



World Energy Outlook 2020

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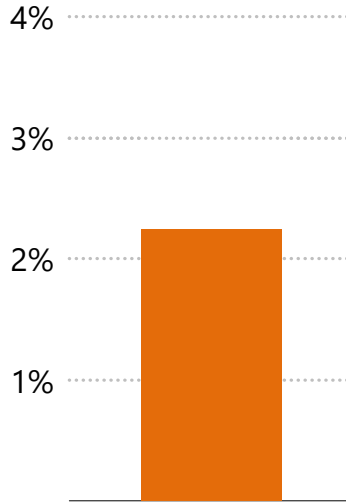
Athens, 9 December 2020

Covid-19 and the energy outlook

- In an extraordinary year, 2 key questions:
 - How might the pandemic (and its aftermath) **reshape the energy sector**?
 - Does this disruption help, or hinder, the **prospects for rapid clean energy transitions**?
- Focus on pathways out of today's crisis over the next 10 years, amid 2 key uncertainties
 - **Duration and severity of the pandemic** and its economic impacts
 - **Response from energy policy makers** and the sustainability of the recovery
- Scenario-based approach more important than ever, to examine:
 - The **direction we are heading**, depending on the outlook for public health & the economy
 - What would be required to **reach net-zero emissions**

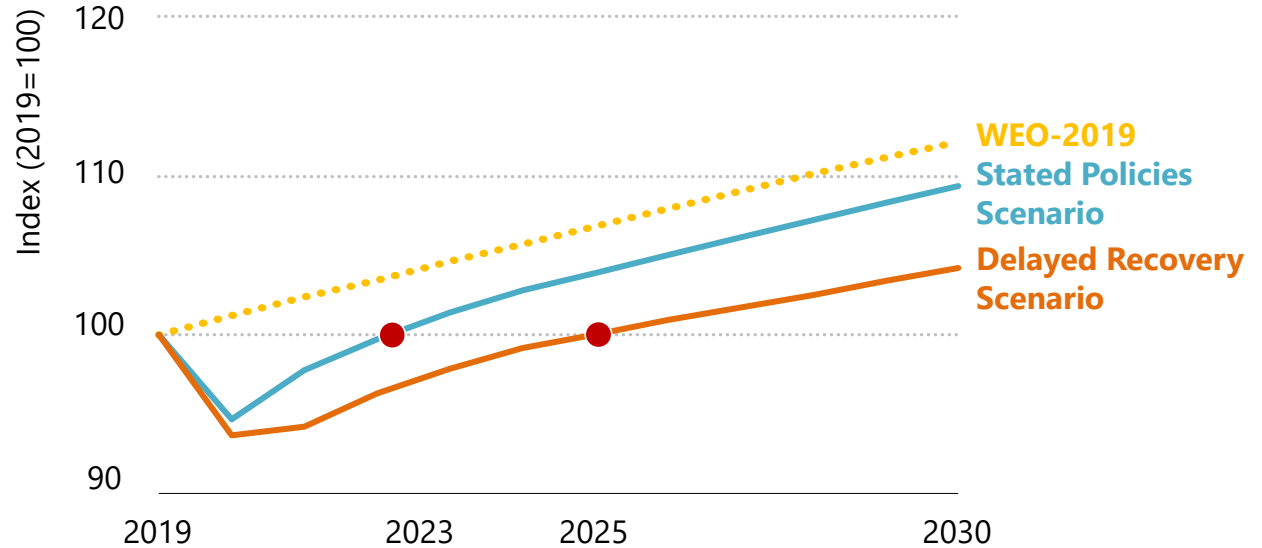
A shock to the energy system

Average annual GDP growth
(2019-30)



Delayed Recovery Scenario

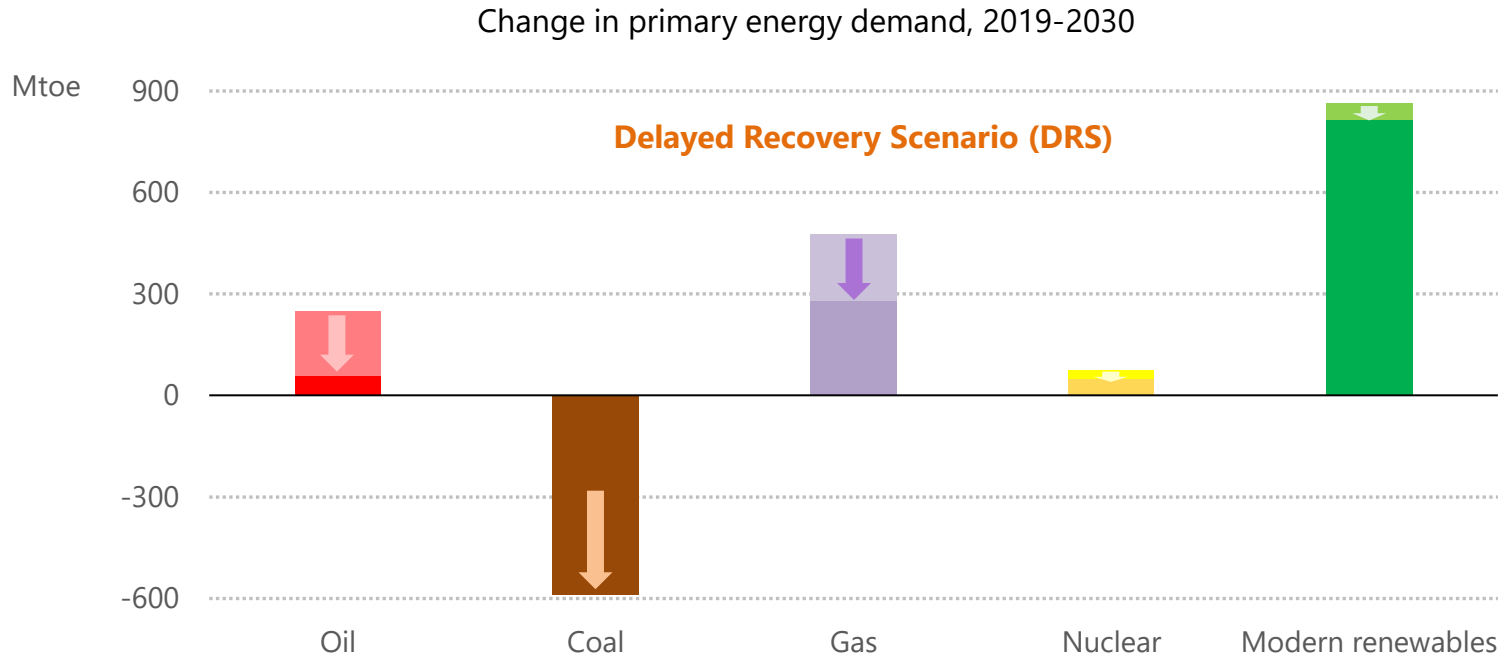
Energy demand



WEO-2019
Stated Policies Scenario
Delayed Recovery Scenario

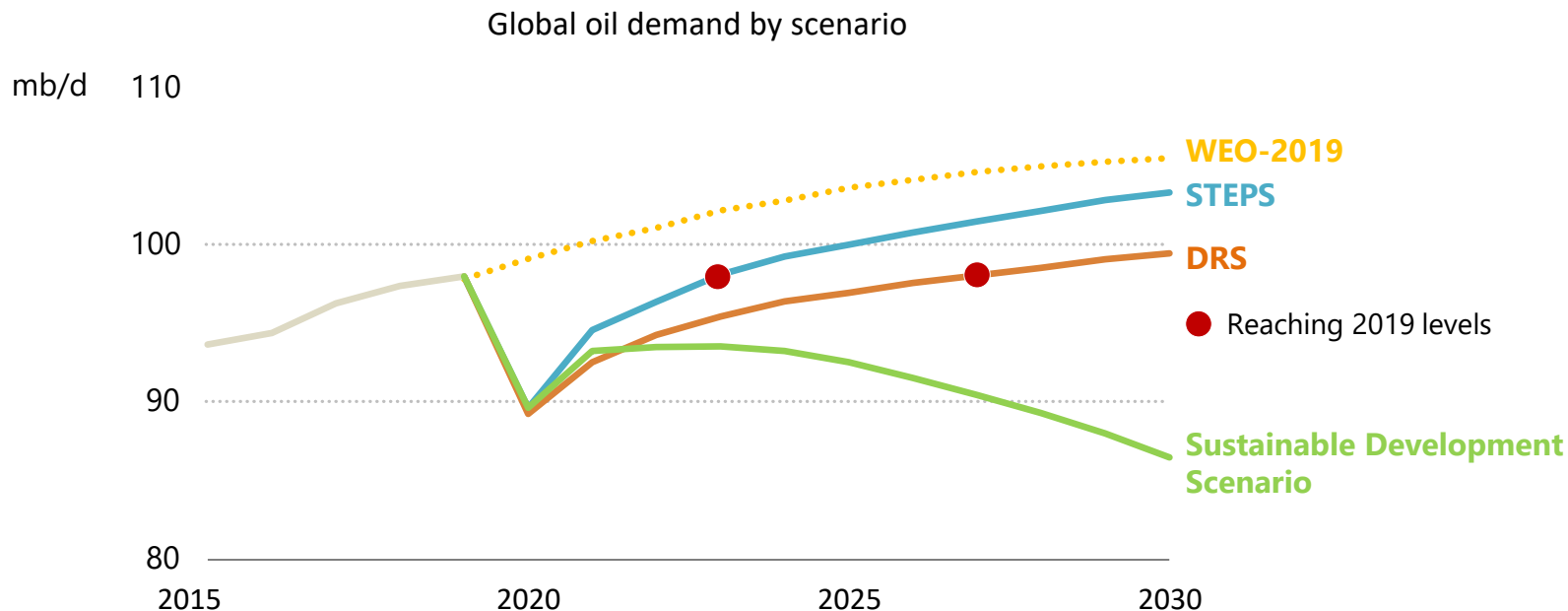
Bringing the pandemic under control in 2021 would allow energy demand to return to pre-crisis levels by early 2023. A longer pandemic would usher in the slowest decade of energy demand growth for a century

Impacts vary widely by fuel & technology



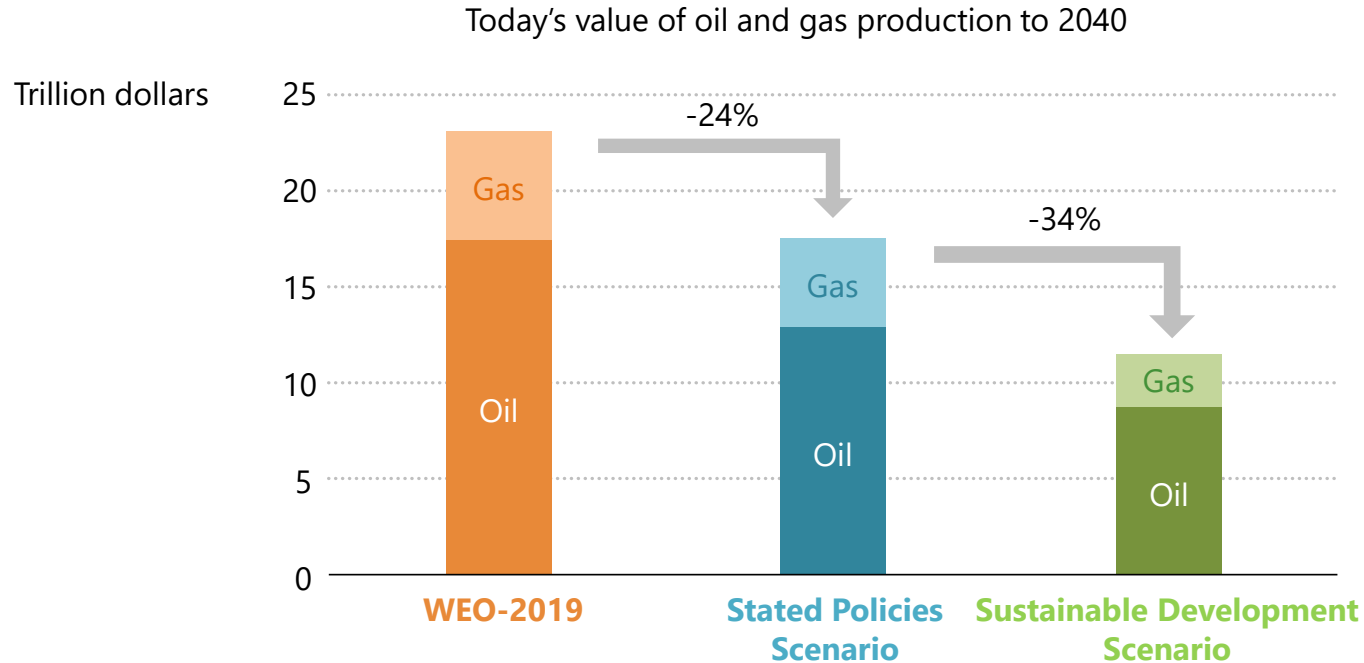
After a 5% drop in energy demand in 2020, renewables lead the rebound while coal never gets back to pre-crisis levels; a delayed recovery puts energy into slow motion, prolonging today's overhang of supply

Without a larger shift in policies, no rapid decline in oil



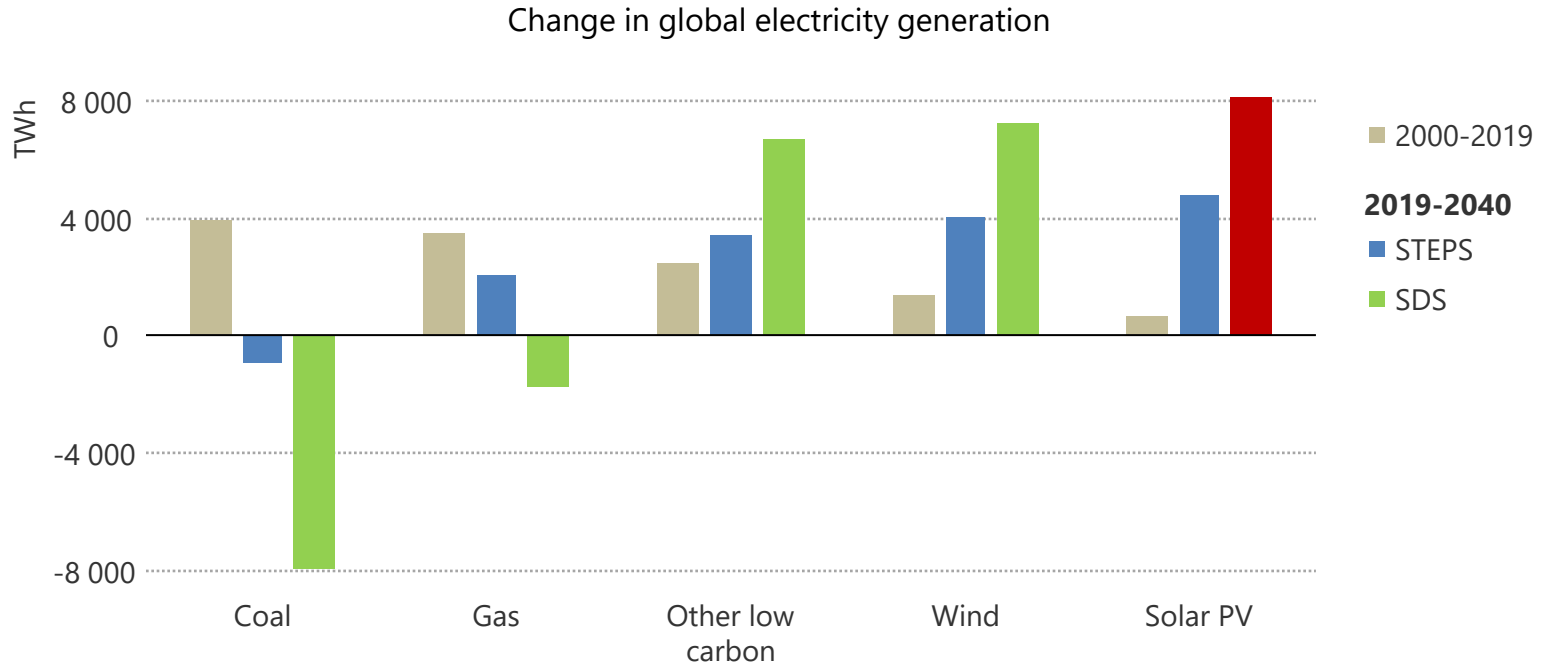
In the STEPS & the DRS, oil demand reaches a plateau in the 2030s as transport fuels are no longer a reliable engine for growth; a stronger push for efficiency, electrification and recycling will be needed for oil use to fall

Diversification: the critical watchword for oil and gas producers



A lower price and demand outlook, due in the near term to Covid-19, adds to the strains on countries that rely on oil & gas revenues. The pressure for changes in strategies & business models is even stronger in the SDS

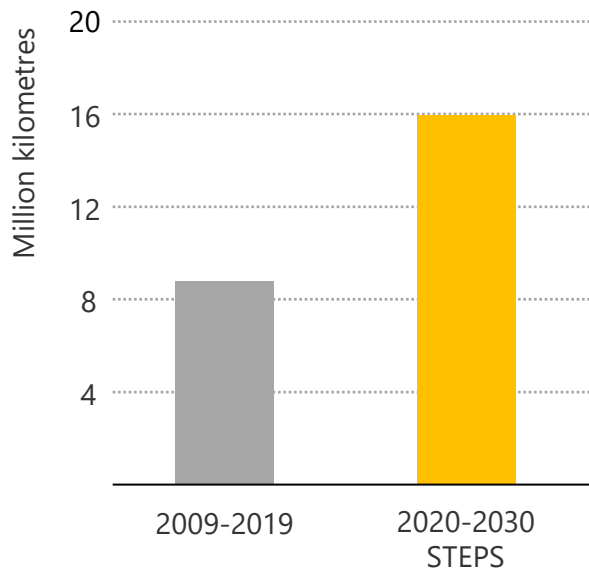
Solar PV is becoming the 'new king' of electricity



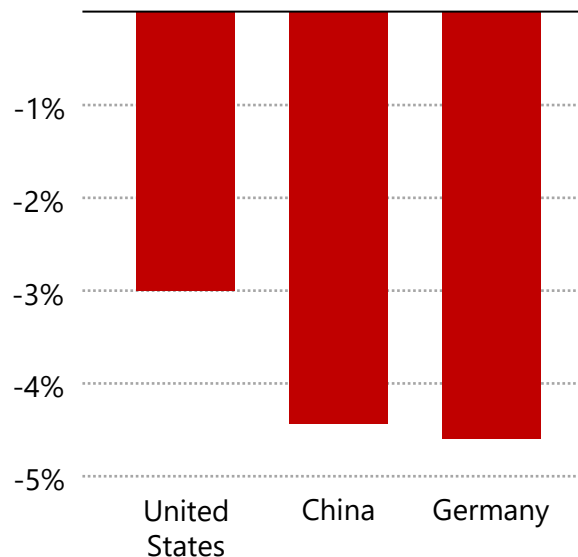
Solar PV is now the cheapest source of electricity in most countries in part due to low cost financing and is set to triple before 2030 under current and proposed policies, with the potential to grow much faster

Grids are the bedrock of a clean & secure electricity future

Grids expansion

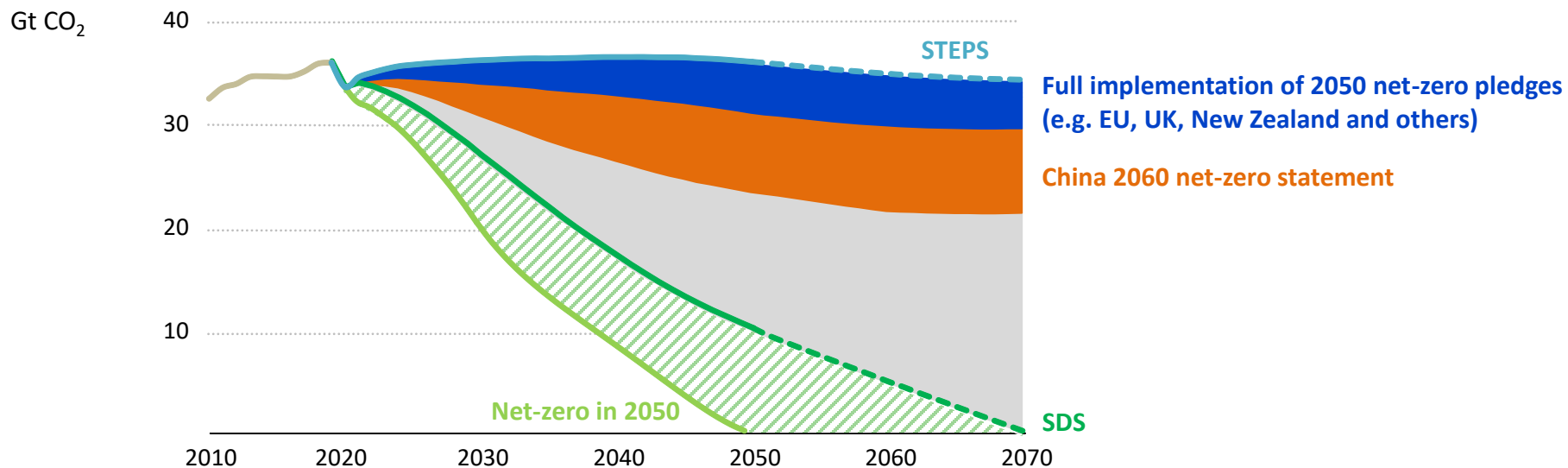


Change in grid operator revenue
First half of 2020



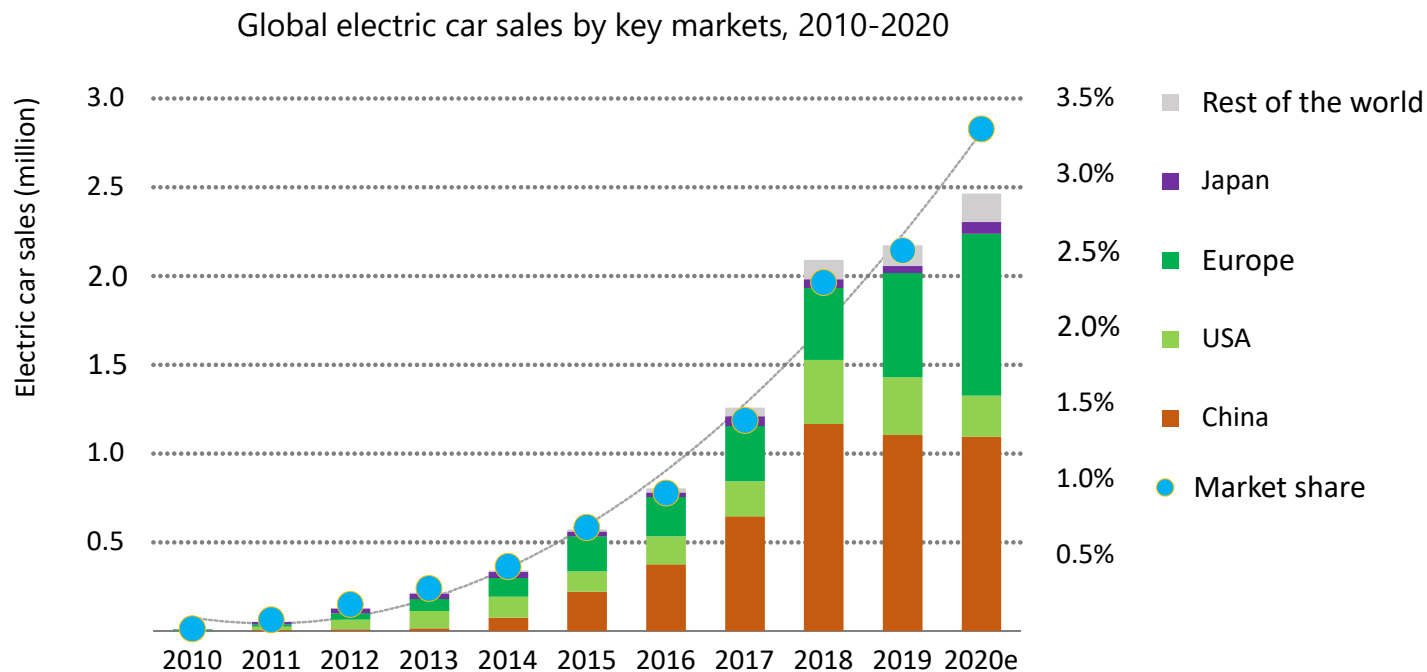
Electricity transformations require a step up in grids expansion to ensure that electricity remains reliable, affordable and secure, however depressed revenues are creating risks for timely investment

The world is still far from putting emissions into decisive decline



Global emissions are set to bounce back more slowly than after the financial crisis of 2008-2009, but the world is still a long way from a sustainable recovery

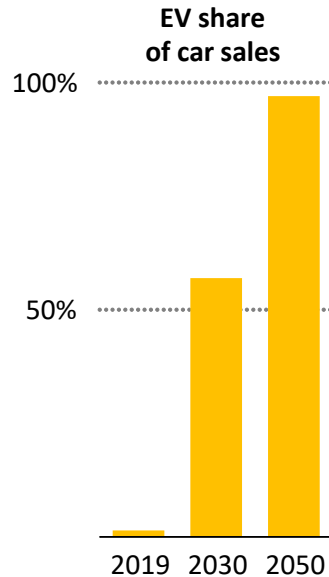
EVs have been proven resilient to the pandemic



Electric cars are set to rise in 2020 even if the total car market is shrinking due to Covid-19 crisis. Policy push in the EU is the key lever for this growth.

The transformation has to extend well beyond the power sector

Evolution of selected end-use technologies in the European Union in the Sustainable Development Scenario



In the SDS, virtually all passenger cars in the European Union are electric by 2050, all buildings have been retrofitted, and there are high levels of hydrogen and biomethane use

Net-zero by 2050 demands unprecedented efforts over the next decade



Hydrogen



Electric cars

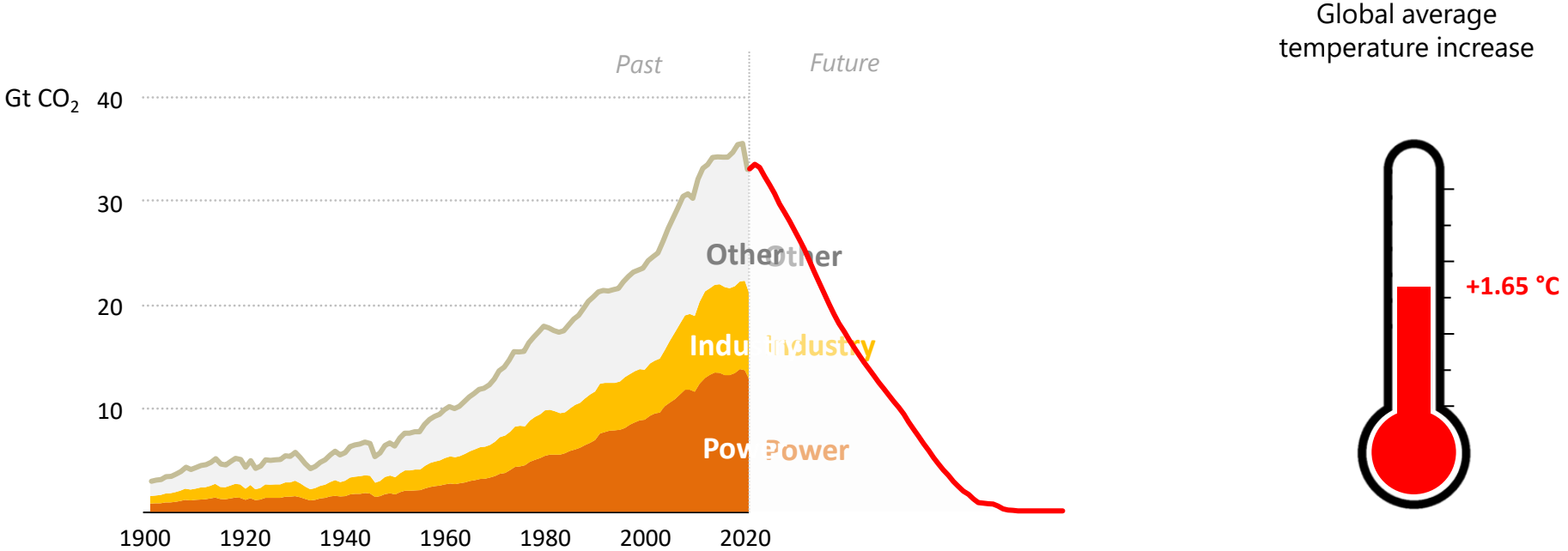


Clean electricity investment



Net zero energy emissions in 2050 would require a set of dramatic additional actions over the next 10 years. Energy companies, citizens and investors all need to be on board – with unprecedented contributions to make

Existing infrastructure alone could lead to a temperature rise of 1.65 °C



Using existing energy infrastructure as in the past would “lock in” emissions for decades to come; the associated 1.65 °C global average temperature increase would put all climate goals out of reach

Conclusions

- The pandemic will leave lasting scars, but it is still open whether it represents a setback for a more secure and sustainable energy system, or a catalyst that accelerates the pace of change
- Renewables have taken off, with solar leading the way. But a slowdown in improving access to electricity and a risk of under-investment in grids are warning signs for the future
- The crisis has squeezed oil and gas revenues and investment, forcing producers to reassess their strategies to align with technology and policy shifts
- Getting to net zero means ramping up clean technology deployment while continuing to reduce costs, especially through innovation for hydrogen and other low-carbon fuels, battery storage & CCUS
- 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