

The background of the entire page is a close-up, high-angle photograph of numerous large-diameter metal pipes stacked in a dense, overlapping pattern. The pipes are dark, possibly black or dark grey, with a metallic sheen. The circular openings of the pipes create a series of concentric circles and tunnels, leading the eye into the depth of the stack. The lighting is dramatic, with bright highlights on the inner rims of the pipes and deep shadows in the recessed areas, creating a strong sense of three-dimensionality and texture.

The Geopolitics of Natural Gas

The Gulf Cooperation Council Natural Gas Conundrum:
Geopolitics Drive Shortages Amid Plenty

Harvard University's Belfer Center and
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THE GULF COOPERATION COUNCIL
NATURAL GAS CONUNDRUM:
GEOPOLITICS DRIVE SHORTAGES AMID PLENTY

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ABOUT THE STUDY

Some of the most dramatic energy developments of recent years have been in the realm of natural gas. Huge quantities of unconventional U.S. shale gas are now commercially viable, changing the strategic picture for the United States by making it self-sufficient in natural gas for the foreseeable future. This development alone has reverberated throughout the globe, causing shifts in patterns of trade and leading other countries in Europe and Asia to explore their own shale gas potential. Such developments are putting pressure on longstanding arrangements, such as oil-linked gas contracts and the separate nature of North American, European, and Asian gas markets, and may lead to strategic shifts, such as the weakening of Russia's dominance in the European gas market.

Against this backdrop, the Center for Energy Studies of Rice University's Baker Institute and the Belfer Center for Science and International Affairs of Harvard University's Kennedy School launched a two-year study on the geopolitical implications of natural gas. The project brought together experts from academia and industry to explore the potential for new quantities of conventional and unconventional natural gas reaching global markets in the years ahead. The effort drew on more than 15 country experts of producer and consumer countries who assessed the prospects for gas consumption and production in the country in question, based on anticipated political, economic, and policy trends. Building on these case studies, the project formulates different scenarios and uses the Rice World Gas Trade Model to assess the cumulative impact of country-specific changes on the global gas market and geopolitics more broadly.

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Introduction

The significance of the six Gulf Cooperation Council (GCC) states in the context of the global natural gas market cannot be overstated. One only needs to consider that the GCC states' proven gas reserves comprise nearly a quarter of the world's reserves, surpassing 1,485 trillion cubic feet (Tcf). The GCC is a major global supplier of liquefied natural gas (LNG) and its prolific reserves suggest that export trade could be even larger. Three of the six GCC states—Qatar, Saudi Arabia, and the United Arab Emirates—comprise nearly 94 percent of the region's total gas reserves, and more than 60 percent of proven reserves in the GCC are concentrated in Qatar alone. Qatar is the world's largest LNG supplier and its influence on the global natural gas market is significant. Abu Dhabi and Oman are also sizable LNG exporters.

But the GCC is an important region to the global natural gas world not only because of its large role in global trade. It is also a rapidly growing demand sink that could prove difficult to satisfy. Already, booming domestic power demand in the GCC economies is prompting a correlative leap in gas consumption throughout the region. Countries are also under pressure to produce jobs, and more natural gas is needed to promote new industry. Trends in natural gas in the region can also have serious repercussions for global oil markets, as natural gas shortages in Saudi Arabia and Kuwait have forced those major oil exporters to shift increasingly high volumes of crude oil to burn for electricity in the summer months because not enough natural gas is available to play this role. This trend has precipitated instability in the oil market in recent years, adding to pressures on GCC governments to solve their looming problem of natural gas shortages.

The expected increased demand for natural gas and electricity in the GCC countries comes at a time of political instability across the Middle East. Conditions for social unrest that have been driving the fall of regimes during the Arab Spring—high unemployment among young populations, dissatisfaction with the levels of personal freedom and human rights, economic stagnation, corruption, and lack of government accountability—exist across the GCC. As political participation broadens in many countries across the Middle East, even traditional monarchies such as those established in the GCC are being forced to widen the distribution of economic benefits and patronage within their borders. All six of the GCC countries are run by well-established monarchies. But these leaders are now increasingly beholden to the

acquiescence of their populations to their continued rule amid calls for more social and political freedoms and Shiite minority representation.

Against this turbulent political backdrop, many countries in the Gulf region have experienced brownouts and power shortages in recent years. As certain GCC states, notably Saudi Arabia and Kuwait, burn more crude oil for electricity, this will hinder their ability to reap higher earnings from oil exports, which also exacerbates economic and political pressures. Regional electricity shortages are expected to become more severe in the coming decade unless new policies are adopted. This has put GCC governments under increasing pressure to solve domestic natural gas supply shortages. Amidst the growing popular unrest, the political risks of pending gas deficits will be amplified. Insufficient natural gas supply would put at risk the economic expansions being demanded by populations in the UAE, Kuwait, Oman, and Saudi Arabia. This combination of factors has created increasingly important internal constituencies for expanded programs for natural gas exploration and development.

Only two of the six GCC states—Qatar and Bahrain—currently have adequate gas supplies to not only meet current gas demand, but also generate a surplus. The remaining GCC members are either struggling to meet demand with current supply or have already been forced to turn to pipeline gas or LNG imports, or use crude and refined products to supplement gas as feedstock to generate electricity. The projected rise in natural gas demand forecast for the GCC states for the next decade will exacerbate the supply situation in all of the Gulf nations except Qatar, particularly if politics and economics continue to delay anticipated tight gas development projects. At present, Qatar is the lone GCC member country that is enjoying major natural gas surpluses. In 2011, Qatar reached its goal of being able to produce 77 MMt/y of LNG with the inauguration of its 14th liquefaction train. Qatar also provides natural gas supplies for the only cross-border natural gas pipeline in the region.

Despite the heightened drive to develop domestic gas reserves, the GCC states face varying political, commercial, and demand-side hurdles that are hindering domestic gas markets from reaching an efficient balance. In the UAE, Oman, Kuwait, and Saudi Arabia, natural gas markets are facing robust demand growth that has been stimulated by inefficient and distorting domestic natural gas feedstock and electricity pricing systems that do not fully compensate upstream

investments in non-associated gas fields. In addition, the region has been experiencing a rise in the use of gas-reinjection to boost declining oil fields, and there are technical issues associated with fully developing the region's most prolific fields which are geologically complex and expensive non-associated sour gas fields or shale resources.

How the individual countries within the GCC grapple with their gas supply/demand imbalances is already having an impact on the global oil and gas markets. Were individual member states able to overcome domestic political, economic, and technical hurdles, they could at least dramatically reduce their gas supply deficiencies if not find themselves self-sufficient in gas and potentially become exporters. In addition, if the GCC members could put aside political rivalries, those facing the steepest shortages could be better supplied through Qatar via the Dolphin pipeline or new lines put in place, and all would likely avoid routine summer blackouts through a regional power grid. But as will be discussed in this report, geopolitical rivalries and internal unrest are thwarting the development of a major regional gas grid around the GCC region and beyond.

Background

The GCC is home to one of the world's largest concentration of natural gas resources. Three GCC states—Qatar, Oman, and Abu Dhabi—along with Gulf neighbor Yemen, supply 40 percent of the world's LNG demand. These export projects are decades old and were built at a time when internal demand for natural gas and electricity was low, freeing up natural gas to be developed under export-oriented foreign direct investment programs. However, as population growth has skyrocketed in the region and demand for electricity, new jobs, and more industry has intensified, the GCC has found itself increasingly a region of growing supply deficits. Regional trade has served to alleviate some of these pressures but geopolitical variables and commercial factors, including subsidized domestic energy prices, has prevented the efficient development of reserves and regional transport infrastructure. GCC demand for electricity is projected to grow by 50% by 2030 to 1100 terrawatt hours (Twh),¹ of which 90% is likely to be

¹ "International Energy Outlook 2009 (IEO2009)," DOE/EIA (2009), <http://www.eia.gov/forecasts/archive/ieo09/index.html>.

met with natural gas.² But it is unclear, at present, exactly where this natural gas will come from. For Saudi Arabia, Abu Dhabi, and Kuwait, many untapped reserves are non-associated production sourced in shale or in sour gas and other kinds of reservoirs that face higher costs and a greater degree of technical complexity.

At present, Qatar, with its low cost gas and highly developed infrastructure, is best positioned to be a supplier to regional gas grids. Since 2007, Qatar has been supplying around 2 bcf/d of North Field gas via the 364-km undersea Dolphin Energy pipeline to Abu Dhabi, Dubai, and Oman. Oman and Abu Dhabi have been buying the Dolphin piped gas to satisfy escalating domestic consumption in a manner that still allows those countries to continue to meet long term supply contracts for their LNG. However, as will be discussed further below, the Dolphin line operates at well below capacity, and repeated requests from Oman, Abu Dhabi, and Kuwait for larger volumes of the Qatari pipeline gas or LNG have been rebuffed by Doha since Qatar prefers to maximize its revenues via high-priced, oil-referenced LNG sales to Asia and Europe. Territorial right of way disputes also thwart the expansion of Qatar's cross-border GCC trade in natural gas.

For its part, Saudi Arabia, which has extensive proven conventional natural gas reserves of 237 tcf and estimated possible unconventional resources of 600 tcf, could also serve as a major natural gas exporter regionally and beyond. However, economic as well as political factors to date have blocked significant investments in Saudi gas development. The U.S. Geological Survey has assessed that Saudi Arabia contains 530 tcf of undiscovered resources of non-associated gas, and as much as 40 billion barrels of condensate. Despite this vast resource endowment, exploitation of Saudi gas resources has been slow to materialize as Saudi Oil Minister Ali Naimi and his political allies have long argued that the kingdom's financial resources are better dedicated to oilfield development. However, a growing deficit of natural gas for industrial development as well as increasing difficulties meeting electricity demands has altered the politics of natural gas in Saudi Arabia. In the aftermath of the Arab Spring, the Saudi government is keen to avoid domestic discontent over electricity shortages and sees natural gas development as a good job generator.

² Kombargi et al., "Gas Shortage in the GCC: How to Bridge the Gap," Booz & Co. Inc. (2010).

Additionally, as domestic Saudi demand for electricity has risen, the kingdom has been forced to burn more and more of its crude oil to meet the summer peak demand period, thereby syphoning off volume that could otherwise have been exported to augment federal revenues.

In the summer of 2011, the kingdom burned an average of 730,000 barrels a day (b/d) of crude for power generation in the hottest months from July to the end of September.³ Oil Minister Naimi declared in March 2012 that his country planned to burn less crude in its power plants in 2012 than the previous year, citing new natural gas supplies coming on stream, including the newly inaugurated Karan and Rabib natural gas fields, as well as the start of a newly mandated rise in energy efficiency standards.⁴ However, oil markets remained jittery last summer as fears persisted that the kingdom would still have difficulty controlling its surging internal demand. These worries proved founded. Data from the Joint Oil Data Initiative (JODI) released in mid-September 2012 suggested that the Saudis were indeed unable to reduce oil use, with figures showing that the kingdom burned an average of 743,500 b/d of Saudi crude in June and July 2012. At an average export price of \$105, Saudi Arabia is foregoing oil export earnings of \$27.9 billion dollars a year due to the lack of alternative feedstock for power generation.

With the Saudi national budget expected to be under increasing pressure from rising expenditures for defense and social services, the kingdom can ill-afford to see this summer crude burn for electricity continue to rise in the coming years. Some analysts have suggested that Saudi internal demand growth, if left unchecked, could be so extensive that the kingdom could wind up as losing its role as a major oil exporter.⁵ In light of this trend, Saudi Aramco announced it was intensifying its search for new sources of domestic natural gas.

In 2012, the kingdom reported gross gas production of approximately 10.7 Bcf/d, though dry gas production would likely have been recorded at some 13 to 14 percent lower due to flaring and inefficiencies. Faced with projected gas demand of 9.2 Bcf/d in 2015, the kingdom has enough supply to meet domestic demand in the short term, but that implies the continued reliance on crude to supplement gas in power generation.

³ Daniel Fineren and Reem Shamseddine, "Analysis: Saudi oil burn should decline this year," *Reuters*, March 30, 2012, <http://www.reuters.com/article/2012/03/31/us-saudi-crude-gas-idUSBRE82U02Y20120331>.

⁴ "Saudis to Burn Less Crude," *Oil Daily*, Energy Intelligence Group, March 27, 2012.

⁵ Emily Gosden, "Saudis may run out of oil to export by 2030," *The Telegraph*, September 5, 2012.

The Saudi Oil Ministry has said it is working to add 4.3 Bcf/d of gas production or 3 Bcf/d of sales gas by 2014, raising gas output by 40 percent from 2011 levels. In 2012, Saudi Aramco brought on 1.8 Bcf/d of output from its new Karan field on stream, and by 2014 it is expected to add a collective 2.5 Bcf/d from the Arabiyah and Hasbah fields along with an additional 100 million cubic feet a day (MMcf/d) of associated gas from the Manifa oilfield.⁶ Saudi Oil Minister Ali Naimi in March 2012 also pointed to a new field located in the Mideast Gulf, Rabib, which can produce as much as 500 MMcf/d and which was slated to start up later in 2012.⁷

Minister Naimi, speaking in February 2012, said the kingdom's gas production capacity would reach 16 Bcf/d by 2020, effectively meeting demand.⁸ Although Saudi Aramco and Shell have discussed developing the 1 Bcf/d Kidan ultra-sour gas field before 2020, not much headway has been made.⁹ Economic factors play a critical role in the difficulty of commercializing Kidan gas. The Kidan gas, located in Saudi Arabia's Rub al Khali desert, would be expensive to exploit at a price tag of \$6/mn BTU and several of the region's early wells failed to test at commercial levels. Domestic natural gas prices in Saudi Arabia are set by the government in a delicate mix of industrial policy and local patronage politics. For years, gas buyers in Saudi Arabia have paid a low fixed price of \$0.75 mn BTU that has proved politically difficult to adjust, discouraging investment in high cost gas resources.

Saudi Aramco CEO Khalid al-Falih suggested in September 2010 that the Gulf country had the potential of hundreds of trillions of feet of unconventional sour gas resources that the company was hoping to explore. However, the high cost of producing that difficult gas source, coupled with the low government-set domestic gas sales price, means that it is uneconomic for the country at present to attempt to exploit unconventional gas unless it undertakes significant reforms. The kingdom also signed a deal with service company Baker Hughes to allow it to assess and develop its potentially massive shale resources, but shale gas developments, like the

⁶ Smaller fields to be brought on stream include the Midyan, Jalamid and Sifr fields which will each contribute under 100 MMcf/d. These latter volumes will primarily help reduce diesel and fuel oil currently being used at nearby power and industrial plants.

⁷ "Saudis to Burn Less Crude," March 27, 2012.

⁸ "Saudi Domestic Demand Restraint," *Energy Compass*, Energy Intelligence Group, February 3, 2012.

⁹ "Saudis Play Down Domestic Demand Fears," *Petroleum Intelligence Weekly*, Energy Intelligence Group, February 13, 2012.

Kidan field, face considerable commercial hurdles in the face of artificially low domestic gas prices.

Recently, Saudi Aramco has said it will spend upwards of \$9 billion in the next few years trying to identify these new non-associated gas plays. Targeted areas will include shale plays such as the northwestern Qusaiba shale and tight sand and carbonate potential in Ghawar, as well as exploration in the Tabuk and Midyan basin in the Red Sea. Saudi Minister Naimi confirmed in March 2013 estimates of over 600 tcf of unconventional shale gas in the kingdom¹⁰ and confirmed the kingdom has plans to drill seven test wells in the Qusaiba shale. Finding vast amounts of water for fracking in the region could be difficult and service companies are testing treating or using brackish water as one possible option.

The new effort on natural gas follows a failed initiative from past years. A major gas initiative led by then-Saudi Crown Prince Abdullah bin Abdulaziz in December 1998 was introduced to explore the possibility of exploiting Saudi natural gas with financing directly through investments by Western companies. The program failed to produce the desired results when it ran up against internal political opposition by senior powerbrokers.¹¹

Changing political dynamics within the Saudi royal family could alter the pace and course of the kingdom's natural gas development going forward. Natural gas is now receiving greater attention, but since the death of Crown Prince Sultan in October 2011 and Crown Prince Nayef soon after him in 2012, Saudi oil and gas policy has been somewhat adrift, with new major investments mostly sidelined.

As the internal politics of the kingdom evolve over time, the logic of developing a natural gas industry with the help of foreign investment might change. The current leadership of state Saudi Aramco and other key ministry second generation leaders were supportive of the idea of foreign

¹⁰ "Saudi Arabia Adds Projects to 'Difficult' Gas Challenges," *Middle East Economic Survey*, Vol. 56, No. 12, March 22, 2013.

¹¹ Key technocrats including the Saudi oil minister successfully lobbied for backing from key members of the Saudi royal family—including the late Crown Prince Sultan bin Abdulaziz—to scale back the initiative to protect the interests of Saudi Aramco, thereby dramatically shrinking its focus and level of participation by foreign firms. See Jaffe and Ellass, "Saudi Aramco: National Flagship with Global Responsibilities," *The Changing Role of National Oil Companies in International Energy Markets*, (Houston: James A. Baker III Institute for Public Policy, March 2007, available at http://bakerinstitute.org/programs/energy-forum/publications/energy-studies/docs/NOCs/Papers/NOC_SaudiAramco_Jaffe-Elass-revised.pdf.

investment in natural gas and their ascension into the senior ranks of Saudi leadership in time might eliminate internal political barriers to expanded foreign direct investment (FDI) in natural gas. Eventually, it is possible that a leadership transition inside the Saudi oil industry might open the door for more debate about natural gas development for export. However, the competitive economics of Saudi LNG liquefaction is hampered with higher costs due to the sour nature of the kingdom's natural gas. This incurs additional processing costs approximately equal to 15 percent of the LNG facility costs. It is more likely that additions to natural gas production will first and foremost be aimed at aggressively displacing crude oil from the domestic power generation mix.

It is equally possible that a broadening of political participation over the longer term will not produce a favorable climate for major investments in upstream development of natural gas resources, nonetheless. Wider political participation and related competition for public and private goods can give a disproportionate priority to short-term considerations as well as fueling counterproductive, factional infighting on the subject of oil investment and related spoils. The few examples of nascent electoral democracy in the Persian Gulf have not yet been favorable to oil development. In Kuwait, political discord between an unpopular, royally appointed prime minister and coalitions in the partially elected National Assembly have stalled the implementation of planned natural gas sector expansion projects. In Iraq, social protests, sectarian political infighting, and competition for national power and resources among regional leaders are all contributing to delays in the implementation of major billion dollar oil infrastructure expansion projects.

Thus, it remains unclear whether Saudi Arabia's stated aim that unconventional gas will eventually enable it to shift more substantially to natural gas as a fuel for electricity can be met. Similar issues are found in Kuwait where political disagreements and technical and cost hurdles have prevented the country from tapping foreign expertise to unlock technically complex natural gas reserves. Both Kuwait and Dubai, whose fields are in decline, have already turned to LNG imports to bridge their supply-demand imbalances. Abu Dhabi has met with significant delays in trying to get its one prized tight sour gas field developed and it has few big prospects beyond that. Bahrain and Oman are both predicting they will experience gas shortages within the next five years, Bahrain potentially as early as 2014.

Geopolitics Prevents More Natural Gas Development and Regional Trade

One option for the GCC to ease its gas supply constraints would be to construct a more efficient network for trading in regional gas supplies. However, not surprisingly, geopolitical problems mean that the GCC is years away, if ever, from creating a comprehensive regional gas grid. Such a move would have to involve improved relations among Gulf governments that have long histories of political disputes as well as tackling decades-old land and maritime border disputes. Moreover, such issues would have to be addressed in the midst of possible domestic political changes in various GCC countries, making outcomes hard to predict.

In addition, a regional gas grid would require the active cooperation and participation of the individual state energy firms and that will likely prove difficult. Though there has been some success in creating a regional electricity grid, the chances of a gas network tying together all six of the GCC member countries are less promising. Right of way disputes between Gulf countries have blocked the expansion of the Dolphin line to Kuwait and other GCC countries. Since 2005, Saudi Arabia has denied Qatar the right of way in the small area in its territorial waters needed to connect Kuwait and Bahrain to Dolphin.

A long-standing regional power struggle between Saudi Arabia and Qatar as the two GCC geopolitical heavyweights has been cited as the initial reason Riyadh was less than enthusiastic to grant passage to Qatari gas in the mid to late 2000s. Diplomatic relations have since improved between Saudi Arabia and Qatar over the last year or so as the two Gulf powers reached solidarity on hot-button issues including the threat of Iranian influence in the region and the Syrian civil war. But there are no guarantees that Riyadh will give Doha a political and economic upper hand by allowing Qatari gas to be piped around the region. Saudi Arabia may not want to cede the possibility that it too could expand its own gas network someday. And, Qatar itself may prefer more globalized sales that will enhance its geopolitical alliances and bring potentially higher oil-linked revenues.

Over time, if geopolitical issues are resolved, pipeline exports from Iran, Iraq, and Saudi Arabia could prove to be a competitor to Qatari exports to countries in the GCC and Levant. Qatar still has a first mover and cost advantage over untapped conventional resources, but over time if

geopolitical circumstances change, Iran and Saudi Arabia could push gas into key nearby markets, such as India and the UAE, which could enable them to build geopolitical ties at Qatar's expense. Dubai and Kuwait in the past three years began importing LNG to meet soaring gas demand, while Abu Dhabi, Oman, and Bahrain are eyeing similar plans. These Gulf countries may benefit from an expected LNG supply glut in the next few years as more LNG is slated to be available from Australia, Africa, and the United States, and as shale gas becomes more readily available in markets. Qatar, the world's premier LNG exporter, has been aggressive in trying to lock in longer and larger term contracts with Asian and European customers in anticipation of a supply overhang and fears that the markets will move away from oil-referenced pricing for the product. Qatar is looking at all options including swaps cooperation with Russia as well as strategic alliances involving integrated U.S. assets for production and exports.

Ultimately, in addition to such geopolitical considerations and political squabbles among GCC leaders, the issue of pricing presents a major hurdle to a regional grid project. Already, pricing disagreements between Abu Dhabi and Doha have left the Dolphin pipeline operating under capacity. As long as the North Field production moratorium remains in place, Qatar has a strong commercial incentive to commit its restricted gas supplies to LNG markets in Asia and Europe where it can reap both economic and geopolitical benefits. The UAE and Oman buy Dolphin gas at a price between \$1.30-\$1.50/mmBtu, a price which escalates at a rate of less than 2 percent.¹² During the summer of 2010, the UAE and Qatar negotiated a short-term sales price of \$5/mmBtu for interruptible supplies.¹³ Although this price represents a significant hike above the \$1.30-\$1.40/mmBtu, quantities supplied under the short-term contracts are limited. The agreement was reached at a time when the federation's northern emirates faced unusually high demand, and Qatar was unable to unload surplus cargoes on the European market. Moreover, the short-term premium is a far cry from Asian LNG prices that exceed \$15/mmBtu.¹⁴

¹² "Gulf Turns to Unconventional Gas to Ease Shortage," *Middle East Economic Survey*, Vol. LIV No. 41, 10, October 10, 2011.

¹³ Leigh Elston, "Abu Dhabi Turns to LNG to Bridge Supply Gap," *Natural Gas Daily*, Energy Intelligence Group, April 27, 2012.

¹⁴ Justin Dargin, "Qatar's Gas Revolution," *Natural Gas Markets in the Middle East and North Africa*, ed. Fattouh & Stern (Oxford Institute for Energy Studies, March 10, 2011), 41.

For Qatar, the Dolphin pipeline represents a massive opportunity cost, all the more unpalatable because it has allowed outflows of arbitrage LNG cargoes from the UAE to Japan.¹⁵ Even if Qatar's neighbors were to accept a higher price for long-term pipeline imports, settling on a new price benchmark for cross-border gas sales will prove increasingly challenging should Henry Hub prices, European hybrid spot-term pricing, and Asian oil indexation fail to converge.¹⁶

It is conceivable that a significant rise in global gas production could create a scenario in which post-moratorium Qatar will face difficulty in quickly unloading excess supply on the spot market. It is also conceivable that negotiations for a pipeline to transport Iranian and Russian gas to the GCC, initiated at various times by Oman, Bahrain, and Kuwait separately and with little success, could gain momentum at the expense of Qatar and Saudi Arabia. If Qatari and Saudi relations continue to improve, either scenario could potentially yield the political and commercial will for Qatar to once again take the GCC gas market seriously. Until then, Qatar is likely to hold onto its gas and to the perception of regional gas sharing in the GCC as a "charity business."¹⁷

But it should also be noted that Qatar gains geopolitical benefits from its broader LNG export customers. Qatar at present gains geopolitical status from its role as a serious supply competitor to Russia in both Europe and Asia. Qatar currently enjoys a strategic advantage by being an important supplier to help European and Japanese buyers diversify from riskier supplies or away from Russia, which is seen as encumbered by potentially hostile geopolitical aims and intentions. Qatar's global position is enhanced because of its capability to serve as a swing supplier to important industrialized countries. Shifting sales away from these important allies to regional buyers may not be attractive, therefore, from either an economic or a strategic point of view.

Qatar currently has a production ceiling moratorium for technical reasons on new development in its North Field and as long as that moratorium remains in place, Qatar has a strong commercial incentive to commit its restricted gas supplies to LNG markets in Asia and Europe where it can

¹⁵ "Gas Grid Remains Off the Agenda in the Gulf," *Middle East Economic Digest*, Issue 1, January 7-13, 2011.

¹⁶ Bill Farren-Price, "Middle East Oil and Gas: Opportunities and Challenges," *Chairmanship Conference—Integrating Global Energy Markets—Providing Energy Security* (Asghabat: November 3-4, 2011).

¹⁷ As quoted by Jonathan Stern; Andres Cala, "Qatar: The World's Biggest LNG Producer Holding Onto Its Gas," *Energy Tribune*, June 2, 2010.

reap both economic and geopolitical benefits. Because Doha has made it perfectly clear that it's not willing to provide short-term discounted pipeline gas to its neighbors, it's questionable now whether Qatar would accommodate Bahrain and Kuwait, should Saudi Arabia stop being the spoiler. Both the two smaller GCC countries have decided to not wait on a Qatari supply option and are looking at permanent LNG terminals.

Geopolitical conflicts with Iran are also an influence on natural gas development in the GCC. Long-running maritime territorial disputes with Iran continue to delay or limit significant gas development within the region or have the potential to grow into a full-blown diplomatic crisis that could have more far-reaching impact. It is significant to note that Iran shares at least 15 oil and gas fields with its Gulf Arab neighbors, including Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the UAE. Some of those fields straddle or lie near maritime borders that are under contention.

One field with strong gas potential that has been in dispute between Iran, Saudi Arabia, and Kuwait for decades is the offshore Dorra field, located in the partitioned Neutral Zone (PNZ) shared by the two Gulf Arab states, which is operated by Khafji Joint Operations (KJO), a joint venture between Arabian Gulf Oil Co. (AGOC) and Kuwait Gulf Oil Co. (KGOC). The field has been a bone of contention between Iran and Kuwait since the 1960s.¹⁸ The Dorra field, which lies on the Gulf continental shelf between Kuwait, Saudi Arabia, and Iran, is estimated to hold 25-30 Tcf of gas. Riyadh and Kuwait both ratified an agreement delineating their maritime border in July 2000 that also stipulated sharing any resources developed, after Iran began drilling in the area it claims is its portion of the field. The Dorra field extends from the northeast part of the Neutral Zone (PNZ) shared by Saudi Arabia and Kuwait into Kuwait's territorial waters before reaching into territory claimed by Iran, called the Arash field. Tehran says that roughly five percent of the Dorra gas field lies beneath its territorial waters and has asked for all three states to share the reserves. So far, Riyadh and Kuwait have refused. Instead, Kuwait and Saudi Arabia are developing the field in a manner that avoids the Arash side of the field by a wide

¹⁸ "Kuwait Spuds Dorra Well," *International Oil Daily*, Energy Intelligence Group, September 9, 2011.

berth. The first output is expected in 2016.¹⁹ The Dorra field is thought to have the potential to produce 500 MMcf/d,²⁰ but tensions with Iran remain a risk.

Qatar, for its part, must also be mindful of Tehran's frustrations with Doha for being able to develop the North Field not only at a rapid rate but also to the reservoir's potential detriment over the last two decades. Qatar's success has come at Iran's expense since U.N. sanctions have prevented Iran from being able to develop the South Pars field's gas potential and enable Tehran to become the major gas exporter it planned to be. There has been some speculation that to appease Iran, Doha has been in no hurry to lift the moratorium on North Field development it has had in place since 2005, which is why it is looking at investments in foreign upstream natural gas developments in the United States, Russia, or in strategic partnerships.²¹ For years, Qatar had maintained positive relations with Iran. However, more recently those ties have become more strained given Doha's push for the ouster of Syrian President Bashar Assad, Iran's closest Middle East ally. Saudi Arabia has been reported as approaching Russia to promise to obviate any use of Syria as a transit point for natural gas exports from the GCC, were Russia to consider ending its support for Syria.²²

There is some consensus in the industry that Qatar's moratorium on the North Field may be more technically related than geopolitical, however. In either case, it is expected that Qatar's moratorium will continue for some time, with only debottlenecking activities enhancing its production and exporting capacity. Debottlenecking is likely to only allow an expansion of Qatari LNG export capacity by 12 million tonnes per annum (mtpa), to a total of 89.5 mtpa.

As the leadership in the GCC countries evolves to a new, younger generation, it remains unclear what opportunities might emerge for broader trade in natural gas. While Qatar and Saudi Arabia have now put aside some differences to present a united front against the Assad regime in Syria,

¹⁹ Ibid.

²⁰ "Kuwait, Saudi Arabia Fast Track Dorra Gas Field," *Argus*, December 6, 2011, <http://www.argusmedia.com/pages/NewsBody.aspx?id=777486&menu=yes>.

²¹ Dania Saadi, "Qatar Has World In Its Sights For Power Projects," *The New York Times*, December 4, 2011, <http://www.nytimes.com/2011/12/05/business/global/qatar-has-world-in-its-sights-for-power-projects.html?pagewanted=all>.

²² Ambrose Evans-Pritchard, "Saudis offer Russians secret oil deal if it drops Syria," *The Telegraph*, August 27, 2013, <http://www.telegraph.co.uk/finance/newsbysector/energy/oilandgas/10266957/saudis-offer-secret-deal>.

they may still continue to jockey for power within the GCC, making it hard to implement substantive cooperation on regional gas development or supplies.

It is highly improbable that Saudi Arabia would ever agree to take Qatari piped gas or LNG for several reasons. The Saudi government is unlikely to accept being beholden to Doha and to admit that it needed gas from Qatar would also be a tacit recognition that Riyadh had failed to develop its own gas resources. Saudi Arabia will more likely invest heavily in trying to exploit its tight sour gas fields and test its shale potential.

Still, in light of the external and internal threats from the Arab Spring events of the past two years, new thinking has emerged within the GCC including discussion of new stronger unions. The GCC has broached the idea of developing the group into a more wide-ranging union or federation that would involve economic, political and military coordination and a new decision-making body based in Riyadh to replace the GCC Secretariat. At a May 2012 GCC meeting of foreign ministers, a draft plan for the union was submitted to the members for review with the Saudis' goal of seeing a union approved by the group at the end of 2012.²³ The Saudi-led initiative appears to be Riyadh's approach to preventing an outbreak of domestic protests pushing for democratic reforms from another potential Arab Spring sweeping the region that could undermine the Gulf monarchies and ultimately bring them down.

In addition, there have been discussions of an initial "merger" between Saudi Arabia and Bahrain that would be unprecedented within the region and that development has caused Tehran to protest. It is unclear just what the merger would have entailed, but the idea did not gain traction.

Despite the discussion, to date, Riyadh is facing healthy skepticism from others within the GCC—particularly Kuwait, Qatar, and Oman—about the make-up of a Gulf union amid concerns about Saudi domination, already long resented by some within the 30-year-old council. The lack of trust among virtually all of the member countries as well as the issue of sovereignty cannot be underestimated and could prove an obstacle in forging a more encompassing union. The GCC has been unable over the years to reach consensus on a common currency or united

²³ Karim Fahim and David D. Kirkpatrick, "Saudi Arabia Seeks Union of Monarchies in Region," *The New York Times*, May 14, 2012, http://www.nytimes.com/2012/05/15/world/middleeast/saudi-arabia-seeks-union-of-monarchies-in-region.html?_r=1&ref=bahrain.

defense shield, and coming to agreement on a more comprehensive union of the countries may require more political will than is available.

The same disharmony would likely thwart, if not prevent, integration of natural gas trade. Each of the GCC countries would want to host the liquid point for Hub services, which might most logically be located in the UAE, which is already a financial center and as a large user could be a logical gathering point for piped imports and LNG from around the region. But Qatar would likely want to host any regional hub as might other GCC members as well.

Domestic Politics

While long-standing rivalries and national interests may prevent the GCC from moving forward with developing a regional gas grid or ending disputes to allow gas development and gas sales between member countries, there are ongoing political issues within the individual countries that also impede maximizing their gas potential. Internal politics in individual GCC states are hampering gas development, particularly in Saudi Arabia and Kuwait.

In the kingdom, divisions within the Saudi royal family have resulted in gas development taking a back seat to the prioritization of crude production and exports for decades. In addition, decision-making on significant energy and economic initiatives has slowed substantially thanks to the aging and infirm current generation of leadership and the ever-present succession issues. The kingdom is facing the conundrum of how and when to appoint a future Saudi monarch from the next generation of the royal family. This has been made all the more apparent in the last two years with the deaths of Crown Prince Sultan and Prince Nayef within eight months of each other and the more recent shuffling of both older-generation and second-generation royals into key positions. The frequent reshuffling in top posts within the highest ranks of the Saudi government has created some uncertainty about future Saudi economic and foreign policy. In early 2013, King Abdullah's half-brother, Prince Muqrin bin Abdul-Aziz, a former head of intelligence who was just a year before shifted to the King's court, was named second deputy prime minister which ranks him number three after the King and Crown Prince Salman. Around the same time, the son of late Prince Nayef, Prince Mohammed bin Nayef, was named interior minister in a significant move that elevated a second generation leader to a ministry post for the first time in

the kingdom's modern history. Prince Mohammed bin Nayef replaced his uncle Prince Ahmed bin Abdul Aziz, who briefly held the top interior post but was suddenly removed, presumably over issues of competency.

Another significant change occurred in April 2013, when the king replaced the previously powerful deputy defense minister Prince Khaled bin Sultan and appointed Prince Fahd bin Abdullah bin Mohammed bin Abdulrahman, a former head of the Saudi navy to the post. Prince Khaled had been passed over for the job of defense minister in 2011 upon the death of his father, then Crown Prince Sultan. Perhaps even more telling was the decision by King Abdullah in late May 2013 to elevate the National Guard to a ministry and thereby promoting his second eldest son Mutaib to the rank of a cabinet minister—seemingly throwing Mutaib into the succession mix.

In addition to the senior cabinet changes, there appears to have been a concerted effort recently to make changes at the more local level of provincial governors, with a reshuffling of second generation princes into certain key positions. In early 2013, the Saudi monarch issued royal edicts appointing Prince Khaled bin Bandar as governor of Riyadh, Prince Faisal Bin Salman as governor of Medina, and Prince Saud bin Nayef, brother of the interior minister as governor of the oil-rich Eastern Province. Prince Saud bin Nayef took over his post from Prince Mohammed bin Fahd who had served as the governor of the Eastern Province for more than 25 years. Despite his record as a political reformer, Prince Fahd came up against criticism within the Eastern province where civil unrest was becoming a growing problem.

Shi'ite activism in the oil-rich Eastern Province, which is home to the minority Shi'ite community in the kingdom, has long been a concern for the Saudi ruling family. New protests began to emerge in 2010 in and around Qatif over various issues including religious police interventions with citizens of Shi'a faith and imprisonment without a trial of Shi'ites in Saudi jails. By early 2011, larger scale Shi'ite protests erupted in the eastern province inspired by the Arab Spring uprisings including Shi'a protests in nearby Bahrain.²⁴ On April 4, 2013, thousands

²⁴ The Adala Center for Human Rights, the leading human rights group in the Eastern Province, has published reports that Saudi authorities are responsible for the death of 15 Shi'ites since February 2011, with another 60 injured and 179 still detained in jail. While the Adala Center reports that as many as 867 people were at some point

of Shi'ites marched in Qatif, calling on the release of Nimr al-Nimr, the cleric whose arrest in the summer of 2012 led to demonstrations in which three people died.²⁵

This March, the Saudi Interior Ministry announced that it had arrested 16 Saudis, one Lebanese, and one Iranian, who were accused of being “involved in a spying cell for a state.”²⁶ The arrests were made in Riyadh, Mecca, and the Eastern Province. The ministry subsequently reported that the detained individuals were working for Iranian intelligence.^{27,28}

Longer-term questions of succession in Saudi Arabia still loom large and even day-to-day business in the kingdom has been disrupted by the political reshuffling. An informal process of consensus has been used in the past to select the king and crown prince and seniority has generally been respected, but Kings have been bypassed or removed by the family in past history, based on ability and performance. King Abdullah's decision to create an allegiance council in 2006 was established to provide a more formal framework for appointing a Crown Prince in the event of a King's incapacitation or death, but the process was obviated in the recent reshufflings, leaving questions about how the ultimate shift to the next generation would be handled.

As a younger generation takes control in Saudi Arabia, a fresh take on Saudi natural gas development is possible. A more economically progressive government might be forced to adopt realistic incentives to foreign direct investment in the kingdom's upstream gas sector.

detained in connection with unrest over the past two years, the Saudi government states that 278 had been arrested during that time period, with 152 people still being held.

²⁵ For a comprehensive review of Eastern province unrest, see Frederic Wehrey, “The Forgotten Uprising in Eastern Saudi Arabia,” *Carnegie Endowment for International Peace*, June 14, 2013, <http://carnegieendowment.org/2013/06/14/forgotten-uprising-in-eastern-saudi-arabia/ga8o#>; Angus MacDowell, “Saudi Shiites fear new unrest after spy arrests,” *Reuters*, April 10, 2013, <http://www.reuters.com/article/2013/04/10/us-saudi-shiite-awamiyah-idUSBRE9390EG20130410>.

²⁶ “Saudi Arabia arrests 18 suspected spies,” *Al Jazeera*, March 19, 2013, <http://www.aljazeera.com/news/middleeast/2013/03/201331919408788197.html>.

²⁷ As part of its investigation, the Saudi government questioned several influential Shi'ite clerics and intellectuals from the Eastern Province, including Sheikh Hassan al-Saffar, a prominent Shiite cleric who led the Saudi Shiite political movement in exile before returning to the kingdom in the 1990s after reconciling with the late King Fahd. Al-Saffar was questioned by Saudi authorities after he broached in a sermon whether an Iranian spy ring had really existed and then insisted on equal rights and privileges for Shi'ites.

²⁸ “Saudis grill Shiite clerics amid spy row,” *UPI*, April 8, 2013, http://www.upi.com/Top_News/Special/2013/04/08/Saudis-grill-Shiite-clerics-amid-spy-row/UPI-83401365449763/.

Like in Saudi Arabia, internal politics could also affect natural gas policy elsewhere in the GCC. Already in Kuwait, internal politics and political paralysis has forestalled Kuwait from moving forward on critical oil and gas development projects. The political wrangling between different factions of the ruling Al-Sabah family themselves as well as between specific family members serving in the cabinet and a confrontational elected parliament has waylaid state Kuwait Oil Co.'s (KOC) plans to substantially bump up domestic non-associated gas output. Although admittedly much of the contentious relations between the national assembly and the government in recent years has had to do with parliamentarians sparring with combative former Prime Minister Sheikh *Nasser al-Mohammad* Al-Sabah, his dismissal in December 2011 has not resolved issues blocking KOC from moving ahead on direct foreign investment for natural gas. Parliamentarians have long voiced their objections to foreign involvement within the Gulf state's oil and gas sector, citing nationalistic concerns, and it remains unclear how, if at all, these political barriers will be resolved.

In Qatar, former Emir Sheikh Hamad Bin Khalifa Al-Thani was instrumental in shaping Qatar's competitive international gas industry since taking over Qatar in 1995. Qatari Emir Sheikh Hamad stepped down from power after 18 years on the throne on June 25, 2013, handing the reins to his chosen successor and son, 33-year-old Crown Prince Sheikh Tamim. The presumption is that Sheikh Hamad wanted to oversee his son's succession before his declining health prevented him from helping blunt any threats to the new Emir's early days of governing. It is unlikely that Crown Prince Tamim will tamper with proven success, especially since former senior oil sector and military leaders are providing continuity in his ruling inner circle. Qatar has emerged as the world's leading LNG exporter within a remarkable few years and is reaping high revenues on a per capita basis for its populace and is a mainstay of the country's success.

Sheikh Hamad designated his fourth and youngest son, Sheikh Tamim bin Hamad, as his heir apparent and crown prince in 2003 (replacing his third eldest son, Sheikh Jassim, who had served in those capacities since October 1996. In fact, the emir had originally named his eldest son, Sheikh Mishal, as his heir apparent and crown prince when he first came to the throne in June 1995, before replacing him with Sheikh Jassim 16 months later). When Sheikh Tamim was named to replace Sheikh Jassim in 2003, Sheikh Jassim went on Qatari television immediately to

publically declare how unsuited he had been for the position and that his younger brother had been studying and preparing to take on the new responsibilities for the previous two years. Sheikh Tamim had reportedly cultivated a much stronger interest in politics and government than his older brothers and had a reputation as a dedicated soldier who served in Qatar's elite Commando Special Forces. Prior to becoming emir, Sheikh Tamim took an active leadership role as part of the grooming process to replace his ailing father, attending key government and ceremonial meetings and serving as deputy ruler when his father had been out of the emirate. Sheikh Tamim, who is chairman of Qatar's sovereign wealth fund, Qatar Investment Authority (QIA), is perceived as having the strength and qualities required of an emir in waiting and it is expected that he would be capable of holding his own with the older, influential members of the Al-Thani family. One of those older, influential family members is Sheikh Hamad bin Jassim bin Jaber al-Thani, who recently stepped down from key posts as prime minister and foreign minister.²⁹ The prime minister, a second cousin to deposed Emir Sheikh Khalifa, still wields considerable political influence and it is unclear what his long term role will be in Qatari politics given the youthful stature of the new emir. Qatar has been rumored to resist several military coups in recent years but the current regime enjoys broad support.

Economics

In a post-Arab Spring environment, the GCC monarchies are having to listen more carefully to the demands of their populations, which are seeking more political and social freedoms and expecting basic services, including water supply and electricity to not be disrupted. The ruling families will be increasingly held accountable for power-related problems and it is unlikely that they will institute any draconian cuts to gas and electricity subsidies in the short-term.

Some Gulf countries moved swiftly to blunt the outbreak of an Arab Spring movement spreading within their borders. Notably, in February and March of 2011, King Abdullah announced a total of \$130 billion in social service benefits meant to appease the Saudi citizenry, while in Kuwait,

²⁹ Simon Goodley, "Qataris stake their claim to a place at the top table of global dealmaking," *The Guardian*, March 23, 2013, <http://www.guardian.co.uk/world/2013/mar/24/qataris-take-seat-top-table-dealmaking>.

the regime in February 2011 provided each Kuwaiti with a \$3,500 handout plus free food for a year in an effort to quell dissatisfaction.

Kuwait has suffered numerous power and water shortages over the past several years. Intermittent power cuts are frequent during peak summer hours, and many homes are now equipped with temporary generators for the event of brownouts. Outspoken criticism over public services in Kuwait predates the Arab Spring. In 2010, Kuwaiti daily newspaper *Al-Qabas* conducted a poll in which 78 percent of the respondents blamed the government for the Gulf state's electricity crisis.

In Saudi Arabia, electricity shortages in Al-Qassim, Hail, and parts of Jeddah led to criticism of the paralysis with which the Saudi Electric Company (SEC) handles emergency situations. Repeated power outages in Buraydah, the capital of Al-Qassim province, drove local residents to protest in front of the SEC's local headquarters in 2010.³⁰

The GCC governments are reluctant to dramatically reduce gas subsidies in an effort to stave off public discontent. Kuwaitis pay less than 1 U.S. cent for a kilowatt of electricity that costs around 18 U.S. cents to produce and deliver. In the UAE, citizens generally pay 15 fils per kWh for power that in turn costs the government around 37 fils to generate, transmit, and distribute. Qatari citizens are even better off in terms of subsidized power, receiving unlimited free electricity. The Saudi government spends the equivalent of 10 percent of GDP—or some \$44 billion—on subsidies that provide Saudi citizens with among the lowest fuel and electricity prices in the world.³¹

Prior to the Arab Spring rolling through the Middle East in 2011, GCC governments had been grappling with the rising costs of energy subsidies but had failed to make a substantial dent in reducing these benefits for fear of rousing public ire. When Saudi Arabia raised electricity prices in July 2010, it purposefully excluded households, instead targeting government, commercial and

³⁰ Sultan Al-Mohus, "Yasta'nif Hokman Bi Sijnihi wa Jildihi," *Burnews*, October 31, 2010, <http://www.burnews.com/news-action-show-id-18722.htm>.

³¹ Jim Krane, "For Renewables To Work, First Cut Energy Subsidies," *The National*, January 19, 2012, <http://www.thenational.ae/thenationalconversation/comment/for-renewables-to-work-first-cut-energy-subsidies>.

industrial users. The move bumped the average price of Saudi electricity sold to non-household users by 9.6 percent but it still remained 3.5 percent below the actual production cost. Households account for some 53 percent of power consumption in Saudi Arabia, with the bulk of it dedicated to air-conditioning.³²

These subsidies are considered an entitlement and will be hard to remove, especially if governments feel under internal political pressure. Moreover, the GCC governments have set gas prices for their industrial users at well below the international norm, with natural gas feedstock prices in these countries ranging from \$0.75-\$2.35/mmbtu. Saudi Arabia, in fact, offers gas to domestic producers at the low-end fixed rate of \$0.75/mmbtu even as demand outweighs supply.

The problem is that the existence of these subsidies discourages investment by both state NOCs and foreign investors by thwarting a possible commercial rate of return to a large-scale drilling program, especially for high-cost sour gas or unconventional gas from shale formations. Low domestic market prices for natural gas have over the years been distortionary, prompting an over-emphasis on export projects, leading ironically to the current internal shortages. Since break-even costs for exploitation of sour gas top \$6 to \$8/mn BTU, economic factors weigh against sustained exploration investment efforts by international companies. However, for countries like Saudi Arabia and Kuwait which are losing billions of dollars in lost oil revenues by burning high valued crude oil, the economic equation might justify the deployment of capital into natural gas exploration by the state.

Scenarios

Smooth Transitions Scenario

In this scenario, key Gulf monarchies manage to thrive over the long run by instituting just enough political reform to maintain the status quo while still improving the economy and local level political freedoms and participation. Iraq and Iran remain contained by continued US and European security alliances and China, now a growing importer from the GCC, joins with the West to limit Iran's access to nuclear missiles technology so although Iran has the knowhow to produce a nuclear weapon, it still lacks a delivery system. Syria has transitioned to a successful

³² "Saudi Arabia Excludes Homes From Increased Power Prices," *Reuters*, June 6, 2010, <http://gulfnnews.com/business/economy/saudi-arabia-excludes-homes-from-increased-power-prices-1.637198>.

Sunni leadership, reducing Iran's influence around the region. Saudi Arabia has been able to transition smoothly to a progressive-thinking next generation monarch, who not only allows for wider democratic freedoms and representation that includes its Shiite population but also broadens the role of the Majlis al-Sura as a legislative body. The new King and the Majlis agree to a new program to prioritize gas development through more FDI, ensuring no shortages emerge in domestic gas and electricity supply and fully investing in exploiting the kingdom's non-associated gas fields. Saudi Arabia becomes not only self-sufficient in gas but also gradually a medium-sized gas exporter and is able to accommodate Bahrain's gas needs after the two Gulf neighbors are formally merged.

The GCC states, which has a stronger union framework, move to resolve decades-long maritime disputes that have waylaid development of shared fields and Saudi Arabia lifts its opposition to the construction of an underwater line that would feed Qatari gas to Kuwait, helping that smaller GCC state temporarily meet its gas needs as a more cooperative Kuwaiti regime and national assembly move forward on expansive gas development. Qatar, with new fields on stream and the moratorium on the North Field lifted after technical issues on the field have been sorted out, continues to be the world's largest LNG exporter but also has the flexibility and greater willingness to meet the gas needs of its GCC neighbors, including Oman and Abu Dhabi, as they work to bring on expensive non-associated gas fields.

In time, the GCC countries become gas self-sufficient with the region evolving into a valuable gas supplier to Turkey and European markets, with Abu Dhabi serving as a regional hub. Strengthened ties between Saudi Arabia and the Sunni-lead leadership in Damascus allow for a gas supply corridor to emerge from the kingdom through Iraq and Syria for pipeline exports into Turkey and Europe.

Instability Scenario

In this scenario, the GCC regimes experience serious political and economic instability that is exacerbated by domestic discontent as the governments become increasingly unable to meet both social demands and basic needs, including reliable water and power supplies. Relations between the GCC governments deteriorate as Riyadh and Doha vie for power within the group and a

united and belligerent Shiite Iran and Iraq and Tehran-controlled Syria threaten regional stability. In Saudi Arabia, in-fighting within the al-Saud family makes it impossible for the ruling clan to resolve the succession crisis and decision-making on most critical issues, including gas development, stalls as the kingdom experiences a series of aging leaders ascending to the throne with brief reigns as the power struggle within the next generation of leaders raises fears of a coup. Bahrain's transition to a more inclusive multi-party system brings to power a Shi'ite parliament that has difficulty working with the constitutionally constrained Sunni emir, leaving the island nation in political disarray and subject to random acts of terror and sectarian violence. The instability in Bahrain spills over to Saudi Arabia, which continues to face rising Shi'ite opposition, resulting in attacks on critical oil and gas infrastructure.

Saudi Arabia moves at a snail's pace to develop its unassociated gas fields, but without the badly needed FDI and foreign technical expertise, insufficient gas production emerges. Unwilling to reduce gas subsidies and stem explosive power demand, the Saudi government ultimately becomes a permanent LNG importer. Saudi Arabia and Kuwait continue to burn larger volumes of crude in their power plants, with the dent in the kingdom's crude oil exports causing world-wide oil prices to drive up. With Riyadh and Doha increasingly at odds diplomatically and Iran a serious nuclear threat, there are no prospects for maritime border disputes to be solved peacefully. This also means that the Saudis will continue to thwart the use of its maritime territory for undersea pipelines to be built to carry Qatari gas to Kuwait and Bahrain. Kuwait will continue to experience no progress on either crude or natural gas development that requires foreign investment and technical know-how thanks to domestic political intransigence and, like Bahrain and Saudi Arabia, will be compelled to become a permanent LNG importer. Disputes over pricing cause the nascent GCC power grid to fall into disuse and a regional gas grid never gains traction.

Although Qatar brings on new gas production, declining pressure at its North Field and increasing conflict with Iran over the shared acreage forces Doha to cut pipeline sales, focusing instead on its own domestic demand and its most important LNG commitments to Asia. This makes supplies through the Dolphin line very spotty, prompting Oman and Abu Dhabi to stop their LNG export commitments and turn increasingly to spot LNG cargoes to meet demand at

home while they too struggle to develop expensive non-associated gas. With the exception of Qatar, the GCC states will be hard-pressed to meet their gas demand and faced with growing public discontent over routine power outages must look to permanent LNG supplies from either regional suppliers or further afield. Instead of maximizing their potential to become gas self-sufficient and develop into a regional gas supplier, the GCC states become a large demand center that must be primarily met by exporters outside of the region.

Status Quo Scenario

This scenario envisions the GCC states maintaining their same domestic energy and economic policies, with gas subsidies left untouched out of fear of public reprisals and regional governments confronting runaway gas demand. In Gulf countries like Saudi Arabia and Kuwait, political intransigence means that *status quo* government policies continue to inhibit FDI in the upstream gas sector and these countries are limited in the progress they can make on gas development. As they try to play catch up in exploiting their non-associated gas fields, they will watch their supply/demand imbalances grow. Despite a public commitment to reduce its crude burn for electricity, Saudi Arabia sees an ongoing bite into its crude exports as its new gas production is slow to materialize.

While Qatar and Saudi Arabia cooperate on some regional issues, they are still wary of each other politically and Riyadh continues to block the use of its maritime territory for Qatari pipeline gas to be delivered to Kuwait and Bahrain. No progress is made on maritime border disputes that affect oil and gas fields. With few options left to them, both Kuwait and Bahrain turn to building permanent LNG import infrastructure, following Dubai's example. Qatar proves inflexible in adjusting its pricing for its supplies to Oman and Abu Dhabi through the Dolphin pipeline as it favors its Asian LNG sales, prompting those two GCC states to cut further back on their limited LNG exports and continue to pursue expensive non-associated gas development.

GCC states find no permanent solutions to meet their gas supply-demand imbalances as these Gulf governments are fearful of gaining public ire should they tackle the subsidy issues, and so power demand is uncontained. Without changes in policy to fully incentivize foreign investment in their energy sectors, the GCC states will be hard-pressed to develop their non-associated and

unconventional gas resources in a timely enough fashion to meet expected demand in the near future. Therefore, some of these GCC states will likely see those temporary stopgap solutions become permanent, whether it be becoming year-long LNG importers or dedicating larger volumes of crude to meet domestic power needs.