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Capacity market.
Change of the model shifting from deficit to excess.

A.M. KATAYEV, F.Y. OPADCHY
SO UPS, JSC
RUSSIA
kataev@so-ups.ru

The report describes the capacity market model in Russia, competitive capacity market launch environment, gained results and potentiality of the market model application, developed for the situation of the generating facilities shortage, under conditions of their significant excess.
Acting model envisages annual competitive selection of the generators for the coming year. Demand at the capacity market stands equal to peak-load, increased by the reserve coefficient. All selected generators get payment according to the price defined by the competitive procedure based on the marginal principle.
Besides, there are two mechanisms, enabling to get payment for capacity at the price higher than at the market. First – for the newly introduced generating facilities, second – for the inefficient, not selected generating units, decommission of which is impossible due to risks of the power supply security violation.
This model was launched in 2008. Power system of Russia suffered deficit of generation in previous years and this resulted in imposing limits at the annual peak load in Moscow as well. There were no mechanisms to attract investments in the construction of the generating facilities. Main task of the capacity market was to attract private investment in construction of the generating facilities in sufficient number to eliminate forecasted deficit and create economic environment for the generator to get interested in modernization or replacement of the outdated units.
Capacity market has fulfilled its task concerning elimination of the generating units' deficit. Generating facilities in the amount sufficient to cover demand growth and to compensate decommissioning of the low-efficient equipment were put into operation within the frames of the special mechanism of the investments recovery, integrated in the capacity market.
Scenario conditions have been changed after the launch of the model. Gas prices' rate of growth decreased and as a result the advantage of the new highly efficient equipment became less prominent than expected. Plans of the generating companies on decommissioning of the generating equipment have been changed as well. Low gas price and high level of payment for capacity made it reasonable from the economic point of view to continue operation of the low-efficient units. For the significant number of the power stations the capacity cost covered not only semi-fixed costs but enabled them to compensate in whole annual unprofitable electric power trade for the price lower than cost of production.

Tough system of commitments for the due commissioning of the new generating facilities, decrease of consumption along with operating of the inefficient units caused big excess of capacity. Capacity market model, tuned to operate under the condition of demand – supply and insignificant excess / deficit balance, does not meet current conditions.

How we can make the model adequate? There are two approaches to solve the task. Technological – introduce into the model parameters strengthening technological component of the selection, like: prohibition to participate in the equipment selection with the inefficient production cycles; selection based on the detailed electric scheme; unit commitment necessary according to the electrical or thermal net operational modes prior to competitive selection, etc. Economical – coordinate pricing principles and provide possibility of price cutting at the capacity market in whole up to the level when there are no economic reasons to continue operating of the ineffective facilities in the amount comparable to the excess at the capacity market.

Applying each of the mentioned approaches may cause risks. Excessive consideration of the technological constraints lessens optimality of the economic decision. At the same time disregarding technological constrains makes it impossible to implement calculation data, and the cost of the technical measures, providing realization of the ideal variant, could be excessively high. To choose the right way when economic and technological parameters are combined is the main task in providing adequacy of the capacity market model by current and prospective conditions of the power system operation.