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pebbles Kick-Off-Meeting, April 11-12, 2018, Allgäuer Überlandwerke, Kempten.

PEBBLES – PEER-TO-PEER TRADING BASED ON BLOCKCHAINS

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pebbles aims for developing a unique digital platform for local trading and digital services exchange in future energy supply systems based on blockchains.

Due to the stagnating expansion of the domestic and in particular cross-border electricity grid as well as on an advancing technological development, intelligent, decentralized solutions to design future energy supply systems are increasingly becoming the focus of attention. Local or regional trading mechanisms are hereby addressed as they provide the possibility to increase the regional self-consumption. Their realization is facilitated by innovative monitoring and controlling technologies for distributed energy resources. To ensure the safe and reliable operation of energy supply systems, distribution system operators must provide network-oriented services that anticipate the interactions between the market and power grids (e.g. by means of traffic light functionalities). These innovations, which can be realized with the help of digital technologies, face variety challenges (e.g. coordination, compatibility, secure and transparent processes, reliability, information technologies, etc.).

The main goal of the project is the development of a local blockchain platform for P2P trading and the exchange of digital services. On the one hand, this includes the implementation of innovative business models and services from and for companies and end customers. On the other hand, new approaches for transaction processing and documentation are demonstrated. The consortium analyses and tests the effects of blockchain-based processes on all relevant physical and information technology levels. Thereby, both the opportunities and challenges of innovative business models and services for the stakeholders can be taken into account. Furthermore, the developed P2P trading platform will be demonstratively embedded in the existing electricity markets via a virtual power plant as part of a field test and the influence on the operation of the distribution grid will be analyzed.