

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

| Metric                           | MPCOPF | MPDOPF |
|----------------------------------|--------|--------|
| Line loss (kW)                   |        |        |
| Substation real power (kW)       |        |        |
| Substation reactive power (kVAR) |        |        |
| PV real power (kW)               |        |        |
| PV reactive power (kVAR)         |        |        |
| Substation power cost (\$)       |        |        |

Further, here the

TABLE II: ACOPF feasibility analyses

| Metric                                 | MPDOPF | OpenDSS |
|--|--------|---------|
| Line loss (kW)                         |        |         |
| Substation real power (kW)             |        |         |
| Substation reactive power (kVAR)       |        |         |
| Max. voltage discrepancy (pu)          |        |         |
| Max. line loss discrepancy (pu)        |        |         |
| Max. substation power discrepancy (pu) |        |         |

Boundary Variable Plots are too tall, make them slightly shorter, like 25% of the page only. Also their caption sizes are apparently wrong, so fix that.

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.

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

TABLE III: Comparative analyses between MPCOPF and MPDOPF

| 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

TABLE IV: ACOPF feasibility analyses

| 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  |

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

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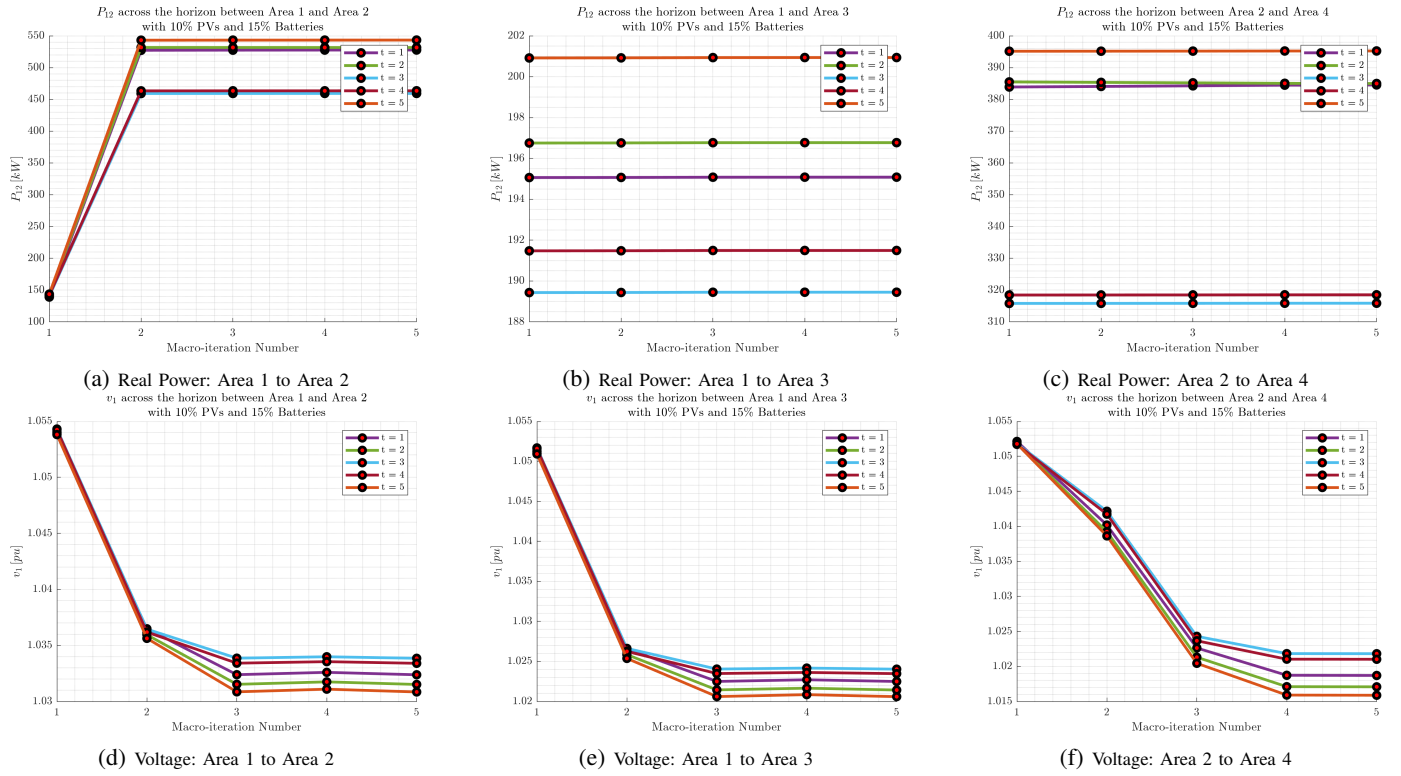


Fig. 1: Boundary variables exchanged between pairs of areas during each iteration

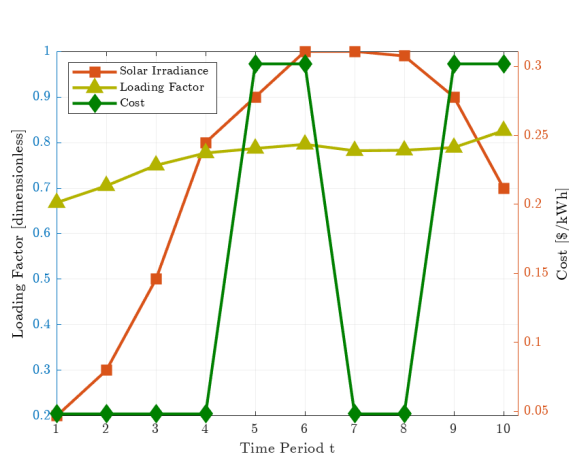


Fig. 2: Time-series comparison for forecasts for Demand Power, Irradiance and Cost of Substation Power over a 10 Hour Horizon

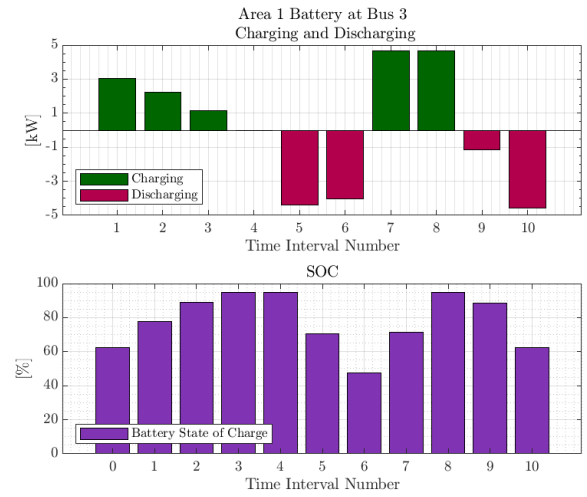


Fig. 3: Charging-Discharging and SOC graphs for Battery at Bus 3 located in Area 1 obtained via MultiPeriodENApp