IEEE 123 100% DER, 0% Batteries. COPF. $T = 1$

Problem: These values should be the same. This is an OPF modelling issue.

Multi-Period Simulation, T = 1, Batteries at 0%, DERs at 100% (85 buses)

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Machine ID: ETRL204-ARYAN
Horizon Duration: 1
    "Nature of Simulation: "    "Centralized-OPF"
Line Loss: 12.1648 kW
Substation Power: 768.2428 kW
Substation Power Cost: 26.8885 $
Number of Macro-Iterations: 1
Simulation Time: 17.6817 s
Time to solve with sequential (non-parallel) computation: 6.1632 s
Time to solve if OPF computation paralellized: 6.1632 s
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Original Simulation* DERs at 100% (85 buses)

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Line Loss: 12.0986 kW
Substation Power: 768.1766 kW
Time to Solve: 7.481sec
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* Original Simulation = Simulation used by Rabayet to model DOPF on IEEE 123 Bus System with 100% DERs (85 buses). Obviously, there's no element of time (not modeled, so $T = 1$) and no batteries (not modeled, so 0%)

Current Approach: Validating OPF decision variables with OpenDSS

By setting

$$P_{Load\_OpenDSS} = P_{Load} - P_{DER} - P_{disch} + P_{chr}$$
$$Q_{Load\_OpenDSS} = \mathrm{Q_{Load}} - \mathrm{q_{DER}} - \mathrm{q_{Batt}} + \mathrm{Q_{Cap}}$$

Running Powerflow in OpenDSS, obtaining $V_{OpenDSS}$ and comparing against my simulation $V_{results}$ (checking for physical violations, but also, just checking the two V vs bus-number curves in general).

I'm writing an OpenDSS validator function, which takes busData, branchData, $P_{Load}, P_{DER}, P_{disch}, P_{chr}, Q_{Load}, q_{DER}, q_{Batt}, Q_{cap}, \mathrm{V_{results}}$ for a given time-interval t and plots its powerflow voltages $V_{OpenDSS}$ against my $V_{results}$.