Sara Sultan

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Energy scientist and engineer, 10+ years advancing clean energy solutions through innovative research, codes and standards, and market transformation. Expertise in thermal energy storage, water desalination, energy materials, building envelopes, solar thermal and hydro power. Proven success in leading energy efficiency initiatives, advising startups, and shaping energy codes. Led cross-functional teams to translate technical research into scalable policy solutions for utilities, state agencies, and national labs.

# KEY EXPERIENCES

## Senior Advisor, California Energy Commission | 2024 – Present | Code Development, Project Management

* Led 2028 California Energy Code updates for efficiency and decarbonization in buildings
* Develop strategic partnerships with industry stakeholders to ensure proposals are feasible, cost effective and adaptable
* Reviewed $50M+ R&D grant proposals to select innovative projects that align with the program’s objectives
* Translated complex research into actionable insights and delivered the presentations to Commissioners.

## Senior Analyst, NV5 | 2023 – 2024 | Energy Performance, AI Solutions, Data Analysis

* Led research for diverse initiatives, such as incentive and rebate programs for state energy efficiency councils.
* Developed AI solutions to streamline and automate administrative and research tasks, reducing processing times by ~5 hours.
* Delivered technical briefs, memos, quarterly newsletters and presentations to state energy councils.

## Research Assistant, Oak Ridge National Laboratory | 2018 – 2023 | R&D, Product Development

* Led DOE-funded projects on grid-interactive energy storage, energy materials, and smart controls saving up to 20% energy.
* Designed control strategries based on utility and grid emissions data and modeled smart thermostat for load shifting.
* Validated heat pump-thermal storage, achieving 50% carbon reduction and 20% utility cost savings across various climates.
* Oversaw experimental design, data analysis, and collaboration with various stakeholders for timely delivery of milestones.
* Brainstormed innovative research ideas and formulated research questions to draft proposals and develop business models.

## Lead Market Analyst, Shift Thermal | 2020 – 2021 | Market Analysis, Stakeholder Engagement

* Advised startup on market transformation for their energy storage prototype, securing 2M+ in seed funding.

## Program Coordinator & Lecturer, University of Haripur | 2017 – 2018 | Leadership & Management, Teaching

* Managed cohort of 300 students; designed curriculum and taught Introductory Physics and Thermodynamics courses.

## Visiting Research Scholar, Oregon State University | 2016 – 2017 | R&D, Technical Writing

* Enhanced electric efficiency of a hydropower system, and determined feasibility of the turbine.

## Research Assistant, U.S.-Pakistan Center for Advanced Studies in Energy | 2014 – 2017 | R&D, Experimental Design

* Designed a solar water desalination system and improved the yield by 20%.
* Developed solar thermal power plant and synthesized solar photovoltaic cell.

# EDUCATION

Ph.D. Energy Science and Engineering**,** *University of Tennessee (UTK) – Knoxville, TN* **|** 2018 - 2023

Graduate Certificate in Mechanical Engineering**,** *University of Maryland (UMD) – College Park, MD* | 2020 – 2021

Masters in Energy Systems Engineering**,** *National University of Science and Technology (NUST) – Pakistan* | 2014 – 2017

Bachlors in Physics**,** *Hazara University – Pakistan* | 2010 – 2014

# LEADERSHIP AND AWARDS

* **Awards:** 40 under 40 (UTK), DOE Fellowship, ACEEE Linda Latham Scholar, IMPEL Innovator (Berkeley Lab)
* **Features:** DOE Stor4Build [publications](https://www.energy.gov/eere/buildings/stor4build-publications), [BTO](https://www.energy.gov/sites/default/files/2023-06/bto-peer-2023-31450-low-ornl-turnaoglu.pdf) peer review, [Scientia](https://scientiamag.org/sara-sultans-groundbreaking-research-on-thermal-energy-storage-inspires-millions-of-pakistani-girls/) Magazine, [ORNL](https://www.ornl.gov/media/82856) Magazine, and ASU [news](https://uspcase.asu.edu/2019/10/23/building-a-network-of-energy-engineers-for-pakistans-future/)
* **Professional Service:** DOE Solar Decathlon Juror, Academic Advisor to PhD students, Peer Reviewer (ACEEE, IEA, MDPI)

# CORE COMPETENCIES AND SKILLS

**Research & Development:** Energy Modeling, Thermal Storage, Heat Pumps, Material synthesis, Water Desalination, Solar thermal

**Energy Policy & Strategy:** Renewable Integration, Demand Management, Code Development, Efficiency Programs, Data Analysis

**Tools:** Notion, Canva, MS Excel and Powerpoint, MATLAB, Python, TRNSYS, RETScreen, CBECC, EnergyPlus, EES