

Simulation Topology and Important Parameters

This document provides a topological diagram for the simulation of distribution networks, detailing DER capacity parameters, as well as system and control parameters. The topological diagram for distribution network simulation is shown in Fig. 1:

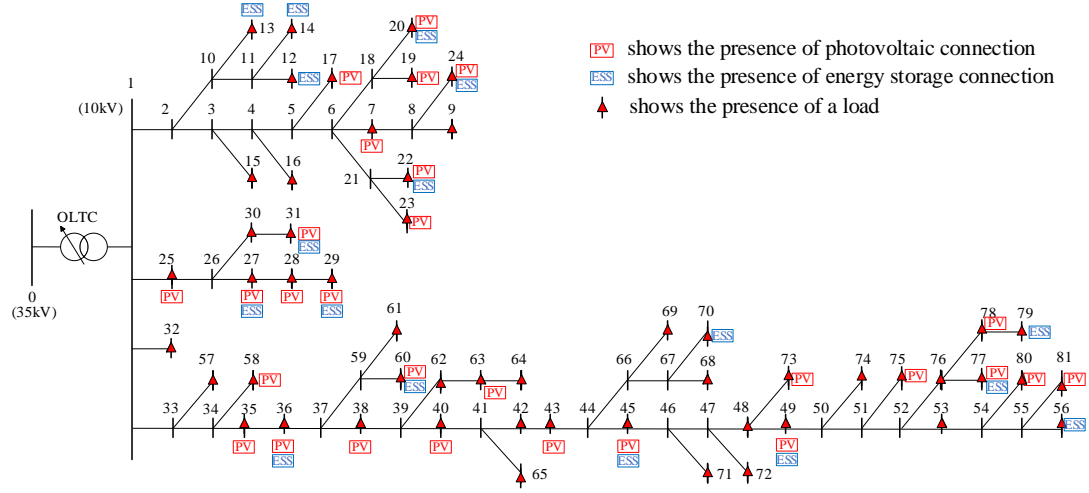


Fig. 1 Topology diagram of 10kV ADN

The capacity parameters of the controllable PV converters and ES converters are shown in Table I:

Controllable Resources	Nodes	Controllable Capacity/MVA
Energy Storage Converter	12、13、14、20、22、24、 27、29、31、36、45、49、 56、60、70、77、79	0.2
	22、25、27、36、38、58、 63、73、77、78	0.06
Photovoltaic Converter	23、24、31、43、60、75、81	0.12
	17、20、28、35、45、80	0.24
	7、19、29、40、49	0.36

The system and control parameters are shown in Table II:

Parameter Name	Value
Maximum unbalanced power	8000KW
Initial droop coefficient for the ADN	5MW/Hz
Initial droop coefficient for new energy station	15 MW/Hz
Initial droop coefficient for thermal power plant	30 MW/Hz

Turbine equivalent inertia time constant	6s
Turbine characteristic coefficient	0.333
Optimization period	30s
Optimization time scale	0.5s
Iterative convergence criterion value	0.001
