Global Opex

Insight Report

February • 2023

Executive summary

EICAssetMap added a completed Americas package to the database in January 2023, completing global coverage excluding Russia, China and North Korea. Now that we have this coverage, a total of more than 40,000 assets across 130 countries, we are able to provide a further in depth look at global trends. Please note that our thresholds for asset capacities can be found here.

Over the last 12 months, we have seen six new Offshore Wind Farms come into production globally adding 3.7GW to globally output. 14.3GW added in the North Sea since January 2018 across 31 new wind farms. Almost 7.5GW brought online in the UK over the last five years, across 11 wind farms with more than 1000 turbines.

128 new onshore wind projects became operational in the last 12 months, adding 22GW of capacity global across more than 4000 turbines. Almost half of these developments (66 projects) came online in Europe adding 5.5GW of capacity across 1500 turbines. Globally, 119GW commissioned across 779 wind farms since January 2018. More than 35000 turbines have been commissioned in this time. 26GW

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commissioned globally in 2020. This was double the amount commissioned in 2019, even with the effects of COVID-19 introduced in December 2019, then taking full global affect in 2020.

The largest capacity addition by asset type in 2022 came from Solar, with 159 projects online in 2022- adding 25.7GW to the grid. The largest European addition came from Spain, with 1.8GW becoming operational across 21 new solar farms. Spain increased developments in 2020 dramatically, 848MW commissioned in 2019 compared to 3.7GW commissioned in 2020.

200MW commissioned across 10 Energy from Waste projects globally. Three of these developments were commissioned in the UK. The Soc Son facility came online in January with a capacity of 75MW in Vietnam. The plant was designed for a daily processing capacity of 4,000 tonnes per day of waste and a generating capacity of 75MW.

A total of 17 new Biomass developments were commissioned globally in 2022, adding 980MW of capacity. More than two thirds of this addition was added in Brazil, a total of 10 new projects producing 616MW. The Omuta Biomass Power Plant was commissioned in January with a capacity of 44MW, and the Obayashi Kamisu Biomass Power Plant was commissioned in February with a capacity of 50MW.

In total, 15 hydroelectric projects came online in 2022, adding 13.8GW to the grid. The largest of these developments was commissioned in Ethiopia in February. The Grand Ethiopian Renaissance Dam (GERD) Hydroelectric Power Plant, consisting of fourteen 400MW units and two 375MW units, has a total capacity of 6,450MW.

A total of 65 power plant projects were commissioned 2022, adding 46.6GW to the global grid. In Thailand, the construction of the Chonburi Combined Cycle Gas Turbine (CCGT) Power Plant was completed in October, commissioning 2.6GW in the Chon Buri Province. The plant originally began initial production in 2021, however last year the final two unit came online bringing the project to full capacity. Indonesia has seen the largest addition in coal power plant capacity in 2022, commissioning 7.7GW across 10 new power plants.

A small hydrogen addition was seen last year in the Americas. The Haru Oni Green Hydrogen Pilot Project in Punta Arenas, Chile, is fuelled by wind energy from Cabo Negro. The polymer electrolyte membrane (PEM) electrolyser will be powered by 3.4MW of wind capacity, generating hydrogen that will be stored in a 50 cubic metre pressure tank. A 13kV, 8.8km transmission line will link the plant to the grid. Hydrogen and carbon dioxide captured from ambient air will be used to produce 3.9 tonnes per day of green methanol.

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43 new Energy Storage projects commissioned globally. More than half of these developments were commissioned in the USA, a total of 22 developments adding 2.3 GW to the grid. The most notable development of these was the Crimson Battery Storage Project in California, with a capacity of 350MW.

In 2022, we saw a further 89 upstream projects being commissioned globally. In the North Sea, 20 developments were commissioned in 2022 across the Norwegian Continental Shelf and the Southern North Sea. The largest of these were on the Norwegian shelf: Johan Sverdrup Development - Phase II and the Njord Future Project.

The Norway-Denmark-Poland Baltic Pipeline was brought online in November. For Poland, the pipeline supplies gas from Norway, thus helping diversify supplies away from dependence on Russia, while mitigating transit risk on deliveries via Belarus or Ukraine. The project was classified as a project of common interest (PCI) by the EU. Poland commissioned four new pipelines in 2022. One of the larger developments commissioned was the Poland-Lithuania Gas Pipeline, completed in May. A 522km natural gas Interconnector between Poland and Lithuania, the interconnector has a starting capacity from Poland to Lithuania of 2.4 billion cubic meters a year and from Lithuania to Poland of 1.0 billion cubic meters a year. The project acts to diversify the two nations dependence away from Russian natural gas.

Five new terminal facilities were brought into production in 2022. In Kenya, the relocation of the Kipevu Oil Terminal was completed in August. This new facility allows for two large vessels carrying 200,000 metric tons of crude oil to berth at the same time and features a dedicated LPG import pipeline. In Malaysia, two facilities became operational in 2022. Firstly, the Kerteh Ethylene Export Facility was completed in April. The Port Klang LPG Terminal and Storage facility came online in May. A major development for the region, LPG will be transported to the facility for sale into the domestic market while also using it to sell volumes into other regional markets including Bangladesh, the Philippines, India, Indonesia, and Vietnam.

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