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WHAT PLACE FOR COMPETITION IN THE POWER TRANSMISSION PLANNING?

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Overview

Economists have debated about competition for the development of transmission network as an alternative to the regulation of transmission network monopoly. Even if the theory eventually seems to conclude that transmission widely remains a natural monopoly, anecdotic experiences of competition for transmission investments in the USA, Australia, or Argentine results in contradictory conclusions.

This theoretical and pragmatic heterogeneity of the competition to develop the transmission network questions as much the orthodoxy of a natural monopoly of transmission as the requirements of existence, profitability and efficiency of a transmission market.

Method

Experiences of competition for transmission investments must be divided in two groups: on the one hand, transmission market where transmission is a competitive activity in the energy market (part I and II), on the other hand "Demsetz (1968) competition" as an alternative to monopoly regulation (part III).

First, we will analyse the assumptions on which the various theories about transmission investments are grounded thanks to a survey about transmission market and transmission cost recovery. Second, we will analyse the heterogeneity of the practical results of competitive transmission investments thanks to a comparison of cost structures of investments and of sources of revenue.

Results

In part I, we will first show that the feasibility of transmission market is grounded on the cost structure of transmission assets, that is to say the extent of economies of scale and of lumpiness. Transmission market is possible as soon as economies of scale and lumpiness of transmission investments are neglected (Bushnell-Stoft (1996 and 1997) and Hogan (2003)) thanks to a framework of tradable transmission property rights (Hogan (1992)), but leads to inefficient transmission capacity (Pérez-Arriaga et al. (1995), Joskow-Tirole (2005)) otherwise.

In part II, we will see that a definition of lumpiness of transmission market-driven investments that is relative to the size of the linked markets explains the heterogeneity of experiences of market-driven transmission investments (Joskow (2005)). Beside, the differentials of nodal prices over the merchant line must last to ensure sufficient rental revenue to the merchant investor.

In part III, we will show that even if the argentine experiment of Demsetz (1968) competition carries out a satisfactory level of network investments, its transposition may be nonetheless difficult because of the radial feature of the argentine network and the associated high transaction costs of such method on a highly meshed network (Joskow-Tirole (2003)). However Demsetz competition may be interesting for some radial direct connection assets, as it is proposed in the last French energy law (Loi 2005-781).

Conclusion

In brief, Transmission market can only be introduced in niches of transmission investments under specific requirements about cost structures of investments relative to the size of linked markets and the perenniality of nodal or zonal price differentials.

Demsetz competition as an alternative to monopoly regulation for transmission infrastructures can only be envisioned for radial assets.

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