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The development of regional electrical interconnections is one of the answers to the energy crisis

Ahmed Ali Al-Ebrahim, manager of the electricity network of the Gulf countries, proposes, in an article published in "Le Monde", to connect the two shores of the Mediterranean, the north experiencing a peak in consumption in winter and the south in summer.

As climate change and global warming-led extreme events are rocking various parts of the globe, we are now increasingly facing the central challenge of maintaining the stability and reliability of power grids, while making them low carbon.

For power grid operators, whose role is to allow access to greener energy, through reliable and secure supply at reasonable prices, the booming and indispensable production of renewable energy raises issues about storage and power system operations.

A fundamental part of the response lies in the development of regional interconnections. Born out of an interstate agreement in 2001, GCCIA began operations in 2009 by first interconnecting the power grids of Kuwait, Qatar, Bahrain and Saudi Arabia, and then those of the United Arab Emirates and Oman. This backbone connects the grids of these six countries, strengthening energy security.

Towards greener energy sources

In parallel, the Gulf States have jointly committed themselves to this development of greener energies, setting up ambitious targets. Saudi Arabia is aiming for renewable energy sources to equal 50% of its installed capacity by 2030; the United Arab Emirates is set to reach 44% of solar installed capacity by 2050.

This model of regional governance has allowed us to optimize costs in the Gulf Countries, while strengthening the stability and reliability of the network through new solidarity mechanisms. Regional planning allows us to anticipate likely shortages ahead of time, leading to a smoother integration of new renewable

generation capacities. We are now trying to expand this market within and beyond the Gulf Countries, towards Iraq, Egypt, Jordan and eventually reaching Europe.

We need changes in the planning and design of the transmission systems. This means moving away from the current planning processes that target a reliable system at a local level to aiming for a reliable system at the regional level. Many players are still working on a neighbor to neighbor model, while we need electricity highways between nations that allow actors to contribute and utilize power without intervening in the internal structures. And overlooking these interconnection challenges can lead to dire consequences. As was the case in Texas in the winter of 2021.

While GCCIA has played a pioneering role in this area, similar initiatives are currently being set up elsewhere. For instance, following a high-voltage power outage in Germany in November 2006, nine European grid operators joined forces to coordinate networks and ensure a more stable system.

A crucial diversification

Other concrete actions can be taken. For instance, the peak of energy consumption occurs in summer here in the Gulf Countries, while overcapacity of 50-60 % exist during the winter period. This is the exact opposite in Europe, just across the Mediterranean, where peak demand occurs in winter. Interconnection and two-way electricity highways between our regions would consequently work at our mutual benefits.

If political impetus is essential to ensure efficient interconnection management, international cooperation between industry players is an essential pillar. Associations such as GO15, created in 2004 after a series of major blackouts, promote exchanges between the heads of grid operators (GOs) representing more than half of global demand. GO15 offers webinars, working groups, and technical meetings that encourage the emergence of more comprehensive power system management.

The diversification of energy sources is crucial for the future. And networks interconnections will have a central role to play to overcome technical challenges, through the development of a more efficient and balanced global market.