

Azerbaijan energy storage for grid stability

Oil and gas exports continue to dominate Azerbaijan's economy and provide the majority of government revenue. Although they are plentiful, the long-term outlook for fossil fuel resources (and therefore for government revenue) is becoming uncertain in light of recent commitments by major importing countries to achieve net-zero greenhouse gas (GHG) emissions by 2050.

This report proposes several ways to increase the efficiency of domestic energy supply and usage to respond to this challenge. In essence, it recommends that Azerbaijan transitions gradually from its current system - which is government-owned and -operated, vertically integrated and subsidised - to competitive markets with significant private sector participation and cost-covering energy prices. Of course, subsidy withdrawal would need to be accompanied by support measures for financially vulnerable citizens. Such a transition would help diversify the economy away from oil and gas exports while attracting new market entrants and new investments, including in renewable energy. These measures would also help reduce GHG emissions.

These recommendations actually support efforts that are already under way. Prompted by the oil price shock of 2014-2015, the government recently drafted several reform proposals, and many new laws are awaiting approval. Laws governing the electricity and gas sectors since the 1990s will be revised, and specific legislation on energy efficiency and renewable energy will be introduced. In addition, the country's first specific energy strategy is nearing completion. The government has furthermore decided to diversify foreign direct investment away from oil and gas and towards infrastructure and industry, and it has already taken steps to improve Azerbaijan's investment climate.

Oil and natural gas bring in around 90% of Azerbaijan's export revenues, and they finance around 60% of the government budget. They also supply 98% of primary energy and more than 90% of the country's electricity. Oil and, more recently, gas have been largely responsible for the remarkable rise in living standards in Azerbaijan since the late 1990s.

Although oil and gas will remain major sources of wealth for Azerbaijan in the short and medium terms, two factors in particular indicate a less important role for them in the long term. The first is that oil production, which dates to the mid-19th century, has been in decline since 2010. Although natural gas production, which became significant in the 2000s, continues to increase, total export revenues are falling due to lower oil production. The oil price shocks of 2014-2015 and 2020 highlighted the risks of short-term fuel price fluctuations and strengthen the case for further long-term efforts to diversify the economy.

Second, the emerging global push for clean energy will inevitably affect oil and gas demand. Several of the world's largest energy importers (the European Union, Japan and South Korea) have recently pledged to reduce GHG emissions to net-zero by 2050, and China is aiming for the same by 2060. These targets therefore

imply little demand for oil or gas without carbon capture, utilisation and storage (CCUS) three decades from now. Technology breakthroughs and policy changes may further accelerate this transition, and competition for export opportunities among producing countries may well intensify, increasing the risk of many oil and gas assets becoming stranded.

Managing the costs of new developments is crucial to Azerbaijan's future success as an internationally competitive producer, and reducing the carbon footprint of production is also likely to be necessary. The State Oil Company of the Azerbaijan Republic (SOCAR), the country's national oil company, is targeting to eliminate gas flaring completely in 2021 and is also successfully working to reduce methane emissions. The potential of using CCUS to enhance oil recovery and produce hydrogen from natural gas should also be studied. The IEA encourages the government to continue working closely with the leading oil and gas sector companies operating in the country to reduce sectoral emissions.

The government has recognised the need to reduce economic dependence on oil and gas exports. Efforts to modernise and increase oil refining and petrochemical production have been successful and continue to produce improvements. SOFAZ, the State Oil Fund of the Republic of Azerbaijan, could stimulate further diversification.

It is critical to increase efficiency, attract new entrants and investments, and diversify the energy supply in Azerbaijan's current energy system in which gas, electricity and heat are supplied by financially burdened monopolies at strongly subsidised prices. Policy responses should therefore include energy tariff reform, electricity and gas market reform, greater renewable energy use and higher energy efficiency.

The level of energy prices is central to attract investment and encourage citizens to use energy efficiently. As part of the country's social policy, the government sets domestic end-user prices for electricity, natural gas and oil very low, often below the full cost of supply. The IEA estimates that in 2019, Azerbaijan's implied subsidies for oil, natural gas and decline.

The tariff system includes cross-subsidies between consumer groups and energy carriers as well as direct subsidies from the state budget. The low price of natural gas in particular creates distortions. For example, it discourages the use of renewable energy for electricity production and, as it favours individual gas boilers for space heating, it inhibits the use of potentially more efficient system solutions such as district heating and cooling, electricity and heat pumps. Low oil prices meanwhile encourage the use of large, inefficient cars that are often acquired second-hand, and the effects of this may intensify as car ownership becomes more common.

Subsidised tariffs do not encourage residential and industrial consumers to use energy more efficiently, even though it would make economic sense for the country as a whole. Tariff reform should therefore be central to Azerbaijan's energy sector reform efforts. The oil and gas saved through improved efficiency or through substitution by renewable energy could be exported at much higher prices or turned into higher-value-added petrochemicals. Furthermore, the GHG emissions avoided would help the country meet its Paris Agreement



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climate target (see below).

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