

Dr. Na Li

POSTDOC IN SUSTAINABLE ENERGY TECHNOLOGIES SEEKING CHALLENGES IN THE ENERGY SECTOR

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Na has a strong background in sustainable energy technologies and energy economics. Hands-on experience in energy system modeling, electricity market modeling and analysis, optimization, data analysis and visualization.

Work Experiences

Postdoc researcher

09.2022 - onwards

Intelligent Electrical Power Grids group, Delft University of Technology

Delft, the Netherlands

Researcher

10.2021 - 03.2022

The Green Village, Delft University of Technology

Delft, the Netherlands

Education

Ph.D. at Delft University of Technology

09.2017 - 02.2022

Energy & Industry, Faculty of Technology, Policy and Management

Delft, The Netherlands

- Thesis: Cost allocation in integrated community energy systems

M.Sc. at Jilin University

09.2014 - 07.2017

College of Instrumentation & Electrical Engineering

Changchun, China

- Thesis: Research on Mini-SOSIE based on ternary pseudorandom coding technique

B.Sc. at Jilin University

09.2010 - 07.2014

College of Instrumentation & Electrical Engineering

Changchun, China

- Thesis: Design of excitation signal generator for Mini-SOSIE based on pseudorandom coding technique

Project Experiences

Flexibility activation mechanism designer, Go-e(Electrification in the built environment)

09.2022 - now

Intelligent Electrical Power Grids group, Delft University of Technology

Delft, the Netherlands

- Proposed a **multi-level segmented tariff** as an incentive for activating **demand-side flexibility** provision
- Modeled an energy system with different assets to compute **hosting capacity** under uncertainties
- Modeled scenarios of **distributed energy resources** penetrations by using **Monte Carlo simulation**

Hydrogen system modeler, Design of a PV-battery-electrolyzer-fuel-cell energy system

10.2021 - 03.2022

The Green Village, Delft University of Technology

Delft, the Netherlands

- Proposed a sizing approach for designing a self-sufficient **PV-battery-electrolyzer-fuel cell** energy system
- Designed **techno-economic metrics** for assessing the performance of the **hydrogen system**
- **Modeled** a PV-battery-electrolyzer-fuel cell energy system with real-life data from The Green Village

Energy market researcher, Cost allocation in integrated community energy systems

10.2018 - 09.2021

Faculty of Technology, Policy and Management, Delft University of Technology

Delft, the Netherlands

- Designed tailor-made **cost allocation** methods for **local community energy markets**

- Modeled an **integrated community energy system** with renewable generation and storage
- Presented an **economic analysis** framework to assess the performance of various cost allocation methods

Tariff researcher, Segmented energy tariff design for flattening load demand profile

12.2019 - 03.2020

Faculty of Technology, Policy and Management, Delft University of Technology

Delft, the Netherlands

- Designed a **segmented energy tariff** to flatten household load demand
- Proposed an **energy storage control methodology** to facilitate flattening load demand
- **Optimized energy storage size** under segmented energy tariff to save energy costs

Storage instead of coal: a quantitative model of the German electricity market showing the impact of phasing out Hard Coal and Lignite and the introduction of storage

12.2019 - 03.2020

Faculty of Technology, Policy and Management, Delft University of Technology

Delft, the Netherlands

- Modeled the German **electricity market** based on supply and demand function
- Analyzed the impact of the introduction of solar and wind energy on the **electricity price** and **CO2 emissions**
- Presented the option of **energy storage** as a way to balance demand and supply of **renewable energy**

Selected Publications

- **Na Li**, Zofia Lukszo, John Schmitz. An approach for sizing a PV-battery-electrolyzer-fuel cell energy system: a case study at a field lab. Renewable & Sustainable Energy Reviews, 2023, 181, 113308.
- **Na Li**, Özge Okur. Economic analysis of energy communities: investment options and cost allocation. Applied Energy, 2023, 336, 120706.
- **Na Li**, Rudi Hakvoort, Zofia Lukszo. Cost allocation in integrated community energy systems - A review. Renewable & Sustainable Energy Reviews, 2021, 14, 111001.
- **Na Li**, Rudi Hakvoort, Zofia Lukszo. Cost allocation in integrated community energy systems - Performance assessment. Applied Energy, 2021. 307, 118155.
- **Na Li**, Rudi Hakvoort, Zofia Lukszo (2020, October). Segmented energy tariff design for flattening load demand profile. In 2020 IEEE PES Innovative Smart Grid Technologies Europe (ISGT-Europe) (pp. 849-853). IEEE.

Conference & Workshop experiences

- Oral presentation at the IEEE PES Grid Edge Technologies, San Diego, the USA. April 2023. (The presentation was based on a nomination for a Ph.D. dissertation challenge competition award. (54 Ph.D researchers were selected among 150 participants))
- Poster presentation at the PowerWeb - Alliander Collaboration Event, Arnhem, the Netherlands. December 2019. (Cost allocation in integrated community energy systems.)

Skills

- **Language** **English** (IELTS), **Chinese** (native), **Dutch** (A2)
- **Software** LaTeX, Github, C, Coredraw, MS Office & Visio
- **Coding** Matlab, Python & Julia (data analysis & visualization)

Hobbies

- Running and walking in nature, Yoga, Gardening, Cooking, Lego, Traveling, Swimming