Shipon Chandra Barman

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Summary

I am a Renewable Energy, Quality Engineering, and Smart Energy Systems Specialist with a strong foundation in industrial engineering, chemical engineering, advanced manufacturing, and sustainable energy technologies. My work bridges renewable energy manufacturing, supplier quality engineering, and artificial intelligence to address real-world challenges in solar infrastructure reliability, manufacturing optimization, supply chain resilience, and energy system performance. Through my research, publications, and professional experience in the U.S. solar industry, I have contributed to advancing knowledge in AI-enabled energy systems, renewable energy sustainability, smart grids, and clean energy technologies. As the inventor of a UK-registered Solar Power Output Quality Optimizing Device, I remain committed to innovation and continuous improvement within the renewable energy sector. Looking ahead, my goal is to develop AI-driven solutions that strengthen U.S. solar manufacturing, improve energy infrastructure reliability, enhance grid resilience, and support the nation's transition toward a more secure and sustainable energy future.

Education

MS in Industrial Engineering, *University of New Haven* 08/2022 – 05/2024
West Haven, CT, USA

BS in Chemical Engineering and Technology, 09/2017 – 06/2021
Beijing University of Chemical Technology Beijing, China

Diploma in Chemical Engineering, *Dhaka Polytechnic Institute* 10/2011 – 01/2016
Dhaka, Bangladesh

Work Experiences

Supplier Quality Engineer, *GameChange Energy* 01/2026 – Present
Norwalk, Connecticut

- Supplier Quality & Process Control: Execute supplier quality plans for raw material, in-process, and outgoing inspections to ensure compliance with engineering drawings and ASTM standards. Lead supplier inspections, oversee vendor inspectors, and strengthen process controls through Control Plans and capability studies across steel fabrication processes including stamping, welding, machining, and galvanization.
- Root Cause & Corrective Actions: Investigate field and supplier-related non-conformities using 8D, FMEA and MSA methodologies. Implement effective corrective and preventive actions, lead audits, and review FAI, AQL inspections and RCCA reports to drive defect reduction and continuous improvement.
- Collaboration & Continuous Improvement: Partner with Engineering, Operations, Supply Chain, and external auditors to maintain quality excellence and minimize risks to delivery. Train vendor inspectors, analyze supplier performance data, and support ongoing supplier development initiatives.

Manufacturing Engineer, *Altec Air, LLC* 06/2025 – 10/2025
Lancaster, New York

- Process Improvement and Quality Enhancement: Responsible for improving the solar cell manufacturing used desiccant dryer testing process by integrating advanced testing tools and data collection systems. These efforts aim to enhance the accuracy and efficiency of performance testing, ultimately strengthening product reliability and supporting quality assurance objectives.
- Lean Manufacturing and Workflow Optimization: Involved in conducting Value Stream Mapping and implementing 5S initiatives to identify process inefficiencies, optimize workflow, and improve shop floor organization. These lean manufacturing activities help reduce operational waste and increase overall production efficiency.
- Cross-Functional Collaboration and Continuous Improvement: Collaborating with cross-functional teams, including product development, design, and quality engineering, to provide manufacturing input for new product introductions. Supporting continuous improvement of existing processes by applying lean systems and process design principles to enhance overall operational performance.

Process Engineer, *Hanwha Qcells USA Inc* 11/2024 – 05/2025
Dalton, Georgia

- Process Improvement: Collaborate with Product Development (PD), Quality Control (QC), and Equipment (EQ) teams to optimize the solar panel manufacturing process. Conduct the EMI data-driven analysis to identify process inefficiencies from the Tabber to the Framer, implementing targeted improvements to enhance production efficiency.
- Defect Analysis: Monitor daily defect trends (e.g., EL/Crack, Gap, Residue, Scratch) and perform root cause analysis to identify underlying issues. Develop and implement corrective and preventive actions, including machine adjustments, process optimization, and operator/technician training, to minimize defects and improve yield.
- Quality Control: Collaborate with the QC team to ensure product compliance through routine quality checks before final quality control (FQC). Assist in internal and external audits, conducted daily defect overkill analysis, and collaborated with QC to refine defect detection modules, enhancing overall product quality and process reliability.

Manufacturing Process Engineer I, *Shanghai Hutchison White Cat Co. Ltd.* 04/2020 – 08/2022
Shanghai, CN

- Process Evaluation & Improvement: Analyzed liquid soap and detergent manufacturing plant's processes, collaborated with suppliers, companies and operators to enhance efficiency and quality through lean principles. Implemented changes for improvement, optimizing workflows.
- Manufacturing Process Development: Worked closely with the R&D department for improving existing liquid soap detergent manufacturing methods and upcoming manufacturing challenges.
- QA & Optimization: Established testing methods and standards. Using Minitab statistical software, TAP Root software identified the root causes of failures, driving improvements in design and processing methods

Skills

Software Skills
Microsoft Office, Excel, PowerPoint, Auto CAD, Minitab, Genesys, SAP ERP, ChemCAD, EMI, Aspen Plus, MATLAB.

Language Skills
- English
- Chinese
- Bengali

Publications

Additive Manufacturing of Lightweight, Fire-Resistant Alloys for Automotive and Aerospace Applications, *Journal of Mechanical, Civil and Industrial Engineering* 12/01/2025

Cloud Enabled AI Smart Energy Infrastructure for Industrial and Utility Applications, *2025 8th International Conference on Energy* 12/01/2024

Experimental Optimization of Photovoltaic Module Lamination Parameters Using Design of Experiments and Statistical Process Control, *Energy Environment and Economy* 12/01/2024

A Hybrid GIS–MCDM Framework for Regional Renewable Energy Prioritization under Energy Security Constraints in the United States, *Paradise* 12/01/2024

Artificial Intelligence Enabled Manufacturing Optimization Strategies for Enhancing Resilience and Scalability of Domestic Photovoltaic Supply Chains-A Systemic Review, *Business and Social Sciences* 12/01/2023

Coupled dynamics of ecological footprints under energy transition, land use change, and urbanization: An econometric systems analysis, *International Journal on Economics, Finance and* 12/01/2023

Integrated artificial intelligence and stochastic optimization framework for resilient and low carbon renewable energy manufacturing systems, *Energy Environment and Economy* 12/01/2022

Socioeconomic and institutional determinants of public acceptance of waste-to-energy policies: Evidence for sustainable energy transitions, *Innovative: International Multi-disciplinary Journal* 12/01/2022

Experimental validation of earth abundant heterogeneous catalysts toward sustainable energy conversion, *Central Asian Journal of Theoretical and Applied* 12/01/2021

A study on hybrid manufacturing systems integrating additive manufacturing and CNC machining for high-precision industrial component production, *Journal of Mechanical, Civil and Industrial Engineering* 12/01/2021

Heterogeneous catalysis for industrial waste to energy conversion process design and environmental implications, *Journal of Primeasia* 12/01/2020

Submitted Articles

Enhancing Efficiency, Resilience, and Sustainability of Smart Grids and Micro grids for Next-Generation Energy Systems, *Springer Nature, Journal: Energy, Sustainability and Society (Q1 Journal)*

Climate Change Mitigation Through Renewable Energy and Electric Vehicles in Smart Urban Systems: A Multi-Criteria Decision Analysis, *Journal: Miscellane Geographica - Regional Studies on Development (Q3 Journal)*

Energy Efficiency and Environmental Sustainability in Dynamic Renewable Energy Systems Powered by Artificial Intelligence, *IEEE (Conference Paper)*
Citations: 62 globally

PATENT

Solar Power Output Quality Optimizing Device 2026

- Approval: UK Government Approved
- Design Number: 6528715
- Class: 13 EQUIPMENT FOR PRODUCTION, DISTRIBUTION OR TRANSFORMATION OF ELECTRICITY
- Subclass: 04 SOLAR EQUIPMENT

Awards

Clean Energy Tech Award 2026, 03/2026
Sixth International Conference on Research Methodology (COM 6.0 2026)

Dean Scholarship, *University of New Haven* 01/2022

Chinese Debate Competition Award, *Beijing University of Chemical Technology* 09/2018

Outstanding International Student Awards, 09/2018
Beijing University of Chemical Technology

Chinese Government Scholarship for Undergraduate Studies, 08/2016
Chinese Scholar Council (CSC)

Enterprise Challenge Awards, 12/2011
Bangladesh Technical Education Board and British Council

Transparency International Bangladesh Awards, 11/2010
Transparency International Bangladesh

Certification

Six Sigma Black Belt

Occupational Safety and Health: Hazard Communication

Operational Excellence Work-Out and Kaizen Facilitator

A3 Problem Solving and Continuous Improvement

Machine Learning in Production
Coursera

Hazard Analysis Critical Control Points

Project and Risk Management

Root Cause Analysis: Getting to the Root of Business Problems

Membership and Peer Reviewer

Editorial Board Member, Frontiers in Computer Science and Artificial Intelligence

Reviewer, Energy Environment and Economy

Member, Royal Golden Fellow

Member, Institute of Electrical and Electronics Engineering (IEEE)

Member, American Solar Energy Society (ASES)

References

Nadiye Ozlem Edril, Ph.D., *Associate Professor,* University of New Haven
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Brian Gould, *Head of Global Quality,* GameChange Energy
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