KEY PARAMETERS for the CASE in the paper "Distributed Energy Management for Multiple Microgrids: An Incentive-based Distributed Optimization Approach"

1) DG: The generation cost of DG is defined as a quadratic function of $P_{i,j,t}^{G}$.

$$C_{i,j}^{G}(P_{i,j,t}^{G})=a_{G1}(P_{i,j,t}^{G})^2+b_{G1}(P_{i,j,t}^{G})$$

a_{G1}= \$0.075kW^2, b_{G1}=\$0.85 kW, P_{G1}^{max}=20 kW; a_{G2}= \$0.083kW^2, b_{G2}=\$0.69 kW, P_{G2}^{max}=20 kW; a_{G3}= \$0.07kW^2, b_{G3}=\$0.92 kW, P_{G3}^{max}=25 kW.

2) BESS: The charging cost of BESS is defined as a quadratic function of $P_{i,j,t}^{Bd}/P_{i,j,t}^{Bc}$.

$$C_{i,j}^{B}(P_{i,j,t}^{Bd},P_{i,j,t}^{Bc})=a_{B1}((P_{i,j,t}^{Bd})^2+(P_{i,j,t}^{Bc})^2)$$

a_{B1}= \$0.005kW^2, P_{B1}^{max}=3 kW, Q_{B1}= 8kWh; a_{B2}= \$0.00625kW^2, P_{B2}^{max}=3 kW, Q_{B2}= 8kWh; a_{B3}= \$0.0065kW^2, P_{B3}^{max}=4 kW, Q_{B3}= 10kWh.

3) Energy Transfer: The energy transfer cost among microgrids and main grid are defined as a quadratic function of $P_{i,j,t}$, $P_{i,0,t}/P_{0,i,t}$, respectively.

$$C_{i,j}^{T}(P_{i,j,t})=a_{T}(P_{i,j,t})^2+b_{G1}(P_{i,j,t}),\quad C_{i,0}^{T}(P_{i,0,t})=a_{T}(P_{i,0,t})^2+b_{G1}(P_{i,0,t})$$

a_{T}= \$0.009kW^2, b_{T}=\$0.07 kW, $(P_{m}^{T})^{max}$=5 kW, $(P_{0}^{T})^{max}$=6 kW.

4)Load: The load of three microgrids is changed with a time interval Δt=1h in the whole schedule horizon T=24.

$P_{1,t}^{L}$ (kW)=[12, 11, 13, 15, 15, 17, 15, 16, 15.8, 17.2, 17, 16, 15, 17, 17.5, 17.8, 18.9, 19.5, 18.9, 18, 16, 17, 16, 15];

$P_{2,t}^{L}$ (kW)=[13, 11, 14, 16, 15, 16, 14, 15, 15.2, 17, 16.5, 15, 16, 15, 17.5, 18.5, 19.2, 19.9, 19.5, 18, 16, 15, 14, 13];

$P_{3,t}^{L}$ (kW)=[11, 10, 12, 13, 14, 15, 13, 15, 14.5, 16, 15.6, 17, 16, 18, 18.8, 17.9, 17.6, 18.2, 17.5, 17, 15, 14, 12, 10];

5) Main grid TOU: The TOU price given by main grid is changed with a time interval Δt=1h in the whole schedule horizon T=24.

$\lambda_{M,t}$ (\$/kW)=[3.58, 3.57, 3.58, 3.59, 3.61, 3.62, 3.63, 3.65, 3.64, 3.62, 3.61, 3.64, 3.66, 3.68, 3.67, 3.68, 3.70, 3.72, 3.68, 3.65, 3.59, 3.55, 3.56, 3.55];