



# Why renewable energy could be a chance for the GCC economies

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The GCC economies have come a long way since the onset of the age of oil. When the first oil well was struck in Jebel Dukhan in Bahrain in 1931, few would have forecast that the fortunes of the sheikhdoms along the Gulf would be so fundamentally shaped by a single energy commodity as has turned out to be the case. Today's wealth, visible in the global capital cities Riyadh, Abu Dhabi, and Kuwait City, is as much the result of the region's unique gift of natural resources as it is of historical leadership in the use of these resources in promoting the region's unparalleled economic development. Safeguarding this wealth will also, in the future, require answers to strategic questions; these include how to prioritize between the domestic value of regional oil and gas resources and their marginal export value, in view of the GCC economies' own rapidly rising domestic energy needs. Renewable energy sources could form an important part of the answer to such questions, provided they are used in a clever way.

## Oil is where you find it

Oil has, without a doubt, played a defining role in the socio-economic history of the Gulf region, predating the formation of the modern-day member states of the Gulf Cooperation Council by several decades. Home to some of the world's most important conventional oil and natural gas reserves, the GCC economies have had sensible reasons to maximize the use of their valuable natural resources for the purpose of economic development. The region's overall low production costs for oil and, initially, for natural gas have fuelled their use as a low-cost fuel for domestic power generation and water desalination, and for the rapid extension of access to transportation in the GCC states' highly urbanized centres. Oil and subsequently natural gas have also, under multiple GCC government strategies, been feeding into domestic energy-intensive industrial clusters, to diversify the area's domestic economies away from primary commodity exports

towards higher-value chain products, such as petrochemicals.

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Natural gas first entered GCC energy markets slowly during the 1970s, then rapidly during the 1980s and 1990s. Initially disregarded and flared as an unwanted by-product in oil production, natural gas has become a key substitute for oil in domestic power generation and petrochemicals production, freeing the higher-value oil for export. Qatar, Abu Dhabi, and Oman have also been exporting gas as an export commodity in its own right; this policy has turned Qatar, with some of the world's largest gas reserves, into the world's largest producer of liquefied natural gas (LNG). Exports of natural gas have also helped

save Qatar from the drastic decline in state revenues which was linked to the island state's comparably limited oil reserves; this decline had set Qatar, Oman, and Bahrain apart from the more oil-rich parts of the GCC which expect to produce for many more decades to come.

### Shifting global energy demand

The GCC states' impressive economic development trajectory – which in a mere 60 years has lifted them out the world's economic backwaters to the status of global urban and industrial centres – has also left its mark on the region's energy footprint. Decades of fast population growth, rapidly improving living standards, and a focus on energy-intensive industrialization have hiked energy consumption across the GCC to levels otherwise seen only in highly industrialized economies. Qatar, the UAE, and Kuwait are now amongst the world's largest per capita consumers of primary energy and electricity, at rates which are multiples of those seen elsewhere amongst their regional neighbours in the Middle East and North Africa.

With 2.94 mb/d of oil consumption Saudi Arabia is also, in absolute terms, amongst the world's six largest consumers of oil; this is matched by the Kingdom's equally rampant natural gas consumption of some 100 Bcm/year. Alongside Iran, Saudi Arabia and the GCC economies are expected to account for a majority of the Middle East's energy demand growth which is seen in projections by the IEA and others. Under IEA forecasts the Middle East will, alongside Asia-Pacific, account for the majority of demand growth in primary energy well into the 2030s, a prospect that could – and should – do more than raise eyebrows, in expectation of the region's fundamentally changing role on international energy markets.

### On blessings and a curse...

The prospect of continually surging domestic energy consumption in the GCC states holds tremendous strategic significance; if anything, it can be considered one of the big game changers for energy planning in the GCC for many years to come. It is joined by one other likely game changer: the onset of relatively high oil prices on international markets since the early 2000s, which has considerably added to the value of oil on international, as opposed to domestic, markets. The GCC states' most formidable energy policy dilemma, which is likely to unfold over the coming years, lies in the implications of rising domestic energy demand for the allocation of its valuable oil and gas resources. Oil and, in some cases, natural gas have traditionally fulfilled the dual functions of capturing export revenues on international markets, while providing a low-cost fuel for domestic industrial development and energy supply. The GCC states' oil and gas resources capture value abroad, while they are supposed to create value domestically.

The equation is illustrated by a comparison of prices, where the domestic price of oil in most GCC states is usually tied to a measure of production cost – historically around several dollars per barrel – compared with an international price of, on average, between \$100–110 per barrel in 2013. A significantly narrower price gap for natural gas explains the preference for gas over oil for domestic use in the GCC, given that the economic opportunity cost is vastly lower than that for oil. Growing domestic energy consumption in the GCC, fuelled continuously by domestic oil and gas reserves, is hence associated with a rising economic cost, in the form of foregone government export revenues.

The potential socio-economic consequences of 'doing nothing' are, on all measures, an expensive option which few of the Gulf states are likely to want to experiment with. Export revenues for regional oil and gas resources account for between 60 and 95 per cent of government revenues in the GCC – an exceptionally high share which has not only enabled GCC governments to provide their citizens with high-standard social welfare states which include free health and education, but also to do away with general income taxation altogether. This use of oil and gas revenues for socio-economic development accounts for the GCC states' high living standards – unparalleled not only in the Middle East, but also in the wider range of emerging economies – which defy preconceived links between the GCC and the widely popular, yet largely inapplicable, 'resource curse' in oil producing countries. The relative political stability of most of the GCC states, since the onset of political turmoil across the Arab world since the early 2010s as part of the 'Arab Spring', has frequently been linked to the GCC states' ability to provide uninterrupted generous welfare to their citizens.

Concerns over growing domestic oil consumption have been voiced most forcefully in Saudi Arabia where, back in 2010, Saudi Aramco CEO Khaled Al-Falih lamented the Kingdom's current use of its oil resources, pointing out that as much as 3 mb/d of crude oil could be lost by 2028 if consumption patterns were not addressed inside the Kingdom. The comments were later followed up by widely quoted Chatham House and Citibank reports, which offered highly alarming forecasts of the status of Saudi Arabia's oil export capacity by the 2030s if domestic demand continued to grow unabatedly and supply continued to be met solely by the country's oil resources. While such business-as-usual projections are



highly unlikely to capture a realistic long-term demand-and-supply picture in the region, they underline the intrinsic importance of policy shift and the consideration of different supply- and demand-side options, in order to respond to what can safely be assumed to be another few decades of increasing demand for energy in the Gulf.

**New places, old ideas or old places, new ideas?**

It is against this background that an increasing number of the Gulf monarchies have been turning their eye towards energy alternatives, including nuclear and renewable power. Protecting their income stream, while offering their growing domestic energy markets feasible long-term supply alternatives to conventional fossil fuels, makes a great deal of both economic and political sense. In addition, renewables offer many additional benefits, such as the potential to create new high-quality jobs and to reduce the region's surging carbon footprint. Making use of these benefits, while ensuring the incentives encouraging renewable energy deployment are right, will nevertheless prove to be an enormous economic challenge.

The region's vastly distorted domestic energy prices are one key challenge. Indeed the practice of supplying domestically produced fossil fuels at around production cost in most GCC states discriminates on a market basis against alternative technologies; this applies to renewables as much as to nuclear or other alternative options. The current practice of either subsidizing natural gas imports – as in the case of Kuwait – or electricity tariffs generally across the region does little to help uncover the economic benefit that potential energy alternatives such as renewables hold for the region. A 2012 ESIA report highlights this distortion; while at current domestic market prices

solar technologies prove uneconomic everywhere in the GCC, a reconsideration of the benchmark price for fossil fuels against which the cost of alternative energy technologies is compared raises the viability of alternatives significantly. The study concludes that solar PV technology would be fiscally viable at an oil price of \$80/bl and a domestic gas price of \$13/MMBtu (\$5/MMBtu at open cycle plants for some locations), a price range that is likely to further sink in the coming years as technology costs for photovoltaic power are likely to continue to decrease.

Integrating renewables will thus require a reconsideration of the pricing mechanisms of conventional and alternative fuels for domestic GCC markets. A domestic market pricing reform, discussed separately in this issue, would constitute an economically efficient solution, ensuring that economic deadweight loss, such as through wasteful consumption, is reduced in line with the introduction of new energy technologies. Another alternative would be the introduction of fiscal incentive schemes (the practice in many European and North American markets) which would aim to 'correct' the price disadvantage suffered by new energy technologies as a result of current market pricing. While such a scheme would probably be more palatable politically than a radical domestic energy price reform, support mechanisms for renewables also bear some economic risk, by merely reallocating economic resources in the form of explicit government subsidies through mechanisms such as feed-in tariffs.

A similar 'trap' could lie in using renewables as a way of generating employment opportunities – the 'green' economy dilemma. While renewable energy offers the GCC a sensible industry cluster in which to invest resources in order to increase local know-how and add to research and

development activities, the number of jobs created inside a potential GCC-based renewables industry is unlikely to be at the level that policymakers may wish for. It is also unlikely that the GCC will be able to compete in terms of cost with China in industry segments such as production and manufacturing. Promoting renewable industries in the Gulf in a different way could eventually lead to the mere replication of economic waste which has afflicted other energy sources.

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Renewables, under such policies, will feature in a similar way to domestically produced fossil fuels: they will capture state revenue, which could have been used differently, thereby tying fiscal benefits to energy consumption. This way of using renewables is unlikely to address an essential part of the 'problem': rising and often wasteful energy consumption based on financial signals which reduce the value of energy in the GCC states' domestic economies. Addressing this challenge structurally, by managing demand in addition to supply, will prove critical to a truly sustainable long-term growth path, for the Gulf economies are in desperate need to do more, using less, not the other way around. If the pursuit of renewable energy could be used by the GCC states to reconsider the way they value different energy resources in their domestic economies, the contribution of renewables to GCC economic development could be great indeed.

*Laura El-Katiri recently published a study titled 'A Roadmap for Renewable Energy in the Middle East and North Africa' for the Oxford Institute for Energy Studies, available on the OIES website.*

