

China – The Role of Gas

An online panel event held on 3rd and 4th February 2021



A DATE WITH CHINA

“CHINA - Carbon Neutral by 2060: The Role of Gas”

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Time: 09.00-12.15 CET (both days)
4 online sessions...

- 1: Security of Supply**
- 2: Coal Phase-out**
- 3: Market Design**
- 4: Renewable Gases**

Co-Organiser:  **EU-CHINA ENERGY**
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Session Three: Competitive Markets

Participants

Ilaria Conti, Head of Gas, FLORENCE SCHOOL of REGULATION

Walter Boltz, Senior Advisor European Energy, Walter Boltz Consulting

Dr. Jinsok Sung, Expert, Asian Gas and LNG Market, RUSSIAN GAS SOCIETY

Oliver Koch, Acting Head of Unit, Internal Markets DG ENER

Moderator: Matthew James, Managing Director, ENERGY POST

Highlights

China and Europe are both headed in the same direction: to carbon neutral economies by 2060 and 2050, respectively. Gas will play a role in both transitions, although in different ways.

Europe's mature, competitive and liquid gas market is facing a gradual decline. It will likely help bridge the shift from coal-fired power to renewables, but recent policy decisions to end subsidies and priority status for fossil fuel infrastructure means the market will not grow much more. A carbon border

adjustment mechanism, due to be proposed in mid-2021, will aim to bring other countries in line with Europe's decarbonisation direction.

Gas in China and Asia, on the other hand, is expected to grow and replace the dominance of coal. This requires more gas infrastructure and market development, which means gas is likely to stick around for longer.

As large gas buyers, China and Europe have significant scope to cooperate, particularly in reducing emissions from LNG and setting principles for green gas, and sharing lessons on gas market developments.

Europe's net zero commitment

- The European Green Deal is a huge decarbonisation and industrialisation programme.
- This means the EU will stop subsidising fossil fuels and is discussing a taxonomy and labelling for gas.
- Some say Europe must skip gas and go straight to renewables, others say gas is needed as a bridge between coal and renewables.
- In China, air pollution was a driving factor.
- In Europe, public demand for green energy and climate action was a driver.
- The starting points are different, but there is scope to cooperate on decarbonisation, for example in hydrogen development and green gas integration.
- One of the fastest ways for China and Asia to decarbonise is to switch from coal to gas, including for heating and cooking where it's not widely used.
- Europe can continue to switch from coal to gas to decarbonise, along with electrification, renewables and hydrogen.
- Europe's gas infrastructure is already decades old and depreciating.
- China's infrastructure is new, so it will want to continue using it.
- Europe's gas demand is a mid-to-long term transition, it won't start immediately.
- The EU's energy system integration and the hydrogen strategies bring certainty: Europe is heading towards an integrated energy system with massive electrification and green gas.
- Modelling suggests a fully decarbonised European energy market in 2050 would not be much more expensive than it is today.
- The aim of the carbon border adjustment mechanism is to align worldwide decarbonisation, not impose a tax or barrier.

European and Chinese gas market characteristics

- Both gas markets are here to stay for the foreseeable future.
- Europe's is now around 400bcm and will decline gradually, China's is 300bcm and growing - potentially to 600bcm.
- There is therefore a need to make sure the markets function well for consumers.

- China's gas consumption has only jumped in the last 20 years - from 30bcm in 2001 to 50bcm in 2005 to 300bcm now.
- China's gas use will grow along with other energy sources to replace coal and reduce air pollution.
- The two could cooperate in decarbonising LNG - common standards, a virtual marketplace for decarbonised LNG, methane emissions monitoring and management, etc.
- In Europe we produce energy from renewables for 40-41% of the mix, in China it's 25%.
- China's coal demand accounts for half the global demand.
- Gas is less available in China and Asia than Europe. It's only recently become easier and a bit cheaper to buy LNG.
- They have common interests as large LNG buyers, and could for example set a common definition or standard for low-carbon gas.

China's gas market liberalisation

- China is at a different stage, it's only beginning to introduce third-party access and price regulation and they take time to develop.
- Unbundling is just beginning, with the creation of Pipe China and pilot gas exchanges.
- Pipe China will be able to improve gas infrastructure and transparency, allowing more access and increasing consumption.
- China has a massive infrastructure deficit.
- Neutral regulatory oversight and competition law are both needed to liberalise - as the European example shows.
- China is lacking in competition between LNG and pipeline imports compared to Europe.

Session Three Summary

Panel discussion



Matthew James (Moderator)
Managing Director, ENERGY POST

MJ: You cannot argue with what we've achieved here in Europe since the principle of unbundling became widespread more than two decades ago. There are more market participants than ever here in Europe, more liquidity, more predictability, a standard price on the TTF - a success on many levels. Under the April 2019 joint statement between Europe and China, we've agreed to cooperate on energy

matters in a joint effort to tackle global warming. So where do we stand when it comes to competitive markets?



Oliver Koch
Acting Head of Unit, Internal Markets DG ENER

OK: Of course, the entire discussion on gas markets in Europe and anywhere in the world is affected by climate change policies. There is no doubt that the Green Deal in the European context will have a massive impact on the gas economy. It's a huge decarbonisation programme for net zero by 2050, it's also an industrial growth programme, and both will have more impact than we would have thought five years ago.

In Europe, the context is clearly that there is a commitment to phase out gas and end subsidies for gas infrastructure. There are big discussions about taxonomy and labelling gas.

The question of how long gas will be used as a bridging fuel in Europe is quite contentious. Some say we should jump directly to renewables and flexible systems and forget about a slow phaseout with gas as a bridging fuel. Others say we need it and it's much better to work with gas than with coal.

What is important to our discussion - and it applies to Europe and to China - is that the gas markets are here to stay for more than the next decade. Europe's market is around 400bcm, China's is around 300bcm and supposed to grow to 600bcm in 10-15 years. It may not get to 600, but it is growing. This is a trillion-dollar market, and consumers will for the next 10-15 years have to pay a lot of money for either better or not-so-good gas markets.

So there's the need to organise these markets. Some say "let gas market prices go higher and then you will switch more easily to renewable technology". We don't buy this argument. We believe that even if there's a political will to phase out fossil gas more quickly, it is still not acceptable to work with uncompetitive, inefficient markets. We don't want consumer markets to go to companies and oligarchs that benefit from disorganised markets.

The same applies to the Chinese situation, where we have a better case to use gas more intensively given the enormous use of coal. China is at a different stage, there are steps towards price regulation and third-party access, but they take time. It has started unbundling, by creating a separate pipeline company and first pilots for gas exchange.

Europe can bring its experience to this growing market. We advocate for markets that reflect demand and supply and steer investment into infrastructure and production, but China is on a different path, with a massive infrastructure deficit.

Third-party access is not only an on-off question. Access entails strategies to prevent the grid from controlling access. Unbundling is a good first step, but it's also about transparency, gas quality, and thousands of other elements that make the process difficult. It's also a question of using competition law to open gas markets.

In Europe, a large part of liberalisation was a joint effort between competition enforcement and regulatory enforcement. In my view it is impossible to have liquid, effective gas markets without neutral regulatory oversight.

MJ: Ilaria, do you want to respond to some Oliver's points in terms of where the markets stand? Despite the role of gas, Oliver underlined the importance of having functioning markets and the difficulty of having third-party access, and the political and economic realities of markets.



Ilaria Conti
Head of Gas, FLORENCE SCHOOL of REGULATION

IC: China's announcement in September 2020 that it will reach carbon neutrality by 2060 was very important news, and it's good to see that there's at least a common target for Europe and China. We are in the same boat, a boat that needs to accelerate substantially to meet respective targets.

We probably arrived at these targets from different paths, but we can say. In China air pollution played an important role, in Europe it was more of a gradual demand from citizens for greener energy.

Europe's net zero commitment was made possible by the profound changes brought by market liberalisation. The power citizens have to choose energy suppliers is something that dates back to the first and second energy packages in the early 2000s.

We see profound differences between the Chinese and European energy mixes and potential. But they are going to face the same challenges, which means we can exchange views, information and best practices for addressing decarbonisation. It starts on a technical level - for example, hydrogen and the integration of green gas.

In Europe we're taking important decisions to phase out natural gas and fossil fuels in general, but I agree that the next decades will still see natural gas being used as a bridging fuel. At the same time it's extremely important to underline what renewable gas can contribute to decarbonisation.

Europe now has a robust regulatory framework. How can we use it to face the upcoming challenges? Do we have to change something, can we adapt, can we integrate new gases into the regulatory framework, or are there some limitations we have to address?

We have great experience and lessons learned in liberalising our markets, which would be helpful to China.

MJ: Jinsok, you have clearer insights into where we stand in China.



Jinsok Sung

Expert, Asian Gas and LNG Market, RUSSIAN GAS SOCIETY

JS: The clear difference between the European and Chinese markets is that the European market is a mature, fully-functioning market with a liquid hub. In China gas has been used for 50-60 years, but gas consumption has only sped up in the last 20 years. In 2001 gas consumption was less than 30bcm, now it's well over 300bcm, in 2005 it was around 50bcm.

In China, the government has a clear will to increase the share of gas in consumption to 15% of the mix by 2030, an addition of around 300bcm. The use of gas is not high in cities, so there's a lot of potential. It will not increase as fast as it did in the past 20 years, but there are efforts to integrate it into the energy mix, with a clear goal to improve air quality and lower the share of coal.

Along with other energy sources, gas will replace coal in order to improve air quality. And with market reform efforts and improving infrastructure in China, I see that gas consumption will increase. In China and Asia Pacific gas is just starting to be integrated as an important source for power generation and improving residential sector infrastructure.

The introduction of the state company Pipe China is a step towards liberalisation. It will administer gas pipeline infrastructure along with gas storage and LNG regas terminals. Pipe China has a chance to improve gas infrastructure in a way that increases consumption, and to increase transparency in order to let more participants take part in the upstream and downstream sectors.

This will increase competition, lower prices and ease access to gas infrastructure. And all of this will create more liberal markets and fairer prices, leading to bigger investment, higher investment, higher gas production, environmental benefits and successfully functioning liquid gas hubs like the TTF.

Europe can be a great example for China on how to create a liberalised gas market and have a successfully liquid gas hub.



Walter Boltz
Senior Advisor European Energy, Walter Boltz Consulting

WB: There are many similarities but also important differences between China and Europe. When we started Europe's liberalisation, we already had well-developed gas infrastructure. It was technically possible to transport gas pretty much across Europe with no technical limitations. Most of the limitations were that we didn't have the right regulations. We managed to overcome that over the last 20 years.

We have a lot of optionality and more or less anywhere in Europe can move a coal or diesel power plant to gas without a problem of getting gas there.

In China it should be a little bit easier to organise things from the central government perspective, because in Europe it's based on agreement between 27 countries.

Europe is a declining gas market, we no longer need new infrastructure. We will never have more gas than we've had in the last few years, and we have a very diversified supply.

China is a growing gas market, it has a much larger share of LNG, it needs substantial infrastructure, it has almost no household gas sector - and I would question if it makes sense to build a network for households in a country that wants to have removed natural gas from the market by 2060.

Still, there is a lot we can learn from each other. In Europe the focus is on decarbonisation and managing the gas decline, and some push into new sectors. We will try to replace gas with hydrogen or heat pumps in industrial and residential sectors, and look at new sectors like transport, land and maritime for gas, in order to decarbonise by replacing liquid fuels. And we will see a certain amount of coal-to-gas-switching, like in China.

One area where we have some experience is in managing markets, even if there is no physical connection or limited connection. China is lacking in the competition between LNG and pipeline gas that we have in Europe. European LNG import volumes go up and down depending on the global competitiveness of LNG. China is much more dependent on LNG than Europe. It should try to develop upstream competition between various suppliers of gas.

We could cooperate on decarbonising LNG - having common standards, having a virtual marketplace for decarbonised LNG, methane emissions monitoring and management, how methane is reflected in prices.

There are limits on what you can learn from neighbouring regions of the world because you have to adapt the framework to the local situation and there are differences between China and the EU.

MJ: The differences in the role of gas mean that there are critical differences in the regulatory frameworks, for example on taxonomy. Oliver, do you think this is manageable? In China gas is a great decarbonisation tool, there's clear growth on that horizon.

OK: The focus will be on regional development. Of course, we would love to see global initiatives, but it's not the main focus. UN climate discussions may shape the global discussion, but it will be marked by different approaches in different regions.

IC: It is about regions and historic and cultural backgrounds, and also about numbers and potential. In Europe we produce energy from renewables for 40-41% of the mix, in China it's 25%. China's coal demand accounts for half the global demand, whereas in Europe we've been gradually phasing it out since the 1990s.

Even in Europe, there is a discussion about the low-hanging fruits for decarbonisation, and the switch from coal to gas is one of them - and it should be, with such an ambitious target. Then there is electrification, increased renewable energy production and hydrogen, which has huge potential.

JS: In China and Asia, one of the fastest ways to reduce greenhouse gases is to replace coal with gas. In the long-term, the goal will be to use renewables. Meeting incremental energy needs only with renewables is difficult. Gas hasn't been used much for heating and cooking but it's one of the fastest ways to decarbonise.

But unlike in Europe, gas isn't always available in Asia. Countries rely on LNG, and there have only recently been big changes in the global LNG market that make it easier to buy gas and a bit cheaper. Infrastructure is developing at the same time.

All these factors contribute to the higher share of gas, and it will play an important role over the next 20 years in China together with renewables.

WB: Europe's gas infrastructure is ageing, and while we'll continue to use a large part of it for the next 20-30 years, a lot will retire. It hasn't completely depreciated, but some is already 40 years old.

In China a lot of the gas infrastructure is relatively young, so China will be interested in using gas for some time. So irrespective of policy decisions, it will probably be a gas user for quite some time. It would therefore be in China's interest to have a better working market and some competition between pipeline gas and LNG.

There are a few areas where China and Europe have some common interests. Except for Japan, they are among the two largest LNG importers. There are common interests - Europe is trying to abolish

destination clauses in contracts, as in pipeline gas contracts. They could have a common definition of low-carbon gas, maybe a common standard.

MJ: Gas projects in Europe won't get PCI status anymore, and taxonomy will classify green and brown projects. Oliver, can you explain what that means for coal regions like in Poland. If the idea is to leapfrog gas and go from coal to renewables in these regions, how will that work?

OK: The carbon price will give an additional push, as we've seen this year. The perspective in Europe is relatively clear - phase out coal and go from fossil gas to renewable gas as soon as possible. There are new regulatory regimes for getting CO2-free fuels into the market and abolishing any regulatory hurdles to deliver the fuels needed for 2050. That's the European strategy - a policy choice and an economic consequence.

Yes, the lock-in needs to be considered by any politician. But in Europe we've also seen new plans that were just not profitable anymore. We've seen a breathtaking decrease in solar and wind costs. Long-term contracts that lock-in technologies may not be able to react to such developments, and that's something China has to weigh.

There is no yes or no answer to whether gas is good or bad. That's why we are careful with long-term pipeline projects and how future-proof they may be.

MJ: The ETS has just begun in China, what effect does that have?

JS: The high cost of LNG in the Chinese power market, compared to other fuels, is an obstacle for gas to replace coal in power.

Carbon pricing helped the UK phase out coal and replace it with gas for power, and I believe that if the ETS works successfully in China it will bring down the cost of fuels and an environmental factor to enhance the competitiveness of gas against coal. This will help the coal-to-gas transition, where LNG is now deemed to be much more expensive.

Also in South Korea, the tax regime for coal and gas helped increase the share of gas for power generation.

MJ: Given the combination of the ETS, taxonomy issues and the decline of volumes, will prices in Europe decline, or go up?

IC: Europe's decline in gas demand is a mid-to-long term trend. Demand is probably going to be stable or slightly increase over the next few years and then steadily decline. What's important, and what was missing, is clear policy indication of where we want to go. Since last July, with the publication of the energy system integration strategy and the hydrogen strategy, we have much more certainty. We know

that we are heading towards an integrated energy system with massive electrification, and where we can't electrify we will have green gas. More and more clean molecules.

In Europe we're also discussing guarantees of origin to track the sustainability value of the gas we produce, which is not necessarily linked to origin or production but to abatement of CO2 emissions. The next step would be to look at all greenhouse gas emissions, not just CO2, to include methane too.

Q&A

Francois Issard asks: The push to phase out gas from the energy mix in Europe is excessively fast, people don't see the consequence on price and need to subsidise electricity. Most of the time we are talking about technology or technical aspects or policy, and not enough about the economics of energy.

WB: I think it's mostly an issue of the transition period. We've done some modelling on a fully decarbonised energy market in 2050, and while all those models have some question marks, it looks like the market wouldn't be much more expensive than it is today - plus or minus 20%, which is irrelevant because we see other fluctuations. The cost will not be a lot bigger, but there are smarter and better ways to get there and more expensive and silly ways to get there.

For example if we only use green hydrogen from tomorrow, no blue hydrogen, it will be more expensive. But the same argument could have been made of PVs 15-20 years ago - it's excessively expensive and a waste of money. Yes, it was expensive at the beginning, but today PV and wind are the cheapest ways to produce electricity, even with balancing costs.

The costs are an issue, but more for the transition and not in the long-run. And this is not even considering the climate effects of emissions.

Katrin Schwerin asks: What impact could the carbon border adjustment mechanism have on third countries like Switzerland and China?

OK: The purpose of the carbon border adjustment mechanism is not to create a barrier or lead to tax income. The purpose is to align worldwide decarbonisation. It leads to the harmonisation of policies, not a pure trade barrier.

In the gas market it will only be relevant if the choice is taxation of imported goods with a complicated calculation of the carbon content. If the carbon border adjustment is introduced in the field of electricity, we don't have a joint grid with China so I don't see the impact on China. These decisions have not been taken, we will make a proposal mid this year. The purpose would be to have emissions trading and other proof that we have a similar carbon policy.

C Ellinas asks: This discussion appears to ignore the eroding effect of energy security concerns in China. These have become top priority and limit LNG imports from the US and countries not considered to be friendly. This will constrain gas demand growth to LNG and pipeline from countries considered to be friendly.

WB: There are a number of exporting countries, like Nigeria, Australia and increasingly Algeria and the Arab peninsula, so I don't think relying on LNG causes a huge security of supply concern. If 50% of your LNG imports from one country it would make you dependent, but if it's managed properly it's a huge concern.

Guoyi Han asks: In the development of the gas market, or any market, we would normally want it to support the most efficient use of the resource. But in the energy transition we want the market to also play the role of phasing out the use of that resource, which is a different expectation for the role of the market. Does that imply different considerations for development of the gas market?

JS: An effective design of the market, effective distribution of sources and the right pricing are important for the development of the market and increase of consumption.

The creation of Pipe China, I believe, will lead to important changes in China because it will make it easier to use infrastructure, though it won't happen overnight. It will increase the number of participants in the market. Pipe China is already offering capacity of its regasification terminal with third-party access, for Chinese companies, Korean and international. It will help liberalise the market and make it more liquid. Before the introduction of Pipe China consumers found it difficult to access pipelines and infrastructure.

IC: It's an important dilemma, thinking about decarbonisation and phasing out gas. The key word is gradual. Even if we would like decarbonisation to happen now, a switch to electrification and renewables would be impossible, in Europe and China. Some sectors will need gas.

China and Europe are well placed as big importers of LNG to start investing and thinking about how to decarbonise LNG. The technology is not there yet, there are some proposals.

Tibor Nemeth asks: China has less storage and higher regas utilisation rates, could this hinder liberalisation?

WB: Obviously storage is an issue, but there are a number of gas markets globally that have much lower shares of the total gas consumption than Europe. Building storage tanks for LNG could solve some of the storage problems, I don't see it as a factor if properly considered.

IC: Repurposing LNG terminals is probably one of the next things to be explored. Chenier projects that still in 2040 about 70% of total LNG will go towards Asia - that's a huge figure, it cannot be neglected in China's next policy.

JS: Gas market hubs have been established in China, but the lack of infrastructure, especially pipelines, has hindered hubs. The lack of connections between regions hinders trading. Improved pipelines and storage will help not only gas consumption but the development of gas hubs.

Asia will be the driver of gas market consumption, and with its experience in the past 60 years successfully achieving a fully functioning and liquid gas market, Europe will be a great example for China and other Asian countries.

OK: A working market is well interconnected. Exchange between regions performs the function of storage, but it needs to be very liquid.

There's an undisputable case for continuing regulatory cooperation. The only advice I would have for Chinese players is to factor in change. If we introduce TPA, let's already think about decarbonised gas in China.

Summary compiled by [Sara Stefanini](#)

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