K4K Food4Thought:

Need to renegotiate LNG TOP levels: logic behind and potential solution for the poor profitability of the Singapore gencos

Singaporean power companies are currently suffering. The underlying causes that explain lower margins arise from two main afflictions: excess supply of generating capacity and over-contracting of natural gas. It is easier to track the oversupply of capacity. Current installed capacity is running more than 80% above the annual peak demand. However, a significant amount of this is comprised of fuel oil-fired steam units operated by Senoko, Seraya and Tuas which rarely run. These incumbents have been loath to mothball or shut them due to the mechanism that allocates Vesting Contracts ("VCs"): the non-LNG vesting quantities are allocated according to the available capacity of the eligible gencos.

This contrasts with the LNG vesting quantities which are allocated to selected gencos in line with predetermined contracted quantities of LNG due to be supplied until at least 2023. Note that when the EMA awarded LNG vesting quantities, it encouraged the gencos to follow this up with the deployment of new capacity. This was exasperated by the parallel deployment of new capacity by what is now PacificLight Power ("PLP") and Hyflux's Tuaspring.

However, we have reason to believe that the steam units operated by Senoko, Seraya and Tuas will be removed within the next few years since the EMA has agreed with its consultants that non-LNG vesting should be stopped given the competitive state of the market. Without the logic of non-LNG vesting allocation, the gencos will be able reduce their costs by mothballing these units and taking out of the market.

Will their closure be enough to secure a recovery in margins? The EMA's latest Singapore Electricity Market Outlook 2017[1] predicts that the reserve margins will drop closer to 45% by 2020. Historically these levels have been associated with higher margins but this still leaves the unresolved problem of oversupply of natural gas.

Historically, Singapore has been supplied gas by pipeline from Malaysia and Indonesia. The smaller quantities from Malaysia are due to expire as early as 2018. Supplies from West Natuna and Sumatra will continue until 2023. There is no annual Take Or Pay ("TOP") obligation on these but there is a defined Total Contracted Quantity ("TCQ") and ~90% TOP obligation on this over the lifetime of the contracts. Those gencos that are supplied from with this Piped Natural Gas ("PNG") include Senoko, Seraya, Tuas, SembCorp, and Keppel. The hydrocarbon price for PNG is indexed to the price of Singapore Residual Fuel Oil 180 cst ("HSFO") in a closer-to-linear relationship.

1 https://www.ema.gov.sg/cmsmedia/Singapore%20Electricity%20Market%20Outlook%20%23final%20v2.pdf.

K4K Training & Advisory S.L.
Avenida de Machupichu 39B, Apto 4-19
28043 Madrid

Tel: +34 606 235149
E-mail: kim.keats@K4Kadvisory.com
Web: www.K4Kadvisory.com

Registered in Spain, CIF: B86100039

Singapore started importing LNG in 2013 under an aggregator model with BG as the sole licenced importer. BG was allowed to source the LNG from anywhere. The delivered hydrocarbon price to the gencos was determined using a typical LNG "S-curve" linked to the price of Brent crude. Initial Annual Contracted Quantities ("ACQs") and annual TOPs (thought to be some 90%) were linked to the LNG vesting allocation accounting for some 1.2mtpa. However, with PLP and Tuaspring being solely dependent on LNG and increases in the amount of LNG procured by some of the other gencos has taken the sum of ACQs above 2mtpa. There is very little flexibility on the TOP constraints; gencos can contract with BG to divert contracted cargoes but at a cost that includes an SGD/MMBTU administrative charge plus a make-good factor that compensates BG for the difference between the resale price secured by BG and the original contract price. With low spot prices in Asia Pacific, the incentive to divert is quite low at the moment which explains why gencos are operating their CCGTs as if they are on a must run (aka burn) regime.

A review of electricity spot prices, HSFO and Brent prices indicates that electricity spot prices are being driven by the price of PNG. (Spark spreads on PNG are close to zero but strongly negative for those using LNG.) The only rational explanation is that price-setting gencos are acting as if PNG were the marginal fuel supply into the Singaporean electricity sector. That is, PNG answers the following question: if demand were to rise by one unit, what fuel would those gencos use to meet that requirement? This is despite the fact that LNG is more expensive. One would usually have expected the cheaper fuel to be used first and then if LNG were used, that this would be the marginal fuel. However, the market evidence suggests that that the LNG being consumed is fully contracted under TOP obligations.

There is therefore one logical hypothesis that explains the current situation. When the LNG contracts were being originally formulated, annual electricity demand growth forecasts were higher. So when one assessed the gas requirements for Singapore until 2023, electricity demand would be high enough to conclude that all the PNG under contract would be used up by 2023. It therefore made sense to contract for LNG and LNG would be expected to be the marginal fuel for power generation. But LNG was contracted on a firm basis with high levels of TOP so when electricity demand forecasts were subsequently revised downwards, the sum of TOP on both PNG and LNG came to exceed total amount of gas required in Singapore until 2023. Note that it is hard to prove this hypothesis since the gas contract information (for PNG and LNG) is confidential. However, it is hard to think of any other set of events that can explain current market behaviour.

The current difficulties are particularly acute for PLP and Tuaspring especially since they pay more for LNG than they can sell it for as electricity in the spot market. To make matters worse, they have to deal with TOP constraints. As a result, their owners have tried to exit. The owners of PLP tried in 2016 but could not find any buyer and Hyflux is also looking to sell Tuaspring. (Hyflux has got into the habit of presenting corporate results "excluding Tuaspring" since it has such a detrimental impact on the Hyflux as a group.) But they are not alone: any of the other gencos that contract for LNG above their LNG vesting levels will be regretting that decision.

If my hypothesis is correct there is an obvious solution: reduce the LNG TOP obligations. The challenge is that there is no obvious route to achieve this. Unlike in other jurisdictions, gencos LNG contracts do not appear to have reopener clauses. If they did, we would surely have heard about this already! Instead we hear rumours that gencos engaged in "bilateral discussions" with BG securing changes in the LNG "S-curve" parameters (resulting in lower prices) and the "pushing back" of TOP amounts by extending the contract lifetime beyond 2023. The evidence to date is that these efforts have not achieved any significant changes in market dynamics.

Whilst the financial problems persist, some gencos are in danger of being taken over by their lenders. Is “Singapore Inc” willing to live with this? It is suggested that the EMA will do nothing about this since the current situation results in lower prices for consumers. But social welfare is defined as the sum of Consumer Surplus AND Producer Surplus. A system that is sustained by the transfer of wealth from one group to the detriment of the other is not sustainable especially given the fact that the EMA is not blameless (remember capacity expansion linked to LNG vesting).

What could a “global solution” look like? Open renegotiations with BG (now Shell since their merger). Ask for a reduction in prices and a reduction in the level of aggregate TOP. From a Singapore Inc perspective, work the pricing angle hardest but what is really required is a return to economic sanity: LNG, as the more expensive fuel, should return to its rightful position in the fuel supply curve, i.e. after PNG. That will make LNG the marginal fuel into Singapore. This will offer a lifeline to PLP and Tuaspring and why not? This will ensure that their new and therefore more efficient machines achieve higher levels of utilisation over the older CCGT of the other gencos. Singapore Inc will end up using less gas and paying less for gas overall! Savings can rightfully be shared between producers and consumers of electricity.

How do we make this come about? That is the next question…

Mr. Kim Keats

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