.1	8,848.7
Europe	4,571.5	4,386.8	4,913.8	4,695.8	4,757.2
Oceania	192.9	258.0	308.1	321.8	328.7
World	11,981.2	15,510.9	21,563.8	26,900.0	29,146.3

38. World electricity generation by source, 1990-2022

Petawatt hours and percentage



39. World electricity generation by source, 1990, 2000, 2010, 2020 and 2022

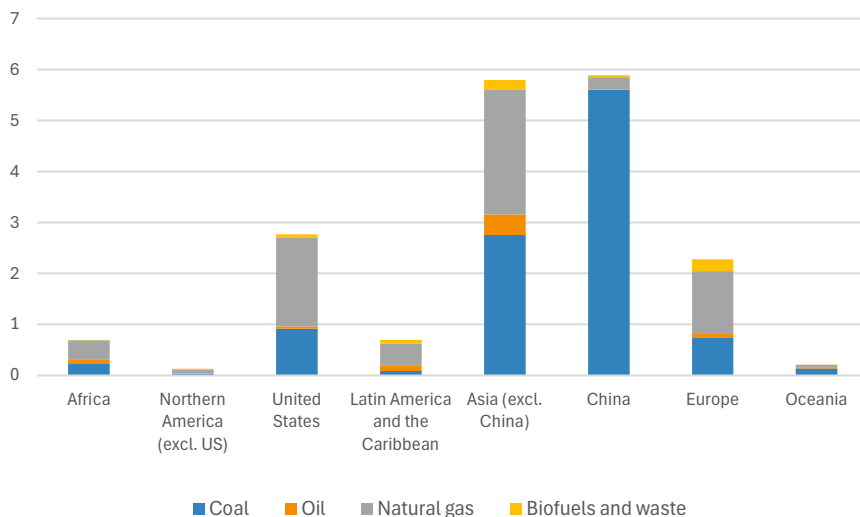
Terawatt hours

Source	1990	2000	2010	2020	2022
Thermal	7,706.9	10,111.2	14,768.1	17,189.3	18,430.0
- Coal	4,445.1	6,042.3	8,668.2	9,507.2	10,491.2
- Oil	1,341.4	1,197.3	919.3	690.1	714.7
- Natural gas	1,789.2	2,707.4	4,838.3	6,396.1	6,609.7
- Biofuels and waste	131.2	164.2	342.4	595.9	614.3
Nuclear	2,019.8	2,589.0	2,756.3	2,676.4	2,682.4
Hydro	2,193.0	2,706.9	3,528.6	4,470.3	4,466.0
Solar, wind and other sources ⁴	61.5	103.8	510.8	2,564.1	3,568.0
Total	11,981.2	15,510.9	21,563.8	26,900.0	29,146.3

(4) See notes on pages 68-73.

40. Thermal electricity generation by region and source, 2022

Petawatt hours



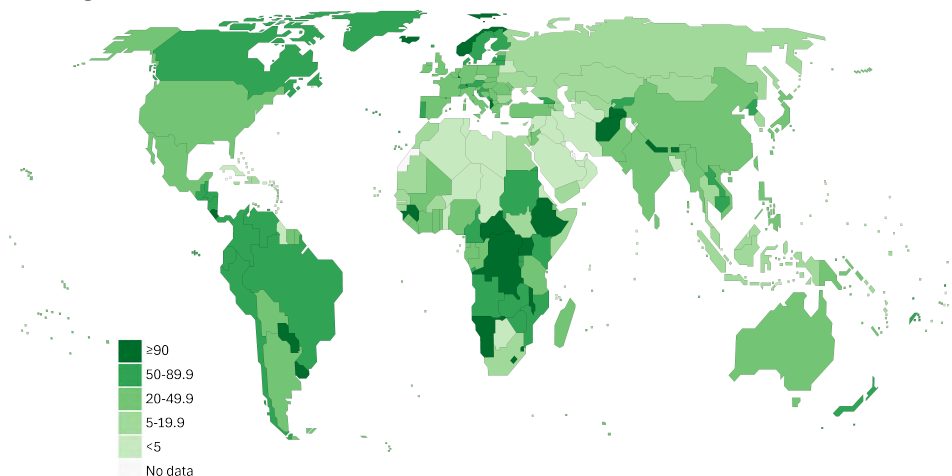
41. Thermal electricity generation by region and source, 2022

Terawatt hours

Region	Coal	Oil	Natural gas	Biofuels and waste	Total
Africa	236.6	64.4	382.2	3.1	686.2
Northern America (excl. US)	26.3	6.1	82.5	9.2	124.1
United States	913.3	42.5	1,740.4	66.4	2,762.7
Latin America and the Caribbean	81.4	116.8	416.3	77.7	692.2
Asia (excl. China)	2,754.0	398.9	2,457.3	181.7	5,791.9
China	5,598.2	8.7	245.7	36.1	5,888.8
Europe	745.2	65.6	1,230.2	236.1	2,277.1
Oceania	136.2	11.8	55.0	4.0	207.0
World	10,491.2	714.7	6,609.7	614.3	18,430.0

42. Renewable electricity share in total electricity generation, 2022

Percentage



Source: UN Energy Statistics Database / UN Geospatial. The designations employed and the presentation of material on the maps in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

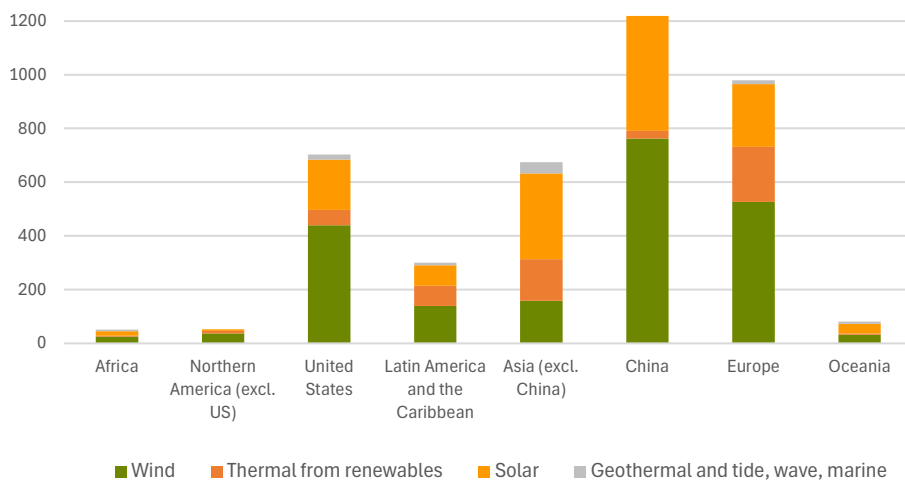
43. Renewable electricity generation by type (hydro, wind, total), major countries, 2022

Terawatt hours

Country	Hydro	Country	Wind	Country	Total renewables
China	1,352.2	China	762.7	China	2,571.0
Brazil	427.1	United States	439.3	United States	981.7
Canada	397.7	Germany	124.8	Brazil	593.9
United States	279.1	Brazil	81.6	Canada	449.4
Russian Federation	199.4	India	80.7	India	415.2
India	162.5	United Kingdom	80.3	Germany	257.0
Others	1,648.0	Others	548.1	Others	3,255.1
World	4,466.0	World	2,117.5	World	8,523.3

44. Electricity from non-hydro renewable sources by region and type, 2022

Terawatt hours

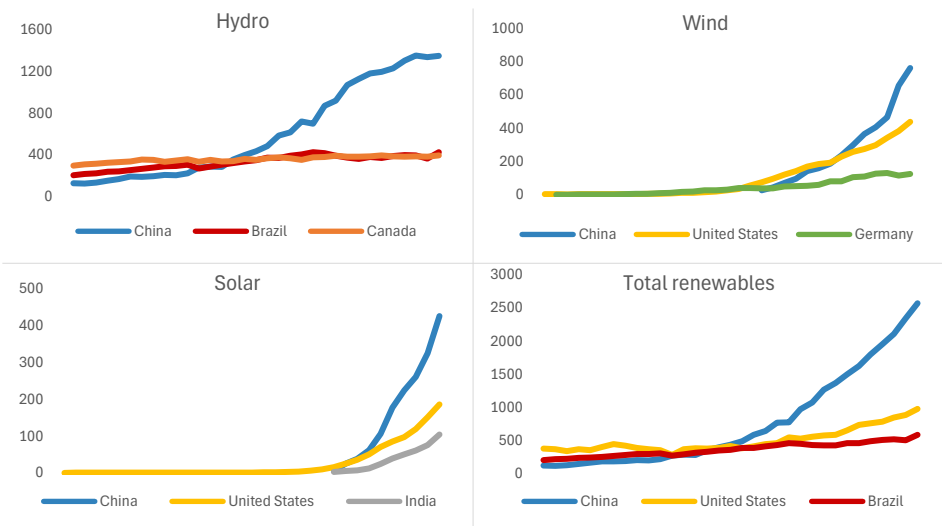
**45. Electricity from non-hydro renewable sources by region and type, 2022**

Terawatt hours

Region	Wind	Thermal (ren.)	Solar	Geoth. & tide	Total
Africa	24.6	3.1	17.3	5.5	50.4
Northern America (excl. US)	36.9	9.1	5.7	0.0	51.7
United States	439.3	57.1	187.1	19.1	702.6
Latin America and the Caribbean	138.3	75.9	76.4	9.5	300.2
Asia (excl. China)	157.6	155.8	319.6	41.7	674.6
China	762.7	28.9	427.3	0.0	1,218.8
Europe	526.2	204.9	234.5	13.3	978.9
Oceania	32.0	4.0	35.4	8.6	80.1
World	2,117.5	538.8	1,303.4	97.7	4,057.4

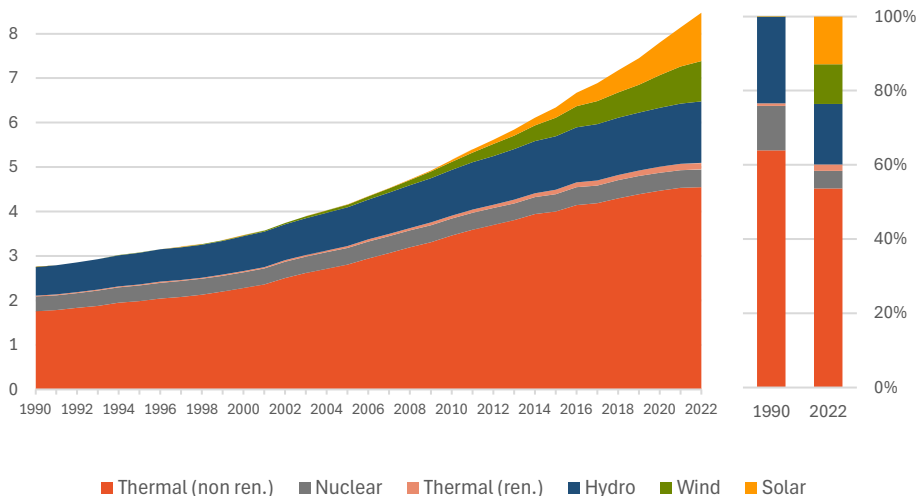
46. Renewable electricity by type, major countries in 2022, 1990-2022

Terawatt hours



47. Renewable electricity by type, major countries in 2022, 1990 and 2022, and share in total electricity generation, 2022 – Gigawatt hours and percentage

Hydro	1990	2022	%2022	Wind	1990	2022	%2022
China	126,720	1,352,195	15%	China	0	762,672	8.6%
Brazil	206,708	427,114	63%	United States	3,066	439,270	9.8%
Canada	296,848	397,727	61%	Germany	215 ¹⁹⁹¹	124,816	21.5%
Solar	1990	2022	%2022	Total renewables	1990	2022	%2022
China	0	427,270	4.8%	China	126,720	2,571,036	29.1%
United States	666	187,071	4.2%	United States	385,049	981,698	21.8%
India	0	104,740	5.8%	Brazil	210,567	593,905	87.7%

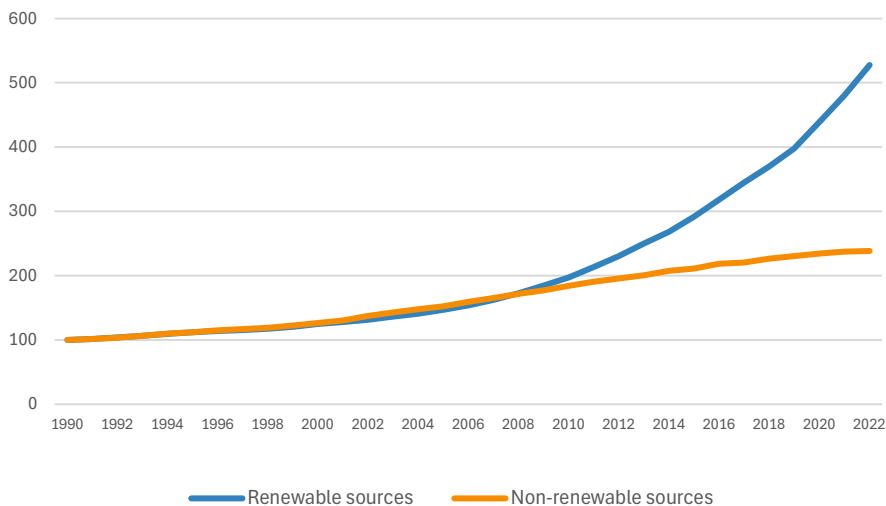
48. World electricity capacity by type⁵, 1990-2022*Terawatts and percentage***49. World electricity capacity by type⁵, 1990, 2000, 2010, 2020 and 2022***Gigawatts*

Type	1990	2000	2010	2020	2022
Non-renewable, of which	2,090.6	2,636.6	3,851.7	4,900.7	4,987.7
- Thermal (non-ren.)	1,760.2	2,278.0	3,461.2	4,471.2	4,550.8
- Nuclear	330.4	358.3	381.8	401.4	397.9
Renewable, of which	671.4	838.4	1,324.0	2,945.9	3,544.0
- Thermal (ren.)	19.0	29.0	66.1	133.1	145.5
- Hydro	643.6	782.6	1,027.0	1,326.0	1,385.1
- Wind	2.4	17.2	180.8	737.5	906.0
- Solar	0.4	1.2	39.9	734.8	1,091.8
Total	2,762.0	3,475.0	5,175.7	7,846.7	8,531.6

(5) See notes on pages 68-73.

50. World electricity capacity by type, 1990-2022

Index number (1990=100)



51. World electricity capacity by type⁵, 1990, 2000, 2010, 2020 and 2022, and share in 2022

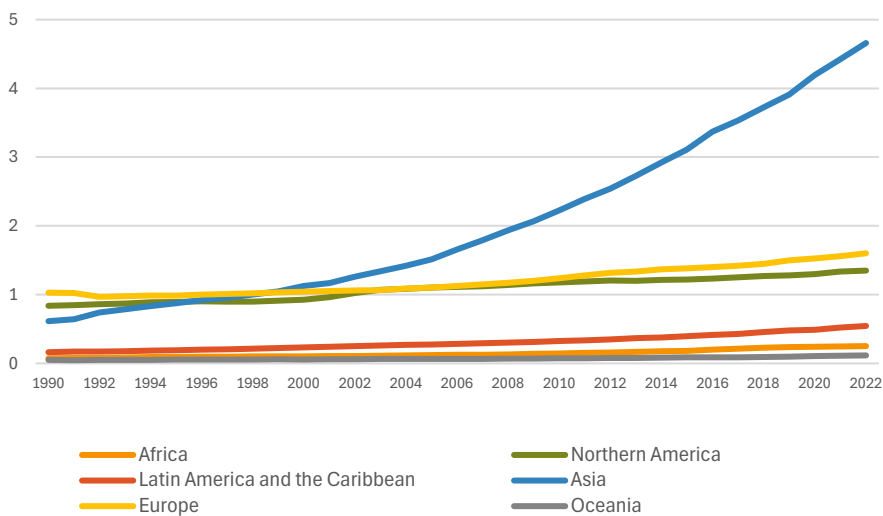
Index number (1990=100) and percentage

Type	1990	2000	2010	2020	2022	%2022
Non-renewable, of which	100	126	184	234	239	58.5%
- Thermal (non-ren.)	100	129	197	254	259	53.3%
- Nuclear	100	108	116	122	120	4.7%
Renewable, of which	100	125	197	439	528	41.5%
- Thermal (ren.)	100	152	348	701	766	1.7%
- Hydro	100	122	160	206	215	16.2%
- Wind	100	728	7,678	31,317	38,470	10.6%
- Solar	100	337	11,209	206,397	306,682	12.8%
Total	100	126	187	284	309	100.0%

(5) See notes on pages 68-73.

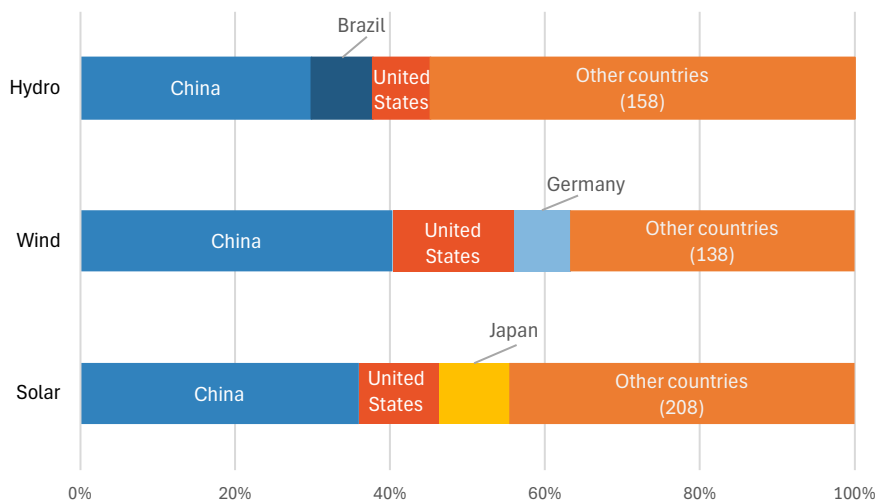
52. Total electricity capacity by region, 1990-2022

Terawatts

**53. Total electricity capacity by region, 1990, 2000, 2010, 2020 and 2022**

Gigawatts

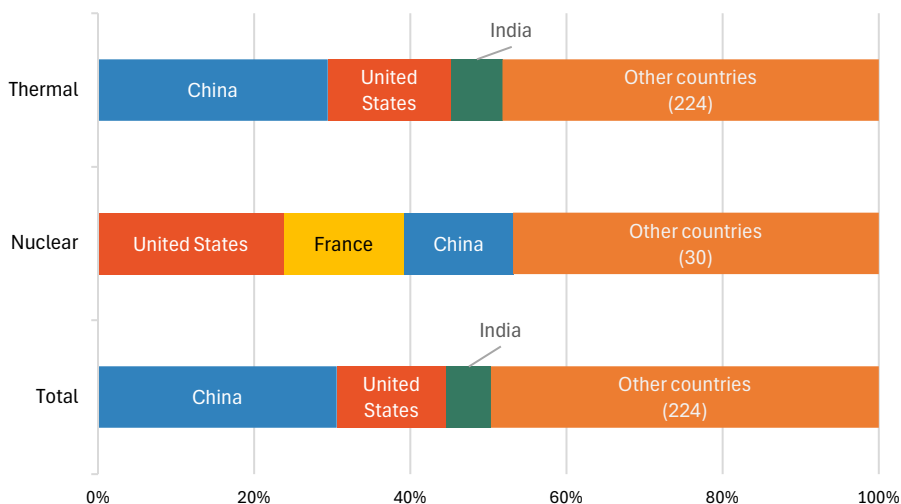
Region	1990	2000	2010	2020	2022
Africa	74.7	101.5	143.3	238.8	249.3
Northern America	838.1	923.0	1,174.9	1,298.6	1,352.3
Latin America and the Caribbean	162.4	231.1	324.1	487.8	544.0
Asia	613.1	1,123.4	2,222.6	4,191.9	4,663.4
Europe	1,026.6	1,040.2	1,237.6	1,523.8	1,603.9
Oceania	47.0	55.8	73.1	105.8	118.6
World	2,762.0	3,475.0	5,175.7	7,846.7	8,531.6

54. Electricity capacity by type (hydro, wind, solar), major countries, 2022*Percentage***55. Electricity capacity by type (hydro, wind, solar), major countries, 2022***Gigawatts*

Hydro		Wind		Solar	
Country		Country		Country	
China	413.5	China	365.4	China	392.6
Brazil	109.8	United States	141.5	United States	112.8
United States	103.2	Germany	66.2	Japan	99.3
Canada	83.3	India	47.0	Germany	67.5
Russian Federation	51.9	Spain	30.1	India	66.8
Japan	50.0	United Kingdom	28.8	Australia	30.6
Others	573.4	Others	227.0	Others	322.2
World	1,385.1	World	906.0	World	1,091.8

56. Electricity capacity by type (thermal, nuclear, total), major countries, 2022

Percentage

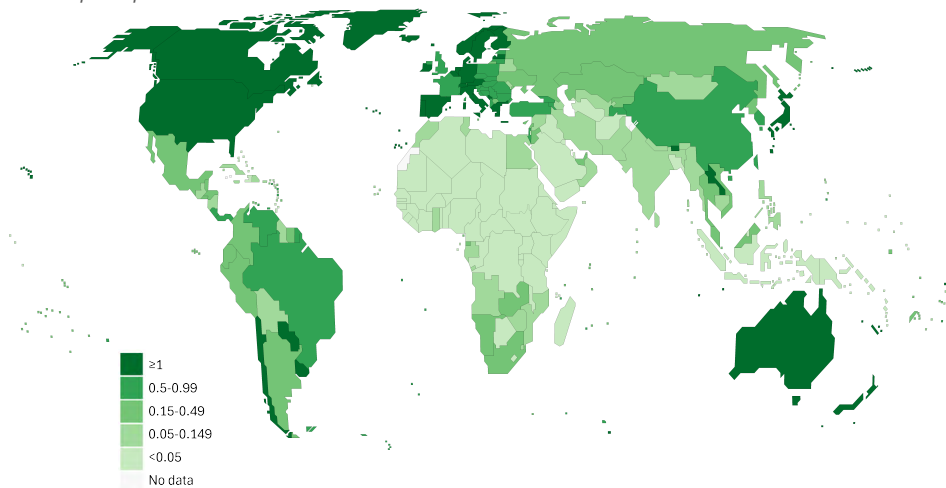
**57. Electricity capacity by type (thermal, nuclear, total), major countries, 2022**

Gigawatts

Thermal		Nuclear		Total	
Country		Country		Country	
China	1,382.4	United States	94.7	China	2,609.5
United States	742.0	France	61.4	United States	1,198.2
India	309.2	China	55.5	India	487.6
Russian Federation	217.1	Japan	33.1	Japan	385.3
Japan	195.9	Russian Federation	30.3	Russian Federation	303.3
Saudi Arabia	116.6	Republic of Korea	24.7	Germany	250.3
Others	1,733.1	Others	98.3	Others	3,297.4
World	4,696.3	World	397.9	World	8,531.6

58. Renewable electricity capacity per capita, 2022

Kilowatts per capita

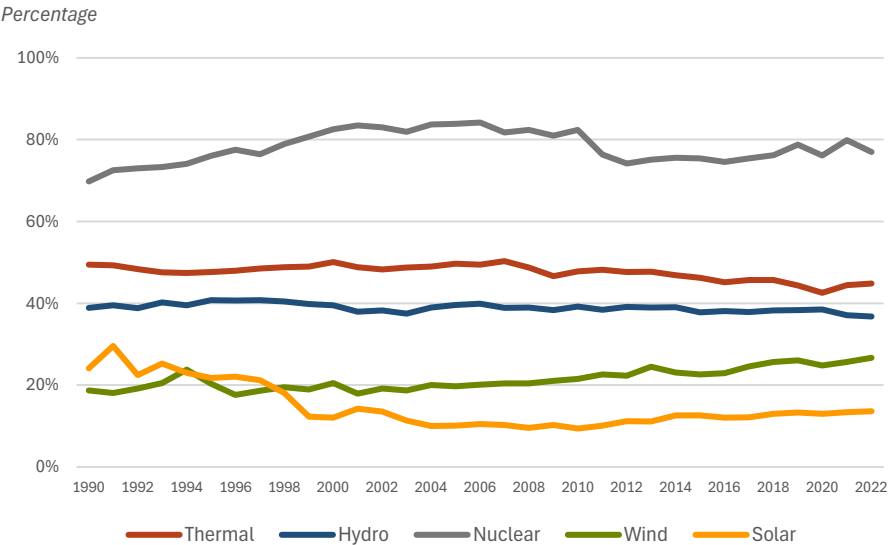


Source: UN Energy Statistics Database / UN Geospatial. The designations employed and the presentation of material on the maps in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

59. Renewable electricity capacity (total and per capita) and share of total capacity, major countries, 2022 – Gigawatts, kilowatts per capita and percentage

Country	Renewable capacity	Country	REN capacity per capita	Country	% REN in total capacity
China	1,200.9	Iceland	7.57	Paraguay	99.99%
United States	371.3	Norway	7.28	Bhutan	99.64%
Brazil	175.2	Sweden	3.47	Lesotho	99.30%
India	171.5	Bhutan	2.98	Dem. Rep. Congo	98.93%
Japan	159.6	Luxembourg	2.86	Norway	98.17%
Germany	154.5	Canada	2.74	Nepal	98.02%
Canada	106.3	Austria	2.59	Ethiopia	97.49%
World	3,544.0	World	0.44	World	41.54%

60. Utilization of electricity capacity by type, 1990-2022



61. Utilization of electricity capacity by type, 1990, 2000, 2010, 2020 and 2022

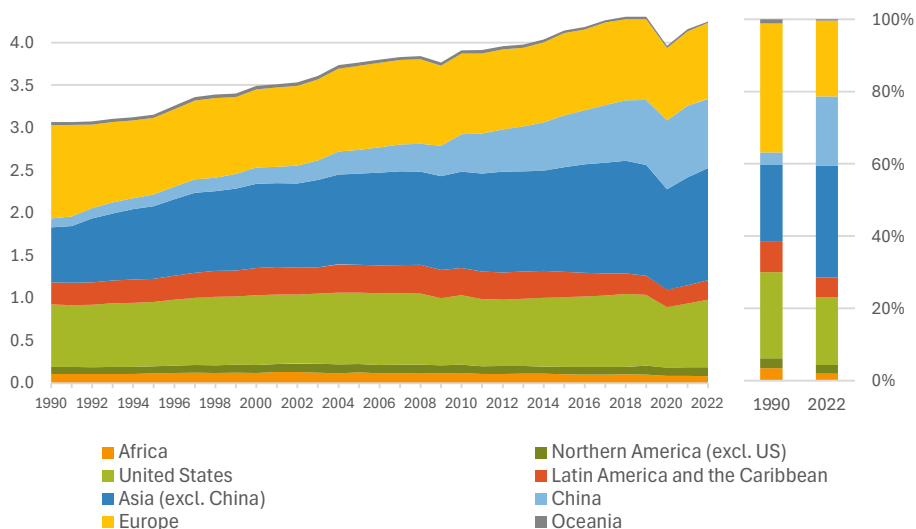
Percentage

Type	1990	2000	2010	2020	2022
Thermal	49%	50%	48%	43%	45%
Hydro	39%	39%	39%	38%	37%
Nuclear	70%	82%	82%	76%	77%
Wind	19%	20%	22%	25%	27%
Solar	24%	12%	9%	13%	14%
Total	50%	51%	48%	39%	39%

Refinery output

62. Total refinery output by region, 1990-2022

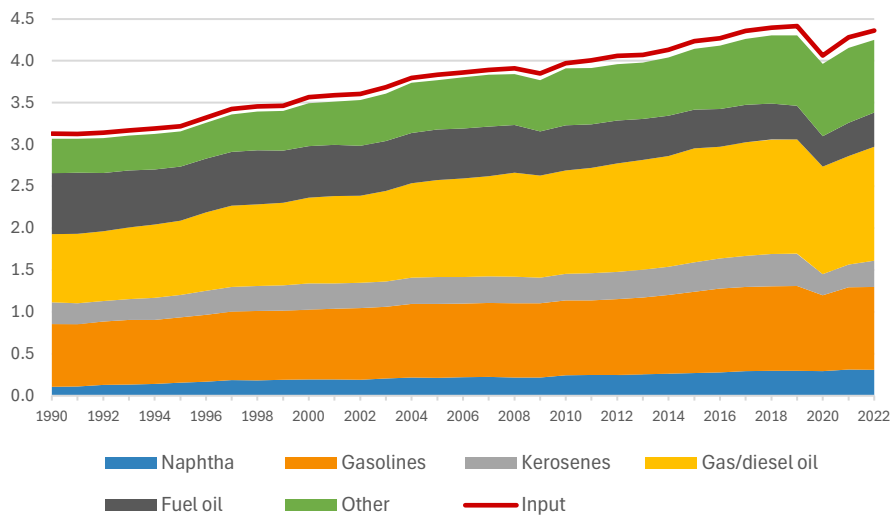
Billion metric tons



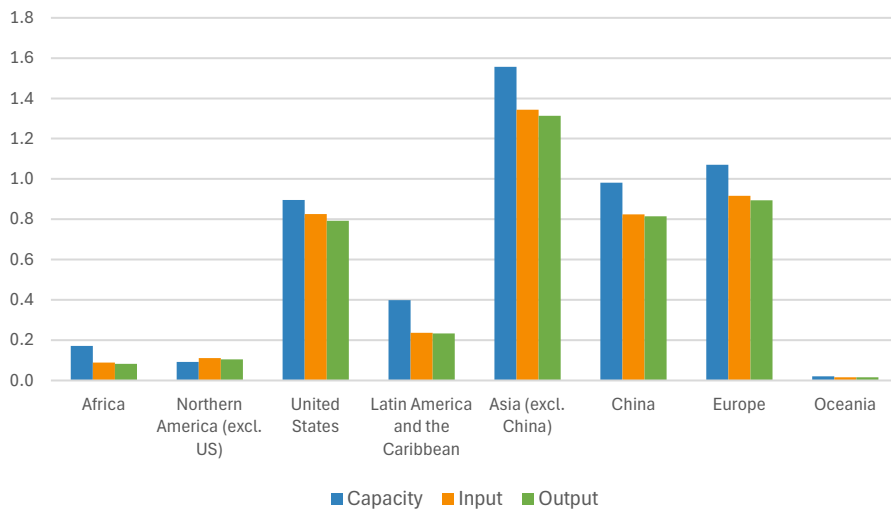
63. Total refinery output by region, 1990, 2000, 2010, 2020 and 2022

Million metric tons

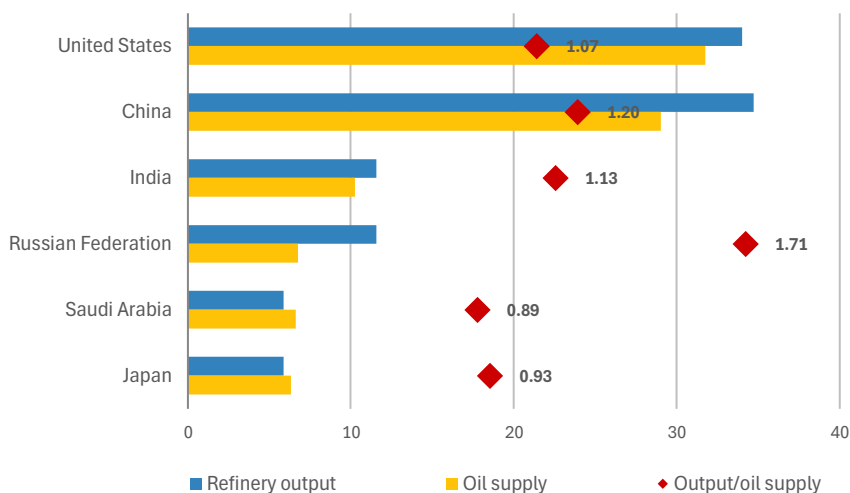
Region	1990	2000	2010	2020	2022
Africa	106.3	118.3	119.1	85.8	81.2
Northern America (excl. US)	84.2	93.7	96.1	95.4	104.4
United States	730.6	817.9	815.8	714.3	791.9
Latin America and the Caribbean	261.8	319.4	318.4	203.0	232.2
Asia (excl. China)	646.6	989.8	1,133.6	1,177.6	1,313.4
China	106.0	191.8	440.5	808.5	815.1
Europe	1,094.3	919.6	947.6	849.7	893.3
Oceania	35.5	41.8	36.8	27.2	15.2
World	3,065.3	3,492.2	3,907.9	3,961.5	4,246.7

64. World total refinery input and refinery output by type of fuel, 1990-2022*Billion metric tons***65. World total refinery input and refinery output by type of fuel, 1990, 2000, 2010, 2020 and 2022 – Million metric tons**

Refinery input and output	1990	2000	2010	2020	2022
Total refinery input	3,127.3	3,565.2	3,967.7	4,060.9	4,357.8
Total refinery output	3,065.3	3,492.2	3,907.9	3,961.5	4,246.7
- Naphtha	105.1	193.0	243.4	293.0	306.2
- Gasolines	749.3	834.1	894.5	904.8	992.3
- Kerosenes	258.2	311.0	317.1	253.8	310.3
- Gas/diesel oil	815.2	1,023.8	1,234.0	1,281.9	1,360.7
- Fuel oil	728.9	616.2	539.7	365.3	411.0
- Other	408.5	514.2	679.1	862.6	866.3

66. Total refinery capacity, input and output by region, 2022*Billion metric tons***67. Total refinery capacity, input and output by region, 2022***Million metric tons*

Region	Capacity	Input	Output
Africa	170.6	87.7	81.2
Northern America (excl. US)	92.2	110.1	104.4
United States	895.9	825.8	791.9
Latin America and the Caribbean	397.7	235.4	232.2
Asia (excl. China)	1,556.7	1,343.9	1,313.4
China	981.7	823.4	815.1
Europe	1,069.9	916.1	893.3
Oceania	20.1	15.3	15.2
World	5,184.8	4,357.8	4,246.7

68. Total refinery output and total oil supply, largest oil supply countries, 2022*Exajoules and ratio between total refinery output and total oil supply***69. Total refinery output and total oil supply⁶, largest oil supply countries, 2022***Exajoules and ratio between total refinery output and total oil supply*

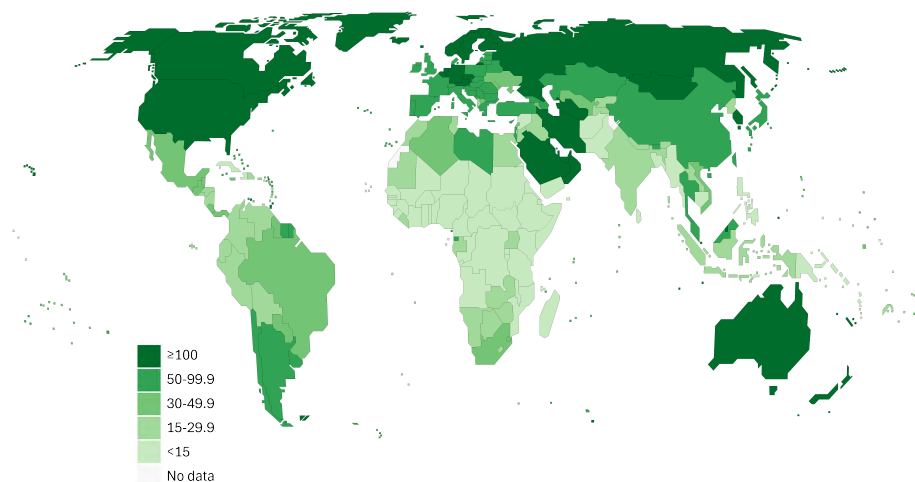
Country	Refinery output	Oil supply ⁶	Output/oil supply
United States	34.0	31.8	1.07
China	34.7	29.0	1.20
India	11.6	10.3	1.13
Russian Federation	11.6	6.8	1.71
Saudi Arabia	5.9	6.6	0.89
Japan	5.9	6.3	0.93
Others	78.6	82.4	0.95
World	182.3	187.5	-

(6) See notes on pages 68-73.

Total final consumption

70. Total final consumption per capita, 2022

Gigajoules per capita



Source: UN Energy Statistics Database / UN Geospatial. The designations employed and the presentation of material on the maps in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

FACTS AND FIGURES

World total final consumption⁷ (TFC) amounted to 426.0 EJ in 2022, an increase of 2.6% compared to 2021. The largest growth occurred in Asia (+4.5%), led by above-average growth in China (+6.0%), which contributed to nearly 60% of the region's growth in absolute terms. This is in contrast to Europe, where TFC decreased by 4.7% between 2021 and 2022 after increasing by 6.1% between 2020 and 2021, when TFC rose as part of the recovery from the pandemic.

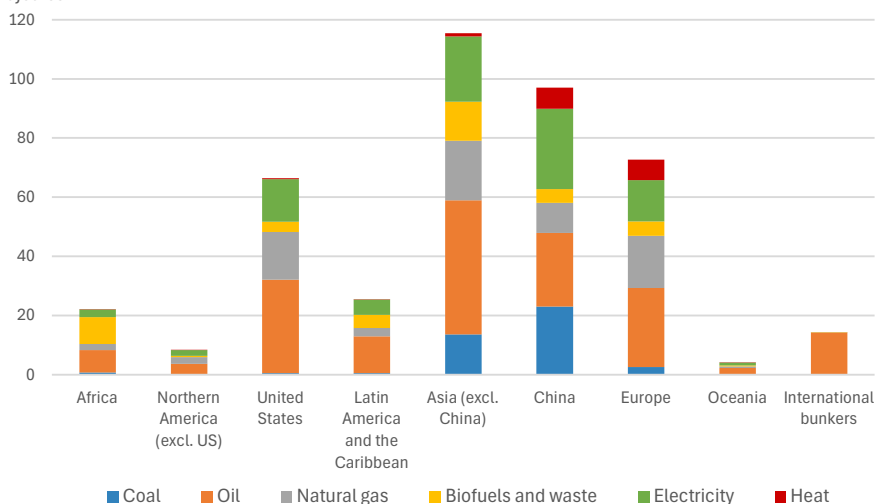
As in years past, the two leading sectors in TFC in 2022 were industries and transport, accounting for a combined 56.9% of TFC. Industries saw the biggest growth in TFC between 2021 and 2022, with an increase of 4.8%. This was followed by the transport sector, with an increase of 4.0%, with international bunkers alone increasing by 10.8%. On the other hand, while household TFC jumped up 3.3% between 2020 and 2021, 2022 saw a decrease of 0.3% from 2021.

Final consumption of coal increased a remarkable 10.2% between 2021 and 2022 driven by the industry sector, which used the vast majority of coal in 2022 (80.1%, or 33.2 EJ). On the other hand, natural gas saw a slight decrease of 1.1% over this same period. Industries consumed the most natural gas (41.0% or 29.4 EJ), followed by households (28.5% or 20.5 EJ)⁸.

(7) - (8) See notes on pages 68-73.

71. Total final consumption by region and source, 2022

Exajoules

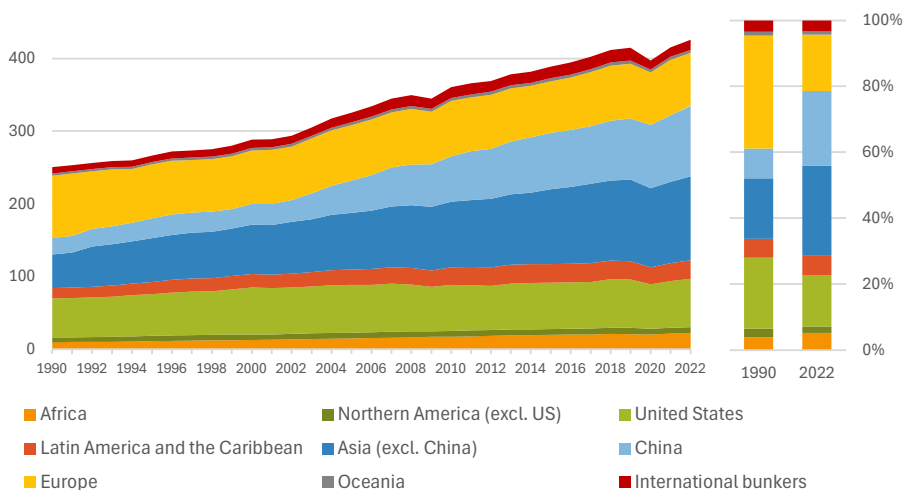
**72. Total final consumption by region and source, 2022**

Exajoules

Region	Coal	Oil	Natural gas	Biofuels and waste	Electricity	Heat	Total
Africa	0.8	7.5	2.0	9.1	2.6	0.01	22.1
Northern America (excl. US)	0.1	3.6	2.2	0.4	1.9	0.03	8.3
United States	0.5	31.6	16.1	3.4	14.4	0.4	66.5
Latin America and the Caribbean	0.5	12.4	2.9	4.5	5.2	0.1	25.5
Asia (excl. China)	13.6	45.3	20.2	13.1	22.1	1.0	115.4
China	23.1	24.9	10.1	4.7	27.2	7.2	97.1
Europe	2.6	26.7	17.7	4.8	13.9	7.0	72.7
Oceania	0.1	2.1	0.6	0.3	1.0	0.03	4.1
<i>International bunkers</i>	<i>0.0</i>	<i>14.3</i>	<i>0.01</i>	<i>0.02</i>	<i>-</i>	<i>-</i>	<i>14.3</i>
World	41.4	168.5	71.8	40.3	88.4	15.7	426.0

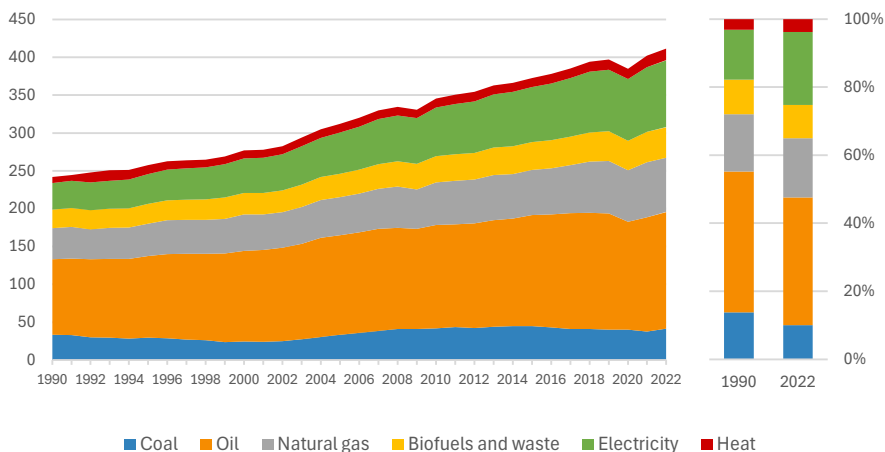
73. Total final consumption by region, 1990-2022

Exajoules

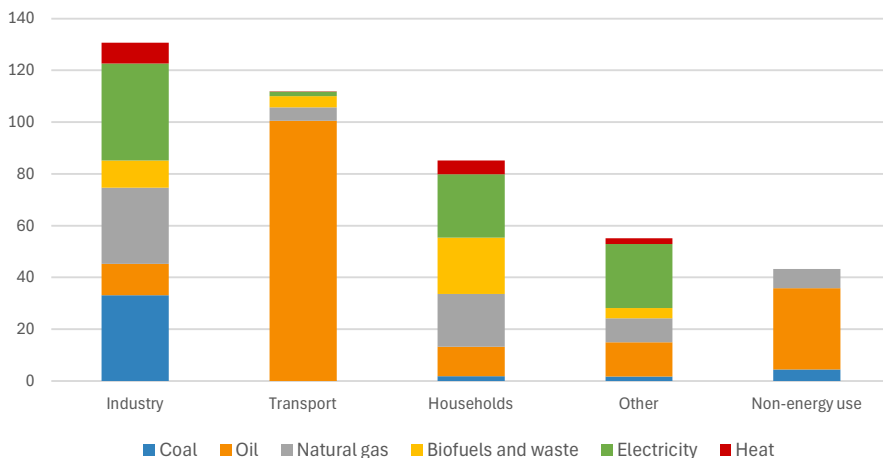
**74. Total final consumption by region, 1990, 2000, 2010, 2020 and 2022**

Exajoules

Region	1990	2000	2010	2020	2022
Africa	9.6	12.7	17.1	20.4	22.1
Northern America (excl. US)	6.6	7.6	7.8	7.8	8.3
United States	54.0	64.6	63.7	61.0	66.5
Latin America and the Caribbean	14.2	18.7	24.2	23.4	25.5
Asia (excl. China)	46.0	67.6	90.2	109.0	115.4
China	22.7	28.7	62.2	87.1	97.1
Europe	85.7	73.4	76.3	71.9	72.7
Oceania	2.9	3.6	3.9	4.1	4.1
<i>International bunkers</i>	8.8	11.2	14.9	12.2	14.3
World	250.4	288.2	360.3	396.8	426.0

75. World total final consumption by source, 1990-2022*Exajoules***76. World total final consumption by source, 1990, 2000, 2010, 2020 and 2022***Exajoules*

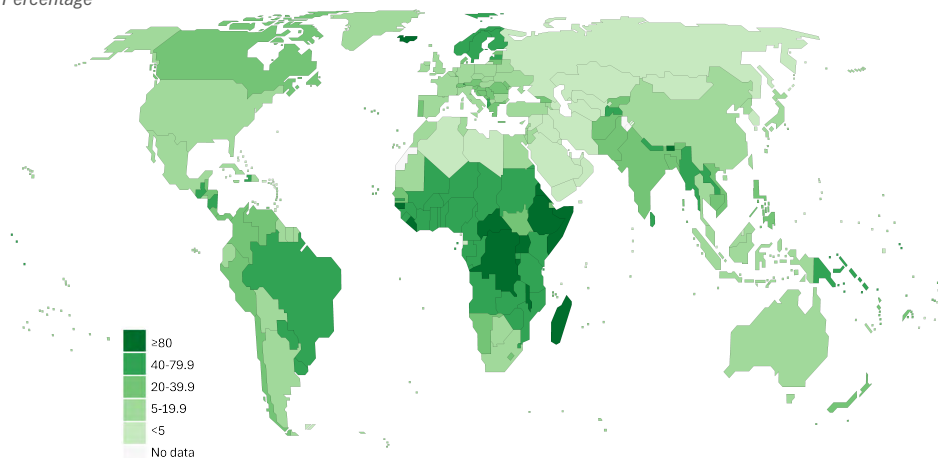
Source	1990	2000	2010	2020	2022
Coal	33.3	24.3	41.7	40.3	41.4
Oil	108.8	131.2	151.8	154.7	168.5
Natural gas	40.7	47.9	56.0	68.1	71.8
Biofuels and waste	24.5	28.6	34.6	38.9	40.3
Electricity	35.3	45.7	64.4	81.4	88.4
Heat	7.8	10.5	11.9	13.5	15.7
Total	250.4	288.2	360.3	396.8	426.0

77. World total final consumption by sector and source, 2022*Exajoules***78. World total final consumption by sector and source, 2022***Exajoules*

Sector	Coal	Oil	Natural gas	Biofuels and waste	Electricity	Heat	Total
Total final consumption	41.4	168.5	71.8	40.3	88.4	15.7	426.0
- Total energy consumption	36.9	137.1	64.4	40.3	88.4	15.7	382.7
- Industry	33.2	12.1	29.4	10.5	37.4	8.1	130.7
- Transport	0.1	100.4	5.3	4.3	1.7	0.05	111.8
- of which intl. bunkers	0.0	14.3	0.01	0.02	-	-	14.3
- Households	1.9	11.3	20.5	21.7	24.5	5.3	85.1
- Other	1.8	13.3	9.2	3.9	24.8	2.2	55.1
- Non-energy use	4.5	31.4	7.4	-	-	-	43.3

79. Renewable energy share in total final energy consumption (TFEC), 2022

Percentage



Source: UN Energy Statistics Database / UN Geospatial. The designations employed and the presentation of material on the maps in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

80. Final consumption (total and per capita) and renewable (REN) energy share in TFEC, major countries, 2022 – Exajoules, gigajoules per capita and percentage

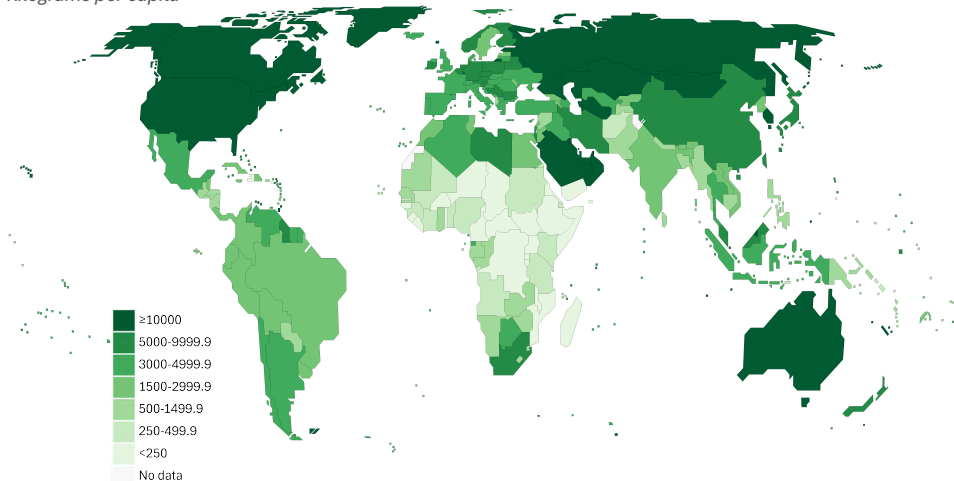
Country	TFC ⁹	Country	TFC per capita	Country	% REN in TFEC
China	97.1	Iceland	349.9	Dem. Rep. Congo	94.1%
United States	66.5	Qatar	341.6	Liberia	92.0%
India	30.0	Trinidad and Tobago	316.9	Uganda	91.3%
Russian Federation	22.3	Gibraltar	243.7	Somalia	89.4%
Japan	10.9	United Arab Emirates	236.4	Central African Republic	89.0%
Brazil	10.3	Oman	225.3	Ethiopia	88.4%
Iran (Islamic Rep.)	9.3	Sint Maarten (Dutch part)	221.5	Malawi	86.7%
Others	165.3	Others	50.8	Others	17.3%
World	426.0	World	51.3	World	18.1%

(9) See notes on pages 68-73.

CO₂ emissions from fossil fuel combustion

81. CO₂ emissions from fossil fuel combustion per capita by country, 2022

Kilograms per capita



Source: UN Energy Statistics Database / UN Geospatial. The designations employed and the presentation of material on the maps in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

FACTS AND FIGURES

CO₂ emissions from fossil fuel combustion reached 35.0 Gigatons worldwide in 2022, increasing 2.6% from 2021, still a sign of the recovery from the pandemic, but leveling off from the jump in emissions in the previous year (2020 to 2021) of 6.0%. Despite this overall leveling off, the increase in emissions from 2021 to 2022 was still more than three times the increase in emissions in the pre-pandemic years of 2018-2019 (+0.8%). Looking at the long-term trend, CO₂ emissions from fossil fuel combustion in 2022 have increased 46.3% from just 2000 (1.74% yearly compounded growth) and are 5.7 times higher than they were in 1950 (2.46% yearly compounded growth).

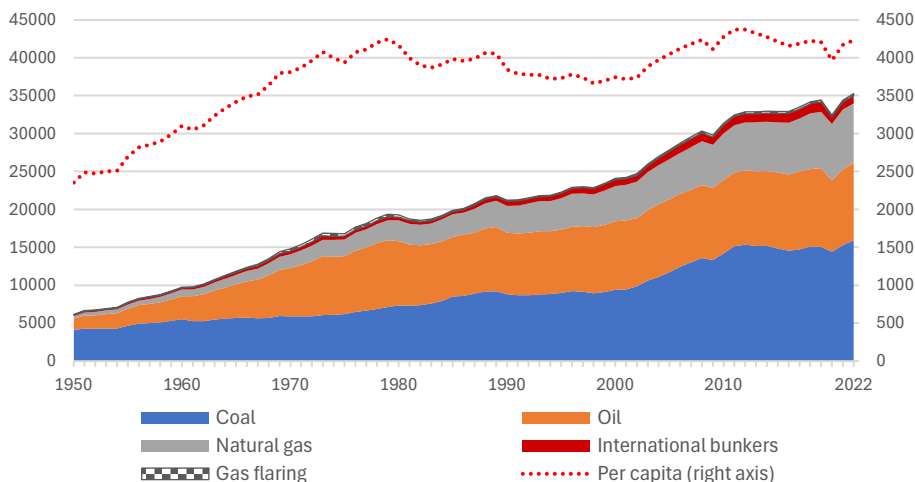
China was responsible for 30.6% of 2022 emissions, while the United States accounted for 13.3%, and five countries (adding India, Russian Federation and Japan) represented 59.7% of total emissions.

Coal dominated emissions in 2022 with a share of 45.6%, followed by oil (32.3%) and natural gas (22.2%). Overall, the share of emissions due to coal has decreased by 21.6 percentage points between 1950-2022. However, the share of emissions due to coal has remained relatively stagnant since approximately 2010, ranging only from 44.1% in 2019 to 47.0% in 2011 and 2012.

Emissions reached 4,364 kg of CO₂ per inhabitant in 2022, down from a peak of 4,534 kg in 2011, but still 12.5% above the per capita emissions in 2000 and 81.2% above those in 1950.

82. CO₂ emissions from fossil fuel combustion¹⁰, by fuel and per capita, 1950-2022

Million metric tons and kilograms per capita

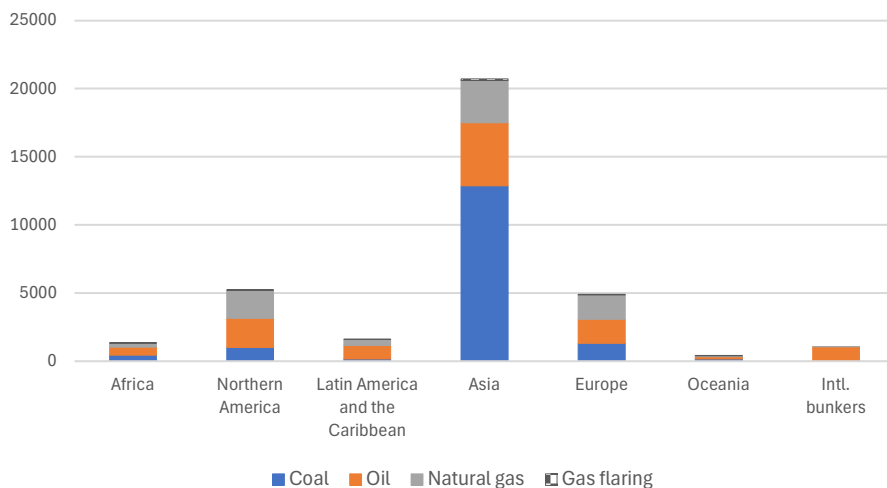


83. CO₂ emissions from fossil fuel combustion¹⁰ (total, per capita and per unit of GDP PPP), major countries, 2022

Million metric tons, kilograms per capita and tons per million international \$

Country	CO ₂ emissions	Country	CO ₂ per capita	Country	CO ₂ / GDP
China	10,710.9	Qatar	28,960.9	Turkmenistan	818.3
United States	4,647.9	Brunei Darussalam	25,355.5	New Caledonia	808.3
India	2,785.3	Bahrain	21,962.2	Palau	805.5
Russian Federation	1,758.5	Kuwait	20,296.8	Mongolia	789.0
Japan	1,005.0	United Arab Emirates	17,297.4	Libya	570.7
Indonesia	842.9	Gibraltar	17,007.4	Marshall Islands	553.6
Iran (Islamic Republic of)	674.3	Sint Maarten (Dutch part)	16,898.0	Curaçao	552.9
Germany	595.9	Saudi Arabia	16,318.6	Dem. Ppl's Rep. Korea	528.8
World	35,006.1	World	4,364.4	World	216.9

(10) See notes on pages 68-73.

84. CO₂ emissions from fossil fuel combustion, by region and source, 2022*Million metric tons***85. CO₂ emissions from fossil fuel combustion by region and source, 2022***Million metric tons*

Region	Coal	Oil	Natural gas	Total	Gas flaring
Africa	442.5	578.5	296.7	1,317.7	45.2
Northern America	1,000.9	2,148.0	2,055.2	5,204.1	18.2
Latin America and the Caribbean	152.4	987.3	444.9	1,584.6	33.5
Asia	12,869.2	4,623.8	3,094.3	20,587.4	108.2
Europe	1,321.5	1,743.9	1,786.0	4,851.4	58.7
Oceania	160.1	154.5	85.3	399.9	0.4
<i>International bunkers</i>	<i>0.0</i>	<i>1,060.5</i>	<i>0.5</i>	<i>1,061.0</i>	<i>-</i>
World	15,946.5	11,296.5	7,763.0	35,006.1	264.2

Energy balance, 2022 (Exajoules)

World	Primary coal	Coal products	Primary oil	Oil products
Primary production	178.5	-	187.4	-
Imports	32.8	0.8	95.6	60.0
Exports	-35.5	-0.9	-95.0	-59.8
Stock changes	-3.6	0.1	0.1	-0.8
Total energy supply	172.3	0.04	188.1	-0.6
Statistical difference	4.8	0.2	-1.3	0.3
Transfers	0.0	0.0	9.6	-4.2
Transformation	-135.0	13.8	-198.2	183.9
Electricity plants	-92.8	-2.5	-1.6	-5.9
CHP and heat plants	-17.1	-0.8	-0.02	-1.1
Coke ovens	-21.6	23.1	0.0	-0.1
Oil refineries	0.0	0.0	-185.1	182.3
Other transformation	-3.5	-5.9	-11.5	8.6
Energy industries own use	-3.2	-1.4	-0.3	-10.4
Losses	-0.03	-0.1	-0.3	-0.02
Final consumption	29.2	12.2	0.2	168.3
Final energy consumption	26.0	10.9	0.1	137.0
Industry	22.5	10.7	0.1	12.0
Iron and steel	4.7	8.0	0.0	0.3
Chemical and petrochemical	0.8	0.8	0.03	2.0
Non-ferrous metals	0.7	0.04	0+	0.3
Non-metallic minerals	6.6	0.1	0+	1.4
Other industries	9.8	1.7	0.04	8.1
Transport ¹¹	0.1	0+	0+	100.4
of which Road	0.0	0.0	0.0	76.3
of which Aviation	0.0	0.0	0.0	11.4
Households	1.7	0.2	0.0	11.3
Commerce, public services	0.4	0.04	0.0	2.7
Other energy use	1.3	0.01	0+	10.5
Non-energy use	3.2	1.3	0.1	31.3

(11)-(12) See notes on pages 68-73.

Natural gas	Biofuels and waste	Nuclear	Electricity	Heat	Total	of which: renewables ¹²
148.2	51.9	29.0	27.9	4.4	627.2	82.2
43.4	1.6	-	3.0	0+	237.3	1.6
-44.3	-1.1	-	-3.0	0-	-239.6	-1.1
-1.6	-0.01	-	0.0	0.0	-5.8	-0.01
145.7	52.4	29.0	27.9	4.4	619.2	82.7
2.0	-0.1	0+	0.1	0+	6.0	28.3
0.0	0+	-	0.0	0.0	5.4	0+
-58.0	-11.7	-29.0	76.5	14.4	-143.4	-13.7
-40.6	-4.3	-29.0	69.1	-5.0	-112.6	-6.8
-14.9	-3.8	-0.02	7.4	19.4	-11.0	-3.4
0-	0-	-	0.0	0.0	1.4	0.0
-0.1	0.0	-	0.0	0.0	-2.9	0.0
-2.4	-3.6	-	0.0	0.0	-18.3	-3.6
-12.5	-0.5	-	-8.8	-2.0	-39.2	-0.5
-1.4	-0.01	-	-7.1	-1.0	-10.0	-0.01
71.8	40.3	-	88.4	15.7	426.0	40.2
64.4	40.3	-	88.4	15.7	382.7	40.2
29.4	10.5	-	37.4	8.1	130.7	9.9
2.5	0.3	-	4.5	0.5	20.7	0.2
7.0	0.2	-	4.7	4.1	19.6	0.1
0.6	0.01	-	1.6	0.02	3.3	0.01
2.1	0.5	-	0.9	0.1	11.8	0.2
17.3	9.5	-	25.7	3.3	75.4	9.4
5.3	4.3	-	1.7	0.05	111.8	4.3
2.4	4.2	-	0.3	0.0	83.1	4.2
0.0	0+	-	0.0	0.0	11.4	0+
20.5	21.7	-	24.5	5.3	85.1	22.0
8.0	1.5	-	16.0	1.6	30.3	1.6
1.3	2.4	-	8.8	0.6	24.9	2.4
7.4	-	-	-	-	43.3	0.0

Energy balance, 2022 (Petajoules)

Africa	Primary coal	Coal products	Primary oil	Oil products
Primary production	6,135.1	-	14,058.2	-
Imports	552.0	17.6	811.5	5,891.2
Exports	-1,977.9	-12.3	-10,334.0	-1,343.9
International bunkers	0.0	0.0	0.0	-494.7
Stock changes	-1.3	0.1	-77.7	17.8
Total energy supply	4,707.9	5.4	4,458.0	4,070.4
Statistical difference	-194.4	0.3	178.7	-67.7
Transfers	0.0	0.0	-64.2	96.7
Transformation	-3,559.8	63.9	-4,171.0	3,461.8
Electricity plants	-3,221.2	0.0	-18.1	-653.1
CHP and heat plants	-0.3	0.0	0.0	0.0
Coke ovens	-72.1	71.8	0.0	0.0
Oil refineries	0.0	0.0	-3,720.9	3,487.8
Other transformation	-266.2	-7.8	-432.1	627.0
Energy industries own use	-593.9	-0.9	-33.2	-198.1
Losses	-0.3	-1.7	-10.9	-3.6
Final consumption	748.3	66.4	0.0	7,494.9
Final energy consumption	711.6	66.4	0.0	7,030.5
Industry	573.7	66.2	0.0	769.6
Iron and steel	60.2	51.7	0.0	3.6
Chemical and petrochemical	34.9	4.7	0.0	4.3
Non-ferrous metals	132.0	0.0	0.0	4.1
Non-metallic minerals	155.2	0.0	0.0	87.1
Other industries	191.4	9.7	0.0	670.5
Transport	0.4	0.0	0.0	5,025.9
of which Road	0.0	0.0	0.0	4,863.0
Households	84.2	0.1	0.0	604.6
Commerce, public services	41.6	0.02	0.0	102.7
Other energy use	11.9	0.1	0.0	527.7
Non-energy use	36.7	0.0	0.0	464.4

(12) See notes on pages 68-73.

Natural gas	Biofuels and waste	Nuclear	Electricity	Heat	Total	of which: renewables ¹²
8,658.4	11,762.3	105.9	728.2	241.4	41,689.4	12,724.7
463.2	119.3	-	153.8	0.0	8,008.7	119.3
-3,429.5	-17.3	-	-147.3	0.0	-17,262.1	-17.3
0.0	0.0	-	-	-	-494.7	0.0
-7.1	-0.03	-	0.0	0.0	-68.3	-0.03
5,685.0	11,864.3	105.9	734.7	241.4	31,873.0	12,826.8
95.7	-6.4	0.0	-24.5	0.0	-18.1	750.9
0.0	0.0	-	0.0	0.0	32.5	0.0
-3,075.4	-2,749.6	-105.9	2,540.2	-229.9	-7,825.6	-2,946.1
-2,986.6	-48.7	-105.9	2,535.4	-229.9	-4,728.1	-245.3
-2.8	-4.9	0.0	4.8	0.0	-3.2	-4.9
0.0	0.0	-	0.0	0.0	-0.3	0.0
0.0	0.0	-	0.0	0.0	-233.1	0.0
-86.0	-2,695.9	-	0.0	0.0	-2,861.0	-2,695.9
-448.6	-0.2	-	-188.8	0.0	-1,463.6	-0.2
-19.5	-1.3	-	-470.1	0.0	-507.4	-1.3
2,045.9	9,119.6	-	2,640.5	11.5	22,127.0	9,128.2
1,649.9	9,119.6	-	2,640.5	11.5	21,230.1	9,128.2
992.5	586.2	-	973.3	0+	3,961.5	583.3
153.9	0.0	-	87.4	0.0	356.8	0.0
64.7	0.6	-	46.2	0.0	155.4	0.2
1.7	0+	-	116.0	0.0	253.9	0+
215.9	8.0	-	57.3	0.0	523.4	5.5
556.3	577.7	-	666.3	0+	2,671.9	577.7
75.1	2.5	-	19.6	0.0	5,123.4	2.5
30.0	2.5	-	0.2	0.0	4,895.8	2.5
519.4	7,601.9	-	949.2	5.0	9,764.4	7,606.9
24.3	699.6	-	518.7	0.9	1,387.8	700.5
38.6	229.4	-	179.8	5.6	993.0	234.9
395.9	-	-	-	-	897.0	0.0

Energy balance, 2022 (Petajoules)

Northern America	Primary coal	Coal products	Primary oil	Oil products
Primary production	13,147.2	-	44,445.2	-
Imports	280.4	33.8	15,007.2	4,651.5
Exports	-3,007.3	-67.3	-16,548.3	-11,032.8
International bunkers	0.0	0.0	0.0	-1,797.3
Stock changes	-24.3	-1.3	1,233.7	-41.2
Total energy supply	10,396.0	-34.8	44,137.8	-8,219.9
Statistical difference	2.0	-1.6	-1,412.9	-1,187.4
Transfers	0.0	0.0	320.1	-268.7
Transformation	-9,950.6	266.4	-45,870.9	44,350.4
Electricity plants	-9,196.7	-1.3	0.0	-393.6
CHP and heat plants	-189.4	-20.1	0.0	-94.0
Coke ovens	-462.7	421.8	0.0	0.0
Oil refineries	0.0	0.0	-40,141.1	38,481.3
Other transformation	-101.8	-134.1	-5,729.8	6,356.7
Energy industries own use	-0.02	-41.8	0.0	-1,805.2
Losses	0.0	0.0	0.0	-0.1
Final consumption	443.5	191.4	0.0	35,244.0
Final energy consumption	440.6	190.7	0.0	29,002.7
Industry	426.3	190.7	0.0	1,129.8
Iron and steel	10.5	155.2	0.0	11.1
Chemical and petrochemical	59.3	0.0	0.0	107.6
Non-ferrous metals	8.1	0.3	0.0	6.7
Non-metallic minerals	187.8	0.0	0.0	67.4
Other industries	160.5	35.2	0.0	937.0
Transport	0.0	0.0	0.0	25,875.8
of which Road	0.0	0.0	0.0	22,602.4
Households	0.0	0.0	0.0	686.7
Commerce, public services	13.9	0.0	0.0	588.6
Other energy use	0.5	0.0	0.0	721.8
Non-energy use	2.9	0.7	0.0	6,241.3

(12) See notes on pages 68-73.

Natural gas	Biofuels and waste	Nuclear	Electricity	Heat	Total	of which: renewables ¹²
42,986.4	4,779.2	9,621.8	4,753.3	871.9	120,604.9	10,229.5
3,844.2	141.3	-	255.9	0.0	24,214.4	141.3
-9,740.6	-217.9	-	-292.2	0.0	-40,906.5	-217.9
0.0	-4.8	-	-	-	-1,802.1	-4.8
342.2	-10.9	-	0.0	0.0	1,498.2	-10.9
37,432.2	4,687.0	9,621.8	4,717.0	871.9	103,609.0	10,137.3
831.4	16.6	0.0	-30.1	0+	-1,782.2	4,850.5
0.0	0.0	-	0.0	0.0	51.5	0.0
-13,560.0	-872.2	-9,621.8	13,697.4	-280.4	-21,841.8	-1,373.4
-11,580.3	-598.7	-9,621.8	12,612.5	-724.3	-19,504.1	-1,120.7
-1,721.0	-252.0	0.0	1,084.8	443.9	-747.6	-231.1
0.0	0.0	-	0.0	0.0	-40.9	0.0
0.0	0.0	-	0.0	0.0	-1,659.8	0.0
-258.7	-21.6	-	0.0	0.0	110.7	-21.6
-4,434.5	-1.1	-	-1,234.4	-139.7	-7,656.7	-1.1
-269.5	0.0	-	-852.8	-50.8	-1,173.2	0.0
18,336.8	3,797.1	-	16,357.3	400.9	74,770.9	3,912.3
17,540.0	3,797.1	-	16,357.3	400.9	67,729.3	3,912.3
6,505.7	1,533.4	-	3,726.1	203.3	13,715.2	1,511.4
305.4	0.1	-	238.9	6.7	728.0	0.1
2,536.2	11.3	-	489.9	125.9	3,330.1	3.2
198.9	1.0	-	384.8	3.5	603.3	1.0
449.2	24.2	-	177.6	0.1	906.3	17.2
3,016.0	1,496.8	-	2,434.9	67.0	8,147.5	1,489.9
1,437.8	1,528.5	-	90.7	0.0	28,932.8	1,528.5
66.0	1,493.3	-	38.4	0.0	24,200.2	1,493.3
5,489.6	598.7	-	6,077.3	72.5	12,924.8	670.7
3,999.9	58.1	-	5,382.0	122.9	10,165.4	121.9
107.0	78.4	-	1,081.2	2.2	1,991.1	79.8
796.8	-	-	-	-	7,041.6	0.0

Energy balance, 2022 (Petajoules)

Latin America and the Caribbean	Primary coal	Coal products	Primary oil	Oil products
Primary production	2,103.5	-	18,010.2	-
Imports	1,103.6	80.3	1,392.6	7,153.8
Exports	-1,627.3	-127.7	-8,692.4	-2,328.0
International bunkers	0.0	0.0	0.0	-929.4
Stock changes	96.9	-9.3	-26.8	77.7
Total energy supply	1,676.7	-56.7	10,683.7	3,974.2
Statistical difference	-50.8	-1.9	269.8	5.7
Transfers	0.0	0.0	221.0	-243.8
Transformation	-1,405.7	350.9	-10,623.0	9,297.5
Electricity plants	-850.2	-10.5	-29.1	-1,125.7
CHP and heat plants	-9.7	-60.8	-0.1	-44.3
Coke ovens	-545.7	562.9	0.0	-46.8
Oil refineries	0.0	0.0	-10,091.9	9,909.7
Other transformation	0.0	-140.8	-501.9	604.6
Energy industries own use	0.0	-61.1	-10.1	-609.4
Losses	-0.7	-8.4	-1.1	-2.3
Final consumption	321.1	226.6	0.7	12,410.5
Final energy consumption	321.0	220.0	0.7	11,478.8
Industry	318.0	217.2	0.4	1,247.5
Iron and steel	104.9	200.9	0.0	17.6
Chemical and petrochemical	11.1	0.02	0.0	127.2
Non-ferrous metals	31.2	12.2	0.0	58.9
Non-metallic minerals	31.8	1.1	0.0	271.2
Other industries	139.1	3.0	0.4	772.6
Transport	0.0	0.0	0.3	8,389.5
of which Road	0.0	0.0	0.0	7,961.1
Households	2.4	1.9	0.0	928.8
Commerce, public services	0+	0.0	0.0	200.3
Other energy use	0.6	0.9	0.0	712.8
Non-energy use	0.1	6.6	0.0	931.7

(12) See notes on pages 68-73.

Natural gas	Biofuels and waste	Nuclear	Electricity	Heat	Total	of which: renewables ¹²
7,006.3	6,184.0	360.3	3,573.6	414.5	37,652.5	10,137.2
2,386.3	14.1	-	145.2	0.0	12,275.8	14.1
-1,008.0	-102.5	-	-130.0	0.0	-14,015.9	-102.5
0.0	0.0	-	-	-	-929.4	0.0
-2.4	8.4	-	0.0	0.0	144.6	8.4
8,382.2	6,104.1	360.3	3,588.8	414.5	35,127.7	10,057.2
680.8	0.03	0.0	-31.1	0.0	872.6	3,608.9
0.0	0.0	-	0.0	0.0	-22.8	0.0
-3,327.1	-1,196.1	-360.3	2,702.7	-349.5	-4,910.6	-1,497.2
-2,973.9	-750.8	-360.3	2,303.1	-349.5	-4,146.8	-1,060.3
-256.8	-230.3	0.0	399.6	0.0	-202.4	-221.9
0.0	0.0	-	0.0	0.0	-29.6	0.0
0.0	0.0	-	0.0	0.0	-182.2	0.0
-96.4	-215.0	-	0.0	0.0	-349.5	-215.0
-1,339.0	-440.0	-	-280.5	0.0	-2,740.0	-440.0
-179.6	-8.5	-	-871.3	0.0	-1,071.8	-8.5
2,855.7	4,459.5	-	5,170.8	65.0	25,510.0	4,502.7
2,404.1	4,459.5	-	5,170.8	65.0	24,120.0	4,502.7
1,471.9	1,851.6	-	2,134.1	2.7	7,243.4	1,832.4
232.4	174.0	-	129.6	0.0	859.4	174.0
324.0	6.6	-	112.3	0.0	581.2	3.1
26.9	0.5	-	104.6	0.0	234.4	0.5
122.6	112.1	-	95.7	0.0	634.3	94.4
766.0	1,558.4	-	1,691.9	2.7	4,934.0	1,560.5
302.4	897.1	-	30.2	0.0	9,619.6	897.1
233.2	893.0	-	3.8	0.0	9,091.2	893.0
524.3	1,489.0	-	1,594.2	44.5	4,585.1	1,533.5
103.8	39.6	-	1,109.2	14.8	1,467.7	54.4
1.7	182.2	-	303.0	3.1	1,204.2	185.2
451.6	-	-	-	-	1,389.9	0.0

Energy balance, 2022 (Petajoules)

Asia	Primary coal	Coal products	Primary oil	Oil products
Primary production	130,493.6	-	80,337.9	-
Imports	26,453.4	360.3	54,360.3	23,897.7
Exports	-13,983.8	-284.7	-43,038.0	-24,805.0
International bunkers	0.0	0.0	0.0	-6,415.2
Stock changes	-3,106.2	158.9	-833.1	-730.0
Total energy supply	139,857.0	234.4	90,827.1	-8,052.4
Statistical difference	4,840.3	245.5	-297.3	2,018.0
Transfers	0.0	0.0	7,038.1	-1,950.9
Transformation	-105,846.0	11,076.3	-97,784.0	88,213.1
Electricity plants	-74,514.9	-2,308.0	-1,577.9	-3,295.9
CHP and heat plants	-11,696.0	-401.4	0.0	-414.6
Coke ovens	-17,175.4	18,915.4	0.0	-15.5
Oil refineries	0.0	0.0	-91,553.8	91,395.0
Other transformation	-2,459.6	-5,129.7	-4,652.3	544.2
Energy industries own use	-2,569.1	-982.5	-251.8	-6,026.8
Losses	-27.2	-5.8	-38.4	-14.7
Final consumption	26,574.5	10,076.9	88.3	70,150.2
Final energy consumption	23,451.9	8,835.8	66.1	51,522.5
Industry	20,530.1	8,633.5	66.1	6,929.7
Iron and steel	4,306.9	6,146.6	0.0	183.2
Chemical and petrochemical	550.7	815.8	24.6	1,385.2
Non-ferrous metals	511.2	16.8	0.1	169.7
Non-metallic minerals	6,011.8	17.0	1.3	700.0
Other industries	9,149.5	1,637.3	40.1	4,491.5
Transport	53.8	0.0	0.0	29,029.7
of which Road	0.0	0.0	0.0	24,389.8
Households	1,309.4	166.5	0.0	7,092.2
Commerce, public services	299.0	33.8	0.0	1,234.1
Other energy use	1,259.6	2.1	0.0	7,236.9
Non-energy use	3,122.6	1,241.1	22.2	18,627.8

(12) See notes on pages 68-73.

Natural gas	Biofuels and waste	Nuclear	Electricity	Heat	Total	of which: renewables ¹²
51,753.1	21,007.2	8,368.9	13,269.9	1,692.8	306,923.3	35,298.9
19,270.9	173.1	-	489.7	0.0	125,005.4	171.7
-12,437.5	-54.2	-	-465.5	0.0	-95,068.7	-54.2
-0.4	0.0	-	-	-	-6,415.5	0.0
-192.4	2.3	-	0.0	0.0	-4,700.6	2.5
58,393.7	21,128.5	8,368.9	13,294.1	1,692.8	325,743.9	35,419.0
-127.8	-100.3	0.0	212.6	-2.2	6,788.7	13,332.5
0.0	0.0	-	0.0	0.0	5,087.1	0.0
-23,001.5	-3,420.9	-8,368.9	45,051.4	7,870.7	-86,209.7	-4,340.5
-19,652.9	-1,944.6	-8,368.9	44,050.2	-3,032.2	-70,645.1	-2,974.9
-1,650.2	-994.0	0.0	1,001.3	10,902.9	-3,252.1	-888.2
0.0	-4.8	-	0.0	0.0	1,719.7	0.0
-135.1	0.0	-	0.0	0.0	-293.9	0.0
-1,563.3	-477.4	-	0.0	0.0	-13,738.1	-477.4
-4,561.9	-6.2	-	-5,203.7	-1,222.8	-20,824.8	-6.2
-661.8	0.0	-	-3,644.2	-152.7	-4,544.7	0.0
30,296.4	17,801.7	-	49,285.1	8,190.2	212,463.2	17,739.7
27,059.5	17,801.7	-	49,285.1	8,190.2	186,212.7	17,739.7
15,181.0	4,934.1	-	24,991.1	5,450.9	86,716.4	4,749.7
960.5	32.9	-	3,367.1	216.5	15,213.8	31.0
2,973.2	81.9	-	3,190.6	3,046.3	12,068.3	53.6
61.1	5.0	-	208.3	7.2	979.5	3.7
383.0	113.9	-	230.6	2.4	7,460.0	24.3
10,803.1	4,700.4	-	17,994.5	2,178.5	50,994.9	4,637.2
2,111.6	1,012.6	-	951.6	45.7	33,204.9	1,012.6
1,965.6	1,011.1	-	171.6	0.0	27,538.1	1,011.1
7,004.9	9,715.2	-	11,522.8	2,036.8	38,847.7	9,848.3
2,022.6	424.0	-	4,940.0	240.7	9,194.0	407.7
739.5	1,715.9	-	6,879.7	416.1	18,249.6	1,721.4
3,236.8	-	-	-	-	26,250.5	0.0

Energy balance, 2022 (Petajoules)

Europe	Primary coal	Coal products	Primary oil	Oil products
Primary production	15,174.7	-	29,633.7	-
Imports	4,409.5	341.0	23,609.6	16,487.2
Exports	-5,239.0	-416.9	-15,754.1	-20,039.9
International bunkers	0.0	0.0	0.0	-4,484.6
Stock changes	-374.6	-22.7	-196.7	-167.6
Total energy supply	13,970.7	-98.5	37,292.5	-8,204.9
Statistical difference	317.0	-66.7	26.1	-542.0
Transfers	0.0	0.0	2,018.2	-1,909.7
Transformation	-12,611.6	2,012.1	-38,975.7	37,845.8
Electricity plants	-3,570.2	-191.4	-1.7	-330.5
CHP and heat plants	-5,182.6	-305.5	-22.6	-519.4
Coke ovens	-3,198.4	2,994.2	0.0	-8.9
Oil refineries	0.0	0.0	-38,907.7	38,416.5
Other transformation	-660.4	-485.2	-43.7	288.1
Energy industries own use	-45.2	-321.3	-4.3	-1,619.9
Losses	-1.4	-34.2	-239.8	-0.6
Final consumption	995.4	1,624.7	64.8	26,652.8
Final energy consumption	962.1	1,572.1	1.8	21,761.7
Industry	563.5	1,528.5	1.3	1,720.6
Iron and steel	207.5	1,421.7	0.0	37.3
Chemical and petrochemical	97.4	9.8	0.9	368.4
Non-ferrous metals	8.4	5.2	0.0	13.9
Non-metallic minerals	159.5	72.3	0+	280.6
Other industries	90.7	19.5	0.3	1,020.3
Transport	0.6	0.02	0.0	16,325.1
of which Road	0.0	0.0	0.0	15,163.1
Households	310.7	36.7	0.0	1,952.1
Commerce, public services	63.2	4.0	0.0	536.7
Other energy use	24.1	3.0	0.5	1,227.2
Non-energy use	33.3	52.6	63.0	4,891.1

(12) See notes on pages 68-73.

Natural gas	Biofuels and waste	Nuclear	Electricity	Heat	Total	of which: renewables ¹²
31,714.6	7,825.0	10,536.8	5,189.7	790.8	100,865.3	12,738.2
17,310.9	1,145.2	-	1,911.1	0.7	65,215.2	1,122.5
-13,056.1	-660.1	-	-1,957.6	-0.04	-57,123.7	-659.0
-8.4	-19.1	-	-	-	-4,512.0	-19.1
-1,717.8	-7.1	-	0.0	0.0	-2,486.5	-6.8
34,243.3	8,284.0	10,536.8	5,143.2	791.5	101,958.3	13,175.9
444.5	9.0	0+	-41.1	3.9	150.7	5,313.2
0.0	0.5	-	0.0	0.0	109.0	0.5
-14,563.3	-3,388.6	-10,536.8	11,753.7	7,671.2	-20,793.0	-3,209.7
-3,003.7	-912.6	-10,512.7	6,868.4	-365.5	-12,020.0	-1,051.9
-11,157.0	-2,333.4	-24.1	4,885.3	8,036.8	-6,622.5	-2,015.2
-1.4	0.0	-	0.0	0.0	-214.5	0.0
0.0	0.0	-	0.0	0.0	-491.2	0.0
-401.1	-142.6	-	0.0	0.0	-1,444.8	-142.6
-1,267.6	-37.7	-	-1,793.4	-673.0	-5,762.6	-29.8
-313.1	-3.7	-	-1,202.1	-830.3	-2,625.2	-3.7
17,654.7	4,845.5	-	13,942.5	6,955.5	72,735.8	4,620.0
15,247.9	4,845.5	-	13,942.5	6,955.5	65,289.0	4,620.0
4,977.1	1,439.5	-	5,271.1	2,389.4	17,890.8	1,098.9
817.7	60.9	-	662.5	278.8	3,486.4	2.0
1,034.2	61.3	-	884.8	933.2	3,390.1	30.7
154.4	0.6	-	663.7	12.6	858.7	0.2
927.4	267.0	-	339.7	103.7	2,150.2	93.7
2,043.3	1,049.8	-	2,720.4	1,061.2	8,005.5	972.2
1,326.1	808.5	-	606.8	0.0	19,067.2	808.5
94.3	805.3	-	60.1	0.0	16,122.8	805.3
6,791.3	2,188.7	-	4,001.4	3,137.9	18,418.8	2,289.4
1,780.3	265.1	-	3,747.5	1,262.8	7,659.6	266.9
373.1	143.7	-	315.7	165.3	2,252.6	156.4
2,406.7	-	-	-	-	7,446.8	0.0

Energy balance, 2022 (Petajoules)

Oceania	Primary coal	Coal products	Primary oil	Oil products
Primary production	11,478.8	-	898.7	-
Imports	46.3	12.1	449.1	1,949.2
Exports	-9,686.3	-17.2	-667.2	-214.2
International bunkers	0.0	0.0	0.0	-142.8
Stock changes	-170.6	0.0	1.4	4.1
Total energy supply	1,668.2	-5.1	682.0	1,596.3
Statistical difference	-80.5	0-	-87.8	86.1
Transfers	0.0	0.0	54.0	47.6
Transformation	-1,632.9	64.4	-822.8	721.4
Electricity plants	-1,488.9	0.0	0.0	-103.7
CHP and heat plants	-18.1	-7.4	0.0	-0.7
Coke ovens	-125.9	102.0	0.0	0.0
Oil refineries	0.0	0.0	-660.8	657.3
Other transformation	0.0	-30.2	-162.0	168.6
Energy industries own use	-0.4	-38.0	-1.1	-184.3
Losses	0.0	-0.3	0.0	0.0
Final consumption	115.3	21.0	0.0	2,095.0
Final energy consumption	109.1	21.0	0.0	1,933.6
Industry	106.9	20.9	0.0	251.6
Iron and steel	0.2	12.5	0.0	0.8
Chemical and petrochemical	7.2	0.5	0.0	4.6
Non-ferrous metals	44.5	3.8	0.0	12.9
Non-metallic minerals	23.4	0.1	0.0	9.5
Other industries	31.7	4.0	0.0	223.8
Transport	0.0	0.0	0.0	1,498.1
of which Road	0.0	0.0	0.0	1,294.9
Households	0.1	0.0	0.0	19.0
Commerce, public services	0.6	0.05	0.0	42.9
Other energy use	1.4	0.0	0.0	122.0
Non-energy use	6.2	0.0	0.0	161.4

(12) See notes on pages 68-73.

Natural gas	Biofuels and waste	Nuclear	Electricity	Heat	Total	of which: renewables ¹²
6,074.9	311.7	0.0	404.1	339.3	19,507.4	1,051.4
136.8	0.3	-	0.0	0.0	2,593.9	0.3
-4,631.5	-0.01	-	0.0	0.0	-15,216.5	-0.01
0.0	0.0	-	-	-	-142.8	0.0
24.5	-0.01	-	0.0	0.0	-140.6	-0.01
1,604.8	312.0	0.0	404.1	339.3	6,601.4	1,051.7
54.7	0.01	0.0	4.6	0-	-23.0	435.1
0.0	0.0	-	0.0	0.0	101.7	0.0
-515.9	-52.6	0.0	776.5	-310.0	-1,771.9	-331.6
-386.2	-19.7	0.0	711.3	-309.2	-1,596.5	-297.0
-129.6	-32.5	0.0	65.2	-0.9	-124.1	-34.2
-0.01	0.0	-	0.0	0.0	-23.9	0.0
0.0	0.0	-	0.0	0.0	-3.5	0.0
-0.04	-0.4	-	0.0	0.0	-24.1	-0.4
-421.4	0.0	-	-139.2	0.0	-784.4	0.0
-3.5	0.0	-	-62.0	0.0	-65.8	0.0
609.2	259.4	-	974.9	29.2	4,104.0	285.0
525.8	259.4	-	974.9	29.2	3,852.9	285.0
302.2	132.6	-	350.0	4.3	1,168.5	133.2
9.5	0.0	-	16.9	0.0	39.9	0.0
57.7	3.9	-	14.5	0.0	88.4	0.4
121.0	1.7	-	140.9	0.0	324.8	1.7
44.4	2.6	-	11.9	0.0	91.9	2.6
69.5	124.4	-	165.9	4.3	623.5	128.5
17.5	4.1	-	25.0	0.0	1,544.7	4.1
0.8	4.1	-	0.9	0.0	1,300.7	4.1
154.0	74.5	-	305.2	21.6	574.4	96.1
50.0	11.5	-	275.1	2.9	383.0	14.4
2.0	36.7	-	19.6	0.4	182.2	37.2
83.5	-	-	-	-	251.1	0.0

Energy Indicators^{as} 2022

Region	Total energy supply PJ	Energy use (TES) per capita GJ per capita	Energy intensity MJ/INT\$	Self-sufficiency %	Renewable share in TEC %	Electricity consumption per capita kWh per capita	CO ₂ emissions per capita kg per capita	CO ₂ emissions per GDP tons/million INT\$
WORLD	619,210.0	77.2	3.8	101.3	18.10	3,060.5	4,364.4	216.9
Africa	31,873.0	22.1	3.8	130.8	46.0	514.7	911.8	157.9
Northern Africa	9,333.7	35.3	2.9	142.4	8.3	1,270.0	1,997.5	163.2
Sub-Saharan Africa	22,539.4	19.1	4.4	126.0	60.8	342.9	669.0	154.6
Americas	138,736.8	134.2	3.6	114.1	17.47	5,784.4	6,566.6	174.5
Latin America and the Caribbean	35,127.7	53.8	2.8	107.2	31.6	2,198.5	2,425.4	127.8
Northern America	103,609.0	272.3	3.9	116.4	12.4	11,941.9	13,677.7	196.4
Asia	325,743.9	68.6	4.3	94.2	15.99	2,907.0	4,336.3	271.4
Central Asia	7,032.5	88.6	5.8	179.1	4.2	2,303.2	5,788.6	377.5
Eastern Asia	190,372.8	114.5	4.8	70.5	13.6	5,614.4	7,621.3	317.3
South-eastern Asia	32,429.2	47.3	3.3	111.9	20.0	1,596.8	2,796.3	192.8
Southern Asia	63,885.5	31.6	3.8	75.4	25.7	964.7	1,877.7	226.4
Western Asia	32,023.9	107.6	4.0	236.0	4.9	4,334.8	5,841.7	218.1
Europe	101,958.3	136.1	2.8	98.9	16.00	5,169.6	6,475.7	134.7
Eastern Europe	47,357.2	163.8	4.7	144.9	7.5	4,415.5	8,623.6	245.2
Northern Europe	12,875.8	119.8	2.0	131.1	31.1	6,470.4	4,563.1	74.8
Southern Europe	14,451.6	95.1	2.1	30.2	19.6	4,613.8	4,690.8	104.9
Western Europe	27,273.7	135.9	2.2	40.3	19.1	5,980.0	5,757.6	92.4
Oceania	6,601.4	146.5	3.5	295.5	17.15	6,040.2	8,877.3	215.0
Australia and New Zealand	6,265.4	200.0	3.5	301.2	15.9	8,278.8	12,205.5	213.9
Melanesia	293.4	23.5	4.7	214.9	40.9	655.8	1,172.7	235.5
Micronesia	14.6	27.8	6.4	8.7	8.1	4,007.9	1,840.5	626.7
Polynesia	28.1	40.9	2.6	9.0	10.7	2,322.5	2,672.7	226.3

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Region	Total energy supply PJ	Energy use (TES) per capita GJ per capita	Energy intensity MJ/INT\$	Self-sufficiency %	Renewable share in TEEC %	Electricity consumption per capita kWh per capita	CO ₂ emissions per capita kg per capita	CO ₂ emissions per GDP tons/million INT\$
Afghanistan	180.8	4.5	2.2	47.0	20.0	144.2	253.9	128.1
Albania	90.9	32.2	1.9	72.5	43.1	2,329.6	1,284.4	75.3
Algeria	2,732.7	60.1	4.1	230.3	0.1	1,484.4	3,412.5	230.8
American Samoa	5.6	115.8	-	0.4	0.5	3,292.2	8,458.2	-
Andorra	8.2	102.9	1.6	6.4	18.7	5,922.5	5,445.0	85.2
Angola	582.1	16.3	2.2	515.2	56.1	387.8	467.2	63.2
Anguilla	2.0	143.9	-	0.6	0.7	6,077.0	10,178.9	-
Antigua and Barbuda	9.0	97.0	3.5	0.7	0.9	3,392.9	6,992.7	249.4
Argentina	3,351.5	73.8	2.7	100.6	10.0	2,739.9	3,945.2	142.8
Armenia	170.3	59.1	3.2	28.1	12.5	2,334.4	2,526.6	137.1
Aruba	12.8	118.4	3.1	5.4	8.7	7,361.0	8,318.7	214.9
Australia	5,370.5	205.0	3.5	338.6	13.5	8,428.7	13,526.9	230.9
Austria	1,314.9	145.1	2.2	37.1	36.9	7,045.6	6,009.0	90.9
Azerbaijan	725.1	70.4	3.4	362.2	1.3	1,967.8	3,694.9	178.2
Bahamas	42.0	105.6	3.3	0.8	1.0	4,295.5	7,591.1	234.2
Bahrain	672.8	438.7	7.7	151.9	0.3	22,461.4	21,962.2	384.4
Bangladesh	2,260.5	13.3	1.7	65.8	37.8	548.1	588.0	74.5
Barbados	17.6	62.4	3.4	11.1	5.6	3,327.0	4,344.7	235.2
Belarus	1,108.6	120.9	4.5	23.4	8.4	3,400.3	5,794.7	217.1
Belgium	2,108.4	181.1	2.8	32.1	13.1	6,576.0	6,651.3	103.6
Belize	18.0	44.6	3.6	41.4	30.8	1,543.5	1,805.3	143.6
Benin	215.4	15.7	4.4	59.3	53.7	107.6	413.1	115.1
Bermuda	7.8	120.0	1.2	7.9	0.9	8,131.4	8,286.4	84.5
Bhutan	83.2	106.5	7.6	111.7	81.0	3,159.5	1,684.5	119.8
Bolivia (Plurinational State of)	402.4	33.3	3.4	168.7	13.3	787.1	1,786.8	182.5
Bonaire, Sint Eustatius and Saba	2.2	76.0	-	6.2	8.4	4,377.0	5,192.1	-
Bosnia and Herzegovina	305.0	95.2	4.9	72.9	37.2	3,313.2	6,564.8	335.5
Botswana	105.3	43.2	2.3	61.3	7.1	1,617.8	3,129.7	167.8
Brazil	12,336.9	58.7	3.2	109.5	46.3	2,619.7	1,976.8	106.5
British Virgin Islands	2.6	68.8	-	1.1	1.6	4,560.5	4,967.3	-
Brunei Darussalam	180.1	395.6	5.2	280.2	0.3	9,997.9	25,355.5	332.1
Bulgaria	798.6	117.0	3.8	68.0	19.4	4,500.4	6,468.3	208.9
Burkina Faso	267.9	11.9	4.8	70.1	70.5	119.7	239.2	97.0
Burundi	69.1	5.2	6.3	81.3	80.2	24.8	66.7	80.4
Cabo Verde	10.0	19.3	2.2	17.1	22.2	801.6	1,169.5	132.1
Cambodia	303.8	17.7	2.7	29.0	30.3	760.4	884.5	137.0

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Region	Total energy supply PJ	Energy use (TES) per capita GJ per capita	Energy intensity MJ/INT\$	Self-sufficiency %	Renewable share in TREC %	Electricity consumption per capita kWh per capita	CO ₂ emissions per capita kg per capita	CO ₂ emissions per GDP tons/million INT\$
Cameroon	443.9	16.1	3.3	128.9	79.8	276.1	241.4	49.8
Canada	12,455.9	320.9	5.6	188.3	24.1	13,820.0	14,296.2	250.6
Cayman Islands	9.3	129.5	1.7	-	0.005	9,652.3	9,271.6	121.4
Central African Republic	49.3	9.7	8.5	89.1	89.0	19.6	75.8	66.7
Chad	108.0	5.8	3.5	345.8	70.0	117.0	117.0	69.3
Chile	1,737.0	88.8	3.0	35.1	24.8	4,058.6	4,405.7	149.1
China	155,622.3	109.2	5.2	82.1	15.0	5,298.8	7,515.5	361.0
China, Hong Kong Special Administrative Region	469.2	62.8	1.0	-	0.04	6,008.8	4,175.0	66.3
China, Macao Special Administrative Region	36.9	52.4	0.9	9.2	11.0	7,456.5	1,318.0	22.8
Colombia	1,682.5	32.5	1.7	261.3	27.0	1,356.8	1,605.4	85.4
Comoros	11.7	14.0	4.1	36.1	39.3	123.5	649.6	187.6
Congo	157.9	26.2	4.2	447.0	70.1	316.8	828.0	133.4
Cook Islands	1.2	79.5	-	7.1	8.5	2,420.8	5,386.2	-
Costa Rica	220.9	43.5	1.7	52.4	34.3	2,052.4	1,509.0	60.0
Côte d'Ivoire	602.2	19.8	3.2	87.3	54.2	316.2	479.2	76.5
Croatia	349.6	89.5	2.3	44.4	30.6	4,157.8	4,016.3	102.1
Cuba ¹⁴	363.8	32.9	1.0	37.3	12.9	1,195.9	2,089.9	65.9
Curacao	36.0	194.5	8.8	2.2	2.6	4,070.5	12,227.9	552.9
Cyprus	94.0	70.6	1.9	9.2	16.2	3,649.3	4,464.8	123.2
Czechia	1,740.3	163.1	3.2	60.7	17.4	5,493.4	8,486.5	167.7
Democratic People's Republic of Korea ¹⁴	706.2	26.8	6.7	95.1	14.3	734.6	2,111.8	528.8
Democratic Republic of the Congo	1,478.5	14.4	10.4	98.3	94.1	126.4	46.3	33.4
Denmark	647.7	109.7	1.5	61.3	38.4	5,184.6	4,277.6	60.4
Djibouti	11.5	10.1	1.7	35.7	36.6	574.7	324.1	53.3
Dominica	2.5	36.8	2.2	6.3	8.9	2,009.7	2,510.2	151.6
Dominican Republic	443.5	39.5	1.7	10.0	12.3	1,7719.5	2,576.1	113.2
Ecuador	648.2	36.4	2.5	179.8	17.6	1,559.5	2,119.1	148.6
Egypt	3,894.8	34.6	2.1	94.0	6.8	1,530.4	1,904.4	116.4
El Salvador	200.8	32.0	2.9	44.4	19.1	1,140.4	1,202.9	108.7
Equatorial Guinea	132.1	73.3	4.3	422.2	4.7	852.0	4,039.1	238.5
Eritrea ¹⁴	41.3	12.1	5.4	77.6	80.0	96.4	195.5	87.3
Estonia	201.4	149.2	3.4	97.5	36.7	5,289.8	10,111.4	227.5
Eswatini	44.2	36.3	3.7	77.8	66.2	1,116.9	860.6	88.4
Ethiopia	1,985.2	15.8	6.0	91.3	88.4	89.4	115.5	43.5
Falkland Islands (Malvinas)	0.6	160.7	-	7.7	3.4	5,163.3	11,666.7	-
Faroe Islands	10.7	198.6	2.9	7.4	7.6	7,318.6	13,728.7	198.2

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Fiji	26.5	28.9	2.3	25.4	26.7	1,045.5	1,543.3	120.9
Finland	1,312.8	235.7	4.1	60.9	49.0	13,801.9	5,886.0	101.7
France	8,811.8	128.6	2.3	49.0	17.0	6,051.8	4,007.6	73.2
French Polynesia ¹⁶	13.7	48.9	2.3	7.3	8.7	2,294.8	3,252.1	150.0
Gabon	97.0	39.9	2.1	618.2	66.3	986.6	1,215.0	65.1
Gambia	18.4	7.0	2.4	39.9	47.9	145.8	313.1	109.3
Georgia	239.4	63.1	21.7	21.7	22.0	3,527.3	2,951.5	143.9
Germany	11,325.5	134.7	2.1	35.3	19.5	5,681.6	7,087.4	112.3
Ghana	517.7	15.6	2.3	123.0	41.3	528.4	606.3	90.1
Gibraltar	10.3	275.0	-	0.001	0.02	5,323.0	17,007.4	-
Greece	847.5	81.4	2.3	24.6	20.8	4,622.2	4,601.4	127.7
Greenland	10.4	185.8	-	17.0	11.9	7,101.1	11,208.0	-
Grenada	5.2	44.3	2.7	6.7	9.9	1,830.6	2,989.9	182.5
Guam ¹⁵	0.4	2.4	-	92.6	6.5	9,384.7	-	-
Guatemala	717.1	40.2	3.3	68.6	65.6	630.4	974.4	80.2
Guernsey ¹⁵	1.2	19.1	-	0.1	1.3	5,423.3	-	-
Guinea	185.2	13.2	3.5	67.8	67.6	196.0	295.0	77.8
Guinea-Bissau	20.4	9.7	3.9	74.3	81.1	82.5	167.4	66.8
Guyana	60.3	73.4	2.0	972.5	8.1	1,085.6	5,072.6	136.8
Haiti	181.6	15.8	5.2	78.4	76.1	76.3	243.7	80.0
Honduras	253.5	24.2	3.8	40.6	37.5	726.8	1,063.7	167.4
Hungary	1,074.8	111.0	2.7	41.8	16.3	4,269.4	4,299.1	106.1
Iceland	368.5	968.8	14.6	91.6	81.8	49,620.2	4,580.5	68.2
India	44,075.8	30.9	3.6	62.4	30.9	984.5	1,954.0	228.7
Indonesia	12,519.2	44.9	3.4	186.0	17.4	1,055.0	3,023.1	226.7
Iran (Islamic Republic of)	12,295.7	136.9	8.9	131.6	0.7	3,517.8	7,532.0	491.3
Iraq	2,581.9	56.6	4.4	375.1	0.5	1,277.1	3,893.7	290.7
Ireland	568.9	111.3	0.9	22.3	13.8	6,021.1	6,462.7	51.1
Isle of Man ¹⁵	4.5	53.2	-	12.3	2.0	4,314.6	2,963.1	-
Israel	968.9	109.7	2.2	81.1	6.5	6,986.7	6,802.4	134.2
Italy	5,946.3	99.7	1.9	22.5	16.3	4,810.9	4,891.4	93.4
Jamaica	121.3	42.7	4.2	9.2	7.2	1,190.4	2,670.0	265.1
Japan	16,452.9	131.6	2.9	12.6	9.5	7,253.9	8,040.2	177.8
Jersey ¹⁵	2.9	28.4	-	25.8	19.3	5,866.7	-	-
Jordan	357.5	31.8	3.4	10.8	11.4	1,717.3	1,865.2	201.3
Kazakhstan	2,901.2	144.8	4.3	232.8	2.0	4,150.9	11,074.4	330.5

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Kenya	1,216.2	22.4	4.1	80.3	68.0	184.5	317.9	57.9
Kiribati	1.6	12.4	4.0	37.2	41.9	251.4	585.5	179.1
Kosovo	111.9	65.1	4.9	67.2	20.5	3,325.5	5,043.4	376.3
Kuwait	1,771.5	386.0	7.6	390.1	0.2	10,686.9	20,296.8	398.1
Kyrgyzstan	188.9	27.2	4.4	60.3	28.0	1,888.1	1,544.0	250.8
Lao People's Democratic Republic	257.2	34.0	4.2	145.8	56.9	1,464.2	2,434.5	297.5
Latvia	178.0	94.6	2.6	68.6	47.0	3,435.5	2,995.3	82.5
Lebanon	218.4	38.0	3.3	6.0	7.6	1,777.5	2,555.7	222.7
Lesotho	49.9	21.8	8.5	33.8	36.8	373.7	1,154.3	447.8
Liberia	106.0	19.7	12.5	90.6	92.0	59.2	128.4	81.3
Libya	762.5	105.6	9.2	349.9	2.7	3,855.6	6,538.2	570.7
Liechtenstein ¹⁵	3.0	75.3	-	33.2	57.0	10,481.5	1,157.8	-
Lithuania	285.5	101.4	2.1	28.6	36.1	3,785.3	3,789.8	79.8
Luxembourg	135.1	206.9	1.5	9.9	24.2	9,403.1	10,221.8	74.6
Madagascar	399.7	13.1	8.1	86.0	83.8	69.3	139.0	85.6
Malawi	170.3	8.3	5.0	88.0	86.7	83.4	77.3	46.6
Malaysia	4,158.7	119.9	3.7	97.2	8.0	4,783.4	7,201.9	224.5
Maldives	31.5	60.0	2.8	1.0	1.3	2,139.5	4,340.0	203.2
Mali	243.2	10.5	4.5	64.4	63.7	140.0	279.0	118.4
Malta	32.4	61.3	1.0	3.9	8.1	5,099.5	3,387.6	56.9
Marshall Islands	2.3	57.1	8.3	8.9	11.7	1,971.2	3,789.2	553.6
Mauritania	97.8	20.0	3.3	22.7	19.6	345.0	1,106.9	182.9
Mauritius	63.6	49.8	2.0	11.0	6.3	2,262.3	3,456.1	140.7
Mexico	7,650.2	59.5	2.7	86.4	13.1	2,332.5	3,371.0	155.7
Micronesia (Federated States of)	2.2	19.4	5.0	2.1	2.1	600.3	1,311.7	338.6
Mongolia	467.9	138.2	8.9	202.4	2.2	2,390.8	12,250.4	789.0
Montenegro	44.6	72.5	2.8	71.1	35.7	4,237.1	4,217.0	160.5
Montserrat	0.4	79.3	-	0.2	0.2	2,479.5	5,537.7	-
Morocco	963.5	25.5	2.9	10.6	12.5	964.9	1,790.4	203.5
Mozambique	490.0	15.0	10.2	206.9	75.8	384.0	231.2	156.6
Myanmar	922.0	17.2	127.2	3.2	62.0	318.6	542.0	101.3
Namibia	77.2	26.7	2.7	42.5	35.4	1,119.5	1,047.1	105.3
Nauru	0.8	70.0	5.6	1.4	1.8	3,119.4	5,107.1	409.6
Nepal	676.9	22.8	4.8	70.2	72.5	306.2	529.0	111.1
Netherlands (Kingdom of the)	2,623.7	146.5	2.1	37.9	14.2	5,796.7	6,580.1	92.3
New Caledonia ¹⁴	63.7	221.8	11.6	5.0	9.6	10,770.2	15,453.8	808.3

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New Zealand	894.9	174.4	3.5	76.8	30.3	7,513.6	5,458.9	110.7
Nicaragua	171.7	25.5	3.5	57.4	49.9	579.9	739.0	101.8
Niger	146.4	5.8	3.4	96.8	73.8	55.1	123.1	71.7
Nigeria	2,807.8	12.6	2.3	179.0	44.8	144.5	485.1	87.4
Niue	0.1	52.4	-	2.5	2.8	1,966.0	3,685.8	-
North Macedonia	114.3	62.1	2.7	38.1	19.1	3,200.8	4,123.6	179.7
Northern Mariana Islands	4.2	92.0	-	0.4	0.7	5,317.1	6,727.2	-
Norway	1,048.4	192.1	2.1	862.6	59.8	21,064.8	5,000.1	54.9
Oman	1,315.0	278.0	6.9	310.5	0.1	7,722.0	13,556.5	335.8
Other Asia ¹⁵	4,883.4	208.5	3.6	8.7	4.6	11,121.4	12,062.2	205.7
Pakistan	3,921.0	16.1	2.9	57.8	27.1	436.4	781.9	141.5
Palau	3.0	169.6	11.0	0.5	0.6	4,898.9	12,467.6	805.5
Panama	197.7	44.9	1.3	22.9	29.4	3,379.9	2,581.0	76.3
Papua New Guinea	192.2	18.8	4.6	320.6	50.8	390.7	815.8	197.7
Paraguay	294.4	43.5	2.9	96.0	60.2	2,134.9	1,085.1	71.1
Peru	1,182.6	35.3	2.3	88.0	25.9	1,557.7	1,752.9	112.7
Philippines	2,578.0	22.6	2.4	48.4	27.1	801.4	1,249.2	132.1
Poland	4,344.6	113.2	2.7	56.9	16.4	3,685.5	7,413.7	175.0
Portugal	850.1	81.6	2.0	29.0	31.7	4,671.6	3,416.8	82.6
Puerto Rico ^a	51.5	15.9	0.4	3.5	2.6	4,839.1	860.7	20.4
Qatar	1,844.5	637.7	6.0	503.0	0.03	16,663.8	28,960.9	274.7
Republic of Korea	11,734.1	226.6	4.5	20.3	4.3	10,461.6	10,595.9	212.6
Republic of Moldova	111.1	36.6	2.9	19.8	24.8	1,329.2	1,604.1	126.1
Romania	1,331.8	69.5	1.8	70.1	23.6	2,229.4	3,382.0	85.6
Russian Federation	33,522.7	230.3	6.0	180.9	3.4	5,652.0	12,079.0	313.2
Rwanda	115.7	8.5	2.9	82.9	79.9	67.8	123.9	42.9
Saint Barthélemy	1.7	153.8	-	0.01	0.1	11,966.3	11,236.3	-
Saint Helena	0.2	30.1	-	7.8	10.2	1,673.2	2,032.8	-
Saint Kitts and Nevis	3.6	76.8	2.6	1.0	1.5	4,097.7	5,485.1	184.3
Saint Lucia	8.0	44.9	2.0	7.9	9.8	2,090.1	2,954.2	128.7
Saint Martin (French Part)	5.8	202.0	-	0.1	0.1	5,898.9	14,443.6	-
Saint Pierre and Miquelon	0.8	131.4	-	0.7	1.2	8,293.1	9,564.0	-
Saint Vincent and the Grenadines	3.7	36.3	2.1	4.2	5.1	1,418.6	2,446.3	142.5
Samoa	4.8	22.4	3.8	28.3	31.7	713.5	1,114.8	190.8
Sao Tome and Principe	3.0	13.1	2.3	36.1	42.0	343.3	608.0	107.9
Saudi Arabia	10,265.5	319.0	5.6	275.4	0.1	9,972.0	16,318.6	284.5

Region	Total energy supply PJ	Energy use (TES) per capita GJ per capita	Energy intensity MJ/INT\$	Self-sufficiency %	Renewable share in TEEC %	Electricity consumption per capita kWh per capita	CO ₂ emissions per capita kg per capita	CO ₂ emissions per GDP tons/million INT\$
Senegal	232.9	13.2	3.1	36.2	29.3	384.6	639.1	151.2
Serbia	673.6	99.2	4.1	59.6	25.0	4,267.4	6,580.4	269.2
Seychelles	8.8	70.2	2.6	1.3	1.9	3,957.0	5,094.3	186.9
Sierra Leone	77.5	9.4	3.2	73.6	70.9	41.3	178.2	60.7
Singapore	1,604.7	284.0	2.1	1.9	1.5	9,714.3	15,279.1	115.6
Sint Maarten (Dutch part)	10.9	259.7	5.9	-	0.05	6,677.9	16,898.0	385.1
Slovakia	691.9	126.4	3.3	40.7	17.2	4,178.5	4,919.7	128.0
Slovenia	270.1	127.7	2.7	47.4	20.1	6,165.2	5,541.9	117.0
Solomon Islands	7.4	9.4	3.7	45.2	50.1	107.9	371.0	147.3
Somalia	175.0	9.8	7.1	89.8	89.4	27.9	73.1	52.7
South Africa	5,442.8	87.3	6.3	106.4	8.3	2,985.9	7,007.9	508.7
South Sudan ⁴	31.6	2.9	2.3	969.7	34.2	46.6	152.4	122.2
Spain	4,796.8	100.3	2.2	30.1	18.2	4,691.1	4,581.3	98.7
Sri Lanka	400.2	17.5	1.4	41.1	47.9	655.2	800.0	62.2
State of Palestine	106.2	20.0	3.7	12.0	18.1	1,365.6	899.6	164.5
Sudan	505.1	10.2	3.3	69.2	47.8	268.5	352.1	112.4
Suriname	44.5	71.4	3.8	90.4	13.8	2,888.9	4,509.3	240.6
Sweden	1,848.7	176.3	2.8	78.8	58.5	11,706.4	2,812.5	44.2
Switzerland	951.1	108.2	1.3	52.3	26.8	6,486.5	3,250.4	39.2
Syrian Arab Republic	429.0	19.1	4.3	41.5	1.2	640.8	1,246.2	279.7
Tajikistan	221.3	21.7	5.2	75.9	52.0	1,453.5	841.8	189.8
Thailand	5,634.2	78.5	3.8	48.5	18.7	3,025.5	3,433.6	165.5
Timor-Leste	9.4	6.9	1.3	999.2	10.9	284.8	455.8	85.3
Togo	161.7	17.8	6.7	80.7	72.8	190.0	172.2	75.2
Tonga	2.1	20.3	2.9	2.1	2.1	661.6	1,418.5	205.5
Trinidad and Tobago	657.7	439.7	15.4	172.6	0.2	5,786.3	11,287.4	394.7
Tunisia	485.1	40.0	3.2	44.9	11.5	1,524.6	2,189.6	173.3
Türkiye	6,530.2	75.0	2.3	32.4	14.1	3,242.4	4,473.1	138.6
Turkmenistan	1,706.0	236.0	13.8	209.8	0.03	2,106.5	14,008.9	818.3
Turks and Caicos Islands	5.3	115.0	5.2	0.5	0.7	5,354.8	8,119.1	365.6
Tuvalu	0.1	13.9	2.5	4.1	5.5	717.9	967.8	176.0
Uganda	1,112.2	23.5	8.6	83.3	91.3	83.3	117.2	43.0
Ukraine	2,632.8	64.1	5.0	74.8	11.9	1,960.8	3,007.9	232.2
United Arab Emirates	3,580.3	349.6	5.2	287.9	1.2	13,142.4	17,297.4	255.3
United Kingdom	6,396.5	99.8	1.7	67.5	13.5	4,022.6	4,542.9	83.4
United Republic of Tanzania	1,102.8	17.0	5.0	87.8	77.6	118.2	264.5	76.9

Region	Total energy supply PJ	Energy use (TES) per capita GJ per capita	Energy intensity MJ/INT\$	Self-sufficiency %	Renewable share in TEEC %	Electricity consumption per capita kWh per capita	CO ₂ emissions per capita kg per capita	CO ₂ emissions per GDP tons/million INT\$
United States	91,134.2	266.8	3.8	106.6	11.0	11,730.0	13,608.9	191.5
United States Virgin Islands ¹⁸	0.2	1.8	0.03	100.0	6.1	7,230.6	-	-
Uruguay	232.7	68.6	2.2	58.2	57.7	3,454.7	2,118.2	68.6
Uzbekistan	2,015.1	57.7	6.0	98.4	1.4	1,620.6	3,343.2	348.0
Vanuatu	3.6	11.4	3.7	24.7	27.6	243.4	619.9	198.5
Venezuela (Bolivarian Republic of) ¹⁴	1,724.1	61.1	9.4	162.6	27.6	2,409.8	3,271.0	505.3
Viet Nam	4,261.8	42.8	3.3	63.9	22.8	2,261.7	2,733.5	211.4
Wallis and Futuna Islands	0.4	37.6	-	2.1	3.4	2,060.8	2,691.0	-
Yemen ¹⁴	123.5	3.2	2.0	101.4	4.0	68.5	215.2	130.5
Zambia	534.6	26.5	7.4	88.1	77.5	683.7	516.7	144.1
Zimbabwe	518.1	32.2	9.7	90.9	75.9	573.7	752.3	226.4

(13) - (16) See notes on pages 68-73.

General notes

Please note that UN energy data are subject to the Terms and Conditions available at: <http://data.un.org/Host.aspx?Content=UNdataUse>.

Maps disclaimer

The designations employed and the presentation of material on the maps in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).

Maps in this Pocketbook were created based on a worldwide geospatial dataset provided by UN Geospatial (<https://www.un.org/geospatial>).

Data sources

Data used in this publication derive from the Energy Statistics Database maintained by the United Nations Statistics Division (UNSD). For more information, please refer to <https://unstats.un.org/unsd/energystats/data>.

Population data used to calculate the per capita indicators come from the United Nations Population Division and are available at: <https://population.un.org/wpp>.

Gross domestic product (GDP) data used to calculate energy intensity are mostly from the World Bank (GDP, purchasing power parity (PPP), constant 2021 international \$) and are available at: <https://data.worldbank.org/indicator/NY.GDP.MKTP.PP.KD> (updated on 16/12/2024). For some countries - namely Cuba, the Democratic People's Republic of Korea, Eritrea, French Polynesia, New Caledonia, South Sudan, Venezuela (Bolivarian Republic of) and Yemen - GDP PPP data were not available from the World Bank and International Monetary Fund (IMF) data were used instead (World Economic Outlook, available at <https://www.imf.org/en/Publications/SPROLLS/world-economic-outlook-databases>). The Comptes Harmonisés sur les Echanges et L'Economie Mondiale (CHELEM) GDP database provided GDP PPP for Other Asia (https://www.cepii.fr/CEPII/fr/bdd_modele/bdd_modele_item.asp?id=17).

Geographical notes

The assignment of countries and areas follows the United Nations publication "Standard Country or Area Codes for Statistical Use" originally published as Series M, No. 49 and now commonly referred to as the M49 standard. For more information, please refer to <https://unstats.un.org/unsd/methodology/m49>.

For a detailed description of the geographical coverage of the data, please refer to <https://unstats.un.org/unsd/energystats/pubs/yearbook/2022/05gn.pdf>.

The expression *Other countries (x)* is used to represent all the countries and areas that are not shown separately in a chart and indicates that x countries and areas have positive values.

Concepts, definitions and chapter notes

All the definitions of products and flows are based on the International Recommendations for Energy Statistics (IRES) available at: <https://unstats.un.org/unsd/energystats/methodology/ires>. Particularly for products, the definitions come from the Standard International Energy Product Classification (SIEC) contained in IRES. A more concise version of these definitions can be found in the Energy Balances publication (available at: <https://unstats.un.org/unsd/energystats/pubs/balance>) under the chapter "Concepts and Definitions".

Please note that in the present publication, the product coal includes peat unless otherwise specified; data for natural gas are expressed on a net calorific value (NCV) basis (as are data for all other products); energy sources (i.e. coal, oil, natural gas, biofuels and waste, and electricity and heat) generally refer to both primary and secondary products, with the exception of the chapter on primary energy production.

Per capita data are calculated by dividing energy or other values (total energy supply, electricity generation, electricity consumption, total final consumption, CO₂ emissions) by population.

Total energy supply

Note (1), page 1 - *International aviation and marine bunkers* are recorded separately due to their importance, e.g. for the estimation of greenhouse gas emissions. At the world level, bunkers are classified as part of transport final consumption and *are included in the world total energy supply*; however, at the country and regional levels, bunkers are not accounted for as final consumption because they pertain to more than one country or region and are *therefore subtracted from total energy supply*.

Note (2), page 2 - *Energy intensity* is calculated by dividing total energy supply by GDP, PPP (constant 2021 international \$). It corresponds to the Sustainable Development Goals (SDG) indicator 7.3.1. Total energy supply (TES) data in this publication are derived from the United Nations Energy Statistics Database, which provides TES data for the official SDG indicator 7.3.1 for 37% of countries and areas. GDP PPP data are from the World Bank, unless otherwise indicated. Any discrepancies with the official

indicator shall be attributed to the use of different sources for TES (for the remaining 63% of countries and areas) and GDP PPP.

Primary energy production

Note (3), page 6 - *Energy self-sufficiency* is calculated as the ratio between primary energy production and total energy supply expressed in percentage.

The category *Other primary oil* (chart 27 and table 28) refers to additives and oxygenates, and other hydrocarbons.

The category *Waste* (chart 33 and table 34) refers to other vegetable material and residues (vegetal waste), animal waste, industrial waste and municipal waste.

The category *Other biofuels* (chart 33 and table 34) refers to biogasoline, biodiesel, biogases, bio jet kerosene, bagasse, black liquor and other liquid biofuels.

Electricity

Note (4), pages 19, 21 - The category *Solar, wind and other sources* refers to solar, wind, geothermal, chemical heat, tide, wave and marine, and other non-specified sources.

Note (5), pages 26, 27 - Electricity capacities from geothermal, tide, wave and marine and from other non-specified sources are not shown in tables 49 and 51. They are negligible compared to the world total (54.6 GW in 2022, around 0.6% of total as an aggregate) and are not included in chart 48.

The categories *Renewable electricity generation* (Facts and figures box, map 42, table 43 and 47, chart 46) and *Renewable electricity capacity* (Facts and figures box, tables 49, 51 and 59, chart 50 and map 58) refer to hydro, wind, solar, geothermal, tide, wave and marine, as well as renewable thermal, i.e. electricity from biofuels and renewable waste.

The category *Non-renewable electricity generation* (Facts and figures box, tables 49 and 51 and chart 50) refers to: (a) non-renewable thermal, i.e. electricity generated from all non-renewable combustible fuels: coal, oil, natural gas, and non-renewable waste; (b) nuclear; and (c) chemical heat and other non-specified sources. *Non-renewable electricity capacity* (tables 49 and 51, chart 50) refers to thermal from non-renewable fuels, nuclear and other non-specified capacities.

Electricity capacity is the abbreviated form for net maximum electrical capacity, which in turn is defined as the maximum active power that can be supplied continuously, with all plants running, at the point of outlet (i.e., after taking the power supplies for the station auxiliaries and allowing for the losses in those transformers considered integral to the station). For annual data, it is considered as measured at the end of the reference year.

Utilization of electricity capacity is calculated by dividing electricity production by electricity capacity and then by the total number of hours in a year. It shows the percentage of theoretical maximal utilization; since the capacity is measured on a net basis and the production on a gross basis, there is a small upward bias in this utilization indicator.

Refinery output

Note (6), page 36 - World oil energy supply includes international aviation and marine bunkers; conversely, bunkers are excluded from oil energy supply calculated for countries and regions. The different approach adopted in treating international bunkers at the world level as opposed to the country level determines a divergence between the world oil supply and the sum of the country values in table 69. For further explanations, please refer to note (1) in the subsection referring to the chapter *Total energy supply*.

Refinery output refers to the total amount of oil products produced in refineries (naphtha, aviation gasoline, motor gasoline, gasoline-type jet fuel, kerosene-type jet fuel, other kerosene, gas/diesel oil, fuel oil, refinery gas, ethane, liquified petroleum gas (LPG), white spirit and special boiling point (SBP) industrial spirits, lubricants, paraffin waxes, petroleum coke, bitumen, refinery feedstocks and other oil products not elsewhere classified).

Refinery input refers to the amount of oil (conventional crude oil, natural gas liquids, feedstocks, other hydrocarbons, and additives and oxygenates) that has entered the refinery process.

Refinery capacity is the theoretical maximum annualized capacity of crude oil refineries available for operation at the end of the reference year.

The category *Other* (chart 64 and table 65) refers to refinery gas, ethane, LPG, white spirit and SBP industrial spirits, lubricants, paraffin waxes, petroleum coke, bitumen, refinery feedstocks, and other oil products not elsewhere classified. The category *gasolines* refers to aviation gasoline, motor gasoline and gasoline-type jet fuel; the category *kerosenes* refers to kerosene-type jet fuel and other kerosene.

Total final consumption

Note (7), page 37 - *Total final consumption* (TFC) refers to the consumption of energy products by end users, which is the last stage of energy flows captured in energy statistics. As such, TFC excludes energy products that are transformed into secondary energy products. For example, fuels used for electricity and heat generation are not accounted directly in TFC, but accounted for indirectly as final electricity and heat consumption. For coal specifically, around 66% of TES in 2022 is used as input for electricity and heat generation worldwide.

Note (8), page 37 - Total final consumption comprises both final energy consumption and non-energy use. However, the sectors responsible for non-energy use are not recorded; it is likely that the industry share of total final consumption is higher than currently indicated.

Note (9), page 42 - *World total final consumption* includes international aviation and marine bunkers; conversely, bunkers are excluded from total final consumption calculated for countries and regions. The different approach adopted in treating international bunkers at the world level as opposed to the country level determines a divergence between the world total final consumption and the sum of the country values in table 80. For further explanations, please refer to note (1) in the subsection referring to the chapter *Total energy supply*.

The category *Other* (chart 77 and table 78) refers to agriculture, forestry and fishing, commerce and public services, and other non-specified consumers. The categories *industry*, *transport*, *households* and *other* do not include non-energy use in these sectors.

Renewable energy share in total final energy consumption (map 79 and table 80) refers to renewables directly consumed as energy products, as well as final consumption of electricity and heat attributed to renewable sources, including combustible renewables. It corresponds to the SDG indicator 7.2.1. Energy consumption data in this publication are derived from the United Nations Energy Statistics Database, which provides data for the official SDG indicator 7.2.1 for 37% of countries and areas. Any discrepancies with the official indicator shall be attributed to the use of different sources for the remaining 63% of countries and areas.

CO₂ emissions

This chapter, introduced in the 2024 edition of the Pocketbook for the first time, presents estimates of CO₂ emissions from fossil fuel combustion. The calculations have been carried out using data from the United Nations Energy Statistics Database according to the 2006 Intergovernmental Panel on Climate Change (IPCC) guidelines (<https://www.ipcc-nggip.iges.or.jp/public/2006gl/>) and follow the reference approach. The calculations also include the category Industrial processes and product use (IPPU). For additional context, please refer to the table notes on <https://unstats.un.org/unsd/energystats/pubs/yearbook/2022/t04.pdf>.

Note (10), page 44 – World CO₂ emissions include international aviation and marine bunkers; conversely, bunkers are excluded from CO₂ emissions calculated for countries and regions. CO₂ emissions are calculated as the sum of emissions from coal, oil and natural gas, while emissions from gas flaring are not included. CO₂ emissions per capita are calculated by dividing CO₂ emissions by population. CO₂ emissions per GDP are calculated by dividing CO₂ emissions by GDP, PPP (constant 2021 international \$), which corresponds to the SDG indicator 9.4.1. Data on CO₂ in this publication are derived from the United Nations Energy Statistics Database, while GDP PPP data are from the World Bank, unless otherwise indicated. Any discrepancies with the official indicator shall be attributed to the use of different sources for CO₂ emissions and GDP PPP.

Energy balances

Note (11), page 46 - Transport includes international aviation and marine bunkers in the world balance, unlike for the regional balances.

Note (12), all balances, starting from page 46 - The category of *which: renewables* follows the convention used in the Energy Balances publication and therefore includes only directly identifiable renewable energy. As a result, no part of imports and exports of heat or electricity, nor their consumption, losses or own use, is considered as renewable, which may lead to differences with values presented in other chapters.

Indicators

Note (13), page 60 - World **TES** includes international aviation and marine bunkers; conversely, bunkers are excluded from TES calculated for countries and regions. **Energy use (TES) per capita** is calculated by dividing TES by population. **Energy intensity** is calculated by dividing total energy supply by GDP, PPP (constant 2021 international \$) and corresponds to the SDG indicator 7.3.1. TES data in this publication are derived from the United Nations Energy Statistics Database, which provides TES data for the official indicator 7.3.1 for 37% of countries and areas. GDP PPP data are from the World Bank, unless otherwise indicated. Any discrepancies with the official indicator shall be attributed to the use of different sources for TES (for the remaining 63% of countries and areas) and GDP PPP.

Energy self-sufficiency is calculated as the ratio between primary energy production and total energy supply expressed in percentage. **Renewable share in TFEC** refers to renewables directly consumed as energy products, as well as final consumption of electricity and heat attributed to renewable sources, including combustible renewables. It corresponds to the SDG indicator 7.2.1. Energy consumption data in this publication are derived from the United Nations Energy Statistics Database, which provides data for the official indicator 7.2.1 for 37% of countries and areas. Any discrepancies with the official indicator shall be attributed to the use of different sources for the remaining 63% of countries and areas. **Electricity consumption per capita** is calculated by dividing electricity consumption by population. **CO₂ per capita** is calculated by dividing CO₂ emissions by population. **CO₂ emissions per GDP** are calculated by dividing CO₂ emissions by GDP, PPP (constant 2021 international \$), which corresponds to the SDG indicator 9.4.1. CO₂ data in this publication are derived from the United Nations Energy Statistics Database, while GDP PPP data are from the World Bank, unless otherwise indicated. Any discrepancies with the official indicator shall be attributed to the use of different sources for CO₂ emissions and GDP PPP.

Note (14), starting from page 60 - Energy intensity for this country is calculated using GDP PPP data from the IMF.

Note (15), page 65 – Energy intensity for this country is calculated using GDP PPP CHELEM data.

Note (16), starting from page 60 - Energy statistics for this country are partially covered by another country, therefore, indicators should be interpreted with caution.

See geographical notes at <https://unstats.un.org/unsd/energystats/pubs/yearbook/2022/05gn.pdf>.