

Table 3.1 Outline of the IEEJ West 10-machine System Model

Items	Contents	Remarks
System Rated Capacity	1,000 MVA	
System Frequency	60 Hz	
The Number of Generators	10 machines	
The Number of Nodes	47 nodes	
The Number of Branches (Transmission Lines) (Transformers)	42 branches (32) (10)	1 transmission line (3-phase) circuit is counted as 1 branch.
The Total Sum of the Generator Rated Capacity and Output - Daytime (Heavy Load) - Nighttime (Light Load)	120,000MVA(107,930MW) 72,000MVA(47,400MW)	
The Total Sum of the Loads - Daytime (Heavy Load) - Nighttime (Light Load)	107,800MW 47,250MW	
Generator Model	LGT = 4 in Y-method (All Generators)	
Generator Constants	NGT = 2 (All Generators)	Refer to Table 1.1
Generator Inertia Constant	7.0 sec (All Generators)	
Excitation System Model	LAT = 1 (All Generators)	Refer to Fig. 1.1
Governor Model	LPT = 1 (All Generators)	Refer to Fig. 1.2
Step-up Transformer - Reactance (Self capacity base) - Tap Ratio	0.14 pu (for All Generators) 1.0 (for All Generators)	Transformer Capacity is the same as the Generator Rated Output.
Transmission Line Model - Type of Line - Total Length	π Type Equivalent Circuit TACSR 810mm ² 4 conductors Interconnected Line : 100 km / 1 section Line to Generator : 50 km (except G8) 100 km (G8)	All Transmission Lines consist of 2 circuits of 3-phase line)
Load Characteristic	NLT = 2 in Y-method (All Loads)	Refer to Fig. 1.4 For reference, NLT = 107 (Fig.1.5) and the Constant Impedance Load are also considered.
Governor Spinning Reserve (PLM) - Daytime (Heavy Load) - Nighttime (Light Load) Load Frequency Characteristic - Active Power Load - Reactive Power Load	5 % (All Generators) 3 % (All Generators) 3.33 % / Hz (All Loads) 0.0 % / Hz (All Loads)	Refer to Fig. 1.3