

Flexibility services as the answer for the changes of power system – experiences of Transition Technologies-Systems

Power systems face challenges, which are the result of fast-paced technological growth. Expanding share of power consumers is becoming some sort of a danger for the safety of the system, but it also opens new routes to solve these problems. One of this can be found in the term called “flexibility” and to be precise – flexibility services, which can be seen as the service which is used by Distribution System Operator (DSO) and further by Transmission System Operator (TSO), which is delivered by ordinary system user. Rising point between these users are renewable distributed energy resources, which are the part of discussion already, which refers to flexibility services. It is caused by the significant growth of investments based on renewables, climate needs and leaving behind conventional energy sources.

Revolutionary solution, which becomes more and more common is the growth of virtual power plants (VPP). They should be treated as one, artificial unit, which aggregates many distributed energy resources based on renewable energy, energy storages and energy consumers. Main goal of VPP is to balance inside the portfolio and to provide system services, to arbitrate and also to take part in balancing market. VPP, as the participant of energy market, can fix its own generation in a flexible way, reduce it and even change its role to energy consumer, which depends from current needs and situation. It is possible thanks to advanced system of forecasting, optimizing and controlling, which ensures proper usage of individual elements of VPP.

The result of VPP’s growing is the creation of the market dedicated to renewable distributed energy resources, which would allow individual participants and aggregators to take part in auctions concerning delivering services of increasing or decreasing load or energy generation in specific place and time and also participation in balancing market. The main aspect of this market is to cover the needs of the system, but at the set time to not block the growth of renewable energy resources.

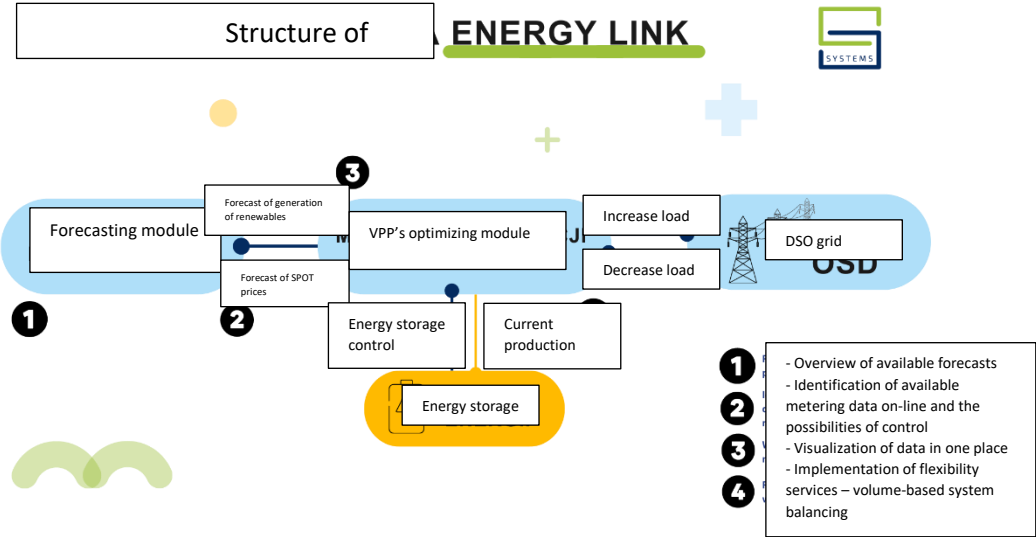


Figure 1 Structure of Energy Link application

In Transition Technologies-Systems we work over innovative solutions, which find the usage in the areas described above. As an example of our commitment, we would like to present the platform Energy Link, which is the comprehensive tool allowing to support virtual power plants and thanks to which users with different energy resources, like renewable distributed energy resources, DSR’s and even energy storages are able to control their resources automatically to balance their portfolio, to arbitrate and to cover the needs of the system. The application allows current

surveillance of generation, loads and the work of energy storage and thanks to this users are able to follow progress of ongoing tasks. Additionally, intelligent forecasting-optimizing module cares about effective usage of individual elements of virtual power plant, ensuring the best activities. Thanks to the system of alerts, users are informed about unexpected events, which allows them to react quickly for these problems. Our solution – Energy Link fully supports power system transformation, ensuring optimal usage of different energy resources and flexibility in controlling them.

Transition Technologies-Systems gains experience in European project OneNet also. As the company which delivers comprehensive IT solution for the power technology sector, with PSE, Energa-Operator and NCBJ we evaluate the concept of creation of the market for flexibility services. “Our task was to create market platform, which allows to register even very small renewable installations, which after technical verification could take part in congestion management and voltage control auctions and also to cover needs on balancing products. Thank to international cooperation, we create the fundamentals for flexibility service market in Poland.” – says Bartosz Kalinowski, Product Owner of atFlex Platform.

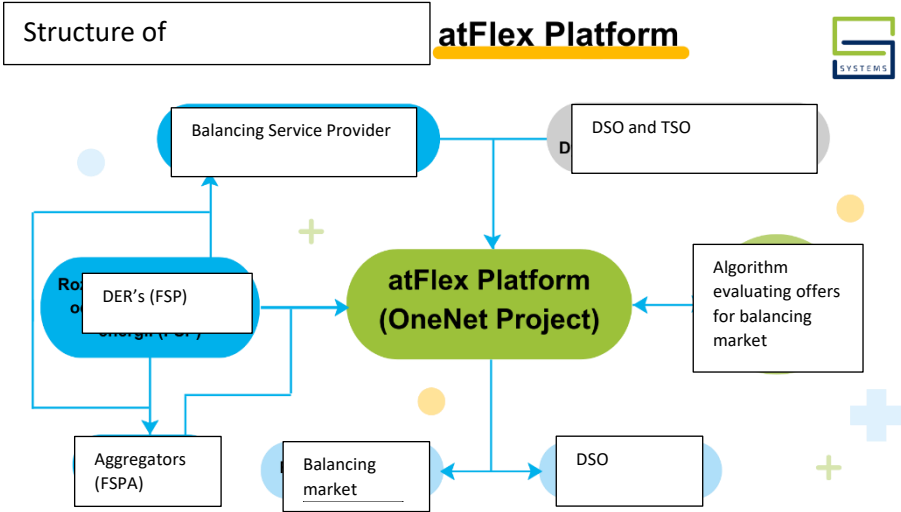


Figure 2 Structure of atFlex Platform

“Transition Technologies-Systems is watching developments very closely, that occur in the world. To continue delivering services of the highest level, we try to prepare comprehensive solution in advance, which are the perfect answer for upcoming need in power system in Poland and Europe. Thanks to our research work and pilot products we are ready to support flexibility services, which role day by day is rising.” – says Piotr Błach, Manager of Renewable Energy Resources team.

Transition Technologies-Systems is the undisputed leader in solution for power technology sector. Our systems allows precise monitoring, managing and optimization of energy from renewable resources. They also allow for flexible adjustments to the changes of the market, to ensure optimal usage of resources and to achieve the best business results.



OneNet project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 957739