World Energy Outlook 2021

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Context

- In the run-up to COP26:
  - Economic recovery has put gas, coal & power markets under strain, with sharp spikes in prices
  - Weather-related factors are having large implications for the energy sector
  - A new global energy economy is emerging, with wind, solar & EVs all setting new records
  - The shadow of the pandemic still looms large, and has set back progress on energy access
- Climate ambitions have never been higher, but the energy & emissions data does not match the rhetoric
- This special edition of the WEO explores the transformation of the energy sector in detail, examining:
  - Where the world is heading, and how this changes if countries meet all their announced pledges
  - How the world can keep the door to 1.5 °C open, following the IEA's landmark net zero by 2050 roadmap
  - The opportunities and benefits that lie along the way, as well as the implications for energy security

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The world is starting to bend the emissions curve

New policies, technology cost reductions, and the pandemic have pulled the projected emissions curve down. Updated NDCs & long-term net zero pledges decouple emissions and economic growth this decade.

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And announced pledges re-shape global energy markets

Full realisation of all announced pledges sees peak oil and natural gas demand occurring in the current decade, while annual solar PV and wind capacity additions reach 470 GW in 2030

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New coal power is on its way out

After decades of growth, construction of unabated coal power plants sharply declines under announced pledges, and cancellations could cut 20 Gt of emissions to 2050, comparable to savings from the EU reaching net zero by 2050

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A large ambition gap remains in 2030

Despite some positive signs, today's pledges close less than 20% of the gap to the Net Zero by 2050 scenario: countries with net zero pledges and countries without each account for about half the remaining ambition gap

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But we have cost-effective ways to close the gap

Technologies and policies are available to close the emissions gap to 2030. More than 40% of the actions required are cost-effective – bringing more low-cost renewables into power, reducing methane leaks, and improving efficiency

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The rise of new energy-related commodities

Value of international energy-related resource trade

Under announced pledges, a growing share of oil and gas trade flows towards developing economies in Asia. In all scenarios, but especially in the net zero pathway, critical minerals and hydrogen-based fuels are on the rise

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Looming risk of more turbulence ahead for energy markets

The world is not investing enough to meet its future energy needs; oil and gas investment is geared to a world of stagnant or falling demand, while transition-related spending is not rising nearly fast enough

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Well-managed transitions offer shelter from price volatility

Clean energy transitions can cushion consumers from the shock of price spikes for oil and gas, if households can get help to manage the upfront costs of energy efficiency improvements & electrification

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A new global energy economy is emerging

Estimated market sizes of oil and selected clean energy technology equipment in the Net Zero Scenario

Explosive growth in clean energy deployment over the next decades could create a market opportunity for manufacturers of key equipment worth a cumulative USD 27 trillion through to 2050

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Conclusions

- The transition to a sustainable energy system is the solution to the turbulence that we are seeing in gas, coal and electricity markets today – not the cause
- A laser-like focus on clean electrification, energy efficiency, methane abatement & innovation can close the near-term gap with a 1.5°C future; cost-effective solutions are available & every country needs to step up
- The longer today's mismatch in energy investment persists, the greater the risks to energy security & price volatility. A massive policy-driven surge in clean energy transitions is the way forward
- A new global energy economy is emerging, one that will be more electrified, efficient, digitalised & clean – offering enormous potential for growth and employment
- Governments have unrivalled capacity to transform the energy sector: a wave of investment in a net zero future must be driven by an unmistakeable signal from Glasgow

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