

The Future of Energy Derivatives in China – 5 years on

By Philip R. Walsh*

In the first quarter 2010 issue of the IAEE Forum I wrote about the future of energy derivatives in China. At that time there were plans for the introduction of a crude oil futures trading contract which would have been the second of its kind in China, the first being a fuel oil future contract that began trading on the Shanghai Futures Exchange (SHFE) in 2004. This raised the question of whether or not China would experience the development of multi-product energy derivatives at the domestic level or would regulatory controls and state-owned energy monopolies limit the success or even deter altogether the creation of futures markets in China? Five years on it is worth looking at the current state of energy derivatives in China's domestic energy sectors to shine some light on the answer to that question. I will not get into the history of energy derivatives development or the role that energy derivatives trading can take in China as one can go back and read my article in 2010 to get that background. Instead I will focus on the developments, or lack thereof, that have occurred since 2010 in derivative trading related to crude oil, fuel oil and gasoline, natural gas, coal and electricity.

Energy Derivatives in China from 2010 to 2015

Fuel oil derivatives remain the longest active energy derivative instrument in China. Established in 2004 this futures contract reached a point in 2009 where fuel oil trading on the Shanghai Futures Exchange (SFE) was almost five times that of heating oil futures being traded on the New York Mercantile Exchange (NYMEX). However, in the past five years the volume of trading in fuel oil futures on the SFE has dropped substantially. For example, the September 2009 Fuel Oil Futures contract volume was over 5.7 million trading lots (a trading lot is equal to 50 tons of fuel oil) while the September 2015 Fuel Oil Futures contract traded less than 1800 lots during its trading term. This decline can be attributed in part to economic conditions, a consumption tax on fuel oil that saw a shift to natural gas use in electricity generation and physical competition for feedstock by lower cost petroleum bitumen blends. Interestingly, bitumen futures were introduced in 2013 and in its early history have proven to be quite active. As a comparison, the September 2015 bitumen futures contract volume exceeded 4.6 million trading lots (a trading lot for bitumen is equal to 10 tons). Once the darling of domestic energy derivatives trading in China, fuel oil has, in recent times, appeared to have lost much of its luster.

In 2010 it was thought that the introduction of crude oil derivatives was imminent. In 2015, announcements have been made that crude oil futures will be traded through the Shanghai International Energy Exchange, referred to as the INE. The INE was introduced earlier in 2015 as part of the China (Shanghai) Pilot Free Trade Zone (Shanghai FTZ) and has since been approved by the China Securities Regulatory Commission (CSRC) as an exchange for the operating and trading of crude oil futures. In addition, the trading of these contracts will be the first Chinese commodity market to be completely open to foreign investors. One of the aims of the INE is to establish a crude oil futures contract that will provide a local benchmark. The Dubai Mercantile Exchange (DME) crude futures contract has been used as a proxy for Asian crude but is seen to be relatively illiquid. A INE traded crude oil futures contract is also seen as a future competitor to the more globally referenced Nymex or Brent crude futures contracts. However, there remain some concerns regarding the launching of this derivative product including the fact it will be priced in the local currency when traditionally, crude oil futures contracts have been priced in \$US. This adds complexity to investing in the product as risk is seen to exist in both the commodity and the currency. In addition, foreign investment may be wary of the impact the major state-owned oil companies might have in influencing this futures market especially given the fact that China remains the world's largest user of oil and that government regulatory policy regarding domestic energy pricing remains uncertain, especially in light of the recent economic turmoil. This latter issue also raises concerns about the ability for domestic investors to add liquidity to a domestic crude futures market. At this time, a formal announcement is pending regarding the approval of a domestic futures contract.

As for natural gas, in 2013 China began pricing domestic production by indexing it to oil and liquefied natural gas (LNG). This pricing control has impacted approximately 60 percent of the natural gas sold in China. Market-oriented pricing remains available to LNG, offshore natural gas and non-conventional sources such as coalbed methane and shale gas. In an attempt to test the potential for providing spot trading options for natural gas within the domestic natural gas market the government opened the Shanghai Petroleum and Gas Exchange (SHPGX) in July of this year for a two month trial period. Registered in Shanghai FTZ, this exchange was formed to promote the trading of both conventional pipeline natural

gas and LNG. There are ten shareholders involved in SHPGX with the largest holding belonging to the state-owned Xinhua News Agency at 33 percent. China's three largest oil and gas producers each own ten percent. The operations of SHPGX are overseen by the government economic planning agency, The National Development and Reform Commission, and the National Energy Admin-

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istration. Both domestic and foreign parties can become member dealers in the exchange and can trade natural gas at a listed price or through a bidding process. Presently only spot trading of natural gas is undertaken with no indications at this stage that a domestic natural gas futures contract will be developed. While the SHPGX represents an optimistic first step to natural gas derivative trading in China, the state ownership and its large contribution to the overall natural gas supply mix, as well as the current regulatory oversight of pricing, limits the likelihood of any near-term development of such a contract.

Of all of China's energy sources, coal has proven to be the one commodity that has seen a move over the past five years to establish futures markets. China is the world's largest consumer of thermal and coking coal. The Zhengzhou Commodity Exchange (ZCE) introduced China's first thermal coal futures contract trading in 2013. During its first year of trading China's large coal companies increasingly began using coal futures to hedge against the declining price for thermal coal. Since its inception to the end of 2014 the exchange has traded approximately 20 million contracts (200 tons per lot priced in Yuan). Earlier in 2013 the Dalian Commodities Exchange (DCE) began trading coking coal futures following up on its launch in 2011 of a coke futures contract. The introduction of derivatives trading in coal is relatively new and indications are that it may provide some help in managing risk for China's coal industry but it is early days yet and the long term sustainability of this derivative instrument remains to be seen.

For the electricity sector in China, there have recently been some announced changes that impact the potential development of an electricity derivatives market. In March of this year, the Chinese government announced changes to the electricity market that will encourage competitive energy pricing and reduce the government monopoly on power generation, transmission and distribution. At present, three companies manage the national system operations, transmission, distribution and sale of electricity. The most prominent is State Grid Corp. with control of approximately 80 percent of the electricity transactions occurring in the country. In the generation of electricity, there are five major generation companies producing about half of China's power. Electricity prices in China are fixed by the government and generating facilities provide electricity when directed to by the government. While these proposed reforms will increase competition in power generation and retail distribution, transmission will remain a utility function of the state-owned transmission companies who will be charging rates for transmission. These reforms all set the stage for the establishment of an electricity trading platform whereby generators can arrange to market electricity directly to customers at negotiated market rates. Furthermore, the government has indicated its willingness to study the potential for electricity futures and derivatives but it seems that it will be at some undefined future point in time.

So five years later are we any clearer in dealing with the question asked at the beginning of this article? Well, some aspects of energy derivative development appear clearer than others. For one thing, there has been legitimate intent on the part of the Chinese government to reform the energy sector including reducing, to some degree, the level of control of state-owned energy monopolies. In addition, some real and proposed movement has taken place in establishing energy exchange and trading platforms involving energy derivatives (albeit in a somewhat disparate way in terms of which energy source). What is also clear is that the Chinese government appears intent on using the Shanghai FTZ as the home for all energy trading including derivatives that would involve unrestricted foreign investment. What is unclear is the length of time involved in developing these platforms across the various forms of energy currently being produced and consumed in China or the extent to which the government will perform its regulatory function. It would appear that the government recognizes the need to provide ways to make energy transaction pricing more transparent and competitive but only in a way that doesn't benefit market makers at the expense of local consumers. How they handle this balancing act will ultimately determine the level of energy derivative activity in China.

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Portuguese Affiliate Formed

The Portuguese Association for Energy Economics (Associação Portuguesa de Economia da Energia — APEEN) was established on May 18, 2015 laying the foundations of a new IAEE Affiliate. On this occasion, the ME³ Meeting on Energy and Environmental Economics was also organized at the University of Aveiro gathering together energy professionals, academicians, students and government representatives. Contributed sessions of the conference were held on the topics of Renewable Energy; Environmental Impact and Energy Policy; Energy, Allowances and Environmental Policy; Energy and the Macroeconomy. At the conference, IAEE was introduced by President-Elect Gürkan Kumbaroğlu who also delivered a keynote speech on the geopolitics and economics of natural gas supply in the region. At the conference, APEEN's founding members held a meeting approving the Association by-laws. The inaugural meeting was followed by a reception with APEEN President Jorge Vasconcelos and IAEE President-Elect Gürkan Kumbaroğlu addressing the invitees and welcoming the foundation of APEEN. APEEN's Founding President is Jorge Vasconcelos, and its Vice Presidents are Isabel Soares, Jorge Sousa, Julia Seixas, Maria Jose Clara, Carlos Costa Pina, Pedro Neves Ferreira, Gabriela Prata Dias, Antonio Cardoso Marques, Ligia Pinto, Patricia Silva and Margarita Robaina. Marta Ferreira Dias is the Secretary and Mara Madaleno the treasurer.



Below is the release carried in the Portuguese press relating to the Affiliate's formation.

PRESS RELEASE

Iberia can become a regional gas hub with American shale gas

Iberia, the west gate of Europe, may increase its importance in parallel with developments in the United States' energy sector.

Prof. Gürkan Kumbaroğlu, President-Elect of IAEE, mentioned the significance of the Iberian Peninsula in his keynote speech at the energy economics conference held at Aveiro University organized parallel to the inaugural meeting on the establishment of the Portuguese Association for Energy Economics.

Kumbaroğlu highlighted the importance of two territories for Europe's energy supply security, one of them being Turkey on the east end, and the other being Portugal on the west end. He said:

“Rapid developments worldwide increase the importance of energy more significantly today than yesterday. Diversification of supply and competition in energy are most important issues for Europe to secure affordable and reliable energy supply. Recent developments on shale gas extraction in the US will affect the trade balances. The energy importance of U.S.A. for the world markets is increasing day after day as first gas exports in the form of LNG are expected to start soon. In this case, the Iberian Peninsula can become a new energy gate for Europe. Namely, energy can become a significant revenue item for Turkey in the east and for Portugal and Spain on the Iberian Peninsula.”

Kumbaroğlu, who indicated the strategic importance of the countries on the Iberian Peninsula, said “The establishment of the Portuguese Association for Energy Economics in Aveiro, a prospective new Affiliate of IAEE, marks a benchmark for the creation of energy economic awareness, networking and interaction in the territory. It is a great advantage that the founding members involved in this formation are outstanding names from all different backgrounds of the energy sector in Portugal.”

Kumbaroğlu indicated that the IAEE recognizes the importance of the Iberian Peninsula and said “we participated in the creation activities of the Energy Saving Portuguese Association (APEEN) where the foundation for the Portuguese Affiliate of IAEE will be launched.”

IAEE will provide an interdisciplinary forum for members from Portugal through the Portuguese Association for Energy Economics, an upcoming IAEE Affiliate, featuring the exchange of ideas and experiences about the energy industry worldwide. Important names from the Portuguese energy world including Jorge Vasconcelos, Isabel Soares, Jorge Sousa, Marta Ferreira Dias, Mara Madaleno and Margarita Robaina lay the foundations of a successful start.

For a press releases in Portuguese please visit http://www.iaee.org/documents/pr_Portugal014.pdf