1) Comparison between MPCOPF and MPDOPF: In this section, comparative analyses are carried out between MPCOPF and MPDOPF considering 5-hour time steps.

TABLE I: Comparative analyses between MPCOPF and MPDOPF - 20% PVs and 30% Batteries for a 5-hour

| Metric                           | MPCOPF  | MPDOPF  |
|----------------------------------|---------|---------|
| Line loss (kW)                   | 75.99   | 76.12   |
| Substation real power (kW)       | 4308.28 | 4308.14 |
| Substation reactive power (kVAR) | 574.18  | 656.24  |
| PV reactive power (kVAR)         | 116.92  | 76.01   |
| Substation power cost (\$)       | 576.31  | 576.30  |
| Number of Iterations             | 1       | 5       |
| Total Simulation Time (s)        | 521.25  | 49.87   |

Further, here the

TABLE II: ACOPF feasibility analyses - 20% PVs and 30% Batteries for a 5-hour Horizon

| Metric                           | MPDOPF  | OpenDSS |
|----------------------------------|---------|---------|
| Full horizon                     |         |         |
| Line loss (kW)                   | 76.12   | 76.09   |
| Substation real power (kW)       | 4308.14 | 4308.35 |
| Substation reactive power (kVAR) | 656.24  | 652.49  |
| Max. all-time discrepancy        |         |         |
| Voltage (pu)                     | 0.0002  |         |
| Line loss (kW)                   | 0.0139  |         |
| Substation power (kW)            | 0.3431  |         |

Boundary Variable Plots are too tall, make them slightly shorter, like 25% of the page only.

- 2) Scalability Analysis:
- 3) Comparison between MPCOPF and MPDOPF: In this section, comparative analyses are carried out between MPCOPF and MPDOPF considering 10-hour time steps with 20% PV penetration and 30% battery penetration.

Provide a separate graph for PV, Load forecasts for T = 5 and 10

Do you want PV Real Power in the table too? (Not controllable, so nothing to compare)

TABLE III: Comparative analyses between MPCOPF and MPDOPF - 20% PVs and 30% Batteries for a 10-hour Horizon

| Metric                           | MPCOPF  | MPDOPF  |
|----------------------------------|---------|---------|
| Line loss (kW)                   | 148.67  | 148.94  |
| Substation real power (kW)       | 8544.28 | 8544.04 |
| Substation reactive power (kVAR) | 1092.39 | 1252.03 |
| PV reactive power (kVAR)         | 222.59  | 139.81  |
| Substation power cost (\$)       | 1197.87 | 1197.87 |
| Number of Iterations             | 1       | 5       |
| Total Simulation Time (s)        | 4620.73 | 358.69  |

Further, here the

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TABLE IV: ACOPF feasibility analyses - 20% PVs and 30% Batteries for a 10-hour Horizon

| Metric                           | MPDOPF  | OpenDSS |
|----------------------------------|---------|---------|
| Full horizon                     |         |         |
| Line loss (kW)                   | 148.94  | 148.87  |
| Substation real power (kW)       | 8544.04 | 8544.40 |
| Substation reactive power (kVAR) | 1252.03 | 1243.36 |
| Max. all-time discrepancy        |         |         |
| Voltage (pu)                     | 0.0002  |         |
| Line loss (kW)                   | 0.0132  |         |
| Substation power (kW)            | 0.4002  |         |

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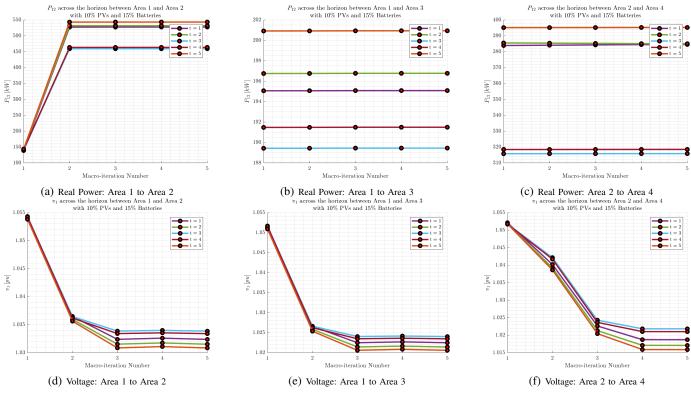


Fig. 1: Boundary variables exchanged between pairs of areas during each iteration

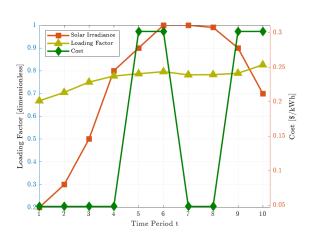


Fig. 2: Forecasts for Demand Power, Irradiance and Cost of Substation Power over a 10 Hour Horizon

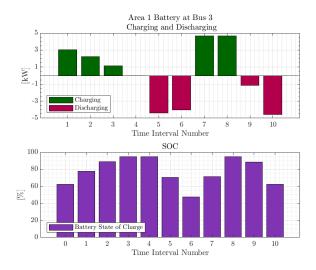


Fig. 3: Charging-Discharging and SOC graphs for Battery at Bus 3 located in Area 1 obtained via MultiPeriodENApp

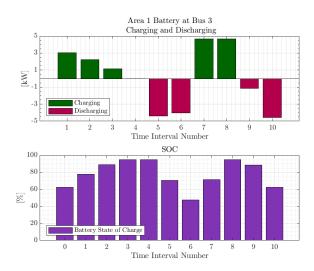


Fig. 4: Charging-Discharging and SOC graphs for Battery at Bus 3 located in Area 1 obtained via MultiPeriodENApp