

Areas of Tanzania,” *International Journal of Photoenergy*, vol. 2023, pp. 1–32, Apr. 2023, doi: 10.1155/2023/7950699.

- [2] M. Nur-E-Alam *et al.*, “Machine learning-enhanced all-photovoltaic blended systems for energy-efficient sustainable buildings,” *Sustainable Energy Technologies and Assessments*, vol. 62, p. 103636, Feb. 2024, doi: 10.1016/j.seta.2024.103636.
- [3] Md. Abdullah-Al-Mahbub and A. R. M. T. Islam, “Current status of running renewable energy in Bangladesh and future prospect: A global comparison,” *Heliyon*, vol. 9, no. 3, p. e14308, Mar. 2023, doi: 10.1016/j.heliyon.2023.e14308.
- [4] M. Ali *et al.*, “Renewable energy sources-based hybrid microgrid system for off-grid electricity solution for rural communities,” *Energy Science & Engineering*, vol. 11, no. 10, pp. 3486–3499, Oct. 2023, doi: 10.1002/ese3.1535.
- [5] G. T. Gezahegn, S. D. Hatiye, M. T. Ayana, A. T. Ayalew, and T. T. Minda, “The Hydro, Wind and Solar Hybrid Power Generation and Balancing Energy Supply-Demand for Seyemtribua Rural Village in Northern Ethiopia,” Jul. 01, 2021. doi: 10.21203/rs.3.rs-632374/v1.
- [6] A. U. Adoghe, T. M. Adeyemi-Kayode, V. Oguntosin, and I. I. Amahia, “Performance evaluation of the prospects and challenges of effective power generation and distribution in Nigeria,” *Heliyon*, vol. 9, no. 3, p. e14416, Mar. 2023, doi: 10.1016/j.heliyon.2023.e14416.
- [7] M. H. Jahangir and R. Cheraghi, “Economic and environmental assessment of solar-wind-biomass hybrid renewable energy system supplying rural settlement load,” *Sustainable Energy Technologies and Assessments*, vol. 42, p. 100895, Dec. 2020, doi: 10.1016/j.seta.2020.100895.
- [8] A. Palatel, “Biomass Gasifier Integrated Hybrid Systems as a Sustainable Option for Rural Electrification,” 2018, pp. 257–270. doi: 10.1007/978-981-10-8393-8\_11.
- [9] G. T. Gezahegn, S. D. Hatiye, M. T. Ayana, A. T. Ayalew, and T. T. Minda, “The hybrid power generation and balancing energy supply–demand for rural village in Ethiopia,” *OPEC Energy Review*, vol. 47, no. 1, pp. 55–70, Mar. 2023, doi: 10.1111/opec.12264.
- [10] G. T. Gezahegn, S. D. Hatiye, M. T. Ayana, A. T. Ayalew, and T. T. Minda, “The Hydro, Wind and Solar Hybrid Power Generation and Balancing Energy Supply-Demand for Seyemtribua Rural Village in Northern Ethiopia,” Jul. 01, 2021. doi: 10.21203/rs.3.rs-632374/v1.
- [11] A. D. Sakti *et al.*, “Spatial integration framework of solar, wind, and hydropower energy potential in Southeast Asia,” *Scientific Reports*, vol. 13, no. 1, p. 340, Jan. 2023, doi: 10.1038/s41598-022-25570-y.
- [12] P. K. Sahu, S. Jena, and U. Sahoo, “Techno-Economic Analysis of Hybrid Renewable Energy System with Energy Storage for Rural Electrification,” in *Hybrid Renewable Energy Systems*, Wiley, 2021, pp. 63–96. doi: 10.1002/9781119555667.ch3.

- [13] A. M. Jasim, B. H. Jasim, F.-C. Baiceanu, and B.-C. Neagu, "Optimized Sizing of Energy Management System for Off-Grid Hybrid Solar/Wind/Battery/Biogasifier/Diesel Microgrid System," *Mathematics*, vol. 11, no. 5, p. 1248, Mar. 2023, doi: 10.3390/math11051248.
- [14] J. Liu, Y. Lin, M. Jiang, and X. Guo, "Exploring policy support for wind power development from a balancing perspective - A study of dynamic strategies based on evolutionary game," *Energy Policy*, vol. 188, p. 114061, May 2024, doi: 10.1016/j.enpol.2024.114061.
- [15] L. D. Namujju, H. Acquah-Swanzy, and I. F. Ngoti, "An IAD framework analysis of minigrid institutions for sustainable rural electrification in East Africa: A comparative study of Uganda and Tanzania," *Energy Policy*, vol. 182, p. 113742, Nov. 2023, doi: 10.1016/j.enpol.2023.113742.
- [16] M. Errouha, Q. Combe, N. El Ouanjli, and S. Motahir, "A review of modern techniques for efficient control of AC motors utilized in PV water pumping system," *Irrigation Science*, Jul. 2024, doi: 10.1007/s00271-024-00952-4.
- [17] C. Wang *et al.*, "Deciphering the source of banded iron formations in the North China Craton," *Precambrian Research*, vol. 402, p. 107298, Mar. 2024, doi: 10.1016/j.precamres.2024.107298.
- [18] A. Lebeau, M. Petitet, S. Quemin, and M. Saguan, "Long-term issues with the Energy-Only Market design in the context of deep decarbonization," *Energy Economics*, vol. 132, p. 107418, Apr. 2024, doi: 10.1016/j.eneco.2024.107418.
- [19] L. Xie *et al.*, "The role of electric grid research in addressing climate change," *Nature Climate Change*, vol. 14, no. 9, pp. 909–915, Sep. 2024, doi: 10.1038/s41558-024-02092-1.
- [20] A. Haffaf, F. Lakdja, and D. Ould Abdeslam, "Experimental performance analysis of an installed microgrid-based PV/battery/EV grid-connected system," *Clean Energy*, vol. 6, no. 4, pp. 599–618, Aug. 2022, doi: 10.1093/ce/zkac035.
- [21] P. Pandiyan *et al.*, "A comprehensive review of the prospects for rural electrification using stand-alone and hybrid energy technologies," *Sustainable Energy Technologies and Assessments*, vol. 52, p. 102155, Aug. 2022, doi: 10.1016/j.seta.2022.102155.
- [22] T. OTSUKI, R. KOMIYAMA, Y. FUJII, and H. NAKAMURA, "Temporally detailed modeling and analysis of global net zero energy systems focusing on variable renewable energy," *Energy and Climate Change*, vol. 4, p. 100108, Dec. 2023, doi: 10.1016/j.egycc.2023.100108.
- [23] Y. Torul Yürek, B. Özyörük, E. Özcan, and M. Bulut, "Socio-political evaluation of renewable energy resources under uncertain environment," *Engineering Applications of Artificial Intelligence*, vol. 126, p. 106881, Nov. 2023, doi: 10.1016/j.engappai.2023.106881.
- [24] Z. Allal, H. N. Noura, O. Salman, and K. Chahine, "Machine learning solutions for renewable energy systems: Applications, challenges, limitations, and future directions,"

*Journal of Environmental Management*, vol. 354, p. 120392, Mar. 2024, doi: 10.1016/j.jenvman.2024.120392.

- [25] M. K. G. Varma, "FABRICATION OF HYBRID POWER GENERATION BY USING SOLAR, WIND AND WAVE ENERGY," *INTERANTIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT*, vol. 08, no. 03, pp. 1–5, Mar. 2024, doi: 10.55041/IJSREM29711.
- [26] B. Kalappan, A. Amudha, and K. Keerthivasan, "Techno-economic study of hybrid renewable energy system of Metropolitan Cities in India," *International Journal of Ambient Energy*, vol. 43, no. 1, pp. 1408–1412, Dec. 2022, doi: 10.1080/01430750.2019.1708791.
- [27] S. A. Khan, Md. M. H. Chowdhury, and U. Nandy, "Solar-wind-power Hybrid Power Generation System," *Journal of Engineering Research and Reports*, vol. 25, no. 10, pp. 145–152, Oct. 2023, doi: 10.9734/jerr/2023/v25i101007.
- [28] H. Kaur, S. Gupta, and A. Dhingra, "Analysis of hybrid solar biomass power plant for generation of electric power," *Materials Today: Proceedings*, vol. 48, pp. 1134–1140, 2022, doi: 10.1016/j.matpr.2021.08.080.
- [29] M. Nur-E-Alam *et al.*, "Machine learning-enhanced all-photovoltaic blended systems for energy-efficient sustainable buildings," *Sustainable Energy Technologies and Assessments*, vol. 62, p. 103636, Feb. 2024, doi: 10.1016/j.seta.2024.103636.
- [30] D. Cevasco, S. Koukoura, and A. J. Kolios, "Reliability, availability, maintainability data review for the identification of trends in offshore wind energy applications," *Renewable and Sustainable Energy Reviews*, vol. 136, p. 110414, Feb. 2021, doi: 10.1016/j.rser.2020.110414.
- [31] X. Liu, Y. Guo, M. Li, and Y. Zhang, "Exponential synchronization of complex networks via intermittent dynamic event-triggered control," *Neurocomputing*, vol. 581, p. 127478, May 2024, doi: 10.1016/j.neucom.2024.127478.
- [32] Z. Zhang, "Combined Cycle Power Plants and Renewable Energy Integration - Hybrid Systems for Sustainable Energy Solutions," *Highlights in Science, Engineering and Technology*, vol. 120, pp. 586–591, Dec. 2024, doi: 10.54097/r5awxf20.
- [33] R.-A. Felseghi, A. Bolboacă, M.-S. Răboaca, and I. Așchilean, "Hybrid Energy Systems for Power of Sustainable Buildings. Case Study: A Renewable Energy Based on-Site Green Electricity Production," in *Comprehensive Renewable Energy*, Elsevier, 2022, pp. 420–436. doi: 10.1016/B978-0-12-819727-1.00037-6.
- [34] S.-X. Yan *et al.*, "Engineering classification recycling of spent lithium-ion batteries through pretreatment: a comprehensive review from laboratory to scale-up application," *Rare Metals*, vol. 43, no. 3, pp. 915–941, Mar. 2024, doi: 10.1007/s12598-023-02377-y.
- [35] Y. K. Elmi, M. Şenol, and M. Kuşaf, "Optimizing separate and combined grids for cost-effective hybrid renewable energy electrification in Mogadishu, Somalia," *AIP Advances*, vol. 14, no. 1, Jan. 2024, doi: 10.1063/5.0179074.

- [36] P. M. Z. Hasan *et al.*, “Tunable optical and structural characteristics with improved electrical properties of (PVA-GO-CuO) eco-friendly-polymer nanocomposites and their DFT study,” *Diamond and Related Materials*, vol. 140, p. 110425, Dec. 2023, doi: 10.1016/j.diamond.2023.110425.
- [37] E. Zagoraïou, S. Krishan, A. Siriwardana, A. M. Moschovi, and I. Yakoumis, “Performance of Stainless-Steel Bipolar Plates (SS-BPPs) in Polymer Electrolyte Membrane Water Electrolyser (PEMWE): A Comprehensive Review,” *Compounds*, vol. 4, no. 2, pp. 252–267, Mar. 2024, doi: 10.3390/compounds4020013.
- [38] Z.-M. Hou *et al.*, “International experience of carbon neutrality and prospects of key technologies: Lessons for China,” *Petroleum Science*, vol. 20, no. 2, pp. 893–909, Apr. 2023, doi: 10.1016/j.petsci.2023.02.018.
- [39] A. A. Hassan and M. M. Awad, “Bibliometric analysis on hybrid renewable energy-driven desalination technologies,” *Energy Nexus*, vol. 11, p. 100215, Sep. 2023, doi: 10.1016/j.nexus.2023.100215.
- [40] O. A. Odetoïe, P. K. Olulope, O. M. Olanrewaju, A. O. Alimi, and O. G. Igbinosa, “Multi-year techno-economic assessment of proposed zero-emission hybrid community microgrid in Nigeria using HOMER,” *Heliyon*, vol. 9, no. 9, p. e19189, Sep. 2023, doi: 10.1016/j.heliyon.2023.e19189.
- [41] M. Waqas and M. Jamil, “Smart IoT SCADA System for Hybrid Power Monitoring in Remote Natural Gas Pipeline Control Stations,” *Electronics*, vol. 13, no. 16, p. 3235, Aug. 2024, doi: 10.3390/electronics13163235.
- [42] P. M.R., V. H.S., and S. J., “Holistic survey on energy aware routing techniques for IoT applications,” *Journal of Network and Computer Applications*, vol. 213, p. 103584, Apr. 2023, doi: 10.1016/j.jnca.2023.103584.
- [43] A. D. Sakti *et al.*, “Spatial integration framework of solar, wind, and hydropower energy potential in Southeast Asia,” *Scientific Reports*, vol. 13, no. 1, p. 340, Jan. 2023, doi: 10.1038/s41598-022-25570-y.
- [44] I. Katongole, A. Nuhu Shuaibu, S. Palanikumar, and A. Sendegeya, “Performance Analysis of a Hybrid Solar Photovoltaic- Grid Water Pumping System,” *KIU Journal of Science, Engineering and Technology*, vol. 2, no. 1, pp. 105–114, Apr. 2023, doi: 10.59568/KJSET-2023-2-1-13.
- [45] M. A. A. Rahmat *et al.*, “An Analysis of Renewable Energy Technology Integration Investments in Malaysia Using HOMER Pro,” *Sustainability*, vol. 14, no. 20, p. 13684, Oct. 2022, doi: 10.3390/su142013684.
- [46] R. Yadav and R. P. Singh, “Rural Electrification: Practical Exposition of Hybrid Solar PV-Wind for Grid Integrated Power Systems in India,” *International Journal of Engineering and Advanced Technology*, vol. 9, no. 3, pp. 680–687, Feb. 2020, doi: 10.35940/ijeat.B2931.029320.
- [47] S. Adel and C. Rachid, “Enhancement of a Voltage Drop in a Low-Voltage Grid by the Contribution of a Hybrid PV-Wind Turbine Generator,” *Journal of The Institution of*

*Engineers (India): Series B*, vol. 102, no. 5, pp. 947–956, Oct. 2021, doi: 10.1007/s40031-021-00614-5.

- [48] H. Jia, L. Liang, J. Xie, and J. Zhang, “Environmental Effects of Technological Improvements in Polysilicon Photovoltaic Systems in China—A Life Cycle Assessment,” *Sustainability*, vol. 14, no. 14, p. 8670, Jul. 2022, doi: 10.3390/su14148670.
- [49] P. Malhotra, S. Biswas, F.-C. Chen, and G. D. Sharma, “Prediction of non-radiative voltage losses in organic solar cells using machine learning,” *Solar Energy*, vol. 228, pp. 175–186, Nov. 2021, doi: 10.1016/j.solener.2021.09.056.
- [50] P. Soni, Vikramaditya Dave, Sujit Kumar, and Hemani Paliwal, “A comparative study of AI-driven techno-economic analysis for grid-tied solar PV-fuel cell hybrid power systems,” *The Scientific Temper*, vol. 15, no. 02, pp. 2248–2257, Jun. 2024, doi: 10.58414/SCIENTIFICTEMPER.2024.15.2.38.
- [51] F. M. Wulfran, D. N. S. Raoul, M. R. J. Jacques, K. T. Saatong, and S. Kamel, “A case study of a neighborhood in Douala examining the technical feasibility of a hybrid renewable energy system connected to the grid for energy and oxygen production in the fight against respiratory diseases,” *Solar Compass*, vol. 8, p. 100062, Dec. 2023, doi: 10.1016/j.solcom.2023.100062.
- [52] A. AlHammadi, N. Al-Saif, A. S. Al-Sumaiti, M. Marzband, T. Alsumaiti, and E. Heydarian-Forushani, “Techno-Economic Analysis of Hybrid Renewable Energy Systems Designed for Electric Vehicle Charging: A Case Study from the United Arab Emirates,” *Energies*, vol. 15, no. 18, p. 6621, Sep. 2022, doi: 10.3390/en15186621.
- [53] M. A. A. Rahmat *et al.*, “An Analysis of Renewable Energy Technology Integration Investments in Malaysia Using HOMER Pro,” *Sustainability*, vol. 14, no. 20, p. 13684, Oct. 2022, doi: 10.3390/su142013684.
- [54] A. A. Al-Shamma’a, F. A. Alturki, and H. M. H. Farh, “Techno-economic assessment for energy transition from diesel-based to hybrid energy system-based off-grids in Saudi Arabia,” *Energy Transitions*, vol. 4, no. 1, pp. 31–43, Jun. 2020, doi: 10.1007/s41825-020-00021-2.
- [55] A. Zahid, M. K. Shahzad, S. R. Jamil, and N. Iqbal, “Futuristic feasibility analysis and modelling of a solar-biomass on-grid hybrid system for Hattar Industrial Estate Phase (VII), Pakistan,” *Cleaner Energy Systems*, vol. 4, p. 100053, Apr. 2023, doi: 10.1016/j.cles.2023.100053.
- [56] C. D. Iweh, S. G. Clarence, and A. H. Roger, “The Optimization of Hybrid Renewables for Rural Electrification: Techniques and the Design Problem,” *International Journal of Engineering Trends and Technology*, vol. 70, no. 9, pp. 222–239, Oct. 2022, doi: 10.14445/22315381/IJETT-V70I9P223.
- [57] C. D. Iweh, G. C. Semassou, and R. H. Ahouansou, “Optimization of a Hybrid Off-Grid Solar PV—Hydro Power Systems for Rural Electrification in Cameroon,” *Journal of Electrical and Computer Engineering*, vol. 2024, pp. 1–24, Jan. 2024, doi: 10.1155/2024/4199455.

- [58] P. Muthukumar, S. Manikandan, R. Muniraj, T. Jarin, and A. Sebi, "Energy efficient dual axis solar tracking system using IOT," *Measurement: Sensors*, vol. 28, p. 100825, Aug. 2023, doi: 10.1016/j.measen.2023.100825.
- [59] A. Nid, S. Sayah, and A. Zebar, "An effective SMES system control for enhancing the reliability of hybrid power generation systems," *Physica C: Superconductivity and its Applications*, vol. 613, p. 1354322, Oct. 2023, doi: 10.1016/j.physc.2023.1354322.
- [60] J. O. Oladigbolu, M. A. M. Ramli, and Y. A. Al-Turki, "Optimal Design of a Hybrid PV Solar/Micro-Hydro/Diesel/Battery Energy System for a Remote Rural Village under Tropical Climate Conditions," *Electronics*, vol. 9, no. 9, p. 1491, Sep. 2020, doi: 10.3390/electronics9091491.
- [61] A. Ponsich, B. Domenech, L. Ferrer-Martí, M. Juanpera, and R. Pastor, "A multi-objective optimization approach for the design of stand-alone electrification systems based on renewable energies," *Expert Systems with Applications*, vol. 199, p. 116939, Aug. 2022, doi: 10.1016/j.eswa.2022.116939.
- [62] S. A. Zakhilwal, W. Shirzad, and M. M. Behsoodi, "International Journal of Current Science Research and Review A Comprehensive Review of Engineering Strategies for Environmental Sustainability in Sustainable Waste Management," vol. 07, no. 10, pp. 7456–7468, 2024, doi: 10.47191/ijcsrr/V7-i10-02.
- [63] S. Behera and N. B. D. Choudhury, "Modelling and simulations of modified slime mould algorithm based on fuzzy PID to design an optimal battery management system in microgrid," *Cleaner Energy Systems*, vol. 3, p. 100029, Dec. 2022, doi: 10.1016/j.cles.2022.100029.
- [64] E. Zagoraïou, S. Krishan, A. Siriwardana, A. M. Moschovi, and I. Yakoumis, "Performance of Stainless-Steel Bipolar Plates (SS-BPPs) in Polymer Electrolyte Membrane Water Electrolyser (PEMWE): A Comprehensive Review," *Compounds*, vol. 4, no. 2, pp. 252–267, Mar. 2024, doi: 10.3390/compounds4020013.
- [65] L. Liu, M. A. Perez, and J. B. Whitman, "Evaluation of Lamella Settlers for Treating Suspended Sediment," *Water*, vol. 12, no. 10, p. 2705, Sep. 2020, doi: 10.3390/w12102705.
- [66] Y. Liu, S. Yang, D. Li, and S. Zhang, "Improved Whale Optimization Algorithm for Solving Microgrid Operations Planning Problems," *Symmetry*, vol. 15, no. 1, p. 36, Dec. 2022, doi: 10.3390/sym15010036.
- [67] C. Z. Zulkifli *et al.*, "IoT-Based Water Monitoring Systems: A Systematic Review," *Water (Switzerland)*, vol. 14, no. 22, 2022, doi: 10.3390/w14223621.
- [68] M. L. Katche, A. B. Makokha, S. O. Zachary, and M. S. Adaramola, "Techno-Economic Assessment of Solar–Grid–Battery Hybrid Energy Systems for Grid-Connected University Campuses in Kenya," *Electricity*, vol. 5, no. 1, pp. 61–74, Jan. 2024, doi: 10.3390/electricity5010004.
- [69] X. Xue, K. W. E. Cheng, and C. Xu, "Review of Energy Management Strategies of Solar Photovoltaic Energy Systems for Grid-Connected and Standalone Applications," in *2024*

*10th International Conference on Power Electronics Systems and Applications (PESA)*, IEEE, Jun. 2024, pp. 1–9. doi: 10.1109/PESA62148.2024.10594899.

- [70] M. B. Arias and S. Bae, “Design Models for Power Flow Management of a Grid-Connected Solar Photovoltaic System with Energy Storage System,” *Energies*, vol. 13, no. 9, p. 2137, Apr. 2020, doi: 10.3390/en13092137.
- [71] S. Deshmukh, S. Limkar, R. Nagthane, V. N. Pande, and A. V. Tare, “Design of Grid-Connected Solar PV System Integrated with Battery Energy Storage System,” in *2023 3rd Asian Conference on Innovation in Technology (ASIANCON)*, IEEE, Aug. 2023, pp. 1–6. doi: 10.1109/ASIANCON58793.2023.10269854.
- [72] A. K. Mishra, L. H. A. Fezaa, Y. S. Bisht, C. S. Nivedha, R. Senthil Kumar, and S. Sasipriya, “Hybrid Renewable Energy Systems: An Integrated Approach to Rural Electrification,” *E3S Web of Conferences*, vol. 540, p. 01013, Jun. 2024, doi: 10.1051/e3sconf/202454001013.
- [73] A. M. Soomar, A. Hakeem, M. Messaoudi, P. Musznicki, A. Iqbal, and S. Czapp, “Solar Photovoltaic Energy Optimization and Challenges,” *Frontiers in Energy Research*, vol. 10, May 2022, doi: 10.3389/fenrg.2022.879985.
- [74] K. K. Nandini, N. S. Jayalakshmi, and V. K. Jadoun, “Energy Management System for PV Integrated Utility Grid with Electric Vehicle as Storage System,” in *2022 2nd International Conference on Power Electronics & IoT Applications in Renewable Energy and its Control (PARC)*, IEEE, Jan. 2022, pp. 1–6. doi: 10.1109/PARC52418.2022.9726655.
- [75] A. Kumar and S.-Y. Pan, “Opportunities and challenges of electrochemical water treatment integrated with renewable energy at the water-energy nexus,” *Water-Energy Nexus*, vol. 3, pp. 110–116, 2020, doi: 10.1016/j.wen.2020.03.006.
- [76] R. P. K. Naidu and S. Meikandasivam, “RETRACTED ARTICLE: Performance investigation of grid integrated photovoltaic/wind energy systems using ANFIS based hybrid MPPT controller,” *Journal of Ambient Intelligence and Humanized Computing*, vol. 12, no. 5, pp. 5147–5159, May 2021, doi: 10.1007/s12652-020-01967-3.
- [77] J. Koko, A. Riza, and U. K. Mohamad Khadik, “Design of solar power plants with hybrid systems,” *IOP Conference Series: Materials Science and Engineering*, vol. 1125, no. 1, p. 012074, May 2021, doi: 10.1088/1757-899X/1125/1/012074.
- [78] U. Shafi and S. J. Iqbal, “Modelling And Control Of Grid Connected Solar-Wind Energy System With Energy Storage,” in *2022 IEEE Delhi Section Conference (DELCON)*, IEEE, Feb. 2022, pp. 1–6. doi: 10.1109/DELCON54057.2022.9753527.
- [79] G. V. B. Kumar, K. Palanisamy, and E. De Tuglie, “Energy Management of PV-Grid-Integrated Microgrid with Hybrid Energy Storage System,” in *2021 IEEE International Conference on Environment and Electrical Engineering and 2021 IEEE Industrial and Commercial Power Systems Europe (EEEIC / I&CPS Europe)*, IEEE, Sep. 2021, pp. 1–6. doi: 10.1109/EEEIC/ICPSEurope51590.2021.9584719.
- [80] C. Geng, T. Zhang, and W. Sun, “Hybrid solar, wind, and geothermal power generation combined with energy storage for sustainable energy management in remote buildings,”

*Journal of Energy Storage*, vol. 123, p. 116655, Jul. 2025, doi: 10.1016/j.est.2025.116655.

- [81] A. I. Ikram *et al.*, “A Grid-Connected ANFIS-MPPT Based Solar PV System and Hybrid Energy Storage,” in *2023 IEEE 9th International Women in Engineering (WIE) Conference on Electrical and Computer Engineering (WIECON-ECE)*, IEEE, Nov. 2023, pp. 30–35. doi: 10.1109/WIECON-ECE60392.2023.10456412.
- [82] S. Subha and S. Nagalakshmi, “RETRACTED ARTICLE: Design of ANFIS controller for intelligent energy management in smart grid applications,” *Journal of Ambient Intelligence and Humanized Computing*, vol. 12, no. 6, pp. 6117–6127, Jun. 2021, doi: 10.1007/s12652-020-02180-y.
- [83] S. Deshmukh, S. Limkar, R. Nagthane, V. N. Pande, and A. V. Tare, “Design of Grid-Connected Solar PV System Integrated with Battery Energy Storage System,” in *2023 3rd Asian Conference on Innovation in Technology (ASIANCON)*, IEEE, Aug. 2023, pp. 1–6. doi: 10.1109/ASIANCON58793.2023.10269854.
- [84] M. F. Hordeski, “Distributed Generation, Clean Power and Renewable Energy,” in *Emergency and Backup Power Sources*, River Publishers, 2020, pp. 171–208. doi: 10.1201/9781003151180-6.
- [85] L. E. Natividad and P. Benalcazar, “Hybrid Renewable Energy Systems for Sustainable Rural Development: Perspectives and Challenges in Energy Systems Modeling,” *Energies*, vol. 16, no. 3, p. 1328, Jan. 2023, doi: 10.3390/en16031328.
- [86] M. Rashedin *et al.*, “Rural Alaska Water Treatment and Distribution Systems Incur High Energy Costs: Identifying Energy Drivers Using Panel Data Analysis for 78 Communities,” *ACS ES&T Water*, vol. 2, no. 12, pp. 2668–2676, Dec. 2022, doi: 10.1021/acsestwater.2c00417.
- [87] P. Zhao *et al.*, “Water-Energy Nexus in Power Systems: A Review,” Dec. 20, 2023. doi: 10.32388/SFEDFM.
- [88] M. Errouha, Q. Combe, N. El Ouanjli, and S. Motahhir, “A review of modern techniques for efficient control of AC motors utilized in PV water pumping system,” *Irrigation Science*, Jul. 2024, doi: 10.1007/s00271-024-00952-4.
- [89] Q. Zheng *et al.*, “Plasma Agricultural Nitrogen Fixation Using Clean Energies: New Attempt of Promoting PV Absorption in Rural Areas,” *Processes*, vol. 11, no. 7, p. 2030, Jul. 2023, doi: 10.3390/pr11072030.
- [90] Y. Tang, H. Fu, and B. Xu, “Advanced design of triboelectric nanogenerators for future eco-smart cities,” *Advanced Composites and Hybrid Materials*, vol. 7, no. 3, p. 102, Jun. 2024, doi: 10.1007/s42114-024-00909-3.
- [91] V. Süme, R. Daneshfaraz, A. Kerim, H. Abbaszadeh, and J. Abraham, “Investigation of Clean Energy Production in Drinking Water Networks,” *Water Resources Management*, vol. 38, no. 6, pp. 2189–2208, Apr. 2024, doi: 10.1007/s11269-024-03752-9.

- [92] L. Dumitrescu, C. Cristescu, R. Rădoi, I. Pavel, F. Dragomir, and O. D. Cristea, "Obtaining thermal energy from renewable sources in rural areas using a combined energy system," *E3S Web of Conferences*, vol. 180, p. 02014, Jul. 2020, doi: 10.1051/e3sconf/202018002014.
- [93] Md. A. Moktadir and J. Ren, "Modeling challenges for Industry 4.0 implementation in new energy systems towards carbon neutrality: Implications for impact assessment policy and practice in emerging economies," *Resources, Conservation and Recycling*, vol. 199, p. 107246, Dec. 2023, doi: 10.1016/j.resconrec.2023.107246.
- [94] G. Joshi and S. Mohagheghi, "Optimal Operation of Combined Energy and Water Systems for Community Resilience against Natural Disasters," *Energies*, vol. 14, no. 19, p. 6132, Sep. 2021, doi: 10.3390/en14196132.
- [95] M. Yao, D. Da, X. Lu, and Y. Wang, "A Review of Capacity Allocation and Control Strategies for Electric Vehicle Charging Stations with Integrated Photovoltaic and Energy Storage Systems," *World Electric Vehicle Journal*, vol. 15, no. 3, p. 101, Mar. 2024, doi: 10.3390/wevj15030101.
- [96] M. Maldet, D. Schwabeneder, G. Lettner, C. Loschan, C. Corinaldesi, and H. Auer, "Local sustainable communities: Sector coupling and community optimization in decentralized energy systems," *Cleaner Energy Systems*, vol. 7, p. 100106, Apr. 2024, doi: 10.1016/j.cles.2023.100106.
- [97] A. K. Menon, "Distributed desalination using renewable energy: A paradigm shift toward affordable and sustainable clean water," *One Earth*, vol. 7, no. 3, pp. 355–358, Mar. 2024, doi: 10.1016/j.oneear.2024.02.011.
- [98] A. A. Hassan and M. M. Awad, "Bibliometric analysis on hybrid renewable energy-driven desalination technologies," *Energy Nexus*, vol. 11, p. 100215, Sep. 2023, doi: 10.1016/j.nexus.2023.100215.
- [99] N. Goyal, M. Ram, A. Kumar, S. Bisht, and Y. Klochkov, "Reliability Measures and Profit Exploration of Windmill Water-Pumping Systems Incorporating Warranty and Two Types of Repair," *Mathematics*, vol. 9, no. 8, p. 822, Apr. 2021, doi: 10.3390/math9080822.
- [100] Z. Ahmed, D. Gui, G. Murtaza, L. Yunfei, and S. Ali, "An Overview of Smart Irrigation Management for Improving Water Productivity under Climate Change in Drylands," *Agronomy*, vol. 13, no. 8, p. 2113, Aug. 2023, doi: 10.3390/agronomy13082113.
- [101] H. Shahab, M. Iqbal, A. Sohaib, F. Ullah Khan, and M. Waqas, "IoT-based agriculture management techniques for sustainable farming: A comprehensive review," *Computers and Electronics in Agriculture*, vol. 220, p. 108851, May 2024, doi: 10.1016/j.compag.2024.108851.
- [102] S. Yadav, P. Kumar, and A. Kumar, "Hybrid renewable energy systems design and techno-economic analysis for isolated rural microgrid using HOMER," *Energy*, vol. 327, p. 136442, Jul. 2025, doi: 10.1016/j.energy.2025.136442.
- [103] A. Q. Al-Shetwi, I. E. Atawi, A. Abuelrub, and M. A. Hannan, "Techno-economic assessment and optimal design of hybrid power generation-based renewable energy

systems,” *Technology in Society*, vol. 75, p. 102352, Nov. 2023, doi: 10.1016/j.techsoc.2023.102352.

- [104] F. Ali, M. Ahmar, Y. Jiang, and M. AlAhmad, “A techno-economic assessment of hybrid energy systems in rural Pakistan,” *Energy*, vol. 215, p. 119103, Jan. 2021, doi: 10.1016/j.energy.2020.119103.
- [105] S. K. Thirumalai, A. Karthick, P. K. Dhal, and S. Pundir, “Photovoltaic-wind-battery and diesel generator-based hybrid energy system for residential buildings in smart city Coimbatore,” *Environmental Science and Pollution Research*, vol. 31, no. 9, pp. 14229–14238, Jan. 2024, doi: 10.1007/s11356-024-32071-0.
- [106] A. M. Noman *et al.*, “Optimum Fractional Tilt Based Cascaded Frequency Stabilization with MLC Algorithm for Multi-Microgrid Assimilating Electric Vehicles,” *Fractal and Fractional*, vol. 8, no. 3, p. 132, Feb. 2024, doi: 10.3390/fractalfract8030132.
- [107] P. Soni, Vikramaditya Dave, Sujit Kumar, and Hemani Paliwal, “A comparative study of AI-driven techno-economic analysis for grid-tied solar PV-fuel cell hybrid power systems,” *The Scientific Temper*, vol. 15, no. 02, pp. 2248–2257, Jun. 2024, doi: 10.58414/SCIENTIFICTEMPER.2024.15.2.38.
- [108] A. Faisal and N. Anwer, “Optimization and techno-economic analysis of hybrid renewable energy systems for the electrification of remote areas,” *Wind Engineering*, vol. 48, no. 3, pp. 365–383, Jun. 2024, doi: 10.1177/0309524X231210266.
- [109] S. V. Shah and B. M. Jha, “Rural electrification and optimization of biogas–solar–wind hybrid system for decentralized energy generation in India: a case study of Ringhim village, Sikkim,” *Electrical Engineering*, vol. 106, no. 1, pp. 857–867, Feb. 2024, doi: 10.1007/s00202-023-02030-y.
- [110] U. Singh and M. Rizwan, “A feasibility study and cost benefit analysis of an off-grid hybrid system for a rural area electrification,” *Solar Compass*, vol. 3–4, p. 100031, Sep. 2022, doi: 10.1016/j.solcom.2022.100031.
- [111] S. A. Dost Mohammadi and C. Gezeğin, “Feasibility investigation and economic analysis of photovoltaic, wind and biomass hybrid systems for rural electrification in Afghanistan,” *Electrical Engineering*, vol. 106, no. 3, pp. 2821–2841, Jun. 2024, doi: 10.1007/s00202-023-02115-8.
- [112] S. O. Bade, A. Meenakshisundaram, and O. S. Tomomewo, “Current Status, Sizing Methodologies, Optimization Techniques, and Energy Management and Control Strategies for Co-Located Utility-Scale Wind–Solar-Based Hybrid Power Plants: A Review,” *Eng*, vol. 5, no. 2, pp. 677–719, Apr. 2024, doi: 10.3390/eng5020038.
- [113] Z. Guzović, M. Barbarić, Z. Bačelić Medić, and N. Degiuli, “New Software for the Techno–Economic Analysis of Small Hydro Power Plants,” *Water*, vol. 15, no. 9, p. 1651, Apr. 2023, doi: 10.3390/w15091651.
- [114] A. Gupta and S. Suhag, “A techno-economic-environmental assessment and control strategy for hybrid renewable energy based autonomous microgrid energy

infrastructure in island societies of Northern India," *Environment, Development and Sustainability*, Mar. 2024, doi: 10.1007/s10668-024-04616-3.

- [115] F. Nawab *et al.*, "Solar–Biogas Microgrid: A Strategy for the Sustainable Development of Rural Communities in Pakistan," *Sustainability*, vol. 14, no. 18, p. 11124, Sep. 2022, doi: 10.3390/su141811124.
- [116] H. M. Ramos *et al.*, "Energy Transition in Urban Water Infrastructures towards Sustainable Cities," *Water*, vol. 16, no. 3, p. 504, Feb. 2024, doi: 10.3390/w16030504.
- [117] A. A. Hassan and M. M. Awad, "Bibliometric analysis on hybrid renewable energy-driven desalination technologies," *Energy Nexus*, vol. 11, p. 100215, Sep. 2023, doi: 10.1016/j.nexus.2023.100215.
- [118] A. D. Sakti *et al.*, "Spatial integration framework of solar, wind, and hydropower energy potential in Southeast Asia," *Scientific Reports*, vol. 13, no. 1, p. 340, Jan. 2023, doi: 10.1038/s41598-022-25570-y.
- [119] N. Campion, G. Montanari, A. Guzzini, L. Visser, and A. Alcayde, "Green hydrogen techno-economic assessments from simulated and measured solar photovoltaic power profiles," *Renewable and Sustainable Energy Reviews*, vol. 209, p. 115044, Mar. 2025, doi: 10.1016/j.rser.2024.115044.
- [120] N. Lourenço and L. M. Nunes, "Review of Dry and Wet Decentralized Sanitation Technologies for Rural Areas: Applicability, Challenges and Opportunities," *Environmental Management*, vol. 65, no. 5, pp. 642–664, May 2020, doi: 10.1007/s00267-020-01268-7.
- [121] D. Prieto-Jiménez, E. R. Oviedo-Ocaña, S. Gómez-Isidro, and I. C. Domínguez, "A multicriteria decision analysis for selecting rainwater harvesting systems in rural areas: a tool for developing countries," *Environmental Science and Pollution Research*, vol. 31, no. 29, pp. 42476–42491, Jun. 2024, doi: 10.1007/s11356-024-33734-8.
- [122] I. V Pchel'nikov, R. V Fedotov, and S. A. Breus, "On the choice of the water treatment technology for rural areas," *IOP Conference Series: Materials Science and Engineering*, vol. 962, no. 4, p. 042083, Nov. 2020, doi: 10.1088/1757-899X/962/4/042083.
- [123] J. Liebe, M. Andreini, N. van de Giesen, and T. Steenhuis, "The Small Reservoirs Project: Research to Improve Water Availability and Economic Development in Rural Semi-arid Areas," in *The Hydropolitics of Africa: A Contemporary Challenge*, Cambridge Scholars Publishing, pp. 325–332. doi: 10.5848/CSP.0227.00014.
- [124] I. Angelova, D. Alitchkov, and V. Radovanov, "Technical and economic impact of water reuse as an integrated water resource management measure in rural water supply systems," *Water Supply*, vol. 24, no. 5, pp. 1974–1984, May 2024, doi: 10.2166/ws.2024.099.
- [125] M. Liu, N. Graham, L. Xu, K. Zhang, and W. Yu, "Bubbleless aerated-biological activated carbon as a superior process for drinking water treatment in rural areas," *Water Research*, vol. 240, p. 120089, Jul. 2023, doi: 10.1016/j.watres.2023.120089.

- [126] Z. Zhang *et al.*, “Evaluating the Efficacy of Point-of-Use Water Treatment Systems Using the Water Quality Index in Rural Southwest China,” *Water*, vol. 12, no. 3, p. 867, Mar. 2020, doi: 10.3390/w12030867.
- [127] N. Bassi, S. Kumar, M. D. Kumar, S. Van Ermen, and P. Campling, “Promoting wastewater treatment in India: Critical questions of economic viability,” *Water and Environment Journal*, vol. 36, no. 4, pp. 723–736, Nov. 2022, doi: 10.1111/wej.12810.
- [128] A. M. Aksan, K. Aussenheimer, and M. Williams, “Providing clean water to rural villages: a cost-effectiveness analysis of boreholes versus purification sachets,” *International Journal of Social Entrepreneurship and Innovation*, vol. 6, no. 2, p. 111, 2022, doi: 10.1504/IJSEI.2022.128564.
- [129] J. Četković *et al.*, “Financial and Economic Investment Evaluation of Wastewater Treatment Plant,” *Water*, vol. 14, no. 1, p. 122, Jan. 2022, doi: 10.3390/w14010122.
- [130] M. Lizot, A. S. Goffi, S. S. Thesari, F. Trojan, P. S. L. P. Afonso, and P. F. V. Ferreira, “Multi-criteria methodology for selection of wastewater treatment systems with economic, social, technical and environmental aspects,” *Environment, Development and Sustainability*, vol. 23, no. 7, pp. 9827–9851, Jul. 2021, doi: 10.1007/s10668-020-00906-8.
- [131] F. García-Ávila, A. Avilés-Añazco, E. Sánchez-Cordero, L. Valdiviezo-González, and M. D. T. Ordoñez, “The challenge of improving the efficiency of drinking water treatment systems in rural areas facing changes in the raw water quality,” *South African Journal of Chemical Engineering*, vol. 37, pp. 141–149, Jul. 2021, doi: 10.1016/j.sajce.2021.05.010.
- [132] T. M. Shah, C. O. Egwu, M. Hammad, and R. Otterpohl, “Decision Support Systems Based on a Multiple-Criteria Decision Analysis to Promote a Whole-of-Resource Approach for Water Management, with a Case Study of Rural Bengaluru in India,” *Water*, vol. 16, no. 12, p. 1674, Jun. 2024, doi: 10.3390/w16121674.
- [133] L. Xie *et al.*, “The role of electric grid research in addressing climate change,” *Nature Climate Change*, vol. 14, no. 9, pp. 909–915, Sep. 2024, doi: 10.1038/s41558-024-02092-1.
- [134] W. Xu, X. Wu, Y. Li, H. Wang, L. Lu, and M. Ouyang, “A comprehensive review of DC arc faults and their mechanisms, detection, early warning strategies, and protection in battery systems,” *Renewable and Sustainable Energy Reviews*, vol. 186, p. 113674, Oct. 2023, doi: 10.1016/j.rser.2023.113674.
- [135] Z. Allal, H. N. Noura, O. Salman, and K. Chahine, “Machine learning solutions for renewable energy systems: Applications, challenges, limitations, and future directions,” *Journal of Environmental Management*, vol. 354, p. 120392, Mar. 2024, doi: 10.1016/j.jenvman.2024.120392.
- [136] M. Mustafa Kamal, I. Asharaf, and E. Fernandez, “Optimal renewable integrated rural energy planning for sustainable energy development,” *Sustainable Energy Technologies and Assessments*, vol. 53, p. 102581, Oct. 2022, doi: 10.1016/j.seta.2022.102581.

- [137] R. Jain, K. Nagasawa, S. Veda, and S. Sprik, "Grid ancillary services using electrolyzer-Based power-to-Gas systems with increasing renewable penetration," *e-Prime - Advances in Electrical Engineering, Electronics and Energy*, vol. 6, p. 100308, Dec. 2023, doi: 10.1016/j.prime.2023.100308.
- [138] D. Streimikiene, T. Baležentis, A. Volkov, M. Morkūnas, A. Žičkienė, and J. Streimikis, "Barriers and Drivers of Renewable Energy Penetration in Rural Areas," *Energies*, vol. 14, no. 20, p. 6452, Oct. 2021, doi: 10.3390/en14206452.
- [139] D. Kodirov, K. Muratov, O. Tursunov, E. I. Ugwu, and A. Durmanov, "The use of renewable energy sources in integrated energy supply systems for agriculture," *IOP Conference Series: Earth and Environmental Science*, vol. 614, no. 1, p. 012007, Dec. 2020, doi: 10.1088/1755-1315/614/1/012007.
- [140] A. SHARMA, H. p SINGH, R. VĪRAL, and N. ANWER, "Renewable energy development in rural areas of Uttar Pradesh: Current status, technologies and CO2 mitigation analysis," *Journal of Energy Systems*, vol. 5, no. 2, pp. 92–120, Jun. 2021, doi: 10.30521/jes.816049.
- [141] M. Adnan, B. Xiao, S. Bibi, P. Xiao, P. Zhao, and H. Wang, "Addressing current climate issues in Pakistan: An opportunity for a sustainable future," *Environmental Challenges*, vol. 15, p. 100887, Apr. 2024, doi: 10.1016/j.envc.2024.100887.
- [142] Y. Guo, Y. Bouteraa, M. Khishe, and B. F. Ibrahim, "Grid-connected desalination plant economic management powered by renewable resources utilizing Niching Chimp Optimization and hunger game search algorithms," *Sustainable Computing: Informatics and Systems*, vol. 42, p. 100976, Apr. 2024, doi: 10.1016/j.suscom.2024.100976.
- [143] M. Nur-E-Alam *et al.*, "Machine learning-enhanced all-photovoltaic blended systems for energy-efficient sustainable buildings," *Sustainable Energy Technologies and Assessments*, vol. 62, p. 103636, Feb. 2024, doi: 10.1016/j.seta.2024.103636.
- [144] Q. Zheng *et al.*, "Plasma Agricultural Nitrogen Fixation Using Clean Energies: New Attempt of Promoting PV Absorption in Rural Areas," *Processes*, vol. 11, no. 7, p. 2030, Jul. 2023, doi: 10.3390/pr11072030.
- [145] G. Tagliabue, H. A. Atwater, A. Polman, and E. Cortés, "Photonic solutions help fight climate crisis," *Nature Photonics*, vol. 18, no. 9, pp. 879–882, Sep. 2024, doi: 10.1038/s41566-024-01509-9.
- [146] M. Alizadeh Bidgoli, A. R. Payravi, A. Ahmadian, and W. Yang, "Optimal day-ahead scheduling of autonomous operation for the hybrid micro-grid including PV, WT, diesel generator, and pump as turbine system," *Journal of Ambient Intelligence and Humanized Computing*, vol. 12, no. 1, pp. 961–977, Jan. 2021, doi: 10.1007/s12652-020-02114-8.
- [147] L. Yin and X. Cao, "Quantum-inspired distributed policy-value optimization learning with advanced environmental forecasting for real-time generation control in novel power systems," *Engineering Applications of Artificial Intelligence*, vol. 129, p. 107640, Mar. 2024, doi: 10.1016/j.engappai.2023.107640.

- [148] R. Syahputra and I. Soesanti, "Renewable energy systems based on micro-hydro and solar photovoltaic for rural areas: A case study in Yogyakarta, Indonesia," *Energy Reports*, vol. 7, pp. 472–490, Nov. 2021, doi: 10.1016/j.egy.2021.01.015.
- [149] D. Dewangan, S. L. Sinha, and J. P. Ekka, "Biogas Power System: A Step towards Utilization of Clean Renewable Energy Resource for Providing Optimum Energy Needs of Rural Areas in India," *Applied Mechanics and Materials*, vol. 592–594, pp. 2336–2340, Jul. 2014, doi: 10.4028/www.scientific.net/AMM.592-594.2336.
- [150] N. Izadi and H. Saadi, "Designing a biogas development model for Iranian villages (The application of grounded theory)," *Environmental and Sustainability Indicators*, vol. 22, p. 100343, Jun. 2024, doi: 10.1016/j.indic.2024.100343.
- [151] T. Arunkumar, J. Wang, and D. Denkenberger, "Capillary flow-driven efficient nanomaterials for seawater desalination: Review of classifications, challenges, and future perspectives," *Renewable and Sustainable Energy Reviews*, vol. 138, p. 110547, Mar. 2021, doi: 10.1016/j.rser.2020.110547.
- [152] U. Ngwaka *et al.*, "Industrial cluster energy systems integration and management tool," *Energy Conversion and Management*, vol. 297, p. 117731, Dec. 2023, doi: 10.1016/j.enconman.2023.117731.
- [153] Y. Guo, Y. Bouteraa, M. Khishe, and B. F. Ibrahim, "Grid-connected desalination plant economic management powered by renewable resources utilizing Niching Chimp Optimization and hunger game search algorithms," *Sustainable Computing: Informatics and Systems*, vol. 42, p. 100976, Apr. 2024, doi: 10.1016/j.suscom.2024.100976.
- [154] H. Wu and G. Yu, "The application of multi factor method in the site selection of reserve warehouse for nuclear and radiation emergency," *Journal of Radiation Research and Applied Sciences*, vol. 17, no. 1, p. 100758, Mar. 2024, doi: 10.1016/j.jrras.2023.100758.
- [155] S. Yin, Y. Wang, Y. Liu, and S. Wang, "Exploring drivers of behavioral willingness to use clean energy to reduce environmental emissions in rural China: An extension of the UTAUT2 model," *Journal of Renewable and Sustainable Energy*, vol. 16, no. 4, Jul. 2024, doi: 10.1063/5.0211668.
- [156] S. Li, L. Zhang, L. Su, and Q. Nie, "Exploring the coupling coordination relationship between eco-environment and renewable energy development in rural areas: A case of China," *Science of The Total Environment*, vol. 880, p. 163229, Jul. 2023, doi: 10.1016/j.scitotenv.2023.163229.
- [157] X. Song and Z. Chen, "Pathways for an island energy transition under climate change: The case of Chongming Island, China," *Frontiers in Energy Research*, vol. 11, Mar. 2023, doi: 10.3389/fenrg.2023.1126411.
- [158] S. Yin, Y. Zhao, A. Hussain, and K. Ullah, "Comprehensive evaluation of rural regional integrated clean energy systems considering multi-subject interest coordination with pythagorean fuzzy information," *Engineering Applications of Artificial Intelligence*, vol. 138, p. 109342, Dec. 2024, doi: 10.1016/j.engappai.2024.109342.

- [159] M. Zeng, K. Zhang, Q. He, D. Xu, Y. Qi, and X. Deng, "Cooking with unclean energy: insight into power shortage in rural areas," *Environment, Development and Sustainability*, May 2024, doi: 10.1007/s10668-024-04980-0.
- [160] A. T. Zhang and V. X. Gu, "Global Dam Tracker: A database of more than 35,000 dams with location, catchment, and attribute information," *Scientific Data*, vol. 10, no. 1, p. 111, Feb. 2023, doi: 10.1038/s41597-023-02008-2.
- [161] S. Rajkumar, R. Balasubramanian, and P. Kathirvelu, "A Comprehensive Review on Supraharmonics—The Next Big Power Quality Concern," *Smart Grids and Sustainable Energy*, vol. 9, no. 1, p. 15, Feb. 2024, doi: 10.1007/s40866-024-00195-4.
- [162] G. Herrera-Franco, Lady Bravo-Montero, J. Caicedo-Potosí, and P. Carrión-Mero, "A Sustainability Approach between the Water–Energy–Food Nexus and Clean Energy," *Water*, vol. 16, no. 7, p. 1017, Apr. 2024, doi: 10.3390/w16071017.
- [163] M. M. Klemun, S. Ojanperä, and A. Schweikert, "Toward evaluating the effect of technology choices on linkages between sustainable development goals," *iScience*, vol. 26, no. 2, p. 105727, Feb. 2023, doi: 10.1016/j.isci.2022.105727.
- [164] D. C. Sombei, C. A. Mecha, and M. N. Chollom, "A Review of Low-Cost Point-of-Use Water Treatment Solutions Addressing Water Access and Quality in Resource-Limited Settings," *Water*, vol. 17, no. 12, p. 1827, Jun. 2025, doi: 10.3390/w17121827.
- [165] Z. Qiu, S. Shi, F. Qiu, X. Xu, D. Yang, and T. Zhang, "Enhanced As(III) removal from aqueous solutions by recyclable Cu@MNM composite membranes via synergistic oxidation and absorption," *Water Research*, vol. 168, p. 115147, Jan. 2020, doi: 10.1016/j.watres.2019.115147.
- [166] F. Jamshidi, M. Ghiasi, M. Mehrandezh, Z. Wang, and R. Paranjape, "Optimizing Energy Consumption in Agricultural Greenhouses: A Smart Energy Management Approach," *Smart Cities*, vol. 7, no. 2, pp. 859–879, Mar. 2024, doi: 10.3390/smartcities7020036.
- [167] X. Fu and Y. Zhou, "Collaborative Optimization of PV Greenhouses and Clean Energy Systems in Rural Areas," *IEEE Transactions on Sustainable Energy*, vol. 14, no. 1, pp. 642–656, Jan. 2023, doi: 10.1109/TSTE.2022.3223684.
- [168] G. Tagliabue, H. A. Atwater, A. Polman, and E. Cortés, "Photonic solutions help fight climate crisis," *Nature Photonics*, vol. 18, no. 9, pp. 879–882, Sep. 2024, doi: 10.1038/s41566-024-01509-9.
- [169] R. Manimaran, "A comprehensive review of solar-assisted technologies in India for clean water and clean energy," *Clean Energy*, vol. 9, no. 2, pp. 12–36, Feb. 2025, doi: 10.1093/ce/zkae093.
- [170] J.-O. Drangert and H. Kjerstadius, "Recycling – The future urban sink for wastewater and organic waste," *City and Environment Interactions*, vol. 19, p. 100104, Aug. 2023, doi: 10.1016/j.cacint.2023.100104.
- [171] X. Yi, D. Lin, J. Li, J. Zeng, D. Wang, and F. Yang, "Ecological treatment technology for agricultural non-point source pollution in remote rural areas of China," *Environmental*

*Science and Pollution Research*, vol. 28, no. 30, pp. 40075–40087, Aug. 2021, doi: 10.1007/s11356-020-08587-6.

- [172] Md. A. Moktadir and J. Ren, “Modeling challenges for Industry 4.0 implementation in new energy systems towards carbon neutrality: Implications for impact assessment policy and practice in emerging economies,” *Resources, Conservation and Recycling*, vol. 199, p. 107246, Dec. 2023, doi: 10.1016/j.resconrec.2023.107246.
- [173] C. Ringler, A. A. Belete, S. M. Mathetsa, and S. Uhlenbrook, “Rural clean energy access: Accelerating climate resilience,” 2022. doi: 10.2499/9780896294257\_09.
- [174] C. W. Ong and C.-L. Chen, “Intensification, optimization and economic evaluations of the CO<sub>2</sub>-capturing oxy-combustion CO<sub>2</sub> power system integrated with the utilization of liquefied natural gas cold energy,” *Energy*, vol. 234, p. 121255, Nov. 2021, doi: 10.1016/j.energy.2021.121255.
- [175] Y. Guo, Y. Bouteraa, M. Khishe, and B. F. Ibrahim, “Grid-connected desalination plant economic management powered by renewable resources utilizing Niching Chimp Optimization and hunger game search algorithms,” *Sustainable Computing: Informatics and Systems*, vol. 42, p. 100976, Apr. 2024, doi: 10.1016/j.suscom.2024.100976.
- [176] S. S. Ali, R. Al-Tohamy, T. Elsamahy, and J. Sun, “Harnessing recalcitrant lignocellulosic biomass for enhanced biohydrogen production: Recent advances, challenges, and future perspective,” *Biotechnology Advances*, vol. 72, p. 108344, May 2024, doi: 10.1016/j.biotechadv.2024.108344.
- [177] Y. Yang *et al.*, “An overview of application-oriented multifunctional large-scale stationary battery and hydrogen hybrid energy storage system,” *Energy Reviews*, vol. 3, no. 2, p. 100068, Jun. 2024, doi: 10.1016/j.enrev.2024.100068.
- [1] B. Sravanthi *et al.*, “AquaLives: Navigating the Interplay of Water, Sanitation, and Hygiene for Global Health,” *E3S Web Conf.*, vol. 453, p. 01041, Nov. 2023, doi: 10.1051/e3sconf/202345301041.
- [2] B. M. Kuehn, “Urgent Efforts Needed to Increase Access to Clean Water, Sanitation,” *JAMA*, vol. 326, no. 7, p. 592, Aug. 2021, doi: 10.1001/jama.2021.12211.
- [3] S. Q. Z. Nisa’, R. Novembrianto, R. H. A. Murti, and M. A. S. Jawwad, “Sustainability Assessment of Rural Water Supply System in Lamongan, Indonesia,” *Int. J. Eco-Innovation Sci. Eng.*, vol. 4, no. 1, Oct. 2023, doi: 10.33005/ijeise.v4i1.114.
- [4] M. Sherif, M. Abrar, F. Baig, and S. Kabeer, “Gulf Cooperation Council countries’ water and climate research to strengthen UN’s SDGs 6 and 13,” *Heliyon*, vol. 9, no. 3, p. e14584, Mar. 2023, doi: 10.1016/j.heliyon.2023.e14584.
- [5] N. Singh, S. Kamboj, S. S. Siwal, A. L. Srivastav, and R. K. Naresh, “Toxic, non-toxic, and essential elements in drinking water: sources and associated health issues in rural Asia,” in *Water Resources Management for Rural Development*, Elsevier, 2024, pp. 171–190. doi: 10.1016/B978-0-443-18778-0.00012-X.

- [6] D. Mathew and O. I. Ndububa, "Analisa of impact communal activities on ground water quality from hand dug wells in shere village, Abuja Nigeria," *Open J. Eng. Sci. (ISSN 2734-2115)*, vol. 4, no. 2, pp. 35–49, Nov. 2023, doi: 10.52417/ojes.v4i2.518.
- [7] E. Yustati, "Analysis of Coliform Bacteria in Dug Well Water," *Cendekia Med. J. Stikes Al-Ma`arif Baturaja*, vol. 9, no. 2, pp. 425–430, Sep. 2024, doi: 10.52235/cendekiamedika.v9i2.423.
- [8] D. Daniel, T. P. Al Djono, and W. P. Iswarani, "Factors related to the functionality of community-based rural water supply and sanitation program in Indonesia," *Geogr. Sustain.*, vol. 4, no. 1, pp. 29–38, Mar. 2023, doi: 10.1016/j.geosus.2022.12.002.
- [9] T. P. Al Djono and D. Daniel, "The effect of community contribution on the functionality of rural water supply programs in Indonesia," *Groundw. Sustain. Dev.*, vol. 19, p. 100822, Nov. 2022, doi: 10.1016/j.gsd.2022.100822.
- [10] D. C. Callejas Moncaleano, S. Pande, M. Haeffner, J. P. Rodríguez Sánchez, and L. Rietveld, "Inefficiencies in water supply and perceptions of water use in peri-urban and rural water supply systems: case study in Cali and Restrepo, Colombia," *Front. Water*, vol. 6, Nov. 2024, doi: 10.3389/frwa.2024.1389648.
- [11] I. V Pchel'nikov, R. V Fedotov, and S. A. Breus, "On the choice of the water treatment technology for rural areas," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 962, no. 4, p. 042083, Nov. 2020, doi: 10.1088/1757-899X/962/4/042083.
- [12] N. Vetrova, T. Ivanenko, and D. Marunchak, "Features of water resources accumulation schemes for environmentally safe water supply to the rural, Population Dobroe," *Constr. Ind. Saf.*, no. 35, pp. 73–79, Dec. 2024, doi: 10.29039/2413-1873-2024-35-73-79.
- [13] X. Zhang, X. Zhi, L. Chen, and Z. Shen, "Spatiotemporal variability and key influencing factors of river fecal coliform within a typical complex watershed," *Water Res.*, vol. 178, p. 115835, Jul. 2020, doi: 10.1016/j.watres.2020.115835.
- [14] A. P. Wicaksono, B. Zaman, and M. A. Budihardjo, "Removal of Physical Contaminants from Potable Water Distribution," *IOP Conf. Ser. Earth Environ. Sci.*, vol. 448, no. 1, p. 012047, Mar. 2020, doi: 10.1088/1755-1315/448/1/012047.
- [15] I. Wiewiórska, "The Role of Selected Technological Processes in Drinking Water Treatment," *Archit. Civ. Eng. Environ.*, vol. 16, no. 2, pp. 189–200, Jun. 2023, doi: 10.2478/acee-2023-0028.
- [16] D. Daniel, D. Djohan, and A. Nastiti, "Interaction of Factors Influencing the Sustainability of Water, Sanitation, and Hygiene (WASH) Services in Rural Indonesia: Evidence from Small Surveys of WASH-Related Stakeholders in Indonesia," *Water*, vol. 13, no. 3, p. 314, Jan. 2021, doi: 10.3390/w13030314.
- [17] M. Errouha, Q. Combe, N. El Ouanjli, and S. Motahhir, "A review of modern techniques for efficient control of AC motors utilized in PV water pumping system," *Irrig. Sci.*, Jul. 2024, doi: 10.1007/s00271-024-00952-4.

- [18] N. Naval and J. M. Yusta, "Optimal short-term water-energy dispatch for pumping stations with grid-connected photovoltaic self-generation," *J. Clean. Prod.*, vol. 316, p. 128386, Sep. 2021, doi: 10.1016/j.jclepro.2021.128386.
- [19] Z. Ismaila *et al.*, "Evaluation of a hybrid solar power system as a potential replacement for urban residential and medical economic activity areas in southern Nigeria," *AIMS Energy*, vol. 11, no. 2, pp. 319–336, 2023, doi: 10.3934/energy.2023017.
- [20] H. El-houari, A. Allouhi, M. S. Buker, T. Kousksou, A. Jamil, and B. El Amrani, "Off-Grid PV-Based Hybrid Renewable Energy Systems for Electricity Generation in Remote Areas," 2021, pp. 483–513. doi: 10.1007/978-3-030-64565-6\_17.
- [21] R. F. Femanda, M. S. Alfarisi, and P. P. Sagita, "The Optimal Design in Using Solar Photovoltaic Power for SCADA to Improve System Availability: A Case Study in PLN Banten Distribution," in *2020 International Conference on Technology and Policy in Energy and Electric Power (ICT-PEP)*, IEEE, Sep. 2020, pp. 225–229. doi: 10.1109/ICT-PEP50916.2020.9249845.
- [22] J. Koko, A. Riza, and U. K. Mohamad Khadik, "Design of solar power plants with hybrid systems," *IOP Conf. Ser. Mater. Sci. Eng.*, vol. 1125, no. 1, p. 012074, May 2021, doi: 10.1088/1757-899X/1125/1/012074.
- [23] M. H. Nabil *et al.*, "Techno-economic analysis of commercial-scale 15 MW on-grid ground solar PV systems in Bakalia: A feasibility study proposed for BPDB," *Energy Nexus*, vol. 14, p. 100286, Jul. 2024, doi: 10.1016/j.nexus.2024.100286.
- [24] N. Baghel, K. Manjunath, and A. Kumar, "Assessment of solar-biomass hybrid power system for decarbonizing and sustainable energy transition for academic building," *Process Saf. Environ. Prot.*, vol. 187, pp. 1201–1212, Jul. 2024, doi: 10.1016/j.psep.2024.05.004.
- [25] B. Al-Gashgari, F. Almulhim, C. Sanchez-Huerta, and P.-Y. Hong, "Towards SDG 6: Wastewater Treatment Generates a Precious Water Resource," *Front. Young Minds*, vol. 12, Nov. 2024, doi: 10.3389/frym.2024.1418929.