

GAS PRICE DIFFERENTIALS IN AUSTRALIAN CITIES: TRANSPORT COSTS OR TRADE BARRIERS?

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Overview

The eastern Australian Gas Market is in a period of transition. Gas supply in the south is falling due to the depletion of offshore fields and bans on new onshore developments. Meanwhile, supply in the north is expanding due to the development of coal bed methane, but most of this gas is liquefied for LNG export. These developments are driving increases in the gas price that are concerning domestic gas users and policy makers.

An efficient pipeline network would mitigate these problems to some extent by enabling gas to move from the production areas in the north to the demand centres in the south. However, a key barrier to this movement is the limited secondary trading for pipeline capacity. In its December 2017 inquiry, the Australian Competition and Consumer Commission identifies this as an important constraint to the efficient allocation of gas in the domestic market.

In a well-operating pipeline system, gas price differentials in each hub – Melbourne, Sydney, Adelaide and Brisbane – would reflect only the cost of transporting gas from one hub to another. This paper tests whether the observed price differentials are explained by transport costs, or whether there is evidence that barriers to trade are increasing the price differentials.

Methods

Partly due to the lack of secondary trade in pipeline transport capacity, there is no data available on transport costs. Therefore, this paper develops a method to estimate the cost of transport along each pipeline, taking into account that the cost of transport increases as the pipeline nears its capacity, because gas shippers must use their as-available pipeline contracts rather than firm contracts. The model also takes into account that the price differential between hubs depends on the direction in which the gas is flowing. A threshold vector auto regression model is used.

Results

Price differentials are measured relative to the Melbourne price, since Melbourne is the key demand centre, located in the south. In general, Sydney and Melbourne prices move together: Sydney prices tend to be high when Melbourne prices are high, suggesting that gas shippers are generally able to arbitrage between these two hubs. However, the relationship between Brisbane and Melbourne is different: when Melbourne prices are low, Brisbane prices tend to be higher than Melbourne prices; and when Melbourne prices are high, Brisbane prices tend to be lower than Melbourne prices. Brisbane is located in the north, and far from Melbourne, so part of this price differential is explained by the transport costs. However, some of this difference may be due to inefficiencies in the pipeline network.

Conclusions

There are significant differentials in gas prices between Australian cities, especially for Brisbane and Melbourne. These are partly explained by transport costs between the cities, which depend on the capacity utilization of the pipeline and the direction in which gas is flowing. Price differentials may also be partly explained by the lack of trading in secondary pipeline capacity, which is a barrier to trade between the production regions in the north and the demand centres in the south.

References

Australian Competition and Consumer Commission, (2017) *Gas Inquiry December 2017 Interim Report*, Australian Government, available at www.accc.gov.au.