People s republic of china electricity market trends

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China"s Electricity Council expected clean power to account for 50 percent of total installed capacity for the first time by the end of 2022. However, as of 2023, the country had not yet ...

This report delves into the latest developments and emerging trends shaping the industry, examining their implications for market participants across the value chain. From renewable energy developers and power generators to industrial consumers and energy technology providers, understanding the evolving dynamics of the Chinese power market is ...

China consumed 7,521 TWh of electricity in 2020, a 3.1% increase over 2019, with electricity use growing faster than China"s total primary energy use in 2020 (Figure 1 - 12). Electricity consumption increased 12% per year during 2000-2010, slowing to 6.7% per year on average between 2010 and 2020.

The rise of low-cost wind and solar power, deployment of distributed energy resources (DER) and increasing digitalisation are accelerating change in power systems around the world, including the People"s Republic of China ("China").

Global electricity demand will rebound strongly in 2021 and 2022. After falling by around 1% in 2020, global electricity demand is set to grow by close to 5% in 2021 and by 4% in 2022. The majority of these increases will take place in the Asia Pacific region. More than half of global growth in 2022 will occur in the People"s Republic of China (hereafter, "China"), the world"s largest electricity consumer. India, the third-largest consumer, will account for 9% of global growth.

Renewable electricity generation continues to grow strongly - but cannot keep up with increasing demand. After expanding by 7% in 2020, electricity generation from renewables is forecast to increase by 8% in 2021 and by more than 6% in 2022. Despite these rapid increases, renewables are expected to be able to serve only around half of the projected growth in global demand in 2021 and 2022. Nuclear power generation will grow by around 1% in 2021 and by 2% in 2022.

CO2 emissions from the electricity sector are set to increase in 2021 and 2022. After falling by 1% in 2019 and by 3.5% in 2020, CO2 emissions from the electricity sector are forecast to increase by 3.5% in 2021 and by 2.5% in 2022, which would take them to an all-time high. The decline in the emissions intensity of global electricity generation slows from more than 3% in 2020 to around 1% in 2021 and 2022.

Stronger policy actions are needed to reach climate goals. In the IEA Net-Zero Emissions by 2050 Scenario, nearly three-quarters of emissions reductions between 2020 and 2025 take place in the power sector, where emissions decline by 4.4% per year on average. To achieve this decline, coal-fired electricity generation needs

to fall by more than 6% a year, partially replaced by gas, which grows by around 5% a year.

Wholesale electricity prices have recovered. The IEA Wholesale Electricity Market Price Index, which tracks price movements in major advanced economies, shows that prices were 54% higher in the first half of 2021 compared with the same period in 2020. This is after average prices for the full year 2020 declined by 25% compared with 2019. The reasons for these large swings are strong variations in fossil fuel prices caused by the Covid-19 crisis during 2020 as well as related changes in electricity demand.

Recent extreme weather events have threatened security of supply. The first half of 2021 saw supply shortfalls in multiple regions caused by extreme cold, heat and drought. In order to categorise outages, we have introduced a new Electricity Security Event Scale, which rates the severity of events based on the proportion of affected customers and the duration of the supply disruption. The Texas power crisis in February, during which customers were without power for up to four days, was assigned the highest rating on this scale.

Higher shares of variable renewables are having a measurable impact on the operation and design of electricity systems. Analysis of selected markets shows that the hourly changes in demand that have to be matched by flexible generation and consumption are increasing. Additionally, the gap between the maximum and minimum levels of flexible generation required each day is growing. This is making it increasingly important for electricity systems to become more flexible to complement generation from variable renewables like wind and solar PV.