Questions regarding the Australian gas crisis

November, 2017

Q: The government says gas shortages on the Australian East coast will be considerably higher than estimated in early 2017. Shortages could reach 110PJ/year over the next two years. How realistic are the government forecasts? Is there really a gas crisis and how can it be solved?

A: On this day, the demand for natural gas in southeast Australia was 1,123 TJ: 21 TJ in the ACT, 199 TJ in Adelaide, 167 TJ in Sydney, 554 TJ in Victoria, 97 TJ in Brisbane, and 85 TJ in Mount Isa.

On the same day, Curtis Island received 3,707 TJ, and Gladstone 136 TJ, which means that 3,843 TJ were processed into LNG for exports.

Total demand was therefore 4,966 TJ.

Longford produced 1,045 TJ. Port Campbell 150 TJ. Moomba produced 222 TJ. The balance 3,549 TJ came from the coal seam gas fields of Queensland.

A shortage of 110 PJ (which is 110,000 TJ) per year would mean an average 300 TJ per day. That's 27% of current consumption, but only 6% of current production. Whether the 27% shortage comes from increased consumption or from decreased deliveries is not clear.

The above figures would not match exactly, since it takes time for natural gas to get from production to consumption, sometimes days.

As regards the gas crisis, see below.

Q: Why is there a gas crisis? Because producers appear to be prioritizing gas for export, rather than local needs, resulting in overinflated prices and a potential supply shortfall?

A: Since first reported a few years ago, the crisis has been difficult to comprehend. I don't think the crisis, which is mostly a price issue, has much to do with any possible shortage.

To take just one example, in the third quarter of 2017 Santos reported having sold its LNG for an average US$7.50 per MMBTU (US$7.11 per GJ), while it sold its domestic pipeline gas for US$4.56 per GJ.

Considering that LNG processing consumes at least 15% of the gas it receives for energy, the commercial margin left for operations and financial costs related to LNG plant capital expenditure would be US$1.48 per GJ, which is realistic. In other words, if domestic gas were sold at a US$1.48 premium over pipeline gas, the plants owners could pay for all their expenses even while keeping their plants idle.

On the other hand, the public is complaining about rising energy prices, which were recently reported to be US$0.40 per kWh of electricity. That's US$111.11 per GJ or electricity, perhaps US$50 per GJ for the natural gas used to generate electricity in a modern combined cycle power plant.

Victoria manufacturers were complaining recently about gas prices reaching $US15 per GJ. How does pipeline gas which producers sell for US$4.56 end up being offered to manufacturers at US$15, and through an electric power plant at US$50? Where does the US$10 or so difference for industrial gas go to, a 230% mark-up? From production to consumption, the intermediaries seem to be only the pipeline operator and the distributor, plus of course the government and the taxes it levies. Very likely, these intermediaries retain the mark-up and blame potential LNG production related shortages for it.

Q: Will LNG producers in Gladstone be forced to direct gas away from export contracts into the domestic market?

A: Gladstone LNG producers would not be forced to direct gas elsewhere, the CSG (coal seam gas) producers would. These get probably not far from US$4.56 per GJ for it. The issue would be the US$1.48 that LNG producers need to pay for their LNG plants, but, even in the extraordinary case that all LNG production dropped to zero, the overall cost could not exceed US$6, except for price manipulation by pipeline operators and distributors.

Any policy aimed at forcing producers to reserve part of their production for the domestic market at a lower price, as is currently done in Western Australia, would be tantamount to a government subsidy, since taxes, fees, and dues paid to the government are in proportion to the sales price and a lower sales price would entail a reduced tax revenue.

The real issue is rather about whether a supplier of any goods or services in Australia is allowed to refuse a sale to a particular group of buyers (in this instance the domestic market), in order to favor another group of buyers (in this instance the export market), if both groups are prepared to pay the exact same price for the goods or services. The practice would seem unfair but is possibly legal in Australia. This is the real issue at hand.

Q: The gas supply shortfall could be up to 17% of demand by 2018 in the East Coast markets. Investors are circling the Australian gas market as majors downsize. Does the volatility create an attractive environment for traders and investors? Are there opportunities in the uncertain environment?

A: There can hardly be a shortage of a commodity if at the same time there is a glut. 17 % of demand is between 150 and 200 TJ per day. That's less than 4% of overall production. All that is required would be for consumers to be willing to absorb a maximum premium of US$1.48 per GJ, in the case pipeline operators and distributors refused to reduce their US$10 mark-up.

Q: Which companies stand to gain from the looming gas shortage? For instance, Blue Energy seems well placed.

A: There is no, and cannot be, a looming gas shortage, except for market manipulation by pipeline operators and energy distributors, who, by the way, I don't think actively try to manipulate the market, but rather surf the scare wave, since it serves them well.

Q: From a broader perspective, would you agree that the energy crisis underscores the apparent lack of a coherent national vision or strategy for the supply of reliable, secure, on-demand energy to Australian industries, homes, mining operations, or trucking fleet? How would you describe Australia's energy policy?

A: In economic matters, the best governmental policy is always no policy. Governments don't know the nature of tomorrow, and letting them freeze the future without knowing what it will be made of is always dangerous. Imagine if governments had tried to devise communication policies twenty-five years ago: could anyone predict the future of computing, the advent of the smart phone, ubiquitous wireless connectivity, the social websites, and so forth, *ad nauseam*? The carbon scare has encouraged solar and wind energy, while making the financing of coal fired plants maintenance ever more difficult. As a result, some coal fired power plants have become obsolete, such as in the Hunter Valley. A recent SMH paper complained about Australian electricity being one of the most expensive in the world, comparable to Denmark's. It is worthwhile noting that Denmark has the world's highest percentage of wind energy in her mix, and that the real cost of solar and wind energy is close to US$1 per kWh, as opposed to between US$0.05 and US$0.10 for coal and natural gas. The culprit for high electricity costs is not coal, and it is not natural gas. It is solar and wind energy. It is the prerogative of the public to choose whatever energy source they wish, but the high cost of eliminating carbon release has to be acknowledged, and paid for.

It seems Australia and Denmark are the first to experience the financial cost it would take to reduce carbon emissions, but also the danger of devising future policies based on today's data and knowledge.

Q: On the premise that there is a need to cut emissions of carbon dioxide, policy makers have encouraged the installation of large-scale wind and solar generation capacity. How does gas stand to benefit from the rise of renewable energy?

A: Gas energy is 5% of the cost of solar and wind. Gas and coal have a great future, except if barred from competing for reasons other than cost and practicability.

Q: LNG imports

A: For the soon to be largest LNG exporter on the planet, the idea of importing LNG would seem like a scam to benefit trading and shipping.

Q: On 30 October, the government announced the West-East Australian gas pipeline concept has entered the pre-feasibility study stage. Does this make LNG imports seem sensible?

> A: LNG imports are quite unlikely any time soon. As for the West-East pipeline, as much as pipeline builders would welcome the project, there is apparently no need for it.

Q: AGL has proposed an FSRU on the east coast of Australia, which seems surprising, but the regasification project could make sense strategically, helping AGL in negotiations with upstream suppliers. How realistic is the project?

> A: LNG sells at US$7.50. Shipping would cost US$1.50, and regasification and piping another US$1.50. Total US$10.50. Who would pay that kind of money if the market can currently get its supplies for less than half as much directly from gas producers?