System Operation Flow Chart

Periods (t) & Hours (i) Timeline

t=Day N

t=Day 1

Decision of Commit Power Flow xti to Power Demand each Hour and Day

Store Energy into Storage Device with Maximum Capacity Rj

Day Total Cost fd and fu each Next Day

Power Flow Commitment yit

Unmet Demand fu & Energy Loss fd between each Hour and Day

Value Function

(Max Profit each Day)

Max Profit each Day under the Constraint of the Maximum Battery Capacity

Price pti each Hour and Day

Uncertain Wind Power Input each Hour and Day

Day Reward Function

(Max Revenue from xti each Day)

i= 24

i= 1