

# The Gulf Cooperation Council's Shift to Gas. Avoiding Another Fossil Fuel Trap

by Nicolò Sartori

## ABSTRACT

The collapse of the price of crude in 2014 and the energy industry's inability to react to the changing market fundamentals forced GCC countries to rethink their overall economic and energy strategies and to urgently adopt effective policies to reduce reliance on increasingly unpredictable oil revenues. These include measures to enable economic and industrial diversification, the revision of public spending, and the reform of welfare schemes, particularly energy subsidies. The shift from oil to gas, and the expansion of the role of the latter in industrial and energy portfolios, is part of this diversification attempt and is necessary for GCC countries to be able to address the challenges of an energy market in rapid transformation. However, in order to avoid a new fossil exports/revenues trap and to engender a sustainable energy transition in the region, the shift to gas should be accompanied by a number of key measures, that include the reform of the natural gas price and in particular support greater and faster penetration of renewable energies.

*GCC | Energy | Oil | Natural gas | Renewables*

**keywords**

## The Gulf Cooperation Council's Shift to Gas. Avoiding Another Fossil Fuel Trap

by Nicolò Sartori\*

### Introduction

The collapse of the oil price in 2014 and the energy industry's inability to react to the changing market fundamentals<sup>1</sup> represent unprecedented challenges to the business model of oil exporting countries, as well as a powerful threat to their political, economic and social stability. This is true also among the Gulf Cooperation Council (GCC) members, namely Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates (UAE). Despite huge financial savings accumulated in years of oil bonanza, all six GCC member governments have started rethinking their overall economic and energy strategies to cope with the huge public deficits experienced in the aftermath of the price collapse. New policies to reduce reliance on increasingly unpredictable oil revenues – including economic and industrial diversification, the reform of welfare schemes and in particular of energy subsidies, and the promotion of renewables and efficiency measures – are the elements proposed (though not yet fully adopted) by the GCC governments to ensure the stability of their countries and a sustainable transition towards a carbon-free world.

The expansion of the role of natural gas in industrial and energy portfolios is part of this "diversification" attempt. Natural gas is broadly recognized as the transition fuel necessary to accompany and support – in the decades to come – the transformation and decarbonisation of the energy sector (and, more generally, of the economy) at the global level, GCC countries included. Gas is already an important component of the region's energy mix, contributing to 60 per cent of

<sup>1</sup> I.e. perception of scarcity, elasticity of supply, emergence of new producers. For a detailed analysis, see: James D. Hamilton, "Understanding Crude Oil Prices", in *The Energy Journal*, Vol. 30, No. 2 (2009), p. 179-206.

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the regional electricity capacity,<sup>2</sup> but – with the exception of Qatar – it has so far been marginalized in comparison to oil, the exploitation and export of which has been traditionally more profitable and attractive for the ruling elites in the region.

The exploitation of indigenous gas resources can positively contribute to the GCC attempts to maximize – while diversifying – the value of their exports and thus their revenue flows, by at the same time reducing the domestic carbon footprint caused by the significant use of oil in their economies. Governments in the region are progressively moving in this direction: the decision of Qatar – the global leader in liquefied natural gas (LNG) exports – to leave the Organization of Petroleum Exporting Countries (OPEC) and (further) focus its strategy on gas production and export is the most eye-catching development in this sense. Although this trend is certainly positive for these countries' internal socio-economic transitions and for their decarbonisation trajectories, it will not be sufficient if not accompanied by further diversification and efficiency efforts. Against this backdrop, natural gas cannot (and should not) simply replace oil in granting financial rents and cheap energy; rather, it should become the driver that enhances the radical economic and energy transformation that the GCC countries have to bring about.

## 1. The oil sector in transition: Implications for GCC countries

The global oil sector is undergoing an unprecedented transformation, triggered by the US shale revolution and global decarbonisation policies, and exemplified by the oil price collapse in 2014 and the incapacity of OPEC to respond to the enduring market volatility. The shift from a condition of perceived scarcity to a situation of oil abundance, amplified by the US shale revolution and its impact on market fundamentals, has changed the strategic paradigm in oil exporting countries. In particular, the concept of scarcity premiums – which for a long time suggested policies of rationing oil supplies in an inter-temporal framework through the idea that oil kept underground today will command a higher price in the future – is now being questioned by producers. The behaviour of market players is changing, reflecting this shift, whereby the implementation of reforms and diversification among oil exporting countries have become a more urgent matter.

In the current situation of wide price fluctuation, a number of oil exporting countries do not seem able to generate stable and adequate sources of income to sustain extensive welfare systems and growing population trends. With a total production of 22 million barrels per day (Mb/d), accounting in aggregate for almost one quarter of global oil production, GCC oil-rent economies find themselves in the middle of this thunderstorm.<sup>3</sup> Between 2005 and 2014, in a condition of

<sup>2</sup> David Wogan, Shreekar Pradhan and Shahad Albardi, *GCC Energy System Overview – 2017*, Riyadh, KAPSARC, October 2017, <https://www.kapsarc.org/?p=6981>.

<sup>3</sup> BP, *BP Statistical Review of World Energy 2018*, June 2018, <https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/statistical-review/bp-stats-review->

high prices, oil revenues accounted for around 30 per cent of the GDP of these economies,<sup>4</sup> but in the post-2014 volatile scenario, such extreme dependence on oil revenues has become detrimental both externally and domestically, generating three types of challenge for national authorities in the short-, mid- and long-term:

- In the short-term, low and increasingly volatile prices are jeopardizing the overall sustainability of the economic/social models established by the GCC countries in recent decades. Due to declining oil rents, fiscal budgets are under stress, which has prompted ruling elites to review redistribution and welfare policies that have helped them to remain stably in power since the 1970s.
- In the mid-term, structural trends such as expanding population, economic growth and electrification/desalination needs will increase domestic energy demand. The recourse to oil to meet it might negatively impact on the capacity of GCC countries to export to international markets, thereby limiting the financial maximization of the production of highly valuable oil resources.
- In the long-term, the implementation of global decarbonisation policies to tackle the effects of climate change will put the future of the global demand for fossil fuels, in particular coal and oil, into question. A sensible reduction in oil rents will radically transform the revenue structure of the GCC countries, forcing onto national authorities a dramatic transformation of their countries' economic (and social) models.

The financial and economic impact of the 2014 oil price collapse, considering that oil budget revenues are estimated to have decreased by 400 billion euro in three years, has been outstanding across the GCC. The club's six members, which had recorded impressive fiscal surpluses averaging 12.4 per cent of GDP for about ten consecutive years, in 2015 and 2016 ran aggregate deficits of 9.2 per cent and 11.9 per cent respectively.<sup>5</sup> The figures improved only slightly in 2017 (-6.6 per cent of GDP).<sup>6</sup> The trend has not been uniform across the GCC: in Kuwait the budget declined by about 30 per cent of GDP, and by 15 per cent in Saudi Arabia, while the situation in the UAE was less dramatic, with fiscal deficits of only 2.1 per cent.<sup>7</sup>

The huge shortfalls in government revenues and the fiscal imbalances have significant consequences for the economic performances of the GCC countries. A slowdown in growth rates, rise in unemployment, weaker balance of payments and falling per-capita income and consumption have all followed the rapid collapse of oil prices in the region. After a decade of sustained economic performance, in 2015 the GCC countries recorded a 3 per cent real GDP growth, which fell to 2.2 per cent

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<sup>4</sup> Data includes Algeria, Iraq and Yemen.

<sup>5</sup> International Monetary Fund (IMF), "The Economic Outlook and Policy Challenges in the GCC Countries", in *IMF Policy Papers*, 14 December 2017, <https://www.imf.org/en/Publications/Policy-Papers/Issues/2017/12/14/pp121417gcc-economic-outlook-and-policy-challenges>.

<sup>6</sup> "GCC States Unveil Expansionary Budgets for 2018", in *Oman Observer*, 6 February 2018, <http://www.omanobserver.om/?p=435617>.

<sup>7</sup> Nicolò Sartori, "Oil Price Volatility and the Implications for European Foreign and Security Policy", in *IAI Working Papers*, No. 16|15 (June 2016), <https://www.iai.it/en/node/6496>.

in 2016 and to 0.5 per cent in 2017, significantly slower than the 4.2 per cent scored in 2014.<sup>8</sup>

According to estimates and forecasts, recovery of oil prices is nowadays the only factor capable of restarting sustained economic growth in the bloc, a condition that confirms the economic trap in which these countries are held. Indeed, in 2018, growing oil output – expected to increase by 1.9 per cent during the year – will be key to boosting GDP growth (2.2 per cent), while non-oil performance is projected to fall by 2.4 per cent (after having experienced a few years of moderate growth due to the difficulties of the oil industry).<sup>9</sup>

Shrinking oil revenues are linked to another important challenge for the economic trajectory of the GCC countries, or at least, for part of the group: the intensive and inefficient usage of crude oil and oil products at the domestic level, which limits these countries' capacity to maximize exports and thus the financial flows generated by oil resources. Domestic demand has boomed in the region. In fact, in the period between 2000 and 2014 the GCC group recorded the highest energy consumption growth at the global level immediately after China. Overall, Saudi Arabia and Kuwait consume locally around one third of their total oil production, in Oman domestic demand absorbs almost the entire national output, while Bahrain depends on Saudi imports to meet the demand. Qatar represents a relevant exception, as the majority of its (small) oil output is sold on the international markets.<sup>10</sup> Driven by growing population, electrification trends and economic growth (once resumed), energy demand is expected to further expand in the years to come.

The power generation and transport sectors represent the bulk of oil demand. In this respect, the contribution of the transport sector, due also to gasoline prices heavily subsidized by the governments, can be considered as a normal pattern.<sup>11</sup> More exceptional is the oil-intensity level of the power generation (and desalination<sup>12</sup>) sector. Oil and oil products contribute to around 40 per cent of total regional electricity generation in the GCC, concentrated in particular in Saudi Arabia and Kuwait, with a minor contribution from the UAE. Saudi Arabia, which accounts for over half of the total electricity generated by the GCC group, relies on oil, diesel and heavy fuel oil for around 75 per cent of its power capacity, while in Kuwait power generated through crude oil and products reaches 65 per cent of the total.<sup>13</sup> In order to meet future domestic demand in a more efficient and sustainable way, the recourse to crude oil and oil products – in particular for power generation

<sup>8</sup> IMF, *The Economic Outlook and Policy Challenges in the GCC Countries*, cit.

<sup>9</sup> Ibid.

<sup>10</sup> David Wogan, Shreekar Pradhan and Shahad Albardi, *GCC Energy System Overview – 2017*, cit.

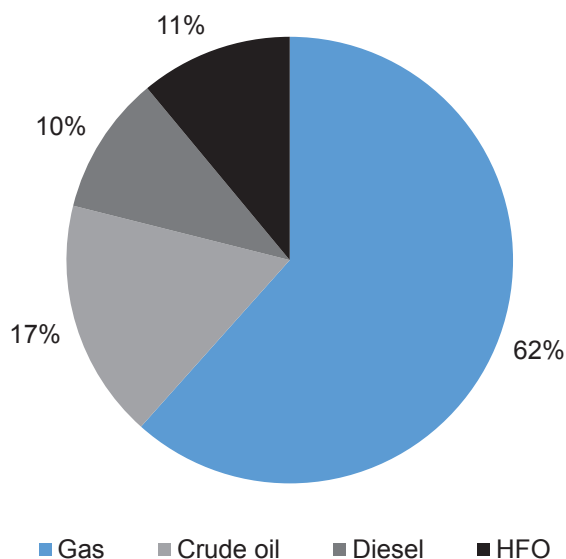
<sup>11</sup> The transport sector is generally the most oil-intensive. In the case of GCC, it accounts for the second-largest share of final energy consumption, 32 per cent of total energy used in the region.

<sup>12</sup> In GCC, power plants typically produce a combination of electricity and water, primarily through desalinating seawater using waste heat.

<sup>13</sup> David Wogan, Shreekar Pradhan and Shahad Albardi, *GCC Energy System Overview – 2017*, cit.

– should be drastically reduced, leaving the bulk of national oil production to more profitable monetization strategies based on exports.

**Figure 1** | GCC power generation capacity, by source



Source: David Wogan, Shreekar Pradhan and Shahad Albardi, *GCC Energy System Overview – 2017*, cit. Author's elaboration.

The need to speed up and maximize the monetization of these resources in the mid-term is closely linked to the third challenge for the GCC's economic model. In the long-term, the decarbonisation path undertaken at the global level poses huge questions about the level of future oil demand, both internally and externally. Although the projections of the International Energy Agency (IEA) show a moderate increase in the consumption of oil, driven by developing countries (according to the Agency, oil will not peak before 2040),<sup>14</sup> the necessity to comply with increasingly stringent multilateral emission-reduction frameworks coupled with the (potentially rapid) penetration of electric vehicles and new enabling technologies makes it necessary for GCC oil exporters to carefully plan their long-term development trajectories away from oil.

Public authorities in the GCC are called to act rapidly, decisively and coherently to address the challenges outlined above. Not only should action be taken to react to the most urgent financial needs determined by the growing volatility and unpredictability of oil prices, but also structural measures should be accurately planned and implemented to anticipate transformational trends in the energy sector and to ensure preparation – politically, economically and socially – for the revolution that will be introduced in the coming decades by full decarbonisation trajectories at the global level.

<sup>14</sup> International Energy Agency (IEA), *World Energy Outlook 2018*, Paris, IEA, June 2018.

## 2. The contribution of gas to the transformational process

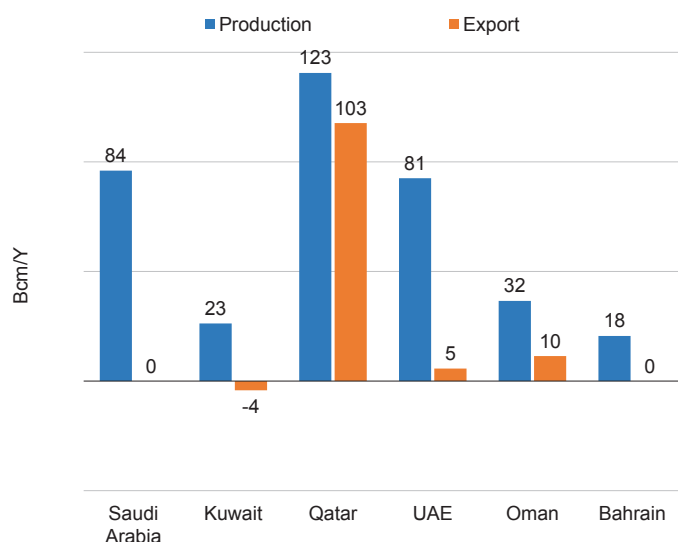
In the aftermath of the 2014 oil price collapse, the GCC governments planned and proposed (some of them also started to implement) a number of reforms addressing key aspects of their economic and social models. Measures to address deep budget imbalances (i.e. extensive privatization schemes), tighten fiscal policies (i.e. the introduction of income, corporate and sales taxes on local firms), review spending on bonuses and salaries for public workers, and substantially cut inefficient subsidies are among the actions envisaged by national authorities. In addition to this, mid-term policies aimed at reducing their dependence on hydrocarbon revenues and strengthening the process of energy (and economic) diversification have been promoted. The phase-out of subsidies on fuels and the investment in renewables and other low-carbon technologies are the main tools for ensuring the transition takes place (and takes place in an orderly manner). In these terms, a significant shift to natural gas can be instrumental in enabling such a strategic transformation.

A progressive move to gas can indeed help local authorities revisit the role of oil in the economy, contributing to maximizing its value in the short-term while ensuring a durable and sustainable flow of financial resources into their budgets. Such developments would contribute to easing the transition towards a decarbonized world thanks to the minor CO<sub>2</sub> content of gas compared to oil (and coal). Although largely known for its immense crude oil reserves, the GCC region also has an important endowment of natural gas. Forty-two trillion cubic meters (tcm) of gas are located in the six countries, accounting for 22 per cent of the global reserves, while annual production is around 410 billion cubic metres (bcm), contributing to only 11 per cent of the total global output.<sup>15</sup> Qatar is the regional champion in this sector, being respectively the fourth and the third largest country in the world in terms of reserves and production, and a global leader in trade thanks to its LNG exports. Gas already plays an important role in the energy sector of the region but – with the exception of Qatar – its contribution to exports and revenue generation is still limited. Since 2000, the GCC's domestic gas demand has increased two-and-a-half times, driven by a 100 per cent growth in the power generation sector. Today natural gas is the most-used fuel for generating electricity, contributing to almost 60 per cent of total production (80 bcm per year), while crude oil, heavy fuel oil (HFO) and diesel cover the remaining capacity.<sup>16</sup>

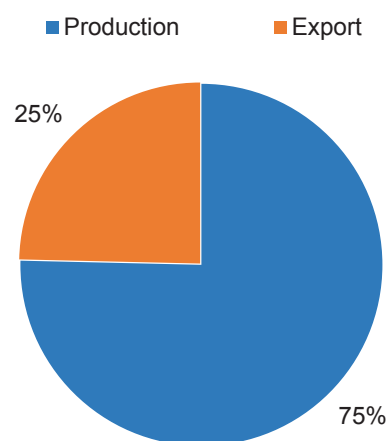
<sup>15</sup> BP, *BP Statistical Review of World Energy 2018*, cit.

<sup>16</sup> David Wogan, Shreekar Pradhan and Shahad Albardi, *GCC Energy System Overview – 2017*, cit.

**Figure 2** | GCC gas production and export, by country



**Figure 3** | GCC gas production and export, total



Source: David Wogan, Shreekar Pradhan and Shahad Albardi, *GCC Energy System Overview – 2017*, cit.; BP, *BP Statistical Review of World Energy 2018*, cit. Author's elaboration.

A deeper look at the different national realities shows, on the one hand, how the regional picture is diversified when it comes to the exploitation of indigenous gas resources and, on the other, the potential of GCC countries to reduce their crude oil dependency.

Qatar is the exception in a region focused on oil, as natural gas production and exports dominate the country's hydrocarbon output. Qatar's massive export strategy – 103 bcm a year are delivered to the global market via LNG – has also a strong regional dimension, as the country supplies via pipeline, for a total amount of 18 bcm, GCC members UAE (both Abu Dhabi and Dubai) and Oman.<sup>17</sup>

Saudi Arabia is the second largest gas producer in the region, with a total output of 84 bcm a year, the entirety of which is used domestically: it is either reinjected into oil fields to enhance recovery or it is consumed by industrial sectors such as power, desalination and petrochemicals. No gas production is destined for foreign markets, not least because the country has no export facilities currently in place.

The third largest producer is the UAE, with a large part of the annual 81 bcm production concentrated in Abu Dhabi. The majority of the output, integrated with imports from Qatar, is used locally to supply industrial sectors, while a smaller part is dedicated to LNG exports, giving the UAE the peculiar role of being a pipeline natural gas net importer and LNG net exporter.

<sup>17</sup> Ibid. Conversion ratio: 1QBtu = 34.6 Ccm.

The UAE ensures also the transit of Qatari gas exports (2 bcm) to Oman, which in recent years has expanded its domestic natural gas production to 32 bcm. Oman exports around 10 bcm via LNG, another 10 bcm is destined for power generation and desalination plants, while the remaining output is reinjected into oil fields for enhanced oil recovery or used for households and industries.

Kuwait and Bahrain are the smallest gas producers in the region, with outputs of 23 and 18 bcm respectively. One third of Bahrain's production is reinjected for enhanced oil recovery and reservoir maintenance, while the remaining is used domestically. Kuwait integrates its limited indigenous production with LNG imports to meet growing demand, particularly in the power sector.

In such a heterogeneous and differentiated context, all GCC players have expressed their intention to boost their activities in the gas sector, either to reduce domestic reliance on oil or to expand international gas projection in order to obtain larger, diversified and more durable financial revenues. Recent moves undertaken by Qatar, Saudi Arabia, Kuwait and the UAE point to a rapid shift in this direction.

The most striking sign of the shift towards gas is Qatar's decision to leave OPEC by the beginning of 2019. Qatari authorities justified the move with the strategic need to focus further on gas production, in order to rapidly expand the country's output to around 110 bcm per year by 2024.<sup>18</sup> Although Doha's clashes with oil cartel members, in particular with Saudi Arabia, helps to explain this decision, it does make a lot of sense for a country like Qatar – a small oil producer and global LNG exporter – to consolidate its pre-eminence in a sector expected to boom in the years to come.

The race to fill the gas gap with Qatar seems to have started. However, the maximization of gas export is not always at the core of the industrial strategies of other GCC members, as domestic exigencies still largely influence policy planning. The strategy adopted by Saudi Aramco, the world's largest oil company, is a case in point: the company's CEO Amin Nasser publicly announced a mid-term plan aimed at increasing the share of domestically produced natural gas in the energy mix from 50 to 70 per cent, to be integrated by imports from abroad. The first, immediate effect of this plan will be oil displacement in favour of gas (particularly in the power generation and desalination sectors), and the consequent availability of greater quantities of crude for exports. In the mid-term, Saudi Aramco's plan to invest 160 billion dollars in the development of conventional and unconventional resources will enable a Saudi export strategy expected to meet growing Asian demand (from China, and then from India) for natural gas and thus displace polluting coal in the power generation sector.<sup>19</sup>

<sup>18</sup> Julia Kollewe, "Qatar Pulls Out of Opec to Focus on Gas Production", in *The Guardian*, 3 December 2018. <https://gu.com/p/a4khz>.

<sup>19</sup> Miriam Malek, "Saudi Aramco Eyes \$160 Billion in Investments in Downstream Push", in *S&P Global*, 27 November 2018, <https://www.spglobal.com/platts/en/market-insights/latest-news/>

The same rationale applies to Kuwait, which signed a 15-year LNG import deal with Royal Dutch Shell starting from 2020 in an attempt to rapidly shift from oil-generated electricity to gas.<sup>20</sup> The contract responds to the need for Kuwait to secure growing natural gas supplies in the short-term (the Mina al-Ahmadi LNG terminal will not be sufficient, and will be integrated with the new al-Zour LNG facility in southern Kuwait), until indigenous supplies will be able to fully cover domestic demand, and possibly enable an export strategy. In relation to this, the Kuwait Oil Company (KOC) is working on boosting local natural gas production, in particular through the Jurassic field, where the companies opened a tender for a 3.6 billion dollar engineering, procurement and construction contract to expand the gas output and reach commercial production of approximately 11 bcm per year by 2023. Kuwait's gas development plan is accompanied by an effort to diversify its oil strategy, investing in new refining capacity to produce and export middle-distillate and light end products – including gasoline and diesel – and reduce the use by the power sector in order to maximize value in the current oil market environment.<sup>21</sup>

The Emirates are expected to step up activities in order to raise the contribution of gas to the national energy mix. The plan by Abu Dhabi National Oil Corporation – in partnership with international players such as Germany's Wintershall and Italy's Eni – to develop a giant gas project in the Hail, Ghasha and Dalma fields, expected to meet 20 per cent of UAE gas demand by the late 2020s, is a case in point.<sup>22</sup>

### 3. Steps forward

Moving progressively from oil to gas, both in terms of domestic consumption and export strategy, is necessary for GCC countries in order to address the multi-temporal challenges of an energy market in rapid transformation. In this context, policy planning and investment strategies developed by public authorities and industrial players in the region represent a positive signal. However, the shift from oil to gas, while necessary, will alone be insufficient to engender a sustainable energy transition in the GCC unless accompanied by a number of key measures that will help avoid a new fossil exports/revenues trap.

Key actions to be implemented include: (1) phase-out of subsidies on electricity; (2) reform of the natural gas price; and (3) penetration of renewables.

oil/112718-saudi-aramco-eyes-160-billion-in-investments-in-downstream-push.

<sup>20</sup> Jennifer Gnana, "Kuwait, Shell Sign 15-year Contract for LNG Import", in *The National*, 24 December 2017, <https://www.thenational.ae/1.690241>.

<sup>21</sup> "KOC to Raise Gas Capacity Production by 2020", in *Kuwait News Agency*, 3 September 2018, <https://www.kuna.net.kw/ArticleDetails.aspx?id=2744630&language=en>.

<sup>22</sup> "Wintershall Acquires Stake in UAE's Largest Undeveloped Gas and Condensate Fields", in *World Oil*, 26 November 2018, <https://www.worldoil.com/news/2018/11/26/wintershall-acquires-stake-in-uaes-largest-undeveloped-gas-and-condensate-fields>.

First, the phase-out of subsidies is necessary to limit the consumption of electricity, in particular given the prospects of further electrification in the GCC, and rationalize the functioning of a sector undergoing an impressive expansion. According to projections, in the coming years the bloc will need investment of around 81 billion dollars in order to produce another 62 gigawatts (GW) of generating capacity per year (adding to the 157 GW currently available).<sup>23</sup> The removal of subsidies and the definition of market-based electricity prices are key factors in making these investments sustainable. A number of actions have already been launched by GCC members as emergency measures in the aftermath of the collapse of oil prices, but much more has yet to be done. In Saudi Arabia, for instance, the government announced the second phase of reforms for liberalizing electricity prices and lifting tariffs by July 2017 for the residential sector and aimed to do the same for the non-residential sector in 2018, but results have not yet been achieved and much uncertainty remains over the timing of these reforms.

Second, the phasing-out of subsidies should be accompanied by a dramatic reform of natural gas pricing in the domestic market, where prices are kept artificially low. At current subsidized prices, the profitability of upstream gas investments in the GCC is limited, which makes it difficult to stimulate indigenous gas supplies and offer attractive contract terms to foreign partners. Since associated gas production is declining and new upstream investments are becoming increasingly complex and technologically sophisticated, price signals represent a fundamental factor in incentivizing upstream gas investments.<sup>24</sup> In Kuwait, for instance, the development of ultra-deep gas deposits located in the already mentioned Jurassic field will depend on state-of-the-art technologies and on high capital expenditure, which will contribute to pushing gas prices significantly higher than those currently paid in the subsidized domestic markets.

Third, the shift to gas has to be accompanied by ambitious and coherent policies to expand renewables into the reformed domestic energy sectors. Indeed, the phase-out of subsidies and the reform of gas prices are two fundamental steps to achieving this final objective: efficient and market-based use of fossils (gas in particular) will be instrumental in enhancing the penetration of renewables in the GCC region. The penetration of renewables will allow the GCC to simultaneously (1) reduce – in combination with the switch from oil to gas in power generation – the carbon footprint of the bloc's energy sector; (2) decrease domestic consumption of fossils fuels, natural gas in particular, making indigenous resources available to exports towards more remunerative markets in terms of prices; (3) support energy transition and decarbonisation policies at the global level, thus contributing to meeting the booming demand from coal-reliant countries and regions (e.g. India)

<sup>23</sup> Ventures Onsite, *GCC Power Market Report 2018*, Dubai, Middle East Electricity, November 2017, <https://www.middleeastelectricity.com/content/dam/Informa/Middle-East-Electricity/en/pdf/AET18DME-EJ-GCC%20Power%20Market%20Report%202018.pdf>.

<sup>24</sup> George Sarraf, David Branson and Yahya Anouti, *Securing the Future of Natural Gas in the GCC. Time for Sustainable Price Reforms*, Dubai, Strategy&, 2016, <https://www.strategyand.pwc.com/me/report/securing-natural-gas>.

that are fundamental to the achievement of global decarbonisation objectives.<sup>25</sup>

These developments are possible, because the GCC countries have – along with immense fossil fuel endowments – ideal conditions for the development of new generation renewables. The availability of solar potential and the availability of financial liquidity to raise capital are peculiar factors that mean the GCC bloc is among the best-placed for the penetration of renewables. In this respect, it is important to highlight some positive trends. Saudi Arabia, in the framework of the 2023 Vision, is developing around 30 solar and wind projects targeting 9.5 GW of renewable energy by 2023, while it plans to build 17.6 GW of nuclear capacity by 2032.<sup>26</sup> The UAE, similarly, has announced a strategy to increase the contribution of clean energy in the total energy mix from 25 to 50 per cent by 2050, and reduce the carbon footprint of power generation by 70 per cent.<sup>27</sup>

Such ambitious national strategies have been brought about, in particular, by the dramatic financial and economic difficulties experienced by the GCC countries after the collapse of the oil price in 2014. The greatest risk, given the current uncertainty across the energy sector, is that these same countries are tempted to postpone one or more pieces of these necessary reforms, not only slowing down the decarbonisation path domestically and internationally, but also putting at risk the sustainability of their socio-economic models.

*Updated 28 December 2018*

<sup>25</sup> In addition, being less capital intensive and more labour intensive compared to oil and gas, renewables will contribute to economic diversification, labour and occupation policies across the GCC.

<sup>26</sup> Saudi Arabia, *Vision 2030*, April 2016, <https://vision2030.gov.sa/en/reports>.

<sup>27</sup> See UAE Government website: *UAE Energy Strategy 2050*, updated 12 November 2018, <https://government.ae/en/about-the-uae/strategies-initiatives-and-awards/federal-governments-strategies-and-plans/uae-energy-strategy-2050>.

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