

# PIPELINE PARTNERS: EXPANDING AND SECURING IRAQ'S FUTURE OIL EXPORTS

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*Georgetown University, Ph.D, History*





GLOBAL RELATIONS FORUM YOUNG ACADEMICS PROGRAM POLICY PAPER SERIES No.2

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Global Relations Forum Young Academics Program  
Policy Paper Series No.2

Pipeline Partners: Expanding and Securing Iraq's Future Oil Exports  
by Dr. John V. Bowlus

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GRF intends to advance a culture that rewards the fertile tension between passion for intellectual diversity and dedication to innovative and objective synthesis. It nurtures uninhibited curiosity, analytic inquiry, rational debate, and constructive demeanor as the elemental constituents in all its endeavors. It contributes to the shared understanding of and aspiration for humanity's path to peace, prosperity, and progress as an accessible, inclusive, and fair process for all.

## FOREWORD

*Global Relations Forum* community programs aim to advance a culture of intellectual diversity, rational and constructive debate, and analytic coherence.

*GRF Young Academics Program* is distinct among these community initiatives as it serves an additional but equally important objective. Through this program, GRF hopes to establish the core elements of an expanding network for young academics that will enrich the Turkish policy debates in the coming decades.

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This paper entitled “*Pipeline Partners: Expanding and Securing Iraq’s Future Oil Exports*” is authored by Dr. John V. Bowlus. GRF thanks him for his contribution and commitment to this effort.

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GRF is grateful to all members who participated in the evaluation commission for their invaluable insights, informed guidance as well as for the time and effort they dedicated to the program.

GLOBAL RELATIONS FORUM

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# Pipeline Partners: Expanding and Securing Iraq's Future Oil Exports

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## Executive Summary

Since its discovery in the 1920s, Iraq's oil has been both a central component of the political economy of the Middle East and a major source of supply for world oil markets. Political convulsions across the region since 2011, however, including the rise of the self-proclaimed Islamic State (IS) in Syria and Iraq in 2014, are threatening to curtail Iraq's oil production and exports. Production, for now, is secure: less than 1% of Iraq's oilfields are under the control of the IS, as the Kurdistan Regional Government (KRG) controls the northern oilfields and the Iraqi central government in Baghdad controls the central and southern oilfields. Yet exports face political uncertainty and limited capacity, as the KRG must rely on transnational pipelines to the Mediterranean Sea, and Baghdad a 36-kilometer strip of coastline on the Persian Gulf.

Today, Iraq is struggling to maintain security in the face of the IS and to generate oil revenues with low prices due to a global supply glut that has largely emanated from the United States, but Iraq's oil production and exports have actually reached record levels in 2015 thanks to investments that have been made since 2008. These circumstances might reduce the short-term financial incentives of oil companies and the political urgency of policymakers to further develop Iraq's oil exports, but this would be shortsighted; US supplies are projected to plateau in the 2020s, and Iraq's cheap, abundant, and largely untapped oil will once again become essential to meeting world demand, if it can only be exported. It is therefore imperative that policymakers formulate a medium to long-term strategy to transport Iraq's oil safely and economically to consuming markets in Europe and Asia amidst the unrest in the Middle East, which is likely to continue for the foreseeable future.

The following paper describes the limitations that both the KRG and Baghdad face in exporting oil from their respective geographies, outlines the potential options that each could use, and recommends that the KRG increase the capacity of its exports through Turkey and that Baghdad build a new transnational pipeline underneath the Persian Gulf to Iran to facilitate exports. Shorter, single-country pipelines to regional powers Turkey and Iran not only offer better odds of security than longer, multi-country ones through weaker countries, but also enable Iraq to build mutually beneficial commercial ties with the region's two largest economies. Moreover, these export routes will remain viable even if Iraq splinters into various statelets or the KRG formally breaks away from Baghdad.

## 1. Introduction

The Middle East is undergoing political convulsions that are likely to continue for the foreseeable future. At the same time, major energy research organizations, including the International Energy Agency (IEA) and US Energy Information Administration (EIA), forecasted that future world demand for energy, particularly in Asia, will depend on exports of conventional oil reserves from the Middle East. These two developments are converging in Iraq, where political turmoil is impeding new investment in the infrastructure needed to transport the country's oil to world markets.

This paper will first demonstrate that Iraq's oil will be critical to meeting future world oil demand beginning in the early 2020s. Then, it will describe how Iraq can increase exports from its two major production centers: the northern fields, which constitute roughly 21% of total production capacity and are controlled by the Kurdistan Regional Government (KRG); and the central and southern fields, which constitute the remaining 79% and are controlled by the central government in Baghdad.<sup>1</sup> It will argue that a pipeline to Turkey and another one to Iran are the most practical options to expand and secure Iraq's oil future exports.

Transnational pipelines are risky propositions. Large capital expenditure and complicated regulatory and legal agreements between participating countries are required to build them. Once built, shifts in energy demand, new technology, and political change can undermine their operation. Historical mistrust between countries, ethnic groups, and religious sects in the Middle East further constrains the routes that they can take, particularly from Iraq. Despite long odds, policymakers must consider such pipelines because Iraq's oil production centers are largely land-locked. Short, single-country pipelines to regional diplomatic powers such as Turkey and Iran not only offer better odds of security than longer, multi-country ones through weaker countries, but also allow Iraq to build mutually beneficial commercial ties with the region's two largest economies.<sup>2</sup>

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<sup>1</sup> U.S. Energy Information Administration (EIA), "Country Analysis Brief: Iraq," Jan. 2015, p. 5. All Iraqi production figures and percentages are as of Jun. 2014. See Appendix I for detailed account of Iraq's oilfields.

<sup>2</sup> According to the *CIA World Factbook*, Turkey's GDP (purchasing power parity) in 2014 was \$1.512 trillion in 2014, while Iran's was \$1.284 trillion. Egypt, the third largest economy in the region, produced \$945.2 billion.

## 2. Does the World Need Iraq's Oil?

The revolution in the extraction of tight (shale) hydrocarbons in the United States has temporarily eased concerns about the security of the world's energy supplies. The technologies of hydraulic fracturing and horizontal drilling will provide security of natural gas supply for the United States and the world for decades to come, and the growth in US oil production as a result of these technologies has been almost as impressive. From 2011 to 2014, the United States added over 4 million barrels per day (mbpd) of oil to the world market, adding 1.50 mbpd in 2014 alone. The US tight oil revolution, as well as new supplies from Iraq, Canada, Brazil, and Iran that totaled 1.02 mbpd in 2014,<sup>3</sup> masked supply disruptions in Libya, Syria, and Yemen, and, along with softening demand in Europe and China, caused oil prices to plummet in 2014.<sup>4</sup>

These new supplies, however, will not alter the world's future demand for oil,<sup>5</sup> and, a large part of the necessary supply is bound to come from the Middle East, which contains 803.6-billion barrels of proven oil reserves,<sup>6</sup> or 49% of world reserves. In addition to its abundance, Middle East oil lies closer to the surface and is therefore cheaper to extract than deepwater oilfields off the coast of Brazil, tar sands in Canada, or shale formations in the United States. Moreover, the majority of Middle East oil is light and sweet, making it cheaper to refine than heavier crudes. In its 2014 World Energy Outlook released in November 2014, the IEA forecasted that world oil demand would rise by 14 mbpd between 2013 and 2040, which would require more than \$900 billion in new exploration and production (E&P) investment, and highlighted the importance of Middle East supplies for meeting this demand:

*The complexity and capital intensity of developing Brazilian deepwater fields, the difficulty of replicating the US tight oil experience at scale outside North America, unresolved questions over the outlook for growth in Canadian oil sands output, the sanctions that restrict Russian access to technologies and capital markets and — above all — the political and security challenges in Iraq could all contribute to a shortfall in investment below the levels required. The situation in the Middle East is a major concern given steadily increasing reliance on this region for oil production growth, especially for Asian countries that are set to import two out of every three barrels of crude traded internationally by 2040.<sup>7</sup>*

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<sup>3</sup> EIA, "Iraq was second-leading contributor to global oil supply growth during 2014," Feb. 9, 2015.

<sup>4</sup> Bassam Fattouh, "The US Tight Oil Revolution and Its Impact on the Gulf Cooperation Council Countries: Beyond the Supply Shock," *The Oxford Institute for Energy Studies*, OIES Paper: WPM 54, Oct. 2014, p. 7-9.

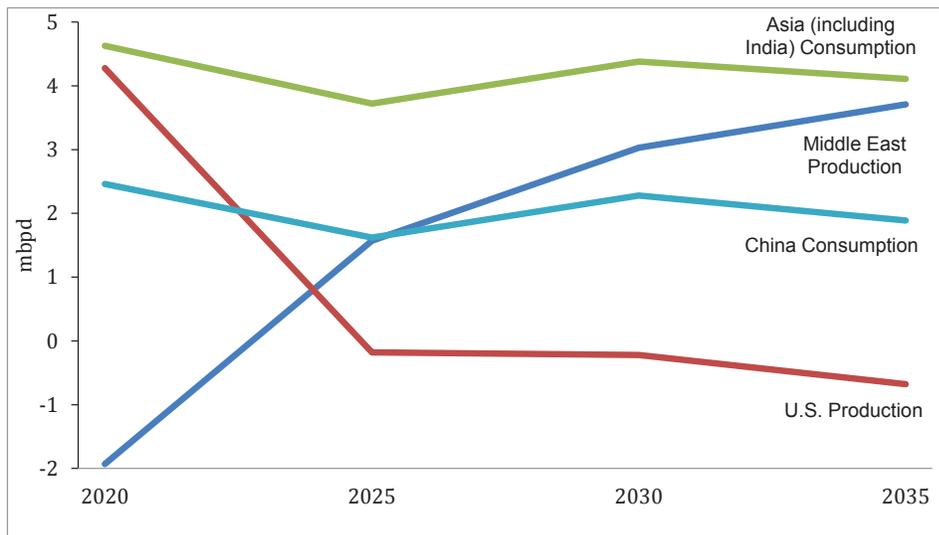
<sup>5</sup> In recent years, natural gas and renewable energies have partly replaced oil in powering industry and supplying electricity, but until infrastructure and economies of scale can be developed for electric vehicles, oil's superior fuel economy will dominate the transportation sector. Military power, moreover, relies on the transportation sector. In 2012, oil powered 93% of the energy used in the transportation sector globally, and 28% of total world energy consumption. See EIA, *Annual Energy Outlook 2015*, p. 9-12; and *International Energy Agency* IEA, "Key World Energy Statistics 2014."

<sup>6</sup> EIA, International Energy Statistics, [eia.gov/cfapps/ipdbproject/IEDIndex3.cfm](http://eia.gov/cfapps/ipdbproject/IEDIndex3.cfm).

<sup>7</sup> IEA, *World Energy Outlook 2014*, Nov. 2014, p. 2.

In its *Annual Energy Outlook 2015*, the EIA forecasted that Middle East (excluding North Africa) oil production would drop from 27.5 mbpd in 2013 to 25.6 mbpd in 2020 because of political turmoil in the region, but that it would rise again to 30.2 mbpd in 2030 (See graph below). At the same time, Asia (including India) is forecasted to become the center of gravity of future oil demand. The EIA estimates that consumption will increase to 25.6 mbpd in 2020 and 34.9 mbpd in 2030. China's consumption was 10.7 mbpd in 2013, 2.9 mbpd of which came from the Middle East, which was over half of its total imports, and is forecasted to grow to 13.1 mbpd in 2020 and 18.9 mbpd in 2035.<sup>8</sup>

Forecasted Growth in Oil Production and Consumption in Five-Year Intervals, 2020-2035



Source: EIA, *Annual Energy Outlook 2015*, p. C-13.

The chart above illustrates how Middle East production is forecasted to meet most of the future demand growth in Asia after US production plateaus in the 2020s, but additional increases will be needed from some source to make up the difference, and Iraq's cheap, shut-in, proven oil reserves, which number 144.2-billion barrels, or nearly 9% of world reserves, offer the best option.<sup>9</sup> Iraq has already increased its exports to Asia in recent years, from 51% of its total exports in 2012 to 58% in 2014. This figure could reach as high as 80% in 2020. China received 22% of Iraq's exports in 2014, with India receiving 19%.<sup>10</sup>

<sup>8</sup> EIA, *Annual Energy Outlook 2015*, p. C-13.

<sup>9</sup> Unlike major Middle East oil-producing countries Iran (157 billion barrels of proven reserves, 10% of world reserves) and Saudi Arabia (268 billion barrels, 16% of world reserves), where production has been ongoing since the 1900s and 1930s, respectively, Iraq's oil has been largely untapped due to geography and history. For figures on reserves, see EIA, International Energy Statistics, [eia.gov/cfapps/ipdbproject/IEDIndex3.cfm](http://eia.gov/cfapps/ipdbproject/IEDIndex3.cfm).

<sup>10</sup> EIA, "Country Analysis Brief: Iraq," Jan. 2015, p. 13.

Iraq produced 3.44 mbpd on average in 2014, but can significantly increase this level by 2020 as a result of the E&P contracts that it awarded from 2008 to 2010. On this basis, the IEA forecasted in 2012 that Iraqi production would reach 6.1 mbpd by 2020 and 7.5 mbpd by 2030 in its Central Case scenario. The IEA's High Case scenario placed these figures at 9.2 mbpd by 2020 and 10 mbpd by 2030, but 9.2 mbpd by 2020 already appears unreachable.<sup>11</sup>

However, if Iraq is going to reach its production potential of at least 8 mbpd, it needs to bolster its woefully underdeveloped infrastructure. A lack of water supplies suppresses production volumes, while a dearth of storage facilities and inadequate internal pipelines to bring the oil to its Persian Gulf export terminals retard its exports. Though considerable infrastructure investments have been made since 2008, the decline in oil prices and the rise of the so-called Islamic State (IS) have halted much of this progress in 2014 and 2015. When world oil demand recovers at some point in the future — helped by today's lower prices — supplies will tighten, but oil companies and governments will not have made the necessary infrastructure investments to facilitate this demand growth.<sup>12</sup>

Moreover, Iraq lacks ample routes to export its oil, even if it meets its production goals. By the end of 2015, Iraq will have a total export capacity of 5.9 mbpd; 700,000 bpd are exported by pipeline through Turkey to the Mediterranean, and 5.2 mbpd leave on oil tankers from the Persian Gulf. Unless existing routes are strategically expanded, Iraq could reach production capacity levels near 8 mbpd, enough to potentially satisfy projected world demand growth, but not have enough capacity to export it.

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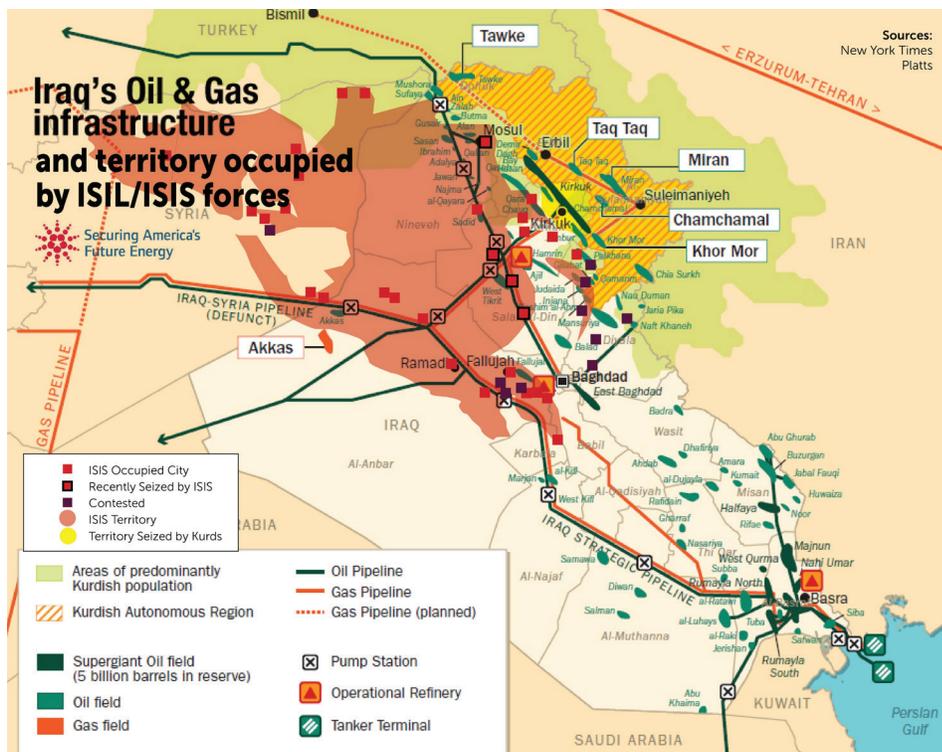
<sup>11</sup> IEA, *World Energy Outlook Special Report: Iraq Energy Outlook*, Oct. 2012, p. 12.

<sup>12</sup> Cyclicalities is typical of many commodity markets, and oil is no exception. See Christopher Allsopp and Bassam Fattouh, "The Oil Market: Context, Selected Features, and Implications," in Andreas Goldthau (eds.), *The Handbook of Global Energy Policy* (John Wiley & Sons, 2013), p. 81-97.

### 3. Northern, KRG Oil Exports

Iraq's oil can be divided into two parts: northern oil, which the KRG de facto controls, represents roughly 21% of Iraq's total production as of June 2014, and is exported by pipeline through Turkey to the Mediterranean; and central and southern oil, which Baghdad controls, represents 79% of Iraq's total production, and is exported by tanker from the port of Basra. For the sake of simplifying discussion of the export options for each of these production centers, northern Iraqi oil will be called "KRG oil" and central and southern Iraq oil will be called "Baghdad oil." This nomenclature is not an argument in support of the KRG breaking away from Baghdad but rather reflects the current geography and politics of Iraq's oil.

Iraq's Petroleum Infrastructure, June 2014



Land-locked, northern Iraqi oil has only been successfully exported through transnational pipelines to the Mediterranean coast, from where tankers transhipped it to world markets, mostly in Europe.<sup>13</sup> The Iraq Petroleum Company (IPC), a consortium of British, French, American, and Dutch oil companies that controlled the production and export of Iraq's oil from 1929 to 1972, relied on pipelines through Syria to export oil to Europe. The IPC Pipelines closed in 1976, reopened from 1979 to 1982, and closed definitively thereafter. The 500,000-bpd Kirkuk-Ceyhan Pipeline to Turkey was built in 1977, expanded to 1.5 mbpd in 1988, and operated successfully until 1990, but war, sanctions, and sabotage by Sunni groups halted or severely undermined its operation thereafter; today, the section of the pipeline inside Iraq is inoperable. In 2013, the KRG constructed a new pipeline that runs from Khurmala at the head of the Kirkuk oilfield to the Turkish border, where it links up with the Turkish section of the original Kirkuk-Ceyhan system. The Khurmala-Ceyhan Pipeline handles 450,000 bpd, but additional pumping stations, which are set to be operational by the end of the second quarter of 2015, will increase the volume to 700,000 bpd.<sup>14</sup> In 2014, during the IS's incursion into Iraq, the KRG consolidated control over all of the major oilfields in the north, including Bai Hassan and Avana dome (Kirkuk), as Iraq's security forces fled.<sup>15</sup>

In order to diversify its export routes and avoid dependency on Turkey, the KRG would need to build a new pipeline through Iran, Jordan, or Syria, all of which are politically problematic and expensive options. A pipeline from the KRG to Iran has no geographic or economic logic because the primary market for KRG oil is Europe, and pumping oil to the Persian Gulf and then shipping it to Asia is more expensive than from the Mediterranean. Moreover, Kurdish-Iranian antipathy is acute, and the KRG is unlikely to entrust its oil to Iran's care. This option has never been considered.

A pipeline from the KRG to the Mediterranean coast of Jordan or Syria, on the other hand, has precedent but would also be problematic. In the 1930s, the IPC began pumping oil from Kirkuk to Haditha in western Iraq and then to Jordan and on to Palestine, where it terminated in Haifa. Iraq closed this pipeline after the creation of Israel in 1948, and Arab-Israeli antipathies make it impossible to consider refurbishing and reusing it. A pipeline through Syria is also difficult to imagine given the ongoing conflict there and the uncertainty about its outcome. The IPC Pipelines through Syria enjoyed some success from the 1930s to 1960s, but Syria began using Iraq's dependence on them to hurt its Ba'ath rival.<sup>16</sup> Even if the current Syrian conflict ends, and Damascus and Baghdad defeat the IS, the Sunni-majority Anbar Province in western Iraq is unlikely to facilitate exports of KRG (or Baghdad) oil by pipeline, regardless of whether they go to Jordan or Syria. Prior to 2003, Saddam Hussein paid Sunni tribal leaders in Anbar to protect the Kirkuk-Ceyhan Pipeline, but groups

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<sup>13</sup> Trucks and railcars have also carried amounts of northern Iraqi oil out of the country to Iran, Syria, or Turkey, but pipelines offer superior economies of scale for oil transportation.

<sup>14</sup> *Middle East Economic Survey (MEES)* 58/10, "For KRG All Roads Lead To Turkey," 6 Mar. 2015.

<sup>15</sup> EIA, "Country Analysis Brief: Iraq," Jan. 2015, p. 6.

<sup>16</sup> From 1966 to 1967, Syria deliberately closed the pipelines and demanded higher transit fees from the IPC, publicly casting the move in anti-Western terms, but aiming to hurt Iraq. See John V. Bowlus, *Connecting Midstream: The Politics and Economics of Oil Transportation* (Georgetown University Dissertation, 2013).

have sabotaged the Kirkuk-Ceyhan Pipeline hundreds of times since 2003.<sup>17</sup> In addition to the security challenge in Anbar, building a wholly new pipeline from the KRG to the Mediterranean coast would require higher levels of capital expenditure than other options, making it less economical.

A wild card for KRG's oil exports is if the KRG and Baghdad can bridge long-standing political and economic differences and build a new pipeline that links Kirkuk to Basra on the Persian Gulf. The original, 1-mbpd North-South Pipeline was completed in 1975 and made it possible to send northern oil to the Persian Gulf and southern oil to the eastern Mediterranean. Although the pipeline would help the KRG and Baghdad each to diversify its own exports, such a pipeline would not diversify Iraq's overall oil exports, as both northern and southern production centers would still rely on their existing export routes. A new pipeline linking Kirkuk and Basra would also be very long and expensive, and, since the original North-South Pipeline passed through western Iraq, simply refurbishing it is not an option. Moreover, barring some breakthrough in relations, the KRG and Baghdad are unlikely to agree on how to finance and manage it, let alone agree on a route. Though Baghdad agreed in November 2014 to restart payments to the KRG of 17% of Iraq's total oil revenue, per the UN agreement set forth in 1996 on revenue sharing,<sup>18</sup> these payments have been delayed and inconsistent in 2015. Simply put, the KRG does not trust Baghdad and is unlikely to commit its oil to Baghdad's care.

The most secure and economic option to expand the KRG's oil exports is to construct an 800,000-bpd pipeline that runs parallel to the Khurmala-Ceyhan Pipeline and increase the overall export capacity of the system to 1.5 mbpd, which is the same capacity as the original Kirkuk-Ceyhan system. A parallel pipeline would be vastly more cost-effective than other pipelines to the eastern Mediterranean, even if on a per-kilometer basis, it would be slightly more expensive to construct because of greater elevation variability in southeastern Turkey. Still, the sunk cost of security has already been made in both the KRG and in Turkey because the pipeline would follow the same route as the current Khurmala-Ceyhan Pipeline. Turkey would only need to refurbish the 500,000-bpd pipeline of the original Kirkuk-Ceyhan Pipeline — it currently uses the 1 mbpd pipeline to handle imports from the KRG — to start operations. For its part, the KRG would only need to build a new, 800,000-bpd pipeline from Khurmala to the Turkish border.

Ankara provides an excellent partner for Erbil to secure its future oil exports to the Mediterranean for several reasons. First, Turkey has proven to be a reliable oil-transit country since the 1970s. Turkey has never closed the Kirkuk-Ceyhan Pipeline, except from 1990 to 1996 as part of the Gulf War and subsequent UN sanctions. Second, its security forces can protect the pipeline. Even when the Kurdistan Workers' Party (PKK) sabotaged the Kirkuk-Ceyhan Pipeline in the past, Ankara could secure the area and make swift repairs so that the pipeline could restart operations in a matter of days.

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<sup>17</sup> According to the Iraqi Oil Ministry, the incidents of pipeline sabotage were twice as high in 2013 as from 2004 to 2006. See Rafael Kandiyoti, *Pipelines: Flowing Oil and Crude Politics* (New York: I.B. Tauris, 2012), 79-81; and *MEES* 57/42, 17 Oct. 2014, "Iraq's New PM Acts To Root Out Corruption."

<sup>18</sup> *MEES* 57/49, "Baghdad, KRG: Peace In Our Time?" 5 Dec. 2014.

Third, Turkey will likely continue to be a major consumer of Iraqi oil. In 2013, the KRG passed Iran as Turkey's largest oil supplier and remained so in 2014.<sup>19</sup> Finally, Turkey wants to attract foreign direct investment (FDI) and will be unlikely to disrupt the flow of oil for arbitrary or political reasons, as future FDI would be imperiled.<sup>20</sup>

Turkey would also benefit from this pipeline in several ways. First, the pipeline would help Turkey raise its profile as a hub for transnational pipelines delivering energy to Europe. In addition to the existing Khurmala-Ceyhan Pipeline and the Baku-Tbilisi-Ceyhan Oil Pipeline, Turkey has started the construction of the Trans-Anatolian Pipeline (TANAP) a natural gas pipeline from Azerbaijan, and reached an agreement to be a transit state for the Turkish Stream natural gas pipeline from Russia. Second, a parallel Khurmala-Ceyhan Pipeline would help reduce Turkey's overall energy bill, as transportation costs are relatively lower than purchases of oil from other sources on the world market. Third, access to nearby supplies would offer greater energy security for Ankara in case of a global energy crisis, such as a closure of the Persian Gulf. Finally, as an added bonus, Turkey would receive US dollar-denominated fees for every barrel of oil that passed through the pipeline, which would improve its current account deficit.

The most important reason that such a pipeline can succeed is that Erbil and Ankara have established bilateral ties in energy in recent years. The failure of Baghdad and Erbil to reach an agreement on a hydrocarbon law led the KRG to formulate its own in 2007, and from 2011 to 2012, numerous international oil companies, including Anglo-Turkish Genel Energy and majors such as Exxon-Mobil, gained E&P concessions in the KRG for oil and natural gas.<sup>21</sup> In 2013, Turkey signed an agreement to buy 4 billion cubic meters (bcm) of natural gas from the KRG beginning in 2017, going up to 10 bcm by 2020, with an option to increase to 20 bcm later, and to be delivered by a new, 20-bcm natural gas pipeline to the Turkish border.<sup>22</sup> Meanwhile, Iraq has become Turkey's second largest export market since 2010, with the majority of goods going to the KRG.<sup>23</sup> An 800,000-bpd, parallel pipeline to the Khurmala-Ceyhan Pipeline, therefore, deepens an already beneficial energy and commercial relationship between the KRG and its diplomatically and economically powerful neighbor, Turkey.

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<sup>19</sup> *Al Monitor*, "How will Turkey benefit from lifting of Iran sanctions?" 10 Apr. 2015.

<sup>20</sup> Paul Stevens, "Transit Troubles: Pipelines as a Source of Conflict," A Chatham House Report, Chatham House, 2009.

<sup>21</sup> Marina Ottaway and David Ottaway, "How the Kurds Got Their Way: Economic Cooperation and the Middle East's New Borders," *Foreign Affairs* 93/3 Jun./Jul. 2014.

<sup>22</sup> *Bloomberg Business*, "Genel to Produce Kurds' Gas as Turkey Said to Ready Pipeline," 13 Nov. 2014.

<sup>23</sup> Turkish Statistical Institute, "Exports by Country and Year," accessed Apr. 2015.

## 4. Central and Southern, Baghdad Oil Exports

Baghdad's oil, predominantly located in the southern province of Basra, is more plentiful than the KRG's, and more important to world oil security, but expanding its production and export will be far more complicated. It is more important because of the expected demand growth in Asia — a market the KRG cannot readily access since it is quicker and cheaper to transport oil to Asia from the Persian Gulf than from the Mediterranean. (Some exports from the Persian Gulf go to Europe and North America, but US light oil is replacing Basra light oil in those markets<sup>24</sup>). Expanding Baghdad oil exports from the Persian Gulf will be difficult, however, because Saudi Arabia, Kuwait and Iran are unlikely to help their neighbor — and competitor — gain market share in Asia and increase its political influence.

Furthermore, the options for exporting Baghdad oil from the Persian Gulf are geographically limited, for reasons that are often not well understood. The creation of Kuwait in 1923 left Iraq with only 36-kilometers of marshy, shallow coastline, which is very difficult land on which to construct a large export terminal to load supertankers in the Persian Gulf; instead, Baghdad has relied on the Basra and Khor Al-Maya offshore terminals for its exports, which are exporting less than 1.6 mbpd. In 2007, however, the Iraqi Ministry of Oil launched the Crude Oil Export Expansion Project, which expanded export capacity from the Persian Gulf to 3.6 mbpd in 2012 by constructing two single point mooring systems (SPMs). Two additional SPMs will be ready in 2015, which will bring Baghdad's total export capacity in the Persian Gulf to 5.2 mbpd.<sup>25</sup> Despite these increases, Baghdad remains dangerously dependent on a limited area of the Persian Gulf. The Basra terminal currently suffers from massive shut-in problems due to inadequate storage facilities, which have a total capacity of only 8 mbpd, and the lack of internal pipelines to bring oil to export terminals. Even if sufficient infrastructure were constructed, the lack of space in the Persian Gulf would still limit the number of supertankers that could take on oil at one time. This problem became evident in January and February 2015, when bad weather delayed exports, tankers sat idle in the Persian Gulf waiting to fill up, and, after seven days, production halted altogether.<sup>26</sup>

The cheapest pipeline option to expand Baghdad's exports is linking Basra to Kuwait's export facilities by overland pipeline, but Kuwait fears its larger neighbor — justifiably, given the power differential and Iraq's verbal threat to invade in 1961 and actual invasion in 1990 — and will not want to help Baghdad increase exports, take market share, and gain regional power. Even if Baghdad started exporting through Kuwait, a *force majeure* closure of the Persian Gulf would halt all exports.

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<sup>24</sup> Demand for heavy crude has actually increased, and Baghdad began exporting it to Asia in 2015. *MEES* 58/21, "Iraq To Revamp Basra Port As It Launches Heavy Grade," 25 May 2015.

<sup>25</sup> *Oil and Gas Journal*, "Iraq Crude Oil Export Expansion heightens country's security," 7 May 2012.

<sup>26</sup> *MEES* 58/13, "Iraqi Oil Output Plunges as Pressures Mount," 27 Mar 2015.

The most practical way to diversify Baghdad's oil exports away from the Persian Gulf is to build pipelines to the Red Sea through Saudi Arabia or Jordan. In fact, the 1.65-mpbd Iraq Pipelines through Saudi Arabia (IPSA) already exist, having been constructed in the 1980s in response to Iran's blockade of Iraq's oil exports from the Persian Gulf during the Iran-Iraq War. These pipelines run south from Basra Province into Saudi Arabia and then west to Yanbu on the Red Sea. However, Saudi Arabia closed IPSA after Iraq's invasion of Kuwait in 1990 and converted them to export Saudi natural gas in 2000. In response to verbal threats from Iran to close the Strait of Hormuz in 2011 and 2012, Saudi Arabia considered reopening IPSA for Iraq to export oil, but ultimately did not.<sup>27</sup> Like Kuwait, Saudi Arabia is unlikely to reopen IPSA or aid Iraq in exporting its oil going forward because Iraqi oil is the only viable threat to its position as the dominant oil producer in the Persian Gulf and in the Organization of the Petroleum Exporting Countries and because of historical rivalry.

In 2012, Baghdad approached Amman, and the two sides agreed in April 2013 to build a 2.25-mpbd pipeline from Basra that would pass through the Haditha pumping station in western Iraq and reach the Jordanian port of Aqaba on the Red Sea.<sup>28</sup> The IS's incursion into western Iraq in 2014 placed the project on hold, but the two countries continue to publicly champion it and, in June 2015, changed its route to bypass Anbar Province and instead cling to the Saudi-Iraqi border. International companies have withdrawn from the project, but the Chinese National Petroleum Company (CNPC) is expected to supply the funding, which has now doubled to \$18 billion.<sup>29</sup> China's investments in Baghdad oil have grown since 2012, as the country looks to secure its future oil supplies; in 2014, it received over 51% of its oil imports from the Middle East in 2014.<sup>30</sup> In recent years, Beijing has demonstrated its willingness to develop more politically risky energy projects in Central Asia, Sub-Saharan Africa, and the Middle East, which helps explain its involvement in the project. If the pipeline is built, China will likely invest in a robust, private security force to protect the pipeline. Still, in light of political insecurity from the IS and the historically poor performance of long pipelines through western Iraq or weak countries, a Basra-Aqaba pipeline could become a very expensive mistake, even if its diversification benefits for Baghdad are undeniable.

The last option is the most controversial yet the most likely to provide oil export security and economy for Baghdad: the construction of a 1-mpbd, roughly 200-km, underwater pipeline from Basra terminal to Iran's Kharg Island export terminal. In the long-term, entrusting its exports to Tehran makes economic sense for Baghdad, since the center of gravity of world oil demand has already shifted to Asia and transportation costs are cheaper from the Persian Gulf than from the Red Sea. Moreover, this pipeline is far shorter than the options to the Red Sea and cheaper on the whole, even if offshore pipelines are slightly more expensive to construct than overland ones. In any case, security costs would be far lower for overland pipelines to the Red Sea, as offshore pipelines are less prone to sabotage. An additional advantage of this pipeline is that the Kharg Island export terminal has a capacity of

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<sup>27</sup> *MEES* 55/27, "Saudi Arabia And Abu Dhabi Scramble To Open Crude Pipelines To Bypass Hormuz," 2 Jul. 2012.

<sup>28</sup> *MEES* 55/52, "Baghdad Offers Guarantees For Export Pipeline Mega-Project," 21 Dec. 2012.

<sup>29</sup> *MEES* 58/25, "Iraq To Revise Pipeline Route To Jordan," 19 Jun. 2015.

<sup>30</sup> EIA, "Country Analysis Brief: China," Jan. 2015, p. 13.

5 mbpd, and Iran only produced 3.56 mbpd in 2013, which means that the facility can immediately handle new oil exports, but expansion will likely be required in the 2020s, particularly if sanctions on Iranian oil are lifted. Building a pipeline to Kharg Island could even propel Saudi Arabia to reconsider opening one or both of the pipelines in the IPSA system, reasoning that if Tehran has a stake in Baghdad's oil exports, so should Riyadh. Baghdad could export an additional 2 mbpd to 2.65 mbpd to world markets in this (albeit very optimistic) case.

The main objections to a pipeline from Basra to Kharg Island will be political. On a bilateral level, historical mistrust and competition for global oil markets could make Baghdad reluctant to commit its oil directly to Tehran's control, and Tehran reluctant to help Baghdad increase its oil exports. At the same time, Western and regional governments, including Sunni oil-producing countries in the Persian Gulf and Israel, view Iran as working assiduously against their interests in Iraq and helping to fan the flames of sectarian violence there and across the region; accordingly, they will likely oppose a project that would give Tehran control over roughly 15% to 20% of Baghdad's exports, arguing that this would make global oil supplies less secure and give cover to what could become a Tehran-Baghdad oil block, which could play a powerful and potentially destabilizing role in world oil markets.

Though a pipeline from Basra to Kharg Island carries some geopolitical risk, Tehran has few incentives to block Baghdad's exports or oil exports from the Persian Gulf for the matter. Iran, after all, wants stability in Iraq, as the two countries share a long border. Tehran has already demonstrated its willingness to defend Iraq's security by fighting against the IS alongside the United States and its coalition partners. While Baghdad and Tehran were rivals in the past, current and future power dynamics present a different relationship. Hussein's aggressive foreign policy threatened its Persian Gulf neighbors in the 1970s, culminating in Iraq's invasion of Iran in 1980. Since Hussein's removal in 2003, however, Baghdad has become a partner and partial client of Tehran, rather than a threat to it. Tehran is therefore unlikely to risk losing its influence in Baghdad and attract international opprobrium by blocking Baghdad's oil exports. The negative repercussions for Iran of blocking the Persian Gulf altogether are similarly unattractive. International condemnation and a US-led military response would likely follow, while Iran would suffer economically by restricting its own oil exports. Such an irrational move by Tehran could even precipitate the fall of the regime.

Baghdad can further mitigate the threat of Tehran closing such a pipeline by limiting the capacity of the pipeline to 1 mbpd, which is large enough to be significant to Baghdad's overall export levels but not devastating if it were to be taken offline. A parallel pipeline could always be added later if the relationship were to work well. Finally, not only would Tehran receive a US dollar-denominated transit fee for every barrel of oil that would transit the pipeline, but, by helping secure Baghdad's oil exports, it would demonstrate its commitment to facilitating commerce in the Persian Gulf and enhance its international credibility.

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<sup>31</sup> *MEES* 54/31, "Iran, Iraq And Syria Sign MOU For \$10bn Gas Pipeline Project," 1 Aug. 2011.

<sup>32</sup> *MEES* 57/38, "Iran Gas Exports to Iraq Delayed 'Until Situation Normalizes,'" 19 Sept. 2014.

Even though Tehran and Baghdad compete for customers in global oil markets, they are already strengthening bilateral ties through energy agreements that import or transit Iranian natural gas. In 2011, a preliminary agreement was reached between Iran, Iraq and Syria to build a 1,600-km, 110-million cubic meters (mcm), \$10-billion pipeline to transport natural gas from Iran's South Pars field to the eastern Mediterranean through Lebanon and perhaps Jordan.<sup>31</sup> Then, in July 2013, Baghdad agreed to purchase up to 25-mcm per day of natural gas from Iran over 10 years, which would arrive by pipeline at the Iraqi-Iranian border.<sup>32</sup> Security concerns have postponed both projects for the time being. Admittedly, an oil export pipeline from Basra to Kharg Island is of greater geopolitical significance than projects that supply and export Iranian natural gas because oil is a global commodity and is significantly more valuable than natural gas. Still, the existence of these projects speaks to the political will in both countries for bilateral energy cooperation. Historically, the Iranian and Iraqi oil industries share similar trajectories, as both have been vastly underdeveloped since the 1970s. Further collaboration in energy could foster synergistic commercial forces that develop Iran and Iraq's respective oil industries more quickly than if each country was working independently, and, in the process, help secure world oil supplies for the next two to three decades.

The central question facing Baghdad about its oil export strategy is whether it will diversify away from the Persian Gulf by building expensive, insecure pipelines to the Red Sea or entrust its exports to its powerful neighbor, Tehran, with a cheaper and shorter pipeline from Basra to Kharg Island. Western and regional governments will object to a pipeline to Kharg Island on political grounds, but many in Baghdad would welcome Tehran as a stabilizing force in its oil economy. The Persians, after all, have long influenced Baghdad and its environs, particularly during the Safavid Dynasty, and current political developments indicate that it will likely influence Baghdad going forward. The emergence of a Tehran-Baghdad oil block is also more of a pipe dream than a serious threat, as Baghdad will not simply relinquish control over its oil to Tehran. Baghdad may be a partial client of Tehran, but it is also a partial client of the United States and other countries, not to mention the fact that its leaders have their own interests. For such a block to materialize, Tehran would probably need to annex the Basra Province, which would induce a US-led, international military response, end Tehran's influence in Baghdad, and undermine Tehran's diplomatic power in the long-term.

## 5. Conclusions

Does the world need Iraq's oil? Yes, but more export outlets are needed to assure that it reaches world markets safely and economically, and an 800,000-bpd pipeline through Turkey and a 1-mbpd pipeline through Iran would increase Iraq's oil export capacity by 1.8 mbpd, bringing its total export capacity to 7 mbpd. This level of export capacity is not enough to handle Iraq's production target of 8 mbpd and may fall short of world oil demand in the long-term, but it is a meaningful expansion to make prior to US oil production plateauing in the 2020s.

To some extent, this study puts the cart before the horse, as new transnational pipelines cannot be utilized until more investments in Iraq's internal infrastructure — storage tanks, water treatment facilities, and internal pipelines — are made. Today, Baghdad is struggling to maintain security in the face of the IS and to generate oil revenues in the face of low prices. The possibility certainly exists that Iraq splinters, with the KRG formally leaving, the IS ensconcing itself in western Iraq, or other ethnic statelets breaking away. Yet even if this were to happen, the pipelines recommended above would continue to be viable because Turkey and Iran have the diplomatic power to secure them, and they are both the most direct as well as cheapest routes for Iraq's oil to reach world markets.

Geographic necessity and recent political developments have made once unthinkable cooperation between unlikely allies, including Kurds and Turks on the one hand and Iraqi Arabs and Iranians on the other, not only feasible but indeed sensible, and perhaps inevitable. Oil pipelines that generate mutual commercial benefits can only strengthen these alliances, which, in the long-term, can help protect the freedom of the seas in the Persian Gulf, stabilize Iraq, reduce sectarian tensions, and secure world oil supplies. Of course, two new pipelines will have a miniscule effect on the overall security environment in the Middle East, but they can at least be a small step towards greater regional harmony.

## Appendix

### Iraq's Oilfields and Export Outlets

Table 1 Iraq's oil fields, ports, pipelines and refineries<sup>1</sup>

Location	Oilfield	Lead Foreign Partner	Capacity (000, bpd) <sup>2</sup>	Export Outlet
SOUTHERN, BAGHDAD OIL	Rumaila	BP, CNPC	1,430	Basra Port (including three single point moorings) and Khor al-Amaya port
	West Qurna-1	ExxonMobil, Petrochina, Shell	550	
	West Qurna-2	Lukoil	220	
	Zubair	ENI, Occidental	360	
	Majnoon	Shell, Petronas	200	
	Garraf	Petronas, Japex	100	
	Missan Fields	CNOOC	135	
	Halfaya	CNPC, Total, Petronas	110	
	Ahdab	CNPC	140	
	Badra	Gazprom Neft, Kogas, Petronas	15	
	Other Fields		235	
	<b>Total Southern, Baghdad</b>		<b>3,500</b>	
NORTHERN, KRG OIL	Kirkuk (Avana & Baba)		220	Khurmala-Ceyhan Pipeline and Trucks to Turkey and Iran
	Bai Hasan		185	
	Jambur		40	
	Khabbaz		30	
	Khurmala Dome		110	
	Tawke	DNO, Genel Energy	130	
	Taq Taq	Genel Energy, Sinopec	130	
	Shaikan	Gulf Keystone	21	
	Other Fields		86	
	<b>Total Northern, KRG</b>		<b>952</b>	
	<b>Total Capacity</b>		<b>4,452</b>	

<sup>1</sup>This is the latest information available prior to the Jun. 2014 attack by the Islamic State of Iraq and the Levant.

<sup>2</sup>Iraq's actual production level is much lower than capacity as most oil fields are production below capacity because of infrastructure constraints. Also a portion of northern production is not being produced commercially and is considered a supply disruption.

CNPC is China National Petroleum Corporation; CNOOC is China National Offshore Oil Corporation; Sinopec is China Petroleum & Chemical Corporation.

Source: U.S Energy Information Administration based on information from the Energy Intelligence Group, Iraq Oil Report, and Middle East Economic Survey.

Published in EIA, "Country Analysis Brief": Iraq, Jan. 2015, p. 2

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