**Lehrstuhl für Wirtschaftliche Staatswissenschaften,
insbesondere Energiewirtschaftslehre**

Bachelor Thesis

Analysis of Costs and Potential of Solar Updraft Towers/Solar Chimneys

In an updraft power plant air is heated by the sun, resulting in a hot air updraft in the tower. This airflow drives wind turbines placed in the chimney to generate electricity. Apart from large scale power plants, solar updraft towers can also be built adjacent to houses, providing heating and cooling.
Due to their versatility and environmental friendliness, solar updraft towers could play a role in the future energy mix.
The actual deployment of solar updraft towers depends on their economics feasibility. Regional differences in solar radiation and the size of the project are just two factors that impact economic feasibility.
The objective of this thesis is to thus analyse the feasibility of solar updraft towers. This includes an overview of the current state of research and the potential of solar updraft towers to play a crucial role in the energy mix.

Key tasks and objectives of the thesis

- Familiarising with solar updraft towers/ solar chimneys and their possible usage
- Assessing their potential commercial and private usage
- Analysing their costs and benefits
- Pointing out potential caveats

Your profile

- Study of economics, best with focuses on energy economics
- Independent, with a drive to acquire new knowledge

Literature

- Elsayed, I. and Nishi, Y. (2018). “A feasibility study on power generation from solar thermal wind tower: Inclusive impact assessment concerning environmental and economic costs”. In: Energies, 11(11), pp. 3181.
- Too, J.H. and Azwadi, C.N. (2016): “A brief review on solar updraft power plant.” In: Journal of Advanced Review on Scientific Research, 18(1), pp. 1.

Contact

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Topics

- Renewable Energies
- Solar Updraft Towers
- Power Generation

Methods

- Cost-benefit analysis
- Literature work