

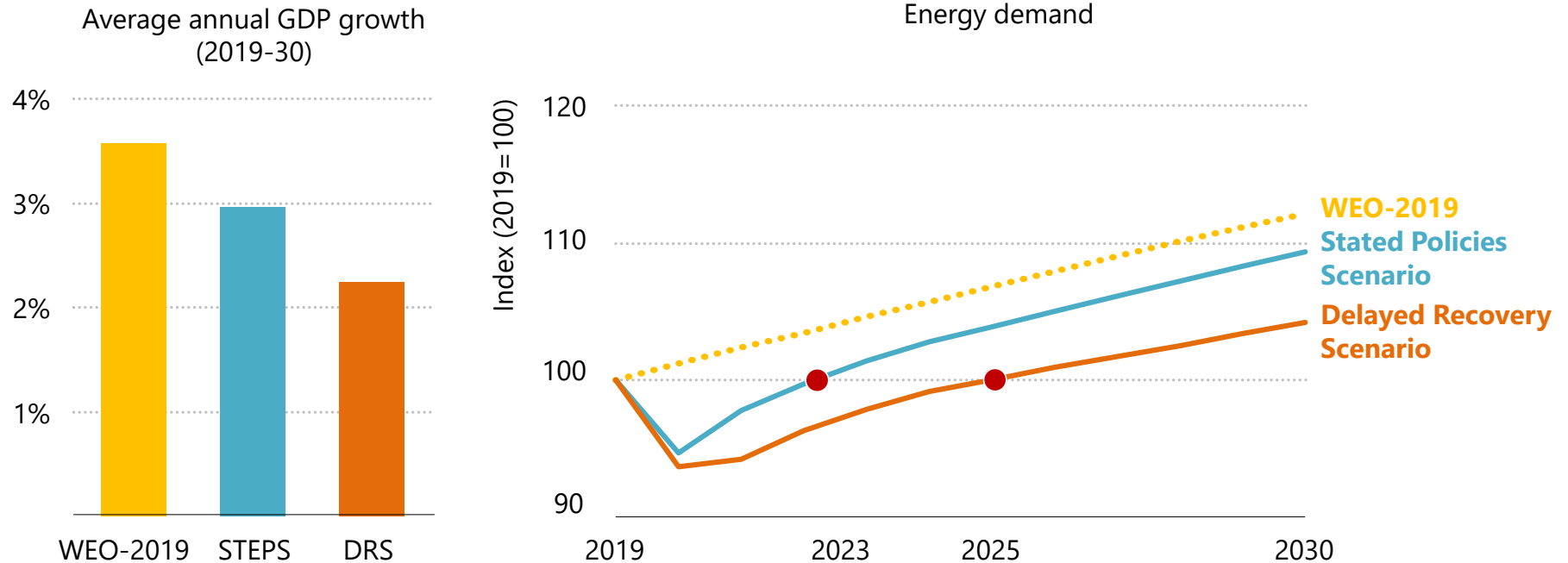


World Energy Outlook 2020

The World Energy Outlook Week: Investments

Paris, 20th November 2020

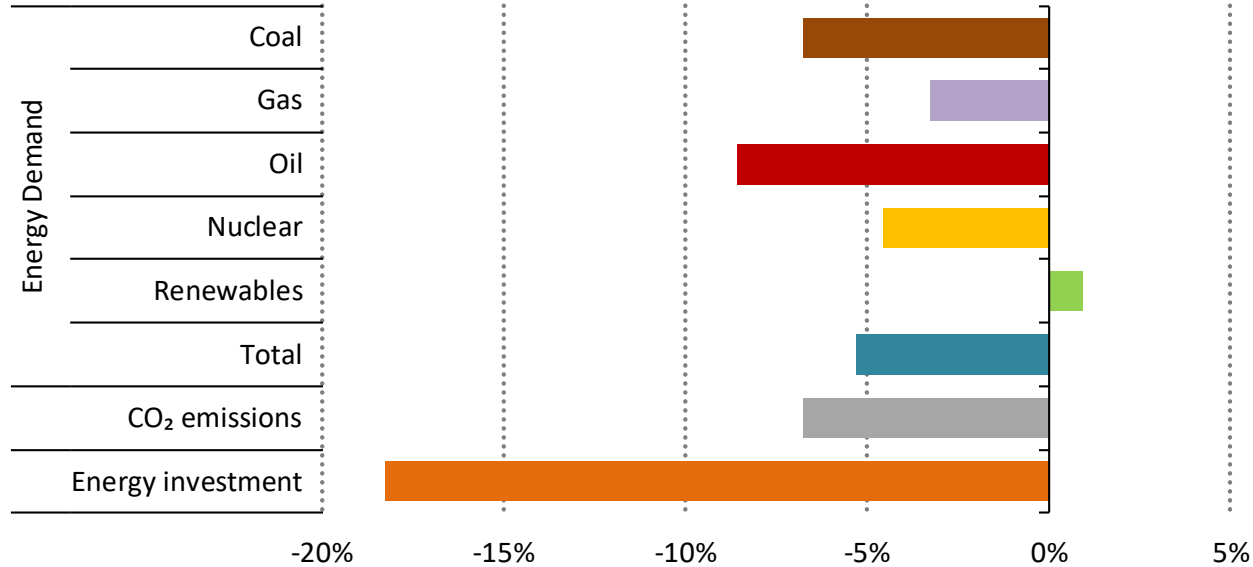
A shock to the energy system...



Bringing the pandemic under control in 2021 would allow energy demand to return to pre-crisis levels by early 2023. A longer pandemic would usher in the slowest decade of energy demand growth for a century

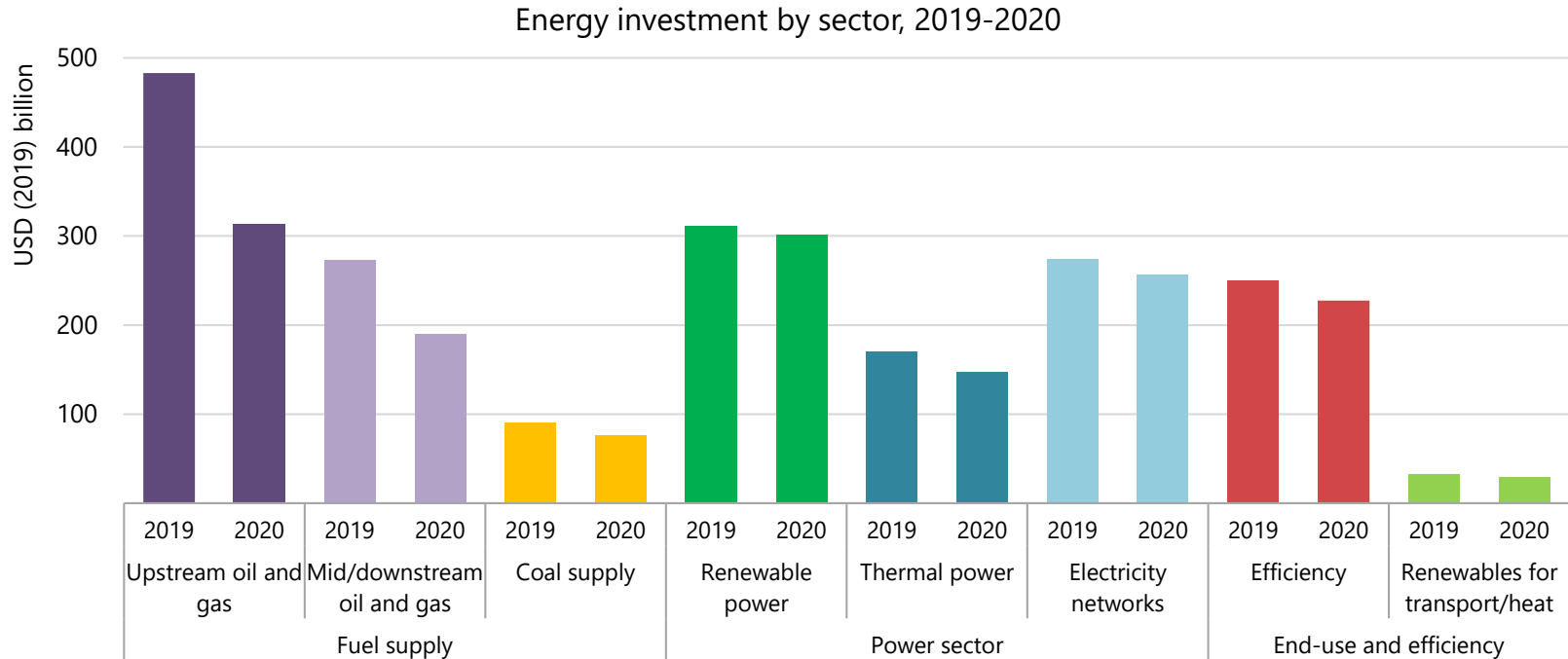
...where investments are the hardest hit

Key estimated energy demand, CO₂ emissions and investment indicators, 2020 relative to 2019



Capital expenditures across energy are anticipated to fall by a record 18% in 2020, with weakened balance sheets and uncertainties over future demand pressuring investment

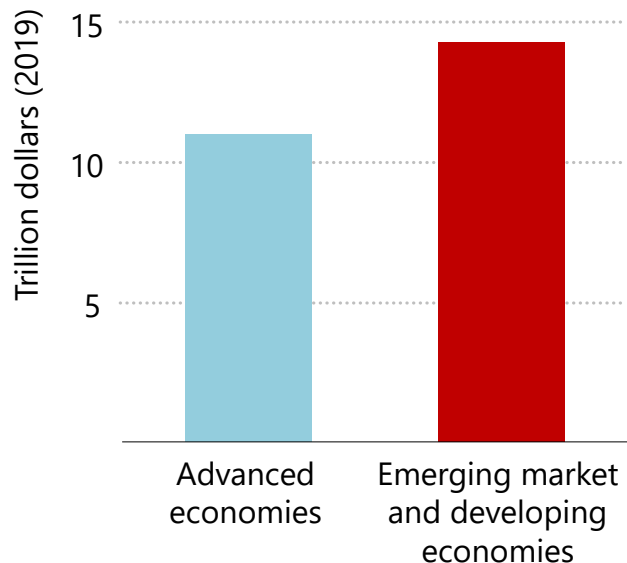
Spending is expected to fall in every major sector this year



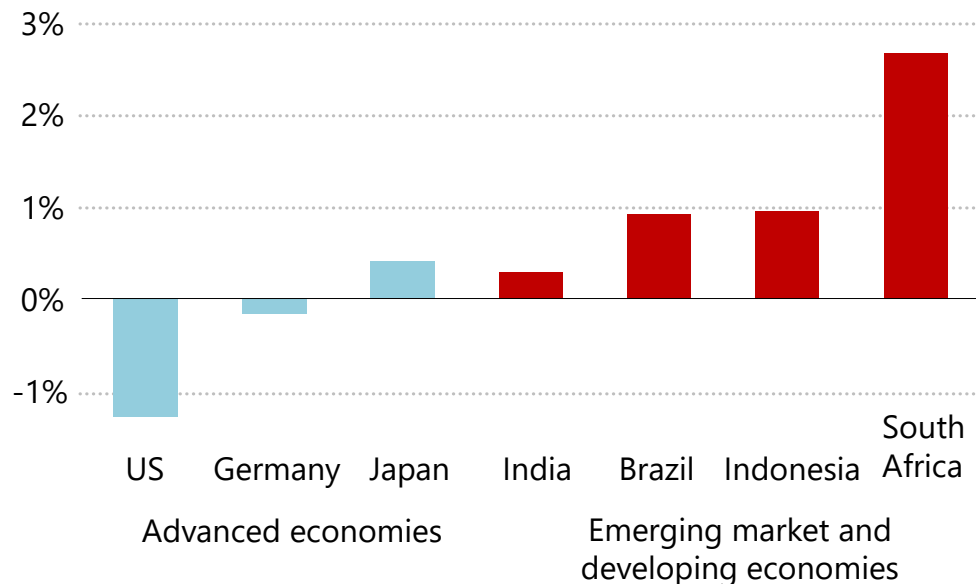
Investment in fuel supply is the most affected, with upstream oil and gas spending set to decline by 35%; clean energy investment, especially for utility-scale renewables, has been relatively resilient

Growing risks challenge investment in areas where it is most needed

Energy investment needs (2020-30)



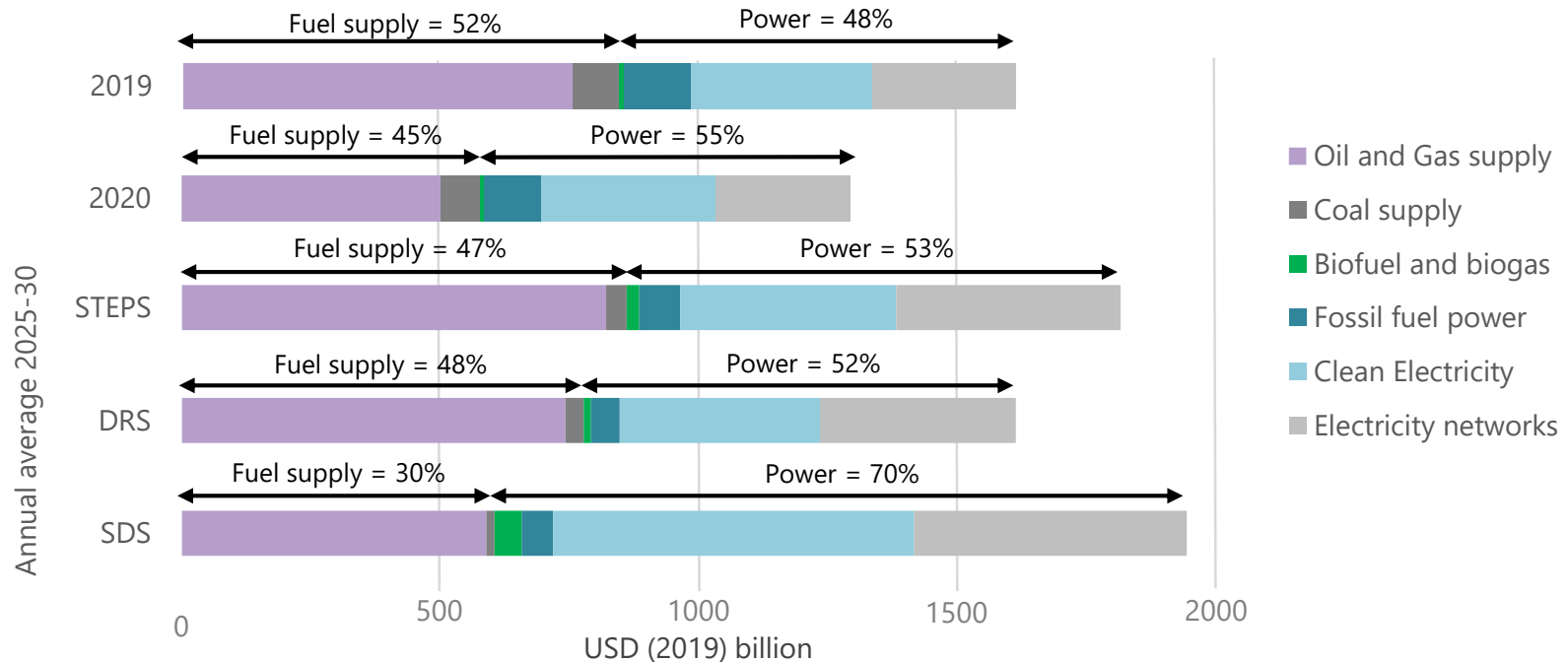
Changes in cost of capital indicators after the Covid-19 crisis



A growing mismatch between investment needs and financing conditions pressures emerging market and developing economies; policies are key to scale up private finance for clean energy transition

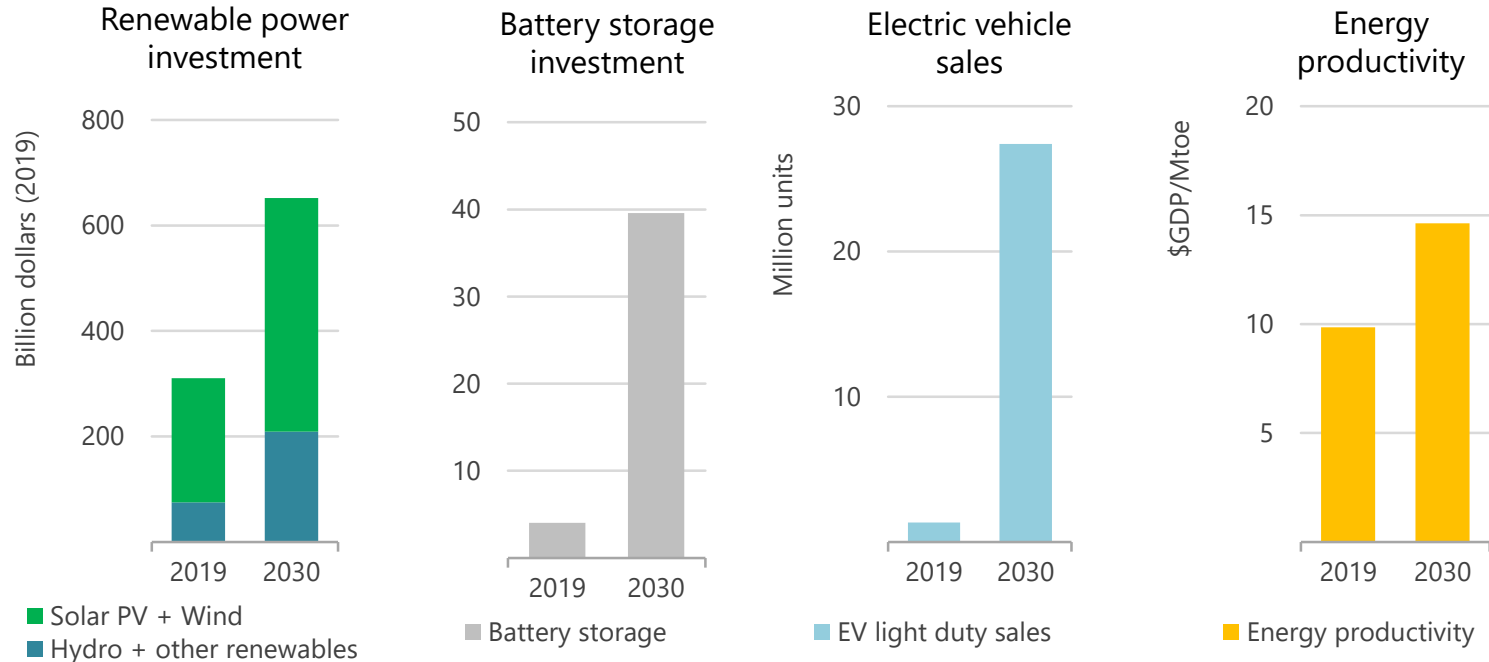
Capital needs and allocations differ starkly by energy pathway

Global energy investment by sector in 2019 and 2020 compared with annual average investment needs 2025-30



Future energy investment needs rise in all scenarios compared to current levels, with a need for capital reallocation among sectors, shifting more to power-especially in a sustainable pathway

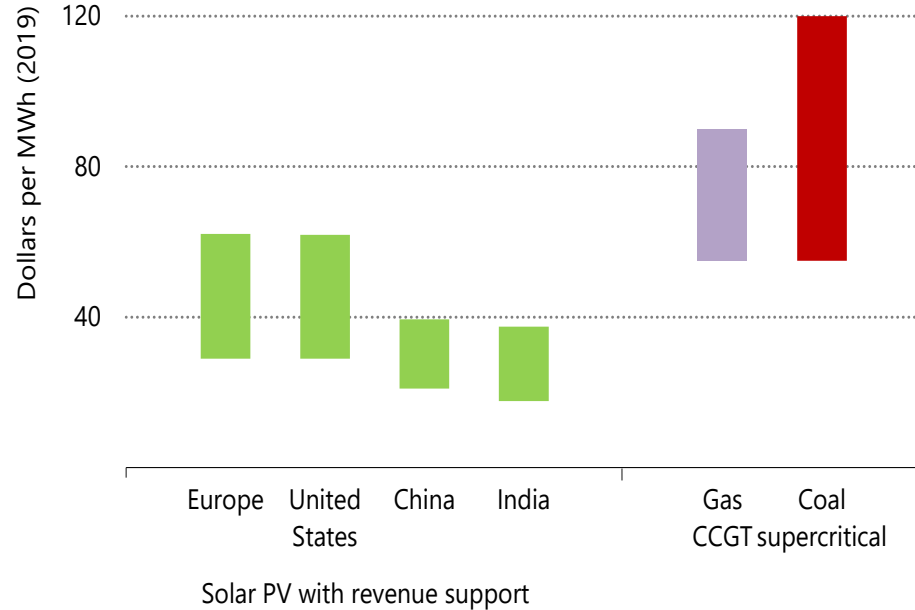
Clean energy sectors need a boost to meet SDS goals



More than three-quarters of the average annual \$3 trillion that is required by 2030 in the Sustainable Development Scenario goes to clean energy and electricity networks

Reductions in cost of capital enable renewables investment...

Utility-scale solar PV LCOE under revenue support mechanisms, 2020 FID



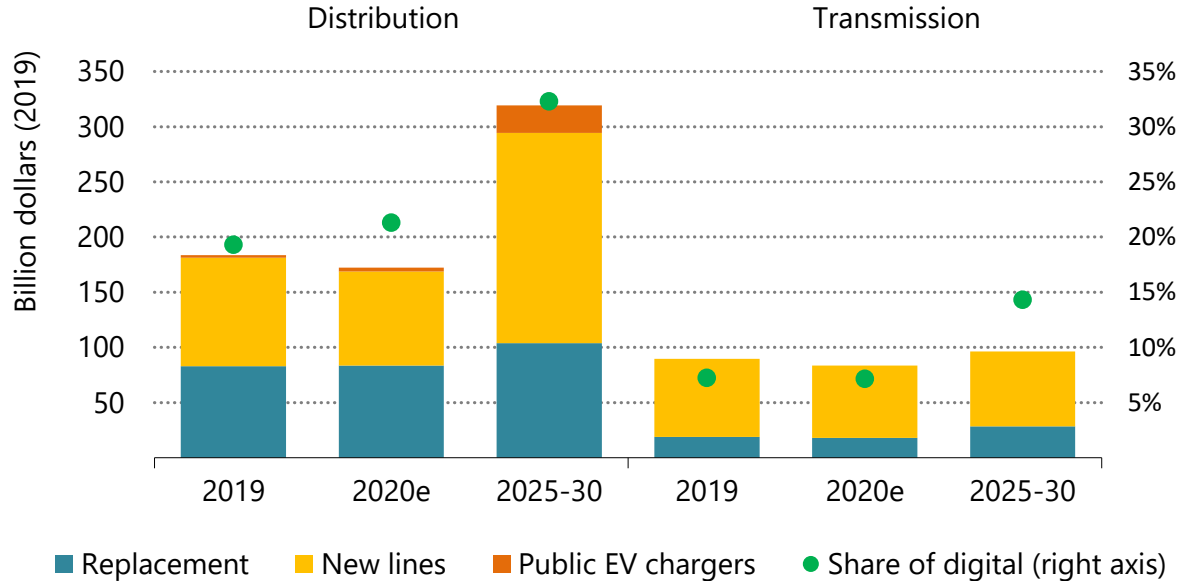
Indicative WACCs of solar PV projects under revenue support mechanisms, 2019

	WACC nominal, after tax (%)	WACC real, pre-tax (%)
Europe	2.6 - 4.3	2.4 -4.0
United States	3.3 -5.0	2.9 -4.5
China	4.4 -5.4	3.4 -3.6
India	8.8 -10.0	5.0 -6.6

Utility-scale solar PV is now consistently cheaper than new gas- or coal-fired power plants due to technology progress and lower financing costs, enabled by revenue support mechanisms

... and electricity networks have a central role to play

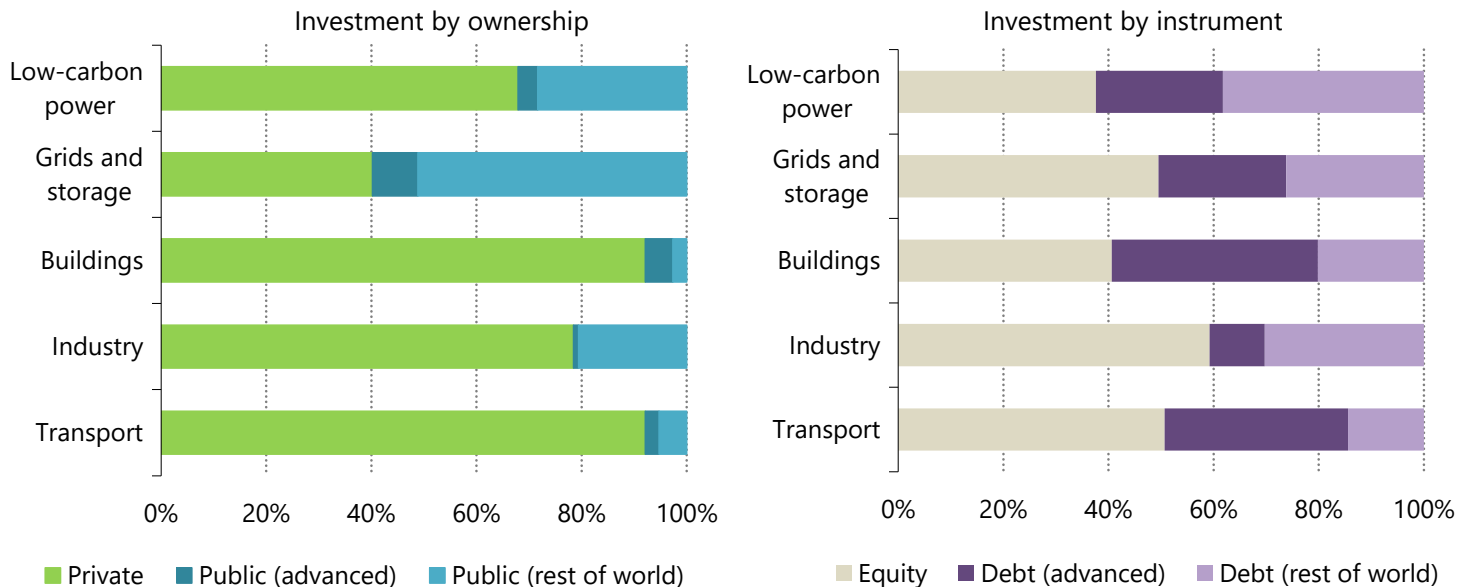
Annual investment in electricity networks by sector in the Stated Policies Scenario



Electricity transformations require a step up in grid expansion and modernisation to ensure that power remains reliable, affordable and secure, but lower revenues are creating risks for timely investment

Aligning sources of finance with capital needs is key

Clean energy-related investment in the Sustainable Development Scenario, 2025-2030



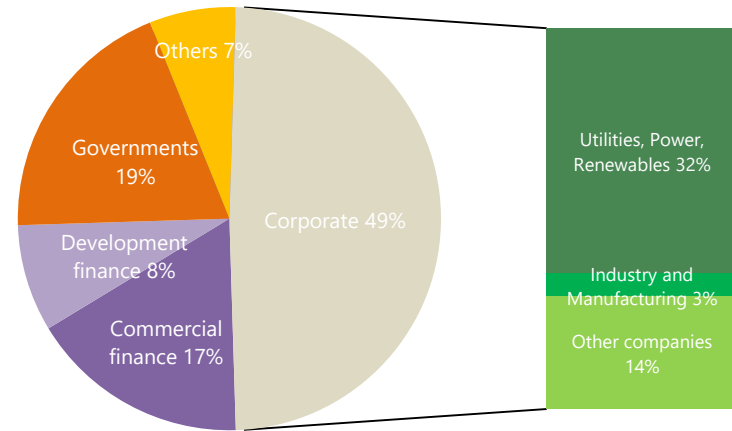
Over 70% of clean energy and grid investment to 2030 comes from private sources, with public finance and policy design playing a vital role; debt and equity for a diversity of sources will be needed

Can sustainable finance help to meet investment goals?

Sustainable finance by type of debt instrument



Sustainable finance by type of issuer



Sustainable finance initiatives have expanded and debt issuance has surged, mostly for efficiency and renewables, but rapid growth has not yet translated into rising clean energy capital expenditures

Conclusions

- The Covid-19 pandemic has set in motion the largest drop in global energy investment in history, with spending expected to fall in every major sector this year
- A growing mismatch between investment needs and financing conditions is putting particular pressure on emerging market and developing economies
- Electricity grids have been the backbone of energy systems during lockdown, but a downturn in spending on networks and flexible resources is a warning sign for the security of future power systems
- Clean energy transitions depend on mobilising higher levels of private capital into renewables, efficiency and other low-carbon technologies, incentivised by policy design and limited public finance
- There are no short cuts; only profound changes, guided by good policies, can deliver a better energy future. This is a choice – for citizens, investors, companies, but most of all for governments

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