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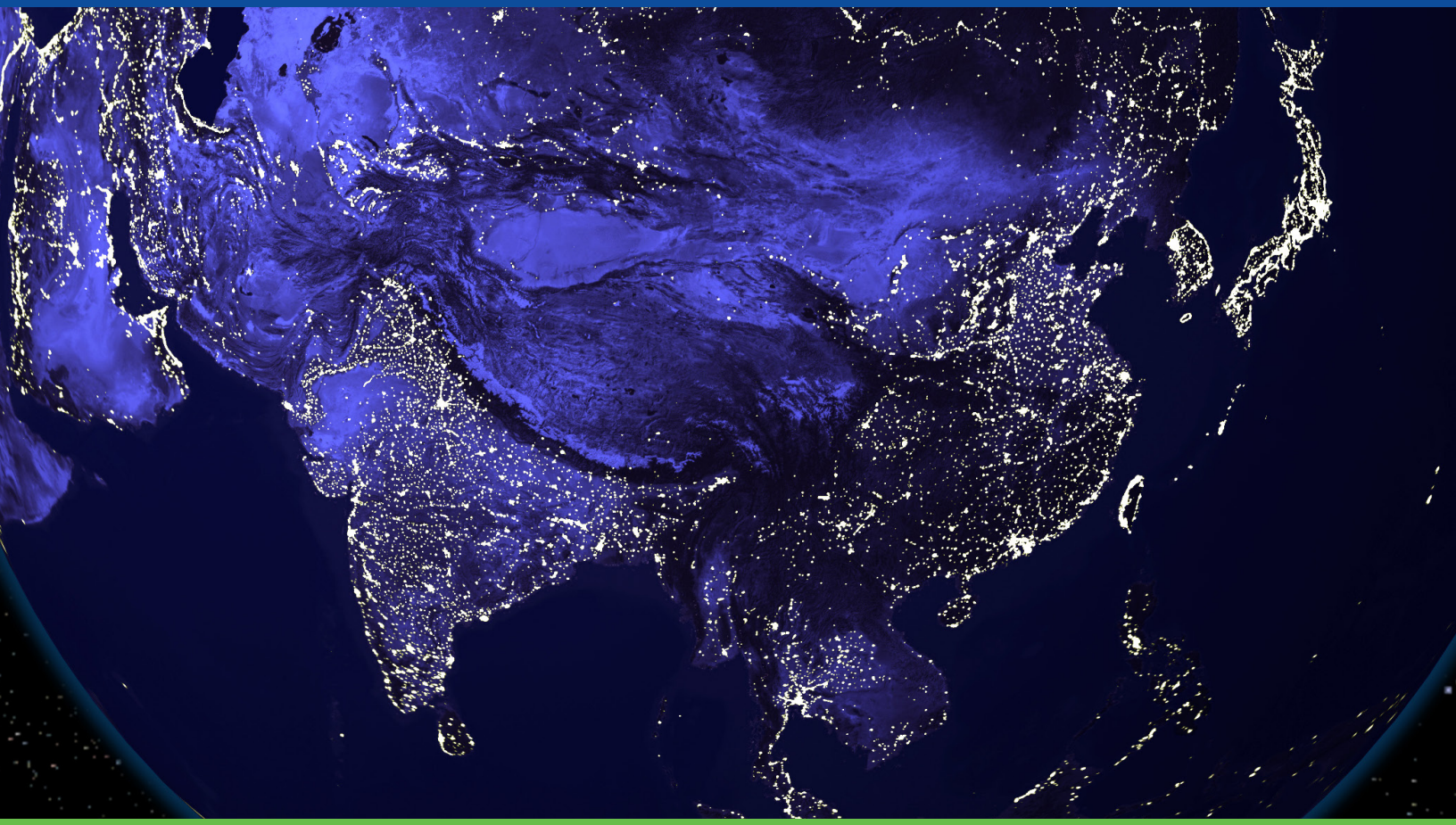

CARTER DOCTRINE 3.0:
THE NEW GULF-ASIA-US OIL SECURITY NEXUS

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July 2017

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Abstract

In 2007, oil demand in the United States reached a plateau. Since then, technological advancement has allowed the US to nearly double its domestic oil production. One outcome of these trends has been a steep decline in American imports of oil, including from major producers in the Persian Gulf. Another outcome has been an increase in Gulf monarchies' reliance on marketing crude oil to the big East Asian economies. Despite these trends, however, the Gulf monarchies have managed to retain America's strategic interest in their external security and the protection of their oil shipments to international markets—even though China, a strategic competitor of the United States, is a beneficiary of that protection. The re-orientation of the Gulf economies toward East Asia begs the following questions: (1) Why does an increasingly oil-secure United States maintain a Cold War-era vow to protect the Persian Gulf oil monarchies and their exports? and (2) Can US protection for Gulf oil supplies now potentially be reduced or even eliminated?

Although the motivations behind the 1980 Carter Doctrine have evolved, the doctrine's justification remains persuasive. As the United States shifts to a less interventionist footing in the Middle East, a new "Carter Doctrine 3.0" is taking shape. The third phase is less focused on direct US dependence on Gulf crude oil, or on threats posed by specific nation-states or ideological blocs. Instead, the rationale for a continued American military presence in the region is the less tangible global public good of maintaining stable oil supplies to a market that has grown far more fungible and globalized since 1980. The lack of a prominent adversary makes justifying the expense of the Carter Doctrine more difficult for US policymakers, since many of the benefits accrue outside of the United States. However, while America's direct reliance on Middle Eastern crudes has declined, the US economy remains highly exposed to events in the region that would be transmitted through changes in global pricing of oil and refined products. We argue that the doctrine remains nearly as compelling now as in 1980.

I. Introduction[1]

In his 1980 State of the Union Address, President Jimmy Carter proclaimed:

> Let our position be absolutely clear: An attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States of America, and such an assault will be repelled by any means necessary, including military force.[2]

[1] This analysis is predicated upon the assumptions that (1) crude oil remains the primary raw material for creating liquid fuels over the next several decades and (2) that the vast majority of global transport services and a significant portion of chemical production continue to rely on oil-derived fuels and feedstocks.

[2] "The State of the Union Address Delivered Before a Joint Session of the Congress," President Jimmy Carter, January 23, 1980, The American Presidency Project, http://www.presidency.ucsb.edu/ws/?pid=33079.

Over the past decade, several factors have induced speculation that the United States might scale back its military commitments on behalf of allied Arab monarchies in the Persian Gulf. These elements include rising US self-sufficiency in its crude oil supply, a widening divergence of US and Gulf Arab strategic priorities in the Middle East,[3] and a thorough reorientation of Gulf energy and trade links away from the United States and toward East Asia. US military power continues to underpin the regional security architecture and, by extension, security for Gulf crude oil shipments that are increasingly consumed in Asia. These trends are among the factors behind recent calls arguing that Washington should reconsider the Carter Doctrine and the United States' role as the preeminent military guarantor of oil exports from the Persian Gulf.[4]

At the same time, China has not only become more economically integrated with the six Gulf Cooperation Council countries,[5] but its military modernization has yielded naval forces capable of limited power projection to strategic waters off the Arabian Peninsula.[6] Questions thus naturally arise about the possibility of a Chinese "security umbrella" that could replace US hard security in the Gulf.

No evidence to date suggests that the United States is prepared to trim back—much less abandon—its 45-year position as the chief protector of global energy lifelines emanating from the Gulf. Instead, we believe the Carter Doctrine is entering a third phase, one in which the United States continues to perceive "vital interests" in the Persian Gulf, but those interests have become increasingly globalized and shared by the international community of oil-importing states, including China.

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[3] Areas of clear divergence include: deviating approaches to the Arab Spring uprisings (particularly in Egypt), the Syrian civil war, Shia-led governance in Iraq, and the Iran nuclear program.

[4] See, for instance: Charles L. Glaser and Rosemary A. Kelanic, "Getting Out of the Gulf," *Foreign Affairs* 96:1 (2017); John Glaser, "Does the U.S. Military Actually Protect Middle East Oil?" Cato Institute, January 2017, https://www.cato.org/publications/commentary/does-us-military-actually-protect-middle-east-oil ; Josh Cohen, "Commentary: The U.S. commitment to the Persian Gulf is outdated," *Reuters*, July 7, 2016, http://www.reuters.com/article/us-persian-gulf-commentary-idUSKCN0ZN2DB. Multiple scholars have estimated costs for the United States to forward-base military forces in the Gulf region. One of the most credible figures comes from Michael O'Hanlon, who believes that $50 billion per year is a "best estimate" for continuing costs (i.e., not counting specific operations such as the Afghan and Iraq campaigns). Michael O'Hanlon, "How Much Does the United States Spend Protecting Persian Gulf Oil?" in *Energy Security: Economics, Politics, Strategies, and Implications*, eds. Carlos Pascual and Jonathan Elkind (Washington, D.C.: The Brookings Institution, 2009), 59-72.

[5] The US-allied Gulf Cooperation Council states are Saudi Arabia, the United Arab Emirates, Kuwait, Oman, Qatar, and Bahrain.

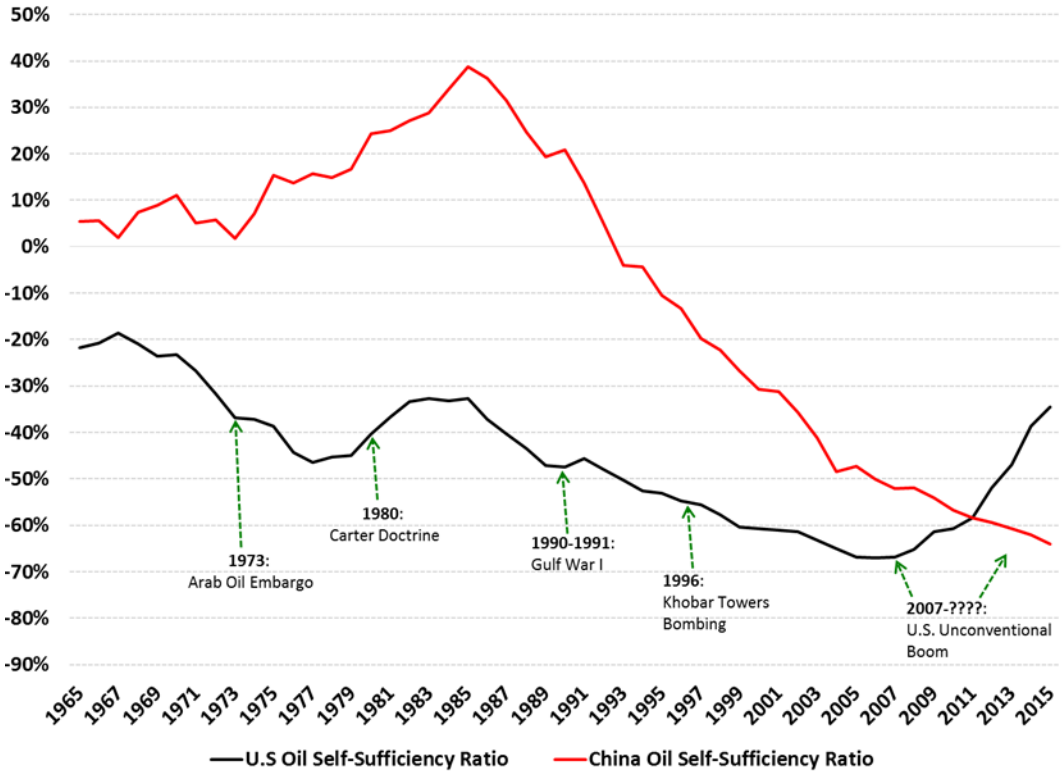
[6] Gabe Collins and Andrew Erickson, "Missile Frigate Xuzhou Transits Suez Canal, to Arrive off Libya ~Wednesday 2 March: China's first operational deployment to Mediterranean addresses Libya's evolving security situation," *China SignPost*™ (洞察中国) 26, February 27, 2011, http://www.chinasignpost.com/2011/02/28/missile-frigate-xuzhou-transits-suez-canal-to-arrive-off-libya-wednesday-2-march-chinas-first-operational-deployment-to-mediterranean-addresses-libyas-evolving-security-situation/; Gabe Collins and Andrew Erickson, "China Dispatches Warship to Protect Libya Evacuation Mission: Marks the PRC's first use of frontline military assets to protect an evacuation mission," *China SignPost*™ (洞察中国) 25, February 24, 2011, http://www.chinasignpost.com/2011/02/24/china-dispatches-warship-to-protect-libya-evacuation-mission-marks-the-prcs-first-use-of-frontline-military-assets-to-protect-an-evacuation-mission/.

We present a taxonomy for understanding the durability of the Carter Doctrine by dividing it into three phases, each of which illustrates a shift in circumstances and US strategic rationale. Carter Doctrine 1.0 was a Cold War construct. President Carter's original declaration was prompted by the convulsive events of 1979-80, particularly the Soviet invasion of Afghanistan and the Iranian revolution, and the threats to American oil security implied by these events. In practice, the early doctrine resulted in an increase in forces in the region, but US interests were mostly overseen from afar, or "over the horizon."

Carter Doctrine 2.0 came about alongside the demise of the bipolar system of competitive international blocs. As the Soviet Union collapsed, the US military presence in the Gulf became more forceful and intrusive. This hegemonic phase involved permanent troop deployments on regional bases as well as a major war that pushed invading Iraqi troops from Kuwait and restored the US-allied monarchy. The US response to the Sept. 11 attacks intensified confrontation with non-state actors and overturned anti-Western states. US oil security and threats to friendly regimes remained paramount.

We argue that a new set of geo-economic circumstances is now bringing about a third phase, Carter Doctrine 3.0. This phase emphasizes oil's value as a global public good that enables the functioning of the international political economy. The US shale boom and the country's increasing self-sufficiency in oil production—along with increased supply coming from free-trade partners in North America—is a big part of the story. Over the past decade, US oil producers have launched an unconventional energy revolution that has taken the US from being nearly 70% net-dependent on imported crudes to less than 35% net-dependent (Figure 1). Nonetheless, the US economy remains acutely exposed to oil price fluctuations. Stability in the Gulf region thus remains a core US national security interest.

Figure 1. Relative Shifts in US and Chinese Dependence on Crude Oil Imports

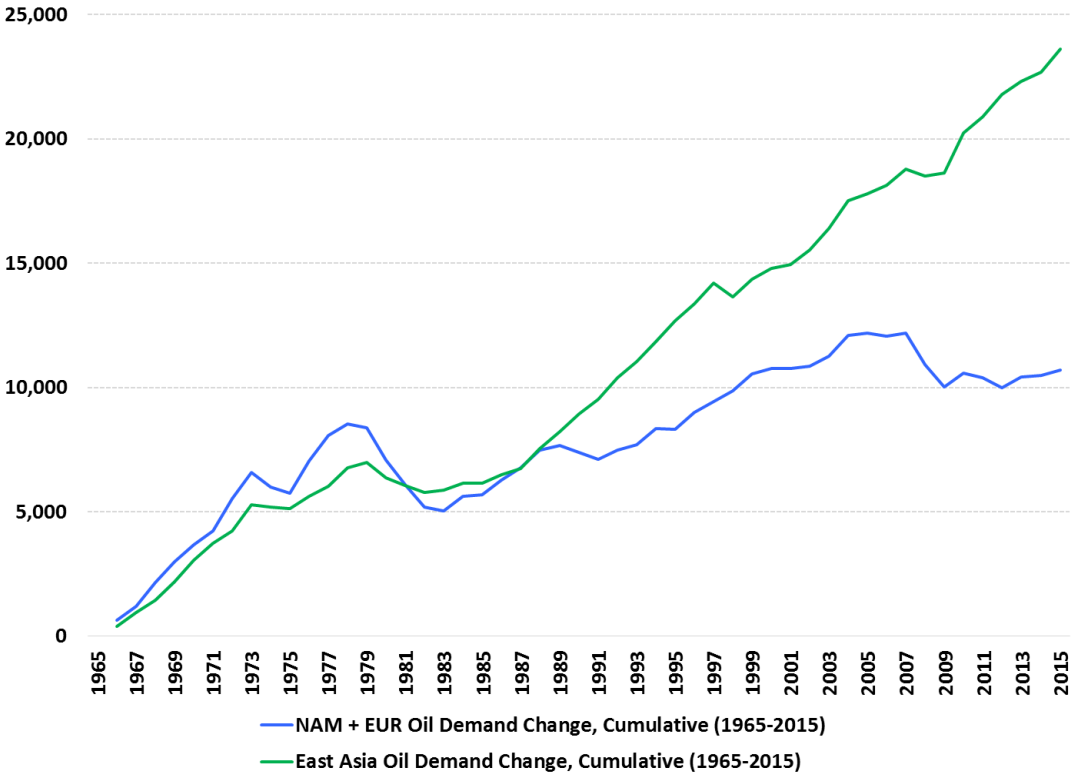


Source: US Energy Information Administration (EIA); authors' analysis.

Middle East crudes that once found US buyers have since become critical to the Asian economies that have driven global oil demand growth for nearly 30 years. Amid this growth, China's energy security circumstances have swung in the opposite direction from America's. China has shifted from crude oil self-sufficiency in 1993 to supplying nearly two-thirds of its needs with imports.

The evolution to Carter Doctrine 3.0 is illustrated by a fundamental shift in regional oil demand. During the first 20 years of the Asian economies' growth (between 1965 and 1985), North American and European oil demand growth largely kept pace with growing Asian oil use. The North American and European regions combined saw 5.6 million bpd of total demand growth between 1965 and 1985, as opposed to 6.2 million bpd for East Asian consumers (Figure 2). Yet as South Korea and Taiwan further industrialized and Chinese oil demand accelerated post-1985 and into the 1990s, Asia became the dominant oil market driver. Between 2000 and 2015, North America and Europe contributed less than 200,000 bpd of net oil demand growth, while East Asian demand grew by more than *52 times* that amount. In 2005, roughly 50% of Saudi Aramco's crude oil exports went to the Far East. By 2015, 65% of the company's crude oil volumes headed east.

Figure 2. Cumulative Oil Demand Change between 1965 and 2015 in East Asia, Europe, and North America, Kbd



Source: BP Statistical Review; authors' analysis.

These shifting trade relationships have had little effect on the regional security architecture. Hard security in the Gulf remains underpinned by diplomacy and military power provided by America, and to a lesser extent, key Western allies. Washington continues to invest in regional security so that Gulf oil can consistently find its way to refiners and consumer markets worldwide, be they in Beijing, Houston, Incheon, Rotterdam, Shanghai, Singapore, or Tokyo. Were the predictability of Gulf oil supply to be challenged, the resulting price changes would affect all importers, given the fungibility of the crude oil market. Hence, the Carter Doctrine remains in force despite the United States increasingly substituting Canadian and domestic crudes for Persian Gulf and other OPEC imports over the past seven years.

The rest of our analysis proceeds as follows: Section II examines key Asian importers' energy relationships with Middle Eastern oil suppliers. Section III looks at key Asian importers' broader economic and trade relationships with Middle East oil suppliers. Sections IV and V examine how military power projection ties into Gulf oil security. We conclude with some thoughts about the future evolution of global energy security structures.

II. Evolving Economic Relationships Between Middle East Exporters and East Asia Consumers

The imbalance between the Gulf region's economic and security relationship with the world is due to the ongoing "economic easternization" pushing the Gulf states (including Iran) toward their Asian trade partners —mainly China, Japan, and South Korea— even as the region's physical security is underwritten by the United States and Western allies, including Britain, France, and Australia.[7] The new orientation is more accurately described as a re-orientation, since China-Gulf trade has flourished at various periods since the seventh century.[8]

This dichotomy has created a triangular—and possibly unstable—dynamic in which Gulf countries increasingly depend on Asian markets (especially China) but the region's chief security guarantor remains the United States, which itself is increasingly involved in strategic, economic, and diplomatic competition with China. For Washington, this dynamic provides challenges and opportunities. The United States' control of sea lanes through which China's oil supply travels potentially provides leverage in the event of a future conflict. On the other hand, China's deepening inroads in the Gulf may eventually increase its political and diplomatic leverage, allowing China to mount a future challenge to US dominance. Over the long term, the Gulf's economic—and perhaps diplomatic—Asianization could leave less maneuvering room for the West.

The contemporary situation of Asian buyers transacting the most goods while US and allied airmen, soldiers, and sailors help ensure trade security poses interesting questions. Chief among these: 1) How much upside is there for further growth in the Gulf Region's Asia-facing trade? And 2) Will residual diplomatic and security linkages with the West also potentially migrate toward China and India in the future?

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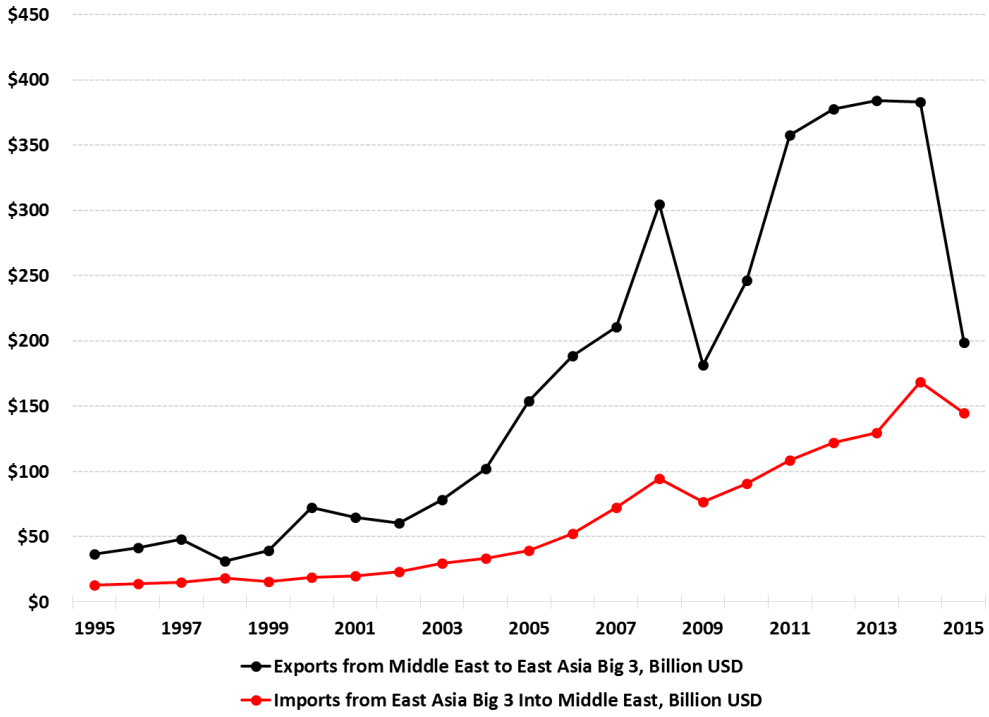
[7] Anoushiravan Ehteshami, *Dynamics of Change in the Persian Gulf: Political Economy, War and Revolution* (New York: Routledge, 2013), 88. Note that Britain maintains troops on bases in Oman and Bahrain, while France has a military base in Abu Dhabi and Australian and Italian troops are stationed at Al Minhad Air Base in Dubai.

[8] M. Redha Backer, "The Cultural Unity of the Gulf and the Indian Ocean: A Longue Duree Historical Perspective," in *The Persian Gulf in History*, ed. Lawrence Potter (New York: Palgrave Macmillan, 2009), 163–71, in particular 169-70. Note that Omani traders dominated early seaborne trade to China, starting in the late seventh century. A revival of long-distance sea trade occurred in the early 15th century when Chinese Admiral Zheng He made seven voyages to the Gulf and surrounding region. See "China's Great Armada," *National Geographic*, July 2005, http://ngm.nationalgeographic.com/ngm/0507/feature2/map.html (accessed on March 20, 2017); See also Andrew S. Erickson and Andrew R. Wilson, "China's Aircraft Carrier Dilemma," *Naval War College Review* 59 (Autumn 2006): 28, https://www.usnwc.edu/getattachment/095c6b68-6707-4030-a142-8f07e9aeb524/China-s-Aircraft-Carrier-Dilemma---Erickson,-Andre.

Figure 3. Trade Volume Between China, Japan, South Korea, and the Middle East, Billion USD



Note: Middle East=Kuwait, Iran, Iraq, Saudi Arabia, Oman, Qatar, and the United Arab Emirates.
Source: Observatory of Economic Complexity; authors' analysis.

Since the 1970s, Beijing has accepted US dominance in the Gulf, considering American entry into the region after the British exit in 1971 as preferable to a role for the Soviet Union.[9] Since the Soviet collapse in 1991, China began increasing its own diplomatic, commercial, and, slowly, military presence. This change in footing is partially due to problematic attempts to source oil from producers unaligned with the United States, such as Venezuela and Sudan.[10]

China and the Gulf also exhibit common characteristics that enhance their compatibility. China's autocratic state capitalist model resonates in the Gulf, since it has been successful in overcoming the modernization theory idea that nation-states cannot simultaneously foster the growth of a middle class society while retaining autocratic governance.[11] The GCC states see themselves as similar anomalies, albeit with distinct tribal-autocratic systems led by historic ruling families. Gulf elites appreciate that ties with China are not

[9] Matteo Legrenzi and Fred H Lawson, "China's Gulf Policy: Existing Theories, New Perspectives," *Middle East Policy* 22, No. 2 (2015): 58–71.

[10] Ibid., 64.

[11] Seymour M. Lipset, "Some Social Requisites of Democracy: Economic Development and Political Legitimacy," *The American Political Science Review* 53, No. 1 (1959): 69–105; Samuel P. Huntington, *Political Order in Changing Societies* (New Haven: Yale University Press, 1968).

accompanied by public censure over human rights records, lack of democratic participation, or labor practices, a regular feature of their affairs with Washington. Scholars have gone as far as to argue that Saudi-Chinese common interests stem from being similarly "repressive societies."[12]

Diplomatic relations between the Gulf and Japan and South Korea are less fraught with strategic complications, but Gulf economic integration with Japan and South Korea—US allies—has provided political cover for the Gulf's tilt eastward, since it preceded the more strategically provocative Gulf-China friendship.

A. Security Cooperation

Militarily, China was until recently an afterthought in the Gulf. GCC states historically bought the vast majority of their hardware and services from the West, which were understood—if not explicit—as part of the bargain that brought them hard security protection.[13] China, as a strategic competitor of America and Japan, was not viewed as a viable security partner.[14] Likewise, China's strong ties with Iran and its opposition to Saudi Arabia's export of conservative religious practices to Chinese Muslims stood in the way of close China-GCC cooperation.[15]

Those calculations are evolving alongside China's rise as a global power. As China's defense industry has grown more sophisticated, it has begun to see the cash-rich Gulf as a prime export market. China's pavilion at Abu Dhabi's International Defense Exhibition and Conference (IDEX) 2017 arms convention featured warships, manned and unmanned aircraft, main battle tanks, and a high-profile visit by Dubai ruler Sheikh Mohammed and his entourage (Photo 1).[16]

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[12] Steve A Yetiv and Chunlong Lu, "China, Global Energy, and the Middle East," *The Middle East Journal* 61, no. 2 (2007): 199–218.

[13] Russia has also sold arms to the GCC. The UAE has bought $558 million in Russian weapons since 2010 and Kuwait purchased $149 million over the same period. SIPRI Arms Transfers Database, 2017, accessed April 18, 2017, https://www.sipri.org/databases/armstransfers.

[14] Although Iraq and Saudi Arabia bought Chinese weapons in the 1980s and 1990s, Iran has been a Chinese weapons purchaser since the 1980s until the present day. See Ehteshami, *Dynamics of Change in the Persian Gulf,* p. 100. It is also worth noting that Chinese arms sales into the region—with the exception of a sale of CSS-2 ballistic missiles to Saudi Arabia in 1987 and periodic sales of anti-ship cruise missiles to Iran—typically focused on small arms and other lower-end weapons. Between 2010 and 2016, China sold a total of $24 million in arms to GCC countries (Bahrain, Saudi Arabia, and the UAE), while selling $174 million to Iran over the same period. SIPRI Arms Transfers Database, 2017, accessed April 18, 2017, https://www.sipri.org/databases/armstransfers.

[15] Samuel Ramani, "China and Saudi Arabia's Burgeoning Defense Ties," *The Diplomat*, Nov. 16, 2016. http://thediplomat.com/2016/11/chinaandsaudiarabiasburgeoningdefenseties.

[16] "China Defense NORINCO exhibition area at IDEX in Abu Dhabi," *Xinhua*, February 21, 2017. http://news.xinhuanet.com/english/photo/2017-02/21/c_136072638.htm.

Photo 1.

Caption: UAE Vice President Sheikh Mohammed bin Rashid al-Maktoum (center) visits the China defense exhibition at the IDEX Conference in Abu Dhabi, UAE, on Feb. 19, 2017.

Source: Xinhua News Agency.

China's growing dependence on oil from the Gulf also increases Beijing's exposure to the potential effects of political instability in the region, and enhances its incentives to ensure the survival of regimes and the protection of oil exports. This dynamic may be helping to motivate nascent efforts at deepening security ties in the region. For instance, in 2016, the Saudis announced that they had worked with the Chinese to create a five-year plan for enhancing security cooperation, including joint military training and counter-terrorism operations. The two countries held joint counter-terrorism drills in Chongqing in October 2016.[17] The Chinese base in Djibouti and the possibility of a facility being built in Gwadar, Pakistan, in the future[18] could provide the beginnings of a substantial security presence in the region. It remains to be seen how robustly these ties are pursued, and how Washington reacts. For China as well, security ties with Saudi Arabia need to be managed in the context of Chinese relations with Iran and Pakistan.

While these developments represent small steps toward closer military cooperation, they show that an avenue exists for enhancing Gulf strategic ties with China.

[17] "China holds first anti-terror drills with Saudi Arabia," *Reuters*, October 27, 2016, http://www.reuters.com/article/us-china-saudi-security-idUSKCN12R0FD.

[18] "Djibouti: Chinese troops depart for first overseas military base," *BBC*, July 12, 2017, http://www.bbc.com/news/world-asia-china-40578106.

III. Key Asia Consumers' Evolving Oil Trade Relationships With Middle East Producers

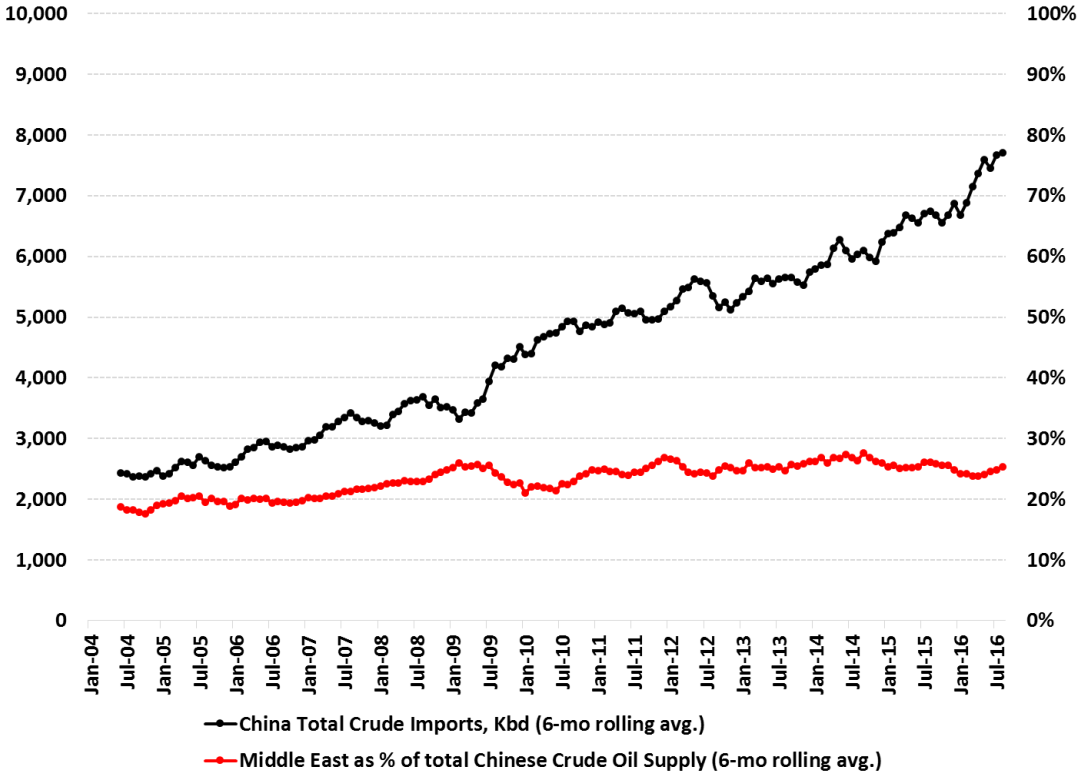
When it comes to marketing oil, the big Middle East exporters have pivoted toward Asia as the current and future mainstay of demand. The Gulf's Asian orientation has taken place in three waves. The late 1950s and early 1960s brought the reindustrialization of post-war Japan as a rising oil importer and exporter of manufactured goods, particularly vehicles and consumer electronics. South Korea's economic miracle ramped up in the 1990s, alongside those of Taiwan and Singapore, all of which increased their oil needs. More recently, the emergence of China and India as major world economic powers has further increased demand for Persian Gulf oil.

Dependence is reciprocal, but not identical. The three big East Asia importers—China, Japan, and South Korea—hold unique relationships with the Gulf states. Large firms from each have participated in the raising of new Gulf cities and industries, which has helped Asian states finance their oil imports from the region and reduced trade imbalances. Middle East crudes remain the predominant supply in the East Asia market. Yet market share competition between Gulf oil exporters and other suppliers is rising. In particular, Chinese supply diversification behavior appears different than that of Japan or South Korea. New competitive dynamics may force Saudi Aramco and other national oil companies (NOCs) to alter decades-old sales practices in the region. The following section briefly assesses these two factors for the Big Three East Asia crude importers.

A. China

In 2016, Gulf crudes comprised nearly half of China's Middle East oil imports and nearly a quarter of Chinese supply that year (Figure 4).[19]

Figure 4. Middle East as a Proportion of China's Total Crude Oil Supply



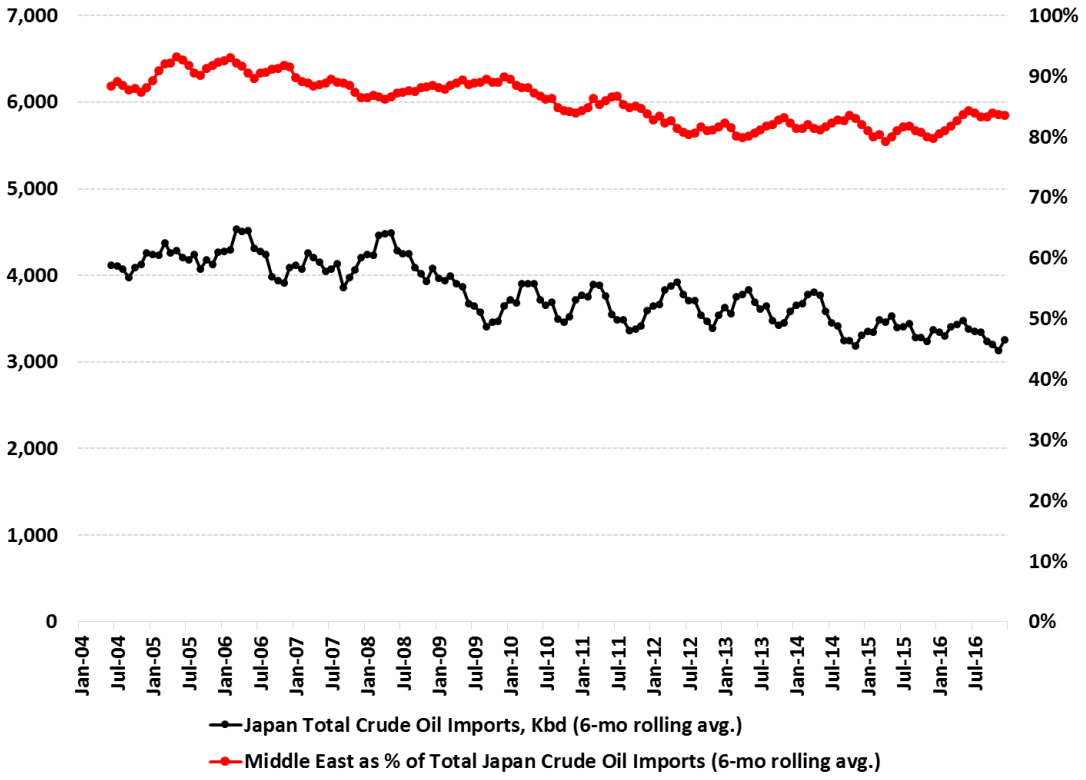
Source: Bloomberg; China Customs; authors' analysis.

[19] The recent demand surge stems primarily from China's independent "teapot" refiners, which now account for at least 2.25 million bpd of capacity and were recently given permission to import crude oil. The teapots tend to purchase smaller cargoes from diverse suppliers that are flexible with credit and payment terms. New approaches include blending cargoes of higher sulfur oil from Russia or Venezuela with lower sulfur crudes from Brazil and other regions outside the Middle East. Michal Meidan, "China's loans for oil: asset or liability?," The Oxford Institute for Energy Studies, December 2016, https://www.oxfordenergy.org/wpcms/wp-content/uploads/2016/12/Chinas-loans-for-oil-WPM-70.pdf; Capacity data from Alfred Cang, "China's Teapots Boost Run Rates to near-Record 59.36%: Oilchem," *Bloomberg*, March 10, 2017; See also for instance: Rania El Gamal and Florence Tan, "Saudis, Mideast producers vie for China's teapot crude imports," *Reuters*, October 28,2016, http://www.reuters.com/article/us-mideast-china-oil-idUSKCN12S0ZY.

B. Japan and South Korea

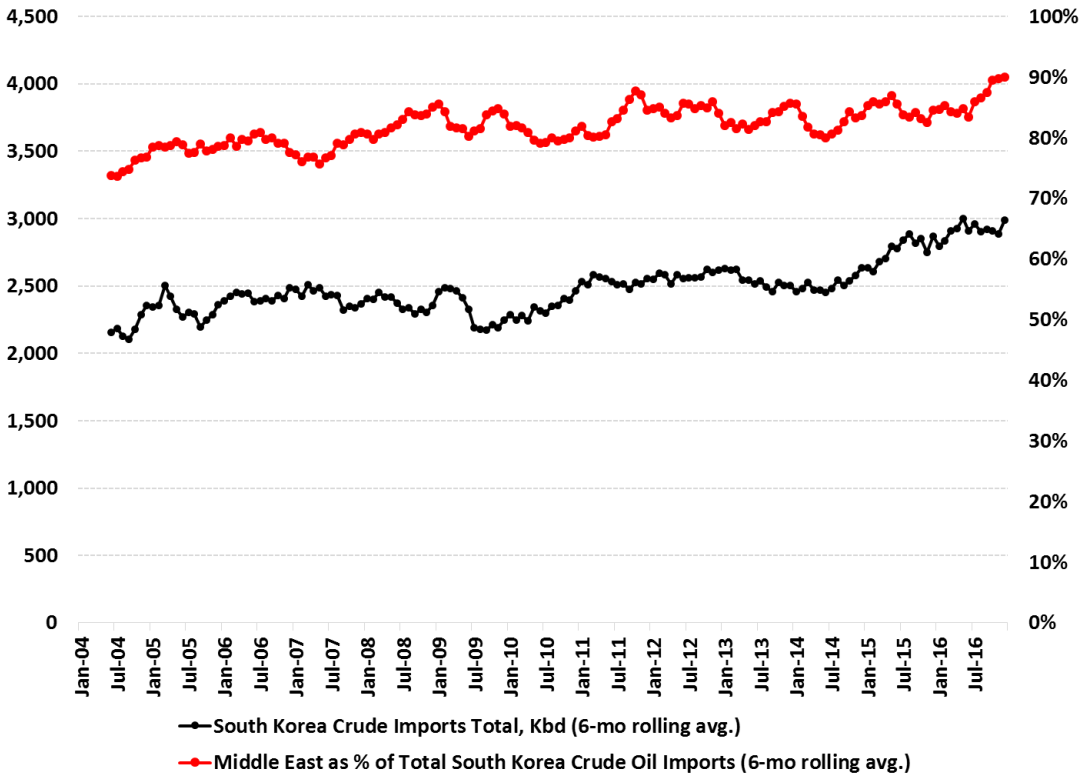
In contrast with China, Japan and South Korea are more stable sources of demand and more dependent on oil imports from the Middle East, at 50% and 70%, respectively (Figures 5 and 6). Neither is a producer of note. Both are characterized by refining sectors dominated by a handful of large facilities. Japan and South Korea are also treaty allies of the United States and thus have much less incentive to pursue independent militarized energy security options that might be more attractive to China.

Figure 5. Japan Crude Oil Imports and Middle East Dependency



Source: Bloomberg; authors' analysis.

Figure 6. South Korea Crude Oil Imports and Middle East Dependency



Source: Bloomberg; authors' analysis.

C. Future Trends

1. Oil Refinery and Crude Storage Investments

Foreign investment from the Gulf has also taken root in East Asia, particularly in the energy sector. Saudi Arabia invests in refineries located near major oil products markets to anchor crude supply deals and maintain market share.[20] The Kuwait Petroleum Corporation has made similar efforts via an Italian joint venture (through its Q8 retail subsidiary) and its 35% stake in a 200 kbd refinery in Vietnam scheduled to come online by 2018.[21] In China, Middle East NOCs have faced difficulty acquiring large equity refining stakes. To date, only Saudi Aramco has closed such a deal—the Fujian Refinery & Petrochemical Company project, where a 25% equity stake anchors 70 kbd of demand for Saudi crude (Figure 7). Neither the Abu Dhabi National Oil Company (ADNOC) nor Qatar Petroleum appear to own international refining investments.

[20] Jim Krane, "A Refined Approach: Saudi Arabia Moves beyond Crude," *Energy Policy* 82 (2015): 99–104.
[21] "Vietnam says Nghi Son refinery construction facing delays," *Reuters*, June 21, 2016, http://www.reuters.com/article/us-vietnam-refinery-delay-idUSKCN0Z805R.

Figure 7. Saudi Aramco and Kuwait Petroleum International Refinery Asset Ownership

Aramco and Subsidiaries										
	Aramco Share, kbd									
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Motiva (USA)	363	370	370	370	370	363	553	535	535	535
S-Oil (SK)	184	198	198	198	198	228	228	234	424	424
Showa Shell (Japan)	77	77	77	77	77	59	60	59	67	67
FREP (China)	-	-	20	60	60	60	60	70	70	70
Petron (Philippines)	72	72	-	-	-	-	-	-	-	-
Cilacap (Indonesia)										
Total	**695**	**717**	**665**	**705**	**705**	**710**	**900**	**898**	**1,096**	**1,096**
Asian Market	333	347	295	335	335	347	348	363	561	561
KPC and Subsidiaries										
	KPC share, kbd									
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**
Milazzo Refinery (Italy)	100	100	100	100	100	100	100	100	100	100
Nghi Son (Vietnam)	-	-	-	-	-	-	-	-	-	-
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
Asian Market	-	-	-	-	-	-	-	-	-	-

Source: Company reports; Reuters.

While Saudi Aramco has signed memorandums of understanding regarding possible additional investments in Chinese refining, the MOUs have yet to be transformed into refinery deals that expand Saudi downstream access in China.[22] Unlike their Japanese and South Korean counterparts, many Chinese crude oil importers appear to operate with more of a "trader mindset" that makes them more willing to play the market in search of best-priced oil and less inclined to lock up refinery-centric term deals beyond a certain proportion of crude oil import needs.

As an example of Chinese crude sourcing behavior, consider that Saudi term commitment volumes have basically stalled for several years in the Chinese market.[23] Chinese refiners' hesitance likely stems from two core factors. First, much of China's recent growth in refining has been driven by smaller firms which are reluctant to enter into long-term, high-volume supply agreements. These refiners often lack the infrastructure to accept supertanker-sized shipments. Second, the perception of a global crude market in a state of oversupply dampens refiners' enthusiasm for long-term agreements with Saudi Aramco.

[22] "Saudi Aramco in advanced talks to buy China refinery stakes: chairman," *Reuters*, January 20, 2016, http://www.reuters.com/article/us-saudi-energy-aramco-idUSKCN0UY2US.

[23] Clyde Russell, "Saudi's China challenge: How much can it pay for oil market share," *Reuters*, February 1, 2016, http://www.reuters.com/article/us-column-russell-china-crude-idUSKCN0VA21Z.

Saudi Aramco will almost certainly continue trying to purchase stakes in Chinese refineries as a way to lock up a long-term downstream market for the company's crudes. In the meantime, Aramco is likely to prepare by investing in greater East Asian crude oil storage capacity. Owning storage allows an NOC to position crude near markets, giving them the flexibility to engage in spot sales and more flexible cargo sizing as circumstances may warrant. For instance, in May 2016, Saudi Aramco used forward storage in Japan to make a "test" spot sale of crude oil to a Chinese independent refiner.[24] Storage investments also are generally easier to enter into and put far less capital at risk than would acquiring stakes in refineries.

The other Middle East NOCs are also booking storage close to major Asian markets. Kuwait Petroleum signed a deal in 2006 with Korea National Oil Corporation (KNOC) that allowed it to store 2 million bbl of crude at Yeosu under the condition that KNOC be granted first purchase rights.[25] ADNOC signed a similar deal in 2009 to store 6.3 million bbl of crude at Kagoshima.[26] ADNOC's storage access has since been extended into 2019.[27]

2. Gulf Investments by East Asia Consumer Countries

East Asia firms have also sought oil and gas-focused deals in the Gulf. China's Sinopec has partnered with Saudi Aramco on the 400,000 b/d Yasref refinery in Yanbu on the Gulf, while Japan's Sumitomo Chemical is a joint venture partner with Aramco in the Petro Rabigh refining and petrochemical complex on the Red Sea.[28]

a. Japan and South Korea

Japan and South Korea have long been importers of Gulf oil and gas, and both made pioneering investments that helped incubate the Gulf LNG sector.[29] Qatar's vast LNG liquefaction trains and tanker fleet would not exist without Japan's engineering, financing, and long-term oil-linked contracts that guaranteed markets for Qatari gas.[30] More recently, Japan's Mitsubishi and Hitachi led construction and supplied trains for the Dubai Metro, a

[24] In the transaction, Aramco sold a 730,000 bbl spot market cargo of Arab heavy crude from its rented storage on Okinawa to Shandong Chambroad Petrochemical Co., located in Shandong province. See: "First cargo of Saudi crude sold to independent refiner arrives in China," Platts, May 20, 2016, http://www.platts.com/latest-news/oil/singapore/first-cargo-of-saudi-crude-sold-to-independent-21502265.

[25] "South Korea signs oil storage deals with Kuwait and Total," *Reuters*, November 1, 2006, http://gulfnews.com/business/south-korea-signs-oil-storage-deals-with-kuwait-and-total-1.263950.

[26] "Continuation of the Joint Oil Storage Project between Japan and Abu Dhabi," Ministry of Economy, Trade and Industry Japan, November 9, 2014, http://www.meti.go.jp/english/press/2014/1110_03.html.

[27] "Japan extends UAE crude storage deal through 2019," *Reuters*, January 18 2017, http://www.reuters.com/article/japan-emirates-crude-idUSL4N1F91CJ.

[28] Krane, "A Refined Approach: Saudi Arabia Moves beyond Crude."

[29] Wataru Aoki, "The Japanese Approach to Financing LNG Projects," in *The Future of Gas : A Global Challenge* (First Doha Conference on Natural Gas, Doha, 1995); *Kohei Hashimoto, Jareer Elass, and Stacy Eller, Liquefied Natural Gas from Qatar: The Qatargas Project*, (Houston: Rice University's Baker Institute for Public Policy; Program on Sustainable Energy Development, Stanford University, 2004).

[30] Jim Krane and Steven Wright, "Qatar 'Rises Above' Its Region: Geopolitics and the Rejection of the GCC Gas Market," London School of Economics, 2014.

public transport first for the region. Japanese firms are now building Qatar's World Cup soccer stadiums.[31]

South Korea-based contractors also have captured important projects, particularly in the UAE. Korea Electric Power Corporation (KEPCO) is building and will operate four nuclear reactors that will produce 5.6 gigawatts of electricity by 2020 in Abu Dhabi.[32] Samsung was the lead contractor in the construction of the Burj Khalifa in Dubai, the world's tallest building.[33]

On the upstream side, Japanese oil companies own or operate producing ventures around the Gulf, including owning stakes in five ventures in Abu Dhabi. Japan's Inpex purchased 5% of the huge Abu Dhabi Company for Onshore Petroleum Oil Operations (ADCO) concession, while South Korea's GS Energy Corp. bought a 3% share. Asian firms were absent in ADCO's original 75-year concession, which expired in 2013. Upon renegotiation, Asian producers replaced Western international oil companies (IOCs), which previously held long-term stakes. Departing concessionaires include ExxonMobil and Shell.[34]

b. China

China, too, has capitalized on the Gulf region's construction projects market. Like India, China has been a provider of low-wage, low-skill construction labor, while also bidding on and winning major infrastructure projects. Chinese bids also often come with explicit—or implicit—financial backing from China's large state-owned banks. For instance, Chinese construction firms backed by Chinese banks have secured the contracts to build the 2.4 gigawatt Hassyan coal-fired power plant in Dubai.[35] China also markets goods and services to the region via Dubai's huge re-export capacity and the sprawling Dubai Dragon Mart, described as the largest Chinese trading hub outside mainland China.[36]

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[31] "Japan-GCC: A renewable partnership," *Gulf News (Dubai)*, February 29, 2016. http://gulfnews.com/gn-focus/country-guides/reports/japan/japan-gcc-a-renewable-partnership-1.1679385.

[32] Makio Yamada, "GCC–East Asia Relations in the Fields of Nuclear and Renewable Energy: Opportunities and Barriers," Oxford Institute for Energy Studies, September 2016.

[33] Samsung's infrastructure projects in the Gulf range from sour gas processing, LNG, and power plants to sewage, water treatment, and incineration facilities. See: Samsung Engineering, Project lists, undated. http://www.samsungengineering.com/business/projectList/common/plList.

[34] The original concession dated to 1938. Anthony DiPaola and Mahmoud Habboush, "China Wins Big With Stakes in $22 Billion Abu Dhabi Oil Deal," *Bloomberg*, February 20, 2017, https://www.bloomberg.com/news/articles/2017-02-19/abu-dhabi-awards-china-s-cnpc-stake-in-main-onshore-oil-deposits.

[35] "Dewa's Hassyan clean coal plant closes US$2.47 billion funding deal," *The National*, December 11, 2016, http://www.thenational.ae/business/energy/dewas-hassyan-clean-coal-plant-closes-us247-billion-funding-deal.

[36] Afshin Molavi, "How Dragon Mart Explains the World," *Foreign Policy*, January 18, 2016, http://foreignpolicy.com/2016/01/18/how-dragon-mart-explains-the-world.

Chinese firms are developing Iraq's super-giant Rumaila oil field with other venture partners. China has amassed offshore oil exploration contracts in Qatar, an oil services contract in Abu Dhabi, and a 12% stake in Abu Dhabi's largest oil concession, giving it a direct, 40-year role in oil production in one of its key supply states.[37]

While the United States remains a major trading partner of the GCC states and US firms remain deeply integrated in the region, the Gulf monarchies have embraced the increasing Asianization of their economies in parallel with Asia's rising global prominence.

IV. The Carter Doctrine: Past, Present, and Future

The relationship between the United States and its Gulf allies has evolved in important ways since President Carter's 1980 declaration of American "vital interests" in the Persian Gulf. The Carter Doctrine's first phase, which we label Carter Doctrine 1.0, was prompted by the convulsive events of 1979-80, particularly the Soviet invasion of Afghanistan and the Iranian revolution. Although US physical dependence on Gulf oil supplies steadily declined between 1980 and 1986 as non-OPEC oil production boomed, US policymakers feared that Soviet penetration into the region would allow Moscow to use threats to oil supplies as a tool for coercing the United States and its allies. In practice, the doctrine resulted in an increase in forces in the region, but prior to Iraq's 1990 invasion of Kuwait, US forces generally operated from afar, or "over the horizon."

Carter Doctrine 2.0 came about alongside the demise of the bipolar system of competitive international blocs and the rise of non-state threats that manifested in the Sept. 11 attacks. Indeed, the US-led Gulf War of 1990-91 marked the beginning of a larger, more permanent US military presence in the region. Between 1991 and 1994, US forces gained access to military bases in all six GCC countries.[38] This more hegemonic phase involved forceful intrusion, first into Iraqi-occupied Kuwait in 1991, and a decade later, into Afghanistan and Iraq.

In Carter Doctrine 3.0, US security policy remains focused on the Gulf region despite decreasing import dependence, because Gulf oil is increasingly understood as an "economic good" that sustains the daily functioning of the global economy. As such, the risk posed by unfriendly or competitive forces in the region becomes all the more dangerous, since the globalized nature of the oil market magnifies the effects of disruption. In addition, the same US deployments that facilitate energy security are also indispensable for overseeing ongoing campaigns in Iraq and Afghanistan, increasingly active counterterrorism actions in Yemen, Syria and the Horn of Africa, and other military

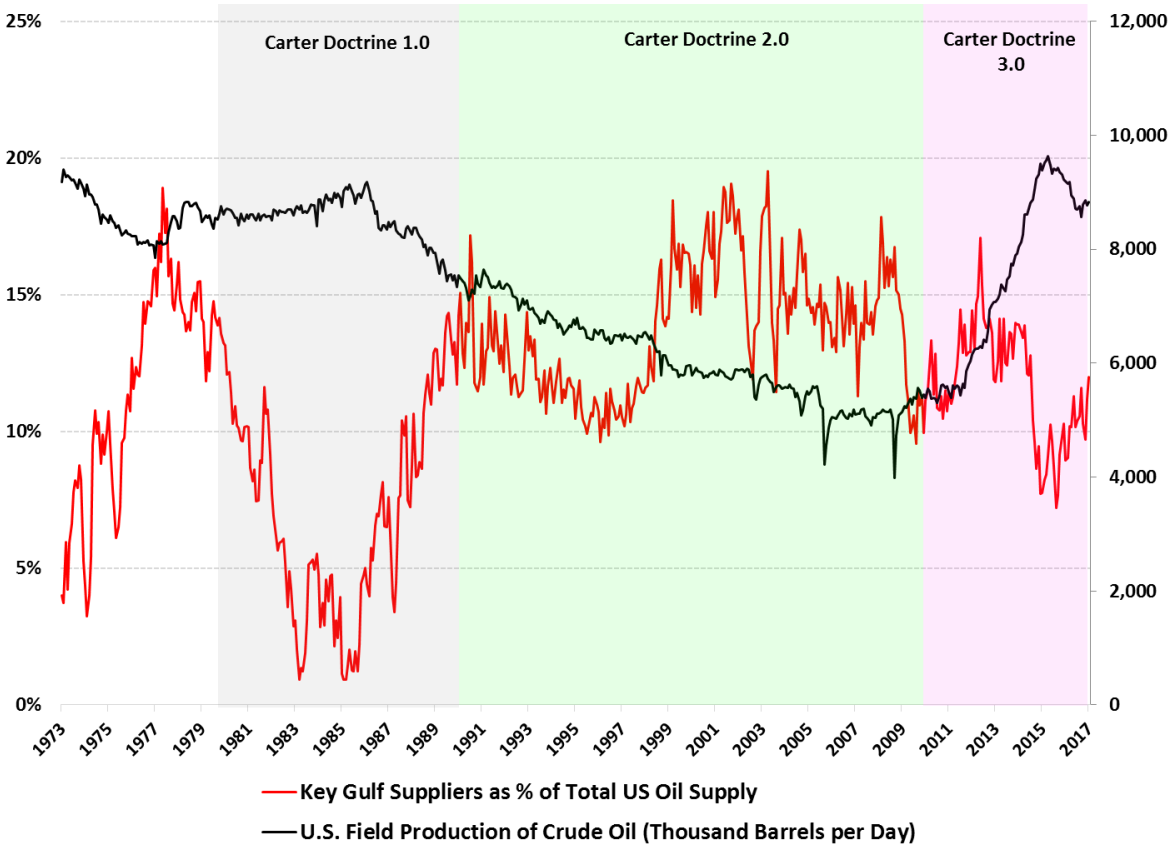
[37] Anthony DiPaola and Mahmoud Habboush, "China Wins Big With Stakes in $22 Billion Abu Dhabi Oil Deal," *Bloomberg*, February 20, 2017, https://www.bloomberg.com/news/articles/2017-02-19/abu-dhabi-awards-china-s-cnpc-stake-in-main-onshore-oil-deposits.

[38] "The Gulf Security Architecture: Partnership With The Gulf Co-Operation Council," Majority Staff Report prepared for the Committee on Foreign Relations, United States Senate, 19 June 2012, https://www.foreign.senate.gov/imo/media/doc/746031.pdf.

activities in the region. While the United States appears to be less interested in large-scale occupations, its interests—and those of the global economy—continue to depend heavily on stability in the Gulf.

Meanwhile, US oil production has reversed a nearly four-decade period of steady production declines and rising dependence on imports. The onset of the US shale boom has increased American self-sufficiency in oil while stimulating calls for a pullback from the Gulf. Even so, the United States still obtains more than 10% of its total oil supply from the Gulf – mainly from Saudi Arabia, but also Kuwait and Iraq (Figure 8).

Figure 8. Key Gulf Oil Suppliers (Kuwait, Iran, Iraq, Qatar, Saudi, the UAE) as a Percentage of Total US Crude Oil Supply

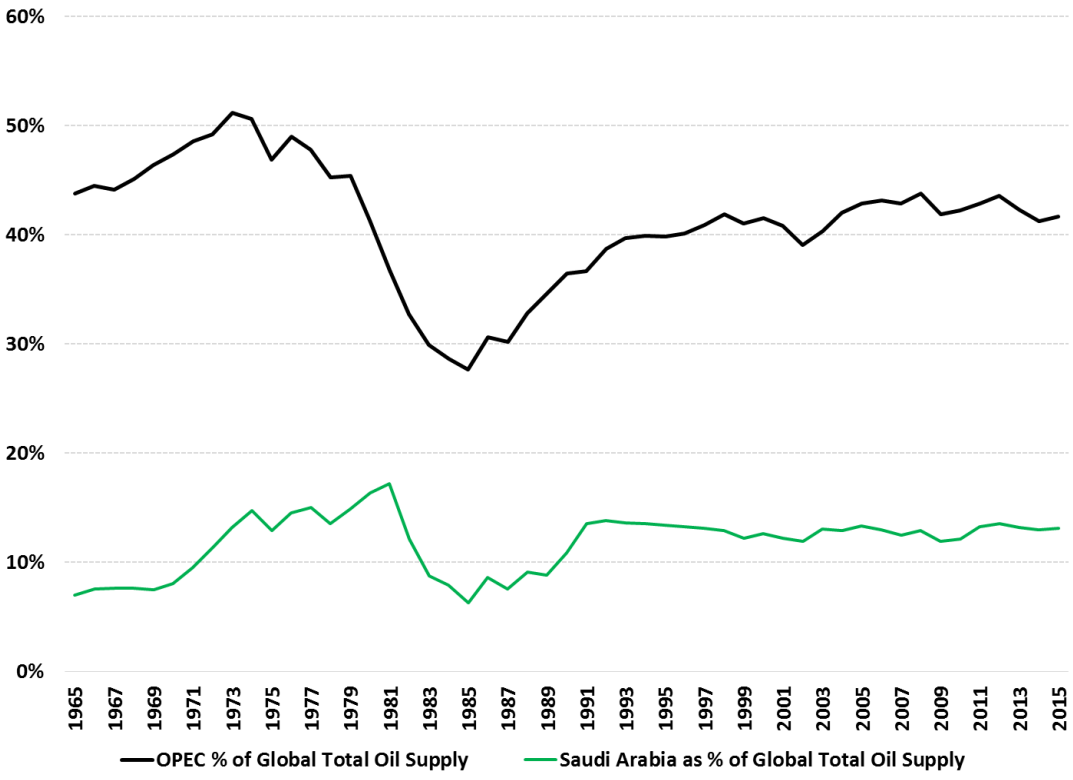


Note: Left axis=Key Gulf suppliers as a percentage of total US crude oil supply, right axis=US crude oil field production. Approximate Carter Doctrine eras are denoted by shaded boxes.

Source: EIA; Baker Institute Center for Energy Studies.

While the United States and Asia have traded places as important destinations for Gulf crude, we argue that the following seven factors imply that maintaining the Carter Doctrine remains in the US national interest. First, Saudi Arabia remains the single largest supplier of oil to the world, providing about 13% of global supply between 1992 and 2015 (Figure 9). Moreover, the kingdom is the sole producer with sufficient spare oil output capacity to cover the outage of a medium-sized supplier. At present, there is no conceivable combination of producers that could cover a significant loss of Saudi oil in the short run. An outage in the kingdom could trigger a globally destabilizing economic crisis.

Figure 9. Saudi Arabia's (and OPEC's) share of global oil supply has remained roughly constant since 1991



Source: BP Statistical Review of World Energy.

Second, the increase in US oil self-sufficiency does not make America "independent" of the Middle East or the effects of an oil market disruption. Political stability in the Gulf will remain a determinant of US oil and refined product prices no matter how little we import, as long as the Gulf states remain key global exporters and as long as oil remains the dominant fuel for land, sea and air transport. Because US producers can now export crude oil, domestic prices would remain tightly linked to prices abroad even if the United States entirely ceased importing crude oil.

Third, having a militarily dominant, pro-trade power commanding the global maritime commons—a *Pax Americana*—underpins the global trading system for oil and other goods.[39] US national security strategy for the last 30 years has consistently—and in a bipartisan manner—accorded high importance to ensuring the free flow of energy supplies into the global market. If anything, the United States' view of its oil supply security role in the Gulf region has expanded over time. The Reagan administration's 1987 National Security Strategy deemed ensuring "the United States and its allies and friends access to foreign energy and mineral resources" a major objective that supported US interests. By 2015, President Barack Obama's administration noted that "major energy market disruptions" were among the "top strategic risks" to US national interests and that it was a high priority to "ensure the free flow of energy from the [Middle East and North Africa] region to the world."[40]

Fourth, there is no nation-state with the capacity to replace America's provision of external security in the Gulf and the strategic Strait of Hormuz, through which flows approximately 20% of globally traded oil and an even larger portion of global LNG supplies. Neither Russia nor China nor any combination of European powers has the force projection or logistics capacity to assume this task. While China in particular could gain a greater sense of strategic security from overseeing its own oil trade, it is not physically prepared to carry out that mission.

Fifth, while the strength of once weak Gulf militaries has improved in the past decade and most have equipment that is interoperable with US forces, these militaries are generally not structured to prevail in external conflicts. Rather, they are deliberately arrayed so that they do not pose an internal threat to family-based rule. It is also uncertain as to whether the various Gulf states—including Iran—could form and maintain a coalition to provide oil and gas supply and transit security absent a major US presence in the area.

Sixth, even if China or Russia—or some coalition—were capable of guaranteeing hard security for Gulf oil producers and the sea lanes used to bring their resources to market, it is doubtful that Washington would volunteer to step aside and bequeath its role. The United States accrues numerous strategic benefits from its military ties to Gulf regimes and

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[39] Sea lanes traversed by tankers headed from the Middle East to Asia, Europe, the United States, and other destinations constitute a core part of the "global commons"—best thought of as "those areas that are not under the control of a particular state, but are open for use by states, organizations, and individuals worldwide," and characterized by senior US Department of Defense officials as the "fabric or connective tissue of the international system." Daniel Moran and James Russell, "Introduction: The Militarization of Energy Security," in *Energy Security and Global Politics: The militarization of resource management* (New York: Routledge, 2009), http://calhoun.nps.edu/bitstream/handle/10945/43261/Moran_Russell_Militarization_of_Energy_Security.pdf?sequence=3. See also: Tara Murphy, "Security Challenges in the 21st Century Global Commons," Yale Journal of International Affairs (Spring/Summer 2010), 30, http://yalejournal.org/wp-content/uploads/2010/09/105205murphy.pdf. See also: Michèle Flournoy and Shawn Brimley, "The Contested Commons," *U.S. Naval Institute Proceedings* 135, No. 7(July 2009).

[40] "The National Security Strategy," National Security Strategy Archive, February 2015, http://nssarchive.us/wp-content/uploads/2015/02/2015.pdf.

maintaining US forces on bases around the region. These include supporting US ground forces, conducting counterterrorism raids and surveillance, and maintaining the aircraft and unmanned drones operating in locations such as Pakistan, Somalia, and Yemen. Finally, the departure of US security forces without a handoff to an allied power would potentially leave the region vulnerable to takeover by a hegemonic state or non-state actor. This could be a current power in the region, such as Iran; an external actor, such as Russia; or a new regime created by the overthrow of an existing regime.

A. Threats to Oil Production and Shipments and Military Engagement in the Gulf Region

Two types of human-driven events could affect the security of seaborne oil and natural gas shipments. First is a large state-to-state military conflict, such as Iraq's 1990 invasion of Kuwait or a future attempt by a regional power to interdict energy traffic through the Strait of Hormuz. Deterring or repulsing such actions requires a military force capable of achieving dominance in the air, at sea, on land, and in the electromagnetic spectrum. For at least the next 20 years, the United States will probably remain the only power with the requisite capacity.

The second scenario centers on nontraditional security concerns. These range from local unrest and piracy to complex conflicts involving non-state actors who conduct physical or cyber attacks on oil infrastructure (such as in Libya, Iraq, or Saudi Arabia) or armed conflict featuring state-sponsored groups or actors.[41] Proxy conflicts in Iraq and Yemen—both involving Iran and Saudi Arabia—have resulted in attacks on shipping (Yemen) and oil export infrastructure (Iraq). These proxy conflicts provide a rationale for Washington to maintain security for the oil trade. Generally speaking, however, the most common nontraditional threats to energy supply come from natural events such as tropical storms and are typically short in duration.[42]

A recent series of attacks on US, UAE, and Saudi warships in or near the Red Sea[43] amid civil war in Yemen demonstrates the potential for escalating attacks, perhaps including oil

[41] For a recent example of high-intensity domestic unrest disrupting oil production and transport, consider Ayman al-Warfalli, "Libyan oil guard head says asked to protect oil ports after clashes," *Reuters*, March 7, 2017, http://www.reuters.com/article/us-libya-security-oil-idUSKBN16D19R?il=0.

[42] Natural phenomena also usually do not perturb human risk managers nearly to the extent as do manmade threats. Accordingly, a cyclone or typhoon is only going to significantly move oil prices if it does significant damage to a major energy industry hub—as Hurricane Ike did in 2008 along the Texas Gulf Coast. See: Gabe Collins and Andrew S. Erickson, "Energy nationalism goes to sea in Asia," in *Asia's Rising Energy And Resource Nationalism*, NBR Special Report #31, (Seattle: National Bureau of Asian Research, September 2011), 15-28.

[43] Houthi forces claimed responsibility for firing missiles that damaged a UAE military vessel in the Bab el-Mandeb Strait, and for the launching of missiles at the destroyer USS Mason, which the Mason intercepted. An unmanned explosive boat damaged a Saudi frigate in the Red Sea in 2017. See: "Yemen: Houthis claim attack on UAE military vessel," *Al-Jazeera*, October 2, 2016, http://www.aljazeera.com/news/2016/10/yemen-houthis-claim-attack-uae-military-vessel-161001212236896.html; and Sam LaGrone, "USS Mason Fired 3 Missiles to Defend From Yemen Cruise Missiles Attack," *USNI News*, October 11, 2016, https://news.usni.org/2016/10/11/uss-mason-fired-3-missiles-to-defend-from-yemen-cruise-missiles-attack.

and gas shipments from the region. In the 1980s, Iran and Iraq attacked and damaged hundreds of ships, including 259 oil tankers, during the so-called Tanker War phase of the Iran-Iraq War.[44]

US military commanders in the Gulf region have publicly accused Iran of proliferating cruise missiles and other anti-ship materiel to their Houthi allies in Yemen.[45,46] These types of attacks tend to provide stronger justification for a military presence along shipping routes. Lower intensity, man-made threats—be they pirates or suicide boat attacks—can generally be thwarted with non-military means. Suicide boat attacks can be stopped by an alert crew or private security team armed with automatic weapons. But an incoming anti-ship missile can only be thwarted by surface-to-air missiles or radar-guided autocannons, systems only found on warships.

Unrest in Yemen and Iraq provides another strong argument for maintaining the presence of US and allied forces in the region. Washington has tended to sympathize with GCC misgivings about Iran in the region, but there have been significant US-GCC differences over Iran, including over perceptions of Iran's role in post-Saddam Iraq. Iran presents an interesting case, because while it also benefits from stability in the Gulf and external sea lanes, Tehran harbors significant misgivings about the US military presence off its shores, given the history of US-Iranian animosity since 1979. From Iran's perspective, Gulf security would be more impartially provided by regional militaries, perhaps with US assistance until regional capacity improves.[47] In November 2016, the Iranian Armed Forces' chief of

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[44] Ronald O'Rourke, "The Tanker War," *Proceedings Magazine*, May 1988, Vol. 114/5/1,023, U.S. Naval Institute. https://www.usni.org/magazines/proceedings/1988-05/tanker-war.

[45] In 2013, an Iranian dhow carrying a range of weaponry including shoulder-launched antiaircraft missiles was intercepted off the coast of Yemen by Yemeni and American forces. See: Robert F. Worth and C.J. Chivers, "Seized Chinese Weapons Raise Concerns on Iran," *New York Times*, March 2, 2013, http://www.nytimes.com/2013/03/03/world/middleeast/seized-arms-off-yemen-raise-alarm-over-iran.html?pagewanted=all&_r=0. Between September 2015 and March 2016, the Australian, French, and U.S. navies interdicted four dhows that appeared to have been transporting weapons from Iran to Yemen. C.J. Chivers and Eric Schmitt, "Arms Seized Off Yemen Appear to Have Been Made in Iran, *The New York Times*, January 11, 2017, https://www.nytimes.com/2017/01/10/world/middleeast/yemen-iran-weapons-houthis.html?_r=0; See also: "Third Illicit Arms Shipment in Recent Weeks Seized in Arabian Sea," US Navy, April 4, 2016, Story Number: NNS160404-01, http://www.navy.mil/submit/display.asp?story_id=93990.

[46] Vice Admiral Kevin Donegan, who commands the U.S. Navy's Fifth Fleet, stated in late October 2016 that he believed Iran was connected to missile and drone boat attacks in the Red Sea. In April 2015, a convoy of vessels guarded by the Iranian Revolutionary Guards Corps Navy attempted to approach the Yemeni coast while laden with coastal defense cruise missiles and other weapons, including what US officials suspected were explosive boats. See: Alex Lockie, "US: Iran is sending rebels in Yemen weapons to fire at the US Navy," *Business Insider*, October 27, 2016, http://www.businessinsider.com/iran-sending-houthi-rebels-yemen-weapons-2016-10.

[47] Kayhan Barzegar, "Balance of Power in the Persian Gulf: An Iranian View," *Middle East Policy* 17, No. 3 (Fall 2010), http://www.mepc.org/journal/middle-east-policy-archives/balance-power-persian-gulf-iranian-view.

staff stated that Iran was considering building naval bases in Syria and perhaps Yemen as a way to deepen its naval footprint in the region.[48]

Despite ongoing proxy conflicts between Iran and some of its Arab neighbors, Iran's lack of alternative oil export routes aside from the Strait of Hormuz may actually be a stabilizing force. Iraq, Saudi Arabia, the UAE, and Oman have oil export infrastructure that allows them to, at least partly, avoid traversing the Strait of Hormuz. Iran, Qatar, and Kuwait have no other transit options.

For example, Saudi Aramco can currently move 5 million barrels per day of crude through the 1,200-km-long East-West pipeline linking Abqaiq to Yanbu on the Red Sea, and Aramco plans to expand the line's capacity to 7 million bpd by late 2018.[49] Saudi Arabia has also re-purposed the Iraqi Pipeline in Saudi Arabia (IPSA) to carry crude oil instead of natural gas. IPSA, which the Saudi government confiscated in 2001 to offset Iraqi debts to the kingdom, can carry 1.65 million bpd of crude oil to Yanbu.[50]

[48] See "Iran may seek naval bases in Yemen or Syria: chief of staff," *Reuters*, Nov. 27, 2016, http://www.reuters.com/article/us-iran-navy-yemen-syria-idUSKBN13M08M; See also: Yoel Guzansky, "Iran's Growing Naval Ambitions," *Foreign Affairs*, Jan. 1, 2017, https://www.foreignaffairs.com/articles/iran/2017-01-01/irans-growing-naval-ambitions.

[49] Anthony Dipaola and Wael Mahdi, "Saudi Aramco Plans to Boost Capacity on Oil Pipeline to Red Sea," *Bloomberg*, May 31, 2016, https://www.bloomberg.com/news/articles/2016-05-31/saudi-aramco-plans-to-boost-capacity-on-oil-pipeline-to-red-sea.

[50] Amena Bakr and Daniel Fineren, "Exclusive: Saudi readies oil line to counter Iran Hormuz threat," *Reuters*, June 28, 2012, http://www.reuters.com/article/us-saudi-oil-hormuz-idUSBRE85R0KT20120628. Saudi Aramco data show that the Yanbu port can simultaneously accommodate four very large crude carriers in four separate deep-water berths, with a theoretical maximum loading rate per berth of 130,000 barrels per hour. This suggests that each berth could load a VLCC carrying 2.2 million bbl of crude every 20 hours ([130 kb/hr max loading rate * 85% realistic sustained capacity factor]/2.2 million bbl cargo size). Assuming the remainder of each 24 hour cycle for docking empty vessels for loading and moving loaded vessels off the berth, this would suggest a daily loading capacity of nearly 9 million bpd, sufficient to fully cover the amount of inbound crude if both trans-peninsular bypass pipelines were operated at maximum post-expansion capacity during a contingency. See "Yanbu' Industrial Port," Saudi Aramco, http://www.saudiaramco.com/content/dam/Publications/ports-and-terminals/Yanbu_IndustrialPort.pdf (accessed March 7, 2017). Aramco also controls nearly 500 kbd of refining capacity in the Yanbu area, which would also provide an outlet for crude. Source: "2015 in Numbers," Saudi Aramco, http://www.saudiaramco.com/content/dam/Publications/annual-review/2015/English/AR-2015-SaudiAramco-English-numbers.pdf.

Meanwhile, the UAE opened its own Hormuz bypass line in summer 2012. The project, called the Abu Dhabi Crude Oil Pipeline, or ADCOP, has a nameplate capacity of 1.5 million bpd, with the potential for up to 2 million bpd in emergency circumstances.[51] As such, two of Iran's regional rivals will, by 2019, be able to ship nearly 11 million bpd of crude while avoiding the Strait of Hormuz. Iran does not appear to be planning similar bypass pipelines.

V. If Washington Scaled Back Its Gulf Military Presence, Can China or Iran Credibly "Fill the Gap"—And Would They?

The election of Donald Trump and the subsequent unclear direction of US foreign policy have generated uncertainty around Washington's commitment to overseeing the global maritime commons. The uncertainty has given rise to questions about China's capacity to stand in for the United States. Although China has bolstered its forces in the region, the evidence argues against a major Gulf security role for China anytime soon.

A. Current Chinese Military Presence and Recent Operations in the Gulf Region

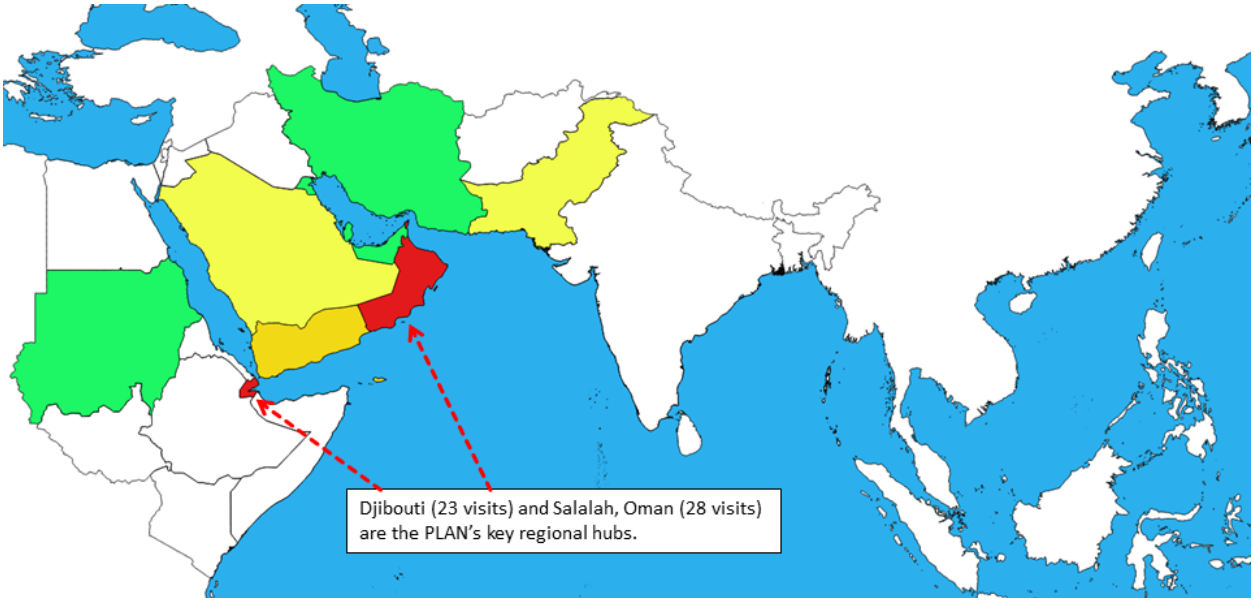
Over the past decade, China has bolstered its military maritime presence near the Gulf region. Beginning in December 2008, the People's Liberation Army Navy (PLAN) dispatched its first anti-piracy task force to the seas off the Horn of Africa and as of March 2017 has rotated 25 escort task forces through the area.[52]

Operating warships thousands of miles from their home stations necessitates frequent port visits to replenish supplies, perform maintenance, and afford sailors rest and relaxation. Since 2009, Chinese naval vessels involved in anti-piracy operations have made at least 79 port visits in and near the Gulf, primarily focused on Oman and Djibouti.

[51] Humeyra Pamuk, "UAE ships first oil via Fujairah as Iran threats escalate," *Reuters*, July 15, 2012, http://www.reuters.com/article/us-uae-fujairah-pipeline-idUSBRE86E07N20120715.

[52] 海军第二十五批护航编队进行航行补给, China Military Online, March 14, 2017, http://www.81.cn/hj/2017-03/14/content_7525842.htm.

Figure 10. Chinese Navy Port Visits in the Gulf and Key Adjacent Regions



Source: China Military Online; The National; Xinhua.

Having forward-stationed military assets and facility access has facilitated several limited, albeit unprecedented, Chinese security operations. As Libya's security situation deteriorated in spring 2011, the Chinese missile frigate *Xuzhou* left the Gulf of Aden anti-piracy task force and traveled through the Suez Canal to support the evacuation of Chinese nationals from Libya.[53]

Within a few days of the *Xuzhou* mission, the Chinese air force sent IL-76 transport aircraft to evacuate Chinese nationals trapped in Libya's interior.[54] In 2014, the frigate *Yancheng*, which also was engaged in counter-piracy in the Gulf of Aden, headed to the Mediterranean to escort a shipment of Syrian chemical weapons bound for destruction under a multi-national deal.[55] In 2015, Chinese naval vessels also helped evacuate Chinese citizens and third-party nationals amid civil war in Yemen.

[53] Collins and Erickson, "Missile Frigate Xuzhou Transits Suez Canal, to Arrive off Libya ~Wednesday 2 March."

[54] Gabe Collins and Andrew Erickson, "The PLA Air Force's First Overseas Operational Deployment: Analysis of China's decision to deploy IL-76 transport aircraft to Libya," China SignPost™ (洞察中国) 27, March 1, 2011, http://www.chinasignpost.com/2011/03/01/the-pla-air-forces-first-overseas-operational-deployment-analysis-of-chinas-decision-to-deploy-il-76-transport-aircraft-to-libya/.

[55] "Chinese warship heads for Mediterranean to escort Syrian chemical weapon transportation," China Military Online, January 2, 2014, http://eng.mod.gov.cn/DefenseNews/2014-01/02/content_4481642.htm.

These missions suggest that China's navy may press to maintain a forward-deployed presence near the Gulf. Perhaps the clearest sign comes from China's decision to build a military base in Djibouti, where port facilities have played a central role in supporting the PLAN's Gulf of Aden anti-piracy deployment.[56] The base marks a watershed moment in China's internal debate regarding the forward placement of military forces. It suggests that Chinese interests and diplomatic confidence have expanded to the point where it can maintain a permanent naval presence that need not be rationalized by Somali piracy.

B. Likely Future Trajectory of China's Naval and Military Presence in the Gulf Region

While it appears that the Chinese presence in the region will endure, it is worth noting the following realities. First, China's primary area of strategic focus is the Gulf of Aden, which is situated more than 1,000 miles from the Strait of Hormuz. Second, China's force level in the region—a handful of warships—does not begin to compare to the presence maintained by the United States, which has access to at least 15 bases in and near the region.[57] These facilities can sustain full-scale combat operations, and—perhaps as importantly—US forces have been granted authority by host nations to conduct combat operations from many of those bases.

If China chose to assume a more proactive posture that moved beyond "showing the flag" and sought to supplant the US Navy, it would face several constraints. Securing a key portion of the global commons is an expensive exercise that the Chinese defense budget might not be able to bear, especially given the high costs of Chinese domestic security and structural trends slowing the country's economic growth.[58]

At present, China reaps the benefit of making maritime security deployments while drafting in the substantial wake of the US Navy. If China were to try and fill the vacuum created by a US pullback from the region, it would be forced to assume huge costs. As Barry Posen of MIT notes in his seminal work on military aspects of the global commons:

> The specific weapons and platforms needed to secure and exploit command of the commons are expensive. They depend on a huge scientific and industrial base for their design and production…The development of new weapons and tactics depends on decades of expensively accumulated technological and tactical experience embodied in the institutional memory of public and private

[56] Andrew Jacobs and Jane Perlez, "U.S. Wary of Its New Neighbor in Djibouti: A Chinese Naval Base," *The New York Times*, February 25, 2017, https://www.nytimes.com/2017/02/25/world/africa/us-djibouti-chinese-naval-base.html?_r=0.

[57] See, for instance: Andrew S. Erickson and Austin M. Strange, *No Substitute for Experience: Chinese Anti-Piracy Operations in the Gulf of Aden*, China Maritime Study 10 (Newport: China Maritime Studies Institute, U.S. Naval War College, November 2013), https://www.usnwc.edu/Research---Gaming/China-Maritime-Studies-Institute/Publications/documents/CMS10_Web_2.aspx.

[58] Gabriel B. Collins and Andrew S. Erickson, "China's S-Curve Trajectory: Structural factors will likely slow the growth of China's economy and comprehensive national power," China SignPost™ (洞察中国) 44, August 15, 2011, http://www.chinasignpost.com/wp-content/uploads/2011/08/China-SignPost_44_S-Curves_Slowing-Chinese-Econ-Natl-Power-Growth_20110815.pdf.

> military research and development organizations. Finally, the military personnel needed to run these systems are among the most highly skilled and highly trained in the world. The barriers to entry to a state seeking the military capabilities to fight for the commons are very high.[59]

Further, assuming the lead position as the guarantor of Gulf oil security would likely make China a lightning rod for opposition from the same groups—including Islamist factions—unhappy with the US presence. Chinese investment in parts of Africa has triggered violent reactions in multiple countries. Military deployments would likely be even more inflammatory.

The missions Chinese naval and air forces have conducted in the Gulf region to date are those in which their involvement consists primarily of "showing up." Suppressing piracy, evacuating citizens, and escorting shipments of chemical weapons being removed from Syria are relatively low-complexity missions with a disproportionately large diplomatic and prestige payoff. Missions that might be required of a dominant power—such as suppressing non-state actors using anti-ship missiles near a strategic strait—are much more complicated and carry higher risks.

C. Evolving Japanese and South Korean Naval Stances Near the Gulf Region

Japan and South Korea have both deployed vessels to Combined Task Force 151, the ongoing multinational anti-piracy mission off Somalia, with Japan's vessels conducting hundreds of escort missions involving more than 3,000 ships.[60] While they can project limited power into the Gulf region, Japan and South Korea are likely to remain reluctant to do so unless they are either part of a multinational task force or operating in conjunction with the US Navy.

Expanded forward-deployment of Japan Maritime Self-Defense Force (JMSDF) forces would impose major opportunity costs by constraining Japan's ability to project meaningful naval power in East Asia. Japan is a treaty ally of the United States, and in a confrontation with either China or North Korea, Japan's modern and fully interoperable naval forces would act as a strategic force multiplier to the US military. Similarly, South Korea is also a US treaty ally whose local forces (also highly capable) would play an important role in any conflict with North Korea, making the opportunity cost of anything more than a symbolic Gulf deployment unacceptably high. In short, the US-dominated Gulf security umbrella remains necessary until at least 2030-2035 because no other military will have the requisite capacity to credibly ensure unobstructed transit of energy

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[59] Barry Posen, "Command of the Commons: The Military Foundation of U.S. Hegemony," *International Security* 28, No. 1 (Summer 2003): 5-46.

[60] See "Japan's Actions against Piracy off the Coast of Somalia," Ministry of Foreign Affairs of Japan, February 15, 2016, http://www.mofa.go.jp/policy/piracy/ja_somalia_1210.html; and "Republic of Korea Navy Assumes Command of Combined Task Force 151," Combined Maritime Forces, June 19, 2012, https://combinedmaritimeforces.com/2012/06/19/republic-of-korea-navy-assumes-command-of-combined-task-force-151/.

supplies from the region, and because Gulf oil is systemically important to the global economy and will remain so for many years to come.

VI. Conclusion

We find that, while many circumstances have changed, the rationale for maintaining US protection for Gulf oil supplies remains strong. The relationship between the United States and its Gulf allies has evolved in important ways since President Carter's 1980 declaration of American "vital interests" in the Persian Gulf. The Carter Doctrine's first phase, which we label Carter Doctrine 1.0, was prompted by the convulsive events of 1979-80, particularly the Soviet invasion of Afghanistan and the Iranian revolution, and the threat that a Soviet takeover of the region would present to the United States and its allies. In practice, the doctrine resulted in an increase in forces in the region, but prior to Iraq's 1990 invasion of Kuwait, US forces generally operated from afar.

Carter Doctrine 2.0 came about alongside the demise of the bipolar system of competitive international blocs and the rise of non-state threats that manifested in the Sept. 11 attacks. Indeed, Operations Desert Shield and Desert Storm marked the beginning of a larger, more permanent US military presence in the region. Between 1991 and 1994, the United States signed Defense Cooperation Agreements with Bahrain, Qatar, and the UAE and also negotiated or re-affirmed base access agreements with all six GCC governments.[61] This more hegemonic phase involved forceful intrusion, first into Iraqi-occupied Kuwait in 1991, and a decade later, into Afghanistan and Iraq.

Carter Doctrine 3.0 is more complex, since the focusing effects of the Soviet and Iraqi threats are now gone. Instead, it emphasizes oil's value as a global public good that enables the functioning of the international political economy. America now finds itself providing physical security for a broad set of Gulf-Asia economic relationships, including stronger GCC ties with China. This state of affairs is the result of plateauing OECD oil demand and rapid crude oil demand growth driven by robust economic development in China and other parts of East, South, and Southeast Asia. While America's direct reliance on Middle East crudes has declined, the US economy remains highly exposed to events in the region that would be transmitted through changes in global prices for oil and refined products. Viewed from a different perspective, by ensuring the continued stability of a small but critical portion of the globe, the US security umbrella pays disproportionate dividends in helping provide steady energy flows to underwrite continued U.S. and global prosperity. Ensuring that American voters and their elected representatives understand these linkages will be an important political and diplomatic task in coming years for the Pentagon as well as for major US oil consumers and Washington's Gulf and Asian allies.

[61] "The Gulf Security Architecture: Partnership With The Gulf Co-Operation Council," Majority Staff Report prepared for the Committee on Foreign Relations, United States Senate, June 19, 2012, https://www.foreign.senate.gov/imo/media/doc/746031.pdf.

The divergence of the military and economic drivers for the US-Middle East relationship is putting pressure on the longstanding oil-for-security alliance. The United States remains the region's core security provider, while China, Japan, and Korea are becoming its leading commercial interlocutors. While other countries, including China, have begun to assume small roles in securing parts of the energy transit sea lanes, the United States remains the sole nation-state with sufficient military force projection and logistics capacity to oversee full security duties. This state of affairs looks likely to continue. Therefore, we see few opportunities for a substantial diversification or transfer of the security umbrella anytime soon.

The potential for regional insecurity to disrupt global oil markets and cause widespread global economic damage means that protecting the Gulf, the linchpin of the global energy system, remains a vital US national interest. Accordingly, the United States and major global oil consumers retain robust interests in the continuation of the Gulf region's *Pax Americana*.

VII. Acknowledgements

The authors would like to thank the Baker Institute's Kristian Coates Ulrichsen for his insightful commentary on this paper. They also owe a debt of gratitude to the institute's Elsie Hung for creating a Middle East-Asia trade data set.