PEPSO Program Overall:

User INPUT:
- EPANet Hydraulic Model
- Nearest CPNode to each pump station
- Choose pollutants of interest

PEPSO must optimize
1) energy use,
2) pollutant emissions while
3) keeping within pressure constraints.
(These three factors are weighted by the user.)

OUTPUT:
1) energy use per day at each pump station,
2) lbs pollutants per day with optimized solution,
3) pressure violations, if any

To Optimize Emissions:

User INPUT:
- Name of closest CPN for each pumping station
- Chosen pollutants of interest

PEPSO gets DA Market LMP for each CPN for every hour of the day

PEPSO uses the DA LMPs at each CPN to identify Marginal Generator Type for every hour

PEPSO uses the Marginal Gen. Type to find emissions factors (lbs pollutant/MWh) for each hour of the day at all CPNs

PEPSO multiplies emissions factors (lbs pollutant/MWh) by energy required (MWh) at each pumping station to find total emissions (lbs pollutants)

OUTPUT:
lbs pollutants per day with optimized solution