The rise of third parties and the fall of incumbents driven by large-scale integration of renewable energies: the case of Germany

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Changes in the electricity supply industry are dramatic. The liberalization of the electricity sector in 1997 exposed generation and retail to market entry and competition. However, especially in generation, non-incumbent market players were the exception, while a dominant market position of the formerly monopolistic incumbents remained the rule. With the energy transition (the German "Energiewende") starting in 2000 this situation started to change significantly. The large-scale integration of renewable energy supply (RES) has triggered decentralization of generation and market entry of new players ("third parties") and has fundamentally changed the supply structure of the electricity sector. Temporary excess capacity and increasing diversity of ownership has intensified price competition.

This article aims to analyze the structural change of the sector and its implications for the electricity supply industry. In particular, we investigate the quantitative effects of third parties in the electricity supply industry (i.e. generation) in Germany. Statistical data for Germany supports the hypothesis that large-scale integration of RES is a main driver for the rise of third parties and the fall of incumbents. Moreover, the changing face of the sector has a dramatic impact on the business models of the incumbents that predominantly own conventional generation capacity. The incumbents face what is appropriately called "disruptive challenges" and are forced to change their business strategy.

After describing what third parties actually are, we argue in section 3 that the impressive development of third parties in the German electricity sector can be derived indirectly from statistical information: the difference between the gross production value (GPV) and net production value (NPV) is rapidly increasing. Detailed examination suggests that the increasing GPV/NPV-ratio is largely due to the increase in RES, which is largely driven by third parties.

This restructuring process has important implications for electricity markets and for incumbents. RES intensifies price competition due to low marginal production cost and temporary excess capacity in the market. The merit-order effect pushes conventional generators out of the market, leaving investors with sunk costs that cannot be recovered by market prices. Incumbents with conventional generation face a dilemma, as investments in RES destroy their own market, while remaining reluctant to invest leaves this growing market to their competitors. As a consequence, the "big four" incumbents in Germany are truly facing "disruptive challenges" and have started to rethink their futures business model. The main trend is to put the *prosumer* in the focus of the business model.

Why is all this important and what are the policy consequences? Firstly and most prominently, the emergence of third parties changes the business strategies and the competitive environment in the sector. Secondly, the changing competitive environment has consequences for competition policy and monopoly regulation. The notion of traditional market power in power markets is fading quickly. If anything, companies are struggling to survive; abuse of market power is not much of an issue currently. In fact, we would expect a new wave of consolidation. Moreover, the monopoly element of the network seems to erode slowly or at least change, raising two important questions. On the one hand, selectively, the need for regulation phases out. Bypassing of the network by self-sufficiency, facilitated by PV and micro-storage provides an example. On the other hand, as sectors start to converge, regulatory frameworks of these sectors, which largely developed independently, should be aligned more closely. Thirdly, coordination of network and system development gets more complicated with a multitude of different players with widely differing interests. To achieve efficient network development, the governance systems need to align incentives. As the electricity supply changes from a top-down, single-firm game, into a bottom-up, multiple-player system we need novel governance systems to deal with this change.