TradeRES Research Bulletin

Local electricity markets: A review on benefits, barriers, current trends and future perspectives

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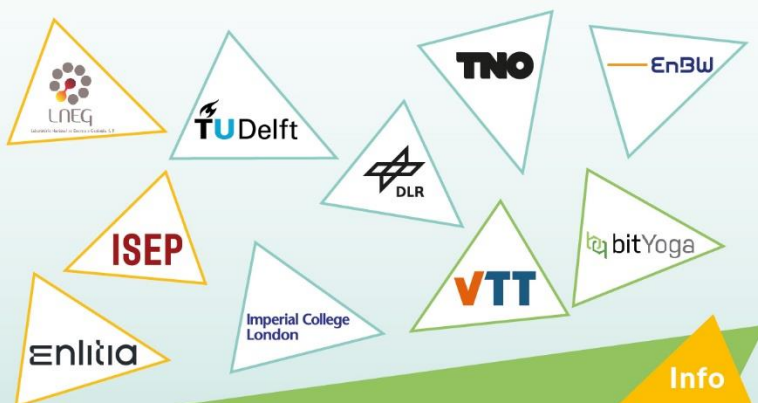[2] University of Trás-os-Montes and Alto Douro (UTAD), Vila Real, Portugal

Summary

Local electricity markets are emerging as a viable solution to overcome the challenges brought by the large penetration of distributed renewable generation and the need to put consumers as central players in the system, with an active and dynamic role. Although there is significant literature addressing the topic of local electricity markets, this is still a rather new and emerging topic. Hence, this study provides an overall view of this domain and a perspective on future needs and challenges that must be addressed. This review introduces the most important concepts in the local electricity market domain, provides an analysis on the different policy and regulatory framework, exposes the most relevant worldwide initiatives related to the field implementation, and scrutinizes the alternative local market models proposed in the literature. The discussion puts forth the main benefits and barriers of the currently proposed local market models, and the expected impact of their widespread implementation. The review is concluded with the wrap-up and discussion on the most relevant paths for future research and development in this field of study.

Highlights

- A review that identifies and discusses the different proposed approaches regarding local electricity market structures.
- A proposed classification for the local electricity market structures, attending the similarities in the material analyzed.
- An analysis of regulation that, from the perspective presented, encourages the creation of the local electricity market.
- A survey of projects and pilots that address the local electricity market application is presented.
- Quantifying benefits and barriers are presented, attending to the similarities in all considered publications

Info

Start date
1 February 2020

End date
30 November 2024

Overall budget: € 3 988 713,75

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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.