

1.2 Abstract

a) Synopsis

Concept economically and technically feasible business models for distribution grid operators, generators as well as end users which have potential chances to be used in the long term until 2050 (building up from the key years 2015 and 2020) in the active distribution grid operation in Austria; Indicate the optimal grid integration possibilities at lowest social cost and provide efficient energy services close to consumers' needs.

b) Summary

The upcoming structural change of the Austrian energy system towards distributed generation will significantly increase the requirements on the distribution network operation. Necessary efficiency increases can be – among others - achieved by a more network-oriented system integration of producers and consumers. This way to an optimized system requires however the new conception of suitable business models, which specify the rules (contracts, payments, licenses) for an active grid operation including all participants (grid operators, producers and consumers). In order to find a strategic positioning towards a more decentralized production the question arises, which solutions for the grid operators, the generators and for consumers are technically expedient and economically realisable in the long-term and have chances to be tested in demonstration regions.

The core questions of this project are therefore:

- Which technical grid operation solutions have the potential to enable a tight co-operation between distribution network operators, producers and consumers in the future?
- How can innovative business models be arranged, in order to enable an energy-efficient active grid operation achieving minimal cost for society?

On the basis of the results of foreseen business model workshops the project compiles different solution paths representing dynamically which business models are suitable for different grid operation solutions in order to find an application in Austria until 2050 taking into account different macroeconomic as well as technological developments (production, demand, storage, grid tariffs, Demand Response; etc.). Additionally an emerging change of parameters - declining grid usage, rising domestic production, rising prices for fossil fuels, etc. - is considered in the dynamic analysis. As comparative reference model, a central grid structure with different grid extension ratios is used.

The most substantial results of this project are:

1. Scenarios for the long-term organization of the distribution grid as well as corresponding optimal solutions for its active control;
2. Business models and associated development scenarios which represent their relevance for Austria quantitatively. Taking into account important boundary conditions (e.g. price development, market rules, etc.) it is examined, how the several business models perform in different scenarios and when (building up from the key years 2015 and 2020), as well as in which extent they can be meaningfully implemented.
3. Evaluation and ranking of the business models regarding to their robustness, relevance and feasibility.

Overall, recommendations for the future priority-setting in the design of distribution grid-referred market and framework conditions are derived for Austria.