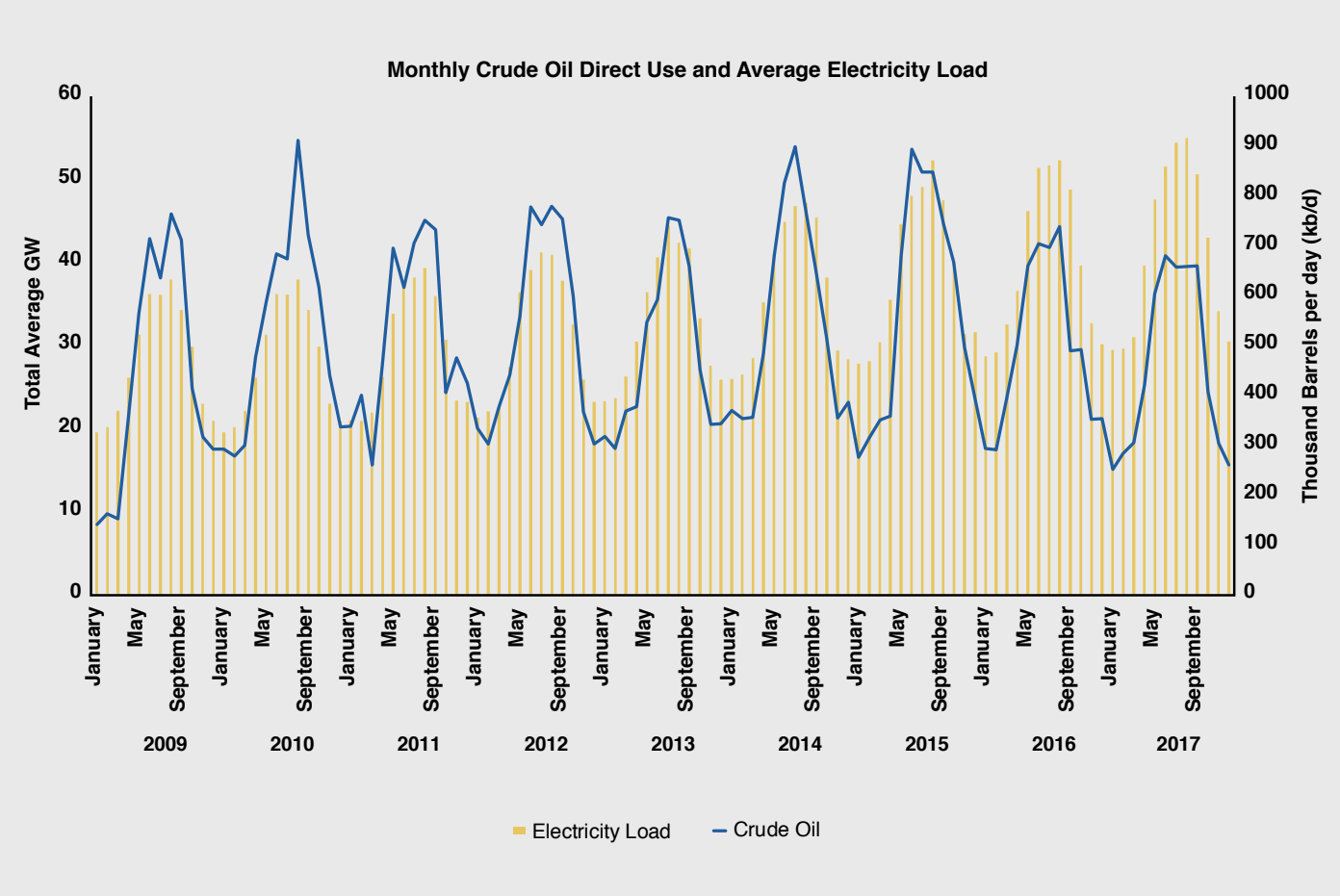
KAPSARC
مركز الملك عبدالله للدراسات والبحوث البترولية
King Abdullah Petroleum Studies and Research Center

Data Insight

24/09/2019

Crude Oil Use in the Saudi Electricity Sector



Source: KAPSARC Energy Data Portal.

The Kingdom of Saudi Arabia has taken several measures to promote sustainability in its electricity sector. In 2016 and 2018, the government of Saudi Arabia introduced a range of reforms as part of Saudi Vision 2030 to modernize the economy and make it less reliant on oil revenues. They included raising domestic energy prices, prioritizing energy efficiency, and diversifying the country's fuel mix.

Key insights:

- Saudi Arabia's buildings sector accounts for the largest share (76%) of the country's total electricity demand, with the industrial sector accounting for around 19%. Other sectors account for the remaining 5%.
- Residential users account for around 50% of total electricity demand from buildings, followed by commercial users (16%) and governmental offices (11%). Air conditioning accounts for around 60-70% of total household electricity consumption.
- Electricity demand from buildings grew by 6.7% per year on average between 2010 and 2017. This growth was largely driven by rising average temperatures, low energy prices, rapid population growth, rising incomes, and more residential and commercial units to be cooled during the summer.
- Crude oil has historically been used by the power sector to meet rising peak demand. However, this strategy cannibalized lucrative export volumes. In the last three years, crude burn volumes have fallen, partly due to the increasing use of natural gas in the power sector.
- The crude burn associated with peak summer electricity demand fell from a peak of 894,000 barrels of oil per day in July 2015 to 580,000 barrels of oil per day in July of 2018.
- Improvements in the energy efficiency of air conditioners, home insulation and air leakage in buildings could further reduce crude burn in the power sector.
- Moving forward, solar photovoltaic (PV) generation, solar thermal integrated air conditioning and cold storage technologies could help further diversify the country's fuel mix, shave peak electricity load, reduce crude burn and lower the Kingdom's carbon dioxide emissions.

This KAPSARC Data Insight uses historical monthly load data and monthly crude oil use for Saudi Arabia's electricity sector. The data are gathered from multiple sources, including the Saudi Electricity Company (SEC) and the Joint Organisations Data Initiative (JODI).

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