



# Dr. Muluken Zegeye GETIE

*Researcher and Assistant professor*

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## Professional Profile

**Muluken Zegeye Geite (PhD)** is a passionate and highly skilled researcher and Assistant Professor with a Ph.D. in Energy Engineering, specializing in renewable energy systems, energy modeling, and sustainable technology design. With extensive expertise in renewable energy conversion, efficiency improvement, and environmental impact assessment, I have led projects on household energy technologies, renewable-powered irrigation systems, water pumping solutions, and policy-driven interventions. My work focuses on clean energy access, energy policy, auditing, and energy dispatch optimization systems, particularly in resource-scarce areas. I bring substantial experience in project management, student mentorship, academic publishing, and fostering international collaborations. With advanced training in energy system explicit models and technology adaptation, I am committed to advancing sustainable energy solutions and achieving universal access to affordable, reliable, and modern energy.

**Relevant skills:** Energy system modeling, OSeMOSYS, MATLAB, Python, and Energy Dispatch Optimization.

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## Educational Background

- **PhD in Energy:** *Université Bourgogne Franche-Comté*, Belfort-France, 2021
- **MSc in Sustainable Energy Engineering:** Bahir Dar University, Ethiopia, 2014
- **BSc in Industrial Engineering:** Mekelle University, Ethiopia, 2005

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## Professional Experience

Professional experience	Major accomplishments
Assistant Professors, Bahir Dar institute of Technology,	▪ Teach advanced courses in renewable energy systems, energy modeling, and sustainable energy technologies.

16,04,21- to date	<ul style="list-style-type: none"> <li>▪ Supervise MSc and co-supervise PhD candidates, overseeing 8 successfully completed theses.</li> <li>▪ Conduct and leading cutting-edge research in renewable energy modeling, design, and optimization with a focus on sustainability and innovation.</li> <li>▪ Organizing international conference as organizing committee member and conference general co-Chair for three consecutive years</li> <li>▪ Editorial Roles: Acted as editor and peer reviewer for high-impact journals in energy systems and technologies.</li> <li>▪ Participated as reviewer in different journals</li> </ul>
<b>Lecturer,</b> Bahir Dar institute of Technology, 22,07,14- 15,04,21	<ul style="list-style-type: none"> <li>• Contributed to the development and revision of undergraduate mechanical engineering curricula to ensure alignment with academic and industry standards.</li> <li>• Played a key role in organizing laboratory facilities</li> <li>• Delivered high-quality lectures for UG students more than 6 courses.</li> <li>• Conducted impactful research, contributing to advancements in the field and fostering innovation in the area of energy.</li> </ul>
<b>Assistant Lecturer,</b> Bahir Dar institute of Technology, 22,03,2012- 21,07,2014	<ul style="list-style-type: none"> <li>▪ Assisting senior staff members</li> <li>▪ Conducting tutorials for UG students</li> <li>▪ Advising students</li> <li>▪ Organizing laboratories</li> </ul>
<b>Instructor,</b> Bahir Dar Polytechnic college, 15,04, 2008- 21,03,2012	<ul style="list-style-type: none"> <li>▪ Conducting practical training for advance diploma students in the area of electromechanical technology</li> <li>▪ Delivering lecture</li> <li>▪ Conducting Technology Transfer</li> <li>▪ Providing industry extension service</li> </ul>

### Leadership experience

Professional experience	Major Responsibilities
<b>Deputy Scientific Director for Research and Technology Transfer,</b> Bahir Dar institute of Technology, 25,03,24- to date	<ul style="list-style-type: none"> <li>• Lead and manage research, community engagement, innovation, and technology transfer activities at Bahir Dar Institute of Technology.</li> <li>• Provide strategic direction for 3 research centers, one innovation hub, and one university-industry linkage office, one central research office, fostering interdisciplinary collaborations.</li> <li>• Oversee maker spaces and organize workshops, two international conferences annually, and events to disseminate research and enhance the institute's visibility.</li> <li>• Build partnerships with stakeholders, develop policies to improve research quality, and secure funding for innovation projects.</li> </ul>

	<ul style="list-style-type: none"> <li>• Ensure compliance with research ethics, intellectual property standards, and evaluate performance for continuous improvement.</li> <li>• Evaluate the performance of research, community engagement, and innovation activities and deliver comprehensive reports.</li> </ul>
<b>Research Director,</b> Bahir Dar institute of Technology, 23,02,22- 24,03,24	<ul style="list-style-type: none"> <li>• Plan, Manage and coordinate all research activities of the institute for two years</li> <li>• Supervised and guided the institute's research agenda, ensuring alignment with national and global priorities.</li> <li>• Secured research funding and managed grant administration for multiple projects.</li> <li>• Organize two international conferences and two national workshops, Award and follow up internal research grants to researchers, Organize capacity development training.</li> <li>• Create international links</li> <li>• Establish one institutional Journal (PJET) Prepare research related plans and reports</li> </ul>
<b>Faculty Dean,</b> Bahir Dar institute of Technology, 10,08,2015- 14,03,2018	<ul style="list-style-type: none"> <li>• Manage the teaching learning, research and community service of the faculty. Manage 18 laboratories, more than 160 academic staffs and around 3000 students in (4 undergraduate, 6 M.Sc., and 4 PhD) programs.</li> <li>• Establish and maintain partnership with industries</li> <li>• Coordinate and develop capacity development strategy for the faculty</li> </ul>
<b>Income generation Coordinator,</b> Bahir Dar Polytechnic college, 24,12,2013- 05,09,2015	<ul style="list-style-type: none"> <li>• Lead, coordinate, and manage the overall activities of the institute's income generation office.</li> <li>• Prepare and verify purchase orders to ensure accuracy and compliance with procurement policies.</li> <li>• Develop, review, and approve pricing strategies for products and services.</li> <li>• Oversee and optimize the utilization of manpower, resources, and machinery to ensure operational efficiency and productivity.</li> </ul>

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## Skills

- Proficient in energy modeling tools such as MATLAB, Python, and OSeMOSYS.
  - Expertise in project management and interdisciplinary research coordination.
  - Strong leadership, strategic planning, and problem-solving skills.
  - Experienced in academic publishing, journal editing, and peer reviewing.
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## Grants:

- Participated in more than 6 national and international grants as CO-PI for the past 5 years.
- Got International grant award on “*Exploring the Implications of Households Cooking Entirely with Electricity in Ethiopia*” from MECs program Loughborough University in the year 2022 as PI.

- As Deputy Scientific Director for Research and Technology Transfer, I am supervising over 30 nationally and internationally funded R&D projects. I oversee the innovation and makerspace, the University-Industry Engagement Office, and key research centers such as the Bahir Dar Energy Center, the Food and Nutrition Research Center, and the ICT4D Research Center. My role ensures the integration of research, innovation, and technology transfer to promote collaboration, impactful research, and sustainable development.

## Awards and Recognitions

- Recognition for article publishing linked to United Nations Sustainable Development Goals, helping to tackle some of the world's greatest challenges between 2020 - 2022.
- Research innovation on solar cooker technology, 2023, National Award by dashen Kefeta
- Bruh2023 competition with innovative briquettes technology, 2023, Bruh Ethiopia national competition
- Supporting the advancement of women in the Energy sector through a role as mentor in the energizing Women to advance the Energy Transition Mentorship program (June 2021-September 2022).
- Successful completion of the Energy Modelling Platform for Africa (EMP-A) 2021 training program from 22 November to 10 December 2021, with specialization in the tracks of OSeMOSYS and FlexTool.
- Successful completion of seminar on electrification mode based on clean energy for road and belt countries from March 16-29/2023, in China

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## Professional Memberships

- Board member, Amhara metal development industry and technology enterprise from 2022-2023
- Professional Member, Ethiopian Society of Mechanical Engineers (ESME)

## Research Interests

- Renewable Energy Systems Design and Optimization
- Energy System Modeling and Simulation
- Sustainable Energy Technologies and Innovation
- Policy Development for Renewable Energy Integration
- Clean Energy Access and Energy Transition Strategies

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## Publications

✚ Authored/co-authored nearly 35 peer-reviewed journal articles in high-impact journals. The details could be found: <https://scholar.google.com/citations?user=gAMXPVMAAAAJ&hl=en&oi=ao> or <https://www.researchgate.net/profile/Muluken-Getie-2>

✚ Key publications include:

- ✓ Bantelay Dessie Tarekegn, Gebresenbet Girma, Admasu Bimrew Tamrat, Tigabu Muluken Temesgen, **Getie Muluken Zegeye** (2024). Performance prediction of a pump as a turbine using energy loss analysis. <https://doi.org/10.1016/j.egy.2024.09.028>
- ✓ Feleke Dessalew Shite, **Getie Muluken Z.**, Minale Temesgen Asefa: (2024), Numerical investigation of louver edges effect on the performances of louvered fin compact heat exchanger; Heliyon, Vol (10), <https://doi.org/10.1016/j.heliyon.2024.e27254>

- ✓ Demissie Yared A.; Abreham Rewla E., Wassie Hailemariam M., **Getie Muluken Z.**; (2024), Advancements in solar greenhouse dryers for crop drying; Energy reports, vo(11),PP (5046-5058) <https://doi.org/10.1016/j.egyr.2024.04.058>
- ✓ Wassie, Hailemariam M; **Getie, Muluken Z**; Alem, Mulat S; Kotu, Teshome B; Salehdress, Zelalem M; (2022), Experimental investigation of the effect of reflectors on thermal performance of box type solar cooker, Heliyon, <https://doi.org/10.1016/j.heliyon.2022.e12324>
- ✓ Alemu, Molla Asmare; **Getie, Muluken Zegeye**; (2024), Experimental study on the performance of household electric cooking stoves: Locally made versus imported technologies; Energy Reports, <https://doi.org/10.1016/j.egyr.2023.11.045>
- ✓ **Getie, Muluken Z**; Lanzetta, François; Bégot, Sylvie; Admassu, Bimrew T; Djetel-Gothe, Steve; (2023), Parametric Investigation and Univariant Optimization of Domestic Stirling Refrigerator; International Journal of Energy Research
- ✓ **Getie, Muluken Z**; Lanzetta, François; Bégot, Sylvie; Admassu, Bimrew T; Djetel-Gothe, Steve; (2021), A non-ideal second order thermal model with effects of losses for simulating Beta-type Stirling refrigerating machine, International Journal of Refrigeration
- ✓ **Geite, Muluken Z.**; Lanzetta, Francois; Begot, Sylvie; Admassu, Bimrew T.; DJETEL GOTHE, Steve; (2021), Performance analysis of Beta-type Stirling cycle refrigerator for different working fluids; EAI International Conference on Advancements of Science and Technology
- ✓ **Getie, Muluken Z**; LANZETTA, Francois; BEGOT, Sylvie; ADMASSU, Bimrew T; (2021), Investigation of thermal and fluidic losses and their effect on the performances of a Stirling refrigerator Entropy: Thermodynamics–Energy–Environment–Economy
- ✓ **Zegeye Muluken**, Tadiwos Tassew, Abdulkadir Aman; (2014). Optimal sizing of solar water pumping system for small scale irrigation: Case study of Dangila. International Journal of Renewable and Sustainable Energy
- ✓ **Getie, Muluken Z**; Lanzetta, Francois; Begot, Sylvie; Admassu, Bimrew T; Hassen, Abdulkadir A; (2020), Reversed regenerative Stirling cycle machine for refrigeration application: a Review; International Journal of Refrigeration
- ✓ Sylvie Bégot, **Muluken Z. Getie**, Alpha Diallo, François Lanzetta, Magali Barthès, Michel de Labachellerie; (2021), A Novel Model and Design of a MEMS Stirling Engine; International Journal of Heat and Technology
- ✓ Cherkos, Tomas; **Zegeye, Muluken**; Tilahun, Shimelis; Avvari, Muralidhar; (2018), Examining significant factors in micro and small enterprises performance: case study in Amhara region, Ethiopia; Journal of Industrial Engineering International
- ✓ **GETIE, Muluken Zegeye**; DEGEFA, Mehare; (2020), Assessment of trend and determinant factors for household energy utilization choice in urban areas of Ethiopia: Case of eastern Amhara; Journal of Energy Management and Technology

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## Conferences

- Participated in EAI International conference on the Advancement of Science and Technology as author, presenter, reviewer, organizing committee member, Conference general co-chair, and book editor for the conference proceeding for the last consecutive years
- Participated as committee member for 2023 IEEE International Conference on Omni-layer Intelligent Systems (COINS)
- Participated in the SFT French Thermal Congress from 2019 to 2021