

SC C5 – Electricity markets & regulation
PS 2 Changing role of regulators and standards**Sensibility to Consumers' Outflow**

O. BARKIN, V. BEREZOVSKY
Association "NP Market Council"
Russia
v.berezovsky@np-sr.ru

Global trends are changing energy markets. We are going to focus on two of them. The first one is that energy prices are growing up because policies of the government and market operators aim to support new technologies, such as renewable energy sources (RES) and energy storages. Moreover, a lot of existing generation units and network equipment are threadbare and need renovation, and new cross-border electricity interconnections are essential. All of these are long-term capital investments and 'policy levies' on consumers are a common tool of guaranteeing investments. For example, in the Russian Wholesale Electricity Market prices contain components, which are used for building new generation plants of all types including RES and other projects and they are obligatory for consumers.

On the other hand, we are witnessing progress of energy microgrid technologies [such as distributed generation, RES, storage] and IT technologies. They make self-contained system more efficient and available for consumers, which brings down energy sales from centralized energy markets. For example, RES levelized cost of electricity [LCOE] is reaching grid parity. In Russia LCOE of small gas units are going to compete with power energy system price.

Due to these trends lower microgrids' prices [compared to common grid prices] and higher policy levies force more consumers to turn to microgrids and ensure faster price growth for the rest of the consumers in the grid [positive feedback]. The worst scenario is an avalanche-like outflow of consumers.

How do regulators respond to these problems? Firstly, regulators have to forecast and compare electricity prices in bills of end users who purchase it from the centralized market and from a microgrid with embedded generation. These forecasts help to evaluate the risk of customers' outflow.

Secondly, regulators should defend the system against policy levies growth and microgrid oversupporting. Otherwise, the problem is going to expand. To summarize, regulators' role is to find and keep the balance of centralized and decentralized markets by price signals. For this reason, price signals have to be as accurate as possible even on retail markets.

The other important role of regulators is to adapt market rules to the new effective technologies in terms of economy. Also market operators have to develop standards

of participation in the power energy system. This approach helps market participants to understand conditions of new application and to minimize risks of participants' leaving the market and negative influence on energy system reliability. Moreover, the service market of distribution system operator (DSO) is available for more effective integration. Relationship between the power energy system and microgrids has to be mutually beneficial.

The Russian wholesale electricity market is serviced by an independent system operator and market infrastructure companies like "Trade System Administrator" and «NP Market Council" association. The market infrastructure ensures power energy exchange.

The market includes electricity sector (the value of electricity sold through contracts,

on the LMP-model Day Ahead and Balancing markets) and capacity sector (the value

of capacity sold through contracts or capacity auctions). Besides, the market infrastructure represents participants of the wholesale market, develops market rules and takes part in the regulation of the power industry.

In attempt to solve the aforementioned problems the market infrastructure analyzes levelized cost of electricity of renewable energy sources and other distributed generation, forecasts long-term changes of wholesale market prices, makes prosumers' outflow risk assessment.

In addition, we investigate new technologies' ability. In Russia, pilot programs are a more preferable way to evaluate application efficiency. It will help to choose the most beneficial technologies and improve market rules for their common usage. Recently the Russian government has admitted the road map of pilot programs for application such as microgrids, renewable energy sources, demand response and blockchain in meter-to-cash processes.