Three-Bus System Data

The one-line diagram for the 3-Bus system is presented in Figure 1. There are two units and one wind farm in the system. The generation output from the wind farm is modeled as negative load. All loads are aggregated net load in L1 and L2. The transmission line and unit parameters are presented in Table 1 and Table 2, respectively.
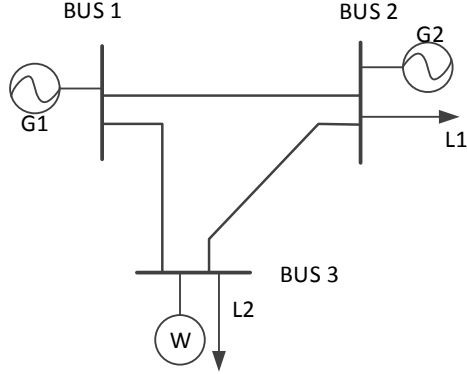

Figure 1: One-line Diagram for 3-Bus System

Table 1: Line Data for The 3-Bus System

Line	From	To	Reactance (p.u.)	Flow Limit (MW)
1	1	2	0.1	82
2	1	3	0.15	100
3	2	3	0.1	50

Table 2: Unit Data for The 3-Bus System

Unit #	Bus #	IC ($/MWh)	$P^{\max *}$	$P^{\min *}$	R^{U**}	R^{D**}	$P_0{}^*$
1	1	10	180	80	25	25	120
2	2	25	80	10	10	10	10

* MW ** MW/15min

Table 3: Load Data for The 3-Bus System (MW)

Time	Bus #	Forecasted	LB	UB	Actual
1	2	80	80	80	80
	3	60	60	60	60
2	2	90	82.5	97.5	97
	3	65	62	68	67
3	2	95	87	103	92
	3	72	69	75	73