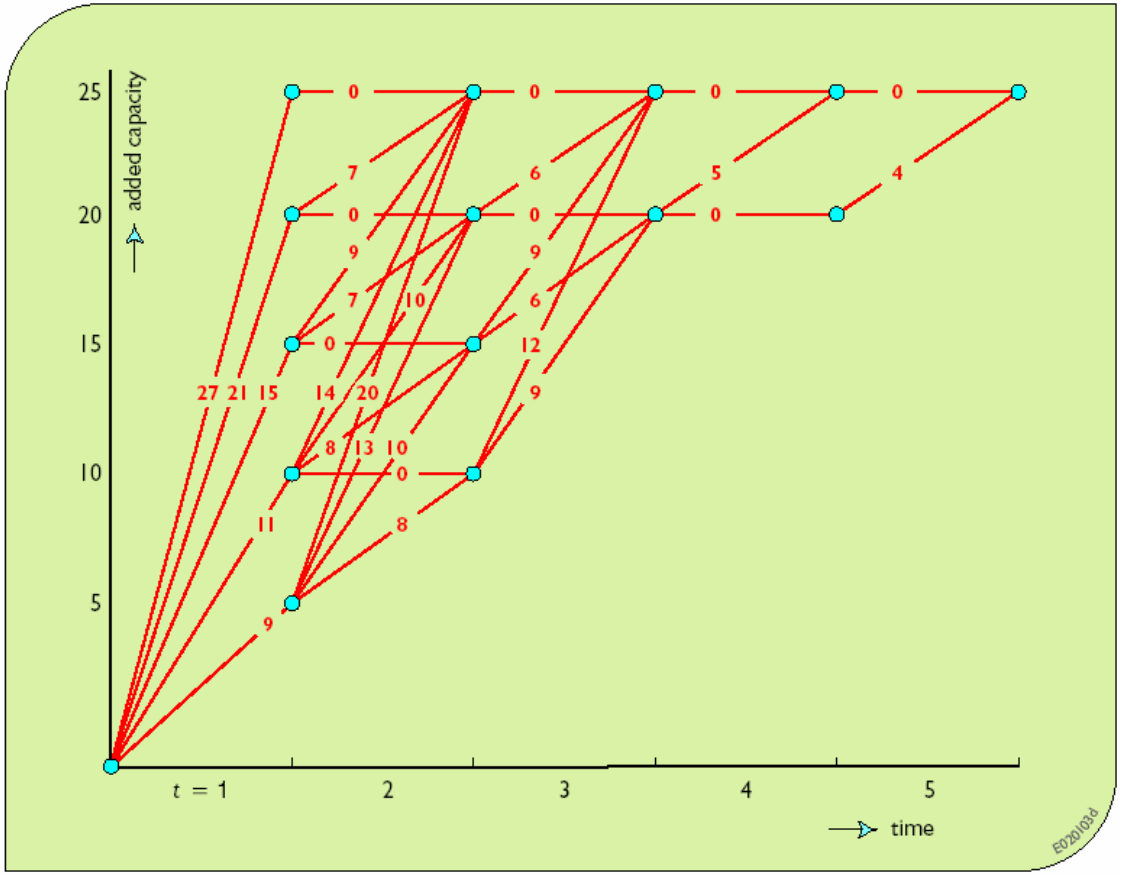
Capacity Expansion Problem – Example

Consider the five-period capacity-expansion problem

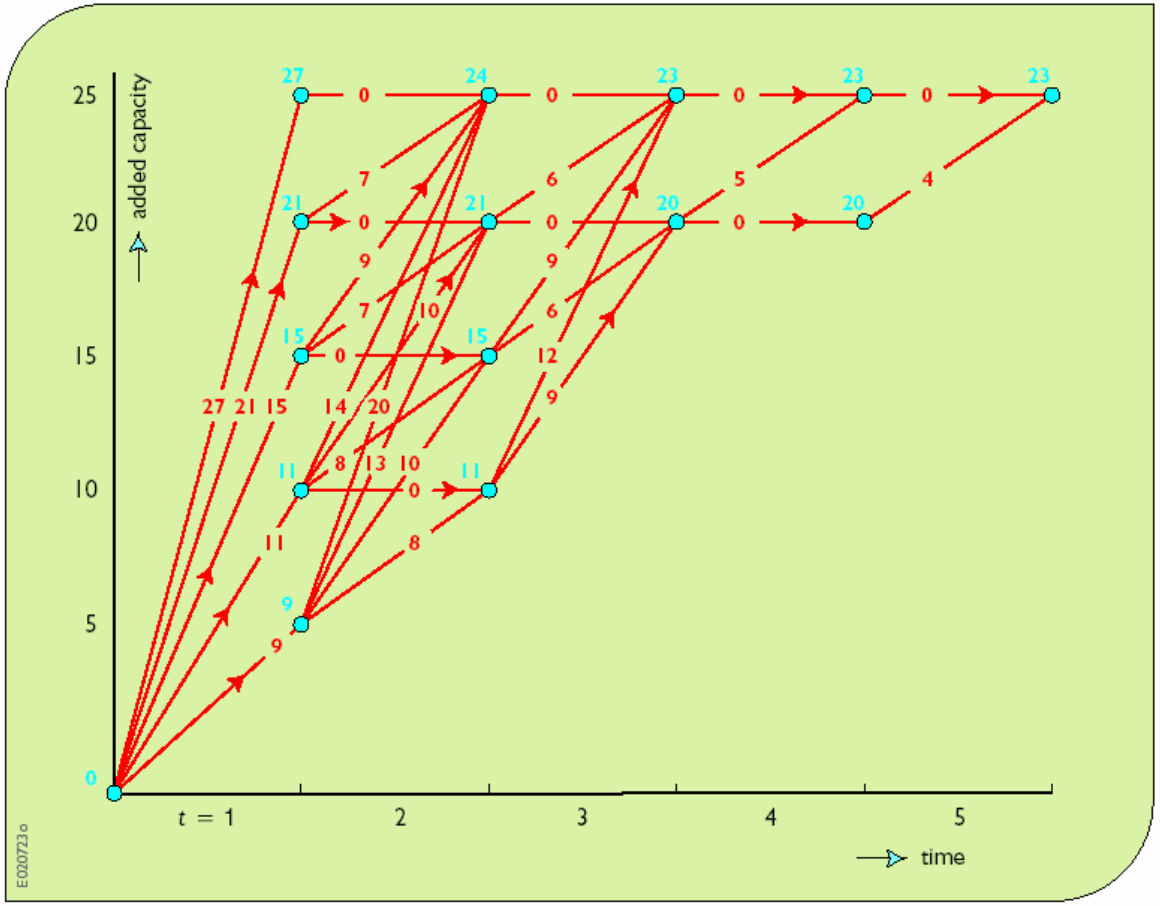
A discrete capacity expansion network showing the present value of the expansion costs associated with each feasible expansion decision. Finding the best path through the network can be done using forward or backward-moving discrete dynamic programming.



Solution - Forward-moving Algorithm

Results of a forward-moving dynamic programming algorithm.

The numbers next to the nodes are the minimum cost to have reached that particular state at the end of the particular time period *t*.



Solution - Backward-moving Algorithm

Results of a backward-moving dynamic programming algorithm.

The numbers next to the nodes are the minimum remaining cost to have the particular capacity required at the end of the planning horizon given the existing capacity of the state.