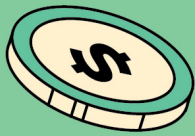


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PETRO DOLLAR.

PETRO YUAN.

PETRO RUPEE?



Petro-Dollar. Petro-Yuan. Petro-Rupee?

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Introduction: Creating a Petro-Rupee

Over the last two decades, every component of the global energy scenario has changed: demand, supply and energy-type. The only constant has been the U.S. Dollar as the currency of energy trade. Lately, the Chinese Yuan has emerged to challenge the Dollar. Can the Indian Rupee be a third player? India is now the world's third-largest consumer and second-largest importer of energy. Its open market, transparent regulation and growing demand give it an opportunity to become the hub of a vibrant new oil market, simultaneously ensuring its energy security and raising the international profile of the Rupee.

This paper explores the possibility the Rupee could be the third currency in which energy is traded, and the challenges and opportunities it presents.

As its economy expands, India seeks a higher profile on the international stage, including in forums such as the United Nations and the World Trade Organization, and multilateral bodies such as the International Monetary Fund and the World Bank. India contends that these institutions represent a decades-old world order – one that needs reform to reflect new realities. This is true for global markets too. The world oil trade, in particular, is conducted almost entirely in dollars, on Western exchanges and based on pricing that doesn't represent present oil demand.

Now, a confluence of events gives India a chance to engineer a shift in the world oil trade, in the process elevating its own global status and addressing its chronic problem with expensive energy imports. Such a shift can move India from the periphery to a more central position in the global financial system. It also can bring tangible benefits: India can create a Strategic Petroleum Reserve (SPR) at no cost to the public exchequer; companies and consumers can hedge their exposure to energy price fluctuations; and thousands of high-paying finance jobs can be created at revitalised Indian commodity exchanges.

China is trying to internationalise its currency and move the global oil trade to the Yuan. India must not cede this global role to China. China has already acquired strategic ports and assets in countries around India via its Belt and Road investments. Having a greater role in the international financial system will increase its leverage over India.

Why Now?

A number of factors – political, economic and financial – make a new equilibrium in the global financial order possible. These changes, which weren't evident even 10 years ago, include:

Shifting balance of energy trade: India, with its growing economy, is increasing its oil consumption, while consumption by other major economies is either declining or plateauing. India is now the world's third-largest oil importer after China and the U.S., with imports expected to increase from 4 million barrels per day currently to 10 million barrels per day by 2040. But the U.S., which has historically been the largest consumer and importer of oil, may become an exporter, thanks to its expanding shale oil production. China's oil demand is expected to flatten, as its economic growth slows. Oil consumption in Western Europe and Japan has been declining for more than a decade, and the trend is likely to continue.

Unrepresentative benchmarks: The two most widely used oil benchmarks for exchange trading of oil globally – West Texas Intermediate (WTI) and Brent – are based on grades of oil produced in the U.S. and UK. They were established at a time when the West was the major force in the oil markets and India and China were bit players. But that is no longer the case. Two of the largest importers of oil use heavier and more sour (high in sulphur) grades of crude imported from West Asia. For markets to work efficiently, the paper trade must be representative of the physical trade. Some of the current benchmarks may have been manipulated in the past; Gateway House previously has recommended the creation of more representative benchmarks to address these issues.¹ Switching to a benchmark based on a higher physical volume of trade will be more difficult to manipulate – and this will make financial markets stronger.

Doubts about the Dollar as the Sole Global Currency: The U.S. Dollar has been the undisputed medium of exchange internationally since the Second World War, but its dominance is now being questioned. The 2008 financial crisis doubled the U.S. national debt to \$22.1 trillion, raising doubts about the Dollar's stability, while the U.S.-China trade dispute, arising in part from America's trade deficit, suggests America's unconditional commitment to globalisation and free trade is no longer assured. While these developments have raised doubts about the role of the Dollar as a reliable store of value, unilateral American actions, such as its geopolitically-motivated sanctions on countries and certain regulations interpreted as targeting foreign companies, have stirred resentment of the power the U.S. wields as a result of the Dollar's pre-eminence. Although replacement of the Dollar is unlikely in the foreseeable future, there may be an opportunity today for more than one currency to play a larger role internationally. China is a front-runner, trying to pitch the Yuan as an international medium of exchange, including for the oil trade.

A Petro-Rupee?

Chapter 1 of this paper examines the current energy situation with the dominant Dollar. Chapter 2 looks at the Yuan's challenge to the dollar. And Chapter 3 looks at the possibility of an oil trade conducted in the Rupee on a dedicated Indian energy exchange – and the associated opportunities and challenges.

1. The Oil Trade Today: The Petro Dollar Dominates

Most of the oil trade across the world, whether physical or on financial exchanges, is denominated in the U.S. Dollar – a reflection of its universal acceptability and status as the international currency. The central role of the Dollar dates to the 1944 Bretton Woods Agreement, which pegged the value of the Dollar to gold and the value of other currencies to the Dollar.

In 1971, the U.S. government suspended the convertibility of the Dollar into gold. But the Dollar remained the default medium of exchange, simply because there were no viable alternatives. The U.S. was the world's pre-eminent industrial power, largest economy and trading nation, and the largest importer of oil. The next largest economies – Japan and Germany – were less than a quarter the size of the U.S. economy. So oil continued to be priced in dollars, and countries other than the U.S. continued to hold dollars to pay for their imports.

Aiding the Dollar's large role in the oil trade are Saudi Arabia, Kuwait, the UAE and Qatar – all of them important oil exporters – which have, for decades, pegged their national currencies to the U.S. currency. Their currency peg came on top of large-scale purchases of U.S. military hardware. This is the strongest possible demonstration by oil exporters of their confidence in the U.S. and the Dollar. Investors and speculators also trust the Dollar.

1.1 Paper Trade in Oil: Also Dollar-Denominated

Worldwide, 100 million barrels of oil are produced each day. The financial trade in oil is at least 10 times larger, judging by the volume of trade on the major exchanges. Besides oil, derivative petroleum products such as gasoline/petrol, diesel and heating oil also are traded. Companies and consumers use financial instruments to protect themselves against fluctuations in energy prices. Oil-producing companies, thousands of them in the U.S., commonly use financial instruments to secure guaranteed prices for future oil production. This ensures that even if oil prices collapse, as they did in early 2016, companies will be able to meet costs such as interest payments. The airline industry, for example, commonly uses financial instruments as hedges against price fluctuations, since fuel is a major operating cost.

As of now, the three top exchanges for oil trading are New York, London and Shanghai. New York and London have run for decades, while the Shanghai exchange began operations in 2018. Oil also is traded on the Mumbai exchange, though its volume is far lower than on the other three exchanges.

Table 1. Trading volume of major crude oil contract – Feb 28

	Product	Volume (million bbl)
New York ⁴	Nymex Crude	802.7
ICE, London ⁵	Brent	698.4
INE, Shanghai	Shanghai Crude	273.5
MCX, Mumbai	Nymex Crude	21.7

Source: CME Group, ICE

At first glance, the volume of trading on the Shanghai exchange seems to be in the same range as the London and New York exchanges. But in fact, the Shanghai exchange is much more limited. Crude oil is just one of dozens of energy products traded on the New York and London exchanges, where natural gas, fuel oil and petroleum products such as gasoline and diesel also are traded; these commodities are necessary for successful hedging. The two Western exchanges also allow trades in call and put options — a requirement for hedging. In contrast, more than 98% of the trade on the Shanghai exchange involves a single contract, and call and put options cannot be placed there. Thus, any producer or consumer trying to hedge its financial exposure to oil can only do so in New York or London, where the Dollar is the default currency.

1.2 Foreign-Exchange Reserve: Dollar-heavy

Because the Dollar currently stands unmatched as a medium of exchange – including in the oil trade – governments and central banks keep the bulk of their foreign-exchange reserves in U.S. dollars. Countries across the world held \$10.7 trillion as foreign-exchange reserves at the end of 2018 – of which \$6.6 trillion, or 61.7%, was in dollars. There have been sharp increases in foreign-exchange reserves held worldwide in the past 20 years – the after-effect of the East Asian crisis of 1997 and the Western financial crisis of 2008. More of the increase has been in dollars than in any other currency.

Table 2. Global Forex Reserves over time (\$ billion)

	1999	2008	2018
U.S. Dollar	980	2,685	6,618
Euro	247	1,103	2,219
Yen	88	146	558
British Pound	40	177	475
Yuan	NA	NA	203
Others	25	98	653
Total	1,379	4,210	10,727

Source: IMF⁷

1.3 How America Gains from the Dollar

The use of the Dollar as the international medium of exchange and reserve currency gives the U.S. several advantages. Since other countries want to hold U.S. securities, the cost of borrowing for the U.S. government and consumers is less than it would otherwise be. By holding large volumes of U.S. currency and securities as foreign-exchange reserves, other countries subsidise the U.S. government and consumers. The benefits of owning the global reserve currency go beyond cheaper borrowing costs.

1.4 Geopolitical use of Reserve Currency

Financial dominance also benefits the U.S. geopolitically. Since most international trade is denominated in dollars, almost all international transactions pass through the U.S. banking system at some point. The U.S. can withdraw this access from a country by imposing sanctions, hitting the economy of any target country. The U.S. has imposed unilateral sanctions in the recent past on Russia, Iran and Venezuela. In all three cases, sanctions resulted in major economic disruptions for the target economies, including currency devaluation, loss of export markets and economic slowdowns.

While the U.S. reaps geopolitical benefits from the Dollar's dominance, countries such as India are often left bearing the cost. Russia, Iran and Venezuela are all important oil exporters – including to India, which also has significant investments in Russia's petroleum sector. Sanctions on these countries force countries like India to make the unpalatable choice between losing major suppliers and being denied access to the U.S. banking system. Sanctions also reduce the amount of oil in the world market generally, pushing up prices. The price of crude oil has risen from under \$50 per barrel in 2016 to almost \$70 per barrel in 2019; sanctions on major oil producers are responsible for a part of this price spike.

In the case of Russia, U.S. sanctions also reduce India's ability to import critical defence hardware. The three branches of India's armed forces rely on Russian-origin military equipment. Virtually all of Russia's major defence manufacturers are currently under American sanctions – potentially cutting India off from new hardware as well as spares and supplies for existing equipment.

1.5 Regulation as a Tool for Geopolitical Leverage

Since the 2008 financial crisis, U.S. regulators have found a number of corporations guilty of violating American law, forcing them to pay fines running into billions of dollars. In some cases, the targeted companies were American and the action was justified as needing to protect the global financial system – for instance, fines imposed for misselling mortgage-backed securities (Bank of America, JP Morgan, Citigroup and Goldman Sachs). In other cases, the U.S. action targeted foreign companies for causing environmental damage (BP, Volkswagen).

A third group of companies was punished for violating geopolitically-motivated U.S. sanctions in what might be considered a form of regulatory extortion (BNP Paribas, HSBC). In many cases, companies agreed to pay the penalties to buy peace rather than get into potentially ruinous litigation with the U.S. government; one example is BNP Paribas,⁹ which agreed to pay \$8.9 billion to the U.S.

In some of these cases, especially those linked to sanctions, the companies had not broken any law in their home countries. However, the threat of losing access to the U.S. banking system would have finished them as viable commercial entities, so they were willing to pay large fines. For some departments of the U.S. government, these fines have become a source of revenue.

Virtually all of these mega fines have been levied since 2010. With several of India's oil suppliers under sanctions, there is an increasing risk that an Indian oil company may get caught violating American law – and end up paying heavy fines.

1.6 Is the Status Quo Changing?

The dominance of the Dollar in international transactions results from the dominance of the U.S. economy. But the rise of Asia – in particular, China and India – represents a challenge to the Dollar's supremacy. China is now the second largest economy in the world, having grown from the equivalent of 6% of the U.S. economy in 1990 to 63% in 2017.¹⁰ Over the same period, India has grown from the equivalent of 5% of the American economy to 13%. China, and eventually India, are each projected to overtake the U.S. economy in sheer size.¹¹

While the U.S. is now less enthusiastic about globalisation than in the past, China is pushing ahead with it, advocating its own version of free trade and promoting institutions such as the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank (NDB) as alternatives to the IMF and World Bank. These are filling gaps created by the 2008 financial crisis, which raised questions about the sustainability of the Western-centred global financial system.

The oil market has seen a shift too. While the U.S. remains the world's top consumer of oil, it is no longer the largest importer, having dropped behind China because of its substantial shale oil production. Japan and the major European economies consume less oil today than they did in 1990 even though global consumption has risen. China is now the world's second largest oil consumer, followed by India. These two are now the largest and third largest importers of oil worldwide.

The changing structure of the world economy makes alternatives to the Dollar and the U.S.- dominated financial system possible.

1.7 Alternatives to the Dollar: Early Challenges

The first global challenge to the Dollar's dominance came from the Euro, which was created in 1999. The Eurozone is the world's second largest economic bloc after the U.S., and includes economic heavyweights such as Germany, France and Italy. Like the U.S., the Eurozone is a democratic area governed by rule of law and transparent regulation – key requirements for foreigners to trust a currency. Since its inception, the Euro has gained market share and now accounts for 20% of global foreign-exchange reserve holdings. But it still lags the Dollar by a wide margin.

The Euro is unlikely to progress much further as an alternative because of multiple factors:

- 1. Economic problems with key members:** Some European economies are struggling under heavy public debt. Greece, Portugal and Italy have debt-to-GDP ratios exceeding 100%. In the case of Italy, Spain, Portugal and Greece, the current GDP is lower than the 2008 figures.
- 2. Brexit:** Britain, which was a part of the European Union but not the Eurozone, has voted to withdraw from the union. The confusion surrounding Brexit is unlikely to increase public confidence in the Euro.

Over the last 20 years, governments hostile to the U.S. and facing American sanctions also have attempted to break away from petro-dollar dominance. Specifically:

1. In the early 2000s, Iraq decided to price its crude oil exports in euros instead of dollars.
2. China and Russia have moved part of their oil trade from the Dollar to their respective currencies. The large volume of Chinese exports to Russia makes this possible. Wide-ranging Western sanctions on Russia have catalysed this trade.
3. During earlier U.S. sanctions on Iran, India paid for Iranian crude in rupees via Turkish and European banks without exposure to the U.S. financial system. Because of the imbalance in trade between the two countries, Iran was left with a large amount in Indian rupees – which could only be used to buy Indian goods, demonstrating that the practice was only viable as a short-term stop-gap.
4. Venezuela has tried to sidestep U.S. sanctions on its oil industry by introducing the 'Petro,' a crypto-currency.

Oil exporters sanctioned by the U.S. have tried to find alternative markets, rather than seeking an alternative financial architecture. These don't represent a challenge to the Dollar's status as the basis for world oil trade, but such activity shows that if there were an alternative to the U.S. Dollar for trading oil, there would be a ready base of customers.

The challenge from China is of a different nature, and far more credible than any of the scattershot measures tried in the past. China is now the world's second largest economy, and while its growth is slowing, it is still expected to grow at annual rates exceeding 6% in 2019 and 2020. China has started projecting itself as a rival to the U.S. on numerous fronts – including by trying to encourage the use of the Yuan as an international medium of exchange, in oil trade as well.

The Chinese quest to replace the Dollar is examined in detail in the next chapter.

2. The Petro Yuan Challenge

China's challenge to the U.S., probably the most significant one the U.S. has faced since 1945, is occurring at the economic, military, technological and financial levels. China's economy is expected to overtake the U.S. economy in size by 2030, and institutions it launched, such as the AIIB and the NDB, rival the U.S.-dominated IMF and World Bank. China is mounting a military challenge to the U.S. through its naval buildup, creation and weaponisation of artificial islands in the South China Sea and assertion of territorial claims over its neighbours – many of which are America's allies. It has unveiled 'China 2030', by which it seeks to become the world leader in emerging technologies such as Artificial Intelligence, robotics, aviation and space.¹³

China's financial challenge to the U.S. rests on three strategies:

1. influencing global financial architecture by acquiring stakes in systemically important companies and institutions. Examples of this include acquisitions of stakes in the Karachi and Dhaka stock exchanges and the acquisition of the Standard Bank of South Africa;
2. exporting Chinese standards and influence via the Belt and Road Initiative (BRI) and AIIB and NDB; and
3. supplanting the U.S. Dollar in the world oil trade by using China's status as the world's top oil importer.

This paper focuses only on the third Chinese objective listed here – to replace the U.S. Dollar with the Chinese Yuan for the global oil trade.

2.1 Is the Petro-Yuan Real or Speculative?

In March 2018, China launched oil futures on the Shanghai-based International Energy Exchange (INE) – a possible first step towards shifting the global oil trade to the Yuan from the U.S. Dollar. By the end of 2018, this exchange reached a daily traded volume of more than 500 million barrels¹⁴ – less than half the volume of Brent¹⁵ or WTI,¹⁶ but far ahead of all other global exchanges. On this metric – trading volume – the petro-yuan seems to be succeeding. But a deeper dive into these numbers shows that this trade is quite shallow.

On January 18, a total of 523,136 contracts for 1,000 barrels were traded on the INE. Of this, more than 98% – 516,038 contracts – were for a single month (March 2019). This indicates that the trading in Shanghai is mostly speculative. If an oil-producing company wants to hedge its future revenues, it will do so in line with future production – and therefore, will go for a mix of futures contracts with different maturity dates. Similarly, if a daily consumer of oil, such as an airline, wants to hedge future fuel expenses, it will again use a mix of futures contracts of varying maturities to match actual fuel consumption. If almost all the trading on an exchange arises from a single contract, this means that actual producers and users of oil are playing a minimal role, and the trading volume is being driven by speculators. If oil producers/consumers are absent, then the exchange serves no higher purpose – it is just a platform for speculation.

A second metric is delivery volume, or the number of physical barrels actually delivered on the expiry of the contract. For the first INE contract, the delivery volume was 601,000 barrels of oil – less than one third the volume of oil carried by one super-tanker and less than one-tenth of China’s daily oil imports. In one of the subsequent months, the settlement volume fell to just 8,000 barrels. For November and December 2018, settlement volume was a respectable 2.1 million barrels and 2.5 million barrels respectively.¹⁷ But in subsequent months, settlement volume has fallen again even as trading volume has risen.

Average holding time is a third metric. Data compiled by a wire agency in mid-2018 showed that the average holding time for a contract in Shanghai was two hours, compared to 65 hours for a Brent contract.¹⁸

The low delivery volume, disproportionate role of a single contract and lower holding time all indicate that the exchange in Shanghai is being used mostly for speculation. The investors could be China’s retail investors, who have been heavily burned as the stock market has fallen nearly 50% from its 2015 level (30% during 2018 alone). Some of the speculation taking place on the stock exchange may have migrated to the commodity exchange.

Another factor impeding the petro-yuan’s rise and the INE becoming a global trading hub is that foreign traders, users and consumers are likely to stay away from the Chinese exchange. They were chastened by the Chinese government’s heavy-handed intervention after the 2015 stock market meltdown, when it used threats to force investors and short-sellers to buy and hold even though they wanted to sell.¹⁹ Foreign traders and companies who are already trading on other global markets are unlikely to patronise an exchange on which they cannot trade freely or withdraw funds at will.

Every major economy other than China publishes monthly import/export statistics for oil and a range of other commodities, but the Chinese government stopped doing so in May 2018.²⁰ This cast doubt on the transparency and reliability of data being reported from China. In the absence of any clear supply/demand data from the domestic market, the oil trade in Shanghai will not allow price discovery. This ensures that it will remain a tool for speculation, and the petro-yuan will remain a pipe dream.

Figure 1. International Energy Exchange (INE), Shanghai – Timeline

November 2013 – Registered in China (Shanghai) Pilot Free Trade Zone

May 2017 – INE publishes Articles of Association for the Exchange and the trading rules

June 2017 – Holds mock trading for crude futures (to be introduced later)

March 2018 – Trading starts in INE, denominated in Yuan. INE becomes the third largest platform for oil trade (after New York and London).

Source: Gateway House Research

2.2 Petro-Yuan Issues for India

China's increasingly aggressive behaviour is a growing concern for India. Besides occupying Indian territory and engaging in border confrontations, China is putting pressure on India on other fronts:

1. Belt and Road Initiative (BRI): China has pushed many of India's neighbours into a debt trap, making them economically and politically dependent on Beijing. Also, the China Pakistan Economic Corridor (CPEC), a part of the BRI, passes through Indian territory under illegal Pakistani occupation. China may use assets created under the BRI to create a military presence there.
2. Political and economic support for Pakistan: China provides political and economic support to Pakistan, enabling that country to pursue state-backed terrorism against India. China's repeated blocking of the UN resolution on Pakistan-based terrorist Masood Azhar fits into this pattern.
3. Military presence in the Indian Ocean: Chinese navy ships and submarines are increasingly patrolling the Indian Ocean – and have often made port calls in regional ports. China recently opened its first overseas military base in Djibouti – an Indian Ocean rim nation.

Given China's hostility toward its eastern neighbours (Japan, Philippines and Vietnam) and India, apprehension about a more powerful China with influence over the global oil market is justified. India needs to assess the desirability of a shift in the global oil trade to the Yuan, unlikely as it may be. Will it be in India's interest if the economies of its top oil suppliers such as the UAE and Saudi Arabia become closely integrated with that of China, which can then impose sanctions on rivals as the U.S. does now? Replacement of the Dollar by the Yuan is not an issue for the U.S. alone. It also would pose a problem for India.

3. Petro-Rupee: The Opportunity for India

The shifting global energy balance and the U.S.-China confrontation create an opportunity for India to advance its role in global finance and give non-Western countries an alternative to the petro-dollar. How? By making itself the hub of a vibrant new international oil market where oil is traded in Rupees. Besides enhancing India's global standing, such a transformation can simultaneously promote India's national interests by addressing its long-standing vulnerability to energy price fluctuations and building up an SPR at no cost to the taxpayer.

This chapter presents a detailed strategy for achieving these goals. Since the strategy hinges on reshaping energy markets, it is necessary first to review India's struggle to address its energy challenges.

3.1 Challenge: India's Dependence on Imported Energy

India is now the world's second-largest importer of all energy, and the third-largest importer of crude oil. Imports account for more than 80% of its oil consumption and are likely to satisfy all of the growth in India's oil demand in the foreseeable future. From 4 million barrels a day currently, India's oil imports are expected to reach 10 million barrels a day by 2040.²¹

India has long struggled to ensure its access to sufficient supplies of energy at a fair price to feed its growing economy. Today, with annual imports of 1.58 billion barrels and growing, the problem persists. India also struggles with a related issue – having sufficient petroleum reserves to tide itself over short-term disruptions caused by conflicts or other events.

The problem is not a long-term shortage of oil. Fears of oil shortages – rife in the 1970s and then early 2000s – have proved unfounded. It is clear today that there is enough oil to meet India's (and the world's) energy needs for a long time to come.

The problem today is price – and its tendency to fluctuate sharply. India has had difficulty paying for its needs when prices surge, as the country discovered in 1991. More recently, the fall in oil prices from over \$100 per barrel in 2014 to less than \$50 per barrel in 2016 came as a relief, enhancing the country's ability to spend on much-needed domestic development. But the price spike to \$85 per barrel in September-October 2018 once again caused concern that the government might roll back the deregulation of oil prices and start subsidising oil consumers – moves that would burden public finance and lead to economic distortions in the long run.

India can adopt two strategies to protect itself from high and fluctuating energy prices: it can acquire oil fields overseas or use financial markets to hedge against high prices.

It has been acting on the first approach for more than 15 years. It has made more than 50 investments in oil and gas fields across the world. But even after a decade and a half, these investments still account for less than 10% of India's total oil imports, while requiring large amounts of capital.

The low level of such investments reflects the limitations to this approach. Oil-rich countries such as Saudi Arabia and Kuwait don't permit foreign ownership of oil fields, while some other oil-rich nations – Venezuela and Sudan, for instance – are not good investment prospects due to political instability, as Indian companies have discovered at considerable cost. Iran, though rich in oil and gas, is under severe U.S. sanctions and out of bounds for oil companies since dealing with Iran could prompt the U.S. to cut them off from its banking system and markets. All this puts a large share of global oil reserves out of reach for Indian investors.

Since India can't meet its entire energy-import needs for the foreseeable future, or even a large part of them by acquiring overseas oil reserves alone, it must consider using financial markets to cover the risk of rising energy prices. It is a proven strategy. Companies across the world use energy futures and options to cover the risk of high prices (or low ones for oil producers), as do some governments, including Mexico,^{22, 23} Uruguay²⁴ and Jamaica.²⁵

Energy trade on global commodity exchanges (London and New York) is large and liquid enough to permit India to use them to cover its risk. But using these exchanges poses two problems:

1. The benchmark prices for oil traded on these exchanges – Brent and WTI – don't correspond to India's import mix. Gateway House has flagged the need for a more representative indicator.²⁶ There also have been accusations in the past that these benchmarks have been manipulated. While the accusations have not been refuted, they raise concerns.
2. Taking a large position on a foreign financial market could prove politically difficult for the Indian government (or a government-controlled entity). Even if designed to promote energy security, such an investment could easily be seen as 'speculative' or as a scam in a charged political environment.

3.2 An Alternative

An alternative is at hand that can avoid these problems and enable India to weather sharp fluctuations in oil prices and enhance its status in the global economic order. India must shift part of the global oil trade to the Rupee and base it on an Indian exchange. This trade will have spin-off benefits for India's government, corporate and financial sectors, and, most importantly, its public. In 2013, Gateway House advocated developing new, Asia-centric benchmarks for oil and using financial markets to hedge India's oil imports. While those suggestions targeted specific segments of the energy-finance chain, current conditions call for a more ambitious effort to shifting a part of the whole energy value chain to India.

The building blocks required for this new initiative are already in place: India has three commodity exchanges where futures and options are actively traded. It now has to make these instruments long-term, and advance them from being just paper trades to contracts backed by buyers and sellers of physical products.

Shifting a portion of global oil trade to an Indian energy exchange governed by Indian laws and regulation, where trading would occur in Rupees, can bring a number of benefits to India:

1. The Indian government and companies can hedge their exposure to price hikes and other energy price fluctuations.

2. A new oil benchmark can be created that more accurately represents changing consumption patterns and India's own energy requirements.
3. Large-scale energy trade in India can create tens of thousands of high-paying finance and ancillary jobs – as the two stock exchanges have done in Mumbai.
4. The physical exchange of oil and gas traded on the exchange will necessitate the creation of large-scale storage facilities, which can serve as a de facto strategic petroleum reserve for India to use in an emergency. If the government sets up such a reserve with its own (public) money, it will tie up billions of dollars of public funds.

What follows is an assessment of the opportunities and risks, and the way to create such an exchange.

3.3 Enabling Factors

- **Structural:** Economic heft and oil consumption are both shifting towards Asia, with India playing an important role. India is expected to be a major source of growth in global oil demand over the next two decades. Its clout is increased further because the current abundance of hydrocarbons gives buyers more leverage over sellers than in the past. India sits close to West Asia, which has the world's top oil exporters and straddles the sea routes carrying oil to three other top importers – China, Japan and South Korea. India also is an important exporter of refined petroleum products – from two large refineries in Gujarat (Jamnagar and Vadinar in the Gulf of Kutch). This can be the location for an international physical trading hub.

A factor that increases the possibility of this is that India's ties with West Asian oil exporters are changing as India has started investing in oil fields (Oman and the UAE) and some of these countries (Saudi Arabia and the UAE) are investing in India's downstream energy infrastructure. India has made investments in other oil-exporting nations, including in Russia, Mozambique and Colombia, although this portfolio is much smaller than China's overseas energy investments.

- **Legal and Regulatory:** India has well-functioning and well-regulated financial markets – unlike China, where the government interfered heavy-handedly to stem a fall in the stock market. Also unlike China, India does not restrain its private sector, which now dominates several sectors of the economy. The rule of law is applied evenly in India — again, a contrast to China, which recently arrested three Canadian citizens on political grounds. India also has functioning commodity exchanges, and the markets regulator, the Securities and Exchange Board of India (SEBI), has removed restrictions on commodity options. Commodity futures are now actively traded on the Multi-Commodity Exchange (MCX), National Commodity and Derivatives Exchange Limited (NCDEX) and the National Stock Exchange (NSE). MCX and NCDEX also enable trade in commodity options. Crude oil futures and options are both available on the MCX for trading — albeit only very short-term (one or two months) — as opposed to the longer-term contracts (six, 12 and 24 months) that physical hedgers seek. However, current trading volume indicates that there is significant interest in the product from the financial community.

3.4 Hurdles

The enabling factors are necessary, but not sufficient to create a vibrant energy trade. Several gaps need to be filled:

1. As an oil importer, India has mostly oil buyers and very few sellers (ONGC, Oil India and Vedanta). For an energy market to be successful, more sellers are needed. As India imports nearly 85% of its crude oil, participation of foreign oil producers in this exchange is a must. This is also true for natural gas.
2. Government interference in financial markets or with regulatory structure – such as the retrospective tax cases filed against Vodafone and Cairn India – can keep away traders. Market participants require certainty and predictability of regulation, which is not always assured in India.
3. Through its various arms – the ONGC, GAIL India, the Indian Oil Corporation (IOC), Bharat Petroleum Corporation Limited (BPCL), or Hindustan Petroleum Corporation Limited (HPCL) – the Indian government controls most of the country's oil and gas sector: 71% of oil production,²⁷ 65% of petroleum refining capacity²⁸ and more than 90% of the retail network.²⁹ Government-owned oil marketing companies (IOC, BPCL, HPCL) have no incentive to use financial markets as they are naturally hedged; they buy crude oil and sell petroleum products, so the cost of oil for them is only a pass-through. These firms are also reluctant to engage in an activity that can be seen as speculative. Privately-owned firms are more willing to use market mechanisms to cover their risks. The limited role of private companies in the energy sector hinders the creation of a market for energy. Moreover, just three firms – Reliance, Nayara Energy (formerly Essar) and Vedanta (formerly Cairn) – account for more than 95% of private sector participation in the oil sector. The U.S. market, by contrast, has no government oil companies and thousands of micro- to mega-sized private-sector firms.
4. Natural gas produced in India is allocated to priority sectors – fertiliser and city gas distribution – and the price is set by the government, not by local demand and supply.³⁰ A market cannot function without free pricing; this was one of the reasons why the gas trading hub, proposed by the ministry of petroleum in 2018, could not take off.
5. The Indian Rupee is not fully convertible. This poses an issue for foreign participants on an Indian exchange because it complicates the remittance of any profits.
6. While crude oil and natural gas are traded on MCX, the trade currently is entirely speculative – as it is in China. For instance, on 15 January 2019, the contract expiring in January 2019 accounted for more than 97% of the volume, with February 2019 accounting for almost all of the remainder. Also, there was no interest in the contract expiring in April 2019. Oil producers and end users need to be brought into the market.

3.5 The Road Ahead

Creating confidence among foreign investors through assurances that the government will not interfere is not an active measure. It can only be done passively – by not interfering. It appears politically impossible at this time to privatise India's public-sector oil majors or to free domestic gas prices. So a soft approach may work best – one that gradually creates the right conditions and lets the market perform its function.

Here's how the transition could happen:

Step 1: Invite private participation in India's SPRs through the introduction of crude-oil Exchange Traded Funds

Step 2: Introduce long-duration futures/options

Step 3: Introduce new products

Step 4: Invite greater foreign/private participation in India's energy market

Step 5: Government hedging

Step 1: Crude-oil ETF and the SPR

Indians have invested in gold for thousands of years, but recently, they also have the option of buying 'paper gold' – shares in an Exchange Traded Fund that buys and stores gold in a repository on behalf of retail investors. Small investors can buy and sell this gold freely on the stock market, improving their liquidity. While selling physical gold has always involved transaction costs for small investors – including a discount to its true value, which depends on the buyer's discretion – there are no such costs to buying and selling paper gold.

Similar benefits could be created through mutual funds for crude-oil ETFs. The actual oil could be held in the SPR (or elsewhere), with ownership resting with the ETF. Investors holding units of the ETF would have ownership of that oil. They could then write long-duration call options in return for a fee. For instance, an investor with a title to 1,000 barrels of crude oil could sell a future (or a call option) for six to 12 months down the line in return for a premium (fee).

India's SPRs – currently 38 million barrels and due to be expanded by an additional 47 million barrels to cover 21 days of oil imports – represent a good opportunity for such investment. After a planned expansion, the reserves will total 85 million barrels and will cost over \$5 billion at current prices.³¹ This number will increase as India's energy demand grows and the SPR tries to increase the number of days covered (90 days is the norm for International Energy Agency member states). Having part of the SPR owned by investors will save the government's money and can also help create a vibrant commodity market in India.

This step will not be politically difficult, and it will create an immediate benefit by freeing up government funds that otherwise will be needed to create the SPR.

Step 2: Long-term Futures/Options

Once the crude ETF has a large enough pool of subscribers, long-dated options and futures can be introduced on the exchange. These contracts should be designed to allow physical delivery at certain designated oil storage sites (such as the SPR where the oil is held and major oil landing terminals). Since ETF owners will form one part of the trade on the exchange, this will not be speculative, unlike current trading in financial instruments related to oil. Moreover, owners of oil ETF shares can make some returns from their assets by selling call options on them; this will allow them to get returns without selling their entire holdings. This can be a useful way to reward investors who are holding the SPR at their cost, instead of the government's.

Step 3: Introduce New Products

While crude-oil trade captures most attention, it is unusable by itself. Before it can be used as a fuel, it must be processed into products such as diesel, petrol and aviation fuel. The 4 million-plus barrels that

India imports every day are processed into these and other useful products at almost 20 public- and private-sector oil refineries in India. Unless the consumers of these products can also hedge themselves, crude oil futures/options will remain speculative tools.

The next step, after crude oil futures are introduced, thus should be to launch futures and options for products that are consumed by large-scale users like airlines and big road-transport companies. Fuel cost is the major operating expense for such businesses, and sudden spikes can hurt profitability. Airlines in the U.S. and Europe³² routinely hedge their fuel costs.³³ There is no reason that Indian airlines will not do the same, given the opportunity. Oil refiners can sell part of their output to such customers in the futures market and buy a corresponding volume of crude oil (also in the futures market), thus locking in profits today. This will help deepen and broaden the financial market.

Step 4: Foreign/Private Participation

In the longer run, India needs to bring in foreign oil producers to participate in this market. Rosneft is already invested in India, via the Essar Refinery. Saudi Aramco and Abu Dhabi National Oil Company (ADNOC) both have a stake in the proposed 60 million-tonne oil refinery at Ratnagiri, Maharashtra. Clearly, oil sellers are interested in demand security, just as India has tried to seek supply security in the past. These companies plan to sell oil to their India-based refining ventures. Part of this trade can be shifted to the energy exchange to provide price visibility and transparency.

Judging from their long-standing aversion to financial markets, public-sector companies are unlikely to participate in this market. So the best option is to reduce the role of the public sector. The proposed refinery at Ratnagiri should be set up as a joint venture company (like Petronet LNG), where the public sector stake is capped at 50%, so that it doesn't operate like a government firm. Such a firm will find it easier to use financial instruments to hedge its exposure to high oil prices, and thus provide the much-needed volume/liquidity needed to establish a credible Indian energy benchmark.

Step 5: Government Hedging?

This is potentially the most complex part of the whole process. The Indian government continues to subsidise users of Liquefied Petroleum Gas (LPG) and kerosene. When oil prices were over \$100 a barrel, the government also subsidised diesel and petrol users. Clearly, if oil prices move up sharply, the Indian government will intervene to insulate consumers from the spike; when it crossed \$80 per barrel in late 2018, for instance, the government prepared to step in to keep retail prices stable. The government can hedge this risk on the exchange. Mexico already does this. An oil exporter, it needs a certain price to balance its budget. Therefore, the Mexican government hedges³⁴ the price at which it sells oil to protect against any downturns below that level. The Indian government needs to do the same to protect itself as a buyer from price rises.

The price at which the Indian government will intervene needs to be set – and the government needs to buy call options at that strike price. This will require expertise the government may not have at the moment – including a good understanding of the energy industry, market movements and how to trade on them. The finance units of the public-sector oil companies are the most conversant with these issues, so they should be brought in for their expertise. Ideally, this activity should be carried out by a purpose-built entity with a clear goal – to protect the Indian economy from the ill effects of buying oil at \$100 a barrel. The money spent on hedging should be seen as an insurance premium – a small down payment to protect against a big disaster, rather than as an investment.

Conclusion

The first three strategic recommendations proposed here – inviting private participation in creating an SPR, using this to create a vibrant market in oil futures/options and introducing new products – are very achievable, even considering India's political constraints. The success of subsequent recommendations – bringing in foreign players, reducing the role of government in the oil sector and hedging the government's risk from oil prices – will depend on successful execution and implementation of the first three, together with the political will to act. These are long-term steps that don't need to be acted upon immediately.

The reasons to act are compelling. High oil prices have always hurt India's growth. There is now a chance to guard against that risk using Indian financial markets. With its economic dynamism, strong growth prospects, political stability and well-regulated financial markets, India can regain its historical position as the economic nerve centre of the entire region.

Financial markets with credible benchmarks and standards represent one arena where India can successfully compete against China. It can't out-build China on infrastructure and it can't out-spend China on aid. But India's open markets and rule of law are strong competitive assets that India should fully utilise. If it doesn't act now, it risks ceding this field, where it has an advantage, to China as well. If it does act, the petro-rupee could become a reality and India will take its rightful place as a leading player in global financial markets, alongside the petro-dollar and ahead of the petro-yuan.

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