



مركز البيان للدراسات والتخطيط
Al-Bayan Center for Planning and Studies

Iraq's Energy Sector: A Roadmap to a Brighter Future

Executive Summary



Al-Bayan Center Studies Series

Iraq's Energy Sector: A Roadmap to a Brighter Future

Findings and recommendations

A changing context for Iraq's energy outlook

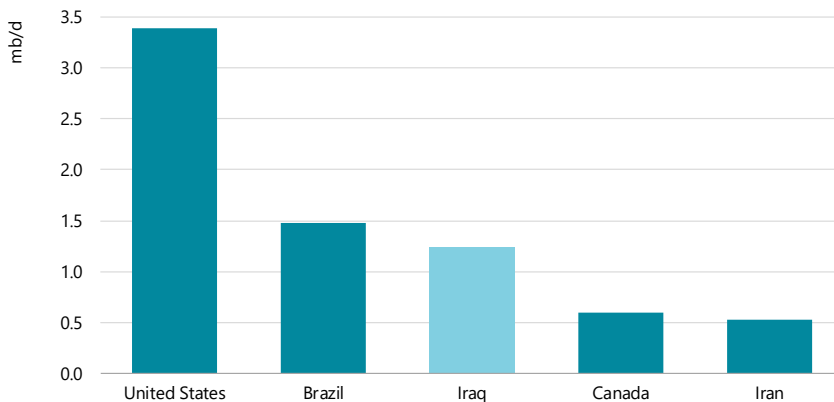
- A changing global energy system is posing critical questions for Iraq. The shale revolution in the United States, technological change, the drive for greater energy efficiency and the long-term response to environmental challenges all imply sustained pressure on development models that rely heavily on hydrocarbon revenues.
- Iraq also faces a profound need to develop its domestic energy infrastructure, in particular in the electricity sector. The task of doing so has been complicated greatly by the war against ISIL and by the rollercoaster ride in oil prices since the last Iraq Energy Outlook was published in 2012, and the squeeze that these factors have exerted on state capital expenditure.
- The risks of high dependence on volatile hydrocarbon revenue have prompted the authorities to renew a commitment to reform and diversify the Iraqi economy. There are some signs of progress but this remains a huge long-term challenge. How Iraq meets the expectations of a youthful and growing population, in a changing policy and market environment, is a critical question both for Iraq and for global energy markets and security.
- The reform agenda for producer economies is much broader than energy, but relies on a well-functioning energy sector. For Iraq, maintaining upstream investment and the advantages of a large, low-cost resource base are vital, but so are pricing, efficiency and a host of changes in the electricity sector.

Oil and gas

- Iraq's oil sector has navigated well a very turbulent period in the last decade, managing to nearly double its output despite the war against ISIL and large swings in the oil price. As a result, Iraq has accounted for around one-fifth of the net increase in global supply over this period, and is now the fifth largest producer in the world.

- In our projections, Iraq's production increases by around 1.2 million barrels per day (mb/d) over the next 10 years. This is a smaller increase than that seen over the last decade, but still cannot be taken for granted. The next phase of Iraq's oil development will depend not only on international market conditions, but also upon three factors that are within the grasp of the Iraqi authorities: ensuring sufficient water for injection; attracting foreign capital; and a conducive political and security environment. In reaching almost 7 mb/d of production in 2030, Iraq would overtake Canada and become the world's fourth-largest producer.
- Progress on provision of adequate water for oil recovery is essential. Without it, production rates could struggle to climb much beyond their current levels. To reach the projected production levels, Iraq would need an additional 1 mb/d of water for injection into reservoirs.

Top five countries by increased oil production, 2018 to 2030



Iraq makes the third-largest contribution to the increase in global oil supply in the period to 2030.

- Iraq's refining sector is not well matched to the country's needs. Only 60% of the nominal 1 mb/d of refining capacity was utilised in 2018, and the product slate is weighted heavily towards heavy fuel oil. This means high dependence on imports for many of Iraq's oil product needs, at a current annual cost of some USD 2–2.5 billion. The full rehabilitation of the Baiji refinery would help remedy the most immediate pressures. However, without an increase in upgrading or hydrotreating facilities, the surfeit of heavy fuel oil may be increasingly problematic for Iraq, especially given the likely plunge in global

demand for this product as a result of new quality specifications for international marine bunker fuels.

- Iraq is not short of natural gas, but it continues to use gas far less – and far less productively – than most of the countries in the region. Rising oil production has meant an increase in gas flaring to some 16 billion cubic metres (bcm) per year. The Basrah Gas Company has made recent progress and is now capturing and processing around 10 bcm of gas per year. But these efforts will need to be accelerated, particularly when considering the growing need for gas in power generation and the costly reliance on pipeline imports.
- In our outlook, Iraq’s marketed gas production increases to around 50 bcm over the next decade. Given that Iraq’s associated gas is ethane-rich, progress in the upstream could support a significant expansion in petrochemicals output as well. How Iraq produces and uses its gas is a bellwether for the overall process of reform and modernisation.

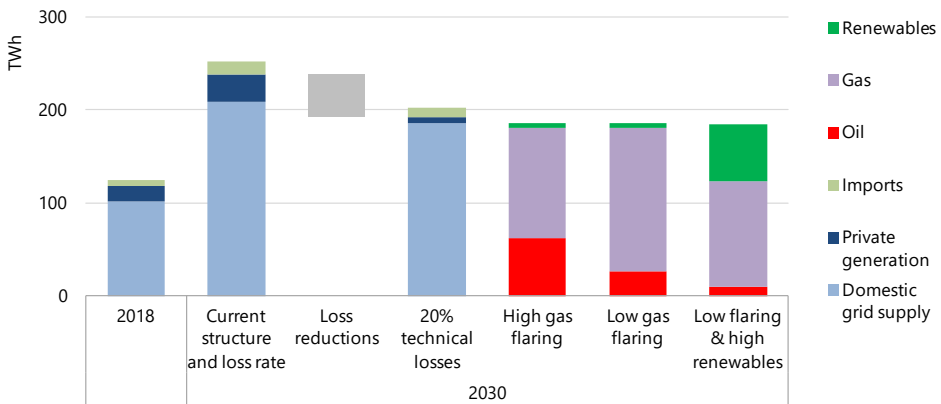
Electricity

- Constrained budgets and damage wrought by war mean that Iraq is not producing enough electricity to satisfy demand. Rising demand is widening this gap, with Iraq’s population growing at a rate of over 1 million per year. Where incomes allow, local neighbourhood generators are used by many households to remedy this issue, but this is a costly stop-gap measure. Over the period to 2030, electricity demand is set to double, reaching about 150 terawatt hours (TWh) (17.5 gigawatts [GW] average throughout the year).
- The International Energy Agency has carried out an in-depth analysis to identify short-term and medium-term measures that can alleviate the most immediate pressures in the electricity sector.
- The most severe and immediate shortfalls in supply can be mitigated by: the rapid initiation of network maintenance, targeting a small number of high-impact upgrades; the rapid deployment of new mobile power units; the upgrading of some existing power plants; and the enforcement of tariff regulations for all neighbourhood generators.
- Over the longer term, without changes to the current structure of electricity supply and improvements to the network, then domestic generation, imports and neighbourhood generation would need to double by 2030, for a total supply of over 250 TWh. However, there are many opportunities to improve

on this outcome.

- There is huge potential to cut network losses, which are among the highest in the world: reducing these losses by half would help to improve dramatically the efficiency of grid supply, effectively increasing available capacity by one-third.
- On the supply side, more gas needs to be captured and put to use in efficient power plants. And, last but not least, Iraq needs to take advantage of its abundant renewables potential and increase the share of solar photovoltaics (PV) – in particular – in the power mix. Bringing the share of renewables up to 30% of electricity supply by 2030 would bring environmental gains without increasing total costs for electricity supply. Compared with continuing the current structure of electricity supply, reducing network losses and relying more heavily on gas and renewables would free up 9 bcm of gas for other uses in 2030, plus 450 thousand barrels per day (kb/d) of oil for export.

Potential pathways for electricity supply in Iraq to 2030



Targeted efforts are necessary to achieve affordable, reliable and sustainable electricity supply

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