Validating a long-term electricity market model

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Abstract

Keywords: Long-term energy modelling, model validation, Machine learning, Optimization

1. Introduction

To limit the effects of climate change, a transition from a fossil-fuel based system to one based on low-carbon, renewable energy is required. The report by the Intergovenmental Panel on Climate Change detailed that reaching and sustaining zero global anthropogenic CO_2 would halt anthropogenic global warming on multi-decadal time scales [1].

The Paris Agreement [2].

- Energy systems modelling to help transition to low-carbon energy systems (Paris Agreement)
- Application of quantitive analysis to policy
- Use of agent-based models to model heterogeneous actors
- Optimum policy interventions for a smooth transition
- Requirement to validate model using historical data
- Prediction of electricity prices to understand optimal decisions
- Confidence in model under certain scenarios

2. Material and methods

- Reproducible data
- Summarize previously published results
- Modifications of previous results for this paper

3. Calculations

- Practical development

4. Results

- Clear and concise results

5. Discussion

- Significance of work
- Avoid discussion of public work

6. Conclusion

- Main conclusions

7. Funding Sources

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[1] V. Masson-Delmotte, P. Zhai, H. Pörtner, D. Roberts, J. Skea, P. R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield, IPCC Special Report 1.5 - Summary for Policymakers, IPCC, 2018.

[2] Paris Agreement, United Nations 21 (2015) 1–23.

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