



# Dash for Gas? China's Belt and Road and Natural Gas

April - 2019

Energy Industry

# Report



The Abdullah Bin Hamad Al-Attiyah International Foundation for  
Energy & Sustainable Development









# Al-Attiyah Foundation Research Series

Expert energy opinion and insight

## Dash for Gas? China's Belt and Road and Natural Gas

China's gigantic Belt & Road initiative is designed to connect Eurasia. Energy is a large and crucial part of its plans. It provides potentially gigantic amounts of financing for energy-transporting and -consuming infrastructure, including gas pipelines, power plants and LNG terminals. It also has complex geo-economic and geopolitical ramifications. The BRI will be a key influence on the future of gas transport and consumption within Asia, the centre of future global demand. Major gas exporters need to understand the impact of the BRI on their plans, and how they can best work within it.



Russia's Power of Siberia gas pipeline to China under construction (source: [Caspian News](#))



## Executive Summary

- The Belt and Road Initiative (BRI) focusses on connectivity in Eurasia across land and through the Indian Ocean, mostly by financing and constructing physical infrastructure (roads, rail, ports, pipelines, electricity lines, power plants).
- It is a somewhat vague umbrella concept, although China has recently tried to give it a more concrete shape.
- The Arab Gulf states are an important but not core part of the BRI, which focusses more on Central Asia, Iran, Turkey, Pakistan and south-east Asia.
- The BRI stresses China's strengths. In energy, this means coal and to an extent, hydropower and other renewables, more than natural gas.
- Many different Chinese entities claim a role in the BRI, and some rise and fall according to political favour in Beijing.

## Implications for leading oil and gas exporters

- The BRI will boost economic growth and so gas demand in the countries involved.
- As it currently stands, the BRI concept favours onshore gas pipelines to China over marine deliveries of LNG. Still, China is unlikely to want to become too dependent on Russian gas.
- Unlike Iran, Turkey and Russia, the GCC is not a core part of BRI. It therefore increases competition for GCC gas exporters in the Chinese market. Other markets may open up, but gas exporters have to be competitive and creative to access them.
- BRI investments raise some political and economic risks, which have to be factored in to gas exporters' strategies.
- The BRI concept remains flexible, and gas exporters have the opportunity to shape it by finding the right relationships, institutions and projects.
- It is essential to choose the right Chinese partners, but not to be too committed to a single company or power base whose political influence may fall.

## The Belt and Road Initiative focusses on Eurasian and Indian Ocean connectivity – including energy

The Belt and Road Initiative (BRI – originally, the One Belt One Road, OBOR) is the brainchild of Chinese leader Xi Jinping, and was first officially announced in 2013. It is a strategy for regional connectivity from China through Eurasia and the Indian Ocean to Africa and Europe. It has a strong focus on physical infrastructure covering transport and energy, including road, rail, ports, airports, power plants and grids, oil and gas pipelines, and fibre-optic cables.

The Belt refers to land routes through Eurasia, divided into six corridors: Mongolia-Russia; Eurasian Landbridge (Russia

to Europe); Indochina; Bangladesh-India; Pakistan (CPEC); and Central Asia-West Asia. The Road covers marine routes through the Indian Ocean to East Africa and through the Suez Canal to Europe.

China has several motives for launching the BRI, which include:

- Deploying its vast foreign exchange holdings constructively;
- Encouraging new economic growth and hence demand for Chinese products in its vicinity;
- Creating demand for Chinese products and services in over-capacity, such as steel, cement and engineering and construction activities;
- Building geopolitical influence in key locations;
- Strengthening and streamlining its main trade routes;
- Protecting access to vital raw materials, including energy.

The balance between these objectives varies by time and place. With regards to hydrocarbons, the Belt covers primarily oil and gas imports by pipeline from Russia and Central Asia. The Road includes tanker-borne deliveries of oil and LNG, mostly from the Middle East and eventually East Africa (Mozambique and Tanzania for LNG, Uganda and perhaps Kenya for oil).

FIGURE 1 shows the main economic corridors, oil and gas pipelines and LNG terminals concerned in the BRI.

## The BRI has implications for gas inside and outside China

In the broad picture, the investments under the BRI will increase economic growth and energy demand, particularly in transport and heavy industry in China and the recipient countries. They will facilitate the transport of gas.

But they will also favour the consumption of coal, and to some extent other energy sources, rather than gas. Overall, the BRI should be positive for gas demand, but it is not the big winner by default: coal, oil, hydro, nuclear and perhaps wind and solar will all gain more.

This will change if gas exporters are good at working with Chinese partners within the BRI framework, are able to market their gas competitively, and if environmental and pollution concerns rise in importance.

When we consider the impact of the BRI on gas, we have to separate that from what would have happened purely as a result of the normal growth and development of China and its neighbours. Even without the BRI, China's continuing rapid economic growth, poor air quality and need to reduce CO<sub>2</sub> emissions would lead to strong growth in gas demand and imports. Many 'BRI' projects are also investments which probably would have happened anyway, some of them retrospectively rebranded.



FIGURE 01: THE BRI AND KEY GAS PROJECTS<sup>1</sup>



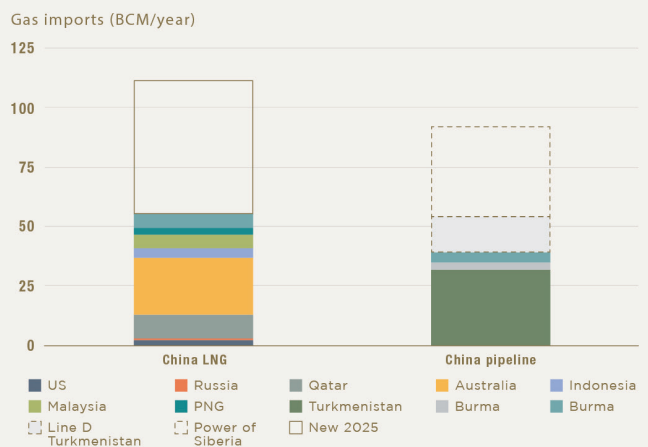
TABLE 01: CLASSIFICATION OF NOCS AND THEIR INTERNATIONAL INVESTMENT APPROACHES<sup>1</sup>

BRI aim	Implications for gas
Encourage regional economic growth	Energy demand in BRI countries will rise, some of it met by gas. Gas production will rise in countries well-sited to supply the BRI (particularly Turkmenistan, also Burma).
Absorb Chinese overcapacity	Chinese heavy industry will run at higher capacity, partly using gas (but more coal). Onshore gas pipelines will be preferred to LNG as they have more Chinese content. BRI energy projects will focus on coal (and also hydropower and other renewables and possibly nuclear <sup>2</sup> ), more than gas.
Build geopolitical influence	Gas-producing countries where China has influence will be favoured. Opportunity for gas exporters to build strategic partnership with China.
Strengthen trade routes	Maritime LNG routes will improve, through better port facilities and supporting infrastructure. LNG producers on the Road will be more in demand – south-east Asia, East Africa and the GCC. Access will be created to smaller markets for both LNG and pipeline gas.
Protect access to raw materials	China will prefer onshore gas pipelines that it can more easily defend. Maritime routes may benefit from improved ports and security, particularly those that avoid the Strait of Hormuz / Straits of Malacca / South China Sea (e.g. Northern Sea Route). China will not want to be too dependent on single suppliers of any commodity.

China’s path is critical for determining future gas demand

China is set to be the single largest source of new gas demand globally out to 2040 (see *Al Attiyah Foundation Research Series, Issue 29*). At the moment, its LNG imports, mainly from Australia, Qatar and some south-east Asian countries, exceed its pipeline imports from Central Asia and Burma (FIGURE 2).

FIGURE 02: CHINA GAS IMPORTS BY SOURCE, 2017 & GROWTH TO 2025<sup>3</sup>



By 2025, the Power of Siberia pipeline from Russia should have reached its full 38 BCM/year design capacity, and Line D from Turkmenistan added another 15 BCM (excluding the possibility of additional pipeline imports from Central Asia). LNG imports, though, are expected to have grown by 56

BCM, so still being China's largest source of imports. This LNG growth will likely come from some BRI countries – mostly Qatar, Russia and East Africa – and from some non-BRI ones, namely the US, Canada and Australia.

China will want to maintain a diverse mix of suppliers. Pipeline imports are attractive, as LNG shipments are vulnerable to marine interdiction (in the unlikely but not impossible event of a US-China or Middle Eastern conflict). The Central Asian states need outlets for their gas, and Russia wants to diversify its markets from Europe. On the other hand, Beijing does not want to be too dependent on Moscow, which is already a major oil supplier.

So even with an expansion of the Eurasian Belt pipelines, LNG will remain an important and growing component of Chinese supply. LNG's market share will depend on its price competitiveness versus pipeline imports, domestic Chinese unconventional gas, and coal.

### The BRI countries will see positive impacts on energy transit and consumption

Countries involved in the BRI are likely to see a positive impact on the economy, particularly in energy-intensive sectors such as natural resources, transport and industry. This in turn will increase energy, and so gas, demand. Some of this will be met by increased domestic output, but the remainder will require imports.

The proportionate impact of the BRI is likely to be most significant for smaller countries, those closer to China, and those that are constrained by lack of capital or infrastructure. This can apply to landlocked Eurasian states, the smaller south-east Asian countries, and parts of East Africa. However, the greatest absolute gain in gas demand would be in the large Asian countries.

Improved marine security and connectivity is positive for LNG exporters. Smaller markets, currently not well-served by infrastructure, could become accessible, particularly in the south-east Asian archipelago (Indonesia, Malaysia and the Philippines). Less creditworthy LNG importers, such as Pakistan, Bangladesh and in future Cambodia and Sri Lanka, could avail Chinese financing for import terminals and contracts.

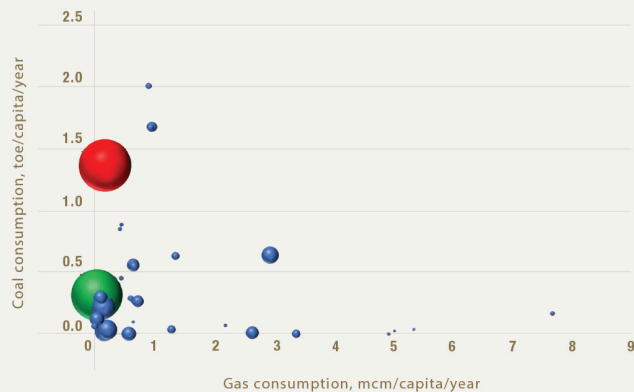
FIGURE 3 compares per-capita gas and coal consumption for a selection of the main BRI countries. China itself is shown in red and India in green.

Countries in the bottom-right quadrant have large gas use, little coal, and are more likely to want to diversify fuel use. Countries in the top-left quadrant are heavy users of coal and little gas; they are targets to replace coal with gas, particularly for environmental gains. Countries in the bottom-left quadrant use little coal or gas, and they are prime candidates to expand energy use in general.

The top 11 BRI countries with populations greater than 75 million people total 4.4 billion, 90% of the Eurasian BRI. Niche

markets may be lucrative, but these big countries contain the bulk of the demand opportunity.

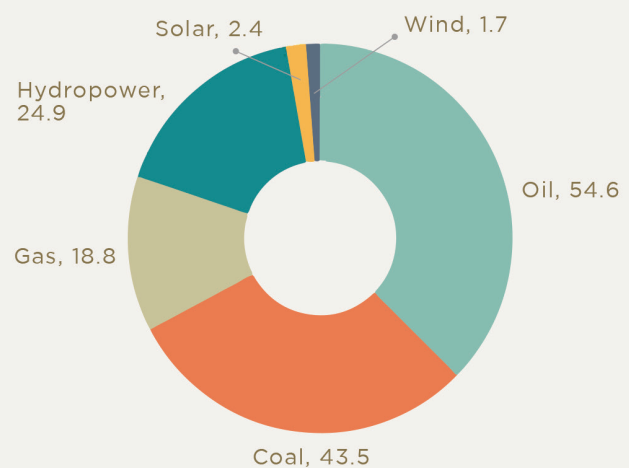
**FIGURE 03: EURASIAN BRI COUNTRIES' GAS AND COAL CONSUMPTION PER CAPITA (2017)<sup>4</sup>. BUBBLE SIZE INDICATES POPULATION**



### BRI power investments so far concentrate far more on coal than gas

As FIGURE 4 shows, Chinese international energy investment has focussed more on oil, coal and hydropower than gas (this is not all BRI investment, but the BRI is even more coal- and hydro-focussed). Renewable energy can be expected to grow too given its increasing competitiveness and the strength of Chinese firms.

**FIGURE 04: CHINA INTERNATIONAL INVESTMENT 2000-16, \$ BILLION<sup>5</sup>**



Another likely area of BRI growth is in long-distance DC electricity cables, which could trade solar, wind or hydro-generated power between countries, but which are particularly intended to make China a net exporter of power, largely coal-generated.

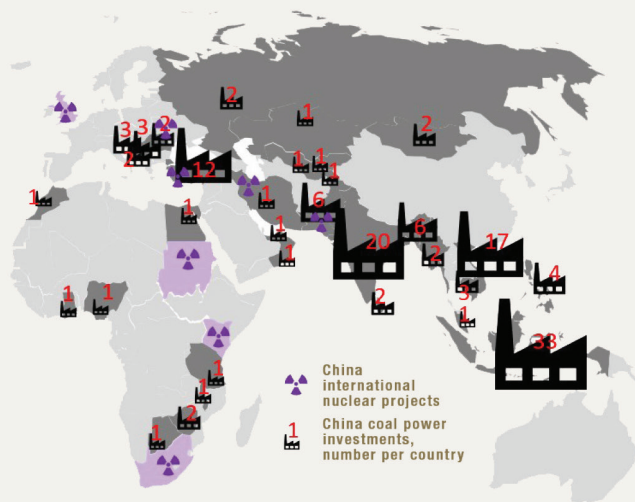
Chinese international investment in coal, and to a limited extent in nuclear, covers most of Eurasia and parts of Africa and the Balkans (FIGURE 5). In particular, China plans to build massive numbers of coal plants in heavily-populated countries that are key for future gas demand growth: India, Pakistan,



Bangladesh, Vietnam, Indonesia, the Philippines, Turkey and Egypt.

If a significant number of these plants are built, it will have a negative impact on gas demand. Once built, coal, hydro and nuclear plants will operate for long periods with low operating costs. Therefore gas has a limited window of opportunity to seize these new markets.

**FIGURE 05: INTERNATIONAL CHINESE COAL AND NUCLEAR POWER PROJECTS<sup>6</sup>**



**The BRI lacks formal institutional underpinning, including in energy**

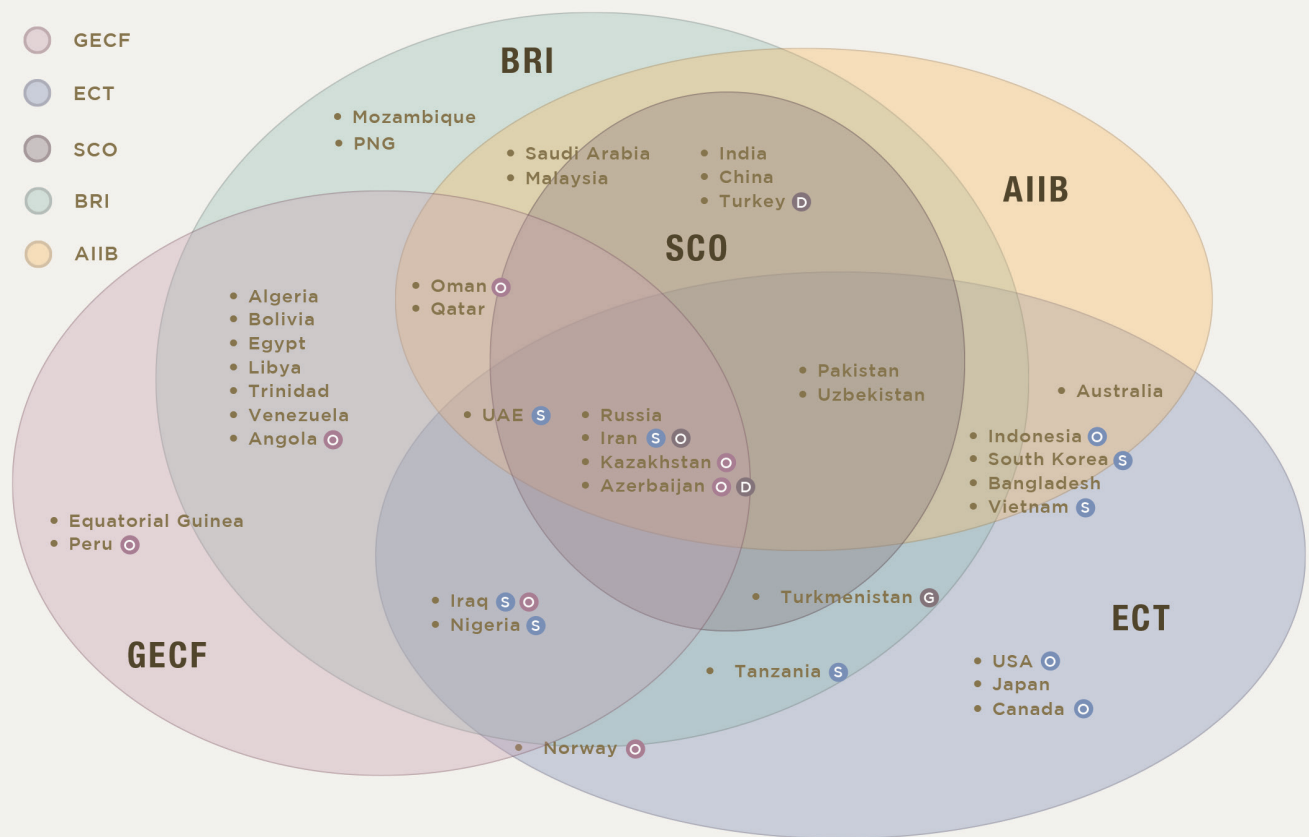
The BRI lacks the formal institutions of an organisation such as the World Bank or International Energy Agency, at least outside China. The Asian Infrastructure Investment Bank (AIIB) comes closest, but the memberships do not exactly overlap. Politically, the Shanghai Cooperation Organisation (SCO), a grouping of China, Russia and some other Eurasian countries, is a political, economic and security forum, which could be seen as a looser counterpoint to the EU and NATO.

In energy, the Gas-Exporting Countries Forum (GECF) and the Energy Charter Treaty (ECT; a Eurasia-focussed set of rules on energy trade) are relevant (FIGURE 6).

As gas-exporting countries try to benefit from the BRI, they can gain from working within these organisations and building coalitions and partnerships with like-minded states. Of course, other political issues may mean this is not always possible.

Certain states are pivotal to the energy aspects of the BRI because of their geography and membership in several relevant organisations. The GCC countries already have close working relationships with Russia, including mutual investments and, for three of the GCC, their cooperation in the OPEC+ pact. They also tend to have good relations with the Indian subcontinental countries, and the Caspian and

**FIGURE 06: BRI AND OTHER MEMBERSHIPS (S = SIGNATORY, O = OBSERVER, D = DIALOGUE PARTNER, G = GUEST)**





Central Asian states: Kazakhstan, Turkmenistan, Uzbekistan and Azerbaijan. Attitudes to Turkey, Iran and Egypt are more mixed.

Gas exporters also need to find effective partners from China. Numerous Chinese entities have political weight and may be able to access BRI resources. These include the Chinese major state oil companies (CNPC, CNOOC, Sinopec, Sinochem and Zhenhua), sovereign wealth funds (national and regional/city-based), engineering firms, power developers, State Grid, Sinasure (insurance), banks (Bank of China, ICBC and others), and many more.

Finding and cultivating a relationship with the right partners can be a long and complicated task. Changes in political fortunes, and high-profile corruption cases, can halt Chinese firms' international activities. For instance, the Chinese major oil firms have been rather quiet overseas in recent years, in the wake of a big shake-up of the sector. China Energy (CEFC), a rapidly-growing and politically well-connected fund that had taken stakes in oil-fields in Abu Dhabi, appears to have fallen from grace following allegations of financial crimes by its founder<sup>7</sup>.

### Major gas exporters have to shape the BRI to their needs

Major gas exporters have a choice of **competing** with the BRI, or trying to **cooperate** with it. In practice, most will do both in different circumstances.

To **compete**, major gas exporters can target markets in BRI countries, including China itself, developing LNG receiving terminals, and partnerships with local gas importers and customers. They would aim to provide competitively-priced LNG to head off competition from coal and nuclear power. If they have enough geopolitical weight, they would seek to block competing pipeline projects. They could build partnerships with countries that are sceptical of the BRI or openly hostile to it, notably Japan, India and the USA.

To **cooperate**, leading gas exporters would invite Chinese investment in new LNG liquefaction and regasification terminals, pipelines and gas-fired power plants and industries; and partner with Chinese state oil companies and utilities.

Six key gas exporters will be particularly affected by the BRI, but in very different ways. Each has to shape its strategy accordingly.

The **US**, not itself part of the BRI, is purely an LNG exporter to Eurasia. China is one of its key future markets, and it will be flexible and price-competitive.

Trans-Pacific LNG from Canada and from the US via the enlarged Panama Canal will also expand. Other BRI members, such as India, are also target markets.

However, the two countries are trade and geopolitical competitors. China will not want to depend too much on the US, and Chinese buyers are deterred from committing to US LNG because of potential tariffs, and even future embargoes or sanctions.

**Russia** is unique in exporting to China both by pipeline and as LNG. The BRI is not the only Eurasian route of energy importance. Russia's Northern Sea Route, increasingly accessible due to melting Arctic ice, is being used for LNG deliveries to east Asia. Even though not part of the BRI, China National Petroleum Corporation (CNPC) and the Silk Road Fund invested in the Yamal LNG project, so far the main energy success of the Northern Sea Route.

Chinese capital is important to Russia because of Western sanctions, but apart from Yamal, China has not invested as heavily in Russian gas as Moscow had hoped. Russia would also rather restrict competition from Central Asian and potential Iranian gas. It is the junior partner in the relationship with China, and wants to avoid becoming a natural resource colony.

### Case study: Pakistan

- The China-Pakistan Economic Corridor (CPEC) is one of the most advanced components of the BRI, with projects valued at \$62 billion as of 2017.
- CPEC projects and improved electricity supply helped Pakistan's economy grow more than 5% annually during 2016-18. However growth has slowed sharply in 2019, inflation has risen and the government has sought an IMF bailout.
- Gas consumption grew strongly in recent years, an annualised rate of 5.2% from 2014-17, as LNG became available.
- Pakistan's gas supply-demand gap is expected to reach 68 BCM by 2030 (Oil & Gas Regulatory Authority). Currently it meets 16% of demand with LNG, and the rest with domestic supply, but suffers from winter gas shortages.
- China has backed various gas pipeline projects including Iran-Pakistan, Gwadar-Nawabshah (bringing LNG from Gwadar to the grid north of Karachi), and Karachi-Lahore, and also expressed interest in the Turkmenistan-Afghanistan-Pakistan-India (TAPI) pipeline. Harbin Electric worked with the US's GE, financed by China EXIM Bank, to build 2403 MW in two gas-fired power plants, though these were not officially part of CPEC.
- However CPEC's energy investments in Pakistan mainly focus on coal mines, coal power plants and hydropower, and a limited amount of wind and solar.
- Pakistan's participation in BRI is also controversial because of its de facto alliance with China against India.
- This suggests that while BRI infrastructure can give a temporary boost to the economy and gas demand, sustained growth in the poorer and less well-governed BRI countries will also require systemic economic and political reform, which is not part of the BRI's mandate.





**Turkmenistan** (and to a lesser extent Uzbekistan and Kazakhstan) is a key pipeline gas supplier to China. It needs Chinese investment in gas production and transport. Its production is well below its potential given huge reserves, but it has struggled to develop any other markets due to its landlocked position, opposition from Russia, and commercial disputes with Iran. It is seeking to develop petrochemical plants and electricity exports to diversify its gas sales, potentially with Chinese investment. It is politically vulnerable to interference by Moscow but faces a difficult balancing act to avoid being too financially dependent on Beijing.

**Qatar** is the world's largest LNG exporter (Australia may go ahead briefly, but Doha will regain top spot when it expands capacity in the early 2020s). It is a US ally but also cooperates with Russia and China, and hosts the GECF. Security of its LNG routes to East Asia is of critical importance. It can invest in facilities such as LNG receiving terminals, and engage diplomatically with key BRI countries, but has to be selective.

**East Africa (Mozambique and Tanzania)** is set to be a large LNG exporter. CNPC holds 28.6% in Mozambique's Block 4, with the country's largest gas resources, and CNOOC has already signed up for Mozambique LNG supplies. The BRI can improve these countries' infrastructure and marine routes to south and east Asia. They do not have the political, diplomatic or financial weight to play an active role in the BRI outside their neighbourhood.

**Australia** is China's leading LNG supplier, and also a major exporter of coal, iron and other commodities, and a big recipient of inward Chinese investment. Expensive new LNG projects will require Chinese commitments. But as a US ally, it is cautious of Beijing's growing weight in the Pacific and Indian oceans, and is inclined to align with Japan and India.

It could therefore be roughly said that the BRI is a strong positive for Russian and Central Asian gas, and probably East African LNG. It is a negative for the US geopolitically and for its LNG-exporting companies.

For Qatar and Australia, the impact is mixed. US trade tensions give them an opportunity in the Chinese market. Better marine connectivity, the opening of archipelagic gas markets, and more economic growth in south and south-east Asia is positive, but greater competition from coal, and to a lesser extent renewables and nuclear, is negative.

### The BRI comes with risks as well as opportunities

The risks of the BRI come in two broad categories: geo-economic and geopolitical.

On the **geo-economic** side, Chinese investment has been blamed for leading some countries into a "debt trap", as well as for having negative local environmental and social consequences, and failing to boost host economies and employment sustainably.

It can also increase the risk of China itself building up unsustainable levels of debt, via lending to politically-connected companies, and to foreign governments which may prove unable to repay. 'Debt for equity' deals, such as Sri Lanka handing a 99-year lease on its Hambantota port to China, are seen as giving up key national assets.

A failure of the BRI would also have serious economic consequences. Xi Jinping would be politically weakened and perhaps even replaced, and Chinese attention could turn inward.

Economic crises in individual BRI countries, such as Pakistan, would have a negative impact on gas demand there, thus threatening investments and contractual commitments made for gas supply. A broader Asian downturn would have a serious effect on oil and gas demand and prices, as in the 1997-8 Asian and Russian financial crisis.

On the **geopolitical** front, the BRI can create or exacerbate tensions, both between regional powers, and with extra-regional powers – notably the US.

Russia is a crucial part of the BRI, but it is also a strong competitor of China's in the Eurasian part of the initiative. It has strong political and military influence in the Central Asian and Caucasus states<sup>8</sup>, as well as in Iran and Turkey. Russia has an interest in preventing others from competing with its gas exports to China, particularly by pipeline.

In the maritime space, India is concerned about Chinese incursion into the Indian Ocean, particularly in collaboration with its adversary Pakistan. Chinese naval bases at Gwadar in Pakistan, Hambantota in Sri Lanka, and the Maldives, could one day pose a threat to India. Japan also seeks to counterbalance China's ambitions in south-east Asia. Japan, South Korea, Taiwan and India are all heavily dependent on maritime imports of oil and LNG.

To the extent that the BRI improves marine transport security, it is welcome. But all these countries would be concerned about China having too much control over their key trade routes.

China's current repression of its Uighur minority in Xinjiang may cloud its relationship with Muslim-majority countries, particularly in Central Asia (such as Kazakhstan), but also Turkey and the GCC. This is probably less an issue for Iran given its lack of other allies.

The US strategy is currently confused. It is fighting a trade war against China, wants to sell more LNG to Beijing, but pulled out of the Trans-Pacific Partnership, a trade agreement with a number of Pacific states (excluding China). It opposed entry of some of its allies to the Chinese-led AIIB.

However, if Chinese dominance over Eurasia and south-east Asia grows, US strategy may evolve to contain it by deepening partnerships with Japan, India, South Korea,



Vietnam, Philippines and others. That raises the risk of wider trade disputes, and even (if still unlikely) outright conflict. This would all have a negative effect on regional growth and so gas demand. It might also block the development of some otherwise economically-viable gas projects.

## Conclusions

To understand the challenges of the BRI, major gas exporting countries and their companies will have to invest more in gathering data and insights, and building relationships, in China itself and in the key gas-consuming BRI countries. These relationships will include effective membership of the right international and BRI-related bodies, and partnerships with influential and capable Chinese companies.

The BRI opens numerous opportunities, but also competitors, in other energy sources, and in pipeline gas versus LNG. Gas will have to be priced competitively and marketed effectively. Some of the biggest constraints to gas use in Asia relate to inadequate infrastructure or concerns about supply security, and BRI projects could help mitigate this.

The bigger geopolitical and geo-economic picture also cannot be ignored. Relations between China, Russia, the US, India and the Middle East are tense in various ways. Even if this remains at the level of trade wars, it can still be disruptive for regional economies and planned energy projects. Local political and social crises linked to BRI schemes and investments are also likely, particularly in some weaker states.

## References

1. Qamar Energy research; <https://emerge85.io/wp-content/uploads/2017/10/Chinas-Road-to-the-Gulf.pdf>; company websites
2. <https://www.reuters.com/article/us-china-nuclearpower-hualong/china-goes-all-in-on-home-grown-tech-in-push-for-nuclear-dominance-idUSKCNIRTOCO>
3. BP Statistical Review of World Energy 2018; BP World Energy Outlook 2018; [https://energypolicy.columbia.edu/research/commentary/changing-global-gas-order-30?utm\\_source=Center+on+Global+Energy+Policy+Mailing+List&utm\\_campaign=369d6acbc2-EMAIL\\_CAMPAIGN\\_2019\\_04\\_12\\_12\\_30&utm\\_medium=email&utm\\_term=0\\_0773077aac-369d6acbc2-102244809](https://energypolicy.columbia.edu/research/commentary/changing-global-gas-order-30?utm_source=Center+on+Global+Energy+Policy+Mailing+List&utm_campaign=369d6acbc2-EMAIL_CAMPAIGN_2019_04_12_12_30&utm_medium=email&utm_term=0_0773077aac-369d6acbc2-102244809)
4. Qamar Energy analysis of BP Statistical Review of World Energy 2018; population statistics from World Bank
5. <https://www.ft.com/content/f965fa22-9be4-11e8-9702-5946bae86e6d>
6. <https://www.rsis.edu.sg/wp-content/uploads/2019/01/WP320.pdf>
7. <https://www.ft.com/stream/560c87c1-8c10-34fb-b669-368340c3ac06>
8. <https://www.foreignaffairs.com/articles/china/2019-04-04/are-russia-and-china-really-forming-alliance>



Hai Yang Shi You LNG tanker, CNOOC. Source: BxHtxCx, licensed under Creative Commons 2.0.





Thank you to our Members



قطر للبترول  
Qatar Petroleum







The Abdullah Bin Hamad Al-Attiyah  
International Foundation for  
Energy & Sustainable Development

Barzan Tower  
4th Floor  
West Bay  
Doha  
Qatar

Tel: +974 4042 8000  
Fax: +974 4042 8099

Website: [www.abhafoundation.org](http://www.abhafoundation.org)  
E-mail: [info@abhafoundation.org](mailto:info@abhafoundation.org)