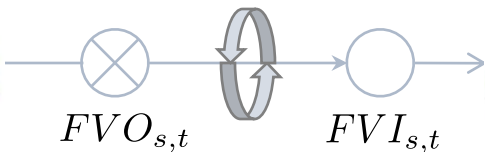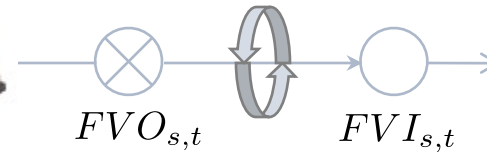Material market Refinery-petrochemical complex Product market

Material side

Scenario #1 **FVO > FVI**

$$\text{cost} = \sum_{t,s \in S_M} (c_s^M \cdot FVO_{s,t} - \underline{ci_s^P \cdot FVLI_{s,t}})$$

revenue from increased **material** inventories

Scenario #2 **FVO = FVI**

$$\text{cost} = \sum_{t,s \in S_M} c_s^M \cdot FVO_{s,t}$$

Scenario #3 **FVO < FVI**

$$\text{cost} = \sum_{t,s \in S_M} (c_s^M \cdot FVO_{s,t} + \underline{ci_s^M \cdot FVLO_{s,t}})$$

cost of **material** inventory reductions

Product side

Scenario #1 **FVO > FVI**

$$\text{revenue} = \sum_{t,s \in S_P} (c_s^P \cdot FVI_{s,t} + \underline{ci_s^P \cdot FVLI_{s,t}})$$

revenue from increased **product** inventories

Scenario #2 **FVO = FVI**

$$\text{revenue} = \sum_{t,s \in S_P} c_s^P \cdot FVI_{s,t}$$

Scenario #3 **FVO < FVI**

$$\text{revenue} = \sum_{t,s \in S_P} (c_s^P \cdot FVI_{s,t} - \underline{ci_s^M \cdot FVLO_{s,t}})$$

cost of **product** inventory reductions