Sangsoo Lee, Ph.D.

Energy Strategy Advisor | Energy & Sustainability Expert

Professional Summary

Energy and sustainability expert with more than 30 years of professional experience in building energy systems, industrial energy optimization, and energy technology consulting. Extensive expertise in energy modeling, HVAC system design and analysis, LEED consulting, renewable energy systems, and industrial process optimization. Former CEO of an energy consulting firm and leader of major corporate energy efficiency projects in commercial buildings, manufacturing plants, and data centers.

Core Expertise

- LEED and Sustainable Building Consulting
- Building Energy Modeling using Simulation Software
- HVAC System Design and Performance Analysis
- Solar PV System Design and Simulation
- Industrial Process Data Analysis and Optimization
- Energy Diagnostics, Commissioning and Optimization of Commercial Buildings

Education

Ph.D., Mechanical Engineering – Iowa State University, USA (May 1999)

GPA: 4.0 / 4.0

Dissertation: Empirical Validation of Building Energy Simulation Software (DOE2.1E, HAP, TRACE)

M.S., Mechanical Engineering – Iowa State University, USA (Aug 1997)

GPA: 4.0 / 4.0

Thesis: Comparative Study between Building Energy Simulation Software and Actual Building Energy Consumption

B.S., Mechanical Engineering – Chonbuk National University, Korea (Feb 1981)

GPA: 3.3 / 4.0

Professional Experience

CEO – ESCO Professionals Co., Ltd. (Feb 2004 – Dec 2025)

Responsible for overall management and consulting services for building and industrial energy efficiency and optimization projects.

Head of ESCO Venture Team – POSCO (Sep 2000 – Jan 2004)

Led energy efficiency projects for commercial buildings and steel manufacturing facilities.

Member – International Energy Agency (IEA) Task Group 22 (Sep 1997 – May 1999)

Participated in the development of energy modeling test procedures and standards.

Researcher – Building Energy Utilization Laboratory, Iowa State University (Aug 1995 – May 1999)

Research on HVAC system modeling and building energy simulation.

Construction Supervisor – POSCO Engineering Division (Jul 1985 – Jul 1995)

Supervised construction projects including production control center, power plant, community center, electro-galvanizing plant, and cold rolling mill.

Mechanical Engineer – Hyundai Heavy Industries (Jul 1983 – Jun 1985)

Platoon Leader – Republic of Korea Army (Mar 1981 – Jun 1983)

Consulting & Project Experience

• Parnas Tower (Seoul) – LEED EA Credit 1 energy modeling (2012)

• SK Chemicals / SKYVAX production facility – LEED energy modeling (2011)

• C8-2 International Office Building – LEED energy modeling and commissioning (2011)

• Samsung C&T Headquarters – LEED energy diagnostics service (2011)

• LG Display (Gumi, Paju) – energy performance consulting and energy management system development (2007–2009)

• LG U+ Data Centers – energy efficiency consulting and clean room/utility optimization (2016–2018)

• PB Korea – sustainable building design consulting (2013)

• Anchor Company, Shanghai – energy technology transfer and consulting training (2016–2017)

• Industrial energy diagnostics for steel, semiconductor and water treatment facilities (2004–2015)

Teaching & Lectures

• Seoul National University of Science & Technology – Building Energy Performance and Energy Simulation (2011–2012)

• Sangmyung University – Energy Diagnostics Overview and Practice (2013)

• Yonsei University – Building Energy Management (2018)

• Various external training programs including ESCO training in Sri Lanka and energy consulting training programs

Research & Development

• Explainable AI (XAI) framework for energy demand data analytics (2022–2024)

• Cloud-based Factory Energy Management System (FEMS) technology development (2021–2024)

• Manufacturing process efficiency improvement technologies for SMEs (2024–2028)

• Integrated district heating network optimization algorithms (2022–2023)

• Smart environmental technology for NOx and particulate reduction in electric furnace plants (2022–2024)

Patents

• Energy system optimization methods for compressors, chillers, and boiler systems (2010)

• Apartment energy consumption monitoring system (2013)

• Real-time building energy diagnostic system (2015)

• Internet data center (IDC) energy diagnostic system (2018)

• Smart district heating operation system (2024)

• Cloud-based distributed factory energy management system (2024)

• Weather forecast-based district heating supply temperature guidance program (2026)

• Optimal HVAC early start calculation program for commercial buildings (2026)