

SANDIP PAUDEL

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PROFILE

Mechanical and renewable energy engineer with hands-on experience across the solar photovoltaic project cycle, from technical due diligence and detailed feasibility studies to financial modeling, lender's technical verification, and energy policy research in Nepal, Bhutan, and Bangladesh. Comfortable moving between engineering assessment and techno-economic analysis, and translating field data into feasibility reports, financial models, and policy briefs. A registered engineer with a computational fluid dynamics thesis background, now focused on energy systems, storage, and the economics of distributed renewable infrastructure.

EDUCATION

Bachelor of Engineering in Mechanical Engineering

Kathmandu University, Dhulikhel, Nepal

2019 – 2024

CGPA: 3.24 / 4.00

Thesis: Numerical Investigation of Double-Jet Phenomena in a Turgo Turbine (ANSYS CFX)

TECHNICAL SKILLS

- **Techno-Economic & Financial:** Feasibility studies (DFS), technical due diligence, energy yield assessment, financial modeling (IRR, DSCR, payback), scenario and sensitivity analysis, Excel-VBA.
- **Simulation & Design:** ANSYS CFX (CFD), SOLIDWORKS (CSWA certified), AutoCAD, CATIA V5, 3D modeling and prototyping.
- **Energy Systems:** Solar PV system design, battery energy storage systems (BESS) sizing and integration, solar water pumping design, energy policy and market analysis.
- **Programming & Tools:** Python (basic), MATLAB (basic), LaTeX, Microsoft Office, Google Workspace, WordPress.
- **Languages:** Nepali (native), English (IELTS Academic 7.0, (L7.5 R7.0 W6.5 S6.5), CEFR C1, Jul 2026).

RESEARCH & PUBLICATIONS

Forecasting the Long-Term Wholesale Price of Nepal Electricity Authority (NEA)

2026

Co-authored policy brief, National Policy Forum (NPF) Energy Policy Fellowship

- Co-authored a policy brief examining the fiscal implications of Nepal's roughly 12,000 MW PPA pipeline on wholesale prices and retail tariffs.
- Reviewed power purchase mechanisms, open-access grid frameworks, and regional electricity trade.

PROFESSIONAL EXPERIENCE

Renewable Energy Engineer

May 2025 – Present

Quasar Energy Consultants Pvt. Ltd., Lalitpur, Nepal

- **Lender's Technical Verification:** Conducted independent technical verification for a 5 MW (6 MWp) utility-scale solar PV plant (East Solar, Jhapa) on behalf of **NMB Bank**. Verified site readiness, civil/structural progress, and reconciled delivered materials against multi-million INR invoices to support the bank's disbursement decisions.
- **Solar PV Portfolios:** Contributed to energy yield assessments, financial projections, and feasibility analyses for a cumulative **12 MW** rooftop solar PV portfolio across 26 sites of Bhatbhateni Supermarket.
- **Technical Due Diligence:** Performed detailed technical due diligence, and authored the verification and bank readiness report for different commercial rooftop solar projects (Gham Urja Sewa) on behalf of the **Dolma Impact Fund**, ensuring asset viability, structural safety, and regulatory compliance.
- **Financial Modeling & TEA:** Co-developed a scalable Excel-VBA tool simulating over 17,000 scenarios to identify sustainable Public-Private-Community Partnership (PPCP) business models for "Water as a Service" (WaaS) lift irrigation systems on behalf of the **International Water Management Institute (IWMI)**.
- **Feasibility Studies (DFS):** Conducted preliminary feasibility assessments and prepared the Detailed Feasibility Studies (DFS) for solar-powered lift irrigation systems across six pilot sites in Nepal, Bhutan, and Bangladesh under the GAC-funded, **ICIMOD**-led HI-CAS project.
- **Curriculum Design & Capacity Building:** Led the planning, curriculum design, and stakeholder communication for a 12-hour applied Battery Energy Storage Systems (BESS) course at Khwopa College of Engineering. Co-developed all instructional materials (slides, datasheets, numerical worksheets, load profiling exercises) and assessment tools, which measured a 58% increase in students' confidence in BESS sizing. Additionally, designed the technical curriculum for an online "Solar PV Grid-Connected System Design" course for Skill Lab Asia.
- **Market Intelligence & Policy Analysis:** Co-authored industry intelligence reports, including the *Market Landscape Assessment* and the *Gham Power Competitive Study*. Supported data collection and analysis for the *Energy Sector Synopsis Report* (Madhesh Province) and the *Energy Sector Stocktake of Mozambique* for NDC 3.0 climate goals.

- **Business Development & Digital Advocacy:** Prepared technical proposals in response to national and international RFPs and managed the company's digital advocacy presence by creating technical content on energy and climate topics.

Energy Policy Fellow

January 2026 – March 2026

National Policy Forum (NPF), Kathmandu, Nepal

- Completed a structured mentorship analyzing Nepal's energy policy, open-access grid frameworks, and regional trade.
- Co-authored and published the policy brief "*Forecasting the Long-Term Wholesale Price of Nepal Electricity Authority (NEA)*", examining the fiscal implications of a 12,000 MW PPA pipeline on wholesale pricing and retail tariffs.

Renewable Energy Intern

February 2025 – May 2025

Quasar Energy Consultants Pvt. Ltd., Lalitpur, Nepal

- Assisted with financial projections for rooftop solar projects and researched national renewable energy policies and development programs (NREP, GIZ-POSTED).
- Prepared technical drawings in AutoCAD for energy infrastructure, including EV charging station layouts.

Mechanical Engineering Intern

January 2024 – April 2024

Kaligandaki A' Hydropower Plant (NEA), Syangja, Nepal

- Conducted daily mechanical inspections and monitoring of 144 MW hydropower generation units, including Francis turbines, synchronous generators, and auxiliary cooling systems.

ACADEMIC & ENGINEERING PROJECTS

Numerical Investigation of Double-Jet Phenomena in a Turgo Turbine

2023 – 2024

- Built a 3D multiphase CFD model in ANSYS CFX to study jet interaction and bucket filling in a dual-jet Turgo turbine test rig. Calculated torque and power output, identifying efficiency losses from jet interference.

Design and Analysis of Harmony Wind Turbine (VAWT)

2023

- Conducted aerodynamic analysis of a modified Savonius vertical-axis wind turbine using CFD simulations (ANSYS CFX) to evaluate pressure distribution, and fabricated a 3D-printed PLA prototype to physically validate rotational mechanisms.

Design and Fabrication of Archimedes Screw Turbine

2022

- Engineered a low-head micro-hydro screw turbine and conducted experimental performance testing across inclination angles from 20° to 40° to optimize volumetric flow rate and energy extraction efficiency.

Design and Modeling of a Seedling Transplanter

2021

- Modeled a manually operated seedling transplanter in CATIA V5 and assessed usability, structural integrity, and material selection to improve agricultural labor efficiency.

CERTIFICATIONS & CREDENTIALS

- **Registered Mechanical Engineer**, Nepal Engineering Council (License No. 12056, Oct 2024)
- **Applied Battery Energy Storage System (BESS) - Training Assistant**, Khwopa College of Engineering (Jun 2026)
- **Fundamentals of Future Energy Storage**, University of Newcastle (May 2026)
- **Computational Fluid Dynamics Fundamentals**, Udemy (Dec 2025)
- **Introduction to Climate Change and Carbon Markets**, atingi.org (Aug 2025)
- **A Hands-on Introduction to Engineering Simulations**, Cornell University via edX (Jun 2025)
- **Engineering for New Energy**, APA Group via Forage (Mar 2025)
- **EV Engineering Intro**, Forage (Jan 2025)
- **Solar PV Implementation Essentials**, Quasar Energy Consultants (Jan 2025)
- **AutoCAD Essentials**, SourceCAD (Dec 2024)
- **Climate and Energy Certification**, Quasar Energy Consultants (Dec 2024)
- **SOLIDWORKS Associate Certifications**: CSWA, Additive Mfg., Electrical Design, Sustainability, 3DSwymer (Aug 2024)
- **LaTeX Workshop for Scientific Writing**, Kathmandu University (Aug 2023)
- **EV Specialization Crash Course**, DIYguru (Dec 2022)
- **MATLAB Onramp**, MathWorks (Jan 2022)

LEADERSHIP & COMMUNITY

Event Manager, Aviyantaa X USC 2023

2023

Association of Mechanical Engineering Students, Kathmandu University

- Coordinated logistics and stakeholder engagement for a university-wide technical exhibition, and facilitated a Training of Trainers session on STEM education for school teachers with Kathmandu Metropolitan City.

REFERENCES

Dr. Sailesh Chitrakar

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