



Figure 6.12 Simple three-bus system used to illustrate centralized trading

Table 6.3 Branch data for the three-bus system of Figure 6.12

Branch	Reactance (p.u.)	Capacity (MW)
1-2	0.2	126
1-3	0.2	250
2-3	0.1	130

of the network and Table 6.3 gives its parameters. We will again assume that network limitations take the form of constant capacity limits on the active power flowing in each line and that the resistance of the lines is negligible.

When we analyzed this system in the context of bilateral trading, we did not need to consider price or cost information because this data remains private to the parties involved in each bilateral transaction. On the other hand, in a centralized trading system, producers and consumers submit their bids and offers to the system operator, who uses this information to optimize the operation of the system. Since we are taking the perspective of the system operator, we assume that we have access to the data given in Table 6.4. We also assume that, since the market is perfectly competitive, the generators' bids are equal to their marginal cost. For the sake of simplicity, the marginal cost of each generator is assumed constant and the demand side is represented by the constant loads shown in Figure 6.12.