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Optimizing the Future: From Energy Optimization to Open-Source Solver Opportunities

Tuesday, October 29, 2024 4:30 PM (30 minutes)

This presentation introduces the use of Julia and JuMP in the development of OptiGen, a next-generation optimizer tailored for renewable energy generation and battery management within the Australian National Electricity Market (NEM). OptiGen is designed to optimize the performance of utility-scale batteries and DC-coupled wind and solar plants, catering to both scheduled and non-scheduled generation.

Additionally, this talk will introduce juLinear.jl, an open-source linear programming solver project supported by HARD software. While not a direct consequence of OptiGen's development, juLinear.jl was created to address the need for a deeper understanding of how linear programming solvers function and how they can be improved. Julia's easily understandable code and mathematical syntax make it an ideal platform for implementing and experimenting with optimization algorithms. The project provides a foundation for researchers, developers, and the Julia/JuMP community to contribute to the development of solver techniques and innovations, enabling further research and exploration in the field.

By connecting the real-world applications of OptiGen with the foundational goals of juLinear.jl, this presentation highlights the growing importance of open-source tools in the evolution of energy optimization, benefiting both the Australian NEM and broader international applications and free access for all.

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