LOW-CARBON ENERGY TRANSITIONS IN QATAR AND THE GULF COOPERATION COUNCIL REGION

Joshua Meltzer, Nathan Hultman and Claire Langley

EXECUTIVE SUMMARY

The countries of the Gulf Cooperation Council (GCC)[1] comprise some of the world's largest producers of oil and gas. The region holds approximately 40 percent of the world's proven oil reserves and 23.6 percent of the world's proven gas reserves, and Qatar holds the world's third largest natural gas reserves. These economies are also built on the extraction and sale of these resources. Qatar, for instance, relies entirely on oil and natural gas for its primary energy consumption, and revenues from these industries accounted for 58 percent of its GDP in 2011.[2] Oil and gas exports from GCC countries represent approximately 73 percent of their total export earnings, 63 percent of their government revenues and 41 percent of their GDP.[3] Rising oil prices and gas prices over the last decade have translated into strong economic growth in the GCC. Since 2002 the region's economy has tripled in size. However, rising economic prosperity has also highlighted a range of environmental challenges for Qatar and the region. The GCC is home to some of the world's largest polluters—several Gulf countries fall among the top 10 emitters in terms of greenhouse gas (GHG) emissions per capita, with Qatar ranking fifth globally. In addition, energy consumption in Qatar and the other GCC countries is placing increasing pressure on domestic energy supplies, and, combined with robust population and economic growth, energy demand will continue to increase over the next decade.[4]

Global climate change will have environmental, economic, and potentially even political and security impacts on Qatar and the GCC as a whole. Combined with rising population levels, climate change will aggravate existing challenges regarding water scarcity and food security, and raise new challenges through adverse impacts on human health, economic development and the environment. The economic importance of oil and gas makes Qatar and other GCC countries economically vulnerable to global efforts to reduce greenhouse gas emissions.[5] As global action to reduce GHG emissions will necessarily require reduced consumption of fossil fuels, this will affect the region's main economic base—the extraction and export of oil and gas.

While addressing climate change and reducing GHG emissions presents challenges for Qatar and the GCC, it is also an opportunity that could underpin a diversification of Qatar's economy and lead to the development of low-carbon technologies such as carbon

capture and storage (CCS), energy efficiency technologies and alternative energy. However, in order for Qatar to become a leader in the development of low-carbon technologies, a number of steps, additional to those already taken, are necessary.

The following report reviews a wide variety of considerations for low-carbon transformation and energy reform in Qatar and the GCC region. This report contains four chapters on climate change, CCS, energy efficiency, and solar and other alternative energies. The climate change chapter outlines the challenges of climate change for Qatar and the GCC. It discusses why a comprehensive climate change policy will produce environmental and energy benefits and how Qatar can design such a policy to underpin the development of clean energy technologies. The other three chapters discuss the main technological and policy developments for these energy technologies in Qatar, the GCC and the world. Each chapter contains specific recommendations for actions that Qatar and the GCC could take to address concerns about GHG emissions while at the same time support the development of a range of new energy sources and technologies that would provide environmental and economic benefits for the region and the world.

The key recommendations from the report are as follows:

Climate Change

- *Get the policy framework right:* Develop a comprehensive climate change policy framework that includes mitigation and adaptation action, and a strategy for engaging with international fora on climate change in ways that strengthen and support Qatar's domestic climate change framework.
- *Create appropriate targets and actions:* Identify a suitable suite of renewable energy activities, and explore the scope for both an energy efficiency target and carbon intensity target that can be linked to international efforts to reduce GHG emissions.
- *Enhance financing climate change action and clean energy technology development:* Develop a fund to finance mitigation and adaptation projects as part of a comprehensive climate change policy framework.
- *Develop climate change technologies:* Expand existing R&D capacity to create new markets for Qatar both regionally and at the international level as a leader in low-carbon technologies.

Carbon Capture and Storage

- *Develop a national CCS program:* Include efforts to map storage sites, develop a legal and regulatory framework for CCS development, and enact policies to address the costs of CCS.
- *Build expertise:* Develop CCS technologies or demonstration projects as well as lessons learned from regional and international efforts.
- *Support financing of CCS:* Explore a role for carbon pricing in Qatar and the GCC as means for improving the economic viability of CCS.

Energy Efficiency

- *Explore a range of policy approaches:* Include information and communication measures, regulations and market-based instruments.
- *Establish efficiency measures:* Include lower energy buildings, efficient appliances and industrial equipment, energy prices, public-private partnerships in the energy industry, new government institutions to oversee efficiency, and utility-driven and utility-led efficiency programs.

- *Support existing research initiatives:* Use existing institutions and resources to develop energy efficiency measures as part of a broader clean energy R&D program, and explore opportunities for new energy management technologies.

Solar and Other Alternative Energy

- *Resource assessment and data collection:* Continue assessment and mapping of renewable energy resources in Qatar and the GCC.
- *Develop renewable requirements:* Create renewable energy standards and milestones to ensure renewable energy deployment.
- *Support region-specific technological research:* Promote selected research topics in niche areas for which the region can provide a comparative advantage.
- *Enact energy-pricing reform:* Reform pricing incrementally by addressing energy subsidies.
- *Support public-private partnerships*: Connect utilities, governments and private sector partners to encourage innovation in areas that suit both government goals and private sector interests.
- *Explore alternative finance:* Explore innovative financing options for renewable energy projects tailored to Qatar and the GCC region.