International Practices for Accelerating the Energy Transition

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The energy transition is perhaps the most profound challenge of our time.

The foundation has been built to deal with the difficult path ahead

- Share of fossil fuels to start shrinking from 80% in 2023 to 73% in 2030 driven by today's policies [IEA, 2023]
- Coal demand is projected to go down by around 25% from 2019 to 85% in 2050 due to the decommissioning of coal-fired power plants across regions [McKinsey, 2023]
- Renewables is projected to account 45-50% of global generation by 2030 and between 65-85% by 2050 [Mckinsey]

Total demand for fossil fuels is projected to peak starting from the middle of this decade [IEA, 2023 and McKinsey, 2023]

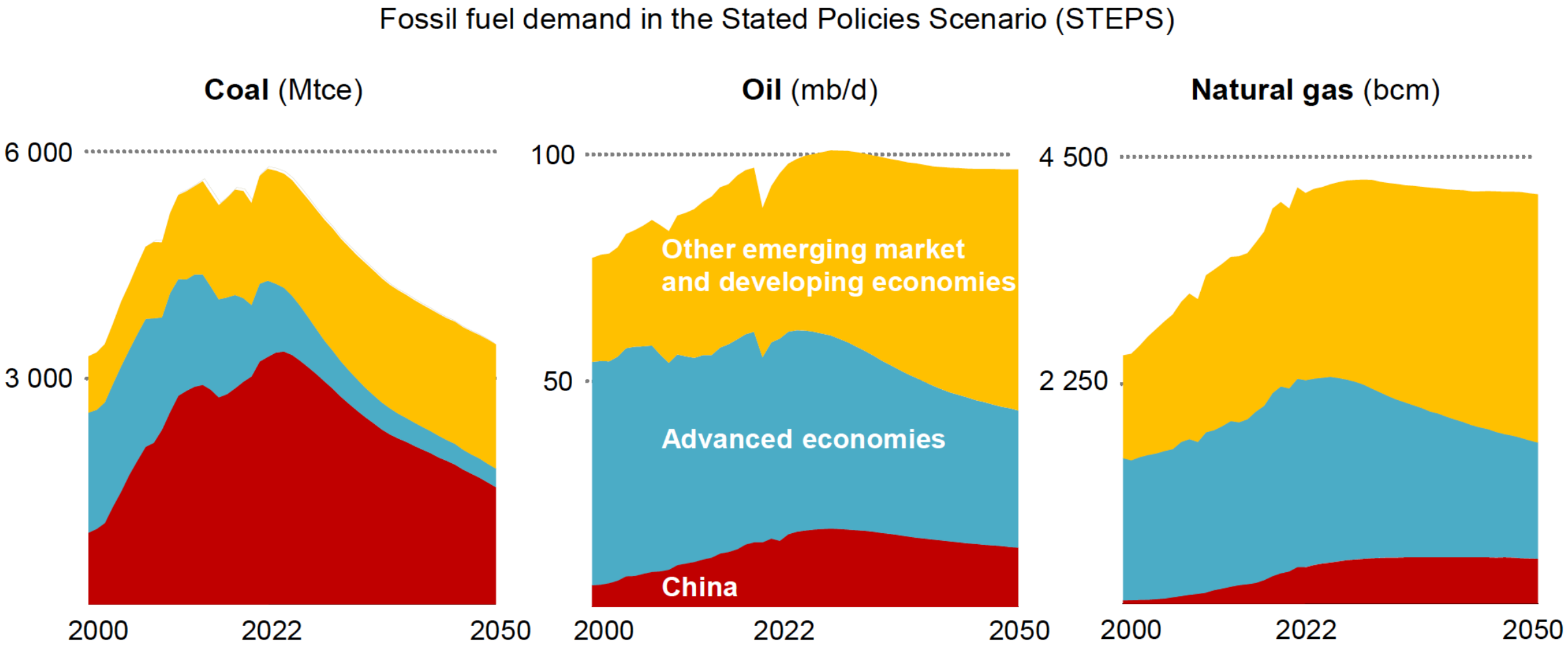
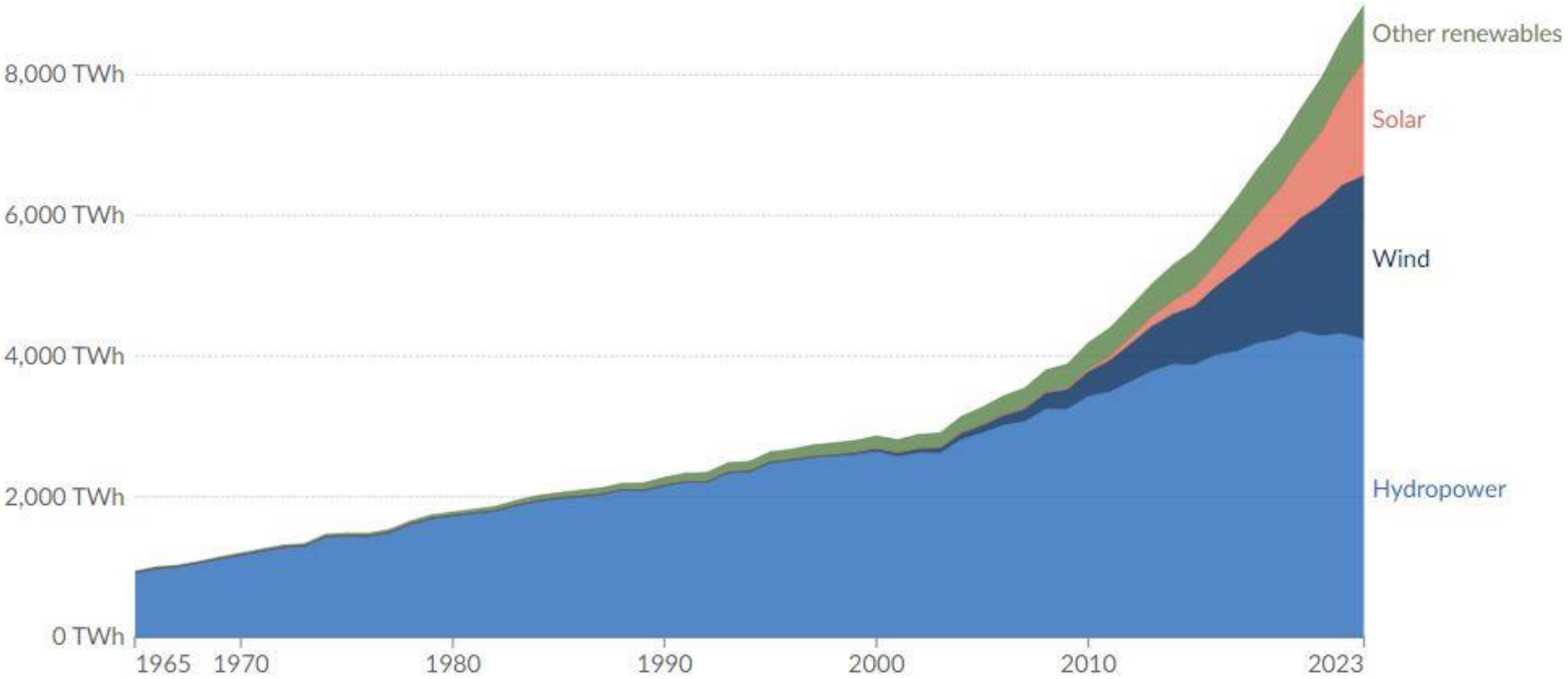


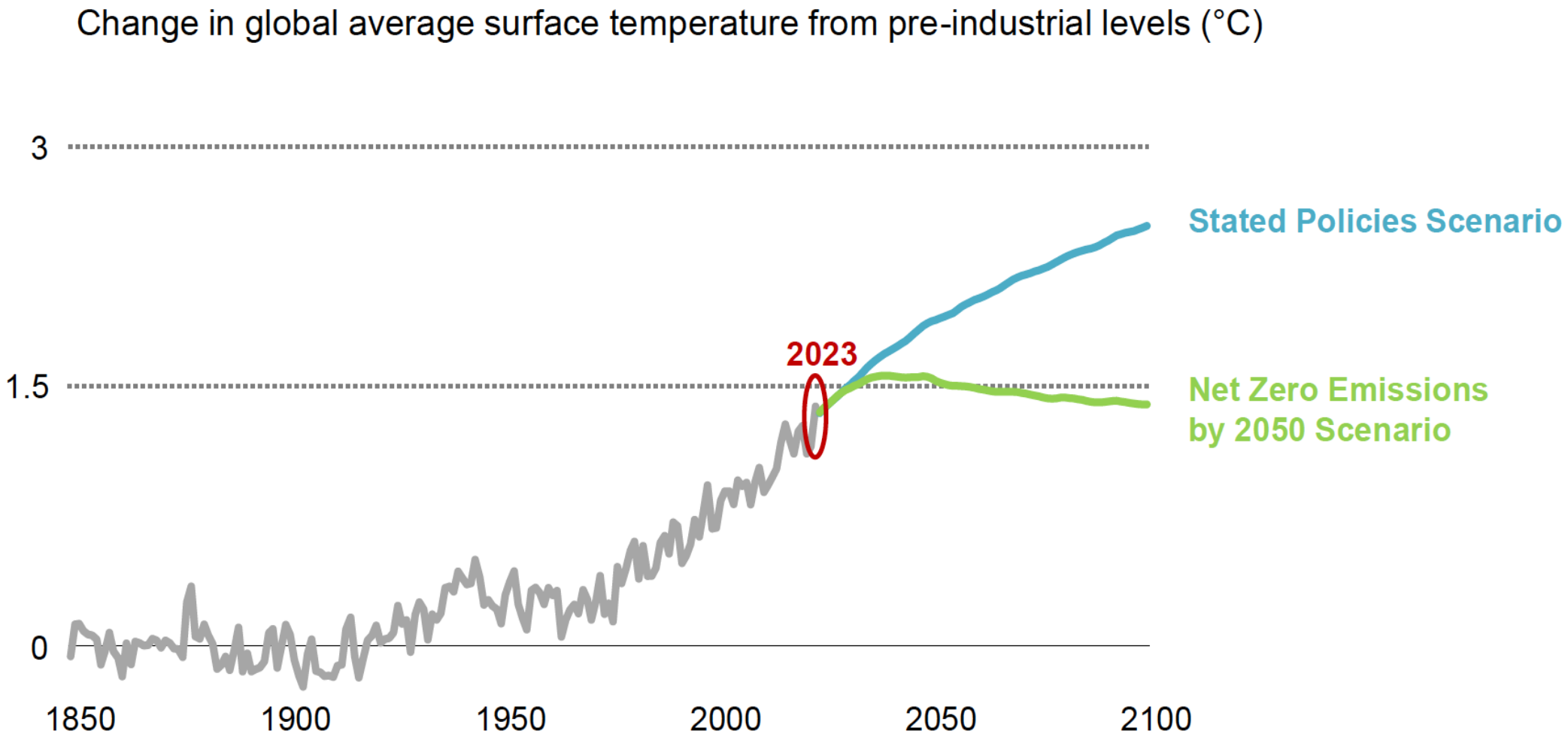
Chart culled from: 2023. World Energy Outlook 2023. International Energy Agency. Paris

Global Renewable Energy Electricity Generation



Source: Energy Institute - Statistical Review of World Energy (2024)

However, the world is not on track in keeping global warming below 1.5° C



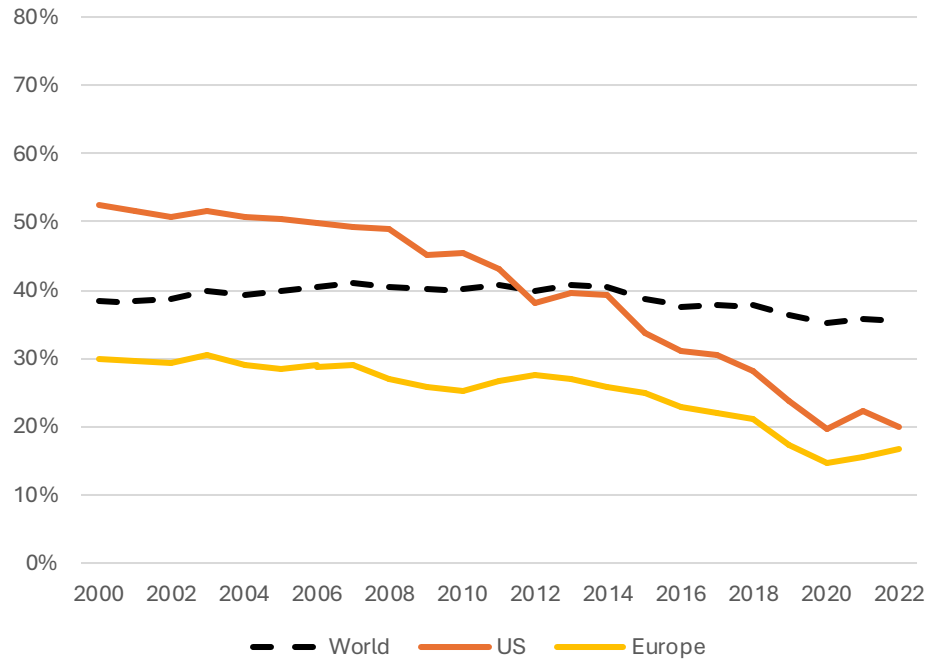
Source: 2023. World Energy Outlook 2023: Launch Presentation. International Energy Agency. Paris

Vulnerabilities and risks also persist

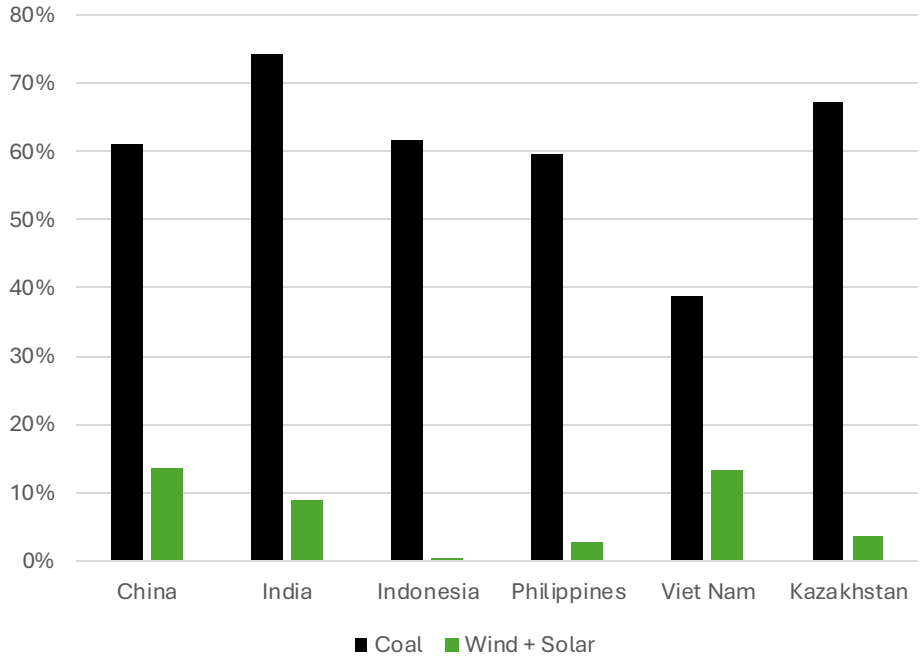
- Geopolitics: continued fighting in Ukraine and a brewing conflict in the Middle East raise uncertainty around energy prices and energy security
- Challenges to Renewables development and scale include: [McKinsey]:
  - Supply Chain Issues
  - Slow permitting processes
  - Limitations in the grid infrastructure remain a significant obstacle

Coal-fired electricity must drop, but remains significant in developing Asia

Share of coal-fired power generation dropped in Europe and the US…



…but remains very high in Asia (2022)

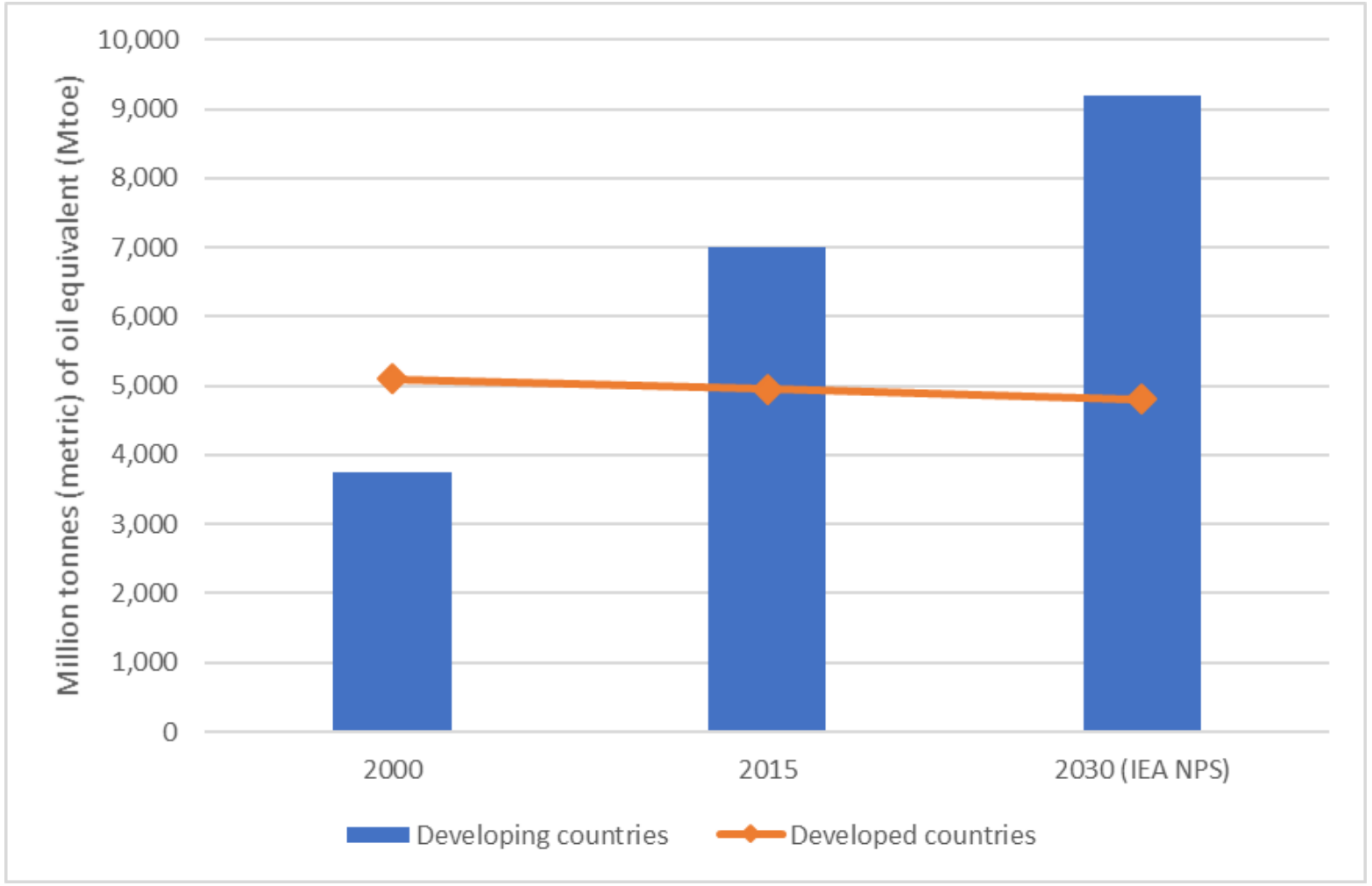


Large-scale solution needed to simultaneously and rapidly decarbonize and build up clean energy in Asian developing countries.

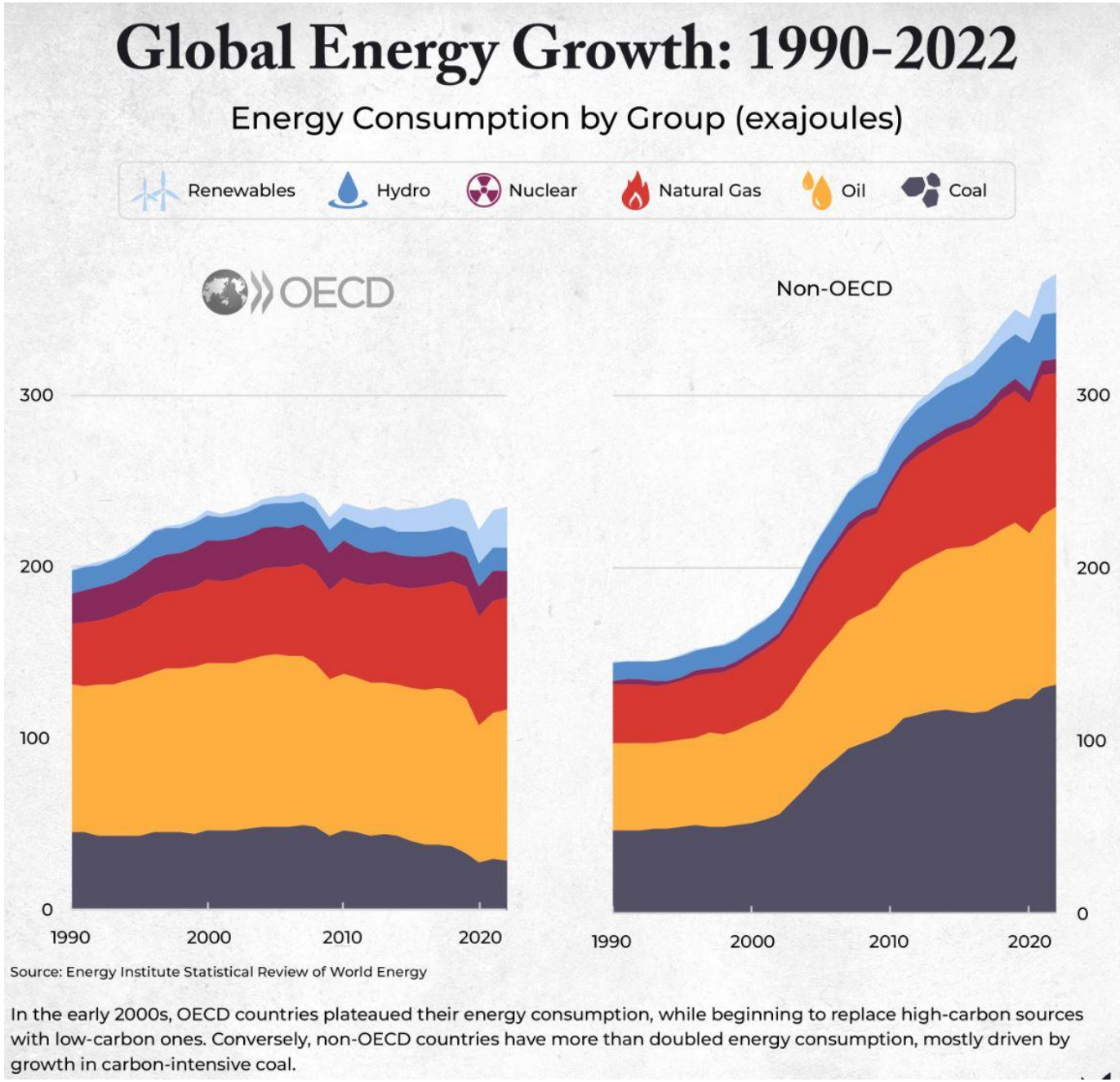
Sources: Calculations based on Energy Institute Statistical Review of World Energy (2023); Department of Energy 2022 Power Statistics (2023).

Developing Counties have had, and will continue to have, substantially higher energy demand growth

Developing and developed country energy demand: 2000, 2015 and 2030 (projected)

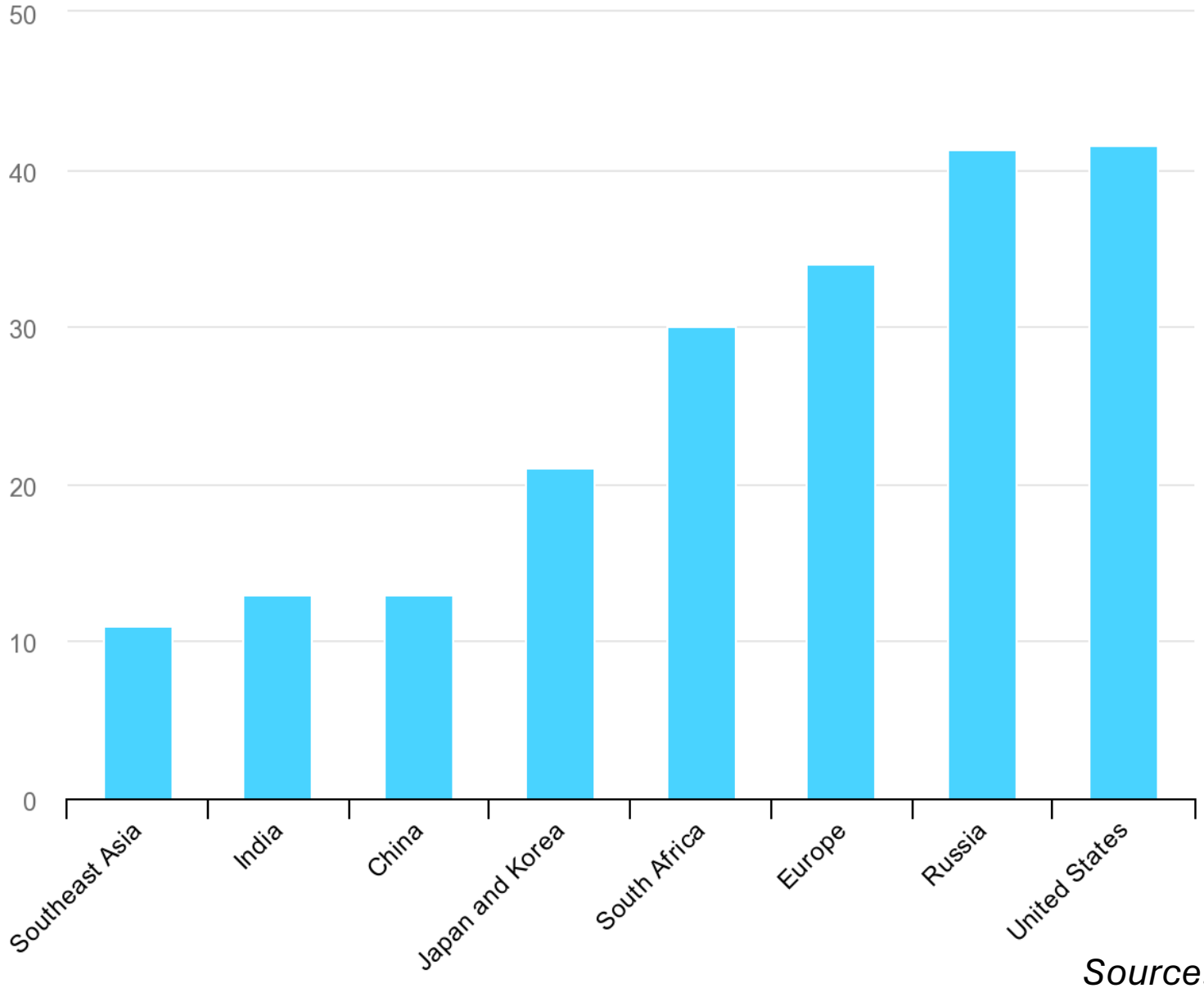


Source: Benoit/Chen calculations derived from IEA statistics, WEO 2016, WEO 2017, Mexico WEO Special Report 2016, and World Bank DataBank.
https://www.energypolicy.columbia.edu/publications/energy-and-development-changing-world-framework-21st-century/



https://energyminute.ca/infographics/global-energy-growth-oecd-v-developing-nations/

Average Age of Existing Coal Power Plants in Selected Regions (2020)



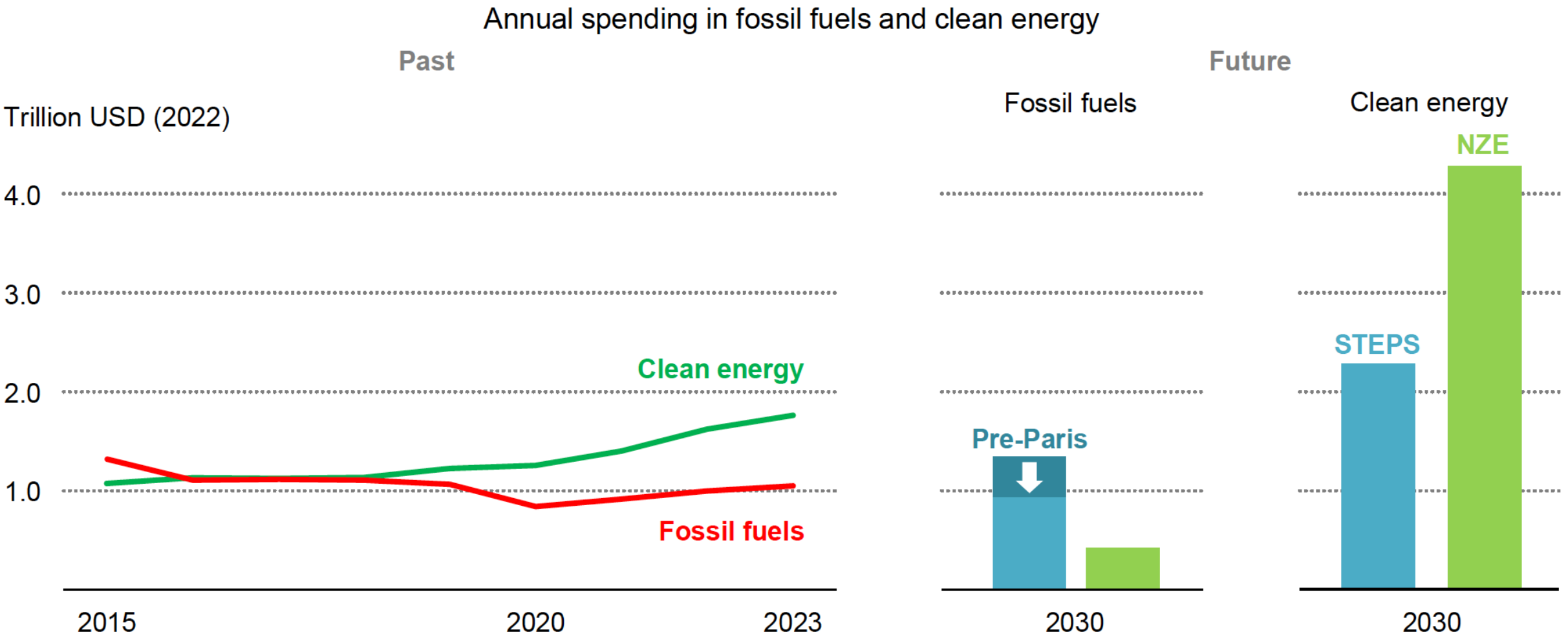
The average age of coal plants in many parts of Asia are up to three decades younger than in the United States or Europe.

Source: IEA, World Energy Outlook 2021

What it takes to transition

- Developing countries will need to increase clean energy investments by 5 times of today's levels to meet the requirements to achieve Net Zero [IEA, 2023]
- Current investments in oil and gas today are almost twice as high as what is needed to achieve Net Zero presenting the risk of sustained fossil fuel use [IEA, 2023]
- Policies should be built around decommissioning inefficient and polluting power plants and preventing entry of new ones [IEA, 2023]
- McKinsey estimates 'a gradual but continuous shift of investment focus from fossil fuels to green technologies from around 25% in renewable generation and decarbonization technologies (excluding T&D) to about 60-80% of total investments (excluding T&D) by 2040

Financing the transition



NZE = net zero emissions; STEPS = stated policies scenario.

Chart culled from: 2023. World Energy Outlook 2023 Launch Presentation. International Energy Agency. Paris

Examples of International Practices

– **Multilateral**

– **Bilateral**

- Institutions, Forums
- Partnerships (investment, knowledge)
- Intergovernmental, Industry-wide, multi-stakeholder
- Special initiatives

Climate Investment Funds (CIF)

- Multilateral climate fund enabling climate action in over 70 low- and middle-income countries.
- Established in 2008
- 15 contributor countries have contributed over USD12.1 billion in support of scaling up mitigation and adaptation action in low- and middle-income countries.
- Deploys highly concessional finance to empower transformations in clean technology, energy access, climate resilience, nature-based solutions, and other areas.
  - Clean Technology Fund
  - Strategic Climate Fund
  - Accelerating Coal Transition

Contributors: Australia, Canada, Denmark, France, Germany, Italy, Japan, Korea, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom and the United States

https://www.cif.org/

Just Energy Transition Partnerships (JETPs)

A form of international cooperation, in which a group of donor countries (the International Partners Group) pledges funding to participating developing nations to support their energy transitions.

South Africa (announced November 2021)

$8.5 bn pledged ($10 bn public, $10 bn private)

Indonesia (announced November 2022)

- $20 bn pledged ($10 bn public, $10 bn private)
- IPG includes EU, Canada, Denmark, France, Germany, Italy, Japan, Norway, U.K. and U.S. (Japan and U.S are IPG co-leads.)
- Private investment includes pledges by seven major commercial banks represented by Global Finance Alliance for Net Zero (GFANZ)

Viet Nam (announced December 2022)

- $15.5 bn pledged ($7.75 bn public, $7.75 bn private)

Senegal (announced June 2023)

- €2.5 bn pledged

Other Partnership Examples

The Asia Zero Emission Community (AZEC)

- Launched by 11 partner countries in 2023.
- Seeks to further advance decarbonization in Asia toward the goal of carbon neutrality while achieving economic growth and energy security, creating various pathways tailored to each country's circumstances

  Partner countries: Australia, Brunei Darussalam, Cambodia, Indonesia, Japan, Lao PDR, Malaysia, the Philippines, Singapore, Thailand and Viet Nam.

Transition Credits Coalition ("TRACTION")

- Led by the Monetary Authority of Singapore plus over 30 members and knowledge partners

Regional Bodies

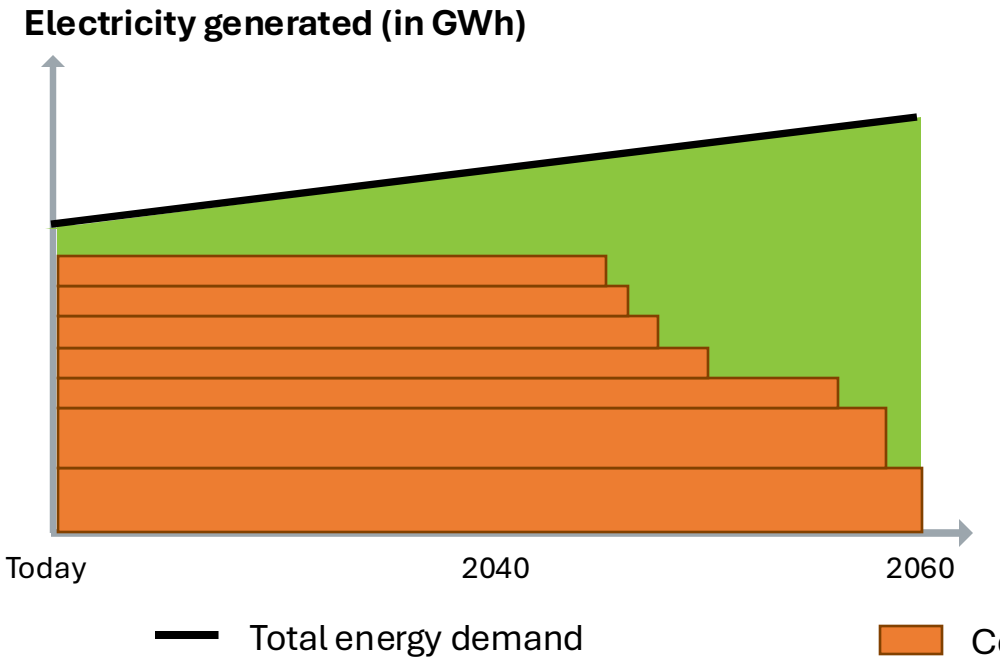
- ASEAN Centre for Energy
- South Asia Association for Regional Cooperation (SAARC) Energy Centre
- Central Asia Regional Economic Cooperation (CAREC) Energy

Bilateral Examples

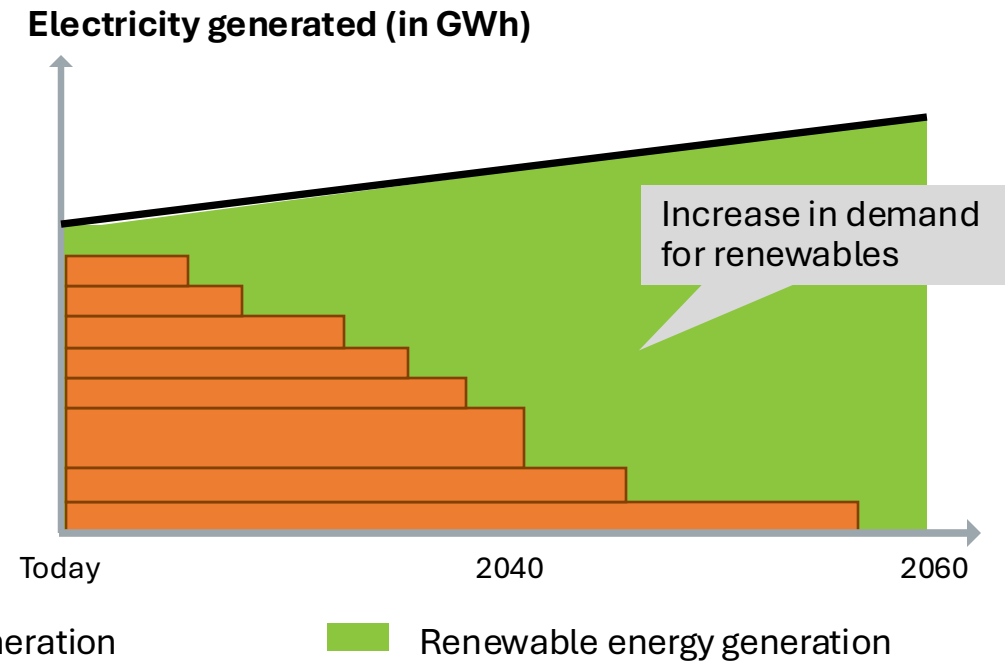
- **Indonesia-China Energy Forum (ICEF):** Facilitates Indonesian and Chinese collaboration and business matching for investment.
- **Indonesia – Singapore MOU on Renewable Energy Cooperation** (Signed in September 2024: Up to $20 bn investment for Indonesia RE exports to Singapore)

Energy Transition Mechanism

Business-as-Usual



With Energy Transition Mechanism



Total energy demand

Coal-fired generation

Renewable energy generation

Early retirement of existing coal-fired power plants can

- reduce emissions and improve population health,
- create additional demand for clean energy investments, and
- lower overall generation costs in the long-run.

Carbon Markets - Transition Credits

- **Coal is the largest emitter of energy related CO2 with Asian CFPPs contributing** ~7.2 GtCO2e per year, ~20% of total global annual emissions. To attain 1.5°, coal emissions must be reduced by 55% between 2022 to 2030 (IEA).
- With a technical life of up to 45 years, early retirement of CFPPs is neither **economically feasible** (i.e., USD 70 Mn/GWP gap for an archetypical plant) nor **easily investable** (~USD 310 Mn/GW of financing needed to buyout a single archetypical plant).
- **Policies and incentives are needed** to improve the economics of early phase out. Carbon markets are part of the broader arsenal of tools, but **transition credits** are at an infant stage with no existing methodology.
- ADB, through its **Energy Transition Mechanism**, is working with regional and international partners to advance potential pilot transactions.
- As of today, there is **no available baseline setting methodology** to estimate emission reduction of early retirement of grid-connected CFPP for either compliance or voluntary carbon markets. Transition credits are a new asset class of carbon credits that require high-integrity and conservative approach.
- ADB is developing a new methodology for transition credits for Article 6.4 Crediting Mechanism (Paris Agreement)

水滴石穿

“Dripping water can penetrate the stone.”