

The Arab Awakening and the Pending Oil Pinch

by Amy Myers Jaffe and Keily Miller

When U.S. President Barack Obama addressed the Muslim world from Cairo in 2009, he made a point of specifying that America sought to improve its relations with the Middle East. He proposed engaging a wide range of issues including security, education, economic development, and human rights. The president said, “...while America in the past has focused on oil and gas in this part of the world, we now seek a broader engagement.”¹ His statements about democracy, justice, and the rule of law resonated most in the region. In reference to Iraq, Obama stated “no system of government can or should be imposed upon one nation by another.” He went on to elaborate,

That does not lessen my commitment, however, to governments that reflect the will of the people...I do have an unyielding belief that all people yearn for certain things: the ability to speak your mind and have a say in how you are governed; confidence in the rule of law and equal administration of justice; government that is transparent and doesn't steal from the people; the freedom to live as you choose. Those are not just American ideas, they are human rights, and that is why we will support them everywhere.²

In the immediate aftermath of the address, overall reaction to the speech was mixed. Arab commentators acknowledged the President's sincerity in wanting to improve U.S. relations with the region. As Abderrahim Foukara of the Al Jazeera network noted, the youth in Egypt and across the Arab world had presented the U.S. with the opportunity to ride the region's wave of “energy and enterprising spirit...despite all the bad vibes in the relationship...”³

The post-September 11 world provides numerous benefits for engaging the younger generation in the Middle East. Anti-Americanism can breed violent extremism that is clearly a danger to the U.S. and its regional allies. As the Arab Awakening now demonstrates, President Obama accurately described the desires of many young people across the Arab world. The political turmoil kindled by Mohamed Bouazizi's self-immolation stemmed from a deep frustration felt by the large population of young adults regarding high unemployment, a lack of personal freedom and human rights, corruption, a lack of government accountability, and

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dissatisfaction with the economy. These social and governance concerns plague the largest oil-producing nations of the Middle East. These issues may potentially threaten the oil supply that President Obama said would not be the primary focus of American foreign policy. As growing political and social demands among Persian Gulf populations begin to embody the values Obama espoused, the U.S. needs to reevaluate its energy policy and public diplomacy in the Arab world.

The Arab Awakening, though considered positive in some ways, might turn out to be adverse to America's oil interests. As the Arab Awakening swept across the Middle East in the spring of 2011, the impact on oil prices was almost instantaneous. The sudden outbreak of large-scale anti-government protests in Egypt was the first event to rock global oil markets, as spot oil prices increased nearly 5 percent in a

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matter of days due to fears that oil traffic through Egypt's Suez Canal would be curtailed.⁴ The announcement that Iran was sending naval ships through the Suez Canal pushed UK Brent prices even higher, to more than \$104 per barrel.⁵ While the Canal was never closed, pending oil exploration deals were put on hold. Egyptian natural gas operations were disrupted by an explosion at the Arab Gas Pipeline, which led to a month-long suspension of natural gas exports to Jordan, Syria, Lebanon, and Israel.⁶ No sooner

had the market adjusted to the news from Egypt when civil war in Libya forced the evacuation of foreign oil operators, reducing Libya's oil output of 1.65 million barrels per day (b/d) by up to 75 percent.⁷ Meanwhile, European sanctions on Syria have also reduced Syrian oil exports from 130,000 b/d to almost zero.⁸ In Yemen, political volatility has resulted in frequent disruptions in oil output and pipeline capacity since July 2011, and a worsening of hostilities could impact output even further.⁹ Overall, oil prices rose from \$92 per barrel in January 2011 prior to the unrest in Tunisia to \$120 per barrel by April after violence erupted in Libya.¹⁰

Oil prices stabilized over the summer of 2011 to around \$100 per barrel as the global economic downturn slowed demand.¹¹ Wealthy Persian Gulf nations calmed market fears, quieting their own restive populations with massive financial payoffs including increased subsidies and welfare payments in Oman, infrastructure spending and pension hikes in the UAE, and an announced \$130 billion in public spending measures in Saudi Arabia.¹² Nevertheless, the long-term impact on oil production and the political changes that are likely to sweep across the Middle East in the coming years remain to be seen. Patterns of prolonged decline in oil output that have historically followed abrupt political change suggest that if political transformation in the Middle East continues, then oil prices will increase. Furthermore, increased popular influence over economic policy could thwart the massive investments needed to meet oil field capacity in the Persian Gulf in order to ensure the growing global demand for oil can be met in the coming years as the

global economy begins to grow again.

The U.S. will need to develop new strategies to address the long-term impact the Arab Awakening may bring to America's oil supply. Democracy, or at least more representative governance, can alter the implicit oil-for-security exchange that has characterized U.S.-Arab Gulf relations for several decades. Khair El Din Haseeb notes,

Transformation of these regimes into democratic ones which incorporate the participation of their peoples in primary decision-making processes will preclude their national security from remaining at the mercy of the United States...The Arab peoples will demand "just" prices for their vital oil and gas resources, commensurate with the price increases of various goods in the West. They will not permit their regimes to continue to sell oil at current prices.¹³

It will certainly create new complications for U.S. diplomacy in the region. Democracy could spawn resource nationalism that could in turn block foreign direct investment in the oil sector or even government spending on oil infrastructure. A government's survival in a democracy depends on strong popular support; while some countries are quick to accept these changes, even traditional monarchies may be forced to broaden political participation within their borders and widen the distribution of economic benefits and patronage. Government oil revenues may increasingly be siphoned away from the oil sector to social welfare programs and other politically important, high priority public spending needs. This redirection of revenue may leave the national oil industry with insufficient funds for investment in future oil production capacity. This pattern of social spending has already significantly affected oil production capacity in Mexico and Venezuela. Oil production in Venezuela has fallen from 3.5 million b/d when Hugo Chavez came to power in 1998 to 2.2 million b/d today. Mexico's oil production has dropped from 3.9 million b/d in 2004 to 2.98 million b/d in 2010.¹⁴ In addition, resource nationalism has virtually stopped investment in oil and gas reserves in Bolivia.¹⁵

In his May 19, 2011 speech, President Obama criticized Bahrain for the incarceration of opposition members and the destruction of Shiite mosques.¹⁶ These and other statements put the U.S. at odds with the Saudi leadership, which was quick to point out that U.S. missteps in the Middle East would leave the kingdom no choice but to forge a more independent foreign policy more conducive to its own interests. Huda al-Husseini, in a commentary for the Saudi controlled newspaper Asharq al-Awsat, drew parallels to the U.S.-supported NATO intervention in Libya, and emphasized that the Gulf Cooperation Council (GCC) intervention in Bahrain was needed to preserve strategic interests and restore international economic security. Shiite unrest in Bahrain threatened to destabilize local stock exchanges. This unrest posed a risk to Saudi Arabia, whose oil fields are situated in its Eastern Province, which is populated by a large proportion of the kingdom's sizeable Shiite minority. If Saudi Arabia experiences increasing problems in quelling the limited Shiite protests in its Eastern Province, the diplomatic and economic challenges for the U.S. vis-à-vis its oil-producing ally could become exceedingly large. If violence in the

Eastern Province expands, the U.S. will be hard pressed to choose between its commitment to political reform and human rights in the Middle East and its strategic interests in seeing the oil production in the Eastern Province flow safely. In the event of an oil crisis, President Obama may have to reevaluate his position that U.S. relations with the Middle East are not centered on oil. The U.S. could face difficulty in communicating its democratic values with regards to the Arab Awakening in light of its long-term strategic interests. Will the U.S. only demonstrate its support for freedom and human rights for Sunni Arabs, but ignore the situation of Shiites whose call for greater political participation is inconvenient to U.S. energy security? What if greater political participation across the Middle East increasingly comes at odds with U.S. requirements for imported oil? What will America's long-term response be to these challenges?

We argue that as the Arab Awakening unfolds, it is likely to present even larger challenges for global energy security, with important policy implications for oil importing nations like the U.S. The U.S. may need to adjust its national energy strategy to reduce its vulnerability to changes or instability in Middle East oil production capability and long-term investment trends. The U.S. administration's decision to release 30 million barrels of oil from the U.S. Strategic Petroleum Reserve last summer and to strengthen the dialogue about emergency procedures within the International Energy Agency (IEA) membership is an important first step in addressing this challenge.¹⁷ The U.S. should now build on that momentum within the IEA with added contingency planning for a possible larger oil crisis that might require larger releases of oil from strategic stocks and more extensive national conservation efforts. The administration should also embrace a stronger domestic effort to implement demand reduction strategies that can minimize America's vulnerability to oil price fluctuations precipitated by the events of the Arab Awakening and consider requirements for minimum gasoline inventory levels to be held by American refiners, in line with policies already in place in Europe and Japan.

OIL SUPPLY AND REGIME CHANGE: SOME UNSETTLING OBSERVATIONS

The impact of the Arab Awakening on oil is not fully illustrated by the volatility in oil prices from last spring. Markets have yet to take into account the more lasting effects that shifting Middle East politics will have on regional oil industries and prices. History teaches us that abrupt regime change in oil-producing states can lead to a prolonged period of low oil output, which often lasts decades. This possibility comes not just from potential damage to facilities from civil conflict, but also from political changes that may thwart steady investment in oil and gas resources.

In a recent article on oil and conflict, Peter Toft makes the statistical assessment that the strongest association between intrastate conflict and oil supply disruption occurs in oil producing countries where oil export revenue constitutes the most

important source of income, a condition prevalent in most Middle East oil producing states.¹⁸ As Toft notes, “the key role that oil revenues play for the national economy and government budgets makes it all the more strategically interesting for insurgents trying to undermine the government’s financial and military power.”¹⁹ While Toft’s analysis serves as a valuable indicator of the short-term impacts of civil war, it fails to take into account the long-term political and social changes that drive down oil production post factum. There is an indication that the protracted process of consolidating power that usually follows the transformation of internal politics can be far more harmful to oil sector investment—and thus production capacity—than the infrastructural damage incurred during the course of a conflict. Toft’s study suffers from a lack of inquiry into oil production rates over the prolonged period following the resolution of intrastate conflict. Often a new regime or a government that has survived a war can coast briefly on the oil productive capacity that was established in a previous time. The decline in oil productive capacity only becomes apparent a year or two after disruption in capital investments.

In the aftermath of political change, a lack of a clear chain of command, especially if combined with a loss of experienced oil sector leadership, can slow down investment decisions that can contribute to a declining oil sector. If political change involves a broadening of political participation, the politics of competing coalitions and stakeholders can slow investment processes and hinder decision-making on complex technical projects. Additionally, greater political participation raises the chance that citizens will demand a larger share of public goods at the expense of the oil sector. With governments facing pressure to expand public services, a trade-off occurs in which public funds are diverted away from the oil industry to social welfare services and salaries. As a consequence of the Arab Awakening, it is possible the region will mortgage away its future. Any monies diverted from oil field expansion will translate into less future oil income as social economic demands increase. Meanwhile, long-standing domestic electricity and fuel subsidies that

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comprise up to 10 percent of GDP in some Gulf States not only make it harder for national oil companies to turn a profit that can be reinvested, but they also expand the base of fuel-related entitlements that will become harder to suppress in participatory politics.²⁰

Initially, a higher price of oil may seem to correlate with stabilizing new regimes. The publics in oil-exporting countries are inclined to believe that profits from high oil prices are the key to improving quality of life. Yet demand for oil over time will prove elastic. High prices will eventually prompt global buyers to increase fuel efficiency and advance unconventional energy substitutes, such as increased

development of shale gas resources in North America.

One can consider lessons from past periods of turmoil when evaluating the future of Middle East oil production. The long-term cycle of underinvestment in oil capacity that accompanied revolutionary change in political leadership in the Middle East during the 1960s and 1970s still plagues oil markets today. For example, Iran's oil production averaged around 6 million b/d in the 1970s. Following the Iranian Revolution of 1978–1979, Iranian output fell to 1.5 million b/d.²¹ In 2011, the country's oil output capacity stood at an average of 3.58 million b/d, less than 60 percent of its pre-revolutionary levels.²² In Nigeria, regime change prompted a similar outcome. In the first year of the Biafran civil war in 1967, oil production sank by around 40 percent. The overall harm to oil production during the Nigerian civil war was about 25 percent.²³ During the transition from military rule to civilian government in 1979, oil production dropped 30 percent and continued its decline until 1983.²⁴

The historical links between regime change and oil output offer a possible scenario for Libya's current revolutionary state. Muammar Qaddafi's ascension to power in 1969 led to a rapid evaporation of foreign investment and operations in the oil sector. By 1975, the average output of 3.2 million b/d of the previous regime decreased by over 50 percent. By 1985, oil production had dropped to a mere one million b/d.²⁵ The dramatic decline of Libya's oil production capacity during the

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early days of Qaddafi's reign highlights the difficulties regimes face in securing popular support while maintaining a multi-billion dollar oil infrastructure. Even as foreign operators returned to Libya's oil sector in the early 2000s, oil output never reached its pre-Qaddafi average.

The most dramatic and violent impact on oil markets occurred after the onset of the Libyan civil war. When Qaddafi was officially deposed on August 21, 2011, Libyan oil exports, which constituted approximately 1.5 million b/d of light sweet crude oil, were taken off the market completely.²⁶ The task for the National Transitional Council (NTC) and subsequent leaders is perhaps more demanding than that faced by Qaddafi in 1969. In a country rife with political and tribal divisions, the new government must mend a collapsed economy and damaged oil infrastructure. Libya's National Oil Company (NOC) has swiftly ramped up the country's maximum achieved crude oil output to 1.3 million barrels per day as of February 2012—approximately 80 percent of pre-war capacity.²⁷ Nevertheless, a combination of fiscal and political instability poses a severe threat to Libya's oil industry, in spite of its rapid short-term recovery. Overcoming the physical and manual impairment of

refineries, export terminals, and oil fields already approaching stages of maturation will require significant investment in refurbishment, enhanced recovery techniques, and exploration. Yet with mounting capital expenditure requirements, a disassembled workforce, and a \$10 billion budget deficit in 2012, the NTC faces severe budget restrictions, rendering the necessary oil investments unlikely.²⁸ Moreover, the domestic legitimacy of the inefficient and opaque NTC remains in question.²⁹ As rival regional and tribal militias continue to fight for power throughout the country, international oil companies will remain concerned with the political risks, the lack of legislative precedent, and the intensifying security concerns throughout Libya's lengthy process of nation-building. It is this nation-building process, rather than the pace of the transition to electoral rule, that will determine the speed with which the oil sector can accumulate the investments required to restore and sustain its maximum output.

THE HAZARD OF BROADER INSTABILITY

Despite the media frenzy, Libya is not the oil markets' greatest concern. The assumption that oil supply disruptions are confined to countries in the throes of revolutionary change is not necessarily accurate. It is now assumed that stability in the Arabian Gulf States—home to the world's largest oil-producers—will be maintained due to efforts to increase public spending and slowly expand political rights. As F. Gregory Gause III pointed out in *Foreign Affairs* in the summer of 2011, "Oil wealth remains a fairly reliable tool for ensuring regime stability, at least when oil prices are high..."³⁰ But perhaps Bruce Jentleson's reminder of the folly of a Cold War-era foreign policy trope (if a bird walks and swims like a duck, it is indeed a duck) is applicable: "Beware the duck test."³¹ Even wealthy oil states are facing significant protests from dissatisfied populations. Even in democratic Kuwait, such protests forced the Emir to remove the Prime Minister and dissolve the Parliament, despite prior handouts of cash and free food to the population.

In 2009, Sheikh Nimr Baqir al-Nimr, a Shiite cleric in Saudi Arabia, publicly addressed the taboo topic of Shiite secession of Saudi's oil-rich Eastern Province.³² Periodic protests have plagued this predominantly Shiite region due to the population's perceived disadvantages in terms of employment, religious freedom, and representation in government. The violent manifestations of these protests had largely abated after 2009, but reignited in the early months of the Arab Awakening. Despite the Saudi government's immediate deployment of security forces and the allocation of \$130 billion in a public benefits package announced in March, protests among Shiite groups have occurred as recently as January 2012. Reports indicate that security forces have fired on civilians and killed several protesters.³³ The Shiite population's concentration in Saudi's Eastern Province (Shiites represent over 10 percent of the Saudi Arabian population) corresponds to the overwhelming concentration of Saudi's largest oil fields in the same location. Although secession of the Eastern Province is not likely, the threat has dramatic consequences on regional

oil policy. It could also impact the mounting tensions between Saudi Arabia and Iran in their rivalry for influence over a newly emerging Middle East. Although the risk of Saudi political instability is not imminent, U.S. policymakers should craft contingency plans to avoid the economic impact of unpredicted turmoil.

In Saudi Arabia, it is more likely that any escalation in domestic unrest will prompt the government to alter economic resource allocations. Anthony H. Cordesman argues that,

...no country in the MENA region has done more to invest in government services, education and jobs for youth, and broadly based economic development... Saudi Arabia also has demonstrated over decades that its leadership can adjust to change and meet popular demands, and it has a strong core within its royal family, technocrats, and business community.³⁴

Saudi Arabia's strategic reforms may have aided in the prevention of widespread unrest. However, reforms that do not target systemic concerns of basic governance often fail to pacify the public, as witnessed in Syria and Bahrain. The future of Saudi leadership is unclear. Simon Henderson notes,

Although conventional wisdom holds that Saudi royals will act to ensure their continuing power and make any succession smooth, no evidence indicates the actual unfolding of such a process. Indeed, it is possible that apparent indecision obscures what is yet another episode of the long-running tension within the royal family between the twenty surviving sons of Ibn Saud, divided between the so-called Sudairi full brothers, including Prince Salman and Prince Nayef, and the others, including King Abdullah and Talal.³⁵

Continued reforms could impact the succession process, altering the widely held view that the kingdom will continue to successfully buy off its population. To do so may become unprecedentedly costly for the Saudi government. The Institute of International Finance estimates that oil prices will have to average \$110 per barrel by 2015 for Saudi Arabia to balance its budget based on the proposed public spending increases of around 30 percent.³⁶ Thus, current political dynamics may result in higher oil prices whether or not Saudi Arabia finds itself susceptible to internal strife.

RESOURCE NATIONALISM AND ELECTORAL POLITICS

During the upward price cycle of the 2000s, the most notable manifestations of declining oil investments in the wake of political transformation stemmed from a rise in resource nationalism among various oil states like Venezuela and Russia. In 2009, Ian Bremmer and Robert Johnson noted that both of these cases,

...exemplify revolutionary resource nationalism, which is linked to broader political and social upheaval, not merely directed at the natural resource sector. In Russia, this encompasses the broader reconsolidation of state power under the Putin Presidency beginning in 2000 and the larger rollback of privatization in strategic sectors. In Venezuela, oil resource nationalism was an important feature of the 'Bolivarian Revolution' in which political and economic power was transferred under the Chávez presidency from the

stands at an impasse.

The spread of localized demonstrations in Iraq in the spring of 2011 by frustrated citizen groups confronting the shortage of basic services has merely augmented the challenges already embedded in the fragile coalition government announced in December 2010. This unrest has added to delays for oil field expansion programs by diverting funds and electric services away from the oil sector. As in Kuwait, the broader political ramifications of these expansion projects are overlooked. Electricity and funding are not only necessary to power the oil fields of Southern Iraq, but also to fuel water injection plants needed for enhanced oil recovery. Providing water to maintain reservoir pressure and for water injection schemes that would boost crude oil output in Southern Iraq's maturing fields is a critical element to Iraq's ability to expand oil production. Enhanced crude output represents a long-term public good in post-war Iraq, given that oil accounts for over 90 percent of both electricity production and government revenue.⁴⁰ However, distribution of public goods is constrained by the immediate interests of the "selectorate," which has demanded that electric services go towards residential use.⁴¹ As a result, foreign oil companies will likely experience difficulties in executing contracted oil production targets.⁴²

CONCLUSION

In his *Foreign Affairs* article, Michael Ross suggests that the U.S. could help reduce global oil prices and undermine "petroleum-based dictators" by "reducing its total oil consumption."⁴³ In any event, the U.S. may be forced to operate with less oil from the Middle East. In the decades following 1979, the Organization of Petroleum Exporting Countries' (OPEC) oil productive capacity fell from 38.76 million b/d to 30.6 million b/d in 2005. During the same time period, demand for its oil went from 34 million b/d to 29.9 million b/d. Government and private sector planning assumes that OPEC will supply the additional 12.5 million b/d beyond its current output, which is needed by global markets to meet the oil demand projected for 2030. This assumption is not supported by history or the current reality of the Middle East. With nearly every Arab member of OPEC—together totaling 44.6 percent of proven crude oil reserves worldwide—in the throes of political conciliation, the cumulative effect on future investment could be substantial.

The U.S. must plan for potentially negative oil production scenarios in the Middle East. The U.S. administration's efforts to strengthen the dialogue about oil disruption emergency procedures within the IEA should be followed up with more detailed contingency planning. The immediate days after a major disruption in oil from a Middle Eastern country are not the time to fashion a response. The major IEA countries should decide in advance how to deal with a cut in oil supplies similar to 1979. Emergency consumer rationing plans would be more difficult to implement in member states than releasing small amounts from strategic stocks of either crude or refined product. Rationing could become necessary based on the size of the major

disruption. Contingency plans should also be prepared to deal with a “slow burn” where oil output declines significantly over a broader period of time instead of instantaneously due to a single geopolitical event. Such plans need to be discussed within the IEA. Strategic stock policy may have to consider how to respond to cumulative losses in supply and not just sudden cutoffs. Finally, the U.S. needs to engage China and other major developing economies about joint strategies for emergency reserve releases to avoid hoarding by consumer countries at a time of supply crisis. Coordination is important because panic buying can countermand the benefits of a Western emergency stock release.

The U.S. should also begin to prepare for the possibility that future oil production increases may not be forthcoming from the Middle East. Such plans should embrace a stronger domestic effort to diversify U.S. energy supplies. President Obama’s vision for a long-term transition to a more diverse, cleaner energy future is praiseworthy. In particular, the administration can be credited with broadly outlining a strategy to achieve broader diversification of alternative fuels and energy efficient technologies in the thirty to fifty- year horizon. The administration has been less successful in developing viable policies that address the country’s immediate energy challenges. Instead of focusing

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predominantly on the fifty-year landscape, the administration needs to focus on the country’s energy situation in the next three to five years. Programs for energy efficiency and sound regulation of domestic drilling should be top priorities for immediate U.S. energy policy. The U.S. should also consider requiring U.S. refiners to hold a mandated minimum level of gasoline inventories (as is done in Europe and Japan) to ensure that Americans have immediate supplies of fuel in the event of a major oil disruption from the Middle East. Such domestic fuel stocks proved invaluable to Japan in the aftermath of the Fukushima nuclear crisis last spring.

In addition, the U.S. should enhance dialogue with its hemispheric partners regarding energy. The U.S. should move quickly to approve the Keystone Pipeline to increase transportation of oil from Canada and North Dakota to southern U.S. refining centers in order to diversify immediate, secure, incremental crude oil supplies. The U.S. administration should address environmental concerns with alternatives other than blocking this important infrastructure. The U.S. should also cut funding for unrealistic programs such as biofuels that do not enhance energy security. The administration should shift those dollars to promote the electrification of U.S. cars and the use of natural gas in some sectors of transportation. These alternatives offer greater long-term potential in terms of scale and impact.

Finally, the U.S. needs to reevaluate diplomacy in the Middle East. Although the U.S. Ambassador for Eurasian energy has been effective, the U.S. currently has no

clear senior diplomat actively responsible for Middle Eastern energy issues. The U.S. should increase its ability to deal with energy issues in other regions. Energy diplomacy in the rest of the world should be more proactive in promoting U.S. interests in diversification of supplies and broad industry reforms that would promote greater investment in future oil and gas production capacity.

Greater consultation with new and existing regional Middle East leaders, in efforts to forge a more strategic and less reactive U.S. policy would be beneficial. While the U.S. does not want to appear to impose its own solutions to internal Arab political transformation, it should support transitions that are conducive to regional stability. More frequent state visits and increased dialogue on a broader range of issues, including conflict resolution, economic reform, and energy, could enhance long-term U.S. policy towards the Arab world and strengthen the productivity and sustainability of U.S. engagement.

Notes

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¹⁵ David Mares, "Resource Nationalism in Latin America: Implications for Global Oil Supplies," *James A. Baker III Institute for Public Policy* (2010): 1-42, <http://www.bakerinstitute.org/publications/EF-pub-MaresResourceNationalismWorkPaper-012010.pdf>.

¹⁶ Max Fisher, "The Bahrain Dilemma: Obama's Speech No Solution, But a Step Closer," *The Atlantic*, May 19, 2011, <http://www.theatlantic.com/international/archive/2011/05/the-bahrain-dilemma-obamas-speech-no-solution-but-a-step-closer/239167/>.

¹⁷ "Strategic Petroleum Reserve – Profile," *U.S. Department of Energy*, last updated February 9, 2012.

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