



# World Energy Outlook 2021

*WEO Week Day 3 - Electricity sector transitions: policy and finance*

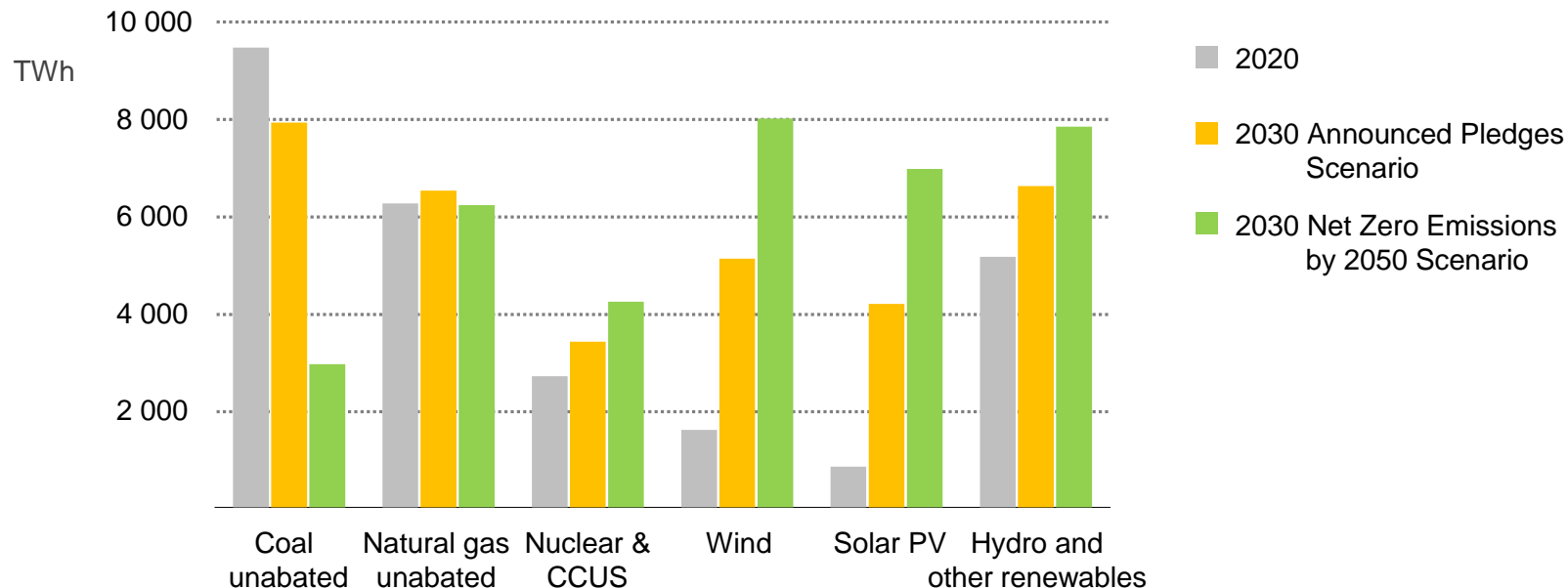
*20 October 2021*

Brent Wanner, Head of Power Sector Unit, World Energy Outlook, IEA

International  
Energy Agency

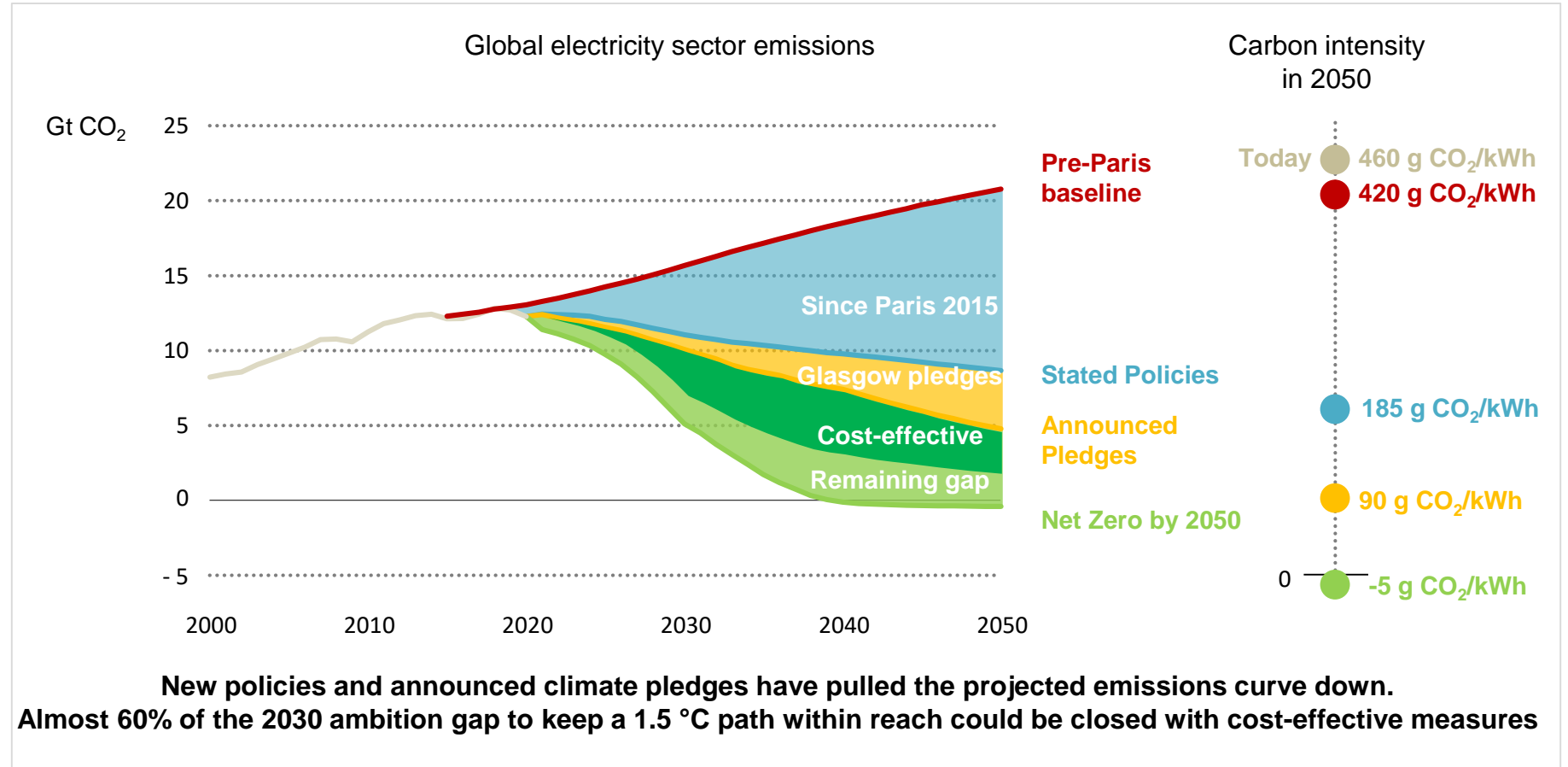
# Electricity sector transitions accelerate towards renewables

Global electricity generation by scenario

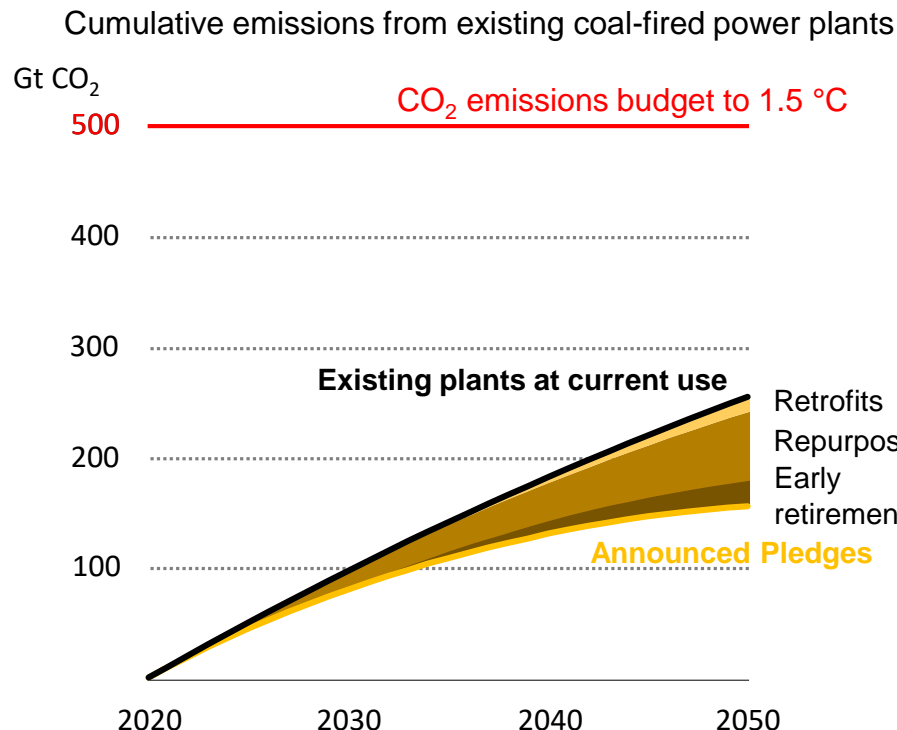
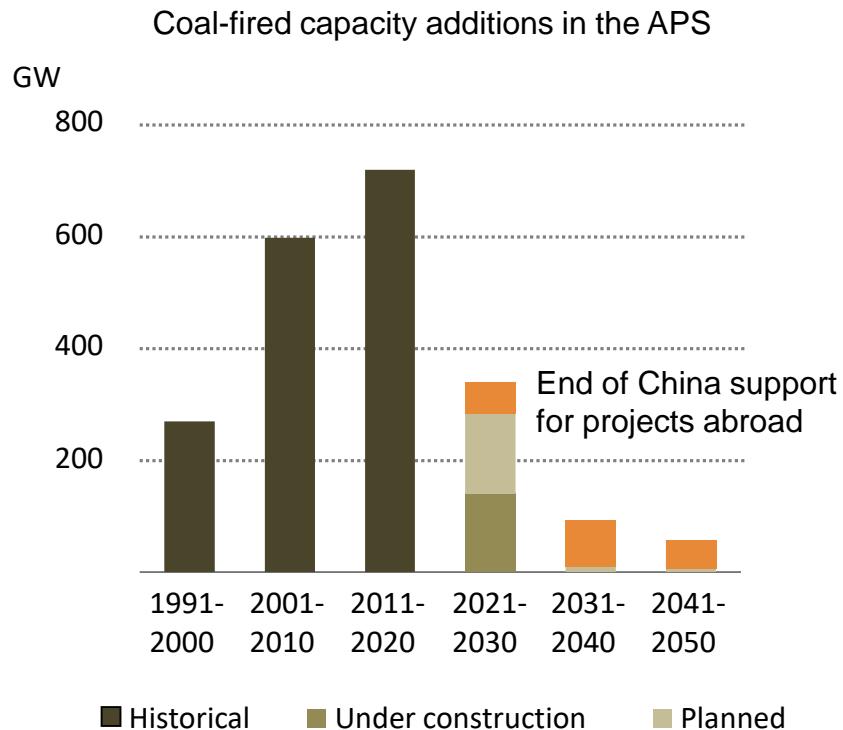


Fossil fuels accounted for 61% of electricity generation in 2020, the lowest level in 30 years, and renewables for nearly 30%, by 2030, wind and solar PV growth lead renewables to nearly 50% under announced pledges & potentially much higher

# Towards a decarbonised electricity sector

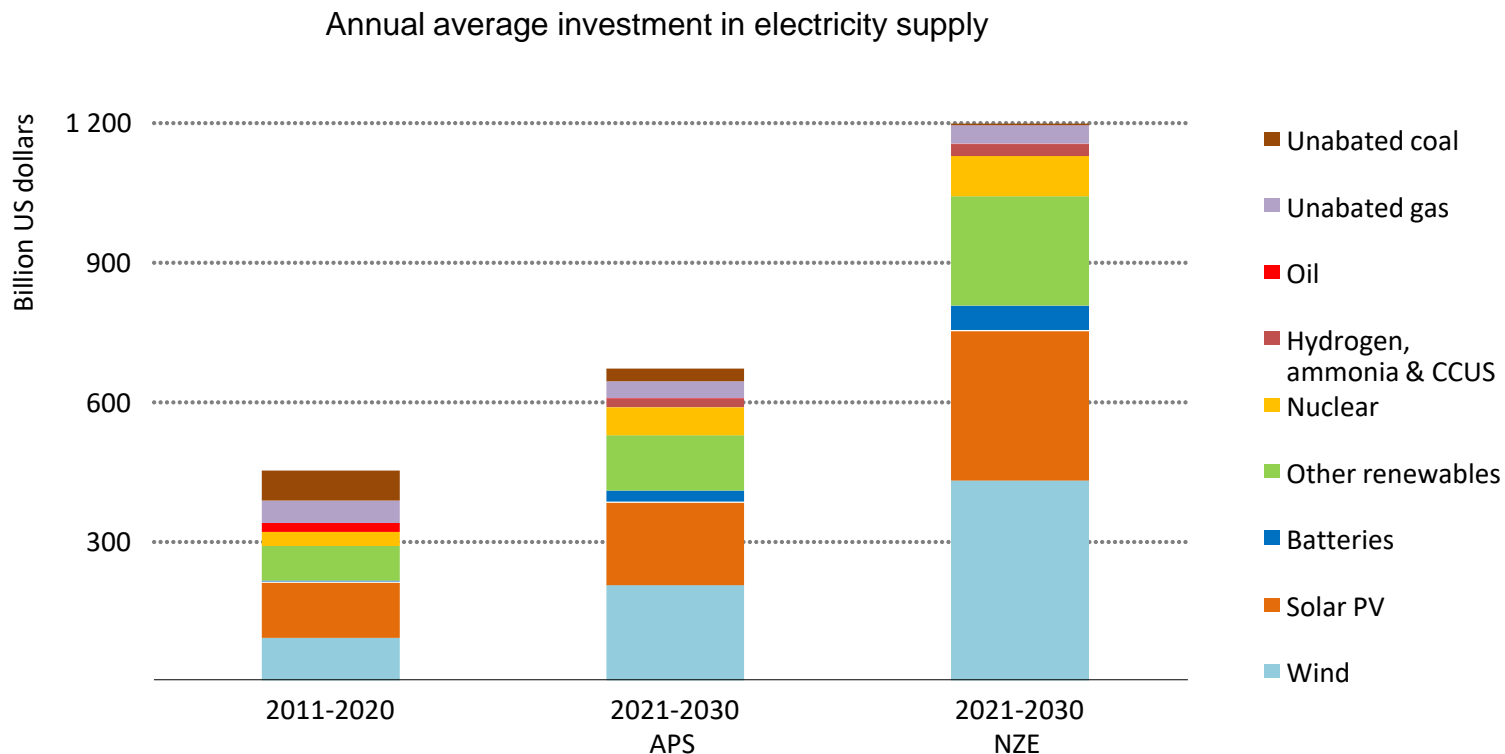


# As new coal power drops, policy focus shifts to the existing fleet



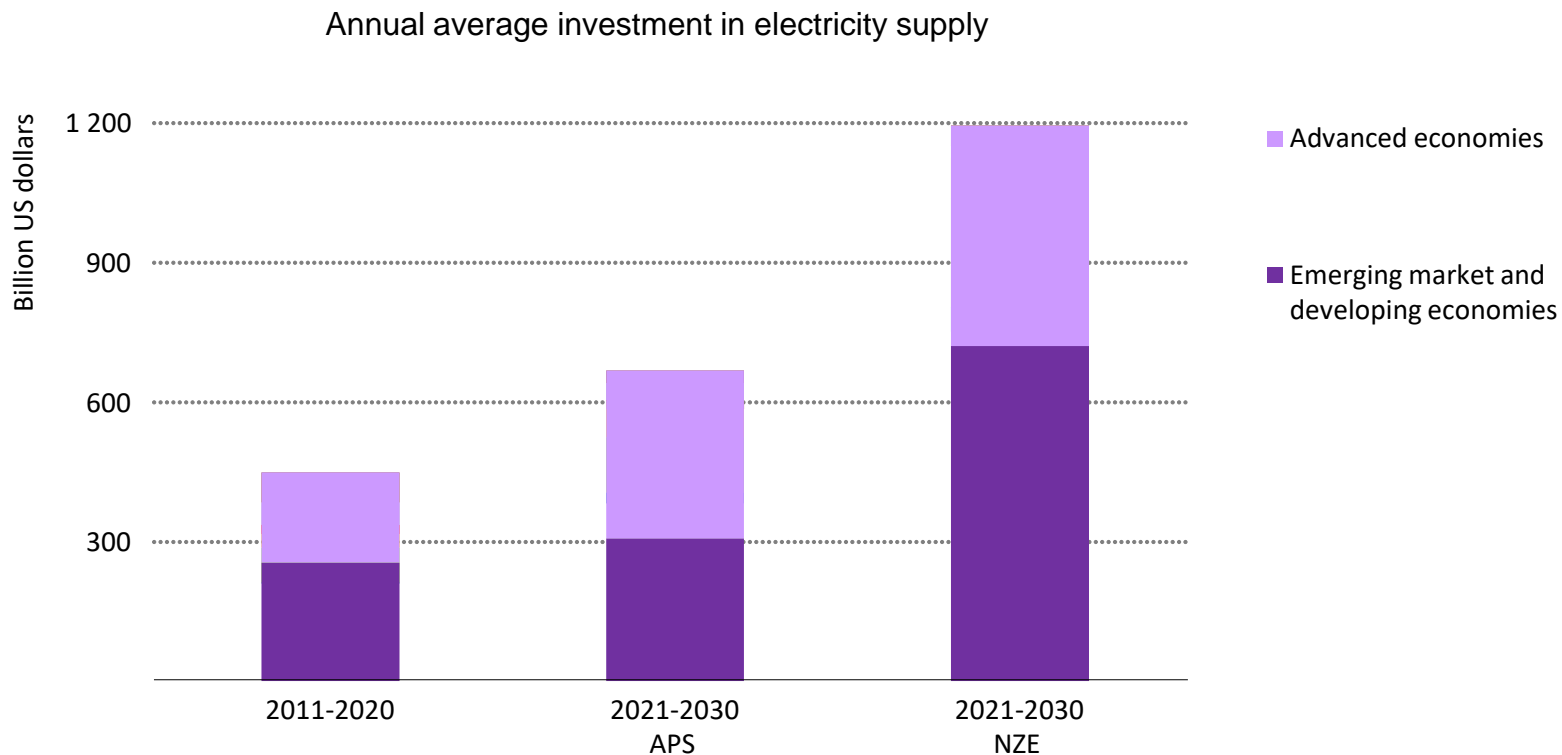
**After decades of growth, new unabated coal power plants sharply declines under announced pledges, and strategies to retrofit, repurpose or retire existing plants cut 100 Gt of emissions to 2050**

# Significant investment is needed by 2030 to fill the ambition gap



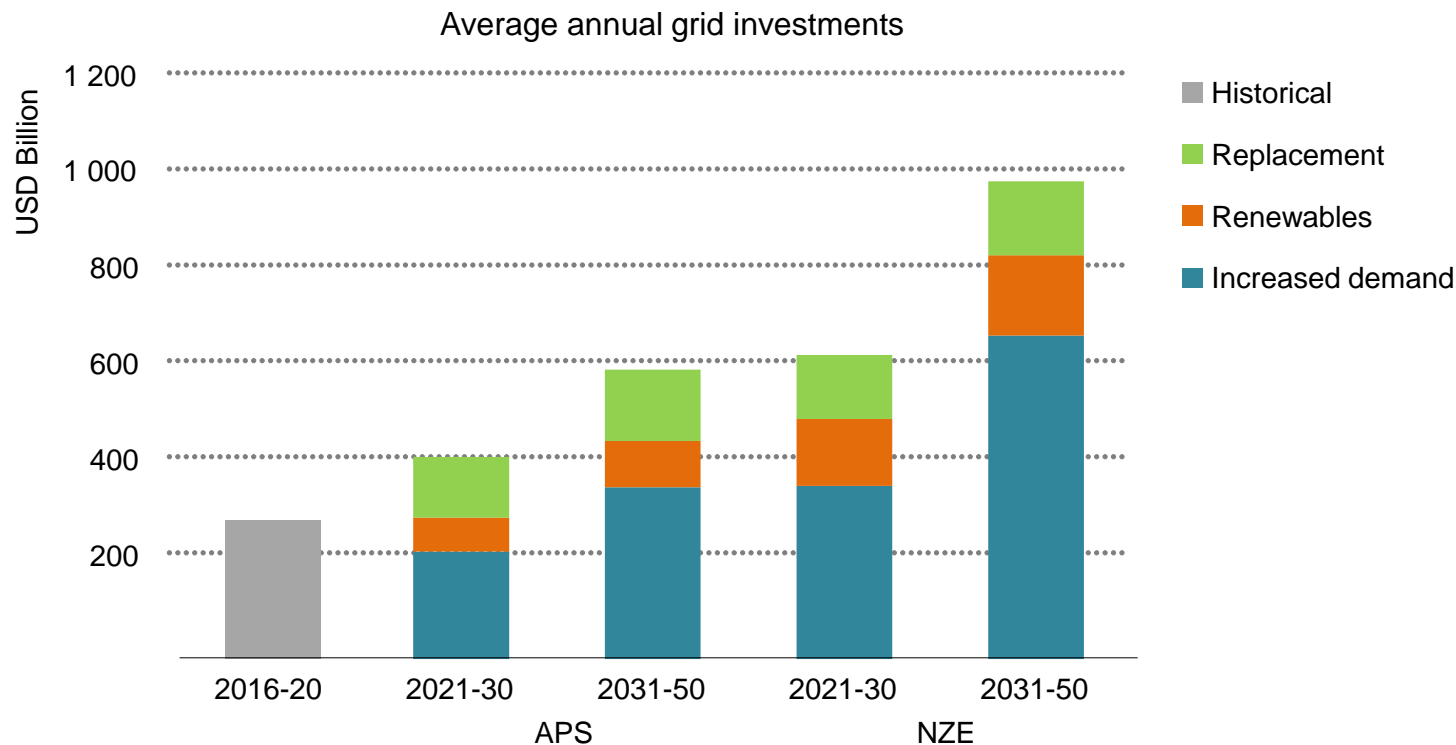
**Announced pledges raise investment to 2030 by 50% compared with the last decade, but the path to net zero by 2050 calls for ramping up wind and solar PV deployment, alongside nuclear, CCUS and other low emission sources**

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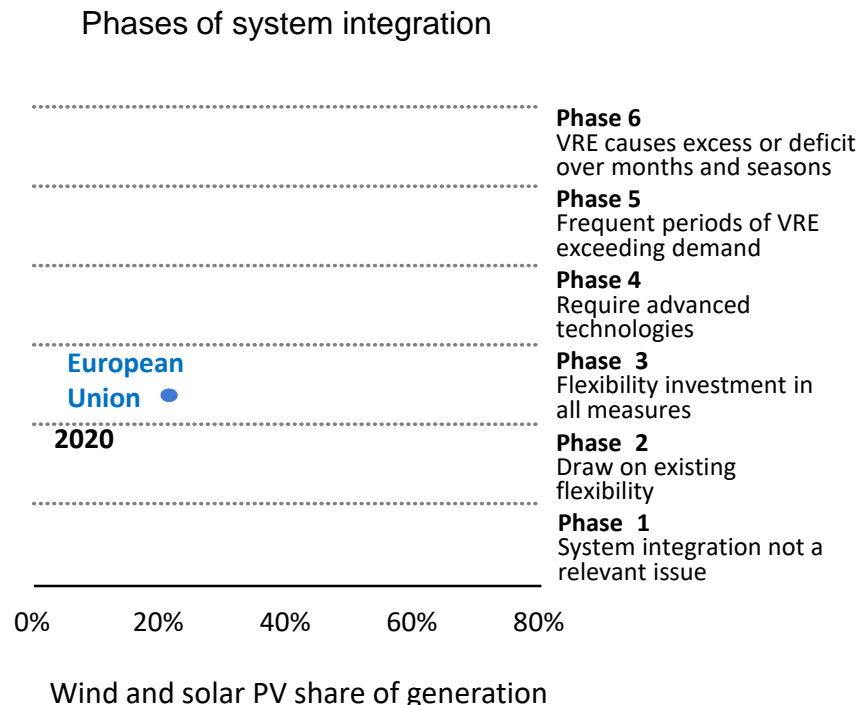
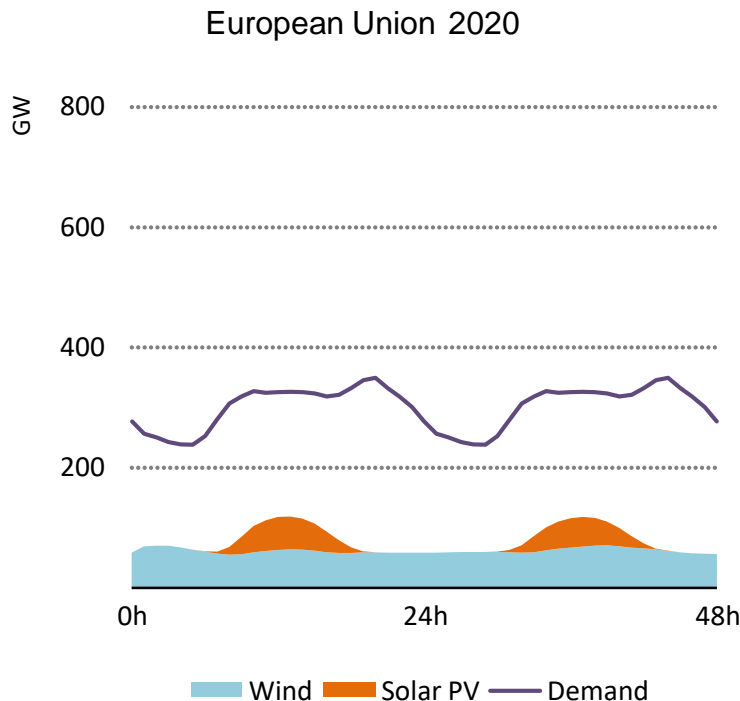
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# Grid investment must rise to support orderly transitions



**Advanced planning and network-wide coordination become increasing priorities to ensure grid infrastructure readiness in tandem with the growth of low emissions generation.**

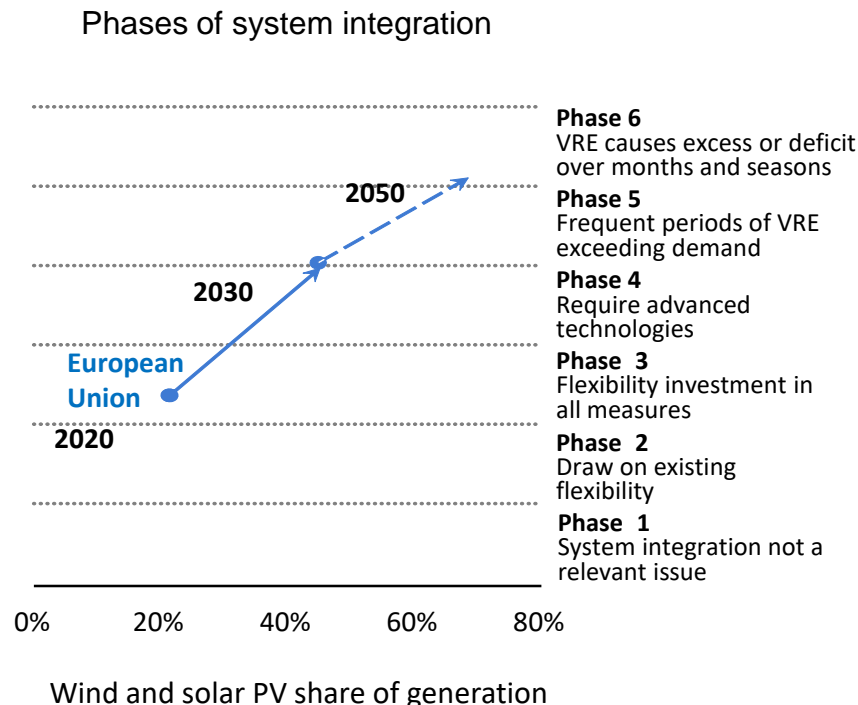
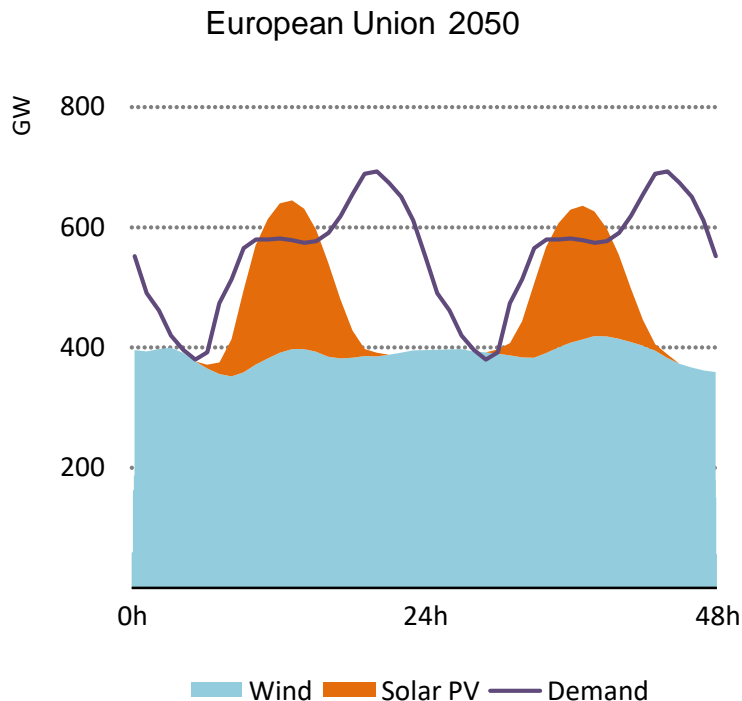
# Flexibility is the cornerstone of electricity security



**Quadrupling of flexibility needs in the NZE and more than tripling in the APS would require rapid deployment of dispatchable low-emissions capacity alongside greater use of demand response and scaling up of electricity storage**



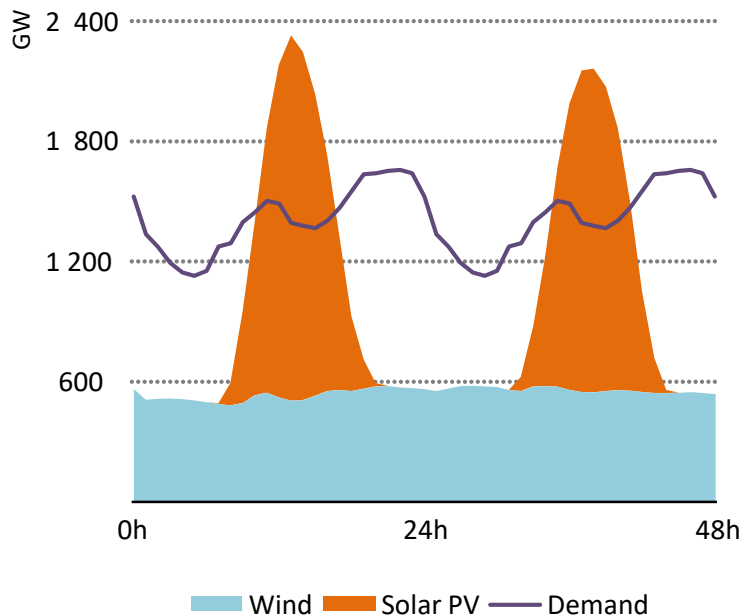
# New challenges emerge to maintain electricity security



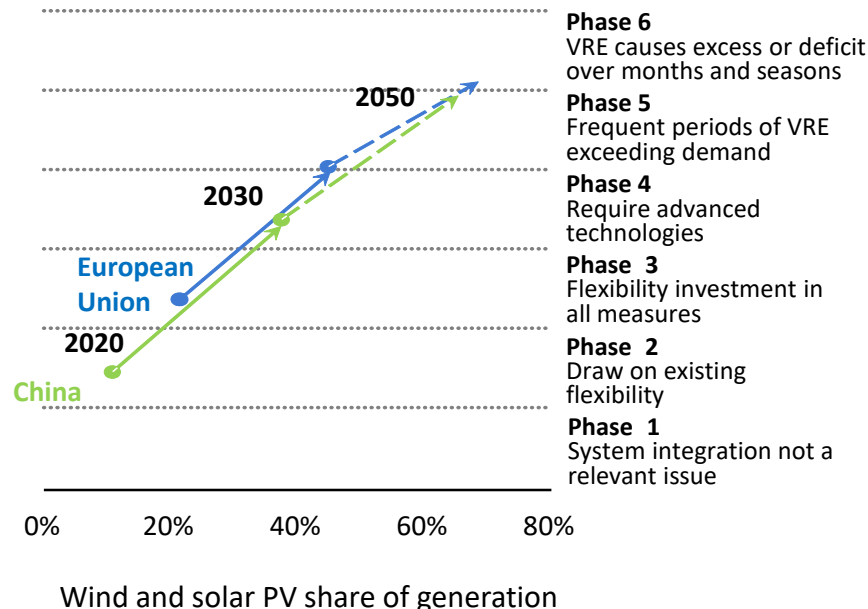
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# New challenges emerge to maintain electricity security

China 2050



Phases of system integration



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