

Publication List: Oliver Ruhnau

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Full peer-review

1. Ruhnau, O., Stiewe, C., Muessel, J., Hirth, L., 2023. **Natural gas savings in Germany during the 2022 energy crisis**. *Nature Energy*. (presented at FSR Insights 2023, ENERDAY 2023)
2. Ruhnau, O., Schiele, J., 2023. **Flexible green hydrogen: The effect of relaxing simultaneity requirements on project design, economics, and power sector emissions**. *Energy Policy*. (presented at the FSR Annual Sustainability Conference 2022)
3. Muessel, J., Ruhnau, O., Madlener, R., 2023. **Accurate and scalable representation of electric vehicles in energy system models: A virtual storage-based aggregation approach**. *iScience*. (presented at the Smart Energy Systems Conference 2023)
4. Ruhnau, O., 2022. **How flexible electricity demand stabilizes wind and solar market values: The case of hydrogen electrolyzers**. *Applied Energy*. (2nd-Best Student Paper at the IAEE 2021, presented at INREC 2020, IEW 2021, EAERE 2021, EMP-E 2021, BTU 2022)
5. Ruhnau, O., Qvist, S., 2022. **Storage requirements in a 100% renewable electricity system: Extreme events and inter-annual variability**. *Environmental Research Letters*. (presented at IEW 2022)
6. Ruhnau, O., Eicke, A., Sgarlato, R., Tröndle, T., Hirth, L., 2022. **Cost-potential curves of onshore wind energy: the role of disamenity costs**. *Environmental and Resource Economics*. (presented at IAEE Webinar 2023, EGU 2023)
7. Ruhnau, O., Bucksteeg, M., Ritter, D., et al., 2022. **Why electricity system models yield different results: Carbon pricing in a model-comparison experiment**. *Renewable and Sustainable Energy Reviews*, Elsevier. (presented at ENERDAY 2021, OR 2021, IAEE Webinar 2022)
8. Cloete, S., Ruhnau, O., Cloete, J.H., Hirth, L., 2022. **Blue hydrogen and industrial base products: The future of fossil fuel exporters in a net-zero world**. *Journal of Cleaner Production*, Elsevier.
9. Pöstges, A., Bucksteeg, M., Ruhnau, O., et al., 2022. **Phasing out coal: An impact analysis comparing five large-scale electricity market models**. *Applied Energy*, Elsevier.
10. Bucksteeg, M., Wiedmann, M., Pöstges, A., et al., 2022. **The transformation of integrated electricity and heat systems—Assessing mid-term policies using a model comparison approach**. *Renewable and Sustainable Energy Reviews*, Elsevier.
11. Eicke, A., Ruhnau, O., Hirth, L., 2021. **Electricity balancing as a market equilibrium: An instrument-based estimating supply and demand for imbalance energy**. *Energy Economics*, Elsevier.
12. Cloete, S., Ruhnau, O., Hirth, L., 2021. **On capital utilization in the hydrogen economy: The quest to minimize idle capacity in renewables-rich energy systems**. *International Journal of Hydrogen Energy*, Elsevier.
13. Ruhnau, O., Hirth, L., Praktijnjo, A., 2020. **Heating with wind: Economics of heat pumps and variable renewables**. *Energy Economics*, Elsevier. (presented at YEEES 2019, INREC 2019)
14. Ruhnau, O., Hennig, P., Madlener, R., 2020. **Economic implications of forecasting electricity generation from variable renewable energy sources**. *Renewable Energy*, Elsevier. (presented at OR 2015)
15. Ruhnau, O., Hirth, L., Praktijnjo, A., 2019. **Time series of heat demand and heat pump efficiency for energy system modeling**. *Scientific Data*, Nature.

16. Ruhnau, O., Bannik, S., Otten, S., Praktijnjo, A., Robinius, M., 2019. [Direct or Indirect Electrification? A review of heat generation and road transport decarbonisation scenarios for Germany 2050](#). *Energy*, Elsevier.

Working papers & works in progress

17. Hirth, L., Khanna, T., Ruhnau, O., 2023. [How aggregate electricity demand responds to hourly wholesale price fluctuations](#). *Working paper*. (presented at INREC 2021, ESEE Pisa 2022, EMEE 2022)
18. Casas Ferrús, M. N., Ruhnau, O., Madlener, R., 2023. [Portfolio effects in green hydrogen production under temporal matching requirements](#). *Working paper*.
19. Stiewe, C., Ruhnau, O., Hirth, L., 2022. [European industry responds to high energy prices: The case of German ammonia production](#). *Working paper*.
20. Ruhnau, O., Muessel, J., 2022. [Update and extension of the When2Heat dataset](#). *Working paper*.

Conference proceedings, dissertation & book chapters

21. Ruhnau, O., Lundström, L., Dürr, L., Hunecke, F., 2023. [Empirical weather dependency of heat pump load: Disentangling the effects of heat demand and efficiency](#). *19th International Conference on the European Electricity Market*.
22. Muessel, J., Ruhnau, O., Madlener, R., 2023. [Simulating charging behavior of electric vehicles: Review and comparison with empirical data](#). *19th International Conference on the European Electricity Market*.
23. Ruhnau, O., 2022. [The Economics of Flexible Electricity Demand](#). *Dissertation*.
24. Madlener, R., Ruhnau, O., 2021. [Variable renewables and demand flexibility: Day-ahead versus intraday valuation](#). In: Sioshansi, F., Variable Generation, Flexible Demand. *Academic Press*.

Software & data

25. Hirth, L., Ruhnau, O., Sgarlato, R., 2021. [The European Electricity Market Model EMMA](#). *Open-source electricity market model, including input data*.
26. Ruhnau, O., 2019. [When2Heat Heating Profiles](#). *Dataset contributed to the Open Power System Data platform*.

Commentaries

27. Hirth, L., Maurer, C., Ruhnau, O., et al., 2022. [Energy policy and energy industry options for Germany and Europe in view of Russia's attack on Ukraine](#). *Open letter at Tagesspiegel Background Energie & Klima*.
28. Osorio, S., Pahle, M., Ruhnau, O., 2022. [If buildings renovation fails, the EU ETS pricing mechanism must change](#). *energypost.eu*.