Supplementary Information for

Accelerating renewable deployment under rapid growth of electricity demand

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Supplementary Texts

Supplementary Text 1 | Sensitivity tests

To illustrate the potential impacts of key factors and assess uncertainties arising from our modelling framework, we conducted a series of sensitivity tests by varying fuel shares within fossil generation, nuclear generation trajectories, rates of fossil emission reductions, changes in fossil power capacity factors, and regional allocation of future electricity demand. Assumptions of the base case and sensitivity tests are listed in Supplementary Table 2 and described below.

Fuel shares within fossil generation. To examine the robustness of our results to alternative assumptions about fossil generation composition, we conducted sensitivity tests by adjusting the penetration rates of different fossil fuels. Instead of adopting the median values across the AR6 1.5°C+2°C scenario ensemble as in the base case, we derived fuel shares within fossil generation from individual IAM scenarios in each category of C1–C4, including EN_NPi2020_450f (WITCH 5.0), R2p1_SSP1-PkBudg1300 (REMIND 2.1), SSP2_SPA2_26I_D (IMAGE 3.2), and NGFS2_Delayed Transition (GCAM 5.3), and used these as inputs to the stock turnover model. Across all tests, fossil decarbonization trajectories remain notably consistent, indicating that these tests do not substantially alter our main conclusions.

Nuclear generation trajectories. To evaluate the influence of nuclear expansion on fossil transition dynamics, we performed sensitivity tests by varying nuclear generation trajectories while keeping other assumptions unchanged. In the base case, nuclear generation follows the median trajectory across the AR6 1.5°C+2°C scenario ensemble. In the sensitivity tests, we instead adopted the 25^{th} and 75^{th} percentile trajectories of nuclear generation across the same ensemble, as well as a constant nuclear generation pathway, to explore lower-bound, upper-bound, and no-expansion cases. The results show that nuclear expansion exerts a pronounced influence on fossil decarbonization under weaker mitigation assumptions. Taking demand–renewables trajectories implied by the WEO 2025 Stated Policies Scenario as an example, the reduction in fossil capacity is 1.3 times as large as in the base case when nuclear generation follows the 75^{th} percentile trajectory across the AR6 1.5°C+2°C scenario ensemble. This finding suggests that advances in nuclear technology may substantially facilitate deeper decarbonization of the power sector.

Emission reductions in fossil power generation. To assess the implications of alternative carbon management trajectories, we conducted sensitivity tests by varying emission constraints consistent with the WEO Net Zero Emissions by 2050 Scenario and Stated Policies Scenario. Specifically, we adjusted the implied global fossil power emission reduction rates to align with each scenario. Our results indicate that stronger emission constraints, as reflected in the Net Zero Emissions by 2050 Scenario, substantially increase the required scale of CCUS deployment. However, even under the fossil emission reduction rates implied by the Stated Policies Scenario, maintaining recent growth in electricity demand and renewable generation would still necessitate the deployment of more than 200 Gt of CCUS to keep fossil emissions on track. These results underscore that accelerating the share of new electricity demand met by renewables is critical to limiting long-term reliance on large-scale CCUS deployment.

Changes in fossil power capacity factors. To examine the influence of alternative fossil power capacity factors (CF), we conducted sensitivity tests by varying CF assumptions. In the base case, CF trajectories are derived from the median values of fuel-specific fossil generation and capacity across the AR6 1.5°C+2°C scenario ensemble. In the sensitivity analysis, we instead adopted CF trajectories implied by individual IAM scenarios, selecting the following scenarios: EN_NPi2020_450f (WITCH 5.0), R2p1_SSP1-PkBudg1300 (REMIND 2.1), SSP2_SPA2_26I_D (IMAGE 3.2), and NGFS2_Delayed Transition (GCAM 5.3). Across all tests, CF assumptions exert a noticeable influence on fossil capacity expansion and cumulative emissions under scenarios with relatively weaker renewable growth (e.g., Stated Policies Scenario), whereas their influence is comparatively limited under stronger decarbonization pathways. This sensitivity arises from substantial variation in CF trajectories across IAM-based scenarios. For example, the NGFS2_Delayed Transition (GCAM 5.3) scenario projects an upward trend in coal CF, whereas SSP2_SPA2_26I_D (IMAGE 3.2) scenario projects a decline of 0.7%/yr during 2020−2050. Such differences translate into different installed capacity requirements for a given level of fossil generation and shift the turnover of plant retirement and new construction.

Regional allocation of future electricity demand. To assess how uncertainty in regional electricity demand trajectories affects fossil decarbonization, we conducted sensitivity tests by the varying regional allocation of future electricity demand. In the base case, regional allocation of future electricity demand is derived from the median values across the AR6 1.5°C+2°C scenario ensemble. In the sensitivity analysis, we instead adopted regional demand distributions from individual IAM scenarios, including EN_NPi2020_450f (WITCH 5.0), R2p1_SSP1-PkBudg1300 (REMIND 2.1), SSP2_SPA2_26I_D (IMAGE 3.2), and NGFS2_Delayed Transition (GCAM 5.3). Across all tests, fossil decarbonization trajectories remain broadly comparable to the base case. This consistency reflects the robust projection across models of a growing contribution from developing regions to global electricity demand growth.

Supplementary Text 2 | Future projections of electricity demand in hydrogen production

Regarding the electricity demand for hydrogen production, we extract hydrogen output from two production technologies (water electrolysis and fossil fuels with CCUS, Supplementary Table 8). Based on the power consumption per unit of hydrogen output, we calculate the electricity demand of the hydrogen production for different technologies. The above processes were conducted at IEA-projection in Low-emissions Hydrogen Balance table of WEO 2025[1], AR6 1.5°C+2°C scenario ensemble, and historical production from the IEA Global Hydrogen Review 2025[2].

Supplementary Text 3 | Installed capacity of non-fossil technologies

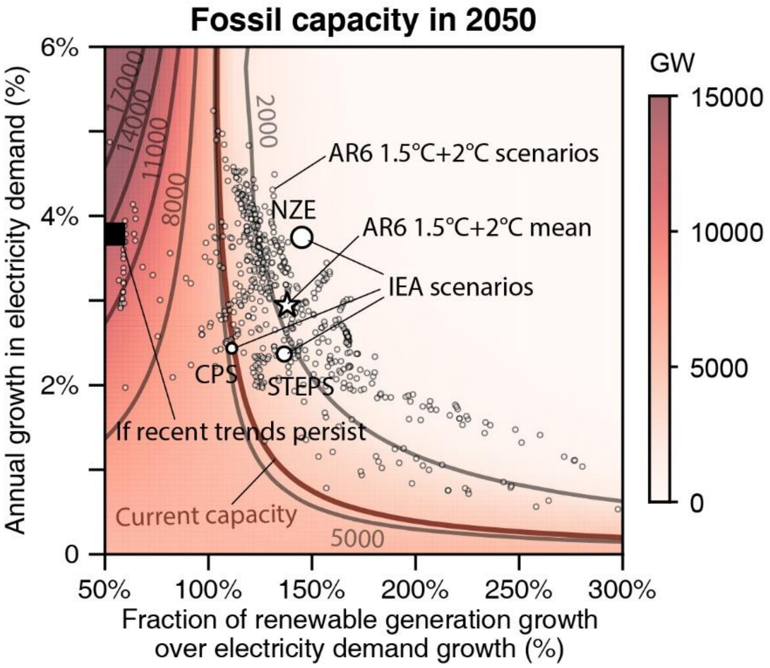
For non-fossil technologies, capacity additions are derived from required generation and technology-specific capacity factors, then converted into incremental capacity by tracking year-to-year increases in required installed capacity.

Specifically, the required installed capacity for each technology is inferred from annual electricity generation and technology-specific capacity factors as:

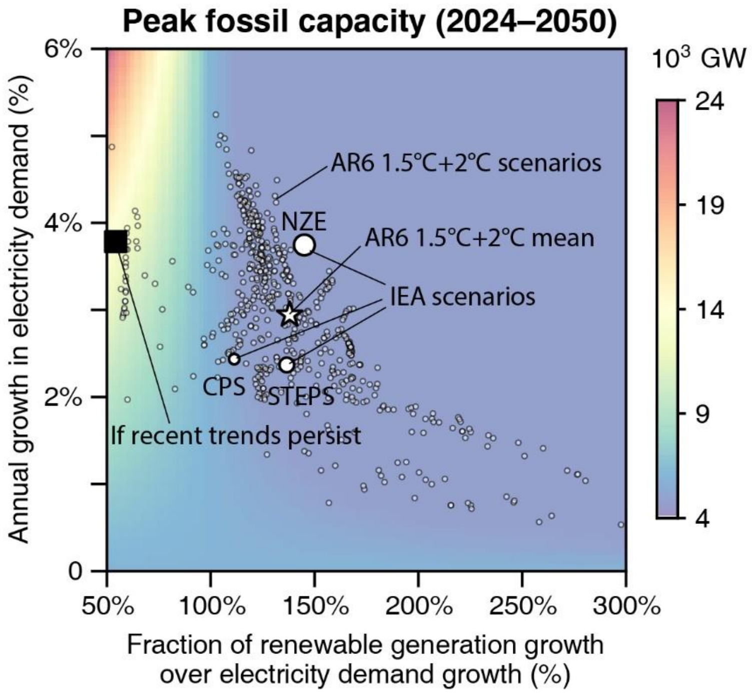
$$Cap_{t,r,y,sens} = \frac{Generation_{t,r,y,sens}}{(CF_{t,r,y}/100) \times 8760} \times 1000 \qquad (S1)$$

where $Cap_{t,r,y,sens}$ denotes the installed capacity (kW) of technology t in region r and year y under a given sensitivity test. $Generation_{t,r,y}$ represents the annual generation (MWh) and $CF_{t,r,y}$ is the capacity factor (%). Technology- and region-specific capacity factors are taken from the AR6 median projections, consistent with the assumptions described in the Methods.

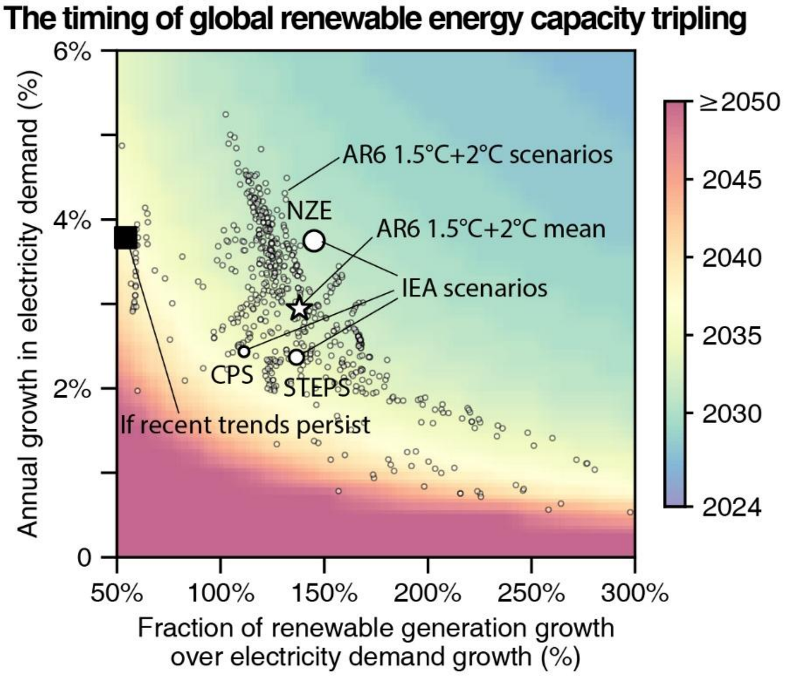
Supplementary Figures



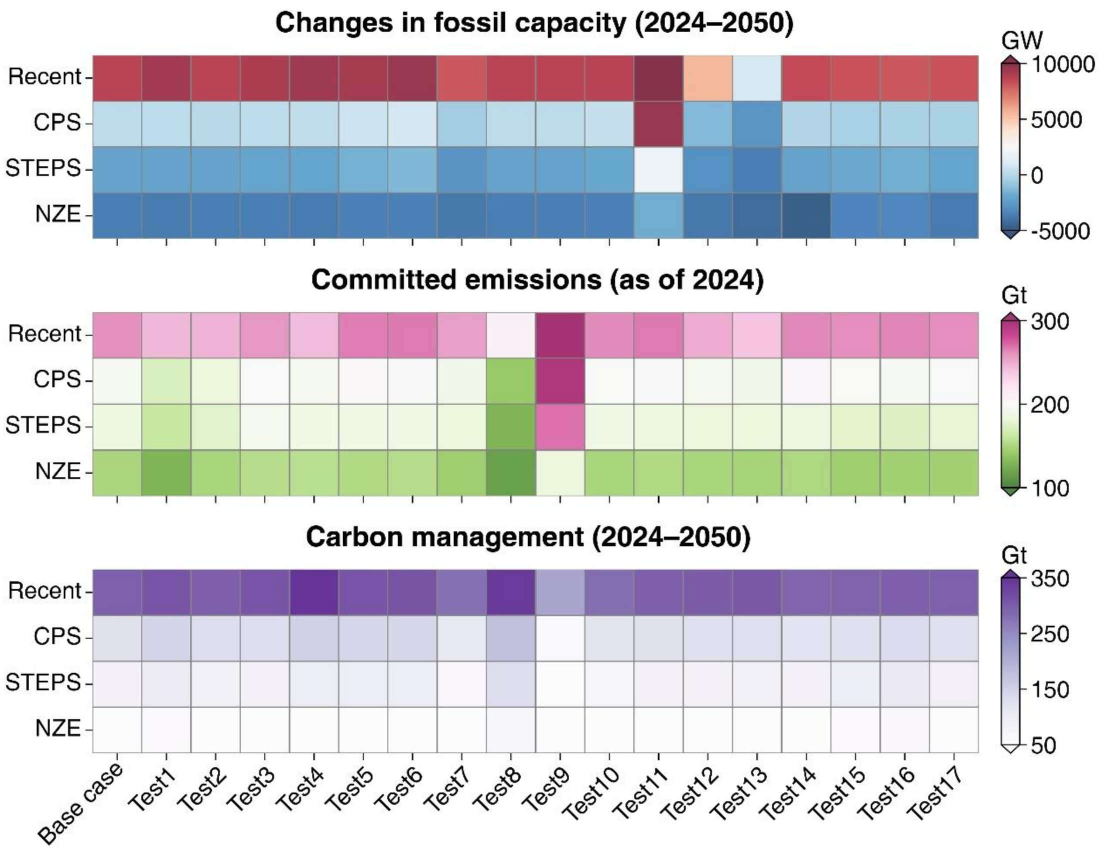
Supplementary Figure 1 | How electricity demand growth and fraction of renewable generation growth over electricity demand growth shape total installed capacity of fossil power in 2050. Circles denote the WEO-projected electricity demand and renewable growth of the Current Policies Scenario (CPS), the Stated Policies Scenario (STEPS) and the Net Zero Emissions by 2050 Scenario (NZE) over 2024–2050. Squares denote the recent demand and renewable growth during 2020–2024, assuming recent trends persist. Star and points represent the ensemble mean and individual projections of electricity demand and renewable growth across the AR6 1.5°C+2°C mitigation scenarios over 2024–2050, respectively. Red line represents current fossil capacity in 2024.



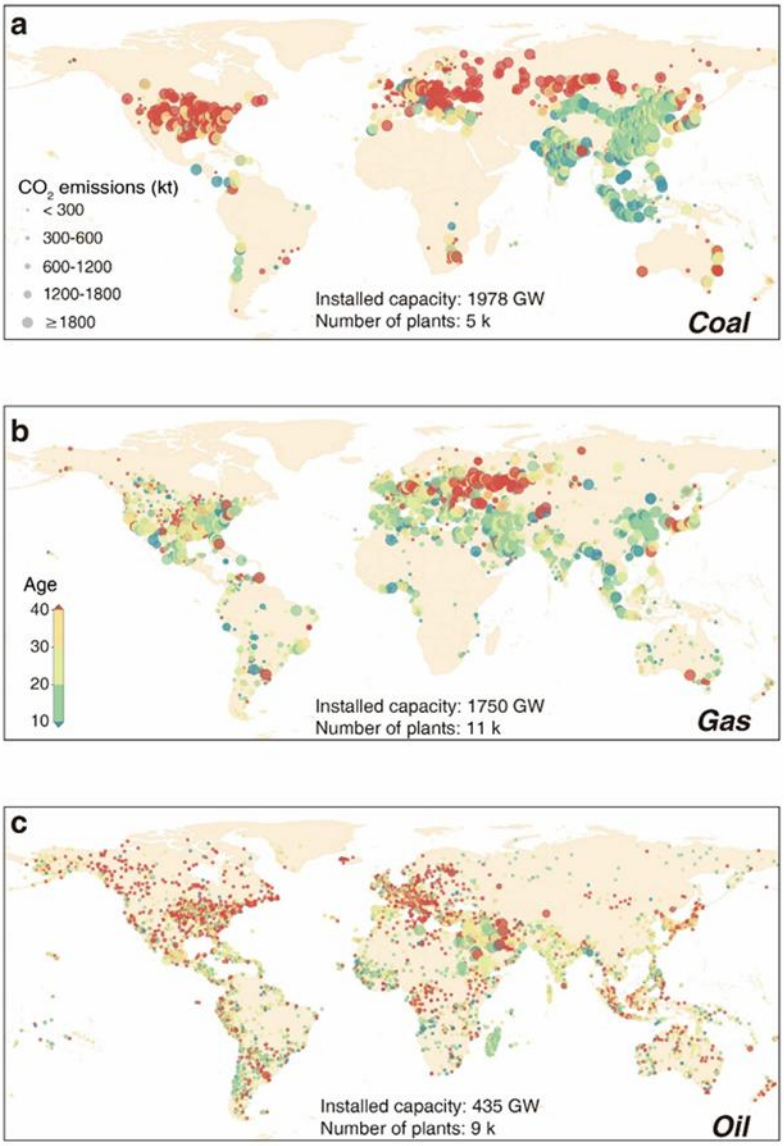
Supplementary Figure 2 | How electricity demand growth and fraction of renewable generation growth over electricity demand growth shape global maximum fossil capacity over 2024–2050. Circles denote the WEO-projected electricity demand and renewable growth of the Current Policies Scenario (CPS), the Stated Policies Scenario (STEPS) and the Net Zero Emissions by 2050 Scenario (NZE) over 2024–2050. Squares denote the recent demand and renewable growth during 2020–2024, assuming recent trends persist. Star and points represent the ensemble mean and individual projections of electricity demand and renewable growth across the AR6 1.5°C+2°C mitigation scenarios over 2024–2050, respectively.



Supplementary Figure 3 | How electricity demand growth and fraction of renewable generation growth over electricity demand growth shape the timing of global renewable energy capacity tripling. Circles denote the WEO-projected electricity demand and renewable growth of the Current Policies Scenario (CPS), the Stated Policies Scenario (STEPS) and the Net Zero Emissions by 2050 Scenario (NZE) over 2024–2050. Squares denote the recent demand and renewable growth during 2020–2024, assuming recent trends persist. Star and points represent the ensemble mean and individual projections of electricity demand and renewable growth across the AR6 1.5°C+2°C mitigation scenarios over 2024–2050, respectively.



Supplementary Figure 4 | Comparison of fossil decarbonization outcomes among the base case and sensitivity tests. The heatmaps show changes in total capacity by 2050 (a), committed emissions as of 2024 (b) and total CCUS deployment by 2050 (c) across demand–renewables trajectories defined by recent growth rates (2020–2024), assuming recent trends persist, and those projected for 2024–2050 under the Current Policies Scenario (CPS), the Stated Policies Scenario (STEPS), and the Net Zero Emissions by 2050 Scenario (NZE). Descriptions of sensitivity tests are summarized in Supplementary Table 2.



Supplementary Figure 5 | Global fossil-fuel power plants by fuel type in 2024. Data for coal (a), gas (b), and oil (c) power plants compiled from the Global Infrastructure Emissions Detector (GID) database. Each point represents an individual power plant, with point size and color indicating plant-level CO_2 emissions and age, respectively.

Supplementary Tables

Supplementary Table 1 | Country and region mapping correspondence between IEA energy balance, GID database, and AR6 Region5 classifications[*].

IEA country	GID country	AR6 Region5
Albania	Albania	OECD+EU
Algeria	Algeria	Mideast+Africa
Angola	Angola	Mideast+Africa
Argentina	Argentina	Latin America
Armenia	Armenia	E. Europe+Russia
Australia	Australia	OECD+EU
Austria	Austria	OECD+EU
Azerbaijan	Azerbaijan	E. Europe+Russia
Bahrain	Bahrain	Mideast+Africa
Bangladesh	Bangladesh	Asia
Belarus	Belarus	E. Europe+Russia
Belgium	Belgium	OECD+EU
Benin	Benin	Mideast+Africa
Plurinational State of Bolivia	Bolivia	Latin America
Bosnia and Herzegovina	Bosnia and Herzegovina	OECD+EU
Botswana	Botswana	Mideast+Africa
Brazil	Brazil	Latin America
Brunei Darussalam	Brunei Darussalam	Asia
Bulgaria	Bulgaria	OECD+EU
Cambodia	Cambodia	Asia
Cameroon	Cameroon	Mideast+Africa
Canada	Canada	OECD+EU
Chile	Chile	Latin America
People's Republic of China	China	Asia
Colombia	Colombia	Latin America
Republic of the Congo	Congo	Mideast+Africa
Costa Rica	Costa Rica	Latin America
Côte d’Ivoire	Cote dIvoire	Mideast+Africa
Croatia	Croatia	OECD+EU
Cuba	Cuba	Latin America
Cyprus	Cyprus	OECD+EU
Czech Republic	Czech Republic	OECD+EU
Democratic People's Republic of Korea	Democratic Peoples Republic of Korea	Asia
Democratic Republic of the Congo	Democratic Republic of Congo	Mideast+Africa
Denmark	Denmark	OECD+EU

Dominican Republic	Dominican Republic	Latin America
Ecuador	Ecuador	Latin America
Egypt	Egypt	Mideast+Africa
El Salvador	El Salvador	Latin America
Equatorial Guinea	Equatorial Guinea	Mideast+Africa
Eritrea	Eritrea	Mideast+Africa
Estonia	Estonia	OECD+EU
Kingdom of Eswatini	Swaziland	Mideast+Africa
Ethiopia	Ethiopia	Mideast+Africa
Finland	Finland	OECD+EU
France	France	OECD+EU
Gabon	Gabon	Mideast+Africa
Georgia	Georgia	E. Europe+Russia
Germany	Germany	OECD+EU
Ghana	Ghana	Mideast+Africa
Greece	Greece	OECD+EU
Guatemala	Guatemala	Latin America
Guyana	Guyana	Latin America
Haiti	Haiti	Latin America
Honduras	Honduras	Latin America
Hong Kong, China	Hong Kong, China	Asia
Hungary	Hungary	OECD+EU
Iceland	Iceland	OECD+EU
India	India	Asia
Indonesia	Indonesia	Asia
Islamic Republic of Iran	Islamic Republic of Iran	Mideast+Africa
Iraq	Iraq	Mideast+Africa
Ireland	Ireland	OECD+EU
Israel	Israel	Mideast+Africa
Italy	Italy	OECD+EU
Jamaica	Jamaica	Latin America
Japan	Japan	OECD+EU
Jordan	Jordan	Mideast+Africa
Kazakhstan	Kazakhstan	E. Europe+Russia
Kenya	Kenya	Mideast+Africa
Korea	Republic of Korea	Asia
Kuwait	Kuwait	Mideast+Africa
Kyrgyzstan	Kyrgyzstan	E. Europe+Russia
Latvia	Latvia	OECD+EU
Lao People's Democratic Republic	Laos	Asia
Lebanon	Lebanon	Mideast+Africa

Libya	Libya	Mideast+Africa
Lithuania	Lithuania	OECD+EU
Luxembourg	Luxembourg	OECD+EU
Madagascar	Madagascar	Mideast+Africa
Malaysia	Malaysia	Asia
Malta	Malta	OECD+EU
Mauritius	Mauritius	Mideast+Africa
Mexico	Mexico	Latin America
Republic of Moldova	Moldova	E. Europe+Russia
Mongolia	Mongolia	Asia
Montenegro	Montenegro	OECD+EU
Morocco	Morocco	Mideast+Africa
Mozambique	Mozambique	Mideast+Africa
Myanmar	Myanmar (Burma)	Asia
Namibia	Namibia	Mideast+Africa
Nepal	Nepal	Asia
Netherlands	Netherlands	OECD+EU
New Zealand	New Zealand	OECD+EU
Nicaragua	Nicaragua	Latin America
Niger	Niger	Mideast+Africa
Nigeria	Nigeria	Mideast+Africa
Republic of North Macedonia	Macedonia (former Yugoslav Republic of Macedonia)	OECD+EU
Norway	Norway	OECD+EU
Oman	Oman	Mideast+Africa
Pakistan	Pakistan	Asia
Panama	Panama	Latin America
Paraguay	Paraguay	Latin America
Peru	Peru	Latin America
Philippines	Philippines	Asia
Poland	Poland	OECD+EU
Portugal	Portugal	OECD+EU
Qatar	Qatar	Mideast+Africa
Romania	Romania	OECD+EU
Russian Federation	Russia	E. Europe+Russia
Rwanda	Rwanda	Mideast+Africa
Saudi Arabia	Saudi Arabia	Mideast+Africa
Senegal	Senegal	Mideast+Africa
Serbia	Serbia	OECD+EU
Singapore	Singapore	Asia
Slovak Republic	Slovakia	OECD+EU
Slovenia	Slovenia	OECD+EU

South Africa	South Africa	Mideast+Africa
South Sudan	South Sudan	Mideast+Africa
Spain	Spain	OECD+EU
Sri Lanka	Sri Lanka	Asia
Sudan	Sudan	Mideast+Africa
Suriname	Suriname	Latin America
Sweden	Sweden	OECD+EU
Switzerland	Switzerland	OECD+EU
Syrian Arab Republic	Syria	Mideast+Africa
Taiwan, China	Taiwan, China	Asia
Tajikistan	Tajikistan	E. Europe+Russia
United Republic of Tanzania	Tanzania	Mideast+Africa
Thailand	Thailand	Asia
Togo	Togo	Mideast+Africa
Trinidad and Tobago	Trinidad and Tobago	Latin America
Tunisia	Tunisia	Mideast+Africa
Republic of Türkiye	Turkey	OECD+EU
Turkmenistan	Turkmenistan	E. Europe+Russia
Uganda	Uganda	Mideast+Africa
Ukraine	Ukraine	E. Europe+Russia
United Arab Emirates	United Arab Emirates	Mideast+Africa
United Kingdom	United Kingdom	OECD+EU
United States	United States	OECD+EU
Uruguay	Uruguay	Latin America
Uzbekistan	Uzbekistan	E. Europe+Russia
Bolivarian Republic of Venezuela	Venezuela	Latin America
Viet Nam	Vietnam	Asia
Yemen	Yemen	Mideast+Africa
Zambia	Zambia	Mideast+Africa
Zimbabwe	Zimbabwe	Mideast+Africa
Memo: Greenland	Greenland	OECD+EU

*Notably, countries that categorized under the "Rest of the World" in the AR6 Region5 classification are excluded from the regional analysis and sensitivity tests, owing to their negligible power demand and generation volume as well as insufficient scenario data.

Supplementary Table 2 | Assumptions for sensitivity tests.

Key sensitivity	Test name	Assumption
Fuel shares within fossil generation by region	Base case	Median values of AR6 1.5°C+2°C scenario ensembles
	Test1	Values from the EN_NPi2020_450f scenario of the WITCH 5.0 model
	Test2	Values from the R2p1_SSP1-PkBudg1300 scenario of the REMIND 2.1 model
	Test3	Values from the SSP2_SPA2_26I_D scenario of the IMAGE 3.2 model
	Test4	Values from the NGFS2_Delayed Transition scenario of the GCAM 5.3 model
Nuclear generation by region	Base case	Median values of AR6 1.5°C+2°C scenario ensembles
	Test5	Fixed at current levels
	Test6	25^{th} percentiles of AR6 1.5°C+2°C scenario ensembles
	Test7	75^{th} percentiles of AR6 1.5°C+2°C scenario ensembles
Emission reductions in fossil power generation	Base case	Average values of ASP and NZE scenarios from WEO 2024
	Test8	Values of NZE scenario from WEO 2025
	Test9	Values of STEPS scenario from WEO 2025
Changes in fossil power capacity factors	Base case	Median values of AR6 1.5°C+2°C scenario ensembles
	Test10	Values from the EN_NPi2020_450f scenario of the WITCH 5.0 model
	Test11	Values from the R2p1_SSP1-PkBudg1300 scenario of the REMIND 2.1 model
	Test12	Values from the SSP2_SPA2_26I_D scenario of the IMAGE 3.2 model
	Test13	Values from the NGFS2_Delayed Transition scenario of the GCAM 5.3 model
Regional allocation of future electricity demand	Base case	Median values of AR6 1.5°C+2°C scenario ensembles
	Test14	Values from the EN_NPi2020_450f scenario of the WITCH 5.0 model
	Test15	Values from the R2p1_SSP1-PkBudg1300 scenario of the REMIND 2.1 model
	Test16	Values from the SSP2_SPA2_26I_D scenario of the IMAGE 3.2 model
	Test17	Values from the NGFS2_Delayed Transition scenario of the GCAM 5.3 model

Supplementary Table 3 | Technology mapping scheme used to aggregate the detailed energy sources of energy balance tables.

Technology in this study	Product in WEB
Coal	Anthracite, hard coal, brown coal, coking coal, other bituminous coal, sub-bituminous coal, lignite, patent fuel, coke oven coke, gas coke, coal tar, BKB, peat, peat products, oil shale
Gas	Natural gas, blast furnace gas, gasworks gas, coke oven gas, other recovered gases, natural gas liquids, refinery gas, liquefied petroleum gases
Oil	Crude oil, refinery feedstocks, additives/blending components, other hydrocarbons, ethane, motor gasoline excl. biofuels, aviation gasoline, gasoline type jet fuel, kerosene type jet fuel, other kerosene, gas/diesel oil excl. biofuels, fuel oil, naphtha, white spirit & industrial spirit, lubricants, bitumen, paraffin waxes, petroleum coke, other oil products, crude/NGL/feedstocks
Solar	Solar PV, solar thermal
Wind	Wind
Hydro	Hydro
Biomass	Primary solid biofuel, biogases, biogasoline, biodiesels, other liquid biofuels, non-specified primary biofuels and waste, renewable municipal waste
Geothermal	Geothermal
Nuclear	Nuclear

Supplementary Table 4 | Sector mapping scheme used to aggregate the detailed electricity flow categories of energy balance tables.

Sector in this study	Flow in WEB
Industry	Total final consumption in industry
Buildings	Residential, commercial and public services
Transportation	Total final consumption in transportation
Other	Heat pumps, electric boilers, energy industry own use, agriculture/forestry, fishing, final consumption not elsewhere specified

Supplementary Table 5 | Regional trajectories of nuclear generation presented by key years*.

Region	Unit	2024	2025	2030	2035	2040	2045	2050
Asia		694038.1	724979.1	985571.0	1339862.6	1609477.8	1962361.4	2416299.0
Latin America		33788.1	34556.7	38997.9	42814.2	39697.9	39578.1	40361.1
Mideast+Africa	GWh	45943.9	49595.4	65180.7	76133.5	89975.8	98120.9	113621.5
OECD+EU		1601203.2	1613612.7	1649038.0	1644388.7	1522229.8	1390482.6	1445752.1
E. Europe+Russia		261202.7	261829.3	282760.4	310591.7	373108.6	374286.0	370243.3

* Note: All values are derived from the median technology-specific generation projections of the 1.5°C and 2°C scenario assembles in the AR6 Scenarios Database.

Supplementary Table 6 | Regional penetration rates of different renewable generation technologies presented by key years*.

Region	Technology	2024	2025	2030	2035	2040	2045	2050
Asia	Wind	26.0%	26.9%	32.6%	37.6%	39.9%	41.1%	42.4%
	Solar	24.2%	25.6%	32.3%	37.7%	40.4%	42.2%	42.6%
	Hydro	41.9%	39.9%	29.0%	20.4%	16.2%	13.5%	11.7%
	Geothermal	0.6%	0.6%	0.7%	0.5%	0.4%	0.3%	0.3%
	Biomass	7.3%	6.9%	5.5%	3.8%	3.1%	2.8%	3.0%
E. Europe+Russia	Wind	3.2%	3.6%	8.9%	15.3%	18.3%	20.4%	24.2%
	Solar	4.1%	4.6%	9.1%	15.8%	20.3%	25.6%	27.4%
	Hydro	92.1%	91.2%	81.0%	67.6%	60.0%	52.8%	47.3%
	Geothermal	0.1%	0.2%	0.3%	0.7%	1.0%	0.7%	0.6%
	Biomass	0.4%	0.5%	0.6%	0.5%	0.4%	0.4%	0.5%
Latin America	Wind	14.8%	15.6%	19.6%	21.7%	22.5%	22.6%	23.2%
	Solar	11.5%	12.4%	21.3%	34.2%	42.6%	48.6%	51.0%
	Hydro	66.2%	64.4%	52.4%	39.2%	31.0%	25.1%	22.1%
	Geothermal	0.4%	0.4%	0.4%	0.3%	0.2%	0.2%	0.1%
	Biomass	7.2%	7.1%	6.2%	4.6%	3.7%	3.5%	3.6%
Mideast+Africa	Wind	12.6%	13.2%	19.1%	24.2%	27.6%	26.8%	27.1%
	Solar	22.5%	23.9%	36.8%	46.2%	52.2%	58.4%	61.4%
	Hydro	61.9%	59.7%	39.7%	26.3%	17.6%	12.7%	9.7%
	Geothermal	1.9%	1.9%	3.1%	2.4%	1.7%	1.2%	0.9%
	Biomass	1.2%	1.2%	1.3%	0.9%	0.9%	0.9%	0.8%
OECD+EU	Wind	31.7%	32.5%	32.9%	34.6%	34.7%	35.3%	35.8%
	Solar	21.1%	22.0%	30.6%	36.5%	42.6%	45.0%	47.2%

	Hydro	37.5%	36.1%	28.1%	21.5%	16.6%	14.0%	11.9%
	Geothermal	1.5%	1.5%	1.4%	1.1%	1.0%	0.9%	0.7%
	Biomass	8.3%	8.0%	7.1%	6.3%	5.1%	4.9%	4.4%

*Note: All values are derived from the median technology-specific generation projections of the 1.5°C and 2°C scenario assembles in the AR6 Scenarios Database.

Supplementary Table 7 | Regional penetration rates of different fossil generation technologies presented by key years*.

Region	Technology	2024	2025	2030	2035	2040	2045	2050
Asia	Coal	85.3%	84.3%	76.5%	45.9%	17.1%	11.1%	6.7%
	Oil	1.0%	0.9%	0.5%	0.3%	0.3%	0.2%	0.0%
	Gas	13.7%	14.8%	23.0%	53.8%	82.6%	88.7%	93.3%
E. Europe+Russia	Coal	29.5%	28.6%	19.1%	2.9%	4.0%	2.2%	0.6%
	Oil	1.2%	1.2%	0.7%	0.6%	0.0%	0.0%	0.0%
	Gas	69.3%	70.2%	80.2%	96.5%	96.0%	97.8%	99.4%
Latin America	Coal	12.4%	10.9%	6.9%	0.3%	0.2%	0.2%	0.2%
	Oil	16.4%	15.3%	7.3%	6.2%	4.5%	3.9%	2.5%
	Gas	71.2%	73.8%	85.7%	93.4%	95.3%	96.0%	97.3%
Mideast+Africa	Coal	11.7%	11.6%	8.4%	2.8%	0.7%	1.2%	0.9%
	Oil	20.3%	14.7%	8.6%	7.5%	6.3%	5.1%	3.0%
	Gas	68.0%	73.6%	82.9%	89.7%	93.0%	93.7%	96.1%
OECD+EU	Coal	32.9%	29.9%	18.7%	10.9%	8.5%	4.1%	2.2%
	Oil	2.0%	1.9%	0.7%	0.3%	0.2%	0.2%	0.1%
	Gas	65.1%	68.2%	80.6%	88.8%	91.3%	95.7%	97.7%

*Note: All values are derived from the median technology-specific generation projections of the 1.5°C and 2°C scenario assembles in the AR6 Scenarios Database.

Supplementary Table 8 | Hydrogen production technology mapping and energy intensity.

Technology in WEO	Technology in IEA	Technology in AR6	Electricity demand (TWh/Mt)
Water electrolysis	Electrolysis	Secondary Energy|Hydrogen|Electricity	50.0
Fossil fuels with CCUS	SMR w CCS 93%	Secondary Energy|Hydrogen|Fossil|w/ CCS	0.8

Supplementary References

1. IEA. *World Energy Outlook 2025*. https://iea.blob.core.windows.net/assets/dfe5daf4-dbc1-4533-abeb-fafb1faee0f9/WorldEnergyOutlook2025.pdf (2025).
2. IEA. *Global Hydrogen Review 2025*. https://www.iea.org/reports/global-hydrogen-review-2025 (2025).