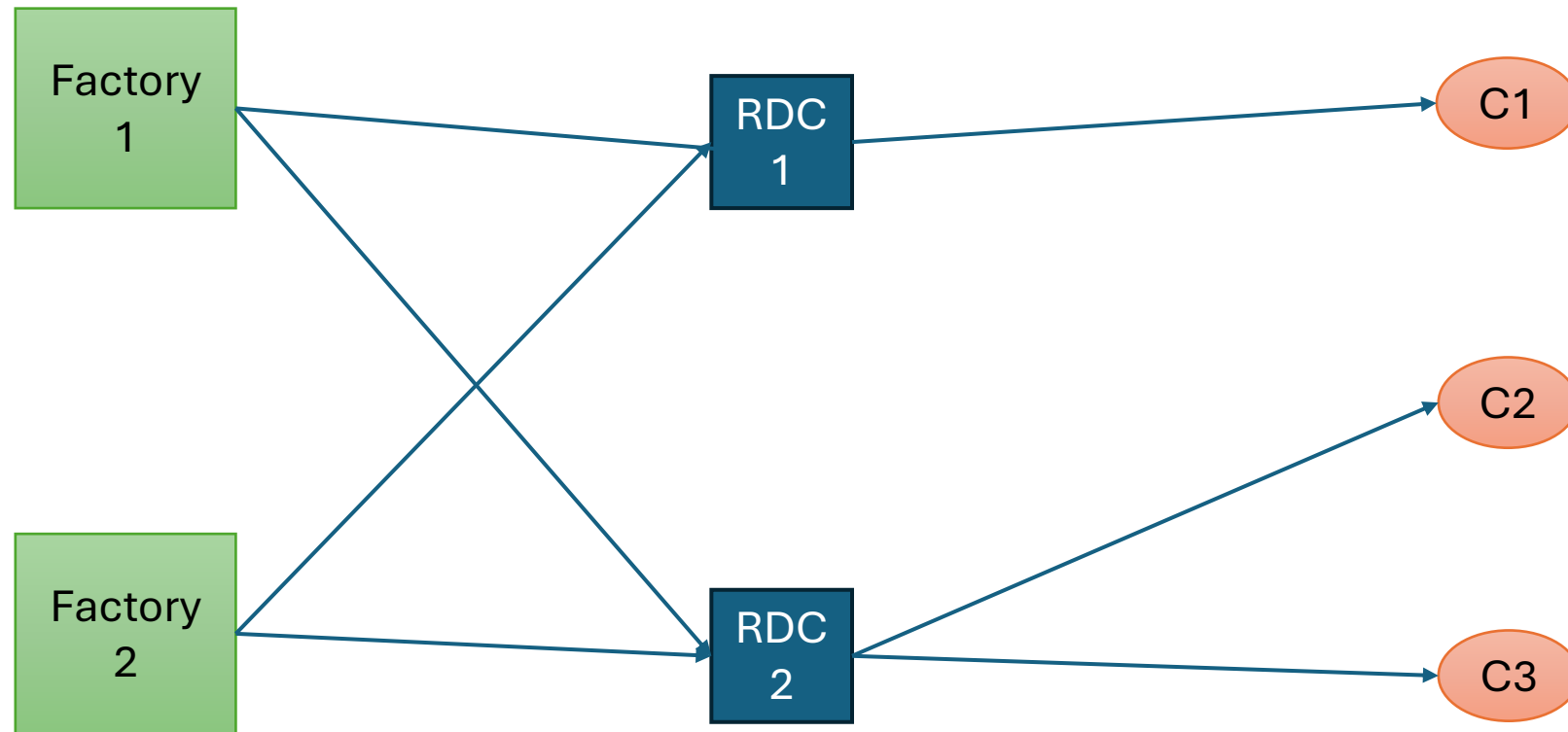# Multi Echelon Inventory Optimization

Key Assumptions

MEIO – Pulp Key Assumptions

Model Assumptions

- Objective → Minimize Holding cost & achieve service level above 95%
- Factory 1 Daily Prod = 100
- Factory 2 Daily Prod = 180
- F1 dispatch quantum = 10
- F2 dispatch quantum = 10
- F1 Dispatch Limit = 15 quantum
- F2 Dispatch Limit = 15 quantum
- RDC 1 Dispatch Quantum =10
- RDC 2 Dispatch Quantum = 10
- RDC 1Dispatch Limit = 30 quantum
- RDC 1Dispatch Limit = 45 quantum
- Factory QA inspection = 1 day
- Factory to RDC LT = 3 days
- RDC to Customer LT = 2 Days

factory_holding_cost = 1/unit
rdc1_holding_cost = 2/unit
rdc2_holding_cost = 1.8/unit
customer_holding_cost = 0.5/unit
slack_cost = 100 (Unmet Demand)

F1 Opng = 340
F2 Opng = 300
RDC 1 Opng = 220
RDC 2 Opng = 260
Customer 1 Opng = 130
Customer 2 Opng = 190
Customer 3 Opng = 160

C1 Demand = Normal(Mean=65,Sigma=35)

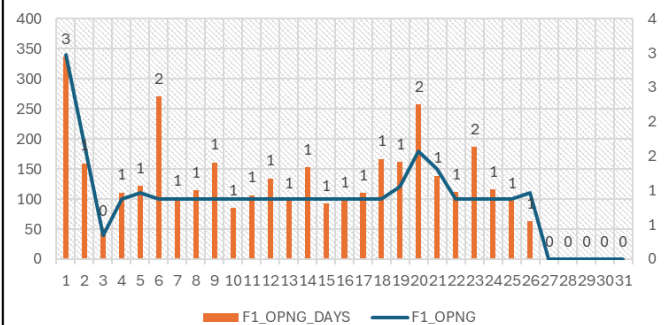**C2 Demand = Normal(Mean=100,Sigma=50)**
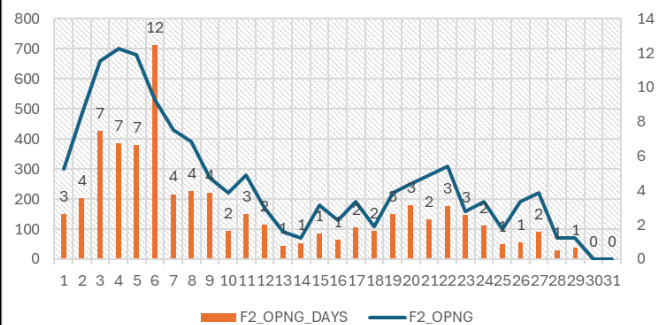
C3 Demand = Normal(Mean=35,Sigma=8)
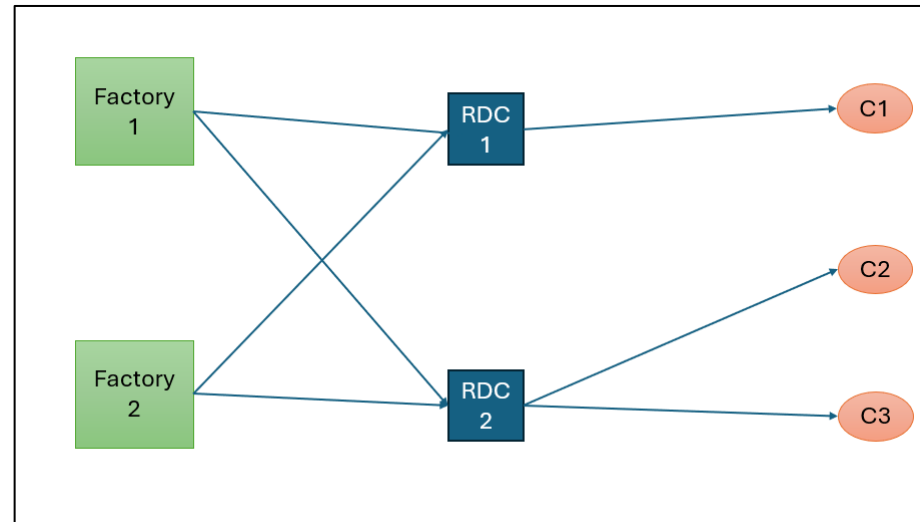
Objective → Minimize Holding cost & achieve service level above 95%

Model Output
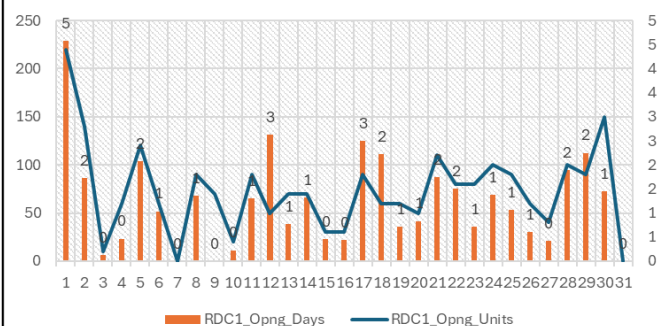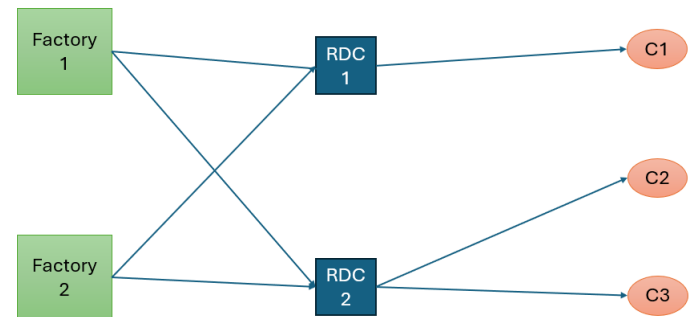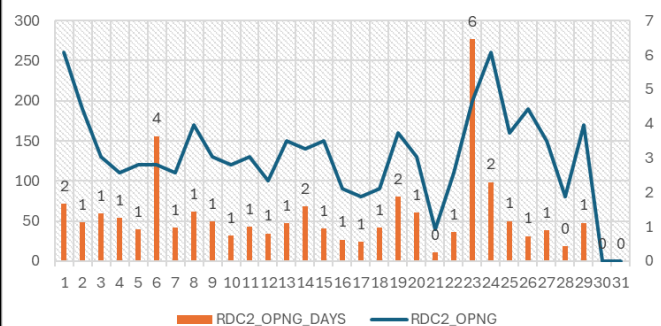

- The model tolerates inventory days fluctuations at Factories & RDC. However it suggests to keep 1 day inventory at customer locations.

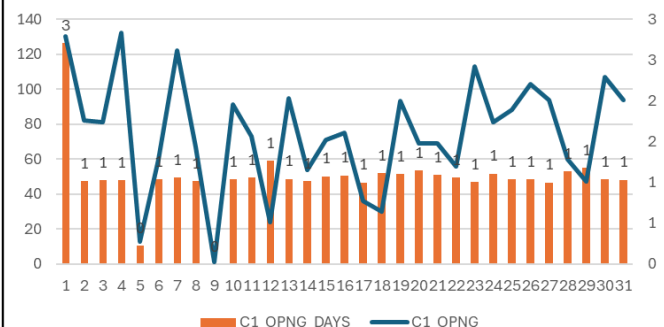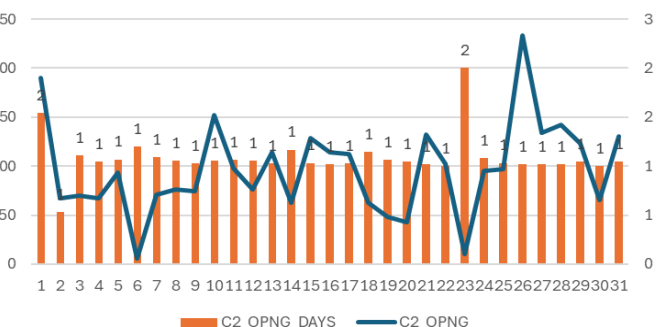- Service level obtained = 98.28% at the customer echelon.