

## 1 Conclusions

This study aims to develop a computationally-efficient approach to solve multi-period optimal power flow problems (MPOPF) in distribution systems to coordinate DERs and BESS. Specifically, the authors propose a spatially distributed approach utilizing the ENApp algorithm to solve the MPOPF problem. The effectiveness of the proposed distributed algorithm is validated via simulations on the IEEE 123 bus test system. Simulation results demonstrate that the proposed distributed approach achieves solutions that are AC-feasible and nearly optimal (approaching the solutions obtained from equivalent centralized formulations), while significantly reducing computational costs. This highlights the efficacy of spatial decomposition in reducing solution times for MPOPF problems. However, it is important to note that even the proposed spatially distributed MPOPF algorithm encounters computational complexities when optimizing over longer time horizons. In the future, the authors plan to investigate integrating spatial and temporal decomposition techniques to address scalability issues in time-coupled multi-period OPF problems.

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