

Serbia: System services market from the perspective power utility "Electric power industry of Serbia"

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System services provided by "Electric Power Industry to Serbia" to "Elektromreza Srbije" are as follows: primary, secondary and tertiary regulation, voltage regulation ("voltage support") and participation in the establishment of the power system ("black-start").

By separation of transmission system operator "JP Elektromreza Srbije" from the "Electric Power Industry of Serbia", system services are becoming commercial, but regulated activity. Analysis of the set of system services that "Elektromreza" provides to "Electric Power Industry of Serbia", the only market participant which has adequate generation capacity, with a focus on secondary and tertiary regulation, is the subject of the paper by Branko Lekovica and Danilo Komatina from "Electric Power Industry of Serbia", within papers summary, from with 32nd conference "Cigre".

From the perspective of "Electric Power Industry of Serbia" changes in the contracting and evaluation of system services, have introduced additional dynamics to the market of system services. Since 2014, during the planning of power plants, attention is paid to the fulfillment of the agreed range of the secondary regulation and are contracted tertiary reserve. That same year, EPS has managed to achieve a high percentage of the contract fulfillment (over 98%), although the May floods negatively affected to the provision of the appropriate range of the secondary regulation and tertiary reserve.

It is confirmed empirically, that the main share in the provided scope for secondary regulation has a hydropower plant "Derdap 1", followed by the hydro power plant "Bajina Basta". The highest contribution to the tertiary reserves provide pump storage hydro power plants, primarily "Bajina Basta" and "Derdap 1", while the share of thermal power plants is much lower, because of their operation and definition of tertiary reserves.

In 2015, the contracted range for secondary regulation is 160 MW through entire year, which for EPS is a potentially higher income, but makes fulfillment of agreed range through the entire year, more difficult. The revitalization of HPP "Derdap 1" will provide even higher available capacity, the plant will be able to operate in the secondary regulation at higher inflows, and the entry into operation of a new unit in Kostolac will also facilitate the provision of the required tertiary reserve. Coal homogenization would have the same effect, that would lead to uniform coal quality and minor fluctuations in the thermal power plants generation.

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Primary regulation stabilizes the system frequency at a stationary value, following a

disturbance or failure, after which difference between generation and consumption occur. EPS is obliged to provide this service to the operator free of charge. After the primary, secondary regulation is activated, in order to release its range and to turn regulation to its reference value. The price of secondary regulation set by the Energy Agency is 949 RSD per MW. In case that the range for secondary regulation is used, tertiary reserve is activated which reduces the deviation of the area where the disturbance occurred, and the secondary regulation range is released. PE EPS within daily operation plan provides a system service of tertiary regulation in the amount of 300 MW for positive, and MW for negative tertiary reserve at a price of 349 RSD for each megawatt of provided positive tertiary reserve, transmits Serbia-energy.eu