

Tie Line (or Path) Constraints

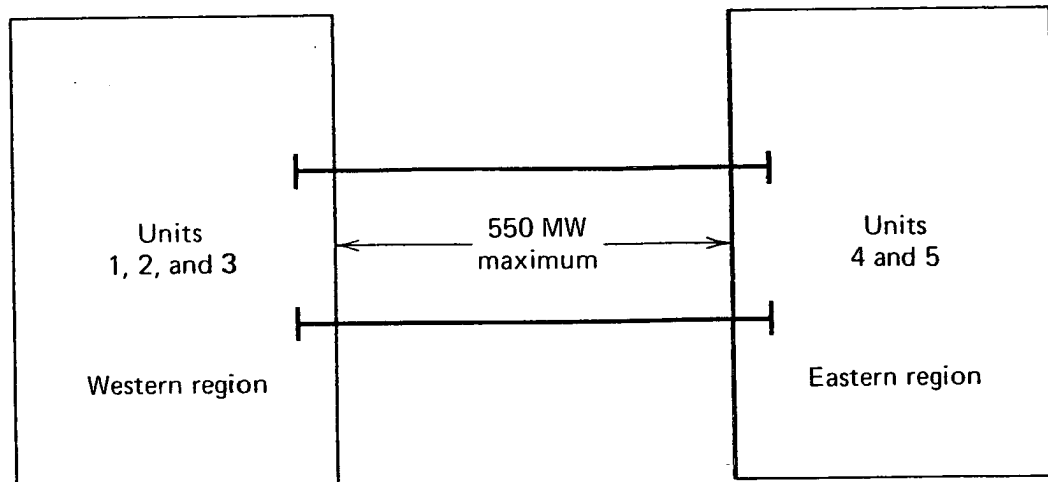


FIG. 5.2 Two-region system.

TABLE 5.3 Data for the System in Figure 5.2

Region	Unit	Unit capacity (MW)	Unit output (MW)	Regional generation (MW)	Spinning reserve	Regional load (MW)	Interchange (MW)
Western	1	1000	900	1740	100	1900	160 out
	2	800	420		380		
	3	800	420		380		
Eastern	4	1200	1040	1350	160	1190	160 in
	5	600	310		290		
Total		4400	3090	3090	1310	3090	

Example of the effects of Tie Line Constraints on Unit Commitments. Although the overall Reserve of 1310 MW seems sufficient for any unit loss, if unit 4 is lost, then $1190 - 600 = 590$ MW must be supplied via Tie Lines. Since the Tie is limited to 550 MW (in either direction), then additional units must be committed in the Eastern Region.