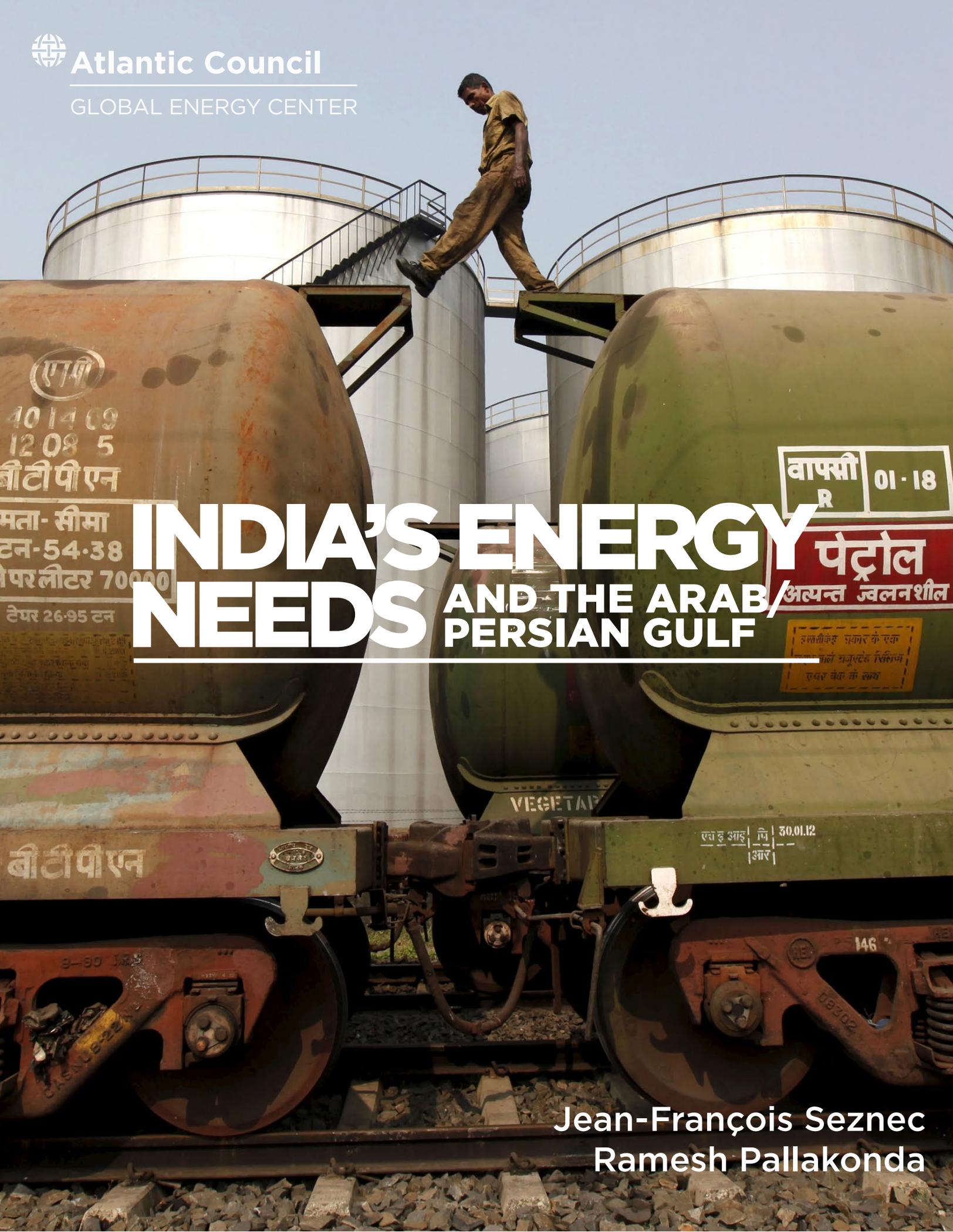




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GLOBAL ENERGY CENTER



INDIA'S ENERGY NEEDS

AND THE ARAB/PERSIAN GULF

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अत्यन्त ज्वलनशील

इस्लामिकी प्रयोग के एक
गोले मनुएटके विभिन्न
एथर के के साथ

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Jean-François Seznec
Ramesh Pallakonda

INDIA'S ENERGY NEEDS AND THE ARAB/ PERSIAN GULF

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Cover photo: Reuters/Rupak De Chowdhuri. A worker walks atop a tanker wagon to check the freight level at an oil terminal on the outskirts of Kolkata, India in this November 27, 2013 file photo.

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TABLE OF CONTENTS

Executive Summary	1
Introduction.....	2
Indian Oil Consumption's Place in the World	4
Crude Oil	5
Natural Gas	6
Structure of the Industry in India.....	8
Exploration and Production	9
Indian Economy and Key Energy Trends	11
Oil and Gas Production by Gulf Countries.....	14
India-Iran Relations.....	17
Political Objectives for a Closer Gulf Relationship and Its Implications.....	18
Volume of Trade	20
Areas for Cooperation.....	20
Conclusion	22
About the Authors.....	24

EXECUTIVE SUMMARY

India's economy is increasing at the fastest rate in the world, now making it the globe's third largest user of crude oil. While India is benefitting from the low oil prices seen since mid-2014, it has precious few oil and gas resources of its own and will remain highly dependent on imports. On the other hand India is now a large exporter of products like gasoline and diesel fuels because it has built a very large refining capacity, which ultimately renders India's need for crude oil more pressing.

India has tried to diversify its sources of crude oil, but due to its proximity to the Gulf, it still relies a great deal

on Saudi Arabia, Iran and Iraq as its major suppliers, while Qatar provides most of its natural gas needs. Hence, geography, as well as the presence of over 7 million Indian nationals in the Gulf, makes the relations between the Gulf and India increasingly important.

The paper examines in some detail the present crude oil and natural gas situation in India and the role played by the Gulf producers, especially Iran and Saudi Arabia.

INTRODUCTION

India is rapidly becoming one of the largest importers of hydrocarbons in the world. It constitutes 17 percent of world's population with over 1.3 billion people. It is the seventh largest country in the world in total land area and is the globe's fourth largest consumer of energy after China, the United States, and Russia. Per capita usage has been growing by 5 percent every year.¹ In the 2015-16 fiscal year, India's consumption of petroleum products rose by 10 percent to 183 million tons² or 3.9 million barrels per day (b/d).³ This trend is expected to continue in the coming years. With an economy projected to grow by roughly 7-8 percent every year, India has already overtaken Japan to become the world's third largest oil consumer behind the United States and China. As of 2015, petroleum products constitute 25 percent of India's total imports and 12 percent of its exports. This adds up to 20 percent of the total trade value between India and other countries.⁴

In a country where four hundred million people are still without electricity, many are switching from using wood, charcoal, and coal for heating and cooking to using kerosene and gasoline until renewables become more available. Increasing urbanization will also contribute to a large increase in demand for transportation. At the same time, efforts are being made to reduce dependence on coal by using natural gas to help reduce air pollution. On the other hand, should electricity supply become more reliable, many industries and commercial establishments, which must use their own generators powered by oil products for day-to-day use, would cut their purchases of these products. India has only very small reserves of hydrocarbons. Hence, demand for crude oil, products derived from crude oil, and natural gas will continue to increase substantially for the foreseeable future.

Of course, the country is located very close to the huge oil and gas reserves of the Persian Gulf, which gives increasing importance to Gulf-India relations. Until recently, relations with the Arab countries of the Gulf were hampered by the Gulf Cooperation Council (GCC) countries' links to Pakistan, the Kashmiri

problems, and the perceived treatment of Muslims in India, among other issues. Today, this is changing. India is presently seen by the GCC as a significant political player in the Indian Ocean region, an important source of labor for the Gulf, and a large and growing market for natural gas, crude oil, and downstream⁵ production. Approximately seven million Indian expatriates live across the six GCC member states, the largest of all the expatriate communities in the Gulf by far. India receives over \$23 billion per year in remittances from its diaspora in the Gulf. Furthermore, India buys over 1 million b/d of crude oil as well as fertilizers and chemicals from GCC countries.

India's relationship with the Arab countries of the Gulf is also influenced by current geopolitical changes. The GCC perceives, rightly or wrongly, that the United States' interest in the Gulf is declining as it repositions towards the Far East. Therefore, the GCC countries are seeking to develop deeper relations with the powers of Asia, starting with the region's two largest actors: China and India. Historically, relations between the United States and the GCC have proven extremely strong across administrations, especially on the military side. However, moving forward, the GCC leadership may be realizing that its links with the West, and the United States in particular, are weakening. Increasingly, the US public is losing faith and interest in the importance of the Gulf to its economic and strategic needs. Over time, the GCC countries will have to find other partners to counter what it deems to be the expansive policies of neighboring Iran. Developing relations with the largest Asian powers is of primary importance. Naturally, neither India nor China has the wherewithal to offer strategic links to the Gulf countries to fully replace the United States in the immediate future, but both can start by significantly growing their economic links, which ultimately will translate into political and strategic links as trust grows across the Indian Ocean.

Saudi Arabia in particular is pushing to improve its relations with India. King Salman, just before ascending to the throne in 2015, visited New Delhi; India's prime minister, Narendra Modi, visited the Kingdom in 2016. There has also been significant traffic in lower-level visits by Saudi ministers to India and vice versa; this frequent contact is important in light of Saudi Arabia's three million Indian nationals, whose interests and problems still must be addressed in depth by both countries. In addition, India is now one of the largest buyers of oil from the Kingdom, as well as a

1 Central Electricity Authority, *Growth of Electricity Sector in India from 1947-2015* (New Delhi: Government of India, April 2015).

2 "Snapshot of India's Oil & Gas Data: August 2016," Petroleum Planning and Analysis Cell, Indian Ministry of Petroleum and Natural Gas.

3 In this paper, the authors translated metric tons of crude oil into barrels/day at the rate of 7.8 tons per barrel for 365 days.

4 Directorate General of Foreign Trade, Ministry of Commerce and Industry, Dgft.gov.in.

5 Downstream refers to all the transformations of the carbon molecules obtained from the extraction of crude oil and natural gas. It also covers the actual manufacturing of products made from the refined products.



The India prime minister, Shri Narendra Modi meeting with King Salman bin Abdul Aziz Al Saud of Saudi Arabia, at the Royal Court, in Riyadh, Saudi Arabia on April 3, 2016. *Photo credit: Reuters/Josue Gonzalez.*

large importer of fertilizers and chemicals from Saudi producers.

One of the main objectives of Saudi industrial policy is to establish a base load for stable consumption of its crude supply, to make it less reliant on world demand fluctuations. It has established a number of refineries, at home and abroad, which today consume over 5 million b/d, of which 2.9 million b/d are located in Saudi Arabia. It also has refineries in China, Korea, Japan, Taiwan, and the United States. It has large storage facilities in Okinawa, Japan, and is working to establish a similar arrangement in China.⁶ Saudi Aramco, Saudi Arabia's state-run oil company, and India's Ministry of Oil⁷ are negotiating to establish a 300,000 b/d refinery in Bina, in the state of Madhya Pradesh, to produce gasoline, diesel, and naphtha. The last product will principally give the joint venture

the capacity to go downstream in chemicals. The Saudi trading partnership with India may become as important as its energy sales and investment relationship with China is today.

In light of the evolution in relations between the Gulf and India, this paper assesses in some detail the present energy situation in India. The report also examines the consumption trends, trade value, and impact of oil price fluctuations on key economic indicators. Historically, India has depended on the Middle East and countries such as Saudi Arabia, Iran, Iraq, the United Arab Emirates (UAE), and Qatar to meet its import requirements. With Iran coming out of its restrictive sanctions regime, supply dynamics are set to change. Thus, the report also assesses some of the geopolitical issues and possible implications for Indian markets.

⁶ Tsuyoshi Inajima, "Saudis Seen Bolstering Oil Market Defense with Asia Storage," Bloomberg, September 1, 2016.

⁷ For these negotiations, the ministry works with India's state refining firms: Indian Oil Corporation, Bharat Petroleum Corporation Limited, and Hindustan Petroleum Corporation.

INDIAN OIL CONSUMPTION'S PLACE IN THE WORLD

It is expected that during 2015-2021, the states of Asia, mainly China and India, will continue to be major consumers of oil, with volumes expected to increase from 23.7 million barrels per day (b/d) in 2015 to 28.9 million b/d in 2021.⁸ The increase in consumption takes into account how the rate of growth is negatively affected by a reduction in subsidies and political efforts to reduce India's carbon footprint. China and India will be central to this growth in demand, and both countries will also be building up strategic reserves during this time, with the former already taking a strong lead in stock accumulation.

In China, this trend is expected to continue until 2040,⁹ as oil demand from the transportation sector will continue to grow sharply. A similar pattern is expected from other non-Organisation for Economic Co-operation and Development (non-OECD) countries, such as India. On the other hand, demand for oil from OECD countries is expected to decline over this period, primarily because of government policies to address fuel efficiency and the already-saturated vehicle ownership rate.

Table 1 shows that the United States continues to be the largest consumer of oil in the world. However, its rate of oil consumption has been declining steadily at around -0.7 percent year-on-year. On the other hand, emerging economies like India, China, Brazil, and Saudi Arabia have shown some growth in consumption. India overtook Japan in 2015 to emerge as the world's third highest oil consumer. Going forward, emerging economies will lead oil demand globally. The slow growth in gross domestic product (GDP) in the Western world, coupled with the increased shift towards green energy and environmental awareness, is leading to the reduction of oil demand in OECD countries. On the other hand, quickly growing economies in Asia are likely to follow India's lead, which has doubled its demand for hydrocarbons over the past decade.

The largest conventional oil reserves are still those of the Gulf countries. While non-conventional reserves like the bitumen of Venezuela or the oil sands of Canada are expanding overall world reserves, from

Table 1. Growth in Oil Demand among the World's Largest Oil Consumers, 2005-2015

Country	2015 Demand ('000 b/d)	*CAGR 2005-2015
United States	19,396	-0.7%
China	11,968	5.7%
India	4,159	4.8%
Japan	4,150	-2.5%
Saudi Arabia	3,895	5.9%
Brazil	3,157	4.0%
Russia	3,113	1.6%
South Korea	2,575	1.1%
Germany	2,338	-1.0%
Canada	2,322	0.1%
Others	37,936	0.8%
Total	95,009	1.2%

*Compound annual growth rate.

Source: BP, "BP Statistical Review of World Energy, June 2016," <http://www.bp.com/statisticalreview>.

the standpoint of India, growth in non-conventional oil is of minor relevance. The oil reserves of the Middle East and North Africa (MENA) put together comprise more than 55 percent of global oil reserves and are all geographically much closer to the subcontinent.

India has its own minor, domestic oil supply with reserves of just 5.7 billion barrels,¹⁰ a very small figure when compared to those in the Middle East. While efforts to increase exploration have been made through India's New Exploration Licensing Program (NELP), the actual increase in reserves and the corresponding growth in production have been very limited with production today at about 876,000 b/d.¹¹ Global majors have not shown an interest in exploring India due to its lower reserve size and regulatory uncertainty. Hence, India has been and will increasingly be an oil importer.

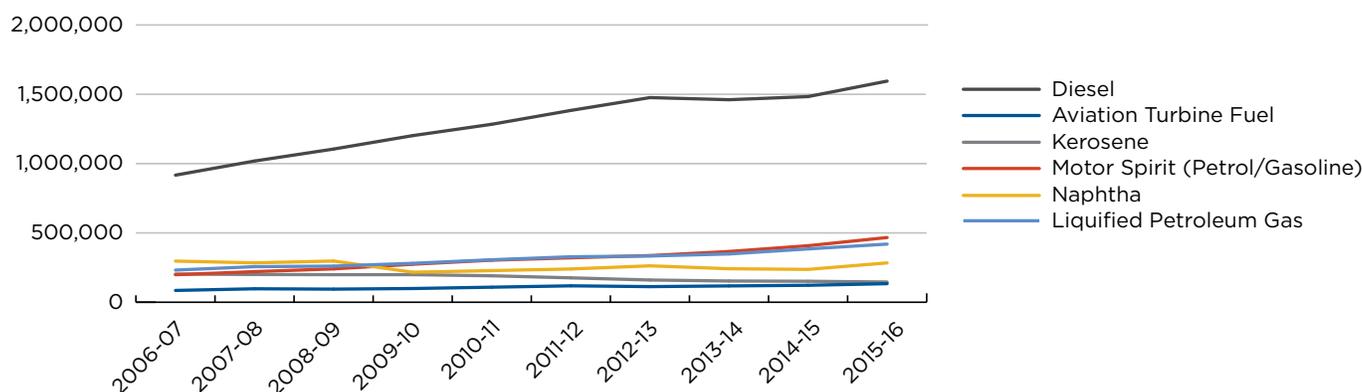
8 Organisation for Economic Co-operation and Development, *Economic Outlook for Southeast Asia, China and India 2015* (Paris: OECD Publishing, 2015).

9 "Natural Gas," chapter 3 in *International Energy Outlook 2016* (Washington, DC: US Energy Information Administration, 2016).

10 Sanjeev Choudhary, "India's Crude Oil Output to Continue to Fall Despite Government's Efforts," *The Economic Times*, December 1, 2015, http://articles.economictimes.indiatimes.com/2015-12-01/news/68688093_1_oil-india-oil-output-crude-oil-production.

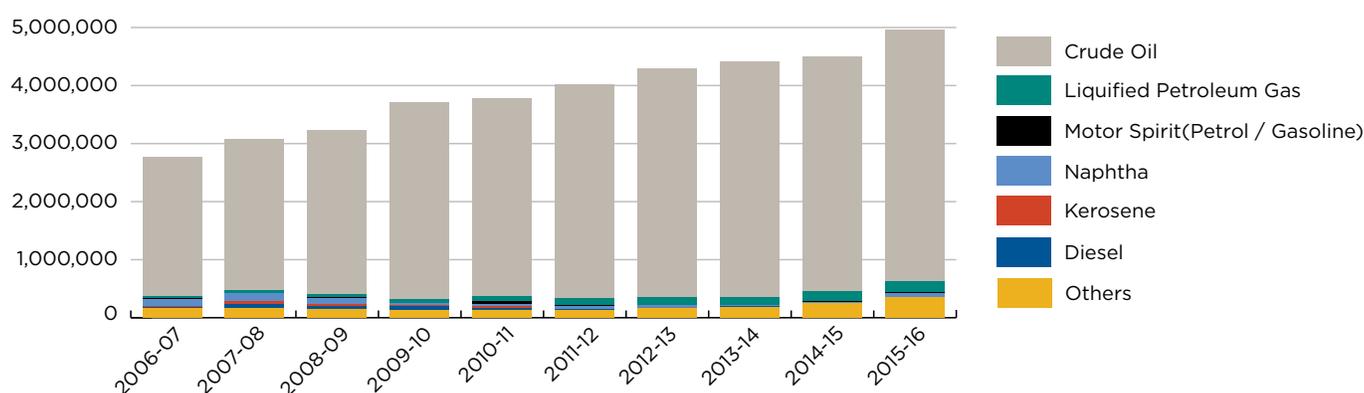
11 BP, "BP Statistical Review of World Energy, June 2016," Excel workbook, <http://www.bp.com/statisticalreview>.

Figure 1. Consumption of Petroleum Products in India (barrels per day)



Source: Data from Petroleum Planning & Analysis Cell, Ministry of Petroleum and Natural Gas.

Figure 2. Import of Crude Oil and Petroleum Products in India (barrels per day)



Source: Data from Petroleum Planning & Analysis Cell, Ministry of Petroleum and Natural Gas.

* This data includes export of crude and product oil by exporting destinations

Presently, the United States, Saudi Arabia, and Russia dominate production. Further, when combined, the Gulf states together produced 26 million b/d in 2015 and are now producing 29.8 million b/d; all within a few hours sailing to India, which makes energy costs for India substantially lower than those for China, Japan, Korea, or even Europe. Even though India produces only about 876,000 b/d, its location close to the producing countries gives it a quasi-natural advantage over countries further away.

CRUDE OIL

India is now a leading oil importer behind the United States and China and is on par with Japan (see table 2).

While US imports have declined due to the increase in the domestic shale oil supply, countries like India and China, with higher levels of economic growth, have shown rapid increases in oil consumption and imports.

Table 2. World's Top Crude Oil Importers, 2015

Country	Crude Oil (million b/d)	Products (million b/d)	CAGR from 2005 to 2015
United States	7.351	2.050	-3.57%
China	6.743	1.453	9.11%
India	3.919	0.488	4.74%
Japan	3.370	0.976	-1.82%

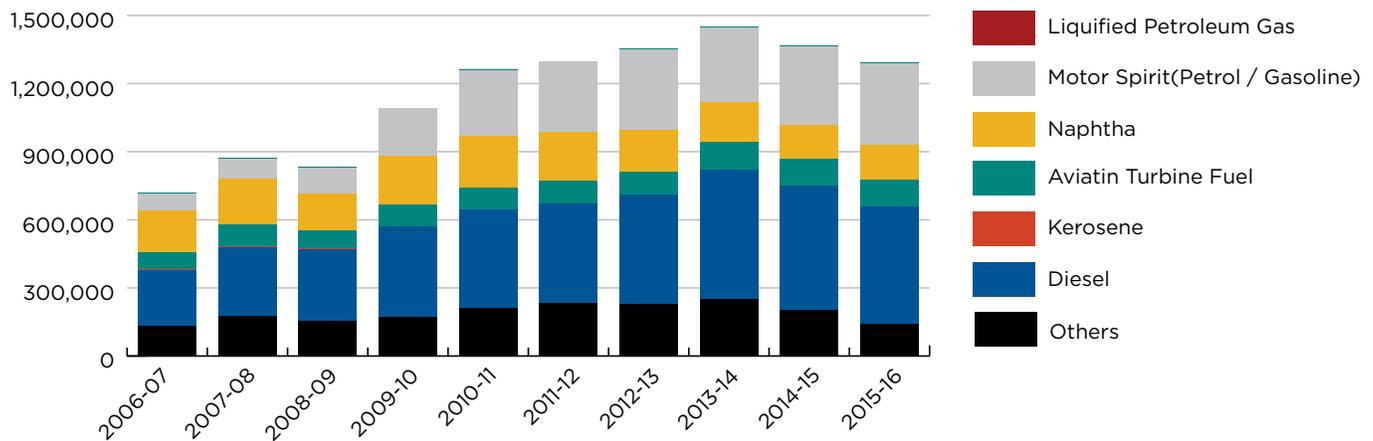
Source: BP, "BP Statistical Review of World Energy, June 2016," <http://www.bp.com/statisticalreview>.

Indian crude imports have more than doubled during the past decade.

India imports small amounts of refined products but is a large exporter. This is due to a number of large refineries in India, which buy the crude oil from

INDIA'S ENERGY NEEDS AND THE ARAB/PERSIAN GULF

Figure 3. Export of Crude Oil and Petroleum Products (barrels per day)



Source: Data from Petroleum Planning & Analysis Cell, Ministry of Petroleum and Natural Gas.

producers, refine it, sell it within India, and then export the surpluses. In 2014-2015, India exported around 63 million metric tons of products (1.3 million b/d).

NATURAL GAS

The world is looking to both lower emissions and find lower-cost energy options. Natural gas has increasingly fulfilled the role of providing high British thermal unit (btu) content while producing substantially less pollution than coal or crude oil, especially within the production of electricity. In due course, renewable energy sources may displace carbon-based energy supplies, but until this happens, natural gas will increasingly be the fuel of choice for electricity production and continue to be the raw material used to make many chemicals and fertilizers. These trends, of course, have favored the producers of natural gas. Two of the largest suppliers, Qatar and Iran, are near India. However, unlike oil, natural gas is difficult to transport: it requires either pipelines or very expensive, technologically complex processes to convert it into liquefied natural gas (LNG).

India's production of natural gas is a mere 1.031 trillion cubic feet (tcf), about 1.2 percent of world production. This compares with the United States' 27.1 tcf, Russia's 20.2 tcf, Iran's 6.8 tcf, and Qatar's 6.4 tcf.

While India's demand for natural gas is increasing, it is low compared to that of the large developed countries and China. The United States, Russia, and China are among the top global consumers of natural gas. India's natural gas consumption is growing at a compound annual growth rate (CAGR) of 3.5 percent while China's is growing at a CAGR of 15.1 percent. But, there is huge

Table 3. World's Top Producers of Natural Gas, 2015

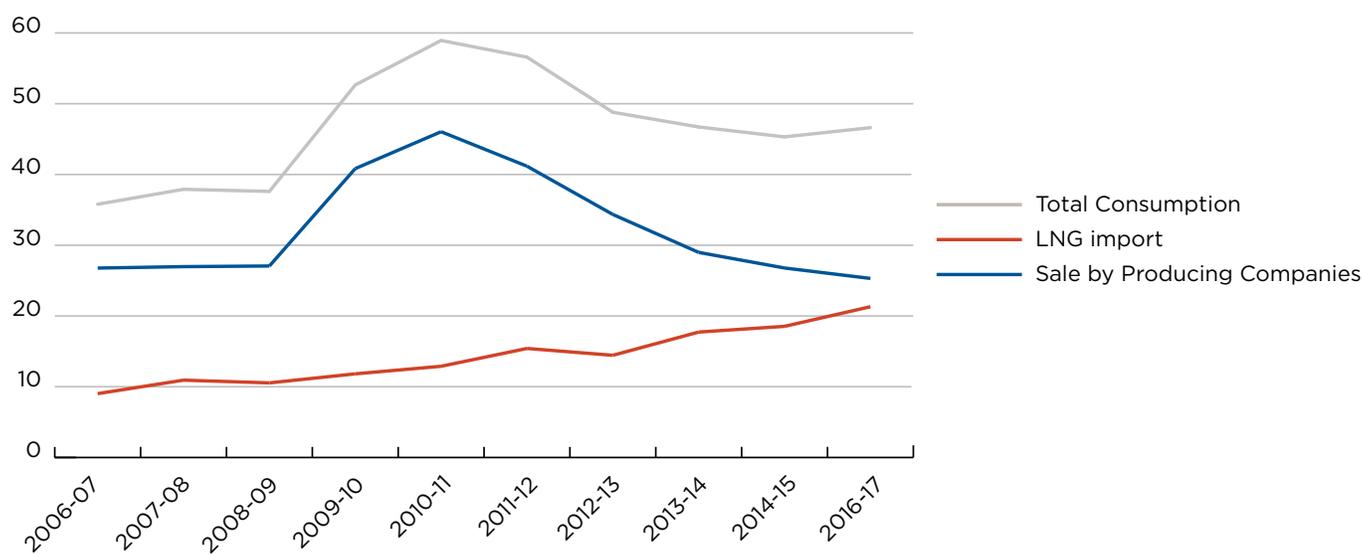
Country	Gas Production (tcf)-2015
United States	27.096
Russia	20.245
Iran	6.798
Qatar	6.406
Canada	5.773
China	4.873
Norway	4.138
Saudi Arabia	3.757
India	1.031
Total	80.117

Source: BP, "BP Statistical Review of World Energy, June 2016," Excel workbook, <http://www.bp.com/statisticalreview>.

potential for growth in natural gas consumption in India; until now, it has not grown substantially due to low availability. Many gas power plants and fertilizer plants competed for the attention of the Empowered Group of Ministers (EGOM) Committee, and now for its successor institution the Federal Ministry of Petroleum and Natural Gas, which determines who gets gas and where it is distributed.

Furthermore, the small domestic production of gas, which was expected to increase and help assuage the need for imports, has drastically lagged expected

Figure 4. Trend of Natural Gas Consumption in India (in BCM)



Source: Data from Petroleum Planning & Analysis Cell, Ministry of Petroleum and Natural Gas.

Table 4. World's Top Consumers of Natural Gas, 2005-2015

Country	Gas Consumption (tcf)- 2005	Gas Consumption (tcf)- 2015	CAGR
United States	22.015	27.474	2 %
Russia	13.913	13.825	-0.1 %
China	1.702	6.967	15.1 %
Iran	3.626	6.752	6.4 %
Japan	2.775	4.004	3.7 %
Saudi Arabia	2.514	3.757	4.1 %
Canada	3.453	3.619	0.5 %
Mexico	2.160	2.938	3.2 %
India	1.260	1.786	3.5 %

Source: BP, "BP Statistical Review of World Energy, June 2016," <http://www.bp.com/statisticalreview>.

output. This lag is mainly due to the dispute between Reliance Industries Ltd. and India's government over the next phase of price review of the gas production from the KG Basin in Andhra Pradesh in India.¹² The current price of gas sold to the government by Reliance is \$4.2 per million btu (mmbtu). The last price review was in 2013, and Reliance was anticipating a price hike of anywhere between \$10 per mmbtu to \$15

per mmbtu. The government set up many committees to review the price but a consensus could not be reached and the issue has been escalated to finding legal remedies. A consequence of this pricing structure and the domestic gas shortage has led to a large increase in imports of LNG.

Today, the main gas-consuming sectors include power generators and fertilizer production. However, gas-based power generation could increasingly play an important role in India, especially as peak-level generation of intermittent renewable energy

¹² The price of gas is set through an arrangement between the producer and the central government. If the government keeps the prices too low, for example, the producers have no incentive to ramp up production and invest in new production.

INDIA'S ENERGY NEEDS AND THE ARAB/PERSIAN GULF

Table 5. World's Largest Gas Importers, 2015

Country	Gas Imports (tcf)-2015
Japan	4.167
Germany	3.672
United States	2.719
China	2.111
Italy	1.984
Turkey	1.666
India	0.766
Total	17.085
India	1.031
Total	80.117

Source: BP, "BP Statistical Review of World Energy, June 2016," Excel workbook, <http://www.bp.com/statisticalreview>.

sources like wind and solar develop. With more state governments encouraging the use of compressed natural gas (CNG) for public and private transport, the authors expect to see an increase in consumption of gas in other fields as well. Today, India's gas imports are relatively small compared to those of the major importers, as seen in table 5. Russia, Qatar, and Norway are the top three leading exporters of natural gas worldwide, while Iran, with the largest reserves in the world, is expected to become a major exporter in the near future. This will have a major implication for global supply dynamics. For India, this implies that the Iran-Pakistan-India gas pipeline (also known as the Peace pipeline) could become reality with the lifting of sanctions against Iran.

STRUCTURE OF THE INDUSTRY IN INDIA¹³

Public Sector

India's energy and trade policies are decided mainly at the federal level. The "Union List" details the central government's energy responsibilities:

- Atomic energy and mineral resources necessary for nuclear energy production
- Shipping and navigation
- Trade and commerce with foreign countries; import and export across customs frontiers; definition of customs frontiers
- Regulation and development of oilfields and mineral oil resources, petroleum and petroleum products, and other liquids

Issues and policies related to electricity are shared by both the central government and the states, with the former prevailing in case of any dispute.

The main agencies that have relations with the Gulf are the departmental ministries of the Government of India, which formulate the national policies and execute them through the subordinate directorates/public sector entities.

There are eight main ministries involved in energy relations with the Gulf:

1. Ministry of Commerce and Industry for trade issues
2. Ministry of Chemicals and Fertilizers for non-petrochemical issues
3. Ministry of Petroleum and Gas for all oil and gas issues
4. Ministry of Power for all electricity issues
5. Ministry of New and Renewable Energy for all non-fossil fuel issues
6. Ministry of Coal for all coal-related issues
7. Ministry of Finance for all customs duties
8. Ministry of External Affairs, which coordinates between ministries and all foreign nations

There are six main public sector entities doing energy business in petroleum and natural gas:

1. Oil India Limited
2. Indian Oil Corporation
3. Hindustan Petroleum Corporation
4. Bharat Petroleum Corporation
5. IBP (formerly known as the Indo-Burmese Petroleum Corporation)

¹³ All information obtained from various publications of the Directorate General Foreign Trade, a department of the Ministry of Commerce and of the Ministry of Petroleum and Natural Gas, as well as the personal experience of one of the authors.

6. GAIL (Gas Authority of India Limited), transporter and marketer of domestic and imported gas

Private Sector

Since the economic liberalization reforms of 1992, the government of India has permitted the growth of a large private sector to develop the production, transformation, and distribution of petroleum and gas products. The country's largest and most dominant private sector firm is, and has always been, Reliance Industries Ltd., which is growing increasingly important worldwide in the energy field.

Reliance Industries¹⁴ was set up by entrepreneur Dhirubhai Ambani. His two sons, Mukesh Ambani (the elder of the two) and Anil Ambani, inherited the company.

Reliance was critical in pushing for privatization in the oil and gas sector, which was earlier monopolized by the public sector white elephants listed above, seen often as not very efficient, state-patronized entities.

Reliance managed to enter into exploration, refining, and distribution, but it has succeeded only in exploration and refining. It established a market share of up to 15 percent in the petroleum retail business, but could not sustain its operations due to rising international fuel prices, especially when coupled with the subsidies and budgetary support given to its competitors in the public sector. This situation drove comparatively high-cost fuel retailers like Reliance to lose market share.

After the death of the company's patriarch in 2002, Reliance Industries split into two: Reliance Industries Limited (RIL) with an asset base of \$60 billion, now directed by Mukesh Ambani, and the Anil Dhirubhai Ambani Group with \$29 billion in assets, directed by Anil Ambani. RIL now engages in both upstream and downstream energy businesses.

EXPLORATION AND PRODUCTION

- RIL's upstream business comprises the complete chain of activity, from exploration through appraisal, development, and production.
- Reliance entered the exploration and production business by becoming a 30 percent partner in an unincorporated joint venture with British Gas and

the Oil and Natural Gas Corporation (ONGC) in the Panna Mukta and Mid and South Tapti blocks. Besides the Panna Mukta and Tapti (PMT) blocks, the domestic portfolio comprises five conventional oil and gas blocks in Krishna Godavari, Mahanadi, Cauvery Palar, Gujarat Saurashtra, and Cambay Basin, as well as two coal bed methane blocks in Sohagpur East and West in Madhya Pradesh.

- On the international front, Reliance has acquired two offshore blocks in Myanmar. In 2010, Reliance entered into three joint ventures in the Marcellus and Eagle Ford plays of the US shale gas industry.
- Oil and gas is currently being produced from the PMT blocks and KG D6 blocks in India as well as through shale gas joint ventures in the United States.¹⁵

Refining at Reliance Industries Ltd.

- The crude processing capacity of Jamnagar refinery is 1.24 million b/d, often described as the largest in the world. It includes some of the planet's largest units, like its fluidized catalytic cracker, coker, and alkylation plants.
- Fuels from the Jamnagar refinery are exported to several countries across the world. This complex refinery can produce gasoline and diesel of different grades.
- Reliance also has another refinery—the sixth largest in the world—in the Special Economic Zone at Jamnagar. This refinery has capacity to process 580,000 b/d of crude.
- The company also markets petroleum fuels in several African countries, through its subsidiary Gulf Africa Petroleum Corporation.
- It also runs an aromatics plant.

Petro-Chemicals

- The company can take the refineries' output and produce large volumes of chemicals like paraxylene and polypropylene, polymers, polyesters, intermediate fibers, and elastomers.

Reliance is one of the most influential business houses in India and has had a role in critical government decision-making and has influenced key public appointments. However, it has lost some of its influence under the present government. Today, Reliance can, at most, lobby as part of the private sector, not as the major lobbyist it used to be. Hence, Reliance has but

¹⁴ Most of the information on Reliance Industries presented here is available on the company's websites: www.ril.com and www.relianceada.com.

¹⁵ "Exploration and Production," Reliance Industries Limited, <http://www.ril.com/OurBusinesses/Exploration.aspx>.



IndianOil (government owned oil company) service station in Pipili, Odisha, India. *Photo credit:* Bernard Gagnon/Wikimedia.

little leverage or power in dealing with the Gulf states. At most, Reliance can propose joint venture initiatives with the Gulf for investments in India, which the Indian government would be keen to support like it would for any other private enterprise.

The Essar Refinery and the Ruia Brothers

As previously mentioned, Saudi Aramco has been negotiating with the government of India to add to its worldwide refining footprint by building a large refinery on India's west coast. A few months ago, Saudi Aramco was also negotiating to buy Essar—a large state-of-the-art refinery—from the Ruia family. However, Saudi Aramco's \$9 billion bid was preempted by a \$13 billion offer from Russia's Rosneft, pushed personally by President Vladimir Putin.¹⁶ The price obtained by the Ruia family is certainly excellent. One could perhaps speculate that Saudi Aramco did not want to bid further as it may have had to spend

some substantial amount above and beyond the \$9 billion bid to modify the refinery to tailor it to process the heavier Saudi crudes.

“HELP”

India is now seeking foreign and local private investors in its upstream developments. It has adopted new regulations to push the production of conventional and unconventional (i.e., shale gas and oil) hydrocarbons at home. The measures bring more aggressive revenue-sharing agreements and more freedom for the producers to price oil and gas products in the Indian market. The program is called the Hydrocarbon Exploration Licensing Policy (HELP). Under this new program, India is auctioning sixty-seven smaller fields. It is not yet clear whether the program will truly lift the traditional bureaucratic hurdles and attract the private sector.¹⁷ Nevertheless, it will “help” promote at least some local production; that said, the supply of crude

¹⁶ Dmitry Zhdannikov, Nidhi Verma, and Katya Golubkova, “Exclusive: Oil wars - How Kremlin's \$13 Billion Indian Deal Almost Fell Apart,” Reuters, November 16, 2016, <http://www.reuters.com/article/us-russia-india-saudi-oil-idUSKBN13B083>.

¹⁷ For a detailed discussion of this program, see Anupama Sen, *India's Upstream Revival - HELP or Hurdle* (Oxford: Oxford Institute for Energy Studies, November 2016).

oil and natural gas is unlikely to reverse the importing trends of the past few years.

INDIAN ECONOMY AND KEY ENERGY TRENDS

India's energy consumption profile has been changing at a rapid pace. The unique and inertia-ridden picture of India is transforming. At the household level, burning firewood for cooking in the rural areas and using kerosene stoves in the urban areas are making way for liquefied petroleum gas (LPG) cylinders. In some of the metropolitan cities, the new residential complexes have also started installing piped LPG for domestic consumption.

The "bullock carts" (ox-driven wooden carts used in rural India mainly for transporting agricultural inputs, produce, and rudimentary equipment) are making way for increased use of tractors, harvesters, and thrashers. The *Jugaad*, a ramshackle congregation of wheels, a metal cart, and a kerosene/diesel guzzling motor used as the main source of rural transportation, is being replaced with individualized motor transport by Hero Honda bikes, jeeps, and public transport buses. Long lines and waiting lists for access to LPG cylinders are giving way to deliveries made available at the click of a button through online information technology (IT)-enabled services (which in itself is another segment of growing energy use). The dominant source of communication from the outside world had been transistor radios in India's vast rural stretches. Now the mobile revolution, preceded by cable television proliferation, has increased the per-capita consumption of electricity in the hinterlands of India. Primarily a tropical and arid country that is growing warmer due to climate change, India is now seeing impressive growth in air-conditioner sales.

The energy-dependent automotive industry is seeing a quantum jump in automobile use with some of the domestic car manufacturers selling new, low-cost cars at prices as low as \$1,500 to the newly emerging middle class population. The railway network, the backbone of the middle class and poor for long-distance travel, has phased out steam engines in favor of diesel/traction, and is adding new trains, laying new lines, and upgrading single lines to double lines in every year's annual railway budget. The aviation industry, earlier dominated by a small fleet of the domestic public sector entity, is now buzzing due to private airlines' efforts to accommodate the rapidly emerging upper middle class.

At this time, the defense sector is expanding its spread and operations with the introduction of new armor and equipment, leading to increased energy use. All of these aspects of growth and development in India are now associated with increased per capita energy consumption.

India is currently among the fastest growing nations in the world. Indian GDP is expected to grow at a CAGR of around 7 percent until 2030. As per the assumptions of the NITI Aayog, the Indian government's principal think tank on economic affairs, the growth rate in the twelfth five-year plan will be 6.8 percent, increasing to 8.1 percent in the thirteenth plan, and peaking at 8.4 percent in the fourteenth and fifteenth plans. The long-term growth rate after reaching the plateau stage will be 5.8 percent.¹⁸ India is currently a \$1.87 trillion economy and is the seventh largest in the world in terms of absolute GDP. The high growth rate of 6-7 percent, which is envisioned in the future, will also lead to a huge energy requirement. The current contributions to GDP by various sectors are services (52.97 percent), industry (30.02 percent), and agriculture (17.01 percent).

In industry, the contribution of the manufacturing sector stands at 17 percent. With the prime minister's vision of creating thirty million jobs through the "Make in India" campaign, that contribution is expected to rise to almost 34 percent in 2047.¹⁹ Thus, the manufacturing sector will become a major consumer of oil and petroleum products for its energy needs.

In the 1990s, after liberalization of the economy, India enjoyed strong GDP growth, which pushed oil consumption to an all-time high. During that period, oil overtook coal as the leading contributor to energy, meeting almost 52 percent of the growth in consumption. In the latter half of the decade, production dropped while consumption continued to increase, which led to a rise in oil imports. GDP recovered during the early 2000s and India's annual energy consumption once again increased by 6.8 percent. This period brought back coal as the dominant fuel (51 percent of total consumption), followed by oil (30.5 percent), natural gas (11.1 percent), and non-fossil fuels (7.4 percent).²⁰

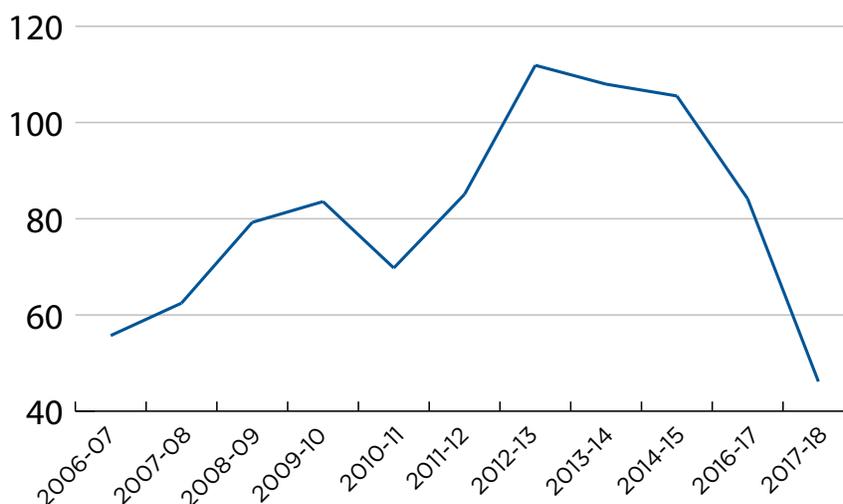
Greatly dominated by coal and oil, India's energy mix remains mostly unchanged from 1980. However,

¹⁸ NITI Aayog, *A Report on Energy Efficiency and Energy Mix in Indian Energy System (2030): Using India Energy Security Scenarios, 2047* (New Delhi, April 2015), http://niti.gov.in/writereaddata/files/document_publication/Energy_Efficiency.pdf.

¹⁹ Ibid.

²⁰ Ibid.

Figure 5. Average Crude Oil Price of Indian Basket (\$/bbl)



Source: Data from Petroleum Planning & Analysis Cell (PPAC), MoPNG.

one thing to note is the shift from coal to oil during the 1990s and the subsequent reversion back to coal during the past decade. Nevertheless, transitions to the consumption of LNG as a fuel and to renewable energy sources are emerging trends. At the same time, India's dependence on coal and oil will continue, which will make India a major player in the global trades for coal, oil, and gas into the future.

Oil & Gas as Part of the Economy

As previously noted, India is a major oil importer. Crude oil constitutes 33 percent of the country's imports.²¹ Thus, slight fluctuations in oil prices adversely impact India's current account deficit, fiscal deficit, exchange rate, and inflation. As per financial industry experts, a 10 percent fall in oil prices should lead to a 0.1 percent increase in economic output of the country.²²

Oil price dynamics influence the following key economic indicators:

Current account deficit: India imports nearly 80 percent of its total oil consumption needs, and crude oil constitutes one-third of the total value of India's import basket. A fall in the price of oil causes a noteworthy drop in the value of India's imports, which reduces the current account deficit. A fall in oil prices by \$10 per barrel helps reduce the current account deficit by \$9.2 billion, or nearly 0.43 percent of India's GDP.²³

Fiscal deficit: Prices of petrol and diesel are deregulated in India. However, kerosene remains a highly regulated commodity and the government of India determines its price at subsidized rates. The difference between the selling price of fuel and its cost to companies is called "under-recoveries." The Indian government rebates this price differential to the oil marketing companies, like Indian Oil, Bharat Petroleum, Hindustan Petroleum, and IBP. These under-recoveries add substantially to the government's total expenditures and lead to increases in the fiscal deficit. A fall in oil prices reduces losses incurred by the oil companies and thus reduces the oil subsidy amount. This, in turn, helps narrow the fiscal deficit. The cost of India's fuel subsidies could fall by \$2.5 billion in 2016-17. Of course, in reverse, if oil producers such as Russia and OPEC (Organization of the Petroleum Exporting Countries) agree to cut production, the deficit would rapidly balloon.

Exchange rate: The value of the rupee depends on the demand of rupees in the market. Since most payments for oil imports are made in US dollars, whenever oil prices rise, the demand for US dollars increases. This leads to the relative weakening of the rupee. A high deficit would compel the government to sell rupees and buy dollars to pay its bills. This would reduce the value of the rupee. On the other hand, a fall in oil prices is good for the rupee. However, the dollar often strengthens every time oil prices drop, which negates any benefit from a fall in the current account deficit.

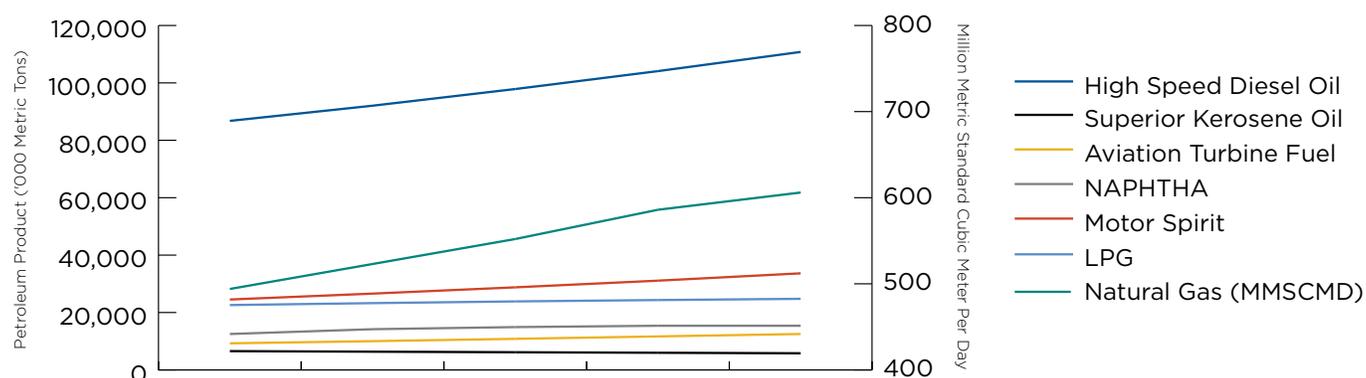
21 Dgft.gov.in, India's trade page, Ministry of Commerce & Industry.

22 Tim Bowler, "Falling Oil Prices: Who Are the Winners and Losers?" BBC News, January 19, 2015, <http://www.bbc.com/news/business-29643612>.

23 Rajesh Kumar, "How Falling Crude Oil Prices Affect Different

Economies," Live Mint, December 8, 2014, <http://www.livemint.com/Money/z4cOd2pIT7ZdCINn4dVckN/How-falling-crude-oil-prices-affect-different-economies.html>.

Figure 6. Demand for Oil and Gas in the Thirteenth Five Year Plan



Source: Data from Petroleum Planning & Analysis Cell (PPAC), MoPNG.

Inflation: India consumes a very high proportion of diesel compared to its consumption of other petroleum products. In India, more than 65 percent of total freight is transported by trucks. Volatility in oil prices causes the transportation cost of other commodities to fluctuate, which directly impacts inflation. Rises in oil prices lead to increases in the prices of all goods and services. A hike in oil prices affects the input cost for companies that depend on oil as fuel and also leads to a fall in consumer demand, worsening company financials. Every \$10-per-barrel fall in crude oil prices reduces retail inflation by 0.2 percent and wholesale price inflation by 0.5 percent.²⁴

Future Demand Projections

According to NITI Aayog's estimates, oil and gas is expected to make up more than 35 percent of India's overall primary energy mix by 2030.

Factors Likely to Impact Oil and Gas Demand:

“Make in India” Program: The manufacturing sector's contribution to GDP is expected to increase from 16 to 25 percent by 2022.²⁵ Accommodating this shift will require more electricity and increase energy demand multifold.

Carbon emissions targets: India's commitment to reducing carbon emissions intensity per unit of GDP by 33 to 35 percent by 2030 from the 2005 level²⁶ requires increased use of cleaner fuel options, including natural gas for the time being and, in parallel and

Table 6. India's Primary Energy Supply, 2012 and 2030 (proj.)

Share in Primary Energy Supply	2012	2030
Coal	47%	51%
Oil	27%	28%
Gas	8%	9%
Nuclear, Renewables, Incl. Hydro	3%	6%
Others	14%	6%

Source: NITI Aayog, A Report on Energy Efficiency and Energy Mix in Indian Energy System (2030): Using India Energy Security Scenarios, 2047 (New Delhi, April 2015), http://niti.gov.in/writereaddata/files/document_publication/Energy_Efficiency.pdf.

increasingly so, renewable energy sources. However, India's consumption of oil could remain constant or decrease only marginally. In the long run, efforts to use cleaner sources of energy will henceforth reduce India's dependence on coal as its main energy source.

Urbanization: With one hundred smart cities promised by the central government and a growing urban population, existing cities and towns are bound to become bigger and new cities and towns are sure to emerge in the long term. Catering to growing gas demand from households and the transportation sector will require a huge expansion in the retail gas distribution sector. The Indian government has set a target to cover one hundred cities through the city gas distribution network by 2022.²⁷

²⁴ Ibid.

²⁵ “Industrial Corridor,” Make in India, <http://www.makeinindia.com/live-projects-industrial-corridor>.

²⁶ Amitabh Sinha, “India Promises to Cut Greenhouse Gas Emissions Intensity by 2030,” *The Indian Express*, October 3, 2015, <http://indianexpress.com/article/india/india-others/will-cut-greenhouse-gas-emissions-to-a-third-by-2030-india-promises/>.

²⁷ Anand Pattani, “How to Create 100 Smart Cities,” *BW Business World*, January 28, 2016, <http://businessworld.in/article/How-To-Create-100-Smart-Cities/28-01-2016-90667/>.

INDIA'S ENERGY NEEDS AND THE ARAB/PERSIAN GULF

Table 7. 2015 Oil and Gas Reserves and Production among Gulf Countries

Country	Oil reserves (2015 estimate in billions of barrels)	Oil production (2015 estimate in thousand b/d)	Natural gas reserves (2015 estimate in tcf)	Natural gas production (2015 estimate in bcf*)
Saudi Arabia	266.6	12,014	294.0	3,757
Kuwait	101.5	3,096	63.0	530
Bahrain	<0.2	<200	6.1	547
Qatar	25.7	1,898	866.2	6,405
United Arab Emirates	97.8	3,902	215.1	1,970
Oman	5.3	952	24.3	1,232
Iran	157.8	3,920	1201.4	6,797
Iraq	143.1	4,031	130.5	35

* bcf stands for billion cubic feet

Source: BP, "BP Statistical Review of World Energy, June 2016," Excel workbook, <http://www.bp.com/statisticalreview>.

Agriculture boost-up: Increased use of frozen, packaged, stored, and value-added food and a rapidly growing population will require significant increases in food supplies and associated products. This will require improvement in domestic fertilizer production and increase the demand for gas used in the production of nitrogenous fertilizers.

Grid balancing: The government of India has set targets of power generation by renewable energy to 175 gigawatts (GW) by 2022 and a 40 percent share of non-fossil fuel in the overall generation capacity by 2030. These goals will require grid stability as solar and wind power are interruptible sources of supply. Gas-based power generation will help in grid balancing due to its inherent operational flexibilities as a fuel for peak power demand, and spinning reserves.

Clean transportation: With more state governments switching their public transport systems over to CNG/LNG fuels, warranted by environmental and pollution concerns, natural gas demand is going to increase to fuel commercial vehicles.

OIL AND GAS PRODUCTION BY GULF COUNTRIES

Figures on Gulf reserves and production levels underline India's import dependence on the GCC and Iran and thus speak to its relations with them. The GCC states together produce 24 percent of the world's total

crude oil.²⁸ Saudi Arabia alone has 15.8 percent of global crude oil reserves.²⁹ Qatar has the world's third largest natural gas reserves at 13.3 percent, preceded by Iran at 18.2 percent and Russia at 16.8 percent. Qatar is the world's biggest liquefied natural gas exporter and has the potential to augment its LNG production capacity should conditions demand it.

Competition between Gulf Producers

India imports oil and gas from all Gulf countries, importing most of its oil from Saudi Arabia and most of its gas from Qatar. Iraq is increasingly exporting oil to India and challenging Saudi Arabia as the country's leading supplier. The United Arab Emirates follows Iraq in third place, followed by Kuwait in fourth. While not all of the Gulf states export natural gas directly, either via pipelines or LNG, they are still able to trade in natural gas liquids like propane or butane.

With excess supply of oil and gas in the world market, and weak demand in the United States, China, and Europe for crude oil from the Gulf countries, India's strong growth is increasingly attractive to the Gulf states, who view India as an increasingly major importer of their oil.

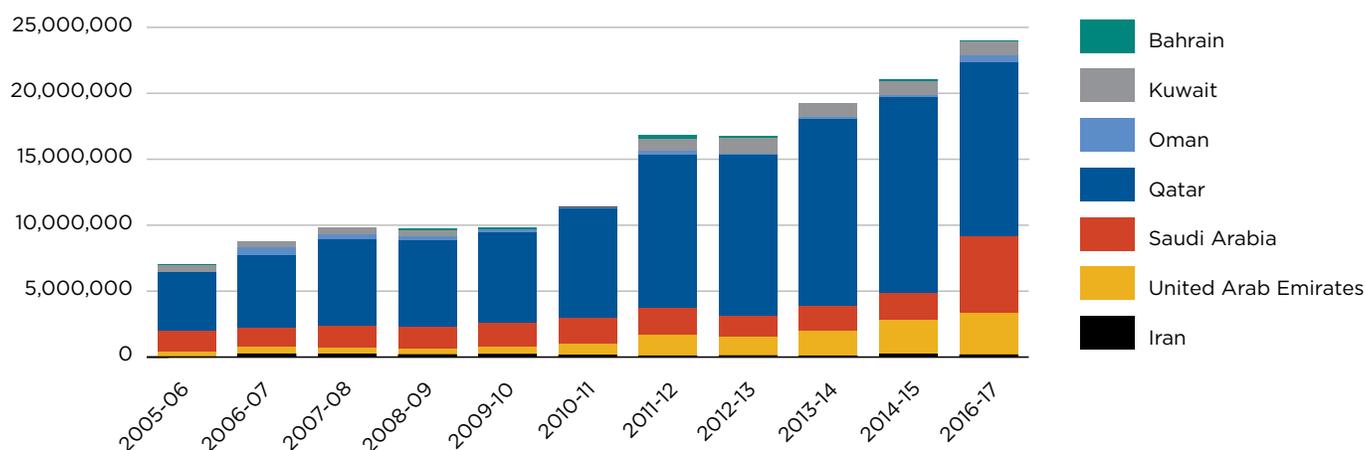
28 "OPEC Share of World Crude Oil Reserves, 2015," Organization of the Petroleum Exporting Countries, http://www.opec.org/opec_web/en/data_graphs/330.htm.

29 BP, "BP Statistical Review of World Energy, June 2016," Oil Data Slides (PPT), <http://www.bp.com/content/dam/bp/powerpoint/energy-economics/statistical-review-2016/bp-statistical-review-of-world-energy-2016-oil-slidepack.ppt>.

INDIA'S ENERGY NEEDS AND THE ARAB/PERSIAN GULF

Figure 7. Natural Gas Import from GCC countries and Iran to India ('000)

Figures include natural gas liquids: ethane, butane, propane, etc.



Source: DGFT, Ministry of Commerce and Industry.

Table 8. Indian Crude Oil Imports by Country

	2015-2016	vs 2014-2015		2014-2015	1Q16	4Q15	3Q15	2Q15	2013-2014	2012-2013	2009-2010	2011-2012	2010-2011	Mar-16	Feb-16	Jan-16
		000 b/d	%													
Saudi Arabia	790	+95	+14	695	895	832	690	742	786	699	538	636	526	854	1,121	726
Iraq	713	232	48	481	812	757	618	664	492	485	278	475	296	658	901	883
Kuwait	222	-153	-41	375	261	218	162	247	400	373	291	356	286	244	322	220
UAE	305	-25	-8	331	283	346	356	234	282	322	216	309	261	290	321	240
Iran	271	47	21	223	323	211	222	329	225	264	441	298	321	505	215	241
Qatar	91	20	29	70	140	131	14	77	105	165	95	125	99	144	260	25
Oman	9	-7	-45	16	6	29	0	0	34	9	105	46	96	18	0	0
Middle East	2,400	208	10	2,191	2,720	2,524	2,063	2,294	2,324	2,319	1,962	2,245	1,886	2,713	3,140	2,335
<i>Mideast %</i>	59.3	1.2		58.1	62.5	57.4	57.08	59.3	61.2	62.2	63.6	67.6	61.3	62.9	62.9	61.5
Nigeria	465	101	28	364	470	480	470	441	322	263	264	313	330	100	594	423
Angola	143	8	6	135	119	128	166	159	150	174	160	158	167	85	200	77
Venezuela	432	-14	-3	446	528	528	293	380	410	399	120	181	195	527	695	374
OPEC total	3,432	284	9	3,148	3,931	3,619	3,056	3,309	3,177	3,167	2,403	2,851	2,487	3,707	4,629	3,244
<i>OPEC %</i>	84.8	1.4		83.4	90.3	82.4	85.6	85.5	83.6	85.0	77.9	85.9	80.9	85.9	92.8	85.4
TOTAL	4,047	273	7	3,774	4,355	4,395	3,569	3,870	3,799	3,726	3,085	3,319	3,075	4,316	4,990	3,799

Source: Middle East Economic Survey, Vol 59, No 23, June 10, 2016.

As seen in the figure below, out of the top ten oil exporters to India in past two years, there are six Gulf countries—four GCC countries, Iraq, and Iran. If all conditions hold, the economic ties between India and the Gulf cannot help but grow.

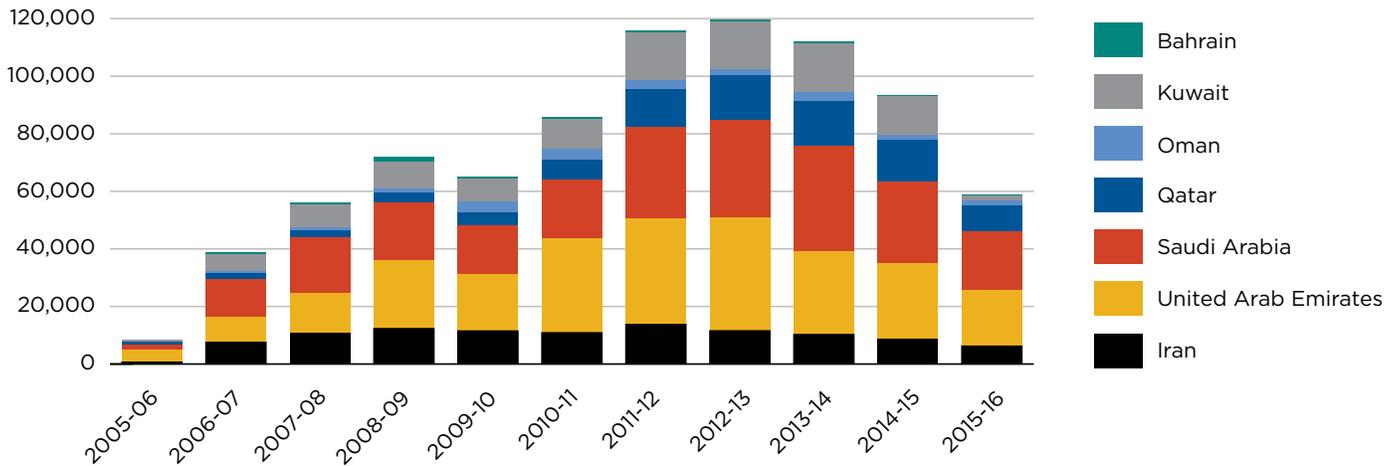
Saudi Arabia and Iran's Rivalry

Despite falling oil prices, Saudis have not cut production; they even increased production to 10.6 million b/d as of September 2016 from 10.2 million b/d

in January 2016. This is often interpreted as an effort by the Kingdom to fight for market share regardless of overall income considerations on the premise that they can sustain long-term losses longer than anyone. Indeed, they do have the lowest production costs in the world and the largest cash reserves of all producers. They could ultimately force other suppliers to cut their production first.

INDIA'S ENERGY NEEDS AND THE ARAB/PERSIAN GULF

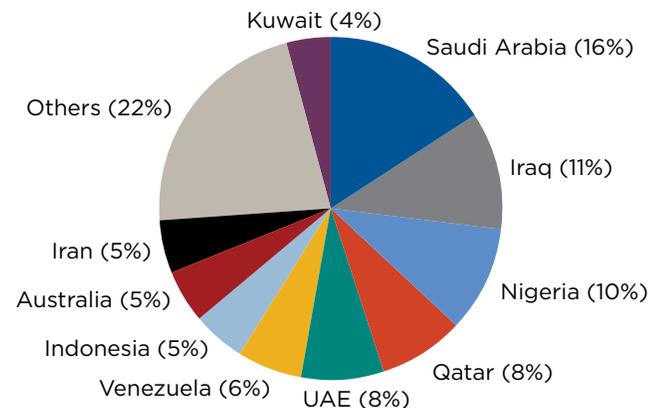
Figure 8. Total Gulf Exports (Oil, Gas, Fertilizers, Chemicals, etc.) to India (\$ Million)



*All years begin on April 1 and end the following year on March 31. Quarters are based on the calendar year (i.e., Q1 2016 is January–March, 2016).

Source: Indian Department of Commerce, MEES calculations.

Figure 9. Top 10 Global Oil Exporters to India 2015-2016



Source: DGFT, Ministry of Commerce and Industry

Iran, of course, was under sanctions for many years and lost most of its market share to increased US, Saudi, Iraqi, and Russian production. India and Iran had a strong relationship, but with the problems incurred by Indian importers during the sanctions regime, much of the purchases were transferred to Iraq and the GCC producers. Now that sanctions have been lifted under the Joint Comprehensive Plan of Action in January 2016, Iran would like to regain its market share. This fight for market share has led both Iran and Saudi Arabia to produce as much crude as possible, thus creating a large glut in supply and consequently low prices. The Saudis know well that the lower prices will translate into cuts in investments by oil producers, whether they be the large international oil companies (IOCs), the smaller shale oil producers, or even cash-strapped countries like Venezuela, Nigeria, or Iran. Lower investments will lead sooner or later to

production cuts and increased prices, benefiting those that are still producing at a high level, like the GCC countries.

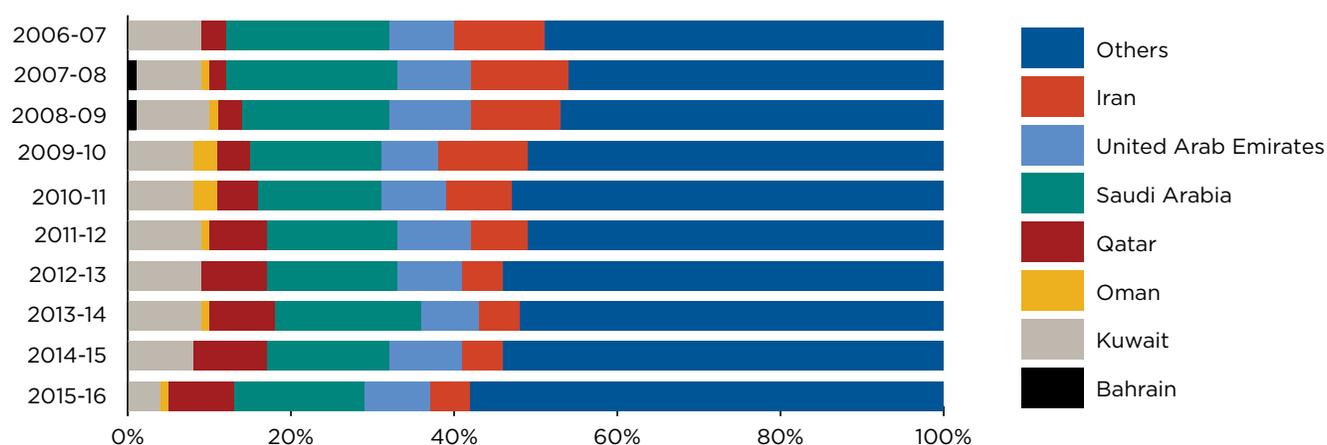
On the other hand, this strategy of pushing prices down to maintain market share may not work. While in traditional oil production it takes up to ten years to get a field into production, in the shale oil industry, this timing may be reduced to one to three years. Hence, even a small increase in prices would trigger new investments by the shale oil industry, which would rapidly bring back production, giving Saudi Arabia only a short-lived advantage. It is interesting to note that even with oil prices at \$45 per barrel, many US shale oil producers have managed to cut costs enough to make a profit and would—or already are—putting more rigs at work to increase production. Furthermore, if history is a predictor of the future, it is unlikely that Iran and Russia will go along with cuts in production as suggested by Saudi Arabia. Hence, importing nations like India may expect that between the nature of the shale business and the nature of oil producers' politics, relatively low oil prices will continue for some time.

Imports from Non-Gulf Countries

Exports from GCC countries to India have increased consistently for the past ten years in terms of volume, although, in terms of US dollars, the last two years have seen a drop primarily due to the nearly 50 percent decrease in oil prices from 2013 levels.

India imports nearly half of its oil from GCC countries. The other half is imported from other non-Gulf countries like Nigeria, Venezuela, Indonesia, Australia, Angola, South Africa, Malaysia, and Mexico.

Figure 10. Oil Imports from GCC and Other Countries



Source: DGFT, Ministry of Commerce and Industry.

Like all large Asian importer nations, India is aware of its reliance on the Gulf for its hydrocarbons. Hence, India is seeking to reduce its relative dependence on the Gulf region for oil and gas. The government of India has come out with a strategy to gradually reduce energy sourcing from politically volatile countries in the Gulf and has started to explore options to import natural gas from Venezuela, Russia, and countries in the Commonwealth of Independent States. India is planning to increase its purchases of crude oil from Canada and Venezuela as important suppliers outside the Gulf countries. Similar efforts are being made to import from African oil-producing nations willing to export on a long-term basis.

However, the Gulf is still vital to India in absolute terms. India did increase its imports from the Gulf from 1.886 million b/d in 2010/2011 to 3.14 million b/d in February 2014. This figure is likely to increase even more as sanctions on Iran get lifted and financial transactions for the payment of oil imports become feasible.

To diversify the risk of overdependence on supplies from foreign countries, India is strategically buying oil wells and gas fields around the globe. Since oil prices have been down for the past two years and are expected to remain at this level for the next two to three years, India is in a relatively better position to buy oil fields at cheaper prices.³⁰

³⁰ For example, in 2013 ONGC Videsh Limited (OVL) acquired Hess Corporation's subsidiaries in Azerbaijan and Hess's 2.36 percent stake in the Baku-Tbilisi-Ceyhan pipeline. It also acquired stakes in exploration blocks in Colombia, two in Bangladesh in consortium with Indian oil Public Sector Unit (PSU) (with OVL as the operator), and a 10 percent participating interest in the Rovuma Area 1 Offshore Block in Mozambique. See Oil and Natural Gas Corporation's website: [http://www.ongcindia.com/wps/wcm/connect/ongcindia/](http://www.ongcindia.com/wps/wcm/connect/ongcindia/home/)

INDIA-IRAN RELATIONS

India is set to greatly increase its natural gas consumption and therefore will need to rely on foreign imports to meet demand. Iran, with its proximity and proven gas reserves, provides an excellent trade partner for India in oil and natural gas.

Iran and India have maintained healthy bilateral relations; with increased output of Iranian crude oil, India will seek to partner with Iran in the commodities trade. Iran will also offer investment opportunities for many of the Indian oil and gas firms wishing to undertake development and exploration projects in Iran.

India has already lined up investment worth \$20 billion in Iranian oil and gas, petrochemicals, and fertilizer projects. India is also interested in establishing an LNG plant and a gas cracker unit in Chabahar SEZ region. Chabahar's strategic location also provides an advantageous position for India to trade with Afghanistan while completely bypassing Pakistan. India is making a renewed pitch to develop 12.8 tcf of gas reserves that ONGC Videsh discovered in 2008. Both nations are vested in expanding the basket of oil and gas products with a greater focus on gradual diversification to natural gas. India is deeply interested in Iran's LNG capacity development and both sides are examining options to transport LNG from Iran to India. Going forward, Iran will play a major role in India's natural gas imports and both countries will continue working on developing deep strategic and comprehensive trade relationships. However, it should be noted that Indian companies wishing to develop

[home/.](http://www.ongcindia.com/wps/wcm/connect/ongcindia/home/)

INDIA'S ENERGY NEEDS AND THE ARAB/PERSIAN GULF

LNG plants in Iran would need US technology to build them and this technology will not be available until the United States lifts all sanctions. Hence, it may be some time before Iranian LNG reaches India's shores.

“Modi's emphasis is not just on 'looking East' but also 'linking West'.”

Another natural gas opportunity would be for Iran to send its gas by pipeline to Oman, which has a number of LNG production facilities that are not presently working at capacity. Oman and Iran are both seeking to see such projects through. As relationships between the two states bordering the Straits of Hormuz improve, we could see this pipeline get built. The pipeline would not be very long, perhaps not longer than two hundred kilometers. The technology to lay pipes in deep waters is available (principally from Italy). Thus, a pipeline to Oman could allow Iran to toll its gas into LNG for export to other countries, including India. This simple and elegant solution to bypassing US sanctions may still require some consensus with the rest of the GCC, which may not be feasible in light of present tensions between Saudi Arabia and Iran.

In the meantime, a more immediate prospect for Iranian gas reaching India would be to build the long-studied pipeline from Iran to India. Of course, the problem in this scenario is that such a link cannot be established without approval from Pakistan, through which the pipeline must go. On the other hand, Pakistan would also greatly benefit from the pipeline, so perhaps there could still be room for negotiations and an agreement, especially given the two countries' apparent willingness to work together on the Turkmenistan, Afghanistan, Pakistan, India (TAPI) pipeline, which would flow through both Pakistan and India.

POLITICAL OBJECTIVES FOR A CLOSER GULF RELATIONSHIP AND ITS IMPLICATIONS

To move away from the “Hindu growth rate”-afflicted economy, Prime Minister Narendra Modi's emphasis is not just on “looking East” but also “linking West.” The Modi government wants to move away from “inclusive growth” and entitlement policies towards market-based economic policies, with an emphasis

on infrastructure development and the creation of an investment-friendly environment. In pursuit of achieving faster growth in the petroleum and allied sectors, the Modi government has adopted the following measures, among others:³¹

- Urging all stakeholders to increase the domestic production of oil and gas to reduce import dependence from 77 percent to 67 percent by 2022, when India celebrates seventy-five years of independence
- Approving a project to carry out survey works of all unappraised sedimentary basins, and reassessing hydrocarbon resources in India's sedimentary basins
- Implementing more efficient payments of subsidies for LPG
- Creating a new exploration policy called Hydrocarbon Exploration Licensing Policy (HELP)
- Recasting production-sharing contracts
- Enhancing gas pipeline infrastructure by planning a fifteen-thousand-kilometer gas pipeline grid
- Increasing refining capacity. The Indian refining industry has done well in establishing itself as a major player globally and today it is the fifth largest country in the world in terms of refining with a capacity of about 5 million b/d. A mega refinery is being planned on the west coast with the public sector oil companies at a cost of \$23 billion. The proposed refinery would have a capacity of 1.2 million b/d and include a downstream petrochemical complex
- Expediting PCPIR (Petroleum, Chemicals and Petrochemicals Investment Regions) in the four states (and cities) of Andhra Pradesh (Visakhapatnam), Gujarat (Dahej), Odisha (Paradeep), and Tamil Nadu (Cuddalore and Nagapattinam) to promote investment and industrial development in these sectors. The concept of PCPIR is a cluster approach to promote the petroleum, chemical, and petrochemical sectors in an integrated and environmentally friendly manner on a large scale
- Further liberalizing foreign direct investment (FDI) policy to attract FDI in the infrastructure sector. FDI for petroleum refining by Central Public Sector Enterprises (CPSEs) has been allowed with 49

³¹ *Annual Report 2015-16*, Ministry of Petroleum and Natural Gas, India.

percent foreign equity under the automatic route instead of approval through a Foreign Investment Promotion Board

- Supplementing domestic availability of crude oil and natural gas, the government has been encouraging the acquisition of assets abroad. Indian oil companies are now present in twenty-five countries with investments worth \$21 billion
- Rejuvenating non-conventional energy and petroleum conservation programs

In its 2015-2016 annual report, the Ministry of Petroleum and Natural Gas described pursuing the following policies:

- Engaging with the governments of hydrocarbon-rich countries to seek exploration and production blocks
- Participating in the Saudi-led Global Energy Dialogue through multilateral fora, such as the International Energy Forum and the OECD-led International Energy Agency
- Leveraging India's position in the International Energy Forum to effectively discuss issues of direct concern to India, such as transparency in oil markets and pricing issues as well as international cooperation and engagement abroad
- Entering into collaborative arrangements with international organizations in the energy sector, such as the International Energy Agency, through memoranda of understanding and agreements/declarations for cooperation in the areas of specific relevance to an emerging economy
- Pursuing the acquisition of oil and gas assets abroad, with the objective of increasing the oil and oil-equivalent gas available for the country
- Entering into collaborative arrangements with international organizations to facilitate technical assistance in research and development, data sharing, statistical model building, and analytical tools for energy sector forecasts, etc.

Prime Minister Modi has also traveled extensively to all major nations in the past two years to raise India's global profile and make it an attractive destination for international investors. The Middle East is one of the biggest trading blocs for India and has been crucial to India for decades. It has been a source of energy, jobs, and remittances and holds religious significance for over 140 million Indian Muslims.

Mr. Modi visited the Gulf region in 2015 with a trip to the UAE. He then visited Saudi Arabia in April 2016 and Iran in May. He also supervised the signing of the Delhi and Riyadh Declarations wherein India and Saudi Arabia have mutually agreed to foster and strengthen economic, sociocultural, and defense cooperation. The Modi government has hosted the emir of Qatar, the crown prince of Abu Dhabi, and the foreign ministers of Bahrain, Iran, Oman, Saudi Arabia, Syria, and the UAE. King Salman of Saudi Arabia made an official visit to New Delhi in late 2014 when he was still crown prince. A delegation led by the Indian minister of state for petroleum also attended the sixth OPEC International Seminar held in Vienna in June 2015 to enhance the cooperation between India and the Gulf countries. The fourth India-Kuwait Joint Working Group (JWG) meeting on hydrocarbons was held on September 15-16, 2015, in New Delhi. Shortly thereafter, the first JWG meeting between India and Iran on oil, gas, and petrochemicals was held on December 26, 2015, also in New Delhi. A delegation led by the minister of state for petroleum and natural gas attended the sixth Asian Ministerial Energy Roundtable on November 9-10, 2015, in Doha, Qatar, organized by the governments of Qatar and Thailand (the next chair of the roundtable) in association with the International Energy Forum.

Trade between India and the GCC countries has grown rapidly from \$5.55 billion in 2000-01 to \$158.41 billion in 2012-13 and is expected to reach \$200 billion when 2015 statistics are available. The UAE and Saudi Arabia are among India's top five trading partners.³²

Prior to 2014, the Middle East region was lower on the Indian government's priority list for two main reasons:

1. The Middle East was not in the immediate ambit of a country whose primary focus had been more on its immediate neighborhood.
2. The Middle East, with its complex interplay of geopolitical and religious factors, did not consider India as an important global player. The Middle Eastern nations, except Iran and Iraq, were mostly influenced by the Pakistani worldview of the Kashmir issue, and the perceived treatment of the minority Muslim population in India.

The recent burst of diplomatic activity between India and the GCC seems to have arisen due to the following

Secure energy needs: Growing security concerns and instability in West Asia can negatively impact India

³² "Observatory of Economic Complexity," Massachusetts Institute of Technology, <http://atlas.media.mit.edu/en/>. Statistics calculated by the authors.

and the South Asian region as a whole. This region remains India's main source of imported oil and natural gas. Due to lower oil prices and the currently plentiful availability of supply worldwide, New Delhi's buyer power and ability to secure reliable energy sources has increased considerably. Saudi Aramco, known as the most reliable crude oil supplier in the region, has become India's main supplier, providing it with 20 percent of its needs, closely followed by Iraq and Iran.

Access to Indian markets: India may still depend on the Middle East for its energy needs, but now the Middle East also depends on India as a market. This is evident in the altered relationship dynamics between the region and India. For example, the renegotiated natural gas supply deal between Qatar's RasGas and India's Petronet offers lower prices and waives off penalties.³³

Counterterrorism: Saudi Arabia has agreed to improve cooperation in counterterrorism operations, intelligence sharing, and cracking down on terror financing. Recent state visits have also led to the establishment of joint counterterrorism efforts with the UAE. All these initiatives point to increasing cooperation between India and the Gulf.

Attract infrastructure investment: With the government of India focused on attracting FDI in the infrastructure sector and emphasizing the "Make in India" initiative, the Middle East is an important potential source of investment in infrastructure development, manufacturing, and the services sector for India.

Saudi Arabia and the UAE may be trying to diversify investment options and reduce their economic dependence on oil money. Furthermore, Saudi Arabia announced it would be expanding a new sovereign wealth fund, the Public Investment Fund, which would be linked to the country's vast oil revenues. Thus, India could view itself as strategically poised to become a potential target for Gulf investments. Hence, one of the main priorities of this government is to attract infrastructure financing that India cannot provide on its own. At the same time, India is also investing in the region's infrastructure, with India's commitment to Iran to develop the strategic Iranian port of Chabahar.

VOLUME OF TRADE

As can be expected, the Middle East imports mostly consumables and manufactured goods from India, whereas India imports oil and gas-based natural resources and downstream products, such as chemicals and fertilizers. The balance of trade is conveniently loaded in favor of the Gulf nations due to the critical demand of petroleum and chemical-based products in India.

India's exports to the Gulf totaled \$262 billion for 2015-16, about 15.9 percent of India's total exports as per figures available on the official website of the Indian Ministry of Commerce. Major exports to the Gulf include jewelry and precious stones, mineral fuels, cereals, organic chemicals, iron and steel, boilers, electrical machinery and equipment, textiles and apparel, meat, fruits, vegetables, and tobacco.³⁴

India's imports from the Gulf totaled \$380 billion for 2015-16, which is about 14.6 percent of total Indian imports as per the figures available on the official website of the Ministry of Commerce. Major imports from the Gulf include fuels, oils, organic chemicals, fertilizers, precious/semi-precious stones, and metals.³⁵

AREAS FOR COOPERATION

The Gulf's reliance on India as a critical export market in an era of low oil prices and, vice versa, India's reliance on the Gulf as a reliable close-by energy supplier calls for close links.

One of the critical projects India is presently working towards on energy security is the TAPI pipeline project. Should this project actually see the light of day the natural gas market scenario will change dramatically in India and create some competition for Qatar, presently the largest exporter of natural gas to India.

India has a well-equipped navy and an active coast guard; each has a prominent presence in the Indian Ocean, Bay of Bengal, and the Arabian Sea. These armed forces have successfully thwarted the LTTE (Tamil insurgents group of Sri Lanka), controlled gun running and smuggling, and kept the sea-lanes safe from maritime disturbances. They have also rescued India's neighbors in the Maldives by suppressing a coup of mercenaries against the Maldivian government.

33 Tanvi Madan, "Why Is India's Modi Visiting Saudi Arabia?" Brookings, April 1, 2016, <https://www.brookings.edu/blog/markaz/2016/04/01/why-is-indias-modi-visiting-saudi-arabia/>.

34 Data on export/import of commodities, DGFT Ministry of Commerce and Industry.

35 Data on export/import of commodities, DGFT Ministry of Commerce and Industry.



A representative of Simpa Networks gives a demo and explaining the benefits of Simpa energy solar set to the residents of Sonsa Village, Mathura Uttar Pradesh. *Photo credit: Asian Development Bank.*

With robust experience in naval operations, strong cooperation between the Gulf and India can modernize and strengthen these forces further to keep the Arabian Sea trade lanes free of piracy for safe and secure east-west trade.

Terrorism was a major issue plaguing India in the 1980s and 1990s when extremists with varied ideologies perpetrated violence in the country. Over a period of time, the government has been able to overcome this menace largely by taking various socioeconomic and public order measures. Now, terrorism is a reality the world is facing from Europe to Australia and from the Gulf to Indonesia. The terrorist networks, with the aid of faster communication and transportation, have been able to penetrate all corners of the globe. As a victim of terrorism as an outgrowth of religious fundamentalism, India would be eager to offer support and coordination for tackling the new theater of terrorism emerging in the Middle East. Gestures like Saudi Arabia's 2012 deportation of Sayed Zabiuddin Ansari, also known as Abu Jundal, a suspect in the 2008 Mumbai terrorist attacks, signal a sea change in

mutual counterterrorism priorities that can be taken forward by all actors.

India is struggling to control the spread of dark money in its economy. It is estimated that one of the major destinations of dark money investments is the Gulf, particularly the UAE. A joint effort between India and the UAE in the future would strengthen cooperation in economic intelligence for addressing tax evasion, allowing transparent investments, and suffocating terrorist finances.

At 270 million, the sheer volume of India's middle class is staggering and its spending capacity is immense and growing. Gulf investors may consider investing in areas like hospitality, housing, healthcare, infrastructure, and financial markets.

With an increased awareness of the environment and rapid technological development in renewable energy generation, many countries are investing heavily in renewable energy infrastructure. India also has an ambitious program of achieving 175 GW of renewables penetration in its energy generation basket by 2022,

which would turn it into a major global player in the renewable energy industry. Going forward, this would mean a lower dependence on fossil fuels. Prime Minister Modi has taken up the issue personally to showcase the country's commitment to embracing cleaner sources of energy. The climates in much of the Gulf and India are very similar, prompting widespread initiation of climate-appropriate solar and wind technologies for electricity generation. India has to reduce its dependency on coal as a primary energy fuel and the Gulf countries have to face the challenge of losing their fossil fuel sales. Both can explore and supplement each other's technological, financial, and potential markets to fulfill their international obligations of reducing their carbon footprints.

“The seven million Indian workers in the Gulf make the region an important source of remittances back to India.”

One effective energy security policy has been storing oil. This strategy was first adopted by the members of the International Energy Agency. Now China has also come close to achieving its target for its Strategic Petroleum Reserve (SPR). As China's immediate neighbor and given bilateral implications, India has initiated its own program of SPR known as Strategic Crude Oil Storage. Taking into account India's oil security concerns, the government has decided to set up Strategic Crude Oil Storage of 5.33 million metric tons (MMT), corresponding to about 40 million barrels, at three locations in the country: Visakhapatnam (1.33 MMT), Mangalore (1.5 MMT), and Padur (2.5 MMT). Indian Strategic Petroleum Reserves Ltd. is building these storage units at a cost of approximately \$607 billion. Phase II locations will be Chandikhol (3.75 MMT) in Odisha, Padur (2.5 MMT) in Karnataka, Rajkot (2.5 MMT) in Gujarat, and Bikaner (3.75 MMT) in Rajasthan. This project provides a good opportunity for the Gulf majors associating with India to provide capital investments and technological expertise, or engage in joint operations.

The Indian expatriate community in the Gulf is very large; it reaches up to 30 percent of the population of countries like the UAE. The seven million Indian workers in the Gulf make the region an important source of remittances back to India. Remittances from the region contributed half of the total \$72 billion sent to India in 2015. Estimated remittances from Saudi

Arabia were \$10.51 billion; from the UAE, \$12.57 billion; and from Kuwait, Oman, and Qatar, between \$3 billion to \$4.5 billion.³⁶ The Indian expatriate profile in the Gulf has also been changing over time with carpenters, plumbers, construction workers, and janitors making way for IT professionals, financial analysts, realty investors, and traders. A matter of concern in Indian circles with regard to Indian labor in the Gulf has been the second-class treatment of Indians in many aspects of the Gulf's social and economic spheres. With the changing times, and globalization of the Gulf, there is a need to create an environment of fairness, equal opportunities, and the promise of basic liberal and civil rights to the Indian diaspora of the Gulf to strengthen their relationship. Furthermore, due to the substantial decline in oil revenues, Saudi Arabia has canceled a number of projects in the Kingdom and often delays payments to contractors. This has greatly affected the cash flow of many companies, which has led some of them to stop payments to their workers, including thousands of Indians. The government of India has had to intervene with the Saudi government to provide distressed poor workers with food and repatriation. While the two countries signed and confirmed a labor cooperation pact early in 2016, the effectiveness of its implementation thus far has been limited.³⁷

The India-GCC free trade agreement (FTA), which is currently under negotiation, could usher in a new era of trade benefiting both actors in the long run. However, some observers feel that the GCC is not able to negotiate trade agreements because it is unable to impose the negotiated arrangements upon its member states. It should be noted that the initial framework for a proposed FTA was signed in 2004, now over a decade ago, indicating the general difficulty of the task.³⁸ FTAs would be much more enforceable and easier to negotiate if they were negotiated bilaterally with individual GCC states.

CONCLUSION

India greatly benefits from the lower energy prices worldwide. Between the limited growth of the economies of the Western world and competing interests among oil producers, it appears that this advantage is likely to continue for some time. The largest economies—the United States, Western Europe,

36 “Bilateral Remittances Matrix 2015,” World Bank Group, www.worldbank.org.

37 Uzair Hasan Rizvi, “Workers’ Plight in Saudi Arabia Exposes Chinks in Modi’s Policy for Indians Abroad,” *The Wire*, Foundation for Independent Journalism, August 8, 2016.

38 “GCC Signs Economic Framework Agreement with India, Pakistan.” *Middle East Economic Survey*, August 30, 2004.

and China—are not growing rapidly and are becoming more energy efficient. Furthermore, the producing countries are competing in production to protect their market shares.

Cheaper oil imports also improve India's fiscal deficit and current account deficit, which strengthen the rupee against the dollar while empowering the government to spend more on social and welfare schemes. The potential savings presents an immense opportunity for India to allocate more government expenditures towards social transformation projects like the Swachh Bharat, a mass movement that sought to create a "Clean India," known to be close to Mahatma Gandhi's heart and recently renewed by Prime Minister Modi, among numerous similar projects.³⁹

³⁹ Other important social movements that would benefit from increased access to funding are the Sarva Shiksha Abhiyan, an Indian government flagship program for achievement of Universalization of Elementary Education in a time-bound manner. The Saansad Adarsh Gram Yojana, a rural development program, is another. The vision of Prime Minister Shri Narendra Modi is "If we have to build the nation we have to start from the villages." He also believes that "If every [member of parliament] transforms villages in his/her constituency into model villages, large number of villages in the country would have seen holistic development." The prime minister has requested all members of parliament to develop one model village in their constituency by year 2016 and two more by 2019. The Awaas Yojana, also known as HFA, which stands for "Housing for All" is a third. For quotes, see "Welcome to Saanjhi," Ministry of Rural Development, Government of India, <http://www.saanjhi.gov.in/index.aspx>.

India is also benefiting from the present tensions between the United States and the Gulf countries. Of course, the Arab countries of the Gulf still depend on the United States for defense against Iran and the protection of the maritime trade routes. However, they are also weary of the United States' waning interest in the Middle East. The US public is also rapidly turning against the ideologies promoted by the more conservative Sunni elements in the Gulf. Of course, the Gulf countries are making great efforts to move away from extremist ideologies and bring their societies into the twenty-first century. Nevertheless, countries like Saudi Arabia are very aware that their ability to influence the US government has vanished and that they must seek to develop relations with other large countries. Hence, the Gulf states are seeking to actively develop the natural links they have with the Asian mega-powers of China and India.

As a consequence, the India-GCC relationship is growing stronger as both realize that their relations are symbiotic. Both need stable supply and demand for energy to maximize their trade links, both need ample sources of labor to maintain quality of life, and both need each other to ensure the political stability of the region.

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