Mexico city energy storage investment trends

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The Mexican government has pledged to generate 35% of its electricity from clean sources by 2024, with an additional 5% subject to international support. However, including natural gas as a clean energy source has diluted the significance of this development. Despite the lack of political support, supporting market dynamics and favourable geographical conditions have contributed to a 50% increase in the share of renewables in electricity generation in the last five years.

~56% of Mexico’s power generation is gas-based, with renewables and hydroelectric power constituting ~25% share cumulatively. Renewables accounted for 31% of the country"s cumulative installed capacity of 102GW in 2022 (IRENA, 2023). Of the 31.9GW renewable installed capacity, hydropower accounted for the largest share (13.3GW), followed by solar PV (9.3GW) and onshore wind (7.3GW).

Mexico has continued to slip as a destination for renewables investment as policy support waned in the aftermath of the current administration coming to power in 2018. Policy reversals have dampened investor enthusiasm, including a reversion to fossil fuels and a proposal to roll back foreign investment in Mexico’s energy industry.

The prevailing regulatory framework in Mexico has not supported the development of the energy storage market, which continues to be marginal. However, the increased proliferation of renewables, estimated to average around 2.5GW of solar and 1.3GW of wind annually between 2023 and 2030, in the country"s electricity grid has shifted focus back to energy storage (Mexico Business News, 2023). Consequently, individual projects are being developed, but these are not evidence of a broad-based shift in investor interest towards energy storage.

Notable projects include a 190MW storage project co-located with the 1GW Puerto Pe?asco solar PV plant developed by Quartux (Energy Storage News, 2023). Quartux has also made inroads into the commercial & industrial (C& I) segment with major deployments at hotel sites and had indicated a pipeline of 300MWh as of October 2022 (Energy Storage News, 2022). Similarly, On. Energy has indicated an operational pipeline of 65MWh primarily comprising behind-the-meter (BTM) applications for the C& I segment (Mexico Business News, 2023).

The energy storage sector in Mexico continues to be unregulated, with no specific laws defining it or governing its use. Consequently, there is limited visibility on the incentives associated with battery storage projects, which has deterred private investment. It is generally regarded as a limited source of energy generation that must adhere to some requirements to inject power into the grid for a short duration.

The Mexican energy market"s practice of demand average formula instead of dynamic pricing based on

real-time supply and demand, have deterred the development of the storage market (LinkedIn, 2023). Most storage companies base their business models on demand-saving methods that involve storing energy during low demand and discharging during peak demand to deliver savings. Such models’ financial feasibility is adversely impacted when the demand average is factored in.

The nationalisation of the considerable lithium deposits in the country in April 2022 added to the uncertainty within the private sector. The newly created state-run enterprise LitioMx lacks the technical skill or the capital to exploit the clay-based lithium deposits, estimated to amount to 1.7 million tons (Reuters, 2023). In February 2023, a Presidential Decree designating a 900 square-mile lithium mining zone in northern Sonora was notable as a first step towards granting exclusive exploration rights to LitioMx, further deepening the uncertainty among private investors.

Hybrid renewable energy plants, particularly solar-cum-storage installations, constitute another significant growth driver for energy storage in Mexico. State-owned utility CFE is constructing a 190MW battery storage unit co-located with a 1GW solar PV project, which is due for completion in 2028 (Energy Storage News, 2023). Wind energy projects have also started incorporating storage elements, as evidenced by the 50MW Eolica Coromuel wind farm, which has a 10MW BESS onsite, supplied by W?rtsil?, and was operationalised in October 2022 (Bussiness Wire, 2022).

Mexican policymakers are shifting focus to energy storage to stabilise the power grid despite the increased share of renewables in power generation. The PRODESEN 2022-36 Plan outlines an addition of 56GW of generation capacity, of which 4.6GW has been allocated to battery energy storage systems (BESS) (REGlobal, 2022). However, only 72MW of BESS integration is planned for 2022-25, implying continued sluggish growth for the energy storage market unless there is a rollback in policy steps after the elections due in June 2024.

There are expectations that the upcoming elections realign Mexican energy policy and its investment climate. The contenders of the presidential elections pledge focus on renewable energy capacities for decarbonization. Energy transition could be among the major areas that the incoming government could take up (Argus, 2024). The emphasis on renewable energy projects is widely agreed as an indication of prioritization towards climate change and clean energy, contrasting the current regime"s stance (New York Times, 2024).

The lack of a concerted policy push and supportive regulatory environment continues to be an overhang on the growth potential of the energy storage sector in Mexico. A holistic approach requiring the involvement of research institutions, policymakers, and financial institutions will be needed to develop a mechanism to make storage projects financially feasible. Lack of clarity on financial returns remains a crucial challenge to widespread adoption and investment since remuneration mechanisms on possible revenue streams are absent.

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