Solar industry santiago

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Home to some of the world"s highest solar irradiation levels and urgently in need of homegrown energy resources, Chile has established itself as a key PV market in Latin America. Jonathan Touri?o Jacobo looks at that rise and asks what we can expect to see next for the country.

Even though nowadays the solar industry in Chile is the second most important in Latin America, only behind Brazil, the boom for solar PV projects only started less than a decade ago. In 2013 it had merely passed a megawatt of solar PV before reaching its first gigawatt of total installed capacity back in 2016 and as of this year, is at almost 7GW. Last year it managed to install more than 1GW of solar PV in a single year for the first time, according to a report from SolarPower Europe. For 2022, the European trade body expects Chile to install 2.9GW of solar PV, continuing the country"s expansion in renewables.

Chile is home to one of the highest irradiation regions in the world, the desert of Atacama, with "around 60 to 70% of solar PV" capacity so far installed in the regions of Atacama and Antofagasta, says Dar?o Morales, director of studies at Asociaci?n Chilena de Energ?a Renovables y Almacenamiento (ACERA), the country"s renewables and storage trade association.

Aside from a large pipeline of utility-scale plants, Chile has also invested in its distributed generation, also known as "peque?os medios de generaci?n distribuida" (PMGD), which are projects of up to 9MW. "Of the near 7GW of installed capacity, a little bit more than 1.3GW comes from distributed generation," adds Morales. The difference with utility-scale is that the PMGD has expanded in the centre zones of the country, near the capital Santiago, as they are more practical as areas of large consumption of electricity.

It is safe to say that the solar industry in Chile is up and running, but it might need to further accelerate pace if President Gabriel Boric"s government is determined to push forward the closure of all of its coal plants from 2040 to 2030, with a first decommissioning phase in three years" time.

Before winning his presidential bid, Boric"s programme had the goal to achieve the closure of all coal power plants before the end of his term in 2026. Even though it looks improbable that will happen, 2030 might sound a much easier goal to achieve, according to Morales. But it still implies a high demand for renewable energy by that time.

Last year, ACERA made a study in collaboration with consultancy firm SPEC and the universities of Instituto Sistemas Complejos de la Ingenier?a from Santiago de Chile and Universidad T?cnica Federico Santa Mar?a, looking at what was needed in order to have a "successful" closure of the remaining fossil fuel plants.

Given the different dates explored by the government for the closure of coal plants still active, the study looked at three dates: 2025, 2030 and 2040. Morales says there were three conditions to be filled, to make the

phase out a success. The first was to avoid any power cuts due to a lack of electricity, which then required study into the stability of a renewables-powered grid, which "opens a new technological challenge to operate a 100% renewable electrical system", says Morales. While the last condition is to make sure that costs don"t increase and stay reasonable.

To successfully retire the remaining coal plants in Chile, 18GW of additional renewables will need to be installed in the next three years, says Morales. There are around 8GW to 10GW of projects announced so far, which means the other half is in "no one"s mind." Morales adds: "Last year we had four years, but now there"s only three remaining. It looks very complicated. If those conditions are not met, then we"ll have problems with the electricity." For Morales, 2030 sounds already more reasonable and doable since instead of 18GW of new renewable energy needed it will be 22.5GW.

"It remains an important quantity, with an investment north of US$30 billion, which represents almost 10% of Chile"s GDP. It sounds more reasonable." Concrete measures need to be taken if the country wants to achieve that goal, such as with regulation.

"We all want to decarbonise, but we need to do it well and for that we need to define the institutional operation, the market"s needs, the technical conditions and the legal bindings that allows and incentivise such developments," says Jos? Ignacio Escobar, chief executive at Colb?n. As one of the Chilean utilities which has yet to close its remaining coal plants, the company"s roadmap for decarbonisation involves increased investment in renewables, propelling energy storage forwards, developing green hydrogen projects and searching for new growth opportunities in Chile and in other countries, says Escobar.

If in the past Colb?n made agreements with third parties for the purchase of renewable energy, it is now focused on developing its own portfolio of renewables, with the goal to reach more than 4GW by the end of the decade.