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They are particularly grateful to His Excellency Sheikh Mohammed Bin Abdulrahman bin Jassim Al Thani, Minister's Assistant for International Cooperation Affairs, Ministry of Foreign Affairs, State of Qatar; His Excellency Dr. Mohammed bin Saleh Al Sada, Minister of Energy and Industry of the State of Qatar; His Excellency Dr. Seyed Mohammad Hossein Adeli, Secretary General, Gas Exporting Countries Forum; and His Excellency Adnan Al-Janabi, Chairman, Oil and Energy Parliamentary Committee, Republic of Iraq.

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Dear Colleagues:

It is our pleasure to release the proceedings of the third meeting of the Brookings Doha Energy Forum, a platform intended to foster debate, dialogue, and outcome-oriented research around some of the major geopolitical trends of the 21st century. The Forum's inaugural meeting in 2012 focused on the impact of increased demand from South and East Asia, while the 2013 meeting considered the dramatic shifts underway in global natural gas markets. At this year's meeting, the Forum focused on how changes in geopolitics, political economy, and markets are altering the global energy landscape.

Despite initial skepticism, the U.S. energy boom is increasingly viewed as a long-term phenomenon, significantly affecting other major energy producing and consuming regions. While the Middle East has been going through substantial political turmoil, several countries, including Iran and Iraq, stand to play an increased role in global and regional energy markets. The Ukraine crisis may also influence how Europe fulfills its energy needs, and who Russia supplies in the future. There is also the potential for rivalry between large consumers, such as China and India, over Gulf resources. When it comes to gas, it is unclear how Qatar will respond to these changes.

One reason for high demand in the Middle East and Asia is fuel subsidies. While subsidies are an important political instrument, they also incentivize waste and pollution and put an often unsustainable burden on state budgets. The non-renewability and environmental impact of fossil fuels has spurred ongoing debates about embracing renewable technologies such as solar energy, with several countries also having shown an interest in exploring nuclear power. These potential shifts, along with trends in global transportation sectors, including regarding petroleum, electric vehicles, and LNG applications, could have a major impact on the future consumption of oil and electricity.

These global developments, which come during a period of continuing conflict and transition in

the Middle East, give rise to a number of critical questions:

- What does the continued rise of unconventional gas mean for U.S.-Middle East and Asia-Middle East relations?
- What will be the short-to mid-term impact of the Ukraine crisis on Europe, Russia, and China?
- How will the political developments in Iran and Iraq affect oil supply?
- What is the likelihood of increased integration of gas markets and pricing?
- What is the best way to reform domestic subsidy regimes?

The 2014 Doha Energy Forum convened prominent industry experts and policymakers from Asia, the Middle East, Europe, and the United States for an in-depth strategic dialogue on how these issues are changing the global energy landscape. The two-day meeting, which was opened by His Excellency Dr. Mohammed Bin Saleh Al Sada, Minister of Energy and Industry of Qatar, provided an opportunity for open dialogue on how changes in geopolitics, political economy, and markets are altering the global energy landscape. The findings of the conference are reflected in this report.

The Brookings Doha Energy Forum relies on the expertise and support of stakeholders in the public and private sectors, both in the Middle East region and in the broader international community. We look forward to working together within Brookings and with our partners to ensure the continued success of this project.

Sincerely,



Salman Shaikh
Director
Brookings Doha Center



Charles Ebinger
Director
Energy Security Initiative

TABLE OF CONTENTS

Part I: The Changing Geopolitics of Energy	1
Part II: The Political Economy in the Middle East and Asia	6
Part III: Energy Markets in Motion	10
Conclusion	12
Annex 1: Conference Agenda	14
Annex 2: List of Participants	17

PART I: THE CHANGING GEOPOLITICS OF ENERGY

The world's energy markets are in the midst of profound change as unconventional sources have emerged, challenging conventional paradigms. Importers of energy resources have become exporters and vice versa, leading to the rewriting of long-held views on future trends as dramatic shifts in thinking and action occur. The dash for gas continues to accelerate with the vast majority of energy demand growth expected to come from non-Organisation for Economic Co-operation and Development (OECD) countries. The United States, the world's largest energy consumer, has gone from a position of scarcity to one of abundance. New fields are being developed around the world; even Qatar, the world's largest gas producer, is signing new joint-venture projects to develop liquefied natural gas (LNG) abroad. Egypt, which until recently was exporting natural gas to Israel, now has several LNG gasification terminals idling, and has reached a \$30 billion agreement to purchase gas from Israel's new Leviathan field.¹ Australian gas is helping feed China's ever increasing demand as it develops into one of the major suppliers to the market. Furthermore, the Ukraine crisis has restarted debates in Europe about the security of existing energy supplies, its dependence on imports from Russia, and what realistic alternative sources exist.

PRINCIPAL FINDINGS

Growing Chinese demand for energy and the United States' reduced reliance on imports have left global energy markets in flux. According to

IHS, the value-added contribution of U.S. unconventional oil and gas sources and related industries amounted to \$284 billion in 2012 (1.8 percent of GDP) and is projected to rise to \$533 billion annually by 2025.² China, however, which is well on its way to being the world's largest economy, has overtaken the United States as the world's largest oil importer. As China's middle class grows and demands better living conditions, it will have to address the country's deteriorating water and air quality urgently. Will China replace a part of its coal-fired electricity generation capacity with gas-fired electricity? If so, how much of global LNG demand will stem from China in the coming decade? Furthermore, will Chinese and other companies be able to extract unconventional gas, given the country's potentially enormous coalbed methane and shale gas reserves?

Will the \$400 billion gas deal with Russia allow China to replace some coal-fired electricity or will it just add to existing gas-fired electricity capacity to meet its ever-growing demand?³ How will this deal affect Russian supply to Europe? It may make economic sense for Russia to seek out new markets if competition from non-conventional sources and new gas sources threaten to depress European prices even further.

Regional gas markets are misaligned: prices in the United States have plummeted with the arrival of domestic shale gas, while prices are three times higher in Europe and still higher in Asia. In Japan,

¹ John Reed, "Israel's Leviathan Partners Target \$30bn Supply Deal with BG," *Financial Times*, 29 June 2014, <<http://www.ft.com/intl/cms/s/0/7a51810a-ff6e-11e3-9a4a-00144feab7de.html#axzz36l3gd0MB>>.

² IHS, "America's New Energy Future: The Unconventional Oil and Gas Revolution and the US Economy. Volume 3: A Manufacturing Renaissance," September 2013, <http://www.energyxxi.org/sites/default/files/file-tool/Americas_New_Energy_Future_Exec_Sum.pdf>.

³ Alexei Anishchuk, "As Putin Looks East, China and Russia Sign \$400-billion Gas Deal," Reuters, 22 May 2014, <<http://uk.reuters.com/article/2014/05/21/uk-china-russia-gas-idUKKBN0E10S320140521>>.

high prices have revitalized the debate on nuclear energy and coal, and several nuclear plants are to be restarted in the coming months.⁴

Demand for natural gas is expected to double by 2040, not only because it is the cleanest fossil fuel but because of its abundance and availability.⁵ Invariably, new supplies will be tapped in the Middle East. The Gulf Cooperation Council (GCC) countries, along with Iran, are sitting on 67 percent of the world's natural gas reserves and are responsible for 65 percent of gas trade and over 40 percent of the pipeline supply.⁶ Though these countries are increasing production, domestic demand seems to swallow up any additional supply owing to highly subsidized consumer prices. As a result, it is hardly surprising that some Gulf states are also turning to nuclear power and renewables to help meet this ever-growing demand. Nevertheless, coal rather than oil is likely to become the dominant fuel source for the foreseeable future.

Enough gas reserves are available to allow gas-generated electricity to rival coal-generated electricity, but a carbon tax would be required to encourage the change. While expanding the share of gas in energy production can bring down global carbon emissions, it comes at a price. Already, one power generator in Australia has returned to using cheaper coal rather than continuing to use the more expensive domestically-sourced gas.⁷ If the free market rules, cheaper coal will win out, with attendant consequences of pollution and global warming.

The gas is available; the choice is whether to invest in new gas resources, particularly those in the Middle East, or to allow coal fired electricity to return in the future. Energy diversity has long been considered a key component of energy security, so it seems unlikely that natural gas will become the

one and only dominant fuel source, especially as other fuel sources will become relatively cheaper. We have already seen some switching back to coal from gas in Australia. How far away is carbon capture and storage (CCS) from a technological and commercial reality? With so many variables and unknowns how can we make sense of the future gas and energy market?

Both conventional and unconventional supplies of natural gas are expected to increase, with geographic expansion resulting from the growing importance of regional gas markets. On the gas supply side, most assessments and studies conclude that there are sufficient supplies of conventional and unconventional natural gas to meet future demand for the next generation. Some of the gas produced is a byproduct of the production of crude oil (associated gas), meaning gas development in some countries, like Iraq, is closely linked to the oil market. In the United States, however, gas production from shale is often independent of oil extraction. The rate of development in the gas sector will depend upon capital investment and, frequently, the presence of natural gas liquids (NGLs). In his opening remarks, His Excellency Dr. Seyed Mohammad Hossein Adeli, Secretary General of the Gas Exporting Countries Forum, said, "Exploitation of gas resources is capital intensive. Thus, setting a reasonable price mechanism to secure financing for the development of shale gas is mandatory." Given the history of gas price volatility, however, investors may perceive the risks to be too high, especially after the collapse in gas prices in the United States owing to the shale gas revolution. Secondly, regional gas markets have seen strong growth due to the difficulty and expense of transporting gas—pipelines, specialist shipping, and LNG import and export terminals come at a cost. Therefore, the profitability of gas is dictated by the source's proximity to the consumer.

⁴ Jacob Adelman and Emi Urabe, "Japan's Tepco Faces Down Protest to Press Ahead with Atomic Restarts," Bloomberg, 26 June 2014, <<http://www.bloomberg.com/news/2014-06-26/tepcos-faces-down-protest-to-press-ahead-with-atomic-restarts.html>>.

⁵ International Energy Agency, *World Energy Outlook: 2013*, (Paris: IEA Publications, 2013).

⁶ "BP Statistical Review of World Energy 2013," BP, June 2013, <http://www.bp.com/content/dam/bp/pdf/statistical-review/statistical_review_of_world_energy_2013.pdf>.

⁷ Annabel Hepworth, "Gas Prices Force Switch to Coal for Power Stations," *The Australian*, 6 February 2014, <<http://www.theaustralian.com.au/business/mining-energy/gas-prices-force-switch-to-coal-for-power-stations/story-e6frg9df-1226819086580?nk=24f5d570116805cf4c619c1196253263>>.

Unconventional natural gas extraction is still at an early stage. The most pressing environmental concerns associated with shale gas extraction involve water contamination, air quality deterioration (i.e. from methane leakage), the management of fracking fluid wastes, and induced (man-made) seismicity. Academic debates around these concerns continue, and in some European countries and U.S. states (i.e. New York, New Jersey, and Vermont) they have stalled exploration for possible reserves. It is worth noting that industry practices have improved, and technologies to capture fugitive methane and better treat wastewater using significantly less water continue to be developed. In addition, regulations in the United States continue to evolve, and are increasingly better equipped to address environmental concerns.

In any case, it is hard to imagine that this genie will go back into the bottle. In the United States, the Energy Information Administration (EIA) is increasingly certain that production levels do not drop after the first years of extraction. Therefore, the agency predicts that the country will enjoy comparatively cheap natural gas for at least the next 30 to 40 years, if not longer.⁸ It is currently an open question whether other countries around the world will be able to tap into their unconventional gas reserves, and if so, when. Many factors are important here, such as market development, the availability of infrastructure, onshore service industries, a proper regulatory framework, and available water supplies. It is likely though that in the coming decade more unconventional gas supplies will come on stream in countries such as China, Argentina, South Africa, the United Kingdom, and others.

Continued growth in Chinese energy demand and the limitations of green energy potential in Europe will continue to drive these countries' appetite for gas and oil supplies from Russia and the Middle East. However, heavy domestic demand in the Middle East is beginning to compete with energy exports. Much of the demand side of the market will depend upon China's energy

strategy. Given its substantial reserves, coal still accounts for some 60 percent of its energy production, but associated pollution, and that from cars, is causing major concerns. As a result, pressure to cut down on coal usage has been building among the general population, prompting the government to pursue other sources of energy. China has the largest nuclear program in the world, but even with planned expansions, this sector is still only expected to account for less than 10 percent of its electricity supply in 2030. China has also set itself extremely high shale gas production targets of 50 billion cubic meters (bcm) in 2015 and 100 bcm in 2020, requiring an ambitious 15,000 rigs to hit 2020 targets. China's shale gas reserves may be 100 percent higher than those in the United States, but the geology is more complicated and likely to be more expensive to farm, slowing expansion until the sector sees further technological development.⁹ Up until then, China will rely heavily on imports from the Middle East and Russia. Now that the United States is becoming self-sufficient, China has become the Middle East's most important customer for both gas and oil. Consequently, Chinese international oil companies (IOCs) have been building up a significant presence in the region since 1983, when China Petroleum Engineering & Construction Corporation (CPECC) first moved into Kuwait and Iraq.

Europe, currently heavily dependent on Norwegian, Dutch, Algerian, and Russian supplies to meet demand, may now look elsewhere as the Ukraine crisis develops. Europe may look to new U.S. gas exports, but those will most likely go to Asia where the regional market price is higher. Europe must also consider Middle East and North Africa (MENA) suppliers, possibly benefiting from the extensive pipeline network that already connects North Africa and some parts of the Middle East. As pipelines develop in the Middle East, more markets may seek to tap in to this potentially cheaper gas supply, but much depends upon stability in the region and forthcoming capital investment. Meanwhile, Russia still offers Europe stable supply;

⁸ International Energy Agency, *World Energy Outlook: 2013*.

⁹ Christina Larson, China's Shale-Gas Potential and Peril, Bloomberg Businessweek, 18 April 2013, <<http://www.businessweek.com/articles/2013-04-18/chinas-shale-gas-potential-and-peril>>.

suggestions that Europe will be looking elsewhere for supply may just be political posturing.¹⁰ Former United Kingdom Secretary of Energy Lord Howell of Guildford said in his remarks, “Europe will continue of course to buy Russian gas, but the difference is that from now on it will be in an increasingly good position as a customer.” On new interconnector pipelines, Lord Howell argued that they “will be accelerated both west-east and north-south making it easier to meet specific shortages in Central Europe,” highlighting that Norway is ready to supply far more by pipeline into the growing Europe-wide grid.

European policymakers previously set tough targets to decarbonize Europe by moving to green energy technologies such as wind and solar power. This would have involved large new charges and levies on emissions via the instrument of the European Union (EU) emissions trading scheme and carbon taxes, and helped renewable energy capacity leap forward. Outright prohibitions would have closed down carbon-intensive coal burning plants, as wind, solar and other green energy sources took over. Germany is showing that this is possible, but Europe, like the rest of the world, will still be dependent upon fossil fuels for the foreseeable future.

Within the Middle East, though, demand for gas is growing. Countries like the United Arab Emirates (UAE) and Saudi Arabia have some of the highest energy consumption per capita rates in the world, and electricity demand continues to surge as their economies develop. Most Middle East countries offer generous energy subsidies, which are unsustainable given their growing fiscal deficits. Huge untapped supplies in both Iraq and Iran could potentially help to satisfy the increased demand, but given the current geopolitics this is unlikely to happen in the near future.

The need to earn foreign revenues, rising government expenditures, the need for capital to invest in industry, high prices, and pipeline politics are often the driving forces behind promoting exports at the expense of not fulfilling domestic demand.

For example, Iraq is planning to develop floating LNG export facilities in the south with a consortium led by Shell, while in the north, Kurdistan is seeking to export more gas to Turkey by 2016 via pipelines. Meanwhile, electricity shortages are still commonplace in Iraq, which continues to import substantial amounts of liquid fuel and electricity from Iran. Therefore, scenarios for exporting Iraqi gas in the future may be challenged by increasing local demand.

New gas supplies in the Middle East as well as competition from U.S. sources suggest uncertainties regarding the future of gas markets in the Middle East. Oil is a global market, but gas is supplied to regional markets and requires regional infrastructure that can only develop where there is enough confidence in the legal, political, and social institutions to justify sufficient investment. In Iraq, the lack of an agreement between the federal government in Baghdad and the Kurdistan regional government in Erbil, combined with unfinished legal reforms, a bloated bureaucracy, the lack of a private sector and entrepreneurship, federal discord, religious disharmony, and terrorism, has slowed the process of economic development, denying prosperity for the majority. Prior to the June 2014 advances by the Islamic State in Iraq and al-Sham (ISIS), electricity plants were coming online, gas production was increasing, and Iraq had reached a 35-year high in crude production. Though Iraq was still unlikely to meet its ambitious 2020 oil targets, there was some optimism about its economic future. Now, however, new non-associated gas development projects, such as Akkas in Anbar and Mansoriya in Diyala, are offline. In addition, the Kurdish Peshmerga has taken over the oil-rich province of Kirkuk and is seeking independence, something that could lead to further political and economic ramifications.

If international sanctions on Iran are gradually relaxed or revoked, it is likely that Iran will add significantly to the region’s production of oil, gas, and electricity over the next few years. Iran could also provide valuable supplies of gas to

¹⁰ Luay al-Khatteeb, “Market Pressure: The Energy Winners and Losers,” International Energy Forum, 15 May 2014, <<http://www.ief.org/news/market-pressure-the-energy-winners-and-losers>>.

energy-starved Pakistan and India. Gas supply in the region has struggled at times to keep pace with demand. Kuwait, the UAE, and Saudi Arabia have experienced gas shortages in recent years, but the region has sufficient gas reserves to meet domestic demand and supply the rest of the world if investment is forthcoming and technical complexities are overcome. Both the UAE and Saudi Arabia are engaged in meeting this challenge, making substantial investments to improve their gas production to meet domestic demand. His Excellency Dr. Mohammed bin Saleh Al Sada, Minister of Energy and Industry of the State of Qatar, stated in his speech, “Qatar’s prominent position in the global energy market is set to remain for years to come. Qatar has also proved to be a reliable source of energy, with a high ability to meet changing and dynamic market situations.” Qatar remains the largest LNG supplier in the world, though it could be surpassed by Australia and the United States in the near future.¹¹

The shift of the United States from a net importer to a net exporter of gas and maybe even oil in the future is likely to change the dynamics of its relations with the Middle East. The loss of the U.S. market has already seen Middle Eastern economies turn to China for potential investments, developing new partnerships with China’s international oil companies (IOCs) to develop resources. Still, even if the idea of direct U.S. dependency on Middle Eastern oil is something of a myth, oil incomes from U.S. IOCs remain important to the U.S. economy. The major U.S. oil companies have a large presence in the region, as do many other engineering companies. Likewise, defense spending by Gulf states on U.S. systems and protection is substantial. In his keynote address at the Forum, H.E. Adnan al-Janabi claimed that some 70 percent of MENA oil incomes end up being spent on U.S. goods, services, or investments. The main question is whether China will share some responsibility for providing security in the region, a role that the United States has played historically. It seems inevitable that these two biggest energy consumers will be drawn

closer together in the energy market as the United States becomes a major supplier. The United States, being the world leader in shale gas extraction and production technology, could gain commercial opportunities by helping China develop its more technically difficult shale gas reserves, while Chinese investment in U.S. energy production could present a mutually beneficial scenario—although some U.S. politicians may think otherwise.

¹¹ Robert Tuttle, “A Little Less Rich: Qatar Gas Dominance Challenged,” Bloomberg, 2 April 2014, <<http://www.bloomberg.com/news/2014-04-01/a-little-less-rich-qatar-gas-dominance-challenged.html>>.

PART II: THE POLITICAL ECONOMY IN THE MIDDLE EAST AND ASIA

World energy demand continues to grow despite an economic slowdown in developed economies. In a world where 1.2 billion people still have no access to electricity, securing energy supplies tops the political agenda for many developing countries. At the same time, carbon emissions, pollution, resource depletion, waste, overconsumption, renewable and new unconventional sources, and producer and consumer subsidies have sparked debate about the relative advantages of different types of energy supplies.

Meanwhile, the developing and emerging economies of the Middle East and Asia continue to experience economic growth at a time when their energy mix is in a state of flux, with each country pursuing a range of sources. Oil, gas, nuclear, coal, hydro power, renewables, and unconventional shale gas are all in the mix. Sadly, with energy subsidies so large, critical investments in energy efficiency do not occur. Each country, depending on its resource endowment, proximity to energy sources, and level of economic development will have its own unique mix of energy supply. For those with the resources, much will depend upon their economic and political institutions. Do they serve their domestic markets first, subsidizing supply, or sell to a world market at a higher price?

Those lacking resources face the dilemma of securing affordable supplies without growing dependent on any one source. The relative prices of energy supplies are weighed against the ability to switch sources. The ease by which one Australian electricity power provider has switched from coal to gas and back to coal raises questions about the staying power of gas as a supply source. Will an increase in gas prices cause developing economies to stay with or even expand their reliance on coal?

At the same time, the environmental impact of these energy sources must be taken into account. Can the international community allow coal dependency to increase? There is also the problem of subsidies driving up demand and the resulting wasteful use of energy, thereby distorting regional markets.

PRINCIPAL FINDINGS

Cost considerations are likely to drive renewed expansion in coal, though environmental considerations in major consumers such as China may temper growth. Coal is still the dominant fuel source for electricity generation in the world. Its use is expanding in Asia, where the region's three largest economies (China, India, and Indonesia) are highly dependent upon coal-fired electricity power plants. All three have substantial coal resources, although India has also drawn on imports from Indonesia, Australia, South Africa, and the United States, owing to bureaucratic inefficiencies and transportation difficulties. Imports of thermal coal were up some 20 percent in 2013, with power producers facing losses due to the higher coal prices and asking for increased tariffs. Higher coal prices are expected as Indonesia considers banning exports to meet domestic demand.

Sixty percent of energy production in China stems from coal, contributing to its status as the world's largest carbon emitter. Now, however, it faces pressure both at home and abroad to cut carbon emissions as the pollution problem grows, even threatening to undermine the political legitimacy of the regime. The government has capped coal consumption in some provinces and has looked to increase gas imports and develop shale gas and coalbed methane to meet the growing demand and further diversify its fuel mix. While China is actively seeking to reduce its dependency on coal,

India seems slower to turn to alternative sources, and faces additional environmental and health problems due to its poor relying on firewood for cooking and heating.

While the rising cost of fossil fuels has encouraged renewed interest in nuclear power, many countries aiming at reducing emissions are instead turning to cleaner-burning natural gas. As part of developing a diversified energy mix, much of Asia is turning to nuclear energy sources, with 119 reactors built, 49 under construction, and a further 100 planned. China, South Korea, and India have 60 operating between them, but Japan shut down its 54 nuclear plants following the Fukushima accident in March 2012, despite them being the source of 30 percent of its electricity. Japan is expected to return to nuclear production shortly, however, due to the rising prices of other energy sources such as LNG, though the extent of this return is unknown at present. Germany has also turned away from nuclear power, closing down seven plants at the time of the Fukushima incident and planning to phase out all nuclear plants by 2022. In addition, the true cost of nuclear power is now being examined as the decommissioning of early plants is proving to be more expensive than previously thought.

In the Middle East the only operating nuclear plant is in Iran; its combined oil, gas, and nuclear power generation have led it to become a significant net exporter of electricity to its neighbors. Countries elsewhere in the oil rich region are also turning to nuclear power. The UAE has four plants planned, with the first due to come on line in 2020. Its neighbor Saudi Arabia has 16 planned, with the first due to be completed in 2022. Turkey and Jordan have plans to build nuclear power plants as well. The reasons for the shift to nuclear energy are varied, and include a desire to reduce dependency on coal and oil and attempts to diversify energy sources in order to meet future demand from increased urbanization and fast-growing populations. Nonetheless, all these countries have movements that oppose nuclear power.

Oil is judged by most to be too expensive, except in oil rich states, for power generation. As coal comes with more carbon emissions, gas is becoming more

popular. Regional gas prices vary from less than \$5 in the United States to \$18 in Japan. Analysts claim that future U.S. exports will retail at \$11 per million British thermal units (Btu), a price that will not threaten the low-cost gas giants of Qatar, Russia, and Saudi Arabia, but will reduce their price and profitability if U.S. exports prove significant.

Renewable sources such as wind power and solar power have been slow to make a significant impact in the energy market despite the fact that Asia has the ideal combination of both high solar insolation and a high density of potential customers living out of reach of mains electricity. In fact, solar power could obviate the need to install expensive grid electricity in most rural locations. The issue thus far has been cost. Utility-sized renewable power plants are expensive to build, with generator costs twice that of traditional generators. These plants are also limited to providing power on an intermittent basis—whenever the sun shines or the wind blows—and are often in remote locations, making them expensive to hook up to national grids. Experience in Europe has shown that electricity generated by wind power offshore is more expensive than traditional sources. Nevertheless, many countries are in the process of building such turbines, with Japan leading the way, and costs are expected to fall as more competition develops in the generator market. This has occurred in the home-generated solar power arena, where the once prohibitive cost of solar panels has fallen substantially since 2008. Invariably, technological advancement in this sector will reduce costs and make it a more competitive alternative to fossil fuels.

In the Middle East, households have little or no incentive to install expensive solar power systems when electricity prices are so heavily and widely subsidized. Large-scale utility projects are planned—and some have been completed—but annual growth in solar generated electricity in the region is well below that of Germany, the European leader.

In Asia and the Middle East there is a “dash for gas,” with countries cutting carbon emissions by constructing gas plants, rather than adopting more technically demanding and expensive renewable

alternatives. Gas plants use more easily accessible technologies and both conventional and unconventional gas supplies are growing; more reserves are being found and prices seem likely to remain at current levels. Gas-fired electricity is a low-risk option that can attract investors, especially in the Middle East. Elsewhere, it still faces competition from coal.

Developing nations and oil-rich Middle East states alike are increasingly unable to afford the high cost of fuel subsidies, making subsidy reform an unavoidable but politically daunting issue. Nevertheless, the energy market is distorted by a complex web of producer and consumer subsidies for fossil fuels as well as nuclear and renewable sources. The economic efficiency of the free market price mechanism is absent in all sectors of the energy market. Spot markets may give the illusion of a competitive market, but the supply is often the result of complex subsidies, tax breaks, and grants. In developed nations, producer subsidies in the form of tax relief, investment credits, and grants are abundant, with consumers often paying higher prices to finance development in renewable industries.

In the developing and emerging economies, fuel, energy, water, and basic food staples are often subsidized because of poverty and the desire to increase the rate of economic development as populations rise and urbanization occurs. Consumers soon see it as their right to have low prices and governments get locked into subsidy programs that are often unsustainable and unjustifiable.

Fuel subsidies are a blunt instrument, being inefficient and inequitable. Most of the benefits go to higher income groups with the highest fuel consumption, encouraging wasteful overconsumption. These subsidies delay the adoption of energy saving technologies such as solar power and crowd out spending on essential infrastructure and social development projects. Egypt now spends more on its fuel subsidies than it does on education.¹² Much of the Middle East has seen the use of subsidies grow, yet some governments have been brave enough to

cut subsidies despite the worry of public protests. Iran has undergone two rounds of subsidy cuts, replacing them with cash payments. The UAE is also cutting subsidies, but many other states are reluctant to do so, especially following the Arab Spring. The challenge is how to lower subsidies gradually without causing undue popular concern—or even demonstrations—over price hikes. Though many politicians wish to avoid such unrest, few are willing to take on the challenge of addressing unsustainable subsidies.

The growing size of subsidy bills and the growth in fiscal deficits is having a sobering impact on many Asian economies as well. India has come to realize that it cannot afford the investment required to meet the demand for electricity while maintaining energy subsidies. This scenario can be seen across Southeast Asia. Malaysia successfully paired increased fuel prices with cash payments to its poorest families in 2013, but prices are still well below what regional and international markets dictate. Indonesia is toying with implementing similar schemes. Countries with few energy resource endowments cannot afford to keep their subsidized prices as deficits rise, often resulting in currency depreciations. This only increases the problem: a weaker currency causes fuel import costs to rise, threatening these countries' economic prosperity.

The oil-rich states of the Middle East cannot afford to continue with such subsidies either. The oil may be the people's wealth, yet selling it to state-owned electricity generators for a few dollars per barrel when \$100 can be earned abroad practically amounts to highway robbery. These policies encourage waste, as reflected in the high and rising figures for per capita energy consumption. They also indirectly tax the poor, who derive little benefit from cheap electricity, but would benefit from increased spending on social reform, the development of human capital, and economic diversification.

Iran has realized the folly of the situation. Given that its spending on subsidies has grown to some \$100 billion, energy consumption was more than

¹² "Egyptian Govt Says it is 70 bln over Budget on Fuel Subsidies," Reuters, 1 June 2014, <<http://af.reuters.com/article/egyptNews/idAFL6N0OI04G20140601>>.

50 percent above the regional average, and billions of dollars were being lost to those smuggling subsidized fuel to neighboring countries. Unlocking a country from the tyranny of subsidies, however, can be a political challenge with which few governments want to grapple. The International Monetary Fund (IMF) is quick to lend support to those developing and emerging countries who are trying to implement policies such as subsidy reduction, but they rarely mention the financial advantages given to American or French farmers. Elsewhere in the Middle East, political expediency has the upper hand over economic efficiency as others drag their feet on the issue of subsidies, fearful of Arab Spring-like protests. The issue of rising fiscal deficits, however, may become the deciding factor as it has in Southeast Asia, forcing subsidy reform to the top of the agenda.

Reducing or even removing subsidies for fuel and energy may slow demand in the Middle East, where the International Energy Agency (IEA) estimates that demand for natural gas will rise by 70 percent by 2035.¹³ The region may have the reserves to meet this demand, but substantial investment in production will be required to enable supply to match demand.

¹³ International Energy Agency, “*World Energy Outlook 2013*.”

PART III: ENERGY MARKETS IN MOTION

Over the last ten years, global energy consumption has increased by 30 percent, the vast majority of this occurring outside the OECD in emerging and developing economies.¹⁴ Energy consumption in the OECD has declined to the levels of ten years ago despite an economic growth of over 25 percent in this period.¹⁵ The explanation is a combination of low population growth, market saturation, efficiency gains in energy production (such as switching from coal to gas), use of renewable sources, and efficiency gains in usage through new transportation and home energy technologies. The link between economic growth and increased energy usage is becoming tenuous as technological efficiencies appear.

In the transportation sector, despite its slow penetration, natural gas has gained a substantive market share. H.E. Dr. Adeli expects that more LNG will be used to supplement bunkering fuel in LNG vessels in order to cut down shipping costs. As far as technological developments, floating LNG vessels, gas-to-liquid technology, and LNG and CNG as transport fuels are offsetting increased cost pressures, reducing the environmental impact of fossil fuels, and proposing new solutions to monetize natural gas.

PRINCIPAL FINDINGS

Ongoing growth in Asian and Middle Eastern energy demand is likely to be met by new producers, aided by falling imports to the newly energy-independent United States. Outside of

the OECD, the traditional pattern of increasing populations, industrialization, urbanization, motorization, and economic development is increasing the demand for energy. The highest average rates of energy consumption per capita are now in the Middle East, while energy consumption per capita across Asia is still only one-fifth of the OECD average—though it is expected to double by 2030.¹⁶ Significant growth in primary energy demand is expected in China, India, Malaysia, Indonesia, and the Philippines up to and beyond 2030.

Transportation companies are preparing for every possible development in types of fuels. Analysts believe that in the coming decades, the transportation industry will be making a major effort to improve efficiency. Currently, the efficiency of a typical engine is only about 26 percent in normal driving conditions. Hybrid and electric cars are more efficient, and are becoming quite popular in Japan, where they make up around 40 percent of new cars. Japan's transportation industry is keen to promote vehicles that run on gas-based fuels internationally, but the key is infrastructure and receptiveness.

Oil producers are now looking east to Asia as the United States reduces its dependence upon imports. African and Middle Eastern producers are striking up partnerships with Chinese IOCs. Gas producers are doing likewise, but the high transportation costs of LNG has created regional gas markets. Gas prices have collapsed to below \$5 per million Btu in the United States due to the shale revolution. The European market has a pipeline network stretching

¹⁴ "BP Statistical Review of World Energy 2013."

¹⁵ Christof Ruhl, "Energy in 2013: Taking Stock," (paper presented at the World Petroleum Congress, Moscow, Russia, June 16, 2014), <http://www.bp.com/content/dam/bp/pdf/speeches/2014/energy_in_2013_taking_stock.pdf>.

¹⁶ "BP Energy Outlook 2030," BP, January 2011, <http://www.bp.com/content/dam/bp/pdf/Energy-economics/Energy-Outlook/BP_Energy_Outlook_Booklet_2011.pdf>.

out to Africa and the Middle East, yet is dominated by supplies from Norway, the Netherlands, and Russia with a market price of \$10-12 per million Btu. Japan is forced to pay up to \$16 per million Btu due to transport costs. The arbitrage of replacing coal with natural gas is basically zero, but using natural gas to replace oil could reduce costs by \$13 per million Btu. Yet gas is still overwhelmingly used for electricity because grids, transmission systems, and electrical appliances, are all energy agnostic, while cars are not. Gas supply has struggled to keep pace with gas demand, even in the gas-rich Middle East. Increased production in Qatar and the emergence of shale gas in the United States has resolved the issue for the time being. Meanwhile new producers are appearing, with eastern Mediterranean producers such as Israel now striking deals to supply Egypt. The key question remains: given the changes in demand and supply, what will be the future of the oil and gas market if the dash for gas as the key source of power generation continues?

CONCLUSION

The energy market has entered a new era where the focal point is becoming supplying Asia rather than the United States, which moves into a period of increased self-sufficiency, and Europe, where demand is expected to decline. The environmental impact has climbed the agenda, with greater emphasis on reducing carbon emissions, either by reducing dependency upon fossil fuels through expanded nuclear production or improving the efficiency of existing fossil fuel production by swapping out coal power plants for gas ones. Transportation, which accounts for the majority of oil demand, is changing technologically as hybrid cars gain some market share. As gasoline prices in the United States stay low, it remains to be seen whether (parts of) the transportation sector will switch to LNG or compressed natural gas (CNG) in the coming years. This in turn could have substantial effects on domestic oil demand and air quality.

Demand is stagnant across OECD countries but growing in Asia, Africa, Latin America, and the Middle East. The two largest customers, the United States and China, are shifting their own positions and those of others in the market. The United States has moved from being a major importer of oil and gas to becoming an exporter due in large part to the shale revolution. Previous suppliers to the United States have shifted their focus to growing Asian markets, especially China.

The role of the United States is changing; its interests abroad are now those of its IOCs, who are active throughout the global markets by developing fields in partnerships with national oil companies. It is likely that it will encourage the withdrawal of sanctions on Iran in the near future as it moderates its role as a world policeman.

China is looking to reduce its dependence on

coal, lower its carbon emissions, develop its infant shale industry, and improve its environment while securing its energy requirements by entering new partnerships in Africa and the Middle East, and keeping an interest in every energy source. Other Asian economies are following China's lead, looking to gas, and to a lesser extent nuclear power, to supplement coal-powered electricity generation.

In Europe, little change in the markets seems likely. Many of their refineries are up for sale due to excess capacity, with refinery costs much lower in the Middle East and Asia. The ongoing Ukraine crisis may encourage some European countries to look elsewhere for secure gas supplies, and others may attempt to tap into their unconventional gas potential. This may give the United States a market opportunity for its LNG exports and encourage further pipeline developments in North Africa, the Caspian Sea, and the near Middle East.

The Middle East remains the largest source of oil and gas for Asia and the rest of the world, but like most Asian economies, it faces twin problems of rising consumption and subsidies at home. Even the energy-rich states of the Gulf realize that they can no longer continue to justify the use of subsidies as their fiscal deficits and energy consumption per capita rise. Subsidy reform, if undertaken, needs to be targeted and implemented at the right pace. Iran may have taken the lead on this issue but others need to follow if they are to improve economic efficiency. Furthermore, the political instability in the region prevents it from reaching its true economic potential as investors become risk averse.

The "dash for gas" movement continues to grow, and prices are currently attractive to investors, but if the shale gas revolution takes off outside of the United States then long-term future prices may

prove less attractive. Currently, however, it looks like this will be an evolutionary phenomenon rather than a revolutionary one outside of the United States. It would seem that the United States has been fortunate to have the right geology, private land available for lease, enterprising independent subject matter experts working alongside the IOCs, and a mature grid and network for moving shale gas, all of which have enabled the industry to develop rapidly. The IEA is bullish, seeing demand and prices rising steadily, with some commentators predicting price hikes as supply bottlenecks. This could prove similar to the recent gas shortage in the GCC, occurring as a result of underinvestment in recent times. Meanwhile, some commentators are predicting a collapse in price similar to that experienced by the United States as everyone starts fracking for oil and gas. What is certain is that we are seeing unprecedented changes in the energy market, which has made the future less predictable. Still, regardless of the push for cleaner fuels, many of the poorer nations will still rely upon cheap fossil fuels such as coal for power generation for at least the next thirty years.

The changes in the energy market are taking place against a backdrop of political and economic change. China is about to usurp the United States as the number one economy, developing and emerging countries are suffering growing pains such as large-scale youth unemployment, gaps in income inequality are widening, and further civil unrest such as the Arab Spring uprisings seems likely as consumer expectations rise. Inevitably, as economic development quickens in the developing world, the demand for energy will continue to rise in order to facilitate a higher standard of living. The question that the Forum leaves unanswered: What will the world energy mix look like in 2035, and how will that affect the climate, the environment, and geopolitics?

This and other pertinent questions raised during the Forum's successive meetings will define the agenda for the Brookings Doha Center's Research Platform on Energy in the coming years.

ANNEX I: CONFERENCE AGENDA

BROOKINGS

QUALITY, INDEPENDENCE, IMPACT.

The Brookings Doha Energy Forum 2014

Energy Markets in Motion: How Changes in Geopolitics, Political Economy, and Markets Alter the Energy Landscape

April 2 - 3
Four Seasons Hotel – Doha

APRIL 2

08:00 AM – 09:30 AM	Registration – Mirqab pre-function room (Coffee and refreshments available)
09:30 AM – 09:45 AM	Introduction and Welcome – Mirqab Ballroom H.E. Sheikh Mohammed Bin Abdulrahman Bin Jassim Al Thani, <i>Minister's Assistant for International Cooperation Affairs, Ministry of Foreign Affairs, State of Qatar</i> Charles K. Ebinger, <i>Director, Energy Security Initiative, Brookings</i> Salman Shaikh, <i>Director, Brookings Doha Center</i>
09:45 AM – 10:00 AM	Keynote Address – Mirqab Ballroom H.E. Dr. Mohammed Bin Saleh Al Sada, <i>Minister of Energy and Industry, State of Qatar</i>
10:00 AM – 11:00 AM	High Level Session – Mirqab Ballroom H.E. Dr. Seyed Mohammad Hossein Adeli, <i>Secretary General, Gas Exporting Countries Forum</i> H.E. Adnan Al-Janabi, <i>Chairman, Oil and Energy Parliamentary Committee, Republic of Iraq</i>
11:15 AM – 12:45 PM	First Plenary: The Changing Geopolitics of Energy – Mirqab Ballroom Moderator: Nader H. Sultan, <i>Chairman, Ikarus Petroleum Industries</i> Panelists: Luay Al-Khatteeb, <i>Visiting Fellow, Brookings Doha Center; Senior Advisor, Federal Parliament of Iraq</i> Erica S. Downs, <i>Fellow, John L. Thornton China Center, Brookings</i> Fereidun Fesharaki, <i>Chairman, FACTS Global Energy</i> Edward L. Morse, <i>Managing Director and Global Head – Commodities, Citi Research</i> Hasan Qabazard, <i>Chief Executive Officer, Kuwait Catalyst Company; Former Director, Research Division, Organization of Petroleum Exporting Countries</i>

This panel aims to address the most prolific changes in global energy markets and their geopolitical consequences. Despite initial skepticism, the U.S. energy boom is increasingly viewed as a long-term phenomenon. In the longer term, the U.S. could therefore become an important player on global markets for oil and natural gas. This significantly impacts other major energy producing and consuming regions in the world. At the same time, while the Middle East and North Africa has been going through a phase of substantial political turmoil, several countries in the region stand to play an important role in global and regional energy markets. This panel examines a number of these key countries, including Iran and Iraq. The panel also invites speakers to elaborate on the impact of these changes on the natural gas market and Qatar's role in navigating these effects as the world's leading liquefied natural gas exporter. Finally, considering developments in the United States, the panel explores the potential rivalry between other large consumers, most notably China and India, for Gulf resources.



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APRIL 2 (CONTINUED)

1:00 PM – 2:30 PM

Lunch – Mirqab III

Introduction:
Speaker:

Salman Shaikh, *Director, Brookings Doha Center*
The Rt. Hon. Lord David Howell of Guildford, *Former Secretary of State for Energy, U.K.; Former Minister of State (International Energy Policy), Foreign and Commonwealth Office, U.K.*
“EU Energy Policy in the Context of the Russian-Ukrainian Crisis: Current Situation and Future Scenarios”

2:45 PM – 4:30 PM

Working Groups: Session 1

Moderator:

Working Group 1 – *Zubara meeting room*
Tim Boersma, *Fellow, Energy Security Initiative, Brookings*

Moderator:

Working Group 2 – *Jnan meeting room*
Narendra Taneja, *President, World Policy Energy Summit*

Moderator:

Working Group 3 – *Msaimeer meeting room*
Herman Franssen, *Executive Director, Energy Intelligence Group*

4:30 PM – 4:45 PM

Coffee Break – Msaimeer pre-function room

08:00 PM – 9:30 PM

Forum Dinner – Garden Terrace

Introduction:
Speaker:

Charles Ebinger, *Director, Energy Security Initiative, Brookings*
Governor Bill Richardson, *Chairman, Global Political Strategies, APCO Worldwide Inc.; Former Secretary, U.S. Department of Energy*

APRIL 3

08:30 AM – 10:00 AM

Second Plenary: The Political Economy in the Middle East and Asia - Al Daibel

Moderator:
Panelists:

Charles Ebinger, *Director, Energy Security Initiative, Brookings*
Stephen Gallogly, *Head of the Europe, Middle East, and Africa Division, International Energy Agency*
Subir Gokarn, *Senior Fellow and Director of Research, Brookings India; Former Deputy Governor, Reserve Bank of India*
Robin Mills, *Head of Consulting, Manaar Energy Consulting*
Ye Qi, *Director, Brookings Tsinghua Center for Public Policy*
Jean-François Seznec, *Visiting Associate Professor, McDonough School of Business, Georgetown University*

Building off the geopolitical background established by the first plenary, this panel examines the most important debates regarding energy production and consumption in the Middle East and Asia. Fuel subsidies are currently the subject of much discussion. While they form an important political instrument around the world, their drain on state coffers is often unsustainably large, with the resulting perception that “energy is cheap” serving to incentivize waste and pollution. At the same time, fossil fuels’ non-renewability and their environmental impact has spurred ongoing debates about moving away from a carbon intensive economy. In the Middle East, there seems to be abundant potential for renewable technologies such as solar energy, and several countries show an interest in exploring nuclear options. Panelists will explore other ways to match growing energy demand in Asia, particularly in China and India, and the effects of this growing demand on the environment and global energy markets.

10:00 AM – 10:15 AM

Coffee Break – Al Daibel pre-function room



BROOKINGS

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APRIL 3 (CONTINUED)

10:15 AM – 11:45 AM

Working Groups: Session 2

Working Group 1 – Zubara meeting room
Working Group 2 – Jnan meeting room
Working Group 3 – Msameer meeting room

12:00 PM – 1:00 PM

Lunch – Il Teatro

1:15 PM – 2:45 PM

Third Plenary: Energy Markets in Motion – Al Daibel

Moderator: Panelists:

Ivan Sandrea, *Senior Partner, Emerging Markets Oil and Gas, Ernst & Young LLP*
Amos J. Hochstein, *Deputy Assistant Secretary for Energy Diplomacy, U.S. Department of State*
James T. Jensen, *President, Jensen Associates*
Robert L. Kleinberg, *Schlumberger Fellow, Schlumberger Limited*
Nobuhiko Koga, *General Manager, Energy Affairs Department, Toyota Motor Corporation*
Gal Luft, *Co-director, Institute for the Analysis of Global Security*

This panel addresses the changing environment in which petroleum companies operate. What could radically change? What are the main outlooks for future consumption of oil and electricity? Panelists will discuss observations about trends in global transportation sectors, including regarding petroleum, electric vehicles, and LNG applications. The panel will highlight key technological developments in unconventional resource extraction, as well as environmental challenges and policies. The panel will also discuss the future pricing of internationally traded gas and the consequences of a growing LNG market and increased integration of global gas markets. Panelists will share their views on challenges posed by distributed generation vis-à-vis conventional utilities companies.

3:00 PM – 4:30 PM

Working Groups: Session 3

Working Group 1 – Zubara meeting room
Working Group 2 – Jnan meeting room
Working Group 3 – Msameer meeting room

4:30 PM – 5:00 PM

Coffee Break – Al Daibel pre-function room

5:00 PM – 5:45 PM

Presentations of Findings and Plenary Discussion – Al Daibel

Moderator: Presenter:

Charles Ebinger, *Director, Energy Security Initiative, Brookings*
Luay Al-Khatteeb, *Visiting Fellow, Brookings Doha Center; Senior Advisor, Federal Parliament of Iraq*

5:45 PM – 6:00 PM

Concluding Remarks and Farewell – Al Daibel

6:00 PM – 7:00 PM

Farewell Cocktail Reception – Al Daibel pre-function room



ANNEX 2: LIST OF PARTICIPANTS

Last Name	First Name	Title/Position	Company/Institution	Country
Abdul Basir	Abdul Jalil	Director General, Petroleum Authority	Ministry of Mines & Petroleum	Afghanistan
Abraham	Jocin James	Special Advisor, Energy & Economy	Embassy of the Republic of Korea in Qatar	Qatar
Abutiffa	Abdelmoniem	CEO	Qatar International Law Firm	Qatar
Adeli	Seyed Mohammed Hossein	Secretary General	Gas Exporting Countries Forum	Qatar
Affleck	Lewis	Managing Director	Maersk Oil	Qatar
Ahmed	Houriya	Special Projects, Office of the President	Qatar Foundation	Qatar
Al Amri	Ghalib	Natural Gas Market Analyst	Gas Exporting Countries Forum Secretariat	Qatar
Al Fattah	Saud M.	Consultant - Global Economic & Energy Analysis Department, Corporate Planning	Saudi Aramco	KSA
Al Jaber	Nasser	Community Investments Manager	ExxonMobil	Qatar
Al Jaidah	Nasser	CEO	Qatar Petroleum	Qatar
Al Janabi	Adnan	Chairman, Oil & Energy Committee	Federal Parliament of Iraq	Iraq
Al Kaabi	Saad Sherida	Director, Oil & Gas Ventures	Qatar Petroleum	Qatar
Al Khatteeb	Luay	Visiting Fellow; Senior Advisor	Brookings Doha Center; Federal Parliament of Iraq	Qatar
Al Khor	Mohammed Ahmed	Senior Research Analyst, Qatar Foundation Research and Development	Qatar Foundation	Qatar
Al Mansoori	Jassim	Chairman	iHorizons International	Qatar
Al Naemi	Abdullatif	National Development Manager	ExxonMobil	Qatar
Al Obaidly	Abdulrahman	Manager, Public Relations & Communications	Qatar Petroleum	Qatar
Al Riyami	Mohammed	Head, Energy and Gas Market Analysis Department	Gas Exporting Countries Forum Secretariat	Qatar
Al Sada	H.E. Mohammed Bin Saleh	Minister of Energy and Industry	Ministry of Energy and Industry, State of Qatar	Qatar
Al Shanfari	Sheikh Adil	Vice Chairman	Al Shanfari Group of Company	Oman
Al Tamimi	Fahad	Assistant Manager for Renewable Energy, New Energy Department	Qatar Petroleum	Qatar
Al Thani	Sheikh Faisal	Vice Chairman	Al Faisal Holding	Qatar
Al Thani	Sheikh Ahmed Bin Mohd. Bin Saud	General Manager, International Department	Qatar International Law Firm	Qatar
Al Thani	H.E. Sheikh Mohammed Bin Abdulrahman Bin Jassim	Minister's Assistant for International Cooperation Affairs	Ministry of Foreign Affairs, State of Qatar	Qatar
Alhamadi	Salwa	Senior Nuclear Energy Analyst, New Energy Department	Qatar Petroleum	Qatar
Almana	Saleh	Vice President & Government and Public Affairs Manager	ExxonMobil	Qatar
Al-Subaey	Maha Khalid Turkey	Senior Renewable Energy Analyst, New Energy Department	Qatar Petroleum	Qatar
Al-Wahaibi	Mohamed bin Nasser Hamad	Ambassador	Embassy of Oman in Qatar	Oman

Last Name	First Name	Title/Position	Company/Institution	Country
Arora	Sanjiv	Ambassador	Embassy of India in Qatar	India
Arteaga	Maria Rodriguez	Office of the Secretary General	Gas Exporting Countries Forum Secretariat	Qatar
Baabood	Abdullah	Director, Gulf Studies Center	Qatar University	Qatar
Bakir	Siddik	Senior Energy Analyst	IHS Inc.	UK
Bartelink	Jurgen	Deputy Head of Mission	Embassy of Netherlands in Qatar	Netherlands
Belaifa	Mahdjouba	Energy Economics Analyst	Gas Exporting Countries Forum Secretariat	Qatar
Bird	Timothy	Dean, Academic Affairs	Kings College London (Qatar Branch)	Qatar
Boersma	Tim	Fellow, Energy Security Initiative	Brookings	USA
Bondokji	Neven	Joint Visiting Fellow	Brookings Doha Center/Qatar University	Qatar
Boyce	Sir Graham	Director	Hinton Capital Partners Ltd.	UK
Bruce	Greg	Business Support Manager, Marketing & Shipping	RasGas Company Ltd.	Qatar
Cahir	Bart	President & General Manager	ExxonMobil	Qatar
Chalmin	Guillaume	Managing Director	TOTAL Qatar	Qatar
Chen	Mike	Visiting Fellow; Principal Analyst	Oxford Institute for Energy Studies; Statoil	China
Chowdhury	Anindya	General Manager – Gas	Shell India Markets Pvt. Ltd.	India
Christodoulidis	Nicholas	Counsellor, Economic & Commercial Affairs	Embassy of Greece in Qatar	Qatar
Dadfar	Sanaz	Senior Commercial Advisor - Gulf	Shell Upstream International	UAE
De Poumeyrol	Benjamin	Business Decision Analyst	Maersk Oil	Qatar
De Sanctis	Guido	Ambassador	Embassy of Italy in Qatar	Italy
Doshi	Tilak K.	Senior Research Fellow	King Abdullah Petroleum Studies Research Center	KSA
Downs	Erica S.	Fellow, John L. Thornton China Center	Brookings	USA
Ebinger	Charles	Director, Energy Security Initiative	Brookings	USA
Fesharaki	Fereidun	Chairman	FACTS Global Energy	Iran
Flores-Quiroga	Aldo	Secretary General	International Energy Forum	KSA
Franssen	Herman	Executive Director	Energy Intelligence Group	USA
Freier	Mark	Research and Support Manager	Aramco Asia	China
Futehally	Ilmas	Executive Director	Strategic Foresight Group	India
Gallogly	Stephen	Head of Europe, Middle East & Africa Division	International Energy Agency (IEA)	USA
Galvan Encinas	Margott C.	Director, Africa, Middle East and International Oil Market	Ministry of Energy, Mexico	Mexico
Gentilucci	Adriano	Commercial Leader for Dow Oil, Gas & Mining	Mitsubishi Electric America Foundation (MEAF)	UAE
Giardino	Carrie	Economic Officer	Embassy of the United States in Qatar	USA
Gokarn	Subir	Senior Fellow and Director of Research; Former Deputy Governor	Brookings India; Reserve Bank of India (RBI)	India
Gordon	Tariq	First Political Secretary	Embassy of Canada in Qatar	Qatar
Gorji	Amin M.	LNG, CNG and GTL Market Analyst	Gas Exporting Countries Forum Secretariat	Qatar
Gulfaraz	Ahmed	CEO	Petroleum Exploration	Pakistan
Haddad	Carmen	CEO	Citibank Qatar	Qatar
Hamed	Zoheir	Research Assistant	Arab Center for Research & Policy Studies	Qatar
Hanna	Elie	General Manager, Property Casualty	AIG MEA Limited	Qatar

Last Name	First Name	Title/Position	Company/Institution	Country
Haruna	Salisu	Gas Upstream Industry Analyst	Gas Exporting Countries Forum Secretariat	Qatar
Hassanov	Fakhri	Professor of Economics	Qafqaz Univeristy	Azerbaijan
Hattori	Keiji	Executive Director	Japan External Trade Organization (JETRO)	Japan
Hochstein	Amos J.	Deputy Assistant Secretary for Energy Diplomacy	U.S. Department of State	USA
Horie	Yoshiaki	Assistant General Manager, Energy & Mineral Resources Dept.	Mitsui & Co. Ltd.	Qatar
Howell	Lord David	Former Secretary of State of Energy; Former Minister of State (IEP), Foreign and Commonwealth Office	Government of the United Kingdom	UK
Humphreys	Brett	Head (Long Term Sales Analysis), Marketing & Shipping	RasGas Company Ltd.	Qatar
Hyafil	Antonie	Academic Coordinator, Executive Master in Energy and Resources	Hamad bin Khalifa University	Qatar
Ingianni	Luigia	Legal Consultant	Qatar International Law Firm	Qatar
Ingram	Jamie	Country Risk Analyst, MENA	IHS Inc.	UK
Ismail	Rudiger	Political, Economic, and Energy Secretary	Embassy of the United Kingdom in Qatar	UK
Jain	Subodh Kumar	Director	South Asia Gas Enterprise (SAGE)	India
Jamali	Usameh	Advisor to the Chairman	Australian College of Kuwait	Kuwait
Jensen	James	President	Jensen Associates	USA
Jones	Ian	Senior Director, Oil & Gas Advisory	Ernst & Young	Oman
Karagiannis	Emmanuel	Senior Lecturer, Defense Studies Department	Kings College London (Qatar Branch)	Qatar
Khajehpour Khoi	Bijan	Managing Partner	Atieh International	Austria
Khee	Tan	Co-Director, Asia Competitiveness Institute, Lee Kuan Yew School of Public Policy	National University of Singapore	Singapore
Kleinberg	Robert	Schlumberger Fellow	Schlumberger Limited	USA
Koga	Nobuhiko	General Manager, Energy Affairs Department	Toyota Motor Corporation	Japan
Koizumi	Toshiaki	General Manager, Fuel Department	Tokyo Electric Power Company	Japan
Kolaczowski	Maciej	Community Manager, Oil & Gas Industry	World Economic Forum	Switzerland
Kumetat	Dennis	First Secretary, Cultural, Political and Press Affairs	Embassy of Germany in Qatar	Germany
Lanzhong	Li	Country Manager	PetroChina Investment (Hong Kong) Limited	China
Li	Yao	Executive Director	SIA Energy	China
Lister	Charles	Visiting Fellow	Brookings Doha Center	Qatar
Luft	Gal	Co-Director	Institute for the Analysis of the Global Security	USA
Madan	Tanvi	Fellow, Foreign Policy; Director, India Project	Brookings	India
Malesa	Thaddeus	Economic Expert	Ministry of Development Planning	Qatar
Masood	Faisal	Vice President	Citibank Qatar	Qatar
Massy	Kevin	Director, International Affairs	Statoil	USA
Mateski	Marina	Assistant Manager, Nuclear Energy, New Energy Department	Qatar Petroleum	Qatar

Last Name	First Name	Title/Position	Company/Institution	Country
Mills	Robin	Head of Consulting	Manaar Energy Consulting	UAE
Mitura	Joanna	Agreements Coordinator	QatarGas Operating Company	Qatar
Monsour	Rabie	Managing Director	Jasia Holding LLC.	Morocco
Morse	Edward L.	Managing Director, Global Head of Commodities Research	Citi Research	USA
Ng	David	Political Economic Counselor	Embassy of the United States in Qatar	USA
Norton	Nicholas	Senior Energy Advisor, Climate Change & Energy Dept.	Foreign & Commonwealth Office of the United Kingdom	UK
Ochoa	Orlando	Aggregated Professor of Economics	Andrés Bello Catholic University	Venezuela
Pallikaris	Yannis	Managing Director	ACM Iraq/Profitability Group Ltd.	Iraq/Greece
Pandit	Vivek	Senior Director & Head - Energy	Federation of Indian Chambers of Commerce and Industry	India
Pedrosa	Eduardo	Secretary General	Pacific Economic Cooperation Council (PECC)	Singapore
Ponce de Leon	Joan Abellan	Buisness Development/International Community Reports	Focus Reports/Oil & Gas Financial Journal	Qatar
Qabazard	Hasan	CEO; Former Director, Research Divison,	Kuwait Catalyst Company (KCC); OPEC	Kuwait
Qablawi	Basem	Interface Manager, GPM	ExxonMobil	Qatar
Qi	Ye	Director	Brookings Tsinghua Center for Public Policy	China
Ramirez	Claudio	Regional Economic and Finance Controller (GCC)	Embassy of Canada in the United Arab Emirates	Canada
Rho	Kangho	Vice President & Head	SK Trading Intl., Middle East	UAE
Rigby	Jim	Vice President & Development Manager	ExxonMobil	Qatar
Richardson	Bill	Chairman, Global Political Strategies; Former Secretary of Energy	APCO Worldwide Inc.; U.S. Department of Energy	USA
Routledge	Alistair	Vice President & Joint Interest Manager	ExxonMobil	Qatar
Sabeur	Mansar	General Manager, Development and Commercial	Shell Qatar	Qatar
Sachs	Natan	Fellow, Saban Center for Middle East Policy	Brookings	USA
Salem	Margaret Mitchell	Executive Director	Qatar Foundation	USA
Salzano	Pasquale	Vice President, Head of International Public Affairs	Eni S.p.A.	Italy
Samaha	Rana	Director, Middle East, Research & Advisory	Energy Intelligence	Lebanon
Sandrea	Ivan	Senior Partner, Emerging Markets Oil & Gas	Ernst & Young LLP	UK
Sawan	Wael	Managing Director and Country Chairman	Qatar Shell GTL Limited	Qatar
Sedaoui	Radia	Head, Statistics and Gas Modelling Department	Gas Exporting Countries Forum Secretariat	Qatar
Semaan	Maroun	Chairman	Alcazar Capital Limited	UAE
Seznec	Jean-Francois	Adjunct Professor	McDonough School of Business, Georgetown University	USA
Shaikh	Karim	Well & Reservoir Management Lead	Shell Qatar	Qatar
Shaikh	Salman	Director	Brookings Doha Center	Qatar
Sharqieh	Ibrahim	Deputy Director	Brookings Doha Center	Qatar
Sherwin	Rob	General Manager, Corporate Affairs; Deputy Country Chairman	Shell Qatar	Qatar

Last Name	First Name	Title/Position	Company/Institution	Country
Shoar	Mohsen	Managing Director	Continental Energy	UAE
Smith	Robert	Managing Consultant	FGE Dubai	UAE
St. James	Carlos	Chairman	Middle East-Americas Energy Council (MEAMEC)	Bahrain
SuHo	Lee	Counselor	Embassy of the Republic of Korea in Qatar	Qatar
Sultan	Nader	Chairman	Ikarus Petroleum Industries	Kuwait
Takeishi	Reiji	Professor, School of International Relations	Tokyo International University	Japan
Taneja	Narendra Kumar	President	World Policy Energy Summit	India
Taylor	Paul Neil	Head of Communication	Maersk Oil	Qatar
Tomba	Mattia	Investment Professional	Qatari Diar	Qatar
Toyoda	Masakazu	Chairman and CEO	Institute of Energy Economics, Japan	Japan
Tscherning	Rudiger	Director, Center for Energy and Sustainability Law	Qatar University	Qatar
Vadhanam	D. Sundar	Head of Trade Services	Bank Sedarat Iran	Qatar
Walker	Kirsty Avril Jane	Project Director	Focus Reports/Oil & Gas Financial Journal	Qatar
Walker	Joshua	Director, Global Programs	APCO	USA
Waselkar	Sundeep	President	Strategic Foresight Group	India
Wattez	Oliver	Vice President, Business Development Manager	TOTAL Qatar	Qatar
Zarasvand	Ezat	General Manager	Information Store (iStore)	USA
Ziadeh	Susan Laila	Ambassador	Embassy of the United States in Qatar	USA

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The Brookings Doha Energy Forum Advisory Group is essential to the sustainability of the Forum. It is composed of representatives with diverse backgrounds and expertise, and works to shape the Forum, specifically by providing input on which topics to discuss and how to frame them. The members also recommend speakers and attendees to ensure that the Forum brings together the best, most representative group of leaders in energy and politics.

Its members include:

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Herman Franssen, Executive Director, Energy Intelligence Group

Victor Gao, Director, China National Association of International Studies

David Goldwyn, President, Goldwyn Global Strategies, LLC

Nasser Al Jaidah, CEO, Qatar Petroleum

Yasser Mahdi Mufti, Head of Strategic Transformation, Saudi Aramco

Ivan Sandrea, Senior Partner, Ernst & Young LLP

Charles Ebinger, Director, Energy Security Initiative, The Brookings Institution

Vikram Mehta, Chairman, Brookings India

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