Curriculum Vitae: Samuel Gyamfi

Associate Prof. Samuel Gyamfi
(PhD, MSc, BE, MIEAust)

Born on 10.07.1975 in Kumasi, Ghana

Married with Two Children

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Samuel Gyamfi is an Associate Professor in the Department of Renewable Energy Engineering at the University of Energy and Natural Resources, Sunyani, Ghana. He is currently the Deputy Director of the Regional Center for Energy and Environmental Sustainability and the Dean of the School of Energy. Samuel held the Dean of Students Affairs position from August 2017 to August 2019. He was the Acting Head of the Mechanical and Manufacturing Engineering Department from August 2015 to August 2017.

Samuel was appointed a Senior Adjunct Lecturer at the School of Engineering and Information Technology of Murdoch University, Western Australia from August 2014 to July 2017. He held Lecturer Position in the same school 2011 to 2014. He held Research Associate and Teaching

Assistant positions at the Advanced Energy and Materials Systems Laboratory (AEMSLab) at the University of Canterbury, New Zealand, from 2010 to 2011. In 2007- 2008 he was a Visiting Research Scientist at the Juelich Research Centre in Germany where he was involved in energy demand side management and demand response modeling.

Samuel is currently leading the implementation of a five-million-dollar China South-South Cooperation project between the Ghana government and the government of the People's Republic of China. He played a key role in the writing of a proposal that won and established the Regional Center for Energy and Environmental Sustainability (RCEES), which is one of the World Bank Centers of Excellence for Development Impact at UENR. He is the local project coordinator for the European Union Project on Enhancing Entrepreneurship, Innovation, and Sustainability in Higher Education in Africa (EEIS-HEA).

Samuel received his Ph.D. in Mechanical Engineering (specializing in residential electricity demand response assessment and modeling) from the University of Canterbury, New Zealand in 2010 and his MSc in Energy Systems from the Aachen University of Applied Sciences in Germany in 2004. He obtained his Bachelor's degree in Geodetic Engineering from KNUST in 2001. His main research interest is in utility demand side management and how human factors can be used to develop technology and communication systems to improve energy efficiency behavior.

1. PERSONAL INFORMATION

Position Title and No:	Energy Expert
Name	Prof. Samuel Gyamfi
Date of Birth	10th July, 1975
Country of Citizenship/Residence	German, Resident in Ghana, Permanent Returning Resident in New Zealand.

2. EDUCATION

Institution and Date (from / to)	**Degree(s) or Diploma(s) obtained**
University of Canterbury, New Zealand, 2006 - 2010	**Doctor of Philosophy (Ph.D.),** Mechanical Engineering. **Thesis Title:** Demand Response Assessment and Modelling of Peak Electricity Demand in the Residential Sector: Information and Communication Requirements.
University of Applied Sciences, Aachen, Germany, 2002 - 2004	**Master of Science (MSc),** Energy Systems **Thesis Title**: Life Cycle Assessment (LCA) Energy Studies: the European Situation.
Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, 1997 - 2001	**Bachelor of Science (BSc) Honours,** Geodetic Engineering
Kumasi High School, Kumasi, 1994 - 1996	General Certificate of Education (GCE) 'Advance' Level
Toase Secondary School	School Certificate and General Certificate of Education (SC/GCE) 'Ordinary' Level

3. COUNTRIES WITH PROFESSIONAL EXPERIENCE

Resident:	New Zealand (4 years) Australia (4 years) Germany (6 years) Ghana (7 years)
Non-Resident	Niger, Algeria, and South Africa

4. CURRENT AND PREVIOUS POSITIONS:

Employment Records & Positions Held/Hold (with dates):

Period	Employing organization; title/position. Contact information for references	Country	Summary of activities performed relevant to the Assignment
August, 2021 - Present	**Employer:** School of Engineering, University of Energy and Natural Resources Sunyani, Ghana. **Position:** Associate Professor in the Department of Renewable Energy Engineering.	**Ghana**	• Lecture Engineering Students • Supervise M.Sc. and PhD candidates • Conducting Research • Undertaking Outreach Activities.
August 2021 - August 2014	**Employer:** School of Engineering, University of Energy and Natural Resources Sunyani, Ghana. **Position:** Senior Lecturer in the Department of Renewable Energy Engineering.	**Ghana**	• Lecture Engineering Students • Supervise M.Sc. and PhD candidates • Conducting Research • Undertaking Outreach Activities.
2014 - Date	**Employer:** School of Engineering, University of Energy and Natural Resources Sunyani, Ghana. **Position;** Snr. Lecturer in Renewable Energy Engineering.	**Ghana**	• Lecture Engineering Students • Supervise M.Sc. and PhD candidates
2011 - 2014	**Employer:** School of Engineering and Information Technology Murdoch University, Western Australia. **Position;** Lecturer in Energy Studies and Renewable Energy Engineering	**Australia**	• Lecture Engineering Students • Supervise M.Sc. and PhD candidates
2006 - 2008	**Employer:** Mechanical Engineering Department, University of Canterbury. **Position;** Teaching Assistant **Reference:** Prof. Susan Krumdieck Tel: +64 364 2987 ext. 7249 **Email: S.Krumdieck@hw.ac.uk**	**New Zealand**	***Courses Taught (***Under the supervision of Prof. Susan Krumdieck): • Energy Engineering • Thermodynamics

5. RESEARCH AREAS/INTEREST

- Renewable and Sustainable Energy for Developing Countries
- Energy Efficiency and Demand Side Management
- Energy Systems Analysis

6. SELECTED PROJECT MANAGEMENT EXPERIENCE

Title	Role	Project Amount and Funder	Status (As of 31 July 2023)
Professional Education for Renewable Energy in Ghana (ProREG)	Principal Investigator	€ 50,151 German Federal Ministry for Economic Cooperation and Development (BMZ) through TU Berlin/DAAD	Ongoing, 2022-2025
Energy access strategy for disadvantaged communities in Ghana	Principal Investigator	Grant Amount: 15,000 Dollars. Gendered Subcontract from Carleton University Canada	2020 - 2021
Erasmus+ Project no. 586416: Enhancing Entrepreneurship, Innovation, and Sustainability in Higher Education in Africa (EEISHEA)	Local Project Coordinator	€999,849.00 EU Commission	October 2018 – October 2021
China South-South Cooperation on Climate Change	Principal Investigator	5.0 million Dollars China Government China Government through the National Development and Reform Commission of the People's Republic of China	2015 - 2020
World Bank Centre of Excellence for Development Impact: Regional Center for Energy and Environmental Sustainability	Deputy Project Leader	$ 6.4 million US Dollars World Bank World Bank	Ongoing 2019– 2024
Consultancy Services for Socioeconomic Impact Study for Mini-Grid and Stand-Alone Solar PV Systems Electrification	Overall Team Leader	Ghana Government	March 2019 – June 2019

Solar Technicians Training	Coordinator,	Ghana Energy Commission	Feb. 2018-March, 2018

7. TEACHING AND SUPERVISION

i. Thesis Supervision - 6 Ph.D., 40 MSc/MPhil
ii. Solar Thermal Systems and Applications, Energy Management, Renewable Energy Engineering Projects, Energy Systems, Energy in Society, Renewable Energy Devices

8. SELECTED SERVICE TO THE INTERNATIONAL COMMUNITY

i. Dean, School of Energy, University of Energy and Natural Resources, (UENR), Ghana 2022 - Present
ii. Deputy Director, Regional Center for Energy and Environmental Sustainability, UENR, Ghana – 2019 - Present
iii. Dean of Students Affairs, University of Energy and Natural Resources (UENR) 2017 –2019
iv. Acting Head, Mechanical and Manufacturing Engineering Department, University of Energy and Natural Resources (UENR) 2015–2017
v. External Examiner: Pan African University Institute of Water and Energy. Master of Science in Energy Engineering/Energy Policy, 2018
vi. Guest Lecturer: Université Abdou Moumouni, Niger. WASCAL Master Research Program-Climate Change and Energy, 2017
vii. Invited Seminar on Demand Response at the University of South Africa (UNISA), 2011
viii. Examiner of MSc Renewable Energy Thesis, Murdoch University since September, 2011
ix. External Examiner of the Mtech degree in Mechanical Engineering in the University of South Africa (UNISA)
x. Examiner of PhD thesis in Mechanical Engineering, Kwame Nkrumah University of Science and technology (KNUST), Ghana.

9. SELECTED PUBLICATIONS

1. Asante K., **Gyamfi S.**, Amo-Boateng M., Peprah F., (2023) Techno-economic analysis of solar PV electricity generation at the University of Environment and Sustainable Development in Ghana. Energy Reports 11(2024) 659 – 673 June 2024, Pages 659-673 https://doi.org/10.1016/j.egyr.2023.12.028
2. Nyasapoh M. A, **Gyamfi S,** Debrah S. K., Gaber A. H., Derkyi N. A. A (2023) Evaluating the Effectiveness of Clean Energy Technologies (Renewables and Nuclear) and External Support for Climate Change Mitigation in Ghana2023 IEEE the 11th International Conference on Smart Energy Grid Engineering

3. Ahialey K. E., Kabo–Bah, T. A., **Gyamfi S.** (2023) Impacts of LULC and climate changes on hydropower generation and development: A systematic review. Heliyon 9 (2023) e21247. https://doi.org/10.1016/j.heliyon.2023.e21247
4. Abdulai D., **Gyamfi S**., Diawuo F. A., Acheampong P. (2023**)**Data analytics for prediction of solar PV power generation and system performance: A real case of Bui Solar Generating Station, Ghana Scientific African https://doi.org/10.1016/j.sciaf.2023.e01894
5. Ajiboye O. K., Ochiegbu C. V. Ofosu, A. E., **Gyamfi, S**. (2023) A review of hybrid renewable energies optimization: design, methodologies, and criteria. International Journal of Sustainable Energy 2023, VOL. 42, NO. 1, 648–684 https://doi.org/10.1080/14786451.2023.2227294
6. Ajiboye O. K., Ofosu, A. E., **Gyamfi, S.** Oki O. (2023) Hybrid Renewable Energy System Optimization via Slime Mould Algorithm. International Journal of Engineering Trends and Technology. Vol. 71 Issue 6, 83-95, June 2023 https://doi.org/10.14445/22315381/IJETT-V71I6P210
7. **Gyamfi S.,** Aboagye B., Peprah F., Obeng M. (2023) Degradation analysis of polycrystalline silicon modules from different manufacturers under the same climatic conditions. Energy Conversion and Management: X 20 (2023) 100403 https://doi.org/10.1016/j.ecmx.2023.100403
8. Ayuketah I**, Gyamfi S.**, Diawuo F. A, Dagoumas A.S. (2023) Assessment of low-carbon energy transitions policies for the energy demand sector of Cameroon. Energy for Sustainable Development 72(2023) 252-264. https://doi.org/10.1016/j.esd.2022.12.014
9. Iweh C.D., **Gyamfi S**., Tanyi E., Effah-Donyina E. (2023) Economic viability and environmental sustainability of a grid-connected solar PV plant in Yaounde – Cameroon using RETScreen expert. Cogent Engineering, 10:1, 2185946. https://doi.org/10.1080/23311916.2023.2185946
10. Peprah F., Aboagye B., Amo-Boateng M., **Gyamfi S**. Effah-Donyina E. (2023) Economic evaluation of solar PV electricity prosumption in Ghana. Solar Compass 5 (2023) 100035. https://doi.org/10.1016/j.solcom.2023.100035
11. Iweh C.D., **Gyamfi S**., Tanyi E., Effah-Donyina E. (2023) Assessment of the optimum location and hosting capacity of distributed solar PV in the southern interconnected grid (SIG) of Cameroon. International Journal of Sustainable Energy. https://doi.org/10.1080/14786451.2023.2168002
12. Lahai U. M., Ofosu, E. A., **Gyamfi S**., Diawuo, F. A., Kallon H. A. P., (2022) Technical Considerations for the Design and Selection of Improved Cookstoves: A Review. International Journal of Engineering Trends and Technology Volume 70 Issue 12, 439-449 https://doi.org/10.14445/22315381/IJETT-V70I12P242
13. Ayuketah Y., **Gyamfi S**., Diawuo F. A., Dagoumas A. S. (2022) Power generation expansion pathways: A policy analysis of the Cameroon power system Energy Strategy Reviews 44 (2022), 101004 https://doi.org/10.1016/j.esr.2022.101004

14. Peprah F., **Gyamfi S.**, Amo-Boateng M., Buadi E., Obeng M., (2022) Design and construction of smart solar-powered egg incubator based on GSM/IoT. Scientific African Volume 17. https://doi.org/10.1016/j.sciaf.2022.e01326
15. Avordeh T. K, **Gyamfi S,** Opoku A. A. (2022) Estimating Residential Electricity Consumption for Appliance Use: A Statistical Model Approach **IEEE *Xplore*.** 10.1109/ICECET52533.2021.9698647
16. **Gyamfi, S.,** Diawuo, F. A., Asuamah, E. Y., & Effah, E. (2022)**.** The role of demand-side management in sustainable energy sector development. In Renewable Energy and Sustainability (pp. 325-346). Elsevier. **https://doi.org/10.1016/B978-0-323-88668-0.00010-3**
17. Asamoah S. S., **Gyamfi S.,** Uba F., Mensah S. G., (2022) Comparative assessment of a stand-alone and a grid-connected hybrid system for a community water supply system: A case study of Nankese community in the eastern region of Ghana. Scientific African 17 (2022) https://doi.org/10.1016/j.sciaf.2022.e01331
18. Nyasapoh M. A., Debrah S., K, Twerefou D. K, **Gyamfi S**., Kholi, F. K (2022) An Overview of Energy Resource and Future Concerns for Ghana's Electricity Generation. Journal of Energy Volume 2022. https://doi.org/10.1155/2022/1031044
19. Peprah F., **Gyamfi S.,** Amo-Boateng M., Effah-Donyina E. Impact assessment of grid tied rooftop PV systems on LV distribution network (2022). Scientific African 16 (2022) https://doi.org/10.1016/j.sciaf.2022.e01172
20. Ochiegbu C. V., **Gyamfi S**, Ofosu E. (2022) Modeling, Simulation and Design of Hydro-Solar Isolated Micro-grid without a Battery Storage System: A Case Study for Aba Business Cluster, Nigeria. International Journal of Engineering Trends and Technology Volume 70 Issue 2, 125-136, February, 2022 https://ijettjournal.org/archive/ijett-v70i2p215
21. Aboagye B., **Gyamfi, S.,** Antwi E. O, Djordjevic, S. (2022) Characterisation of degradation of photovoltaic (PV) module technologies in different climatic zones in Ghana. Sustainable Energy Technologies and Assessments, 52(2022) 102034. https://doi.org/10.1016/j.seta.2022.102034
22. Eliasu A., Derkyi N. S. A., **Gyamfi S.** (2022) Techno-Economic Analysis of Municipal Solid Waste Gasification for Electricity Generation. International Journal of Energy Economics and Policy, 2022, 12(1), 342-348. DOI: https://doi.org/10.32479/ijeep.11894
23. Aboagye B., **Gyamfi, S.,** Antwi E. O, Djordjevic, S. (2022) Investigation into the impacts of design, installation, operation and maintenance issues on performance and degradation of installed solar photovoltaic (PV) systems Energy for Sustainable Development 2022 (66): 165-176. https://doi.org/10.1016/j.esd.2021.12.003
24. Avordeh T. K, **Gyamfi S,** Opoku A. A. (2021) The role of demand response in residential electricity load reduction using appliance shifting techniques. International Journal of Energy Sector Management. Emerald Publishing Limited 1750-6220. DOI 10.1108/IJESM-05-2020-00.

25. Aboagye B., **Gyamfi, S.,** Antwi E. O, Djordjevic, S. (2021) Degradation analysis of installed solar photovoltaic (PV) modules under outdoor conditions in Ghana. Energy Reports 7 (2021) 6921–6931.https://doi.org/10.1016/j.egyr.2021.10.046

26. Iweh C.D., **Gyamfi S**., Tanyi E., Effah-Donyina E. (2021) Distributed Generation and Renewable Energy Integration into the Grid: Prerequisites, Push Factors, Practical Options, Issues and Merits. *Energies* 2021, *14*, 5375. https://doi.org/10.3390/en14175375

27. Avordeh T. K, **Gyamfi S,** Opoku A. A. (2021) Quantitative estimation of the impact of climate change on residential electricity demand for the city of Greater Accra, Ghana International Journal of Energy Sector Management. Emerald Publishing Limited 1750-6220 DOI 10.1108/IJESM-08-2020-0008

28. Ayebah A. I., **Gyamfi S.,** Amuzuvi C. K. (2021) Making Energy Savings by the Engagement of Small and Medium-sized Enterprise on Energy Management. Journal of Electrical and Electronic Engineering 2021; 9(2): 41-48 10.11648/j.jeee.20210902.12

29. Asuamah Y. E., **Gyamfi, S.,** Dagoumas A. (2021) Potential of Meeting Electricity Needs of Off-grid Community with Mini-grid Solar Systems. Scientific African Volume 11(2021). https://doi.org/10.1016/j.sciaf.2020.e00675.

30. Aboagye B., **Gyamfi, S.,** Antwi E. O, Djordjevic, S. (2021) Status of Renewable Energy Resources for Electricity Supply in Ghana. Scientific African Volume11 (2021) https://doi.org/10.1016/j.sciaf.2020.e00660.

31. Aboagye B., **Gyamfi S.,** Caesar Puoza J, Obeng M. (2020) Techno-economic Feasibility Analysis of Solar Photovoltaic System for Single Households in Peri-urban Areas in Kumasi, Ghana. International Journal of Sustainable Energy Development (IJSED), Volume 8, Issue 1, 2020. *10.20533/ijsed.2046.3707.2020.0047*

32. Domfeh M. K, **Gyamfi S.,** Amo-Boateng M., Andoh R., Antwi E. O., Tabor G. (2020). Numerical Simulation of an Air-Core Vortex and Its Suppression at an Intake Using OpenFOAM *Fluids (*2020), *5*, 221; doi:10.3390/fluids5040221.

33. Domfeh M. K, **Gyamfi S.,** Amo-Boateng M., Andoh R., Antwi E. O., Tabor G. (2020) Numerical Simulation of an Air-core Vortex at a Hydraulic Intake Using OpenFOAM. Scientific African Volume 8 (2020) https://doi.org/10.1016/j.sciaf.2020.e00389.

34. Osabutey G. Opoku A. A., **Gyamfi S.** (2020) A Statistical Mechanics Approach to the Study of Energy Use Behaviour. Journal of Applied Mathematics Volume 2020, Article ID 7384053, 14 pages https://doi.org/10.1155/2020/7384053.

35. Domfeh M. K, **Gyamfi S.,** Amo-Boateng M., Andoh R., Antwi E. O., Tabor G. (2020) Free Surface Vortices at Hydropower Intakes: –A State-of-the-Art Review Scientific African Volume 8, July 2020. https://doi.org/10.1016/j.sciaf.2020.e00355.

36. Obeng M., **Gyamfi S.,** Derkyi N. S., Kabo-bah T. A, Peprah F. (2020) Technical and Economic Feasibility of a 50 MW Grid-connected Solar PV at UENR Nsoatre Campus. Journal of Cleaner Production. 247, 20 Feb 2020, 119159. https://doi.org/10.1016/j.jclepro.2019.119159

37. Aboagye B., **Gyamfi, S.,** Caesar Puoza, J. (2020) Performance Enhancement of Solar Photovoltaic Module by the Application of Different Coolants over the Photovoltaic Module Surface. Journal of Energy and Natural Resource Management (JENRM). JENRM, Vol. 6, No. 1, 1-6, 2020. https://doi.org/10.26796/jenrm.v6i1.161

38. **Gyamfi S.,** Derkyi N.S.A, Asuamah E.Y, Aduako J.A. (2018) Renewable Energy and Sustainable Development. In Kabo-bah A; Diji, C. J., *Sustainable Hydropower in West Africa*: 75 – 93. Academic Press. An imprint of Elsevier. **https://doi.org/10.1016/B978-0-12-813016-2.00006-X**

39. **Gyamfi S.,** Derkyi N.S.A, Asuamah E.Y (2018) The Potential and the Economics of Hydropower Investment in West Africa. In Kabo-bah A; Diji, C.J., *Sustainable Hydropower in West Africa:* 95 – 107. Academic Press. An imprint of Elsevier. **https://doi.org/10.1016/B978-0-12-813016-2.00007-1**

40. Akolgo G.A, Essandoh E. O, **Gyamfi S.,** Atta-Darkwa T., Kumi E. Y, Maia, C. M (2018) The Potential of a Dual Purpose Improved Cookstove for Low Income Earners in Ghana – Improved Cooking Methods and Biochar Production. *Renewable and Sustainable Energy Reviews. 82 (2018) 269–379.* http://dx.doi.org/10.1016/j.rser.2017.09.044

41. **Gyamfi S.,** Diawuo F. A., Kumi E. N., Frank S., Modjinou M. (2018) Energy Efficiency Situation in Ghana. Renewable and Sustainable Energy Reviews 82 (2018) 1415–1423. https://doi.org/10.1016/j.rser.2017.05.007

42. Darko A., Chan A. P, **Gyamfi S.,** Olanipekun A., He B., Yu Y. (2017) Driving Forces for Green Building Technologies Adoption in the Construction Industry: Ghanaian Perspective. *Building and Environment 125 (2017) 206-215.* http://dx.doi.org/10.1016/j.buildenv.2017.08.053.

43. Saka M., Diawuo F.A., Katzenback R., **Gyamfi S.** (2017). Towards a Sustainable Electrification in Ghana: A Review of Renewable Energy Deployment Policies. Renewable and Sustainable Energy Reviews. 79 (2017) 544–557. https://doi.org/10.1016/j.rser.2017.05.090

44. **Gyamfi S.,** Modjinou M., Djordjevic S. (2015) Improving Electricity Supply Security in Ghana – the Potential of Renewable Energy. *Renewable and Sustainable Energy Reviews 43(2015)1035–1045.* http://dx.doi.org/10.1016/j.rser.2014.11.102

45. Urmee T., **Gyamfi S. (2014)** A Review of Improved Cookstove Technologies and Programs. *Renewable and Sustainable Energy Reviews 33 (2014) 625–635.* http://dx.doi.org/10.1016/j.rser.2014.02.019.

46. Houston C., **Gyamfi S.,** Whale J. (2013) Evaluation of Energy Efficiency and Renewable Energy Generation Opportunities for Small Scale Dairy Farms: A

Case Study in Prince Edward Island, Canada. *Renewable Energy 67 (2014) 20 - 29.* http://dx.doi.org/10.1016/j.renene.2013.11.040

47. **Gyamfi S.,** Krumdieck S. and Urmee T. (2013) Residential Peak Electricity Demand Response - Highlights of Some Behavioural Issues. *Renewable and Sustainable Energy Reviews* 25: 71-77. http://dx.doi.org/10.1016/j.rser.2013.04.006.
48. **Gyamfi S.** and Krumdieck S. (2012) Scenario Analysis of Residential Demand Response at Network Peak Periods. *Electric Power Systems Research* 93: 32-38. http://dx.doi.org/10.1016/j.epsr.2012.07.004.
49. **Gyamfi S.** and Krumdieck S. (2011) Price, Environment and Security: Exploring Multi-modal Motivation in Voluntary Residential Peak Demand Response. *Energy Policy* 39(5): 2993-3004. http://dx.doi.org/10.1016/j.enpol.2011.03.012.

10. REFERENCES

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