

Wenrong Wei

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Education

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| Huazhong University of Science and Technology , M.S. in electrical engineering | Sep. 2022 – Jun. 2024 |
| • GPA: 3.97/4 (TOP 25%) | |
| North China Electric Power University , B.S. in electrical engineering | Sep. 2018 – Jun. 2022 |
| • GPA: 91.82/100 (TOP 2%) | |

Selective Publications

- Wenrong Wei, Shihong Miao*, et al. **Optimal Distribution Method for Frequency Regulation Commands Considering the State of Charge Recovery and Adjustment**, Proceedings of the CSEE, 2024. (EI Journal)
- Xin Sun, Wenrong Wei*, et al. **Multi-Time Scale Market Participation Strategy of Wind-Energy Storage Combined System Considering Uncertainty**, Electric Power Automation Equipment, 2024. (EI Journal)

Projects

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| Electrical Market Transactions and Command Allocation Strategies for Wind Farms and Energy Storage Plants Providing Frequency Regulation Services | Jun. 2022 – Jun. 2024 |
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- Develop a Multi-Time Scale Market Bidding Model for Wind Farm Equipped with Storage
 - **Model the uncertainty of wind power output with Copula Functions:** Create day-ahead wind power uncertainty models with static copula functions and intraday models with dynamic copula functions.
 - **Establish market bidding model for wind farm equipped with Storage:** Establish day-ahead and intraday energy-frequency regulation market bidding models.
 - **Multi-time scale market participation strategy:** With the updating of wind power forecast data, adjust day-ahead bidding decisions to reduce deviation penalties.
 - Propose a Two-Level Command Allocation Model for Wind Farms, Energy Storage Plants in AGC
 - **Upper-level: Coordinate SOC recovery of energy storage plants and utilization of wind power:** 1.Distribute commands among wind farm clusters, energy storage plant clusters, and thermal power plant clusters; 2.During down-command, increase wind farm output and energy storage charging power simultaneously, reducing wind farm curtailment and improving storage SOC recovery speed.
 - **Lower-level: Optimize energy distribution among energy storage plants:** 1.Distribute commands within clusters, such as within the energy storage plant cluster; 2.Balance economic efficiency and energy storage plant's SOC during allocation, preventing overuse and energy depletion of highly economical plants.

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| State of Health Estimation of Electrochemical Energy Storage Plants | Jan. 2024 – Mar. 2024 |
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- Establish an SVR model for predicting the remaining life of energy storage plants
 - **Correlation analysis:** Compare the correlation strength between indirect indicators and the remaining lifespan of energy storage, then select the indicator with the highest correlation.
 - **Establish predictive model:** 1.Distribute commands within clusters, such as within the energy storage plant cluster; 2.Balance economic efficiency and energy storage plant's SOC during allocation, preventing overuse and energy depletion of highly economical plants.

Honors & Scholarships

- Outstanding Graduate of Hebei Province, 2022
- First Prize Scholarship of Huazhong University of Science and Technology, 2023, 2022
- First Prize Scholarship of North China Electric Power University, 2021, 2020, 2019

Others

- Programmings : Matlab, C++ , C
- Tools: Simulink, Multisim, Latex
- Interest: Power System Optimization, Electrical Market, System Modeling, and Reinforcement Learning