



Gulf Research Centre Cambridge
Knowledge for All

Workshop 11

The Changing Energy Landscape in the Gulf: Strategic Implications

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Abstract

For most of the modern era, fossil fuels – oil, natural gas, and coal – have provided the lion’s share of global energy supplies. Their relative shares have fundamentally changed, but they have continued to dominate the energy mix in almost every country in the world. However, other fuels, particularly nuclear power and renewable energy, have attracted substantial attention and investments and are projected to provide an incremental share of supplies in the coming years. This workshop will examine the Gulf Cooperation Council (GCC) states’ efforts to diversify their energy mix as well as the initiatives to restrain consumption. Simply stated, the surge in oil consumption means less is available for export. A two-fold strategy of curbing consumption and diversifying the energy mix would allow the GCC states to maintain their status as major oil producers and exporters for a longer time. A major goal of this workshop is to analyse the geo-political and economic drives behind this diversification and to highlight the recent progress. These fundamental changes in the energy landscape in the GCC states are examined against the uncertainties in the global energy markets due to shale gas and tight oil.

Workshop Description and Rationale

For decades the GCC countries have been overwhelmingly dependent on oil and gas to meet their domestic energy needs and for exports to the rest of the world. Since the early 2000s, the six GCC countries have expressed interest in reducing their deep dependency on oil and developing alternative sources of energy (nuclear and renewables). Like other countries, environmental, financial, and strategic concerns are driving this interest in alternative energy. Due to the surge in energy consumption, many Middle Eastern cities have become among the most polluted in the world. Replacing oil by nuclear power and/or renewable energy (particularly solar) for generating electricity and water desalination would release more oil for export and increase national revenues. The relative weight of each drive varies from one Gulf state to another. In addition, how they will address the uncertainties surrounding nuclear power and renewable energy is yet to be spelt out. What is certain is that the growing interest in alternative energy in the Middle East has the potential to drastically alter the economic, security, and strategic landscapes in the entire region with significant implications worldwide.

Specifically, the workshop will examine how the GCC states are preparing to address the following challenges:

- **Nuclear safety:** The full utilization of nuclear power depends to a large extent on public perception and public confidence in the safety of nuclear plants. The threats to safety come mainly from at least three sources: unintended technical accidents caused by equipment failure or human errors; natural disaster such as earthquake or tsunami; and/or potential planned terrorist attacks.
- **Waste management:** Radioactive wastes are generated in many activities such as nuclear power production and a range of radioisotope applications in medicine, industry, agriculture, and research. Currently there are basically two options for managing radioactive wastes. One option is to directly dispose spent fuel in a deep geologic repository to isolate it for hundreds of thousands of years. The other option is to reprocess the spent fuel to separate the uranium and plutonium for use as a new fuel.
- **Economic competitiveness:** The recent interest in nuclear power and the ambitious plans to build nuclear plants are likely to be restrained by the uncertainties regarding the economic competitiveness of this promising source of energy. Nuclear plants are quite capital-intensive. Furthermore, the ongoing efforts to improve their security have further added to their construction costs.
- **Nuclear weapons proliferation:** The renewed global interest in nuclear energy has heightened the concern over nuclear proliferation. The link between civilian nuclear power and nuclear weapons has been a serious unresolved worry throughout the nuclear age. The expansion of civilian nuclear power is likely to contribute to dissemination of expertise, technology, and material that would be useful in launching a nuclear weapons programme. The connection between civilian and military applications of nuclear power seems inevitable.

Renewable energy is any form of energy that is replenished by natural process at a rate that equals or exceeds its rate of use. Some renewable energy resources such as hydropower are technically mature and have been deployed on a significant scale. Others, such as wind, solar, and geothermal, are in a nascent phase of technical maturity and commercial production and deployment.

The workshop will examine how the GCC states are preparing to address the following characteristics:

- Renewable sources are largely site-specific in many of their applications. Unlike oil and natural gas, which are transported across the globe with different degrees of ease, renewable sources are more likely to be consumed locally.
- In many cases renewable sources supply energy intermittently. The sun and winds are not uniform in their availability for power generation on a daily basis and vary from one season to another. There are ways to address and at least partly overcome this intermittency issue such as by the creation of a back-up system to fill the gap when renewables fail to deliver.
- Despite renewable energy's environmental advantages, it is largely more expensive than fossil fuels and still provides a small share of the global energy mix. Though renewable energy is becoming more economically competitive, substantial investments and technological advances are needed. To a great extent, renewable sources cannot compete with oil and natural gas in a free market in many countries. They need government protection and subsidies.

In examining the GCC states' efforts to restrain rising consumption, it is important to point out that the six states currently consume more primary energy than the whole of Africa. If the region's fuel demand were to continue rising as it has over the last decade, it would double by 2024. The GCC states are among the world's least energy-efficient consumers. Several factors contribute to this high level of energy intensity. Low energy prices lead to overconsumption and waste. Another reason is the heavy concentration on energy-intensive industry such as petrochemicals and aluminium. These high levels of energy consumption and low levels of efficiency are unsustainable.

The GCC states' efforts to diversify their energy mix and slow the rising consumption will be examined against the substantial improvements in the US energy outlook. In 1970, US crude oil production peaked, and then declined continuously for more than 20 years when tight oil first began to flow after 2008. Since then production has risen due to a technological innovation known as hydraulic fracturing (fracking), which unlocks oil and gas previously trapped in shale rock. In late 2012, the International Energy Agency projected that the United States will become the largest global oil producer by 2020 and North America will become a net oil exporter around 2030. This rising production has had significant impact on the global market. The workshop will examine how the GCC states should respond to these changes and the link between regional strategies to diversify the energy mix and curb consumption on the one side and the global markets on the other side.

To sum up, the workshop will examine the two sides of the energy equation – supply and demand. Diversifying the energy mix (i.e., increasing the share of nuclear and renewable power and reducing dependency on petroleum products) and rationalising consumption would add more economic and strategic power to the GCC states.

Scholarly contribution

For the last several years, several Gulf States have invested in alternative energy particularly nuclear and renewable. The development of these resources is promising and is likely to make fundamental changes in Gulf economies and societies. The scholarly community and policy makers need deep knowledge of the potentials, promises, and challenges of these alternative energy resources. This workshop is designed to meet these needs and to continue and energise the dialogue between energy scholars and policy makers.

Anticipated Papers

This workshop will examine energy security from the producers' perspective. The focus will be on security of demand and oil producers' efforts and strategies to diversify their energy mix and reduce their dependence on oil. Scholars will be invited to present their research on the ambitious efforts to utilise nuclear power and renewable energy. Scholars will also be invited to address the role fossil fuels will play in Gulf economies in the coming decades, including the partnership between foreign and national companies. Finally, the papers will assess the efforts by Gulf States to curb the growing energy demand, particularly subsidy cuts. More specifically, the following topics will be examined:

- Dependency on oil and petroleum products in the GCC states
- The role of natural gas in the energy sector
- Utilizing nuclear power in the GCC states: opportunities and challenges
- Utilizing renewable energy in the GCC states: opportunities and challenges
- Human infrastructure
- Foreign partners
- Oil and gas subsidies
- Strategies to reduce consumption
- How should the GCC states respond to developments in shale gas and tight oil?

Workshop Director Profiles

Dr. Roger Kangas is the Academic Dean and a Professor of Central Asian Studies at the Near East South Asia Center for Strategic Studies. Previously Dr. Kangas served as a Professor of Central Asian Studies at the George C. Marshall Center for European Security in Garmisch-Partenkirchen, Germany; Deputy Director of the Central Asian Institute at the Paul H. Nitze School of Advanced International Studies (SAIS) in Washington, D.C.; Central Asian Course Coordinator at the Foreign Service Institute for the US Department of State; Research Analyst on Central Asian Affairs for the Open Media Research Institute (OMRI) in Prague, Czech Republic; and as an Assistant Professor of Political Science at the University of Mississippi.

Dr. Kangas has been an advisor to the Combatant Commands, NATO/ISAF, the US Air Force Special Operations School, National Democratic Institute, International Research and Exchanges Board, American Councils, Academy for Educational Development, USIA, USAID, and other US government agencies on issues relating to Central and South Asia, Russia, and the South Caucasus. He is also an Adjunct Professor at Georgetown University. Dr. Kangas holds a B.S.F.S. in Comparative Politics from the Edmund A. Walsh School of Foreign Service at Georgetown University and a Ph.D. in Political Science from Indiana University

Dr. Gawdat Bahgat is professor of National Security Affairs at the National Defense University's Near East South Asia Center for Strategic Study. He is an Egyptian-born specialist in Middle Eastern policy, particularly Egypt, Iran, and the Gulf region. His areas of expertise include energy security, proliferation of weapons of mass destruction, counter-terrorism, Arab-Israeli conflict, North Africa, and American foreign policy in the Middle East.

Bahgat's career blends scholarship with national security practicing. Before joining NESAC in December 2009, he taught at different universities. He has published eight books including "Energy Security" (2011), "International Political Economy" (2010), "Proliferation of Nuclear Weapons in the Middle East" (2007), "Israel and the Persian Gulf" (2006), and "American Oil Diplomacy" (2003). His work has been translated to several foreign languages.

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