

## **Network-constrained Cournot models of liberalized electricity markets: the devil is in the details**

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### **Abstract-**

**Numerical models of transmission-constrained electricity markets are used to inform regulatory decisions. How robust are their results? Three research groups used the same data set for the northwest Europe power market as input for their models. Under competitive conditions, the results coincide, but in the Cournot case, the predicted prices differed significantly. The Cournot equilibria are highly sensitive to assumptions about market design (whether timing of generation and transmission decisions is sequential or integrated) and expectations of generators regarding how their decisions affect transmission prices and fringe generation. These sensitivities are qualitatively similar to those predicted by a simple two-node model.**

**Index Terms-** Electric power; Electric transmission; Cournot; Oligopoly models; Numerical market models; Optimization

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