

Start

**Data Input:**

$$N, \pi^{curt}, \pi^{shed}, \pi^{fuel}, \\ F_1, F_2, \eta^{ch}, \eta^{dis}, \underline{P}, \overline{P}, \\ \overline{S}, \overline{P^{gen}}, \underline{P^{gen}}, \widehat{C}_t, \widehat{P^{pres}}_t$$

**Solve:**

$$\min \sum_{k=0}^N \Delta_t (c^{fuel}_t + c^{curt}_t + c^{shed}_t)$$

$$\forall k \in \{0, \dots, N-1\} :$$

$$\widehat{P^{pres}}_{t+k} + P^{gen}_{t+k} + P^{dis}_{t+k} + P^{shed}_{t+k} =$$

$$P^{ch}_{t+k} + P^{curt}_{t+k} + \widehat{C}_{t+k}$$

$$c^{curt}_{t+k} = P^{curt}_{t+k} \cdot \pi^{curt}$$

$$c^{shed}_{t+k} = P^{shed}_{t+k} \cdot \pi^{shed}$$

$$c^{fuel}_{t+k} = F_{t+k} \cdot \pi^{fuel}$$

$$F_{t+k} = F_1 + F_2 \cdot P^{gen}_{t+k}$$

$$SOC_{t+k+1} = SOC_{t+k} + \Delta_t \cdot \left( \eta^{ch} P^{ch}_{t+k} - \frac{P^{dis}_{t+k}}{\eta^{dis}} \right)$$

$$SOC_{t+k}, P^{ch}_{t+k}, P^{dis}_{t+k} \geq 0$$

$$P^{ch}_{t+k} \leq \overline{P}$$

$$P^{dis}_{t+k} \leq \underline{P}$$

$$SOC_{t+k} \leq \overline{S}$$

$$P^{gen}_{t+k} \leq \overline{P^{gen}} \cdot n_{t+k}$$

$$P^{gen}_{t+k} \geq \underline{P^{gen}} \cdot n_{t+k}$$

$$n_{t+k} \in \{0, 1\}$$

**Data Output:**

$$\alpha_t^N$$

End