



Non-mutually exclusive business models for LES: A quantitative assessment

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Summary

Local energy systems together with citizen energy communities, exhibit a considerable potential to support the cost-effective transition to a low-carbon energy future. This potential requires multiple value streams for the flexible resources that emerge from the increase of the utilisation of renewables, the provision of balancing services and the enhancement of security of supply. Towards the realisation of this potential, non-mutually exclusive business models have been analysed and quantitatively assessed, with emphasis given to the appearing synergies. The strong dependency of the economic benefits on the tariffs and prices is explored by the investigation of the effects the different structures of retail tariffs have on the revenue streams.

Highlights

- The study evaluates non-mutually exclusive business models for Local Energy Systems (LES), highlighting the synergies between energy trading, balancing services, and security of supply to maximize economic benefits and support a low-carbon energy future.
- Dynamic tariffs and ToU components promote better utilization of flexible assets and enhance economic benefits.
- Dynamic tariffs, especially those with zero or minimal buy-sell margins, enhance the economic benefits by enabling more efficient use of flexible resources like battery energy storage systems (BESS)
- Results underscore the need for tailored tariffs to optimize LES performance and integration into the wider energy system.



The TradeRES project will develop and test innovative electricity market designs that can meet society's needs of a (near) 100% renewable power system. The market design will be tested in a sophisticated simulation environment in which real-world characteristics such as actors' limited foresight into the future and risk aversion are included.



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