



Andreas Mühlbauer

Ph.D. Student in Civil and Environmental Engineering, admitted Autumn 2024

Bio

EDUCATION AND CERTIFICATIONS

- MS, Stanford University , Atmosphere/Energy (2025)
- BEng, OTH Regensburg , Electrical Engineering & Mechanical Engineering - Energy (2023)

LINKS

- Personal Site: <https://amuehlba.github.io>

Publications

PUBLICATIONS

- **The potential for onshore wind repowering to hasten the energy transition in the United States.** *Proceedings of the National Academy of Sciences of the United States of America*
Mühlbauer, A., Fan, Y. F., Sambor, D. J., Jacobson, M. Z.
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- **The impact of enhanced geothermal systems on transitioning all energy sectors in 150 countries to 100% clean, renewable energy** *CELL REPORTS SUSTAINABILITY*
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- **High-precision passive heat-transfer modeling for novel microgrid research station: Integrating first principles, data analysis, and optimization** *JOURNAL OF BUILDING ENGINEERING*
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- **Minimizing the multi-decadal cost of islanded renewable-electricity microgrids for different climate zones** *SMART ENERGY*
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- **Area demand quantification for energy system-integrated negative emissions based on carbon dioxide removal portfolios** *ENVIRONMENTAL RESEARCH LETTERS*
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- **Costs and benefits of afforestation with renewable electricity-based desalination: Case study for Egypt** *SMART ENERGY*
Caldera, U., Muehlbauer, A., Elsayed, M., Aghahosseini, A., Breyer, C.
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- **Assessment of technologies and economics for carbon dioxide removal from a portfolio perspective** *INTERNATIONAL JOURNAL OF GREENHOUSE GAS CONTROL*
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- **No blackouts or cost increases due to 100% clean, renewable electricity powering California for parts of 98 days** *Renewable Energy*
Jacobson, M. Z., Sambor, D. J., Fan, Y. F., Mühlbauer, A., Delucchi, M. A.
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- **Energy, health, and climate costs of carbon-capture and direct-air-capture versus 100%-wind-water-solar climate policies in 149 countries** *Environmental Science & Technology*
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- **Techno-economic insights and deployment prospects of permanent carbon dioxide sequestration in solid carbonates** *ENERGY & ENVIRONMENTAL SCIENCE*
Muehlbauer, A., Keiner, D., Breyer, C.
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- **Effects of firebricks for industrial process heat on the cost of matching all-sector energy demand with 100% wind-water-solar supply in 149 countries.** *PNAS nexus*
Jacobson, M. Z., Sambor, D. J., Fan, Y. F., Mühlbauer, A.
2024; 3 (7): pgae274
- **Analysis of production routes for silicon carbide using air as carbon source empowering negative emissions** *MITIGATION AND ADAPTATION STRATEGIES FOR GLOBAL CHANGE*
Muehlbauer, A., Keiner, D., Galimova, T., Breyer, C.
2024; 29 (1)
- **Techno-economic assessment of atmospheric CO₂-based carbon fibre production enabling negative emissions** *MITIGATION AND ADAPTATION STRATEGIES FOR GLOBAL CHANGE*
Keiner, D., Muehlbauer, A., Lopez, G., Koiranen, T., Breyer, C.
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- **Proposing a 1.0°C climate target for a safer future** *PLOS CLIMATE*
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