Dr. Na Li

EMPOWERING THE CLEAN ENERGY TRANSITION THROUGH MODELING, STRATEGY, AND INSIGHT

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Na is a researcher with expertise in energy system modelling, electricity market analysis, and renewable energy communities. My background spans both academia and industry, combining analytical modeling with practical experience in demand-side flexibility, battery storage, and energy market dynamics. I am motivated by developing data-driven and system-oriented solutions that support the transition toward a more sustainable and intelligent energy system.

Work Experiences

Postdoc researcher 12.2025 - now

Empa (Swiss Federal Laboratories for Materials Science and Technology), Dübendorf, Switzerland

Business Intelligence Analyst 07.2024 - 07.2025

Ore Energy Amsterdam, the Netherlands

Postdoc researcher 09.2022 - 05.2024

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. & B.Sc. at Jilin University 09.2010 - 07.2017

College of Instrumentation & Electrical Engineering Changchun, China

- *Master thesis: Research on Mini-SOSIE based on ternary pseudorandom coding technique*
- *Bachelor thesis: Design of excitation signal generator for Mini-SOSIE based on pseudorandom coding technique*

Project Experiences

Business Intelligence Analyst: Energy system modeling & optimization 07.2024 - now

Ore energy Amsterdam, the Netherlands

- Lead **techno-economic modeling of long-duration energy storage** using PyPSA and custom frameworks.
- Quantify market value of BESS under European market designs (day-ahead, intraday, balancing, and capacity markets).
- Deliver strategic insights to the executive team, linking modeling results with **go-to-market strategies**.
- Collaborate with the battery test team to translate technical performance data into modelling assumptions and commercial KPIs.
- Supervise MSc theses on long-duration energy storage, grid congestion management, and demand-side flexibility.

- Lead the writing of a **white paper** summarizing long-duration energy storage value for external stakeholders.

Postdoc Researcher, Electricity market modeller 09.2022 - 05.2024

Intelligent Electrical Power Grids group, Delft University of Technology Delft, the Netherlands

- Develop an **electricity market equilibrium model** coupled with distribution network tariffs.
- Propose a **multi-level segmented tariff** to activate demand-side flexibility.
- Model EV charging flexibility and household demand-side response to tariffs.
- Coordinate project tasks, partner meetings, and stakeholder workshops.
- Build forecasting pipelines (Lasso regression, neural networks) for day-ahead price prediction.

EV flexibility modeler, Quantifying EV flexibility with segmented network tariffs 11.2023 - 05.2024

Intelligent Electrical Power Grids group, Delft University of Technology Delft, the Netherlands

- Optimized **EV charging** under various pricing incentives and tariff mechanisms.
- Quantified aggregate peak EV charging demand by using **diversity factor**.
- Quantified **EV flexibility** provision to the distribution network to facilitate congestion management.

Energy communities researcher, Social License to Automate in Energy Communities 11.2022 - 05.2024

Collaboration with the International Energy Agency UsersTCP (Technology Collaboration Programme)

- Analyzed demand-side flexibility, **energy governance**, **energy justice**, and **energy democracy** of energy communities.
- Reviewed existing **energy community initiatives** and analyzed their social license potential.
- Conceptualized a framework for clustering energy typologies for **Social License to Automate**.
- Conducted stakeholder interviews and questionnaires to capture diverse perspectives on energy governance and justice.

Hydrogen energy system modeler, Design of a low-carbon hydrogen 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 hydrogen systems.
- **Modeled** a PV-battery-electrolyzer-fuel cell energy system with **real-life data** from The Green Village.
- **Developed** tailored schemes for cost allocation in the energy community at The Green Village.

Local 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**.
- Analyzed **institutional trade-offs** in cost allocation and tariff design, linking economic performance to fairness and acceptance.
- Presented an **economic analysis** framework to assess the performance of various cost allocation methods.
- Developed a **multi-criteria decision-making** framework to evaluate **social acceptance**.

Tariff design 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**.
- Modeled a household energy system with **battery storage**.
- **Optimized energy storage size** under segmented energy tariff to save energy costs.

Energy storage modeler, Transitioning from coal to storage in German electricity market 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**.

Publications

- **Na Li**, Riccardo Maselli, Hesan Ziar, Joep van der Weijden, Özge Okur. Multi-Objective Optimization for a Grid-Connected Hydrogen Integrated Energy Community. 2024 IEEE PES Innovative Smart Grid Technologies Europe (ISGT Europe).
- Nanda Panda, **Na Li**, Simon Tindemans. Aggregate peak EV charging demand: the impacts of segmented network tariffs. 2024 IEEE Transportation Electrification Conference & Expo.
- **Na Li**, Anton Ishchenko, Simon Tindemans, Kenneth Bruninx. Evaluating the impact of new technology deployment on future congestion of LV distribution grids. CIGRE Paris Session 2024.
- **Na Li**, Kenneth Bruninx, Simon Tindemans. Residential demand-side flexibility provision under a multi-level segmented tariff. 2023 IEEE PES Innovative Smart Grid Technologies Europe (ISGT EUROPE), Grenoble, France, 2023, pp. 1-5.
- **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. Cost allocation in integrated community energy systems - Social analysis. Sustainability, 2021, 13(17), 9951.
- **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.

Peer review and national proposal evaluation experience

Journal peer review experience

Renewable & Sustainable Energy Reviews, Applied Energy, IEEE Transitions on Power Systems, Sustainable Energy, Grids and Networks, IET Generation Transmission & Distribution, Frontiers in Energy Research, and IEEE ISGT Europe 2023 and 2024 conference.

National research proposal review

Invited expert reviewer for the Belgian Defence-related Research Action (DEFRA) program (06.2025).

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 TU Delft Hydrogen Research & Innovation event, powered by TU Delft | H_2 Platform, Delft, the Netherlands. April 2023.
- Poster presentation at the 360° Poster Event of the PowerWeb Institute, Delft University of Technology, Delft, the Netherlands. October 2021.
- Oral presentation at the 2020 IEEE PES Innovative Smart Grid Technologies Europe, Delft University of Technology, Delft, the Netherlands. October 2020.
- Poster presentation at the 2019 PowerWeb Institute Conference - Inclusive Energy Transition. Delft University of Technology, Delft, the Netherlands. June 2019.

Teaching and supervision experiences

Teaching

- Assisted in lab teaching, report and presentation examination in the bachelor course "Project Design of Sustainable Energy Supply (ET3036TU)", Faculty of Electrical Engineering, Mathematics and Computer Science, Delft University of Technology. (11.2023 - 01.2024)
- Assisted in Beta test for a MOOC course "Energy Markets of Today", TU Delft, 2020
- Assisted in lab teaching and exam grading in the master course "Energy System Optimization (SET3060)", Faculty of Technology, Policy and Management, Delft University of Technology. (09.2019 - 12.2019)
- Led a research group consisting of 4 MSc students in doing a literature review in the master course, "CoSEM Research Challenges (SEN1311)". (04.2020 - 07.2020)

Supervision at TU Delft

- Supervision of B.Sc student: Bram Haasnoot, Identifying the critical factors that need to be considered to develop a viable iron-air production facility in Europe (03.2025-07.2025)
- Supervision of MSc student: Wouter Groote Veldman, Congestion relief using short duration and multi-day energy storage systems (02.2025-07.2025)
- Supervision of MSc student: Rick Vijverberg, Deployment strategy for mobile energy storage systems to alleviate low-voltage grid congestion (02.2025-07.2025)
- Supervision of MSc student: Stan Renders, ow to thrive without the grid? Aligning energy storage with renewables and industrial demand: A techno-economic analysis of local energy systems to electrify the Dutch chemical industry (02.2025-08.2025)
- Supervision of 3 master students for the program in management of technology (collaboration between Ore Energy company and Delft University of Technology): *Iron-air battery for multi-day energy storage.* (09.2024-11.2024)
- Supervision of CoSEM MSc project: Kenan Salković, *Optimizing Hybrid Energy Storage Systems: a case study at The Green Village*, Delft University of Technology (daily supervisor & graduation committee). (01.2024 - 05.2024)
- Supervision of SET MSc project: Gabriel Yousef, The Potential of Community Energy Storage for Grid Congestion and Prosumer Profitability in the Netherlands' Residential Solar Market, Delft University of Technology (daily supervisor & graduation committee). (02.2023 - 02.2024)
- Supervision of SET MSc project: Jeroen Janssen, Economic analysis of a renewable hydrogen supply chain between Northern Africa and the European Union, Delft University of Technology (graduation committee). (02.2023)

- Supervision of SET MSc project: Riccardo Maselli, Multi-objective optimization of a grid-connected PV-battery-electrolyzer-fuel cell energy system: a case study at The Green Village, Delft University of Technology (daily supervisor & graduation committee). (01.2023 - 09.2023)
- Supervision of SET MSc project: Charlie Linck, A techno-economic calculation method for the implementation of an autonomous solar and storage system to electrify Vopak's storage terminals, Delft University of Technology (daily supervisor & graduation committee). (04.2022 - 10.2022)
- Supervision of CoSEM project: Regine Wagenaar, The financial decentralized energy systems on households, a case study: The Green Village, Delft University of Technology (daily supervisor & graduation committee). (10.2021 - 07.2022)

Other activities

- International Photovoltaic Systems Summer School of Delft University of Technology, 2018
- Energy Community Summer School in Krakow, Poland, 2019

Skills

- **Language: English** (professional), **Chinese** (native), **Dutch** (A2 certified, currently studying toward B1)
- **Software:** LaTex, Github, C, Coredraw, MS Office & Visio
- **Modeling & optimization:** Pyomo, jump, PyPSA, Matlab, SQL
- **Programming:** Python, Julia

Hobbies

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