



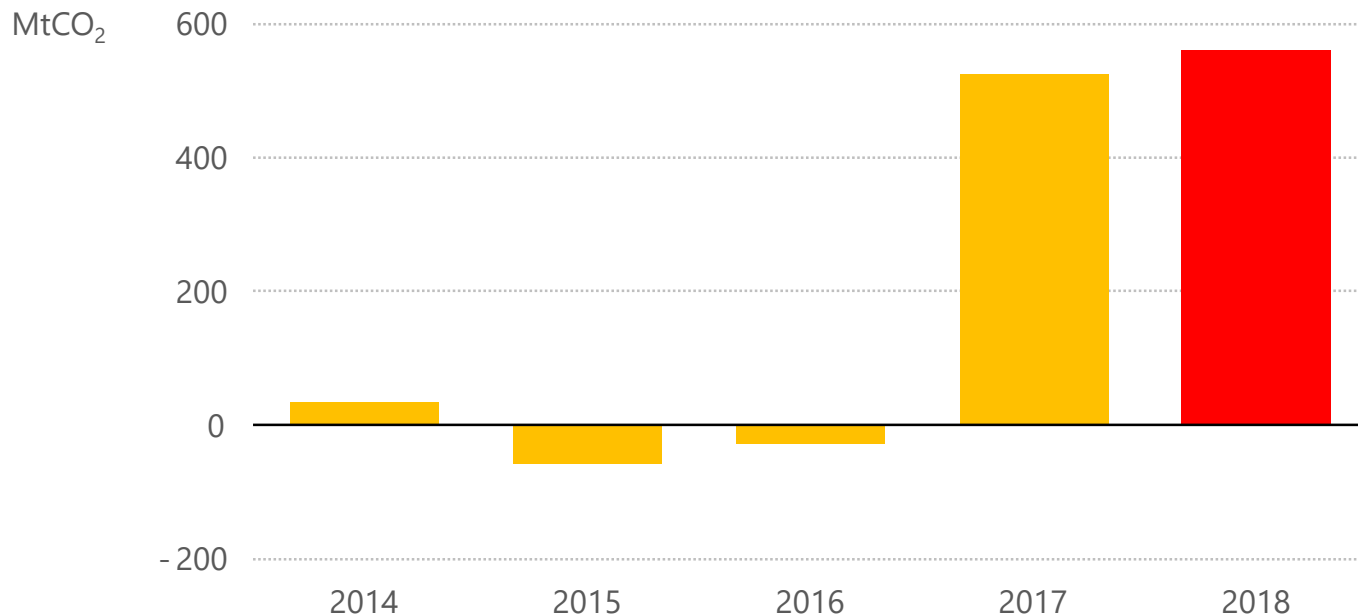
# Global energy investments needs

Andrew Prag, Head of Energy and Climate Change Unit

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# Context: energy-related CO<sub>2</sub> emissions hit a record high in 2018

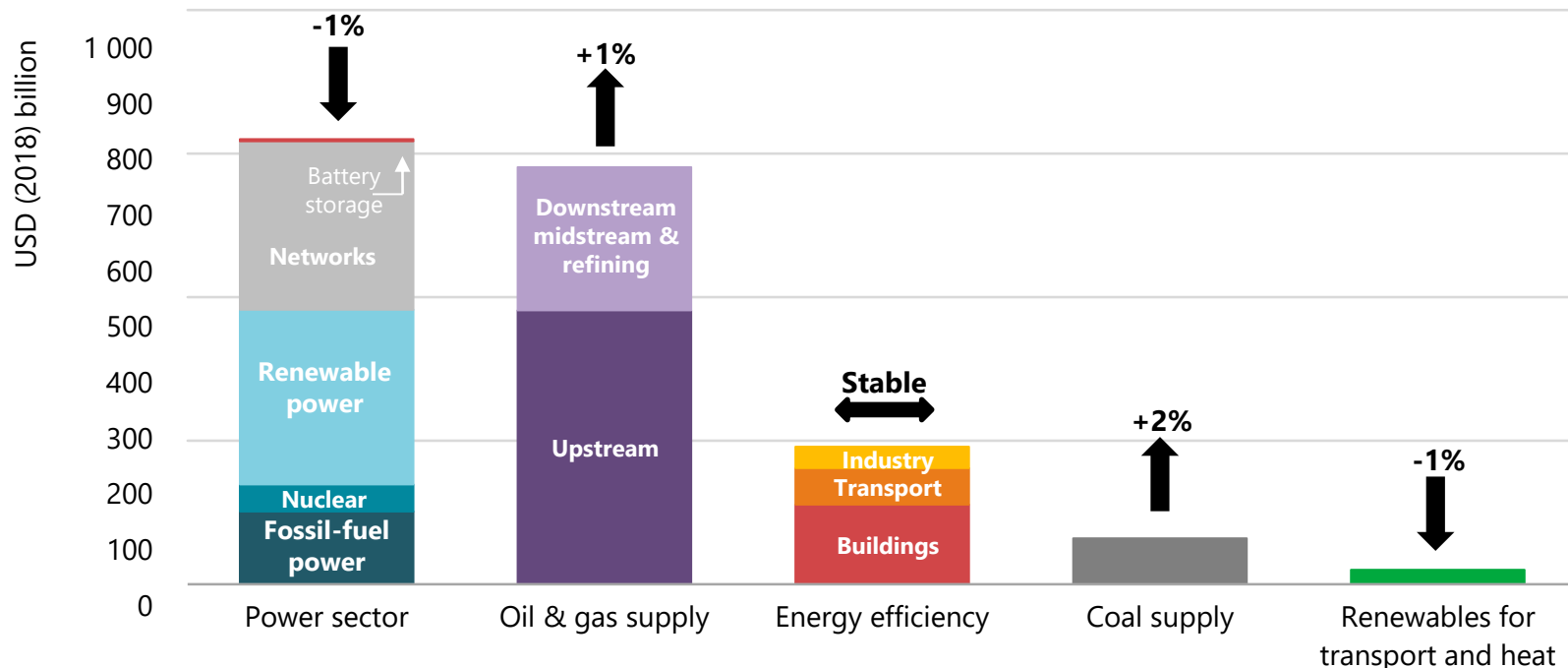
Annual change in global energy-related CO<sub>2</sub> emissions



The need to accelerate clean energy transitions is underscored by recent data. Global energy-related CO<sub>2</sub> emissions were driven up to a record high in 2018.

# Global energy investment stabilised in 2018 after 3 years of decline

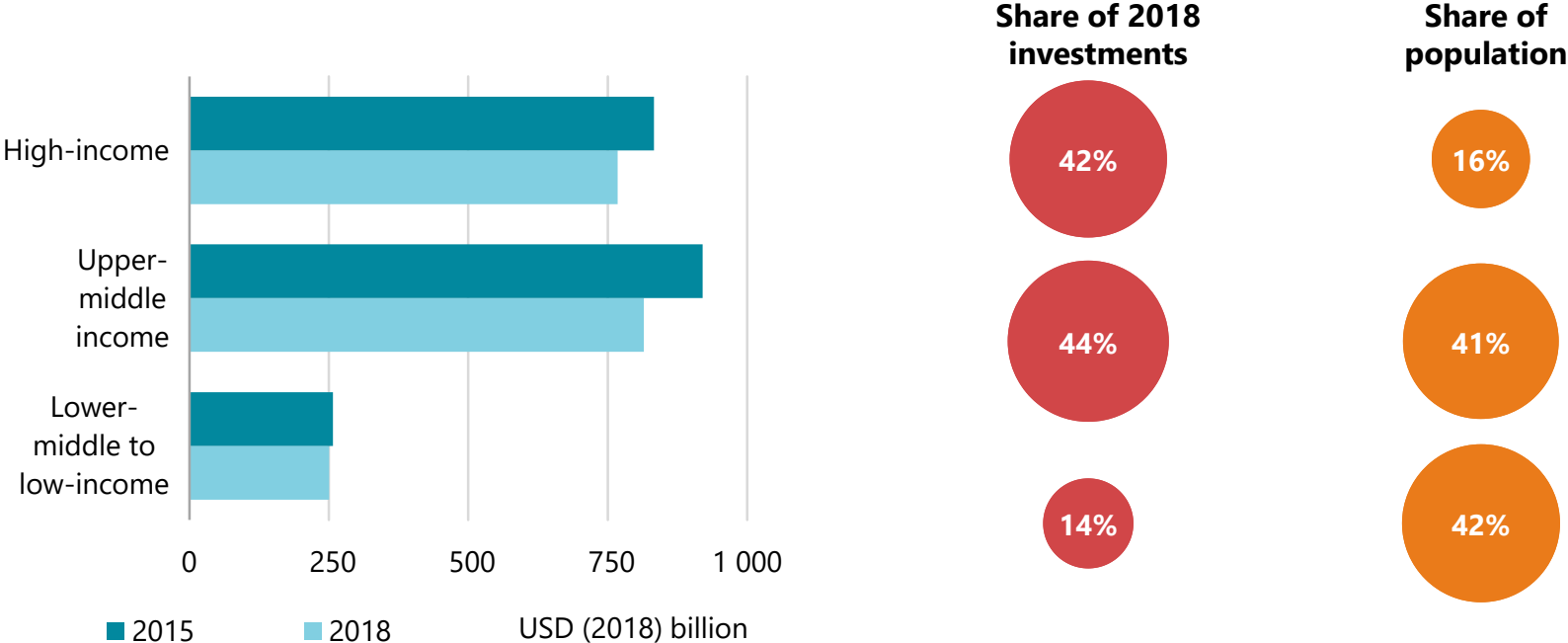
Global energy investment in 2018 and change compared to 2017



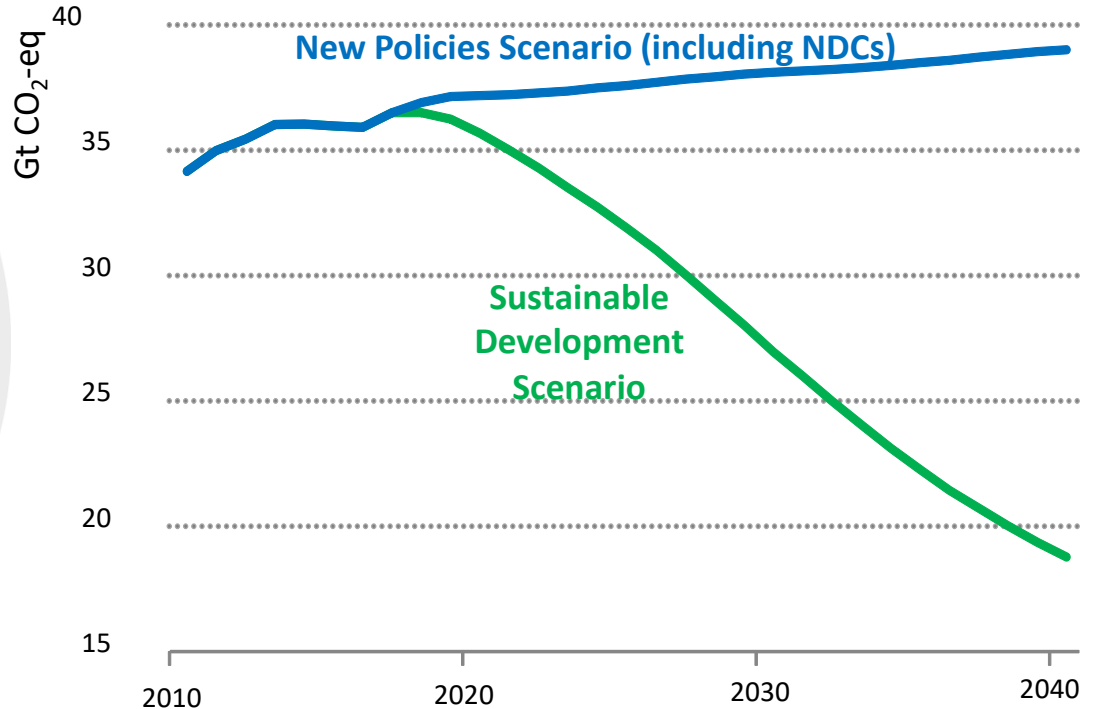
Energy investment remained at USD 1.85 trillion in 2018. A rise in fossil fuel supply investment offset lower power and stable efficiency spend. Despite the shift, power was the largest sector for the third year in a row

# Energy investment is mostly in high and upper-middle income regions

Energy investment and population by region, classified by current income level



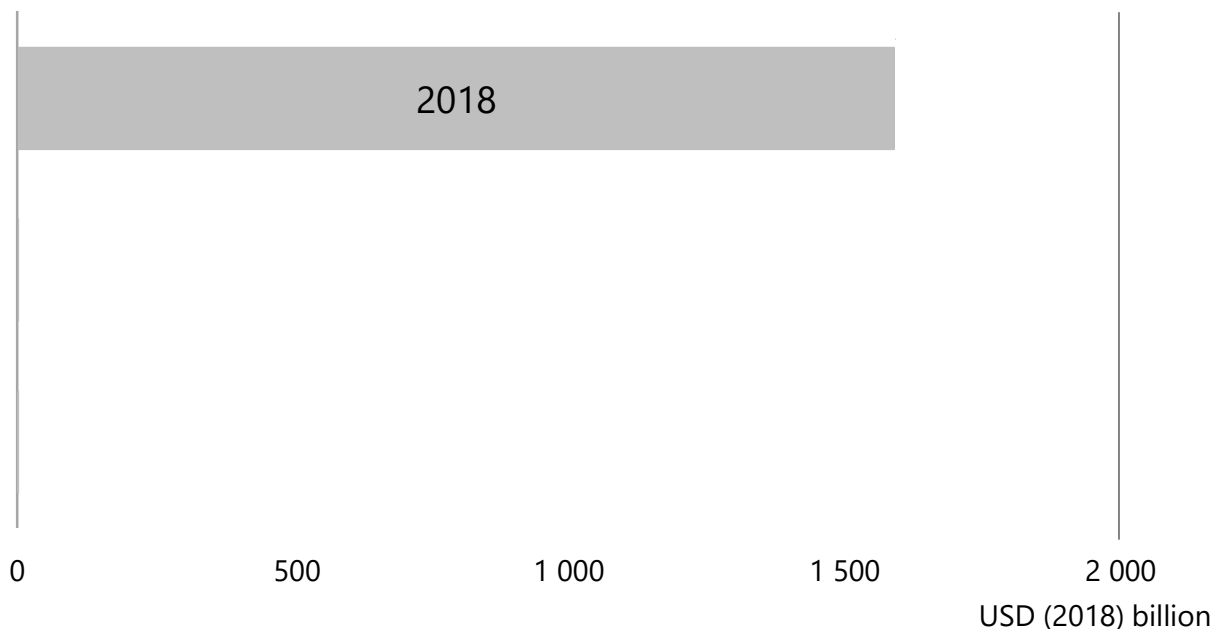
# The IEA Sustainable Development Scenario



The IEA sustainable development scenario sees emissions decrease in line with the goals of the Paris Agreement

# Energy supply investment needs to rise globally, whatever the scenario

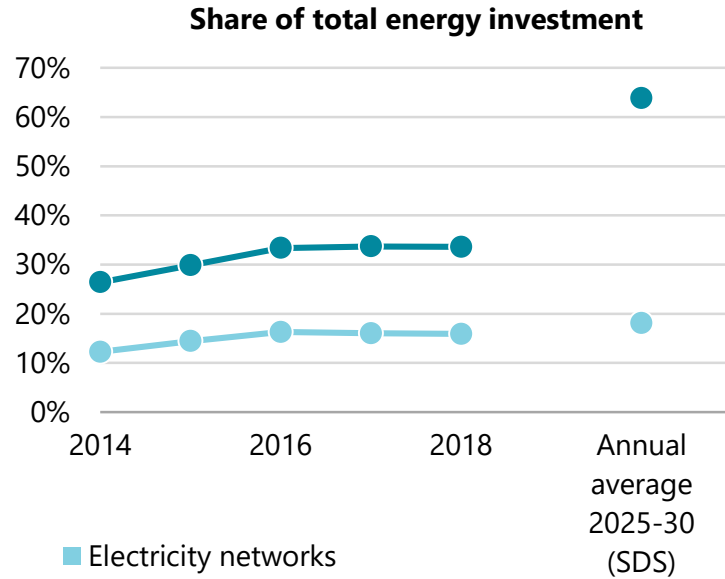
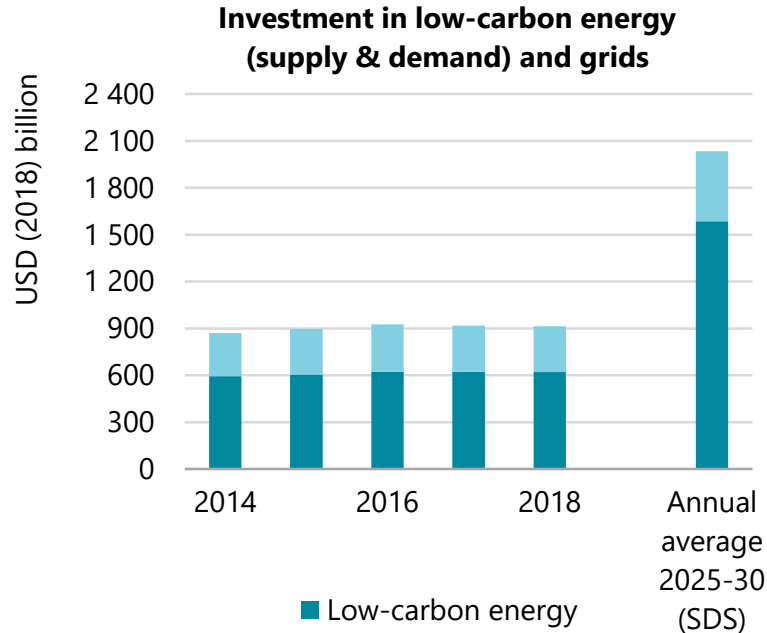
Global energy supply investment compared with annual average investment needs 2025-30 by IEA scenario



Today's capital allocation would need to shift rapidly towards cleaner sources and electricity networks in order to align with the Sustainable Development Scenario and the Paris Agreement.

# Investment in low-carbon energy is flat but needs to ramp up quickly

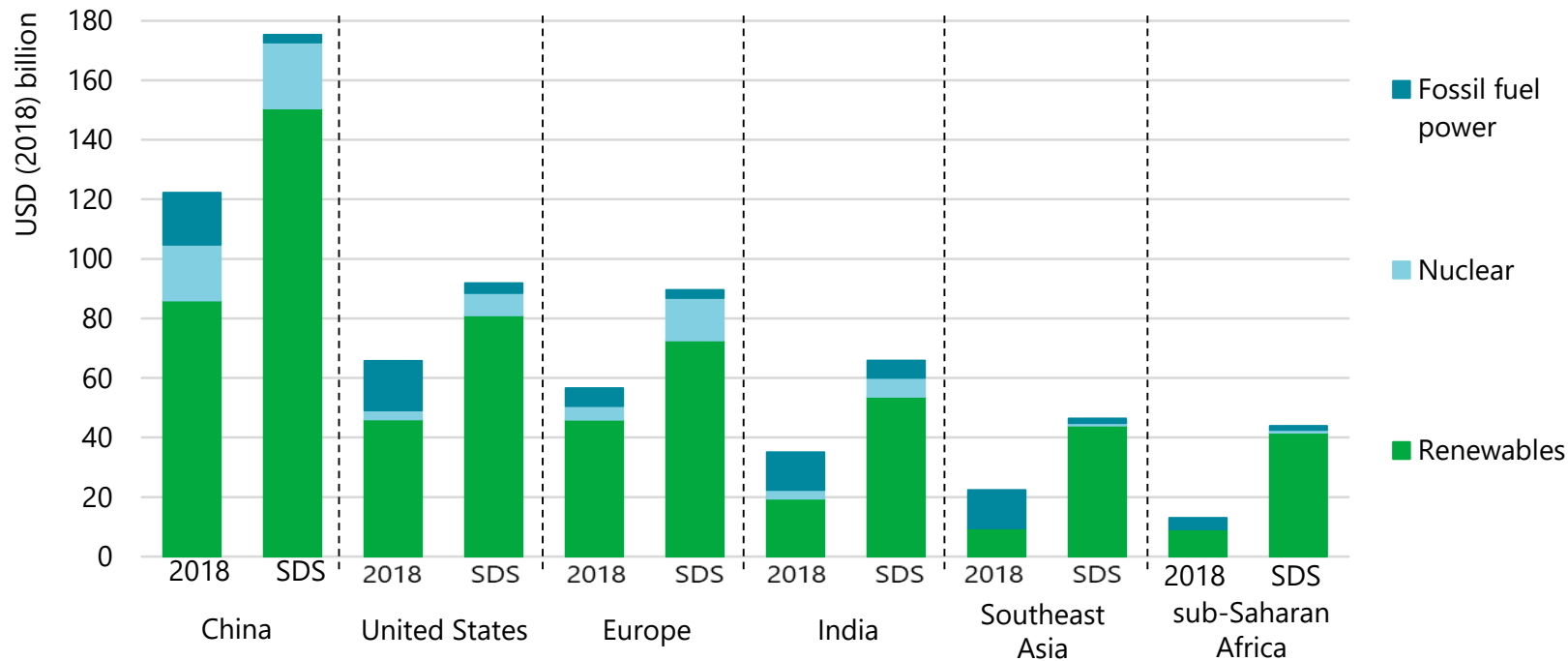
Global Investment in low-carbon energy, including efficiency, & electricity networks vs investment needs (SDS)



To meet sustainability goals, the share of low-carbon investment rises to nearly two-thirds by 2030, but advancing from today's share of over one-third would require a step-change in policy focus.

# Largest investment increases are needed in developing countries

Power generation investment in selected regions compared with annual investment needed in the SDS (2025-30)





# IEA's new "innovation gaps" analysis

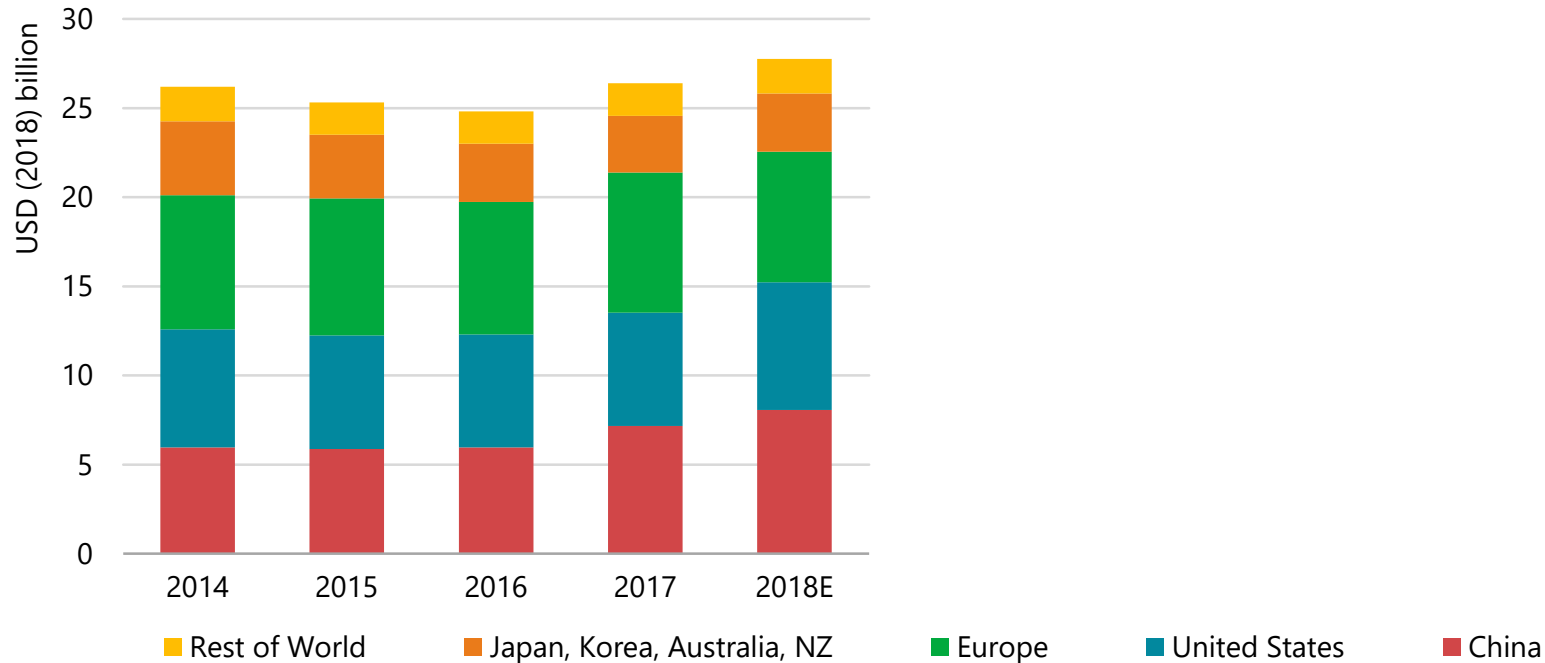
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1. **The innovation challenge:** 100 technologies across all sectors that need further efforts in RD&D
2. **What solutions** are needed, and how far along they are today?
3. **Who is currently doing what?** Government R&D, demonstration projects, etc.
4. **What more needs to be done?** Opportunities over near & longer term

<https://www.iea.org/innovation/>

# Public energy RD&D spending is not expanding enough

Spending on energy RD&D (research development & demonstration) by national governments, and as share of GDP



While public energy RD&D spending rose modestly in 2018, led by the United States and China, most countries are not spending more of their economic output on energy research

# Conclusions

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- Global energy investment needs to both **increase** and **shift** in order to align with the Paris Agreement: decrease in fossil fuel supply, increase in renewables, networks and efficiency.
- 40% of today investment is in high-income countries, but **largest investment increases are in developing countries**
- Many **innovation gaps across** the energy sector: need to reinvigorate public and private spending on RD&D

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