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COMPETITION EFFECTS OF INTERCONNECTION BETWEEN GREAT BRITAIN AND IRELAND

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The European Union has suggested that European electricity markets should be more interconnected in order to create regional markets that will enhance security of supply and decrease the average amount of reserves needed in each country. Ireland, a relatively small and isolated electricity system, is considering increased interconnection with Great Britain. One of the major perceived benefits will be to decrease the dominant position of ESB, the main generator in the market.

In this paper I analyze what the size of the interconnector needs to be in order for the electricity generation sector in Great Britain and Ireland to be part of the same market, the use of the interconnector in equilibrium, and finally the welfare effects of the interconnector in equilibrium.

This paper uses a two-country model that is based on Borenstein et al. (2000), and focuses on the effects of added interconnection when the two countries are asymmetric, both with respect to size and competitive structure. The larger country is also more competitive, by assumption. However all the generators face the same structure of costs, since they are assumed to have access to the same technology. The transmission capacity of the interconnector is allocated efficiently, and the owner is paid the difference between the electricity price at the two ends of the interconnector for every unit of electricity flowing through it.

I find that when there is a small country with a monopolistic generator and a large country with an oligopoly in the generation sector, the size of the interconnector needed to achieve a single market between the two countries is large with respect to the market size of the small country. Moreover, it increases as the competitive structure in the large country becomes more competitive (i.e. the number of generators in the large country grows).

If the interconnector is large enough to achieve a single market, it will not be congested in equilibrium. This implies that private investors would not be adequately remunerated and therefore leaving interconnection infrastructure exclusively to private investment results in an underprovision of interconnection. This result derives from the fact that interconnection creates externalities: first of all it allows for a reduction in the amount of reserves (and therefore in the amount of generation capacity needed), that in the case of asymmetric countries will be more pronounced for the small country than for the large country; second it increases the amount of competition in both countries. The latter effect produces an unambiguously positive outcome for the customers of the country with an initially small level of competition, whereas the effect on the electricity price in the country with initially more competition is ambiguous.

The results of this paper suggest that the level of electricity interconnection desired by the European Union is unlikely to take place without government involvement, and that clear rules need to be set down regarding ownership and regulation of the electricity interconnectors.

References

Borenstein, S., J. Bushnell and S. Stoft (2000) The competitive effects of transmission capacity in a deregulated electricity industry, *Rand journal of economics*, vol. 21 (2) 294-325