$$CO_2 = \sum_{n=1}^{12} \left[ \sum_{i=1}^{k} \left( (Q_A)_{i,n} \times (TC_A)_{i,n} \right) - \sum_{j=1}^{m} \left( (Q_P)_{j,n} \times (TC_P)_{j,n} \right) \right] \times 3.664$$