Solar

Insight Report

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Executive summary

With a global effort to pursue net zero emissions, clean energy capacity is growing as an increasing number of countries begin to adopt renewable energy, with solar PV being a popular technology type of choice. Over 30% of utility scale renewable projects – inclusive of onshore wind, offshore wind, solar CSP and hydroelectricity – that have come into operation between 2013 and 2023 are solar PV projects, accounting for an estimated total capacity of over 154GW of global utility scale PV capacity, according to EICDataStream and EICAssetMap.

Since 2020, oil prices have been volatile and are likely to remain highly uncertain due to factors that may impact global supply and demand. For example, factors impacting supply include EU's sanctions on Russia as a result of the ongoing invasion of Ukraine, and factors impacting demand include the concerns of a global recession and the easing of COVID-19 restrictions and lockdowns in China. This proven market volatility associated with hydrocarbons has made governments begin to seriously look into alternative sources of energy particularly renewables. This can be observed in the solar PV project pipeline. According to EICDataStream, over 500GW of solar PV could come online between 2023 and 2025, globally indicating the ambition from government and the

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private sector to seek energy from alternative sources to fossil fuels.

As well as ambitions in energy security and independence, global sentiment has shifted towards greater carbon neutrality and decarbonisation. Countries across the globe are increasingly committing to net zero targets and many private sector companies aiming for environmental, social, and governance (ESG) targets, which has also contributed to solar PV adoption. The technology itself has proven to be versatile and can be deployed in various environments, be it rooftop, floating or ground-mounted enabling power generation in rural areas too. It's intermittent nature and flexibility when coupled with energy storage can also improve grid capacity, particularly in areas with poor grid infrastructure. It is however, the cost for solar that is a key driver for investment into the sector. According to the International Renewable Energy Agency (IRENA), the levelised cost of electricity (LCOE) of newly operational utility scale solar PV projects has declined by 88% between 2010 and 2021, on a global average from USD$0.417/kWh to USD$0.048/kWh. In that same period, the cost of solar PV modules continuously declined though in 2021, a slight increase was observed with supply chain disruptions leading to higher materials costs. Increased costs in silicon, silver, copper, and aluminium used for equipment like mounting systems or cables was observed and this problem was further exacerbated by other COVID-19 related shipping challenges. Individual market policy decisions had some impact too, for example import duty associated with Chinese solar equipment at the US border. That being said, in the longer term, cost of materials will likely stabilise as well as increasing efficiencies in solar PV technology can be predicted to offset the current temporary cost increase, to enable the costs of solar to decline again.

Asia Pacific (APAC) region and the Americas have good solar potential, and this is reflected in their adoption of the power source; North America and South America each planning 20% and 17% of total planned solar PV capacity in pipeline and the APAC region alone, is responsible for 40% of planned capacity to 2025, according to EICDataStream. Greatest solar potential can be observed in the Middle East and North Africa (MENA) and Sub-Saharan Africa (SSA) regions yet are among regions that have historically slow adoption of solar PV and together are planning just 10% of the planned capacity pipeline for start-up to 2025. Despite this, we are seeing significantly large projects come out of MENA and SSA, often driven by foreign investment. It is worth noting that much of the analysis for planned projects and those under development will have an upper limit of up to 2025 due to the short timescales on the development of solar PV projects as well as the line of sight of projects being announced.

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According to EICDataStream, North America and Europe are leading in the number of projects whereas the APAC region is leading in estimated capacity with just over half of the region's estimated pipeline of capacity attributed to India alone who has over 120GW of solar PV capacity planned or in development. India's solar PV ambitions are evident with the government announcing a 500GW of total non-fossil capacity and net zero emissions by 2070 during COP26 in 2021. Other APAC countries amongst the top ten markets include Australia who is pursuing green hydrogen ambitions and Indonesia who is aiming to develop solar PV to meet increasing electricity demand. The USA is a key market as the country is rapidly increasing its renewable energy capacity. The current Biden administration announced ambitions to meet 40% of total electricity demand with solar power by 2035, and the recent passing of the Inflation Reduction Act in 2022 which aims to support renewable energy adoption via tax credits and other incentives. In Europe, Spain are a leading market and a key market globally who are contributing to the European Commission's increased renewable energy target to 45% by 2030 as outlined in the REPowerEU Plan, whilst the region responds to the energy crisis as a result of Russia's ongoing invasion of Ukraine. Globally, political support is a key driver in solar PV adoption with various strategies and incentives such as auctions, contracts for difference and feed-in tariffs supporting capacity growth. In this report, insights on key regional markets as well as leading operator and contractor trends will be explored, highlighting the significant growth of the sector.

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