Revised model (Feb 14)

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$$\min_x \sum_m \sum_t c_1^{gen} \times q_{1,m,t} + \sum_{e'} \sum_t c_{e'}^{main} \times \bar{q}_{e',t} + \sum_{e'} \sum_m \sum_t c_{e'}^{gen} \times q_{e',m,t} + \sum_t c^{stock} \times q_t^{stock,stored}$$

s.t.:

$$d_{M1,t} - \left[\sum_e q_{e,M1,t}\right] - q_t^{stock,out} + q_t^{stock,in} = 0 \quad : \forall t \ (\lambda_t^1)$$

$$d_{M2,t} - \sum_e q_{e,M2,t} = 0 \quad : \forall t \ (\lambda_t^2)$$

$$q_{e,m,t} - d_{m,t} \leq 0 \quad : \forall e,t \ (\mu_{e,t}^1)$$

$$q_t^{stock,stored} - q_{t-1}^{stock,stored} + q_{t-1}^{stock,out} - q_{t-1}^{stock,in} = 0 \quad : \underbrace{\forall t \setminus \{t\_start\}}_{\forall t'} \ (\lambda_{t'}^3)$$

$$\sum_m \sum_t q_{e,m,t} - Q_e \leq 0 \quad : \forall e \ (\mu_e^2)$$

$$\sum_m q_{e,m,t} - \bar{q}_{e,t} \leq 0 \quad : \forall e,t \ (\mu_{e,t}^3)$$

$$q_{t\_start}^{stock,stored} = 0 \quad (\lambda^4)$$

$$\bar{q}_{e',t}^{exp} - \beta^{add} \times \sum_m q_{e',m,t} \leq 0 \quad : \forall e',t \ (\mu_{e',t}^4)$$

$$\bar{q}_{e',t}^{retire} - \beta^{retire} \times q_{e'}^{init} \leq 0 \quad : \forall e',t \ (\mu_{e',t}^5)$$

$$q_{t\_start}^{stock,out} = 0 \quad (\lambda^{10})$$

$$\bar{q}_{e',t'} - \bar{q}_{e',t'-1} - \bar{q}_{e',t'-1}^{exp} + \bar{q}_{e',t'-1}^{retire} = 0 \quad : \forall e',t' \ (\lambda_{e',t'}^5)$$

$$\bar{q}_{e',t\_start} - \bar{q}_{e'}^{init} = 0 \quad : \forall e' \ (\lambda_{e'}^6)$$

$$q_{t\_end}^{stock,out} - q_{t\_end}^{stock,stored} = 0 \quad (\lambda^7)$$

$$q_{t\_end}^{stock,in} = 0 \quad (\lambda^8)$$

$$q_{\tilde{e},M1,\tilde{t}} = 0 \quad : \forall \tilde{e},\tilde{t} \quad (\lambda_{\tilde{e},\tilde{t}}^9)$$

$$-q_{e,m,t} \leq 0 \quad : \forall e,m,t \quad (\mu^{6}_{e,m,t})$$

$$-q^{Stock,stored}_{t} \leq 0 \quad : \forall t \quad (\mu^{7}_{t})$$

$$-q^{Stock,out}_{t} \leq 0 \quad : \forall t \quad (\mu^{8}_{t})$$

$$-q^{Stock,in}_{t} \leq 0 \quad : \forall t \quad (\mu^{9}_{t})$$

$$-\bar{q}_{e',t} \leq 0 \quad : \forall e',t \quad (\mu^{10}_{e',t})$$

$$-\bar{q}^{exp}_{e',t} \leq 0 \quad : \forall e',t \quad (\mu^{11}_{e',t})$$

$$-\bar{q}^{retire}_{e',t} \leq 0 \quad : \forall e',t \quad (\mu^{12}_{e',t})$$