Baghdad energy storage policy updates

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Iraq has all the hallmarks of a country facing a climate calamity. Mesopotamia was once known for its lush palm groves and diverse ecosystems, but those have been decimated by decades of war and mismanagement. Climate change now comes with a more intensive impact: water scarcity, undeterred desertification, and frequent droughts that are adding to Iraq"s preexisting vulnerabilities.

Iraq is also experiencing rapid population growth and urbanization, which are accelerating socioeconomic development needs that the fragile oil-rentier model is unlikely to be able to sustain in the age of a global energy transition. These realities are becoming the ingredients of a "perfect storm," according to the World Bank.

The Iraqi government, whose institutional capacity has been markedly inhibited by social and political discord, sees an opportunity in pursuing climate action. Baghdad"s 2021 updated nationally determined contribution submitted to the United Nations Framework Convention on Climate Change is dominated by energy sector targets. Iraq"s goal is to reduce greenhouse gas emissions by 15% by 2030 - equivalent to 90 million metric tons of carbon dioxide per year. The majority, or 13%, is conditional on Iraq receiving $100 billion in financing from investors and multilateral organizations.

Every summer, Iraqi cities top the list of the world"s hottest, with soaring temperatures often exceeding 122 degrees Fahrenheit. Yet despite an estimated $81 billion spent on the power sector since 2003, frequent blackouts occur because of Iraq"s inefficient power system. In the summer of 2023, the gap between peak electricity supply and demand is estimated to have widened to 13 gigawatts. Summer blackouts typically lead to protests and thus remain a source of social discontent.

On paper, Iraq"s nameplate, or installed, power capacity of around 39 GW should adequately cover demand, but as many of the current power plants consist of gas-fired turbines, Iraq has struggled to fully secure the requisite feedstock. Close to 50% of Iraq"s natural gas production, which comes associated with oil output at 3 billion cubic feet per day, is flared at the wellhead, leading to acute gas shortages and emitting some 36 million tons of carbon dioxide per year. As a result, Iraq has become reliant on expensive, and geopolitically problematic, gas imports from neighboring Iran.

Baghdad would like access to green finance to fund renewable energy projects and build needed gas capture and processing capacity to end routine gas flaring and eventually switch power generation from oil liquids to gas. However, without an integrated energy transition strategy that takes into account the urgent need to diversify the economy and political will to implement difficult reforms, Iraq"s ambitions are being handicapped by a track record of poor policy and decision making.

In early October, Iraqi Prime Minister Mohammed al-Sudani announced a goal of meeting one-third of Iraq"s

electricity needs through renewable energy sources by 2030, which, based on recent demand trends, will require the development of around 18 GW of renewable energy capacity.

Iraq has an abundance of untapped solar resources that could theoretically turn such an ambitious capacity into reality. Irradiation levels are above 1,899 kilowatt-hours per square meter in some parts of the country. Additionally, the levelized cost, or cost over a project"s lifetime, of electricity produced by solar energy is attractive compared to oil and gas-fired generation.

Iraq"s solar plans announced in November 2021 call for the addition of 12 GW of solar capacity by 2030. Some 7.5 GW of the planned solar capacity is to come from utility-scale solar plants, and Iraq has reached agreements with developers - at varying stages - for projects that will add 4.5 GW of this. However, of the latter only 2.3 GW has been approved and is ready to move to the construction phase, with the rest falling behind.

The approved projects include: a 1 GW plant in Basra to be developed by TotalEnergies as part of a $27 billion megadeal; a two-stage 750-megawatt plant in Muthanna province to be delivered by Chinese state firm PowerChina; and two projects, at a combined 525-megawatts, to be developed through a consortium led by Iraq"s Al-Bilal Group.

To achieve the full target, Baghdad wants the rest of the 4.5 GW to come from "embedded and distributed" solar. This would require installing rooftop systems on government buildings and encouraging uptake by homeowners. The latter could replace, or at least reduce reliance on, expensive neighborhood generators, which cost Iraqi households more than $4 billion a year, contribute to noise and air pollution, and are a drag on government finances through gasoil provided with subsidized prices.

The World Bank highlighted that, while Iraq is not short on decarbonization solutions in its nationally determined contribution document, its targets however continue to be broad and lack "any analytical assessment of the investment costs and impacts."