

APEC Oil and Gas Security Newsletter

Trade War and Oil and Gas Supply to Asia Pacific

by Yoshikazu Kobayashi

On July 6, United State and China both started to impose additional 25% tariff on their imported goods. Both economies suggest that they may introduce additional tariff by expanding its respective subjects as retaliation. The trade war between the two world largest economies has just begun.

Energy supply between the two economies cannot escape unscathed from this dueling. The United States has already imposed additional tariff on imported steel products from China, and this causes inflation of the construction materials used for energy supply infrastructure such as casing pipe, long distance pipeline, refining and petrochemical processing plants. Pains from this trade strife is already being felt by the US energy industry, and it may cause further adverse effects if the imposition of the additional tariff will be extended for a longer term.

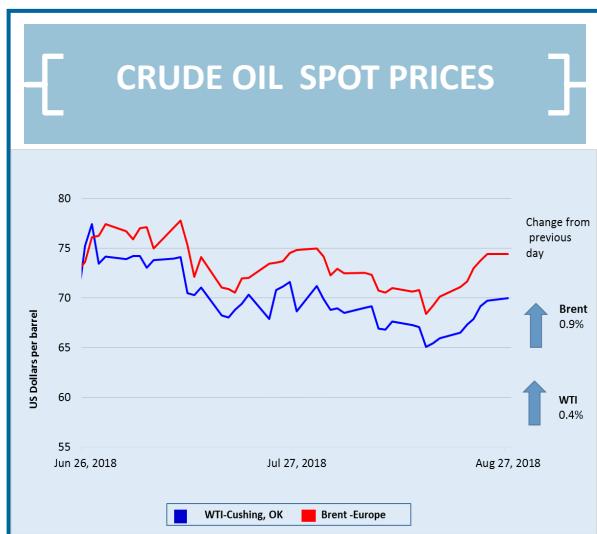
China started to impose 25% additional tariff on 545 imported products from the United States in July 6. While energy products are not included in the 545 products, China hinted that it may expand the subject of imported product and crude oil and oil products may be included in the list. If such tariff on oil is actually imposed, it will cause significant impacts on the Asian oil trade because in 2017 alone, China imported 450 thousand barrels per day of oil from the United States. China in fact, is the third largest oil export direction of the United States, after Mexico and Canada. And the retaliation tariff may seriously harm the US export revenue if China significantly reduce the import of the US oil. LNG is not included in the list of additional subject, which suggests higher importance of LNG for the Chinese energy supply; but as the strife between the two economies deepen, the subject of additional tariff can be easily widened. (*next page*)

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- Upcoming Event
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- Crude Oil Spot Price (WTI and Brent)
- Natural Gas Spot Price (Henry Hub)



WTI—USD 69.97 (Aug 27)

Source : US Energy Information Administration

“Energy supply between the two economies cannot escape unscathed from this dueling.”

Trade War and Oil and Gas.....

The Trump Administration on the other hand, was reportedly demanding China to increase LNG import to reduce trade deficit between the two economies. Oil and gas are now fully utilised as a tool of trade war.

Restricting free movement of oil and gas trade for political reasons will cause negative impact on the energy security in Asia Pacific, as the region will be forced to limit supply options in case of emergency. Given the growing oil and gas demand in the world and rising geopolitical risks in Middle East, this is not an appropriate time to engage in dangerous trade war game. Peaceful resolution, or sensible treatment of oil and gas trade at least, is strongly desired.

“The Danger Past, God Forgotten”

by Ichiro Kutani

As the phrase goes, it's human nature to quickly forget the past as soon as the disaster is over. A sea-lane security risk may be one of such things.

In July 2018, after encountering the terror attack from the Houthi on 2 VLCC vessels, the government of Saudi Arabia announced temporarily halt of crude oil shipping through the strait of Bab al-Mandeb, narrow entrance of the Red sea. The decision will freeze part of Saudi Arabian crude oil export amounting to 4.8 million barrels per day (mb/d) (in 2016, EIA) through the strait toward North Africa, Europe, and USA. The suspension is said to be limited to the Saudi-owned vessels while Saudi Aramco can charter foreign ships instead. In addition, Saudi can transport crude oil in the East to West cost Yanbu city via pipeline to bypass the straight.

The Straits of Hormuz is another well-known choke point. Crude oil export via the straight (18.5 mb/d in 2016, EIA) accounts for around 20% of world's total crude oil production. Impact could be significant when transit to the Straits of Hormuz would be suspended. Iran is dangling the Hormuz card in response to the withdrawal of USA from the Iranian nuclear pact. Even though result of the withdrawal is still uncertain, we can say, at least, that the risk on sea-lane security in the Straits of Hormuz is increasing. (*next page*)

“...the risk on sea-lane security in the Straits of Hormuz is increasing.”

"The Danger Past...."

Since there is no single and perfect remedy, we should be reminded of the existence of sea-lane security risk and should be prepared in case of emergency by taking multiple actions including strategic oil stockpile and demand side management.

....escalating tariffs could slow down global economic growth and higher prices of consumer goods would lead to oil demand decline."

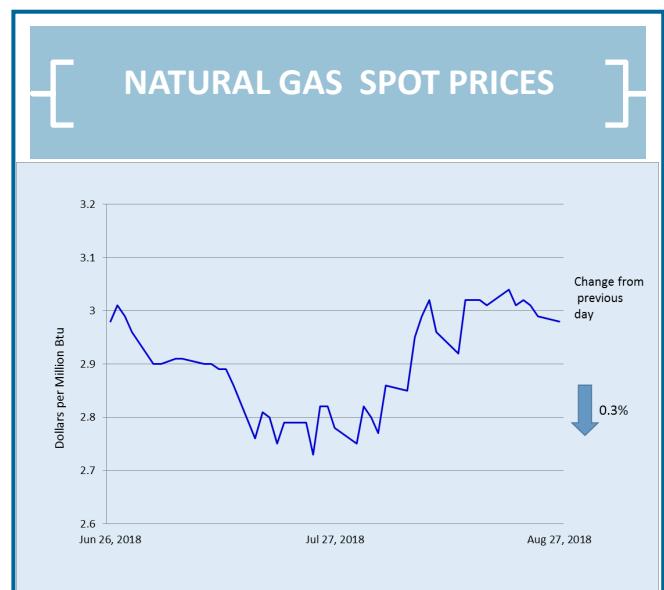
The Impact of Trade War on Oil Market

by Yasuaki Kawakami

A trade war between the world's two largest economies began on July 6th, when the US imposed a 25% tariff on \$34 billion worth of imports from China in light of alleged intellectual copyright theft and trade deficit. In response to the imposition, China immediately levied the same amount of counter tariffs on 545 US products. Both economies have already listed another \$16 billion worth of items to be levied and the second round could take effect sometime in August. Furthermore, President Trump indicates his intention to impose 25% tariff on additional \$200 billion of Chinese products, and eventually tariff increase will cover as much as \$500 billion, which is almost the entire imports from China. With the escalation of the trade war, the two economies have yet to find a common ground to compromise.

The dispute will also affect the energy sector. The list with the additional \$16 billion of US goods released by China includes crude oil, oil products and coal, with the exception of LNG. In 2016, The US shipped an average of 224 thousand barrel per day (kb/d) of crude to China and the figure surged to 427 kb/d in May this year, which is roughly equivalent to \$1 billion and accounts for 21% of the total US export in that month. China depended on the US for 25% of its propane import in 2017, though the volume is not as large as that of crude. Provided the energy tariffs come into effect, US crude oil and LPG would become less competitive than others would and the trade flows will set to change significantly. Since the US crude shipments were just 1.8% of Chinese total crude import in 2017, China could manage to obtain an alternate from other sources. China is expected to source most of the alternative crude and LPG from the Middle East.

Implications brought about by the conflict to APEC economies may differ, depending on whether an economy is exporter of crude oil or not. In any case, escalating tariffs could slow down global economic growth and higher prices of consumer goods would lead to oil demand decline. Needless to say, crude oil price would face a downward pressure if the US and China could not settle the dispute. Alongside Iran's oil export decrease triggered by the renewed sanction of the US, this trade war is a major uncertainty for the oil price at the moment.



Henry Hub—USD 2.98 (Aug 27)

Source : US Energy Information Administration



Dr Peter Hartley

Peter Hartley is the George and Cynthia Mitchell Professor of Economics, and a Rice Scholar in Energy Studies in the James A. Baker III Institute for Public Policy, at Rice University in Houston, Texas. He is also the BHP Billiton Chair in the Business of Resources in the Business School at the University of Western Australia.

He is past President of the International Association for Energy Economics (IAEE) and was the President of the US Association for Energy Economics (USAEE) in 2012.

Peter completed a first class honors degree in mathematics in 1974, and a Masters Degree in Economics in 1977, at the Australian National University. From 1975-77, he worked for the Priorities Review Staff and the Economic Division of the Prime Minister's Department in the Australian Government. He obtained a Ph.D. in Economics from the University of Chicago in 1980. From 1980 to 1986 he was an Assistant Professor of Economics at Princeton University. He has been at Rice University since 1986.

Peter has held visiting positions at Monash University, the University of Melbourne, and the Australian National University in addition to the University of Western Australia. He has also worked for public policy think tanks including the Tasman Institute in Melbourne, where he served as Executive Director in 1996-97. ([next page](#))

Interview with Dr Peter Hartley

In this issue of the Newsletter, we are pleased to give OGS Newsletter readers, Interview with Prof Peter Hartley, a professor of Economics and has more than 30 years of experience analysing energy economics issues. You will find in this interview, discussion covering more than oil and gas supply security issues.

APERC—You have more than 30 years of experience analysing and providing advice on energy economics issues and have published academic research, policy articles and books regarding the sector. As a result of your research, what is your understanding of the concept of energy supply security?

Dr Hartley—The word “security” is associated with maintaining freedom from danger or threat. In policy discussions, it is used most commonly in the context of reducing the danger or threat of international armed conflict and threats to freedom of navigation and aviation. Energy is extremely relevant to the deterrence effect of armed forces since petroleum products are a critical input to the military. In particular, the US military consumes about 100 million barrels of liquid fuels annually.

A related issue is that energy security became a much greater policy concern following the 1973 oil crisis. This occurred after Arab oil exporters embargoed the U.S., U.K., Netherlands, Canada and Japan from importing oil in retaliation for their support of Israel in the Yom Kippur war of October 1973. The International Energy Agency, and the policy of building strategic petroleum reserves, were both started as a result of that crisis. In this case, the threat was to freedom of action in international diplomacy of large oil importing countries.

More generally, international concern over conflicts and political instability in the Middle East has been heightened by the dominant role of that region in supplying oil, and more recently liquefied natural gas, to the rest of the world. In that sense, oil supply security is increased by replacing oil and LNG from the Middle East, and other relatively unstable countries such as Nigeria and Venezuela, by supply from more politically stable locations.

The large natural gas pipeline trade between Russia and the EU illustrates another international relations dimension to energy security. Unlike LNG, pipeline connections make it ([next page](#))

Interview with.....

much more difficult to alter sources of supply in the short-run. There is considerable debate about whether the large Russia-EU natural gas trade compromises European criticism of Russian military and political interventions into neighboring countries such as Georgia, Moldova, Ukraine and the Baltic states.

A major reason that energy supply disruptions can create so much difficulty for importing countries is the role of energy as an essential input into modern industry, transportation, and agriculture. In the latter case, diesel fuel and fertilizers are essential to allowing a relatively small labor force in the food-exporting developed economies to help feed over 7.5 billion people. Heating and cooling services, including hot water and cooking services, are also critical in achieving a high standard of living. Access to affordable and reliable electricity, which still relies overwhelmingly on fossil fuels as primary energy inputs, is perhaps the defining distinction between more and less developed regions of the world. Electricity is critical not only to modern industrial production, but also health care (including water and sewerage services), education (ability to read at night), public law and order (including traffic control), telecommunications and many other services.

Another dimension of anxiety about energy supply security relates to threats to macroeconomic stability. In particular, it is well-established that energy supply disruptions have substantial macroeconomic impacts that are not reflected in market prices, creating a role for policy.

APERC—We seem to hear much more about energy supply security than, for example, food supply security. Why do you think energy supply security appears to be of more concern to governments than security of supply of other essential commodities?

Dr Hartley—Although both food and energy are essential commodities, there are many different types of food sourced from many different locations, while most foods have close substitutes. By contrast, refineries, (*next page*)

Dr Peter Hartley

In the late 1980s and early 1990s, he helped advise the Victorian Opposition and later State Government on their acclaimed privatisation and reform of the electricity supply industry in that state.

Peter's research and publications have covered a number of areas of economics. He has worked on energy economics issues for more than 35 years, and over the last 15 years he has focused solely on energy economics and policy.

Photo and Photo Story



Dr Peter Hartley during the APERC Annual Conference held in Tokyo from 30-31 May 2018.

He joined other speakers who gave comment on possible scenarios to examine in the 8th Edition of the Outlook in order to continue to further improve the relevance of this research project.

Photo courtesy of OGSI Secretariat



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power plants, industrial machinery, transportation vehicles and so on, typically are “tuned” to take one type of fuel or energy source. In the short run, fuel use can only be reduced by operating the energy-using equipment for fewer hours, which also means less useful output is produced. The elasticity of energy demand thus is very low in the short run. Any restriction in supply therefore leads to large price increases.

Another implication of very low elasticity of demand is that the total value of energy is extremely large even if the marginal value under normal conditions is relatively small. As we noted above, energy is an essential input in a modern economy. In consequence, a restriction in supply produces very large welfare losses.

APERC—Can energy supply security be achieved simply by diversifying sources of supply of energy commodities or is there more to it than that?

Dr Hartley—Since the oil market is global in scope and well-arbitraged, increasing the supply from more stable locations helps all oil consumers. Nevertheless, diversifying sources of supply geographically can make any one importer less vulnerable to disruptions along particular shipping lanes. Oil importers can also increase their own security by facilitating fuel switching and ensuring that different fuels come from different locations. A current example involves displacing internal combustion engine vehicles by electric ones. Since electricity can be generated from many fuels so long as the relevant generating plants are installed, electric vehicles can dramatically increase the “fuel-switching” capability of the transportation fleet.

LNG is more expensive to transport than oil, and substantial costs of liquefaction and regasification produce gaps between domestic natural gas and international LNG prices. Global natural gas markets thus are less well-arbitraged than the oil market. There are therefore also greater returns to forming long-term trading partnerships. Supply security can then be increased by ensuring partners

are more stable and reliable, and shipping routes are short and less vulnerable to disruption.

For both oil and natural gas, conducting international trade via pipeline may be less costly than using shipping. This is particularly so for natural gas where shipping requires first that LNG be produced. However, pipeline trades also pose increased energy security risks since they tie users more closely to one supplier.

Increasing energy efficiency, so less energy input is required to produce the same output, is another way of increasing security. Using more dense energy sources, nuclear power in particular, similarly raises energy security. Overall costs are more stable since fuel costs are a much smaller part of the total. Furthermore, uranium fuel prices are much more stable than oil or natural gas prices. We showed, in a study on the energy security value of nuclear power for Japan, that using more nuclear plants reduces the vulnerability of electricity prices to oil and gas supply disruptions, and therefore the macroeconomic effect of energy supply shocks in Japan.

In the case of electricity generation, energy security also depends on the vulnerability of the system to blackouts, frequency fluctuations and other variations in the quality of the power supply. In that regard, as many electricity systems are now discovering, increasing the fraction of power generated by non-dispatchable sources has also tended to reduce energy supply security.

APERC—What do you think are the main differences between Europe and the APEC region with regard to energy security issues?

Dr Hartley—One of the biggest differences between Europe and the APEC region is the size and speed of growth of demand in Asia versus stable to declining demand in the EU. This means that the APEC region still needs to focus much more on developing supply infrastructure for the future.

Another difference is that market institutions are more mature in the EU, political and legal (*next page*)

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institutions are more uniform, there are more inter-country physical trading links, and more cooperative mechanisms are in place. These factors can help raise energy security by facilitating exchange of energy between different countries and ensuring that supply goes to where its value is greatest.

Europe is also closer to more alternative sources of supply. On the other hand, Europe tends to rely more on pipeline trades versus shipping than the Asian countries and this can reduce energy security as discussed earlier.

APERC—On lighter side, as a Professor, which topics do you enjoy teaching the most?

Dr Hartley—Any topic that can make a “light bulb” go off in a student’s head! ■

“...pipeline trades also pose increased energy security risks since they tie users more closely to one supplier.”

Middle East Update •

Saudi Arabia May Not Increase Its Oil Production as US Expects

by Shigeto Kondo

The Trump administration—while pressing the international community, especially its Asian and European allies, not to buy Iranian oil after the announcement of withdrawal from the Iran nuclear deal on May 8—is now not only trying to neutralise the effect of this policy on the international oil market, but also is seeking to even decrease oil prices. The key country that can help this attempt is Saudi Arabia, a close ally of the United States in the Middle East.

It is true that Saudi Arabia showed subtle willingness to increase its oil production to some extent. For example, on July 3rd, the Saudi Cabinet chaired by King Salman, reiterated its readiness to tap its spare oil production capacity. This decision resonated President Trump’s earlier tweet that the Saudi King had agreed to increase oil production “maybe up to 2,000,000 barrels,” after his conversation with the King. Although Saudi Arabia apparently demonstrated a cooperative attitude towards the United States, it does not seem to accept Trump’s request in full-scale and the figures should be taken with a pinch of salt.

“...it does not seem to accept Trump’s request in full-scale...”

Saudi Arabia still has not revoked the pact among OPEC and non-OPEC states of December 2016 in which the oil producers pledged to decrease oil productions in order to sustain oil prices. The reason behind this is that, Saudi Arabia has been facing strong opposition to such an act from other OPEC states like Iran, Iraq, Algeria, and Venezuela, which desperately need to improve their fiscal conditions. Therefore, it is likely that the Kingdom will only be increasing its oil production to fill a possible supply-demand gap caused by decrease in Iranian oil exports. A modest increase of oil production by Riyadh may not fully satisfy President Trump’s desire to lower oil prices ahead of mid-term elections, but may satisfy demands of oil consumers in the Asia and Pacific region that seek to alleviate the impact of US sanctions on Iran.

Can LNG Breakbulk Improve the Gas Demand in Asia?

by

Muhamad Izham Abd. Shukor and Diego Rivera Rivota

As Liquefied Natural Gas (LNG) markets are expected to remain oversupplied until at least 2023 globally, many LNG supply companies have recently been looking for alternatives to diversify their product and enter new markets. For example, Malaysian energy giant Petronas published plans to offer shorter-term LNG contracts and smaller cargo sizes to supply new markets (Reuters, 2017).

In doing so, Petronas successfully delivered its first LNG ship-to-ship breakbulk¹ LNG transfer in June 2018. This may be attractive to buyers in the Asia Pacific region that would prefer to develop their LNG infrastructure gradually, by importing smaller parcels of natural gas and moving away from the traditional model of large, long-term supplies over a specific term (SMN, 2018).

Small-scale LNG projects and LNG breakbulk technology go hand in hand as both need smaller ships and terminals. This development should be able to bring many benefits to the gas industry, such as:

- ◆ Less expensive infrastructure development, the development of Floating Storage Regasification Unit (FSRU) infrastructure is less costly and faster than building conventional regasification plants and transmission pipelines with faraway production centres.
- ◆ Wider gas distribution, where gas can be distributed to remote areas that are far from gas pipelines or production facilities. This is especially true in Southeast Asian economies, where transmission gas pipelines networks are not widely developed. Additionally, geographic and social conditions may pose challenging conditions for their development.
- ◆ Increased terminal flexibility. Smaller ships mean shorter unloading time for terminals, and this may allow for more ships to supply LNG to different buyers (assuming a third-party access mechanism exists). This, coupled with FSRU technology, where the terminal is “moveable”, can

create highly flexible supply options for buyers. Moreover, new consumers may want to buy LNG in smaller quantities in their first cargoes, LNG breakbulk technology is a more flexible and adaptable alternative for these cases.

- ◆ Competitive alternative for power generation, LNG breakbulk and other small-scale LNG projects offer an alternative for developing more efficient power generation facilities (gas-to-power) in areas without sophisticated gas transmission systems. This can provide some economies with cleaner and overall less-costly power generation than with oil and coal.
- ◆ Higher liquidity in regional gas and LNG markets. As the LNG market becomes more liquid, LNG breakbulk provides opportunities for buyers for more flexible operation. At the same time, small but frequent LNG trade can bring better market liquidity.
- ◆ Improve gas supply security. LNG breakbulk can help to improve supply security, especially during supply disruptions caused by natural disasters or technical failures due to shorter unloading time and higher flexibility.
- ◆ Expand gas usage in other demand sectors such as transport. LNG breakbulk also provides opportunities for the transport sector, especially for LNG-fuelled ships which grew by more than 23% from 2016 to 2017. LNG may also be a competitive fuel for heavy-duty trucks in coming years (LNG World Shipping, 2017).

Recently, Indonesia announced the construction of a 40 MW gas power plant that will replace an oil-fired power plant. This oil-to-gas transition is expected to reduce fuel costs by 38%. Additionally, an LNG regasification terminal, which can be fed by small LNG vessels, is expected to be built to supply the gas needed for the power plant. (ESDM, 2018). This project exemplifies that small LNG is projected to thrive in the future, where LNG breakbulk can be a key alternative in meeting small-scale gas demand.

¹While this is a popular term in crude oil and oil products sales and transportation, it is relatively new in LNG markets. It basically consists of decomposing a single, large cargo into a number of smaller cargo lots by transferring a cargo from one vessel to another smaller vessel.

Upcoming Event •

LNG Producer-Consumer Conference 2018

The Ministry of Economy, Trade and Industry (METI) is pleased to announce that the 7th LNG Producer-Consumer Conference will be held on Monday, 22 October 2018 in Nagoya, jointly hosted by the Asia Pacific Energy Research Centre (APERC). The conference will provide the participants including ministers, heads of international organisations, corporate executives, and other stakeholders with a venue for sharing the latest trends in the global liquefied natural gas (LNG) market and discussing opportunities and challenges with a view to developing the global LNG market.

For more information please contact the Secretariat at Ingreg@convention.co.jp.

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The Asia Pacific Energy Research Centre (APERC) was established in July 1996 in Tokyo following the directive of APEC Economic Leaders in the Osaka Action Agenda. The primary objective of APERC is to conduct researches to foster understanding among APEC members of regional energy outlook, market developments and policy.

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