Santosh Kumar Saraswat

Birla Institute of Technology and Science, Pilani

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Google Scholar

Education

2017 – Till date (Thesis Submitted)	Ph. D., Birla Institute of Technology and Science, Pilani (BITS Pilani) in Mechanical Engineering Thesis title: ***Empirical investigation and assessment of various energy sources for sustainable development of energy sector in India***
2014 – 2017	M. Tech., Rajasthan Technical University, Kota in Renewable Energy Technology Percentage: 82.73% (Honours) Thesis title: ***Optimization of solar PV – diesel power plant for different locations of India***
2009 – 2014	B. Tech., Rajasthan Technical University, Kota in Mechanical Engineering Percentage: 70.51% (Honours)

Projects Carried Out

Ph. D.

- ***Assessment of effect of various design parameters on the output of wind turbine generator*** (With M. Tech. Student)
- ***Evaluation of factors for sustainable manufacturing of electric vehicles in India*** (With M. Tech. Student)
- ***On-grid system evaluation for EV charging stations using renewable sources of energy*** (With M. Tech. Student)
- ***Empirical investigation and analysis of factors for sustainable growth of electric vehicles manufacturing in India*** (With colleague Ph. D. Scholar)

M. Tech.

- Master's Seminar: ***A review of photovoltaic thermal system***

B. Tech.

- Summer Training: ***To Acquire knowledge in field of mechanical equipment's and components***
- Major Project: ***Design and fabrication of a demonstration model of electricity generation from speed breaker***

Research Interest and Experience

Research interest	Renewable Energy System and its Applications Sustainability Analysis and Assessment Energy Economics Solar and Wind Energy Resource Assessment Agrivoltaics Electric Vehicles (EVs)

Skills

Software's	IBM SPSS and Minitab Statistical Analysis Software HelioScope: Advanced Solar Design Software RETScreen: Clean Energy Project Analysis Software PVsyst HOMER (Hybrid Optimization Model for Multiple Energy Resources) Geographical Information System (GIS)
Tools	Microsoft Word, Power Point, Excel, Visio Auto CAD Multi-Criteria Decision Making (MCDM) Tools

Achievements

Sep. 2016	Awarded first prize in TEQIP-II sponsored national conference on "Green Engineering & Technologies for Sustainable Future" organized by Department of Petrochemical Technology, BIT campus, Anna University, Tiruchirappalli, Tamil Nadu, India

Research Publications

1. **S. K. Saraswat**, Abhijeet Digalwar, Assessment of techno-economic feasibility of power projects at the conspicuous potential sites: a case study (Manuscript prepared and will communicate in: Energy Conversion and Management).
2. **S. K. Saraswat**, Abhijeet Digalwar, and S. S. Yadav, A multi constraint-based assessment of solar and wind energy potential in India, (under-review: Environment, Development and Sustainability).
3. A. K. Digalwar, **S. K. Saraswat**, R. G. Thomas, and A. Rastogi, A Comprehensive Framework for Analysis and Evaluation of Factors Responsible for Sustainable Growth of Electric Vehicles in India (under-review: Journal of Cleaner Production).
4. **S.K. Saraswat**, A.K. Digalwar, Empirical investigation and validation of sustainability indicators for the assessment of energy sources in India, Renewable and Sustainable Energy Reviews 145 (2021) 111156. https://doi.org/10.1016/j.rser.2021.111156. (SCI Impact factor: 14.982, H index: 295)

5. **S.K. Saraswat**, A.K. Digalwar, Evaluation of energy alternatives for sustainable development of energy sector in India: An integrated Shannon' s entropy fuzzy multi- criteria decision approach, Renewable Energy. 171 (2021) 58–74. https://doi.org/10.1016/j.renene.2021.02.068. (SCI Impact factor: 8.001, H index: 191)
6. **S.K. Saraswat**, A.K. Digalwar, S.S. Yadav, G. Kumar, MCDM and GIS based modelling technique for assessment of solar and wind farm locations in India, Renewable Energy. 169 (2021) 865–884. https://doi.org/10.1016/j.renene.2021.01.056. (SCI Impact factor: 8.001, H index: 191)
7. **S.K. Saraswat**, A.K. Digalwar and S. S. Yadav, Sustainability Assessment of Renewable and Conventional Energy Sources in India Using Fuzzy Integrated AHP-WASPAS Approach, Journal of Multiple-Valued Logic and Soft Computing. 37 (2021) 335-362. (SCI Impact factor: 0.861, H index: 24)
8. **S.K. Saraswat**, A.K. Digalwar, Evaluation of energy sources based on sustainability factors using integrated fuzzy MCDM approach, International Journal of Energy Sector Management. 15 (2020) 246–266. https://doi.org/10.1108/IJESM-07-2020-0001. (Scopus indexed, H index: 22)

Conference Publications

1. **S. K. Saraswat**, and Abhijeet Digalwar, Assessment of Power Potential of Sustainable Energy Sources in India using Multi Constraint Factors, presented at ISDSI Global – 2021 Conference hosted by **Indian Institute of Management, Nagpur**.
2. **S. K. Saraswat**, Abhijeet Digalwar, and S. S. Yadav, Development of Assessment Model for Selection of Sustainable Energy Sources in India: Hybrid Fuzzy MCDM approach, presented at International Conference on Intelligent and Fuzzy Systems organized by **Industrial Engineering Department of Istanbul Technical University** in July 21-23, 2020.
3. **S. K. Saraswat**, Abhijeet Digalwar, and S. S. Yadav, Application of Hybrid MCDM Approach for Selection of Sustainable Energy Sources in India, in proceedings of 1st International Conference on Mathematical Modeling, Computational Intelligence Techniques and Renewable Energy (MMCITRE-2020) organized during February 21-23, 2020 conducted by **Department of Mathematics, Pandit Deendayal Petroleum University (PDPU), Gandhinagar**, Gujarat, India.
4. Abhijeet Digalwar, Sunil Dambhare, and **Santosh Saraswat**, Social sustainability assessment framework for Indian manufacturing industry, **Materials Today: Proceedings** 28 (2020): 591-598.
5. R. G. Thomas, **S. K. Saraswat**, A. Rastogi and A. K. Digalwar, On-grid system evaluation for EV charging stations using renewable sources of energy, 2020 **IEEE** International Power and Renewable Energy Conference, 2020, pp. 1-4, doi: 10.1109/IPRECON49514.2020.9315235.
6. **S. K. Saraswat**, Abhijeet Digalwar, and S. S. Yadav, Applications of Fuzzy AHP Approach for Evaluation of Sustainable Energy Sources in India, in the proceedings of International Conference and 22nd Annual convention of Vijnana Parishad of India on Advances in Operation Research, Statistics and Mathematics

(AOSM 2019) organized by Department of Mathematics, **BITS-Pilani, Pilani Campus** during December 28-30, 2019.

7. **S. K. Saraswat**, Abhijeet Digalwar, and S. S. Yadav, Evaluation of Sustainable Energy Sources in India: A Fuzzy AHP Approach, presented in 12th Annual ISDSI Conference held at **SPJIMR, Mumbai** from 27th to 30th December 2018.
8. **Santosh Saraswat**, and Abhijeet Digalwar, Identification of Sustainable Energy Source for Indian Climatic Conditions: A MCDM approach, in proceedings of 2nd ISEES International Conference on Sustainable Energy and Environmental Challenges (SEEC-2018), **Indian Institute of Science, Bangalore**, India, 31st December 2017 – 3rd January 2018.
9. **S. K. Saraswat** and K. V. S. Rao, Optimization of 10 kW solar photovoltaic–diesel generator hybrid energy system for different load factors at Jaisalmer location of Rajasthan, India, in IOP Conference Series: Materials Science and Engineering (Vol. 330, No. 1, p. 012099). IOP Publishing.
10. **S. K. Saraswat** and K. V. S. Rao, Comparison of various off-grid power system models for a 10kW load at Jaipur in Rajasthan, 2016 Second International Innovative Applications of Computational Intelligence on Power, Energy and Controls with their Impact on Humanity (CIPECH), 2016, pp. 134-138, doi: 10.1109/CIPECH.2016.7918753.
11. **S. K. Saraswat** and K. V. S. Rao, 10 kW solar photovoltaic — Diesel hybrid energy system for different solar zones of India, 2016 International Conference on Emerging Technological Trends (ICETT), 2016, pp. 1-6, doi: 10.1109/ICETT.2016.7873692.

Book Chapters

1. **S.K. Saraswat**, A.K. Digalwar, S.S. Yadav, Application of fuzzy AHP approach for evaluation of Sustainable energy sources in India, in: R. Kulshrestha, C. Shekhar, M. Jain, S.R. Chakravarthy (Eds.), Math. Model. Comput. Real-Time Probl. Interdiscip. Approach, First, CRC Press, 2021: pp. 145–158. https://doi.org/https://doi.org/10.1201/9781003055037.
2. **S.K. Saraswat**, A. Digalwar, S.S. Yadav, Development of Assessment Model for Selection of Sustainable Energy Source in India: Hybrid Fuzzy MCDM Approach, Springer International Publishing, 2021. https://doi.org/10.1007/978-3-030-51156-2_75.

Workshops and Seminars (Recent)

December 2021	Participated in *International Workshop on Solar Thermal Energy Storage* organized by Indian Institute of Technology, Roorkee during December 13-14 (Virtual).
December 2021	Participated in Five-day online faculty development program on *Recent advancement & Research Opportunities in Energy Sector* organized by Aditya Engineering College, Andhra Pradesh during 29th November to 3rd December 2021.
March 2021	Participated as the *organizing committee member* in the 28th CIRP conference on Life Cycle Engineering (LCE) organized by BITS Pilani, Pilani campus.

Industrial Visits and Interactions

- Industrial visit to Wind Turbine Test Station (WTTS) & Wind Turbine Research Station (WTRS), Kayathar, Tamilnadu
- Industrial visit to kuddankulam Nuclear Power Plant, Tirunelveli, Tamil Nadu, India
- Industrial visit to Atha Group solar Photovoltaic power plant, Bikaner, Rajasthan
- Industrial visit to InoxWind power plant, Jaisalmer, Rajasthan
- Industries participated in survey responses: Godawari green energy limited, MP power generation, Suzlon energy limited, NLC India limited, Reliance power industries, IOCL, NPCIL, RRECL, NISE, NIWE, MNRE, ACME solar etc.

Roles and Responsibilities

- Report /Research paper writing
- Involved in research and designing of proposals, implementation, monitoring, and evaluation of projects
- Expertise in renewable energy and mechanical engineering work projects

Professional Teaching Experience

- Professionally, I was part of Renewable Energy, Solar Energy, Basic Thermodynamics, Applied Thermodynamics, Heat & Mass transfer, Strength of Materials, Prime Movers and Fluid Mechanics courses at BITS Pilani, Pilani campus.

Declaration

I hereby declare that the above information is correct to the best of my knowledge and belief.

Place: Pilani, India **(Santosh Kumar Saraswat)**