CHARLES NII-BAAH AMOO

camoo@vols.utk.edu | amoocn@ornl.gov |+1-832-660-1945 | 609 Hedgeapple Ln, Apt 2, Knoxville, TN 37920, USA

Summary

Clean energy and sustainability expert with extensive experience in energy efficiency, decarbonization strategies, and renewable energy technologies. Proven track record in research, energy modeling, and policy analysis to drive sustainable solutions. Passionate about leveraging data-driven insights and innovative technologies to advance clean energy adoption and support climate goals.

Skills

- Clean Energy & Decarbonization Strategies
- Energy Efficiency & Renewable Technologies
- Energy Systems Modeling & Data Analytics
- Sustainability Policy & Climate Impact Analysis
- Project Management & Stakeholder Engagement
- Software & Tools: MS Excel, Python, R

Professional Experience

Graduate Research Assistant   01/2021 – 05, 2025

Bredesen Centre for Interdisciplinary Research & Graduate Education, University of Tennessee | Knoxville (subcontracted to Oak Ridge National Laboratory, TN)

- Led research on energy efficiency programs, clean energy adoption, and decarbonization strategies for DOE-funded projects.
- Developed multi-criteria frameworks to evaluate energy audit software for low-income households, enhancing program effectiveness.
- Conducted primary and secondary research on energy efficiency programs and demand-side management solution
- Designed surveys and data collection instruments to assess energy program adoption and efficiency trends.
- Analyzed large datasets to identify patterns in energy consumption and develop actionable recommendations.
- Conducted data-driven research on energy efficiency and sustainability strategies to support federal and industry initiatives.
- Developed analytical models to assess energy systems and their long-term sustainability impacts.
- Managed technical documentation and presented findings to stakeholders to support decision-making.
- Assisted in developing tools and methodologies to enhance project outcomes.

Business Development Manager & Energy Engineer   01/2018 – 12/2020

Zanet Energy Solutions | Accra

- Led strategic energy market research to optimize client investment decisions.
- Assisted clients in navigating regulatory requirements and project feasibility assessments.
- Developed data-driven strategies to support clients in sustainability-focused investments.
- Collaborated with stakeholders to improve project outcomes and optimize resource use.
- Provided consulting support for corporate decarbonization strategies, working with internal and external stakeholders to align with sustainability targets.

Research Intern   01/2020 – 08/2020

GreenMax Capital Advisors – Consulting Group | New York
- Conducted market analysis on renewable energy deployment opportunities in Sub-Saharan Africa.
- Supported risk mitigation strategy development for clean energy financing mechanisms.
- Collaborated with solar developers, banks, and industry stakeholders on the World Bank's 2020 RISE publication, contributing insights on green energy finance.

Education and Training

Energy Science and Engineering, Ph.D.   Expected May 2025

The University of Tennessee, Knoxville, TN | USA
- **Research Focus:** Energy Efficiency, Renewable Energy Technologies, Decarbonization Strategies
- **Dissertation**: *Low-Income Energy Efficiency Programs: A Multi-Criteria Framework for Energy Audit Software and Conservation Measure Evaluation*

Master of Energy   2017
The University of Auckland | New Zealand
- **Thesis**: Modelling of Electric Vehicle Growth and the Impact on Liquid Fuel Consumption

Bachelor of Science: **Petroleum Engineering**   2013
Kwame Nkrumah University of Science & Technology | Kumasi, Ghana
- **Thesis:** Overcoming Environmental Challenges at Saltpond Oil Field

Selected Publications

- **Amoo, C.**, Malhotra, M., Eckman, W. And New, J. (2025). A Comprehensive Review of Lifetime Estimation Methodologies for Energy Conservation Measures and Their Impact on Energy Savings Calculations. (Accepted for publication in ASHRAE Journal and presentation at 2025 Winter Conference at Orlando, Florida)
- **Amoo, C.**, New, J., & Eckman, B. (2024). *A Multi-Criteria Framework for Assessing Energy Audit Software for Low-Income Households in the U.S.* Journal of Energy Efficiency. DOI: 10.1007/s12053-025-10295-4 (accepted for publication).
- **Amoo, C.**, Malhotra, M., & Eckman, B. (2024). Methodology for Evaluating Allowable Measure Lifetime in the Weatherization Assistance Program (No. ORNL/TM-2023/3304). Oak Ridge National Laboratory (ORNL), Oak Ridge, TN (United States) *(awaiting DOE approval)*.
- **Amoo, C. N**., Malhotra, M., & Eckman, B. (2024). *Optimizing Energy Savings Calculations: A Comprehensive Review of Measure Lifetime Estimation for Energy Conservation Measures*, Renewable and Sustainable Energy Reviews, Elsevier (under review).
- Malhotra, M., Eckman, B & **Amoo, C**. (2024). "Web-Based Weatherization Assistant Getting Started Guide." Technical Report. ORNL/TM-2023/2833-R1. https://doi.org/10.2172/2372976
- Bass, Brett, New, Joshua R., Clinton, Nicholas, Adams, Mark, Copeland, Bill and **Amoo, Charles** (2022). "How close are urban scale building simulations to measured data? Examining bias derived from building metadata in urban building energy modeling." Journal of Applied Energy, volume 327(1), doi.org/10.1016/j.apenergy.2022.120049, Dec. 1, 2022. https://doi.org/10.1016/j.apenergy.2022.120049
- Bass, Brett, New, Joshua, **Amoo, Charles**, Ezell, Evan and Copeland, William (2021). "Using Measured Building Energy Data to Infer Building Type for Building Energy Modeling." ASHRAE/IBPSA-USA 2022 Building Performance Analysis Conference and SimBuild (BPACS), Chicago, IL, Sept. 14-16, 2022. [PDF] [PPT]

Professional Membership

- Association of Energy Engineers (AEE)
- American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)
- Project Management Institute (PMI)

Conferences

- *ASHRAE Winter Conference,* Orlando, FL, 2025 – Speaker
- *National Institute of Building Science (NIBS) Building Enclosure Science and Technology (BEST6) Conference,* Austin, 2024 – Speaker
- *University of Tennessee Oak Ridge Innovation Institute (UT-ORII) Research Symposium,* Tennessee, 2024 – Presenter
- *ASHRAE Winter Conference,* Chicago, 2024 – Participant
- *4th Ghana Renewable Energy Fair,* Accra, Ghana – Co-presenter on Renewable Energy Adoption in Secondary Schools.

Awards & Recognitions

- **Graduate Advancement Training and Education (GATE) Fellowship**, UT-ORII, 2023-2025
- **Innovate2030 SDG13 Program Top 10 Solution**, Ekipa, 2023
- **Bredesen Center Fellowship**, University of Tennessee, Knoxville, 2020
- **New Zealand Development Scholarship (NZDS)**, 2016
- **Society of Petroleum Engineers (SPE) Star Scholarship**, USA, 2012

Key Highlight for Role

- **Proven Expertise in Clean Energy & Sustainability:** Extensive experience in renewable energy, energy modeling, and policy research.
- **Proficiency in Data Analysis & Research:** Strong background in statistical modeling, program evaluation, and impact assessments.
- **Strategic Problem-Solving & Stakeholder Engagement:** Skilled in collaborating with diverse teams to implement clean energy solutions.
- **Passion for Advancing Clean Energy Transitions:** Committed to driving innovation in energy efficiency and decarbonization strategies.