

## Applying And Connecting the Microgrid of Artificial Intelligence in the Form of a Spiral Model to Optimize Renewable Energy Sources

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**Abstract :** Renewable energy is a sustainable substitute to fossil fuels, which are depleting and attributing to global warming as well as greenhouse gas emissions. Renewable energy innovations including solar, wind, and geothermal have grown significantly and play a critical role in meeting energy demands recently. Consequently, Artificial Intelligence (AI) could further enhance the benefits of renewable energy systems. The combination of renewable technologies and AI could facilitate the development of smart grids that can better manage energy distribution and storage. AI thus has the potential to optimize the efficiency and reliability of renewable energy systems, reduce costs, and improve their overall performance. The conventional methods of using smart micro-grids are to connect these micro-grids in series or parallel or a combination of series and parallel. Each of these methods has its advantages and disadvantages. In this study, the proposal of using the method of connecting microgrids in a spiral manner is investigated. One of the important reasons for choosing this type of structure is the two-way reinforcement and exchange of each inner layer with the outer and upstream layer. With this model, we have the ability to increase energy from a small amount to a significant amount based on exponential functions. The geometry used to close the smart microgrids is based on nature. This study provides an overview of the applications of algorithms and models of AI as well as its advantages and challenges in renewable energy systems.

**Keywords :** artificial intelligence, renewable energy sources, spiral model, optimize

**Conference Title :** ICEEREAES 2025 : International Conference on Energy Efficiency, Renewable Energy and Alternative Energy Systems

**Conference Location :** New York, United States

**Conference Dates :** October 09-10, 2025