Abu dhabi energy storage economics

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Abu Dhabi has taken a leading role in the energy sector since the country began exporting oil in 1962. Home to approximately 95 percent of the UAE"s total oil reserves and 92 percent of its natural gas, (https://oxfordbusinessgroup /) Abu Dhabi is one of the world"s leading hydrocarbons producers. The emirate’s participation in the oil and gas sector spans the entire range of activities, including exploration, production, transport, refining and marketing.

Though Abu Dhabi maintains an exceptionally competitive advantage in this sector, it has developed innovative, sustainable solutions to facilitate a transition to alternative energy sources.

In the country’s drive to diversify to a knowledge-based economy, the UAE non-oil sector"s contribution to GDP exceeded 72 percent in 2021. Furthermore, the UAE has pledged to reach net-zero carbon emissions by 2050 and announced it would invest AED 600 billion

in clean and renewable energy and key technologies (https://u.ae/en/about-the-uae/strategies-initiatives-and-awards/federal-governments-strategies-and-plans/uae-energy-strategy-2050)

Abu Dhabi has adopted several policies and strategies aimed at addressing the impacts of climate change, energy storage, energy-efficient technologies, improving air quality, water and food security, and conserving the UAE’s natural resources.

For more information, read (About-Abu-Dhabi)

The United Arab Emirates (UAE) is in the midst of an energy transition, moving away from its nearly exclusive use of natural gas-fired power generation to a strategy based on renewable energy resources. The country has an abundance of natural gas, and it also has significant solar power potential. The UAE also is adding nuclear power to its generation mix, supported by the Barakah power station, a POWER Top Plant award winner.

The discussion about renewable energy was a focus of the recent Abu Dhabi Sustainability Week, a gathering that took place Jan. 14-19 in the UAE capital and focused on efforts to combat climate change through sustainability initiatives. The event, hosted by Masdar, an independent power producer in the UAE known for its clean energy projects, was touted as thefirst international meeting of 2023 focused on sustainability. Groups involved in the meeting said it was designed to “drive global discussion and debate around climate action in the run-up to COP28,” the annual UN-backed climate conference that will be held later this year in Dubai in the UAE.

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Two experts involved in the UAE’s energy transition recently provided POWER with insight about what the country wants to achieve, and its energy strategy. Ray O. Johnson is CEO of theTechnology Innovation Institute (TII), the applied research pillar of Abu Dhabi’s Advanced Technology Research Council (ATRC). He is also the CEO of ASPIRE, the business development and program management arm of ATRC.

Johnson has years of experience in engineering, technology, and operations, and also has served as CTO for Lockheed Martin Corp.

Hany Farag is a professor in theDepartment of Electrical Engineering & Computer Science at York University in Toronto, Ontario. Farag’s background includes research for the gridintegration of renewable energy generation, along with energy storage and electric vehicles, renewable hydrogen and natural gas, and smart grids. He has been in Abu Dhabi as part ofASPIRE’s Visiting International Professorship program, or ViPs.

Johnson and Farag said the UAE’s energy transition is driven by policy initiatives coming from government officials in Abu Dhabi. The seven emirates in the UAE are working toward the goals of the country’s Energy Strategy 2050 program, which calls for a 70% reduction in the UAE’s carbon footprint by mid-century, primarily through increased use of renewable energy resources. Officials also want consumers, both individuals and businesses, to become more efficient in their consumption of energy.