

Table 4.1 Outline of the IEEJ East 30-machine System Model

Items	Contents	Remarks
System Rated Capacity	1,000 MVA	
System Frequency	50 Hz	
The Number of Generators	30 machines	
The Number of Nodes (Bus)	107 nodes	
The Number of Branches (Transmission Lines) (Transformers)	191branches (136) (55)	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)	93,880 MVA (73,540 MW) 93,880 MVA (Generated : 50,120 MW) (Pumped : -9,270 MW)	
The Total Sum of the Loads - Daytime (Heavy Load) - Nighttime (Light Load)	72,600 MW 40,180 MW	
Generator Model	LGT = 4 (All Generators)	
Generator Constants	Refer to Table 4.2	
Generator Inertia Constants	Refer to Table 4.2	
Excitation System Model	LAT = 1 (All Generators)	Refer to Table 1.1
Governor Model	LPT = 1 (Thermal & Nuclear) LPT = 4 (Hydraulic)	Refer to Fig. 1.2, Fig. 1.3 Governor of the pumped generator is locked. (LPT = 0)
Step-up Transformer - Reactance (Self capacity base) - Tap Ratio	Refer to Fig. 4.2 Refer to Table 4.3	
Transmission Line Model	π Type Equivalent Circuit	
Load Characteristic	NLT = 2 in Y-method (All Loads)	Refer to Fig. 1.4
Capacity of the static condenser (SC) & shunt reactor (ShR)	Daytime : (SC) 8,200 MVA Nighttime : (ShR) 680 MVA	
Governor Spinning Reserve (PLM) Load Frequency Characteristic - Active Power Load - Reactive Power Load	Refer to Table 4.3 4 % / Hz (All Loads) -2 % / Hz (All Loads)	Refer to Fig. 1.3