

Data Trends and Implications from Global Public Energy RD&D Expenditures

Kate Hua-Ke Chi ¹

¹The Fletcher School of Tufts University
Climate Policy Lab

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Feb 26, 2024



Global Public Energy RD&D Expenditures Database

- Set national objectives and priorities
- Determine market expectations
- Mobilize private sector
- Ensure human capital and knowledge flows; invest in supporting infrastructure

Public	Government funds, either at the central/federal or provincial/state level
Energy RD&D	Energy RD&D covers research, development and demonstration related to the production, storage, transportation, distribution and rational use of all forms of energy. RD&D covers basic research when it is clearly oriented towards the development of energy-related technologies, applied research, experimental development and demonstration.
Reporting Category	<ol style="list-style-type: none">1. Energy efficiency2. Fossil fuels3. Renewable energy sources4. Nuclear energy5. Hydrogen and fuel cells6. Power and storage technologies7. Other cross-cutting technologies and research8. Unallocated budgets

Global public energy RD&D expenditures by technology type, 2000-2023

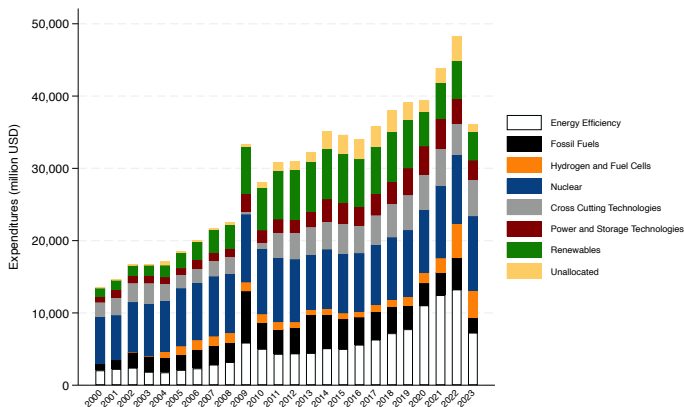


Figure: The above plots the public expenditures by technology type from 2000 to 2023. Countries include Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, India, Ireland, Italy, Japan, South Africa, South Korea, Lithuania, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Republic of Türkiye, United Kingdom, United States, European Union. Data are taken from Myslikova et al. (2024). All numbers are expressed in USD (2023 prices and PPP). Numbers for Y2023 are largely incomplete.

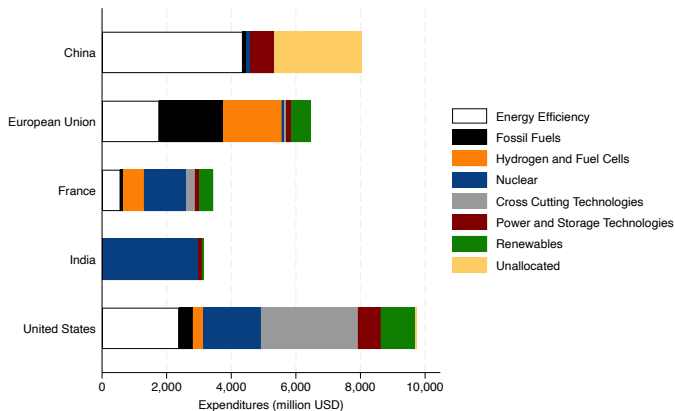


Figure: Top spenders in 2022: U.S., China, EU, France, and India

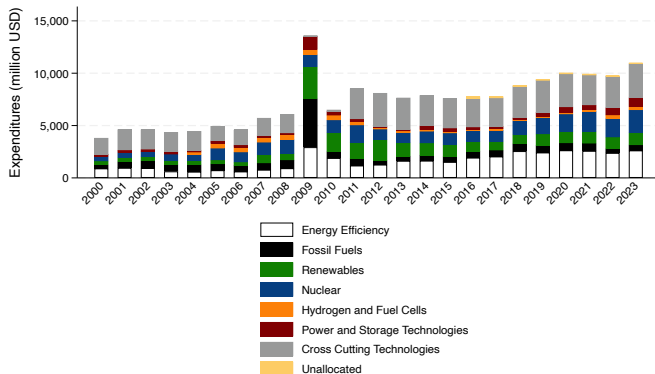


Figure: U.S. public energy RD&D expenditures by technology type, 2000-2023

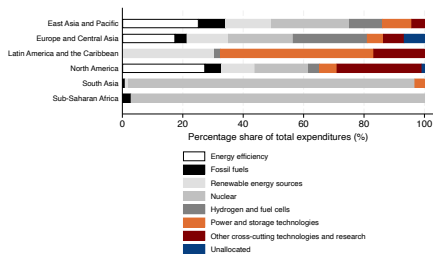
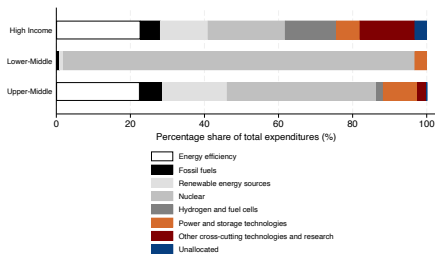


Figure: Percentage share of public energy RD&D expenditures by income group and region in 2022

Implications & Acknowledgements

- Public expenditures on the innovation of power and storage technologies are comparatively low and accounts for 6% of total expenditures.
- To increase energy access in developing countries → prioritize grid connectivity to remote areas and encourage development in an equitable manner.
- Governments worldwide still allocated \$1.5 billion dollars in 2022 towards fossil fuels RD&D.
- This database began with data compilation of U.S. DOE RD&D Spending by Kelly Sims Gallagher and Laura Diaz Anadon.
- <https://www.climatepolicylab.org/rddmap>