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| Journal Name: | [**Journal of Energy Research and Reviews**](https://journaljenrr.com/index.php/JENRR) |
| Manuscript Number: | **Ms\_JENRR\_137794** |
| Title of the Manuscript: | **Digital Twin-Based Energy Infrastructure Powered by AI: Real-Time Simulation, Anomaly Detection, and Intervention** |
| Type of the Article | Research Article |

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| PART 1: Comments | | |
|  | Reviewer’s comment **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | **Author’s Feedback** (It is mandatory that authors should write his/her feedback here) |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | The scientific community values this manuscript because it thoroughly examines and analyzes how joining digital twin and artificial intelligence technologies is changing the energy sector. The researchers integrate data on spread of regions and services across society, how effective these interventions are and a comprehensive review of papers to explore what is known and unknown about cyber security in ageing. The report highlights gaps in automation timelines, cybersecurity and ethical governance which show that interdisciplinary research is needed. FastTrack Mantra’s suggestions guide those guiding AI-based digital twins toward building sustainable, resilient and scalable systems worldwide. |  |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | The current title, "Digital Twin-Based Energy Infrastructure Powered by AI: Real-Time Simulation, Anomaly Detection, and Intervention," is clear and effectively captures the core themes of the manuscript |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | The abstract is comprehensive and well-structured, but it could briefly mention the key challenges addressed (like cybersecurity and ethical governance) to provide a fuller picture. Adding a sentence on the practical implications for energy resilience and sustainability would also strengthen its impact. Overall, it effectively summarizes objectives, methods, results, and recommendations. |  |
| Is the manuscript scientifically, correct? Please write here. | Yes, the manuscript appears scientifically sound. It employs appropriate quantitative methodologies, uses relevant and credible data sources, and cites up-to-date literature to support its findings. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | The references are both sufficient and recent, demonstrating comprehensive coverage of key topics such as digital twins, AI applications, cybersecurity, and energy systems from 2021 through 2025. They include a balanced mix of journal articles, conference papers, industry reports, and authoritative sources, supporting the manuscript’s scientific rigor. |  |
| Is the language/English quality of the article suitable for scholarly communications? | Yes, the language and English quality of the article are suitable for scholarly communication. The manuscript is clearly written, professionally structured, and uses appropriate technical terminology consistent with academic standards. |  |
| Optional/General comments | This manuscript offers a timely and thorough exploration of AI-powered digital twin technologies in energy infrastructure, combining empirical data with scholarly insights effectively. Its interdisciplinary approach and practical recommendations make it a valuable resource for both researchers and industry practitioners. |  |

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| **PART 2:** | | |
|  | **Reviewer’s comment** | **Author’s comment** *(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in details)* |  |

**Reviewer details:**

**Bangar Raju Cherukuri, United States of America**