

THE ENERGY TRANSITION IN THE MIDDLE EAST: THE OUTLOOK FOR 2040

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Discussions about post-oil planning in the Middle East were rather common around fifteen years ago, when experts sought to focus attention on the need for economic diversification and consultancies aimed to help clients prepare long-term strategic visions. Governments that had the foresight to recognize the scope of the problem and the political will to commit real resources to it, have already begun the lengthy, arduous process of changing public mind-sets, bureaucratic cultures, and regulatory regimes. Some will succeed, gaining a competitive advantage over regional neighbors in terms of technology, efficiency, and productivity, making them valued partners for the international community in terms of maintaining peace and security in the Middle East. Others will survive, but their growth will be stunted and they will struggle to explain to the international community how they are contributing to global efforts at climate change and why Western countries should continue to lend them political, military, and financial support. Those governments that have not yet begun to address the problem probably do not have the time that will be required to accomplish all the necessary steps before peak demand arrives, their oil exports lose value and/or market share, and they can no longer maintain the patronage networks that are the backbone of regime survival. In a sense, we can already see the outlines of the post-oil future taking shape around us and we can start to assess its impact on industry, governance, and society, even if oil itself will continue to have value for decades to come and energy companies transform to meet the needs of the global economy.



The Future is Now

One thing that we must keep in mind is that for most people who are currently reading this article, these fundamental transformations in the region will occur in our lifetimes. This story begins in Canada, far away from the date palms and camel races of Riyadh and Abu Dhabi. Jason Kenney, the provincial premier of Alberta province, ran in 2019 on a conservative platform of deregulation of the oil industry, in support of the profits from oil sands that it generates for Alberta's residents. He now finds himself shifting tack, as Alberta's government seeks to develop investment in renewables and forms of energy with lower CO2 footprints, while at the same time proposing a fund that taxes carbon emitters to help pay for carbon capture and storage. Investors and insurance companies have signaled that they are wary of projects that do not meet certain basic environmental criteria, and the Keystone XL pipeline will likely face serious obstacles from the new administration in Washington.¹ The politics are not simple. Oil sands from Alberta comprise the largest single source of U.S. oil imports and support for the oil industry is a mainstay of the Conservative Party's platform.² Even as the Alberta government explores energy diversification, it has also funded the Canadian Energy Centre to rebrand the image of Canada's

1)) "Oil-Rich Alberta Seeks Ways to Go Green," *The Economist* (December 5, 2020), https://amp.economist.com/the-americas/2020/12/05/oil-rich-alberta-seeks-ways-to-go-green.

2)) Christopher Abbott, "The Risk of 'Peak Oil Demand' for Canada's Conservatives," *The Conversation* (October 27, 2020), https://theconversation.com/amp/the-risk-of-peak-oil-demand-for-canadas-conservatives-147818.

oil industries and backed indigenous groups that are willing to support energy projects through legal action.³ Kenney and the Conservatives in Edmonton are caught between the oil politics of the present and the climate activism of the future.⁴ This is what the energy transition looks like – oil producers and politicians having to reposition themselves to account for changing public, corporate, and governmental tastes. It is a story that will play out throughout the Middle East over the next ten to twenty years.

Even before the Covid-19 pandemic, leading consultancies were speeding up their peak demand forecasts. Bain & Company predicted that the inflection point might come as early as 2025, creating more intense competition among producers who seek to avoid having stranded assets, and even peak demand for fossil fuels becomes plausible by 2030 given trends in consumer habits and energy efficiency.⁵ Slightly different, but no less dire, McKinsey predicted that global energy demand could plateau by 2030, despite population and economic growth worldwide, with renewables providing half

^{3))} Sarah Lawrynuik, "Albertan Officials Are Using Orwellian Methods to Protect Oil and Gas," *Foreign Policy* (May 20, 2020), https://foreignpolicy.com/2020/05/20/canada-alberta-jason-kenney-oil-gas-industry.

⁴⁾ Max Fawcett, "Opinion: What If Jason Kenney Is Secretly Working to Undermine Alberta's Oil and Gas Industry? A Conspiracy Theory," *MacLean's* (May 28, 2020), www.macleans.ca/opinion/what-if-jason-kenney-is-secretly-working-to-undermine-albertas-oil-and-gas-industry-a-conspiracy-theory/amp/.

⁵⁾ Jorge Leis, "Managing the Energy Transition: Three Scenarios for Planning," Bain & Company (2019), https://www.bain.com/contentassets/bf6052e8095448bf9574cbfe48fd25bb/bain_brief-managing_the_energy_transition_three_scenarios_for_planning.pdf.



of all electricity generation by 2035.⁶ These models are largely based on economic data, but consumer habits and government policies could make the energy transition even more disruptive and volatile. The World Bank has pointed the way to the future, announcing in December 2017 that it would cease funding projects that involve upstream operations, and that it would track carbon emissions and incorporate them into its economic analysis as a shadow price.⁷ The European Union (EU) has proposed a carbon

border adjustment mechanism that would effectively tax imports carbon-intensive and thereby sectors shelter domestic European industries that abide by higher environmental standards. The complex cap and trade system developed by the EU sets ambitious goals for carbon reduction that may not directly change policies or habits in

other parts of the world, but does set standards that will apply pressure on other governments.8

America does not yet have a carbon tax, but major pension funds in California and New York State have threatened to potentially divest from oil stocks, and activist shareholders at key Wall Street funds are successfully setting the agenda with environmental criteria. It is currently up to companies to report an accurate accounting of CO2 output associated with their products, as it is incredibly difficult for outside observers to tally the full extent of Scope 3 emissions involved in the entire value chain. It is fully possible that

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6) Christer Tryggestad et al., "Global Energy Perspective 2019: Reference Case," McKinsey & Company (January 2019), https://www.mckinsey.com/industries/oil-and-gas/our-insights/global-energy-perspective-2019#.

downloadable apps will become available in the next couple years that will name and shame companies based on more precise estimates, which social media celebrities can broadcast to followers as a source of pride or shame.¹⁰

^{7) &}quot;World Bank Group Announcements at One Planet Summit," *The World Bank* (December 12, 2017), https://www.worldbank.org/en/news/press-release/2017/12/12/world-bank-group-announcements-at-one-planet-summit.

⁸⁾ Ewa Krukowska, "Europe Signals It Wants Higher Pollution Prices in Carbon Market," *Bloomberg Green* (November 16, 2020), www.bloomberg.com/amp/news/articles/2020-11-16/europe-signals-it-wants-higher-pollution-prices-in-carbon-market.

⁹⁾ Eric Rosenbaum, "A \$7 Trillion Climate Change Warning to the Stock Market from its Biggest Shareholder," *CNBC* (December 13, 2020), www.cnbc.com/amp/2020/12/13/climate-change-a-7-trillion-warning-frommarkets-biggest-investor.html.

^{10) &}quot;What If Technology Tracked All Carbon Emissions," *The Economist* (July 4, 2020), https://amp.economist.com/the-world-if/2020/07/04/what-if-technology-tracked-all-carbon-emissions.



The countries of the Middle East have not yet come face-to-face with the future in quite this Strategic planning is always popular way. when prices are low and the future uncertain, but when prices are high the urgency tends to vanish along with the commitment to change. Nevertheless, several Arab governments have spent significant time and effort to build more resilient economies through diversification of both oil and non-oil sectors. The most immediate solutions involve putting oil to use as a feedstock and fuel source for producing higher value goods like aluminum and petrochemicals. contrast, it is far more challenging to promote innovation and competition in non-oil sectors, which require incubators, angel investors, skills training, regulatory reforms, trade promotion, and infrastructure improvement. The United Arab Emirates (UAE) is perhaps the only country in the region that has undertaken reforms in every area from basic education to bankruptcy laws in order to facilitate the transition to a more agile and productive economy. and Saudi Arabia are in the midst of similar efforts, and almost half a dozen other nations have taken first steps. The enormity of the challenge is apparent when we consider the strategic planning documents the UAE drafted to guide its efforts (Dubai Plan 2021, Abu Dhabi Economic Vision 2030, UAE Centennial 2071, and various supporting documents), and the radical shift in tone from paternalistic rentier state to collaborative public-private partnership that they encourage.¹¹ It has been six years since Vice President and Prime Minister Muhammad bin Rashid Al Maktoum launched the annual UAE State of Green Economy Report, publicizing the UAE's commitment to partnership with the West on reducing their carbon footprint through activities such as hosting the World Green Economy Summit.¹² These kinds of regulatory reforms, policy implementations, and sophisticated media campaigns took fifteen years or more to accomplish through multiple rounds of restructuring and experimentation.

Such major socio-economic shifts generation or more to fully accomplish as they have to be accompanied by a transformation in mentalities. This is certainly the case in the Middle East. Business elites are often resistant to radical change and need time to readjust to the new realities as they look for reassurance that they will still be a part of the new economy. In many parts of the region, there are whole sectors of the domestic economy that are controlled by merchant families almost as monopolies relying on their connections with political authorities to maintain regulatory frameworks that exclude competition. Youth populations are often turned out of universities with few marketable skills and high expectations that the social welfare system will continue to support them with public sector employment and subsidies. An older class of government bureaucrats, who treat their jobs and

¹¹⁾ Government of the UAE, "Federal Governments' Strategies and Plans," https://u.ae/en/about-the-uae/strategies-initiatives-and-awards/federal-governments-strategies-and-plans.

¹²⁾ Dubai Carbon Centre of Excellence, "State of Green Economy Report 2020," https://dcce.ae/publications/state-of-greeneconomy-report-2020/.



benefits as sinecures, has to be retired. some places, corruption so pervasive that entire political classes have ignored or undermined their diversification own plans for the sake of perpetuating their patronage networks. The implications are countries that that

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have only just begun a process of economic diversification today could be struggling to keep up with global consumer tastes and international political pressures in 2030. Countries that have not even started a process of diversification today are probably too late to manage the energy transition that is projected to be in full swing by 2040. At this point, we can begin to see the first hints of which countries are likely to weather the storm of the energy transition, which countries are likely to fail and will never recover the opportunities they have lost, and which countries might still have a chance.

Looking Out Over the Horizon

All of this means the relationships between countries in the Middle East, and their relationships with the international community, will probably alter significantly over the next two decades. Not necessarily in terms of quality of living, good governance, or insecurity –

those disparities will continue to exist much as they do now, though they may be exacerbated by prolonged bouts of low oil prices. Rather, countries that are better adapted to the energy transition and that display a demonstrable partnership with the international community on reducing carbon emissions will have a political and diplomatic advantage over their neighbors. The factors that will help determine those evolving relationships include:

1) A Fragmenting Marketplace

The transportation sector's shift to electric and hydrogen-powered vehicles, combined with the improved storage capacity and cost-effectiveness of batteries, will have a major impact on global oil demand. Similarly, changing consumer habits as a result of the Covid-19 pandemic and growing public concern over the entire life-cycle of carbon emissions will further affect energy markets. That does not mean, however, that demand will look the same everywhere or that energy



markets will behave monolithically. Rather, we can conceive of different regional markets as Western consumers erect more barriers to oil imports with taxes and fees combined with increased carbon-footprint monitoring. consumers outside of Europe and North America may have fewer qualms about the nature of their hydrocarbon imports, leading some producers to attempt to lock down long-term contracts with these importers. There are echoes of this in Iran's recent road map for its Comprehensive Strategic Partnership with China, even if U.S. sanctions are the main impetus for Iran's current actions.¹³ China would naturally be in a greater position to dictate the terms of such long-term contracts.

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Producers who require more elaborate injection techniques or who do not have the technology to significantly lower emissions in their upstream operations will compete with each other to market their products to those importers who are willing

to accept them. The competition at the other end of the spectrum will be equally fierce. Producers who can extract at low-cost with relatively few carbon dioxide and methane emissions will compete with each other to market their more climate-friendly petroleum products in the West. There is already a competition among Arab Gulf states for access in Silicon Valley, where different official and unofficial representatives have been active building relationships. Since 2009, California has developed a calculator for estimating carbon emissions from different oil producers whose product is imported into the state. If countries were to refine a similar model and link it to tariffs it could open up

competition among exporters that would require them to use their environmental record in order to lobby for purchasing contracts. All of this means that there could be different marketplaces that emerge according to different climate criteria. A Stanford University study in 2018 found that a high carbon-intensity producer like Algeria operates at three

times the levels of CO2 emissions compared to a low-intensity producer like Saudi Arabia, based in part on gas flaring and water/steam injection rates.¹⁵ Although Algeria and Saudi

¹³⁾ Simon Watkins, "China and Iran Flesh Out Strategic Partnership," *Petroleum Economist* (September 3, 2019), https://www.petroleum-economist.com/articles/politics-economics/middle-east/2019/china-and-iran-flesh-out-strategic-partnership.

¹⁴⁾ California Air Resources Board, "Oil Production Greenhouse Gas Emission Estimator," https://ww2.arb.ca.gov/resources/documents/lcfs-crude-oil-life-cycle-assessment.

¹⁵⁾ Mohammad S. Masnadi et al., "Global Carbon Intensity of Crude Oil Production," *Science* 361, no. 6405 (August 2018): 851-53.



Arabia would therefore fall into two completely separate market segments for the purposes of this argument, their respective carbon footprints will probably only ever be one factor among many in determining who will buy their oil and at what price.

2) The Changing Nature of the Industry

Hydrocarbons will continue to have an important role in the global economy for the foreseeable future but today's oil companies will expand beyond fossil fuels in order to help deliver a range of energy resources to customers. Many major International Oil Companies (IOCs) are already altering their business models in response to public pressure, and the expectation of major shifts in both the marketplace and regulatory Shell executives say they will environments. "need to reduce the Net Carbon Footprint of our energy products by around half by the middle of the century," by changing the portfolio of products sold to focus more on natural gas, biofuels and electricity, alongside developing carbon capture and storage capacity.¹⁶ Pointing to International Energy Agency figures that show a significant decrease in oil and gas as a percentage of overall energy demand by 2040, Chevron sets targets for lower emissions that are tied to compensation for all of the company's executives and employees.¹⁷ The scales of economy that these companies bring to bear and their stated commitment to investing in renewables, electric vehicles, and carbon storage, will leave them well-positioned to act as providers and traders of renewable energy. That is good for their long-term profits, their corporate image, and their shareholder relations. These are no longer oil companies, they are energy companies, and the way they do business is changing.

By contrast, National Oil Companies (NOCs) have a mandate from their governments to maximize profits from natural resources and are therefore less likely to diversify their operations in the same manner. The Abu Dhabi National Oil Company, Qatar Petroleum (QP), and Saudi Aramco will instead continue their work as best they can during the energy transition, while their governments establish ventures along the lines of Masdar, a subsidiary of the UAE's Mubadala Development Company that operates and invests in renewables and energy efficiency. Some governments will succeed in juggling the competing demands of sustaining a NOC that will increasingly hurt the country's international reputation, while sponsoring prizes and hosting conventions that help repair its media image. Abu Dhabi has to some extent squared that circle, with such affairs as the Zayid Sustainability Prize, Abu Dhabi Sustainability Week, the Sustainability Ambassadors program, and the Women in Sustainability, Environment and Renewable Energy Forum. Not to be outdone, there is SustainableQatar with its Youth Ambassador Academy, the Qatar Green

¹⁶⁾ Shell, Energy Transition Report, https://www.shell.com/energy-and-innovation/the-energy-future/shell-energy-transition-report.html.

¹⁷⁾ Chevron, "In Search of an Honest Conversation about Today's Energy Transition," https://www.chevron.com/sustainability/environment/the-energy-transition.



Building Council and its Sustainability Week, and the Qatar Sustainability Awards. The Qatari Government has also chosen to expand Liquefied Natural Gas (LNG) production in the belief that its low-carbon intensity production of LNG will keep it in good stead with savvy consumers, while designating QP to work with the UN Convention on Climate Change to monitor and reduce all emissions, including methane and sulfur.¹⁸ This kind of public relations work is essential to defend against a possible future scenario in which Western publics boycott tourism or trade with an oil producer because of its environmental The secondary impact to a country's record. reputation in terms of trade and commerce are in many ways even worse than the primary impact of potentially decreasing petroleum sales. Most other oil exporters in the Middle East will be saddled with a NOC that produces a commodity of decreasing value and importance, whose operations still require major capital outlays, if only for field and equipment maintenance, and whose ability to tap international debt markets rapidly fades.

3) Competition for the Last Barrel

Extended periods of lower oil prices since 2015 have led producers to curtail a significant amount of new exploration. That means even if demand is lower in 2030, production as it is

18) Ben Cahill and Nikos Tsafos, "Qatar's Looming Decisions in LNG Expansion," *Center for Strategic and International Studies* (September 28, 2020), https://www.csis.org/analysis/qatars-looming-decisions-Ing-expansion; Qatar Petroleum, "Sustainability Report" (2018), https://qp.com.qa/en/MediaCentre/Pages/ViewPublications.aspx?PID=1.

currently projected will also be lower, helping to maintain some degree of stability in the market. A corollary to this is that given the lifespan of existing wells and lower productivity from older fields, new exploration will be necessary in order to meet demand in 2040. The question is therefore not one of whether companies with a significant stake in oil production will continue to profit far into 2040 and beyond, but rather which oil companies will continue to have the knowledge, skill, and access to resources to be able to exploit new finds in 20 years' time. Such exploration requires access to financial markets, at a time in the future when banks may be under severe internal pressure from stockholders and external pressure from regulators to minimize investment in carbon-intensive industries. IOCs that shift to renewables will probably reduce traditional petroleum operations in order to reinvest the human and financial capital in the new activities. The signs would all seem to point to the low-cost, high reserve states in the Gulf Cooperation Council as being the key suppliers in the twilight era of oil in 2050 and beyond.

The trick will be for NOCs in the region to integrate renewables and carbon capture into the daily operations of oil production so that corporate executives, government officials, and the media can create a surround sound effect in which all voices are echoing the same message to international audiences — namely, that environmental protection and carbon reduction are not just talking points or publicity stunts, but actually core values. That kind of thinking is embodied in Oman's Miraah project, in



which Petroleum
Development
Oman (PDO)
is building a
massive solar
thermal facility
to produce the
steam that will be
used for enhanced

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oil recovery through injection at the Amal field.¹⁹ Similarly, the Saudi Arabia Basic Industries Corporation (SABIC) has long planned the construction of the world's largest carbon capture and utilization facility at Jubail to convert CO2 emissions into feedstock for petrochemicals.²⁰ If those countries can fully complete these projects, replicate the success in other areas, incorporate the results into their marketing campaigns, and present the statistics in an articulate, honest, and transparent manner, they can set themselves on a path to navigating the energy transition safely. They will not be international pariahs, repugnant to elected governments in the West whose voters may call for cutting ties with polluters. If these governments cannot accomplish this, however, then they will have to supplement their revenue with income taxes and an endless cycle of bond issuances. Even that will be better than some of their regional neighbors who will not have those options to fall back on.

Conclusions

The basic outlines of regional political dynamics are probably set for the next five years in the region. The UAE, Israel, Egypt, and Greece have embarked on a path that will occupy them in cooperative ventures for years to come. Turkey has staked its near-term future on fighting for its place in the spotlight, and other Arab states have lent support to one side or another in an increasingly polarizing feud that has come to encompass conflict zones as far apart as Libya and Nagorno-Karabakh. Syria and Iraq will need the next few years to recover from their war-torn economic problems. The price of oil will probably receive a boost from the economic recovery that will eventually arrive after a Covid-19 vaccine is fully deployed worldwide, helping to restore the finances of all of these governments in the region.

Looking farther out over the horizon to 10 or 20 years from now, and considering the factors outlined above, the picture is less clear. One can imagine a situation in which countries that fail to make their own energy transition will be stuck on one track, and reliant on more prosperous states for technology, financial assistance, and

¹⁹⁾ Petroleum Development Oman, "Miraah Solar Project," https://www.pdo.co.om/en/technical-expertise/solar-project-miraah/Pages/default.aspx.

²⁰⁾ John O'Hanlon, "SABIC to Commission CO2 Utilisation Plant This Year," *Business Chief* (July 13, 2020), https://www.businesschief.eu/technology/sabic-commission-co2-utilisation-plant-year.



help in lobbying the West. Once on that path, those failing states are unlikely to recover. They will face lower oil revenues for longer, intense competition for niche markets where consumers have more control, difficulty raising capital through sovereign debt, exposure to environmental lawsuits in Western courts and popular calls for boycotting their products, not to mention ensuing economic second-order effects such as reduced foreign currency reserves. For their part, Western capitals like Washington, London, Paris, Berlin, and Brussels, as well as Beijing and Moscow, will have incentives to remain actively engaged in the region if only to attempt to mitigate the problem of regional insecurity and failed states. There will be a place for the Organization of the Petroleum Exporting Countries (OPEC) to help its members manage the energy transition through sharing best practices. It is hard to imagine, however, what incentive there will be for individual members to adopt a leadership role within OPEC to enforce new standards or rules that might weaken their bargaining power in an ever-increasingly competitive marketplace. Far more important will be coalitions and alliances focused on rare earth minerals and shared electricity grids.

Politics in the region itself may substantially change, as the illusion of the welfare state that has underpinned public expectations for so long does not just crumble, as happened in the Arab Spring, but actually collapses. It will be especially troubling, though difficult to predict, what exactly will happen when political elites in Arab capitals prove unable to maintain their own immediate patronage networks and are replaced by a younger generation of political hopefuls fighting over their share of a much smaller pie.

The concept of "peak oil" has been around in scholarly publications since at least the 1990s, and as Professor Ugo Bardi has shown, predictions have never been accurate and in the absence of a model with real explanatory value, public interest has fallen off.²¹ Although peak demand and post-oil planning are still mentioned in think tank circles, they are not the focus of conversation as they once were in the mid-2000s, when it was almost obligatory for every lecture to end with the question: "What will happen when they run out of oil?" The answer, of course, is that there will be global oil supply and demand for many decades to come. That answer is not the end of the debate, it is just the beginning. Now, we have to ask ourselves what that supply and demand will look like, and how it will impact producers in the Middle East and consumers around the world.

21) Ugo Bardi, "Peak Oil, 20 Years Later: Failed Prediction or Useful Insight?" Energy Research & Social Science 48 (2019): 257-61.





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