



Restructuring the Chinese Electricity Supply Sector: An assessment of the market pilot in Guangdong Province

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Guangdong province is the largest and most economically successful province in China. It has recently introduced a pilot wholesale power market where electricity is traded between generators and retailers to supply large industrial electricity customers. This paper aims to assess progress with electricity market reform, and what Guangdong is learning about how electricity market models need to be adapted for its own particular circumstances.

The paper highlights what the lessons from the market pilot experiences in Guangdong are for both the province itself and for the rest of China. The paper draws on the experience of Chinese stakeholders, to identify what are the key problems to be overcome in bringing about a successful electricity reform transition in the World's most significant electricity system.

Our investigation suggests some points for improvement in recent Chinese power sector reform in the light of the existing Guangdong pilot market design and its observed effects:

First, there is a need to acknowledge value of assets in generation will go down with the introduction of a market which reduces prices (as observed with Guangdong). If necessary there should be a reallocation of assets between state owned generators to increase competition and spread the value loss. It

would also be possible to introduce a competitive transition charge on consumers which would collect some of their savings and use them to compensate the generators for losses of asset value directly.

Second, in Guangdong, there is a need to move to a day-ahead market for all generation and to integrate this with dispatch. Partial monthly contract markets have successfully encouraged the creation of a new set of market actors – retailers – but they are not generating a proper set of price signals for operation and investment. A complete day ahead market implies that is difficult to avoid a big-bang day for trading. This big-bang day approach was the one experienced in the UK and US wholesale power markets.

Third, it would seem sensible to experiment more fully in one province. A genuine market pilot needs a full set of wholesale electricity markets applied to all generation and demand. A full set of electricity markets should include both markets for energy (yearly, monthly, day-ahead and intra-day) and for ancillary services (particularly frequency and short term operating reserve). This is not the case in any existing Chinese pilot, including in Guangdong. Guangdong is a good candidate for a comprehensive pilot because of its initially high electricity prices and relatively small electricity sector within its GDP.

Fourth, the probability of reversal of power market reform in China seems higher than in many other jurisdictions due to the lack of progress over a 5-year time period and the lack of legislative underpinning of the reform itself. The reform is based on a ruling from the State Council (No.9 of March 2015) which does not have legal force and can be quietly abandoned. This suggests that there needs to be a sense of urgency in reform lacking due to the longer political cycle in China (10+ years) of one Presidency. For instance, in the UK, the 1987 General Election set a 5 year maximum (and effectively 4 year) timetable for power sector reform (which was largely complete by 1991). This argues in favour of experimentation to create a workable plan at the provincial level first AND THEN setting an ambitious time table for reform more generally.

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