Guatemala city energy storage technologies

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Our HQ are located in Edificio OEG in zone 4 in Guatemala City, a creativity and technology regional epicenter. Our infrastructure includes open-office spaces with quiet rooms, meeting rooms, conference and training rooms, lounge areas, a caf?, an R& D lab, a 24/7 NOC and an off-site manufacturing facility.

The current status of pumped storage in the Americas, south of the US border, is examined in this article, along with the development potential in the region. Our correspondent Gordon Feller reports, and summarizes some recommendations from the Inter-American Development Bank to encourage pumped-storage schemes to be considered for the future, particularly in view of the expected growth in all types of renewable energy generation.

Pumped-storage schemes are not listed in public investment portfolios, or in planning portfolios. There are only very specific initiatives, usually promoted by the private sector. In Chile, for example, there is the Espejo de Tarapac? pumped-storage project, which already has environmental permits; and in Peru, a mining company has developed the project profile of a 100 MW pumped-storage scheme with an estimated CAPEX of US $145 million. In the rest of the countries, except for Argentina where a pumped-storage plant has been operating for years, project development is not reported.

Secondly, there is a lack of adequate regulation for energy storage in the region. There are few cases of energy systems with significant differences between peak and non-peak pricing. Also, most regulatory frameworks lack capacity payments that could give economic feasibility to PSH development. In addition, markets for auxiliary or complementary services, which are necessary for this type of project to be competitive, are non-existent.

A recently published report from the Inter-American Development Bank (IADB) entitled "State of Charge: Energy Sotrage in Latin America and the Caribbean" [Graham et al, 20211], outlines some recommendations relating to future pumped-storage development, aimed at the various relevant stakeholders. These can be summarized as follows.

o Improve knowledge about pumped-storage technologies in the countries, across different actors of the sector (utilities, regulator, planners). This would help close the information gap and include pumped storage as an option in the energy planning process.

o In the planning process, consider the expected future energy mix and grid expansion, especially the increase of variable renewable investments, and the inclusion of pumped storage as a potential technology that could be stimulated as complementary investment, in the form of joint facilities.

o Develop a minimum set of regulatory rules and conditions that would allow for the different types of services that pumped storage can provide, and assess for the applicability in the country.

o Conduct official assessments on different available regulatory regimes and revenue models for energy storage and pumped-storage plants: cost-of-service, direct-participation, and behind-the-meter (potentially applicable for some very large electricity consumers).

o Consider if flexibility services could be eventually sold in "competitive" wholesale markets (energy, ancillary services, and so on), if markets rules could eventually allow storage services to compete in a non-discriminatory manner with other services.

o Review the availability and level of development of markets and transparent prices for ancillary services, considering market signals and schemes for storage.

o Review the existence of current incentives and standards which could be specifically modified for pumped storage and other energy storage technologies, considering its impact in generation (renewable generation) and transmission (grid stabilization).