**Sebastian Zwickl-Bernhard**

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**EDUCATION**

**Ph.D., Engineering Sciences, Technische Universität Wien, 2023 (expected)**

Concentrations: Electrical Engineering   
Dissertation:*Open Source Energy System Modeling in Multiple Energy Carrier Systems with High Shares of Local Renewable Energy*  
Dissertation Advisors: Prof. Hans Auer

**M.Sc., Electrical Engineering, Technische Universität Wien, 2020**

Concentrations: Energy Engineering and Automation Technology

Thesis: *Open Source Energy Technology Portfolio Optimization of an Urban Energy Community Considering High Shares of Renewable Energy*  
Thesis Advisor: Prof. Hans Auer

**B.Sc., Electrical Engineering, Technische Universität Wien, 2018**

**TEACHING EXPERIENCE**

**Instructor, Technische Universität Wien, since 2020**

Courses: Energy Modelling and Analysis, Selected Topics in Energy Economics and Environment, Open Source Energy System Modelling, Energy Network Economics

**Teaching Assistant, Technische Universität Wien, 2019**

Course: Selected Topics Energy Systems

**RESEARCH EXPERIENCE**

**Research Stay, Norwegian University of Science and Technology (NTNU), 2022**

Department of Industrial Economics and Technology Management under the supervision of Professor Pedro Crespo del Granado, Professor Asgeir Tomasgard, and Assoc. Prof. Stian Backe.

**Research Fellow, International Institute for Applied Systems Analysis (IIASA), 2021**

IIASA’s annual 3-month Young Scientists Summer Program (YSSP) under the supervision of Daniel Huppmann, Ph.D.

**SELECTED PUBLICATIONS**

Backe, S., Zwickl-Bernhard, S., Schwabeneder, D., Auer, H., Korpås, M., and Tomasgard, A. (2022). Impact of energy communities on the European electricity and heating system decarbonization pathway: Comparing local and global flexibility responses. *Applied Energy*, 323, 119470.

Zwickl-Bernhard, S., Golab, A., Perger, T., and Auer, H. (forthcoming). Designing a model for the cost-optimal decommissioning and refurbishment investment decision for gas networks: application on a real test bed in Austria until 2050. *Energy Policy*.

Zwickl-Bernhard, S., & Auer, H. (2022). Green hydrogen from hydropower: A non-cooperative open-source modeling approach assessing the profitability gap and future business cases. *Energy Strategy Reviews,* 43, 100912.

Zwickl-Bernhard, S., Huppmann, D., Golab, A., and Auer, H. (2022). Disclosing the heat density of district heating networks for Austria in 2050 under the remaining European CO2 budget of the 1.5°C climate target. *Sustainable Energy, Grids and Networks*, 100775.

Zwickl-Bernhard, S., Auer, H. and Golab, A. (2022) “Equitable decarbonization of heat supply in residential multi-apartment rental buildings: Optimal subsidy allocation between the property owner and tenants.” *Energy and Buildings,* vol. 262, 112013.

Zwickl-Bernhard, S. & Auer, H. (2022). “Demystifying natural gas distribution grid decommissioning: An open-source approach to local deep decarbonization of urban neighborhoods.” *Energy*, vol. 238, 121805.

Zwickl-Bernhard, S., & Auer, H. (2021). Open-source modeling of a low-carbon urban neighborhood with high shares of local renewable generation. *Applied Energy*, vol. 282, 116166.

**SELECTED PRESENTATIONS**

Zwickl-Bernhard, Sebastian (2022). “Designing a model for the cost-optimal decommissioning and refurbishment investment decision of gas networks.” Presented at the NTNU Energy Transition Week 2022, EFECT workshop- Sustainable Infrastructure and Energy Commodities for Sector Integration.

Zwickl-Bernhard, Sebastian (2021). “Green hydrogen from hydropower: A non-cooperative open-source modeling approach assessing the profitability gap and future business cases.” Presented at the Applied Energy Symposium MIT A+B.

Zwickl-Bernhard, Sebastian (2021). “Disclosing the heat density of centralized heat networks in Austria 2050 under the 1.5°C climate target.” Presented at the EMP-E 2021: Re-Energizing Sustainable Transitions in Europe: Energy System Modelling, Methods & Results to support the European Green Deal.

**AWARDS**

Faculty Award, Faculty of Electrical Engineering and Information Technology, Technische Universität Wien, 2020