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Integration of Renewable Energy in Manufacturing Technology: A Review

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Abstract:

The integration of renewable energy in manufacturing technology represents a crucial shift towards sustainable industrial practices. This paper reviews the current state of renewable energy applications in manufacturing, highlighting advancements, benefits, challenges, and future directions. By examining various renewable energy sources such as solar, wind, biomass, and geothermal, and their integration into manufacturing processes, the paper underscores the potential for reduced environmental impact and enhanced economic performance. The review covers technological innovations, case studies, and policy frameworks that facilitate the adoption of renewable energy in manufacturing, providing a comprehensive overview of this evolving field.

Keywords: Renewable Energy Integration, Manufacturing Technology, Solar Power, Wind Energy, Energy Storage Solutions

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References:

1. Stritzke S, Jain P. The sustainability of decentralised renewable energy projects in developing countries: Learning lessons from Zambia. *Energies*. 2021;
2. Faunce TA, Prest J, Su D, Hearne SJ, Iacopi F. On-grid batteries for large-scale energy storage: Challenges and opportunities for policy and technology. *MRS Energy and Sustainability*. 2018.
3. Favour Oluwadamilare Usman, Emmanuel Chigozie Ani, Wisdom Ebirim, Danny Jose Portillo Montero, Kehinde Andrew Olu-lawal, Nwakamma Ninduwezuor-Ehiobu. INTEGRATING RENEWABLE ENERGY SOLUTIONS IN THE MANUFACTURING INDUSTRY: CHALLENGES AND OPPORTUNITIES: A REVIEW. *Eng Sci Technol J*. 2024;

4. Ravi Kumar K, Krishna Chaitanya NVV, Sendhil Kumar N. Solar thermal energy technologies and its applications for process heating and power generation – A review. *Journal of Cleaner Production*. 2021.
5. Srinivasan V. (Invited) Present Status and Future R&D Needs for Batteries for Vehicle and Grid Applications. *ECS Meet Abstr*. 2018;
6. Shukla PC, Belgiorno G, Di Blasio G, Agarwal AK. Introduction to Renewable Fuels for Sustainable Mobility. *Energy, Environ Sustain*. 2023;
7. Bonou A, Laurent A, Olsen SI. Life cycle assessment of onshore and offshore wind energy- from theory to application. *Appl Energy*. 2016;
8. Shin Hyun Kyoung. Floating Offshore Wind Energy: The Next Generation of Wind Energy. *Journal of Wind Energy*. 2019.
9. Oosthuizen AM, Inglesi-Lotz R, Thopil GA. The relationship between renewable energy and retail electricity prices: Panel evidence from OECD countries. *Energy*. 2022;
10. Obaideen K, Olabi AG, Al Swailmeen Y, Shehata N, Abdelkareem MA, Alami AH, et al. Solar Energy: Applications, Trends Analysis, Bibliometric Analysis and Research Contribution to Sustainable Development Goals (SDGs). *Sustainability (Switzerland)*. 2023.