Configuration

K-Simulations

Number of Simulations for Heuristic Strategy

200

0 500

Basic Configuration

Days

365

0 800

Circuits

Circuits Amount

115

0 1000

LogNormal

Min Mean(mu) Circuits

2.00

0.00 100.00

Max Mean(mu) Circuits

Thermoelectric Simulation

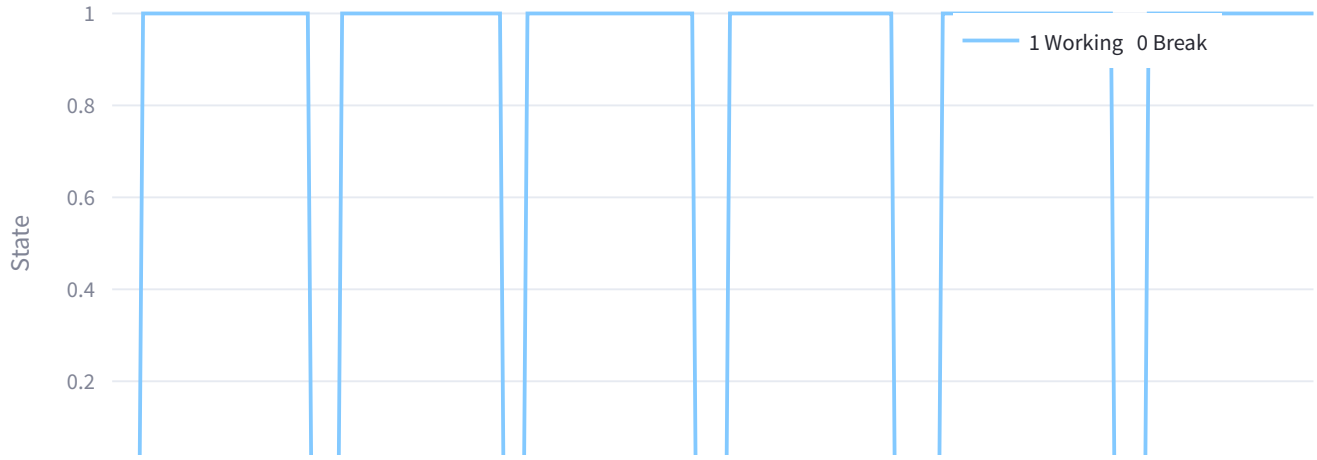
First Experiment: Thermoelectric Events

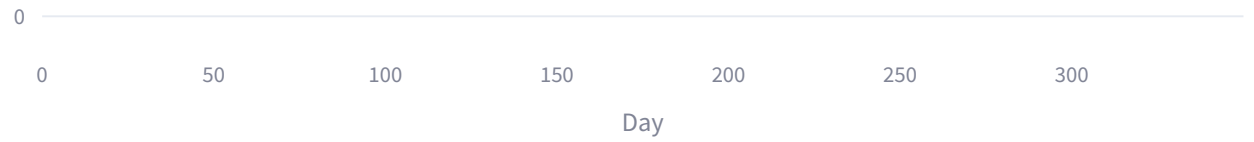
Plot at least first three thermoelectric events

Thermoelectric events

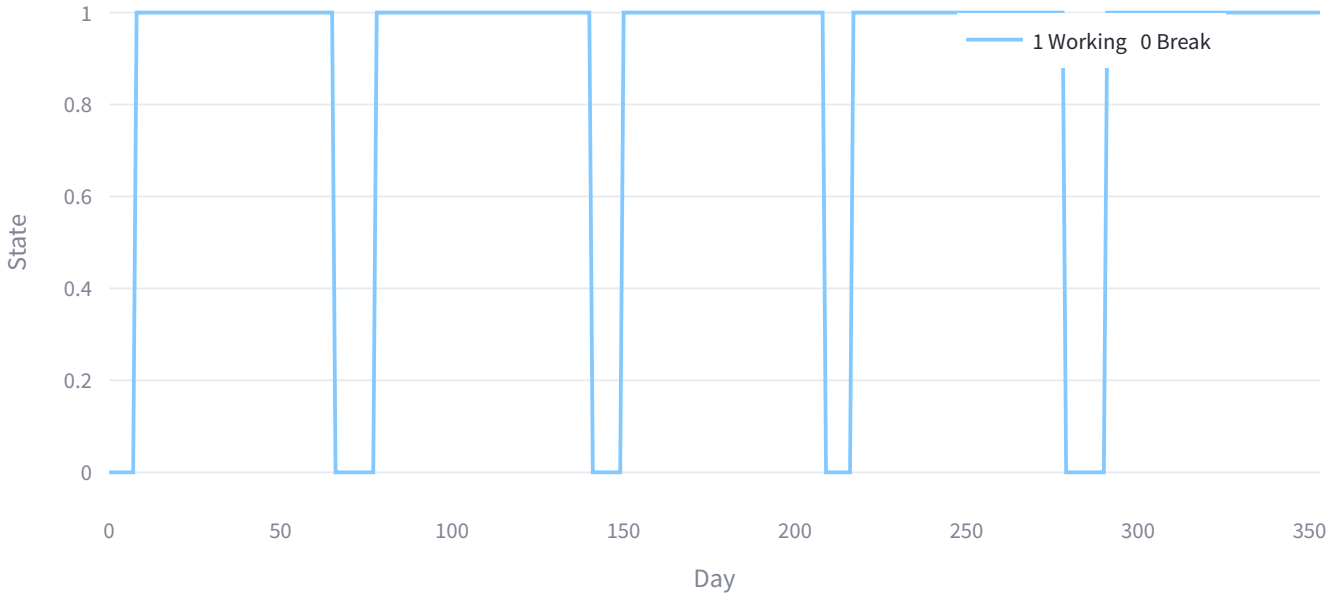
1 means Thermoelectric is working, 0 means it is broken

ThermoElectric State

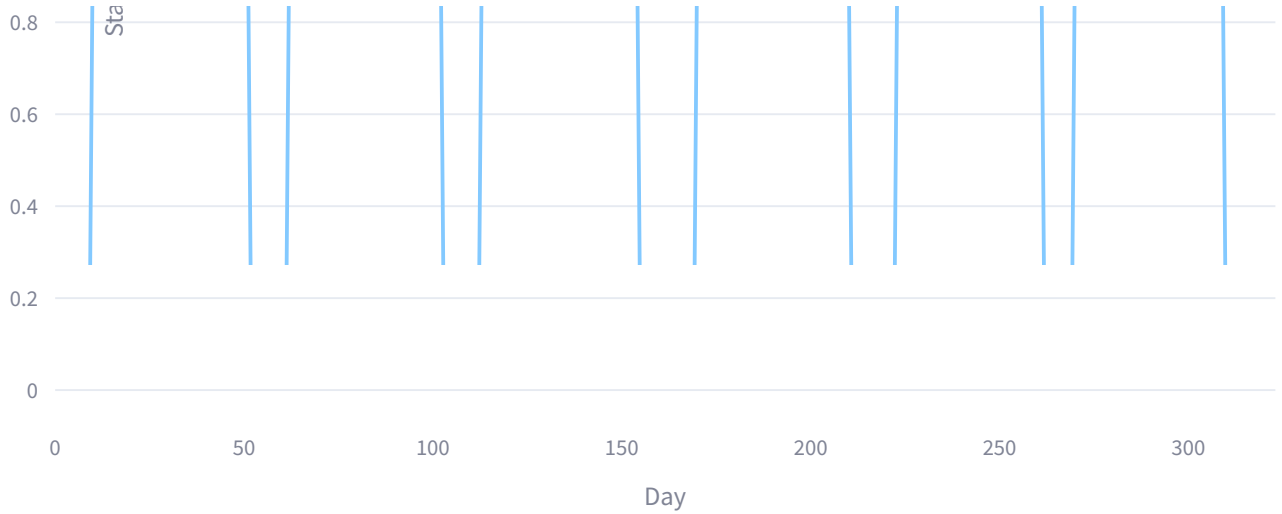




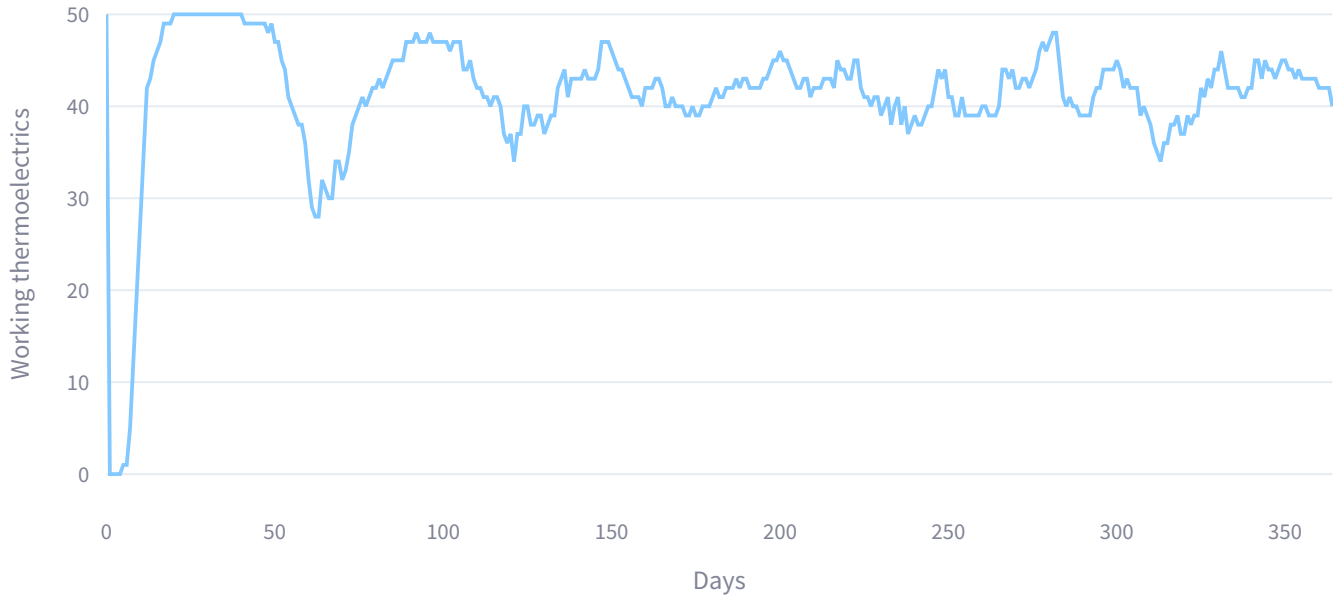
ThermoElectric State



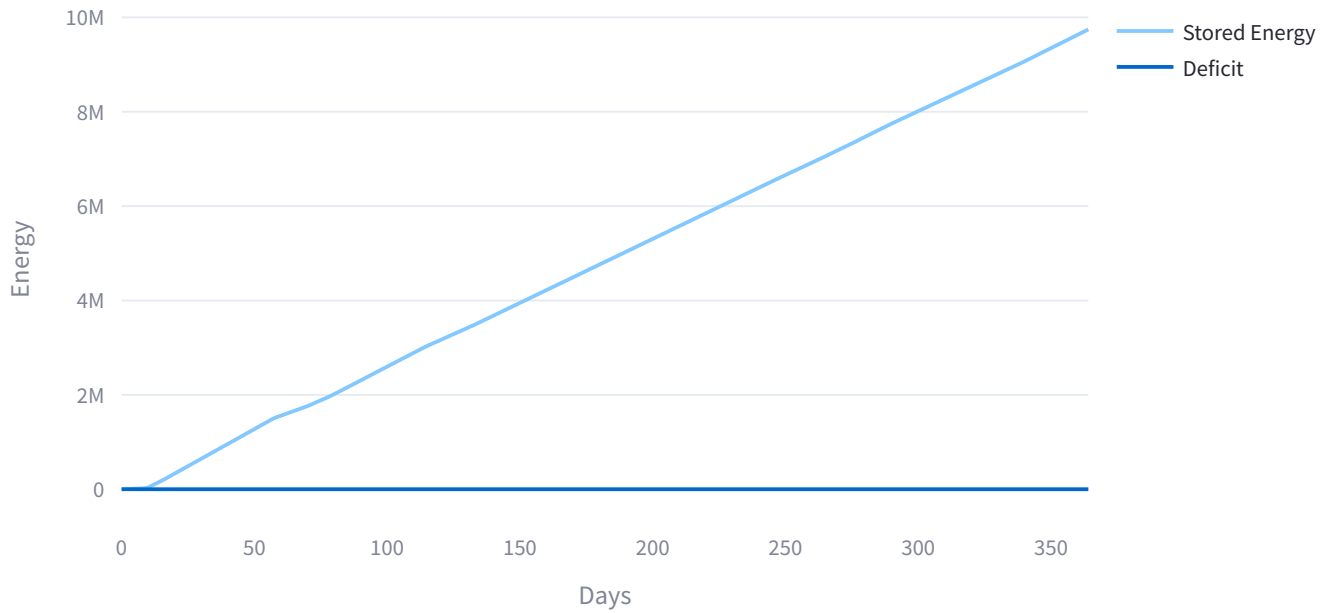
ThermoElectric State



Working thermoelectrics per day



Energy per day



Second Experiment: Maintenance Strategy

Generating some strategy to manage the thermoelectrics

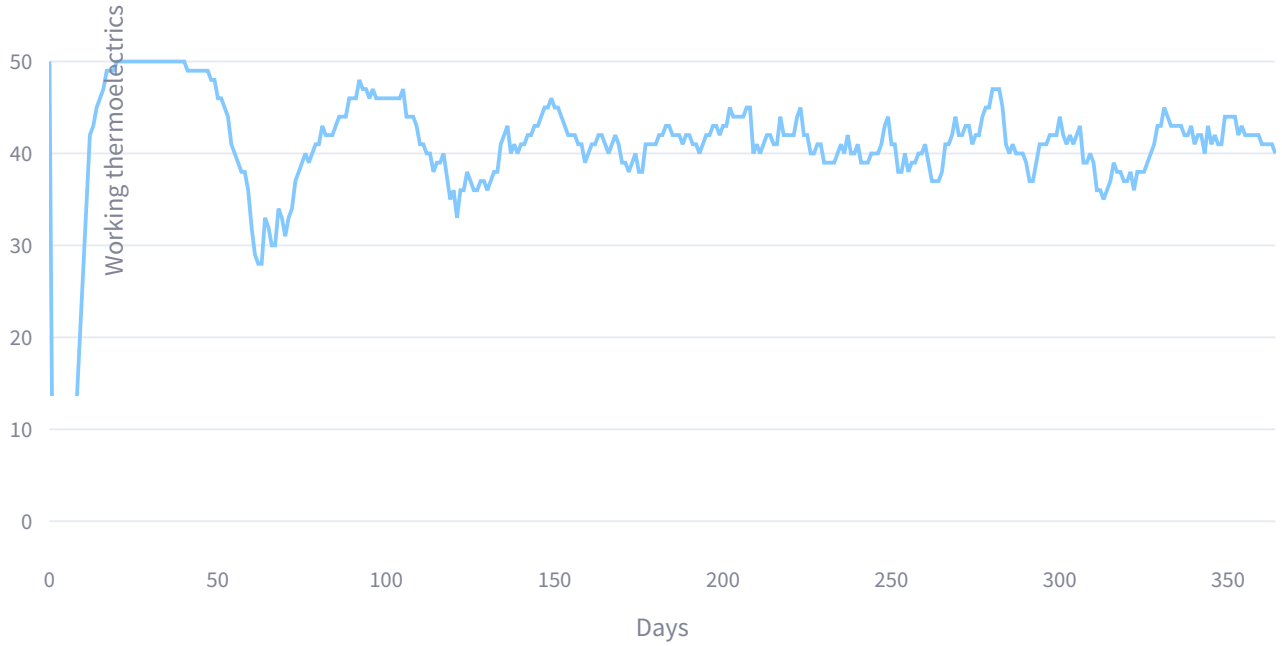
Find the mean of active days of thermoelectrics in K simulations

K-simulations

10

0 100

Maintenance heuristic



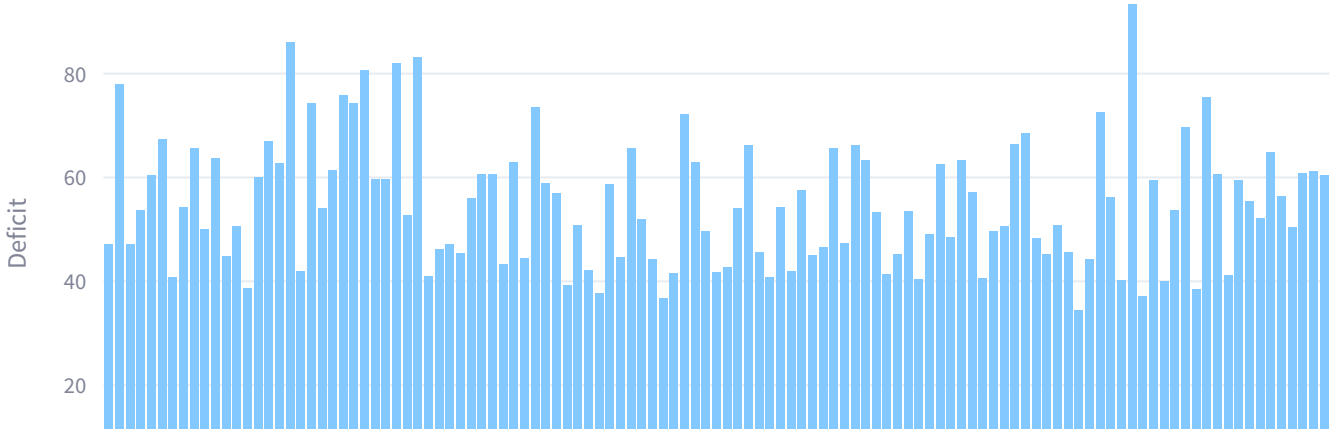
Energy per day

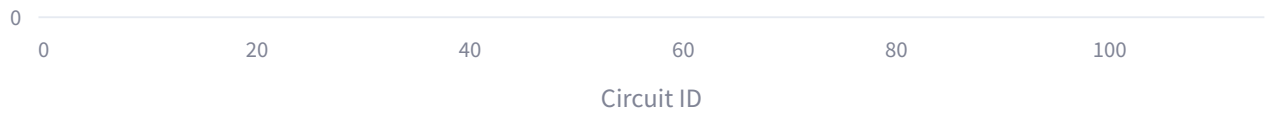
Third Experiment : Circuit Management

Strategy to manage the circuits

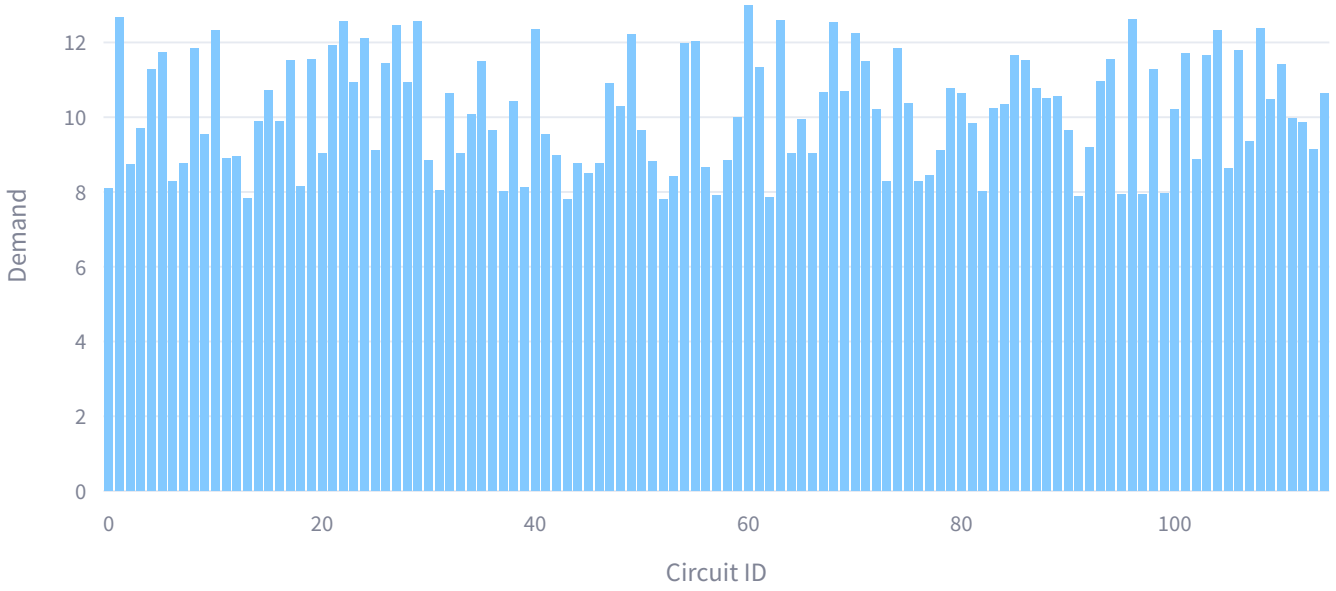
Using round robin to shut down a percentage of a circuit to cover the deficit

Total Deficit per Circuit





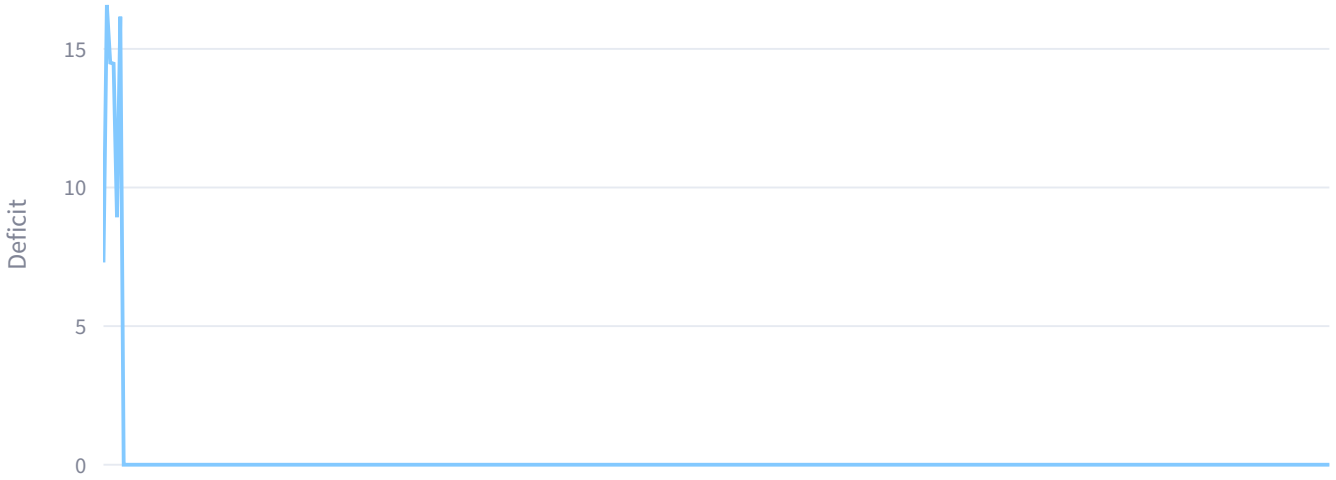
Total Demand per Circuit

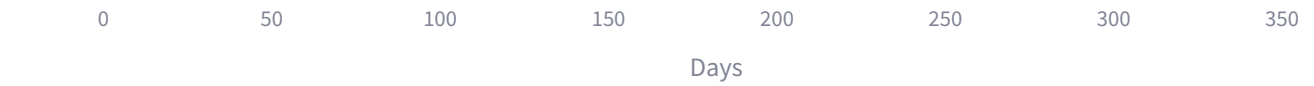


Plotting some circuits' deficits

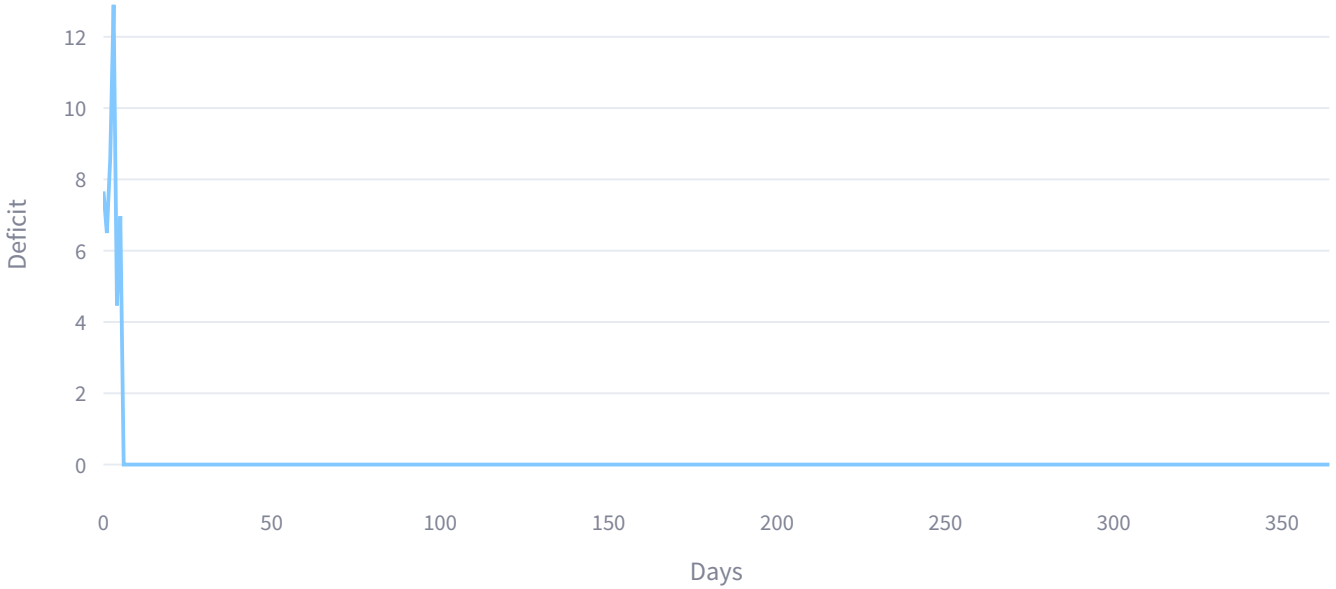
Deficit per day in Circuit 0

Deficit per day in Circuit 1



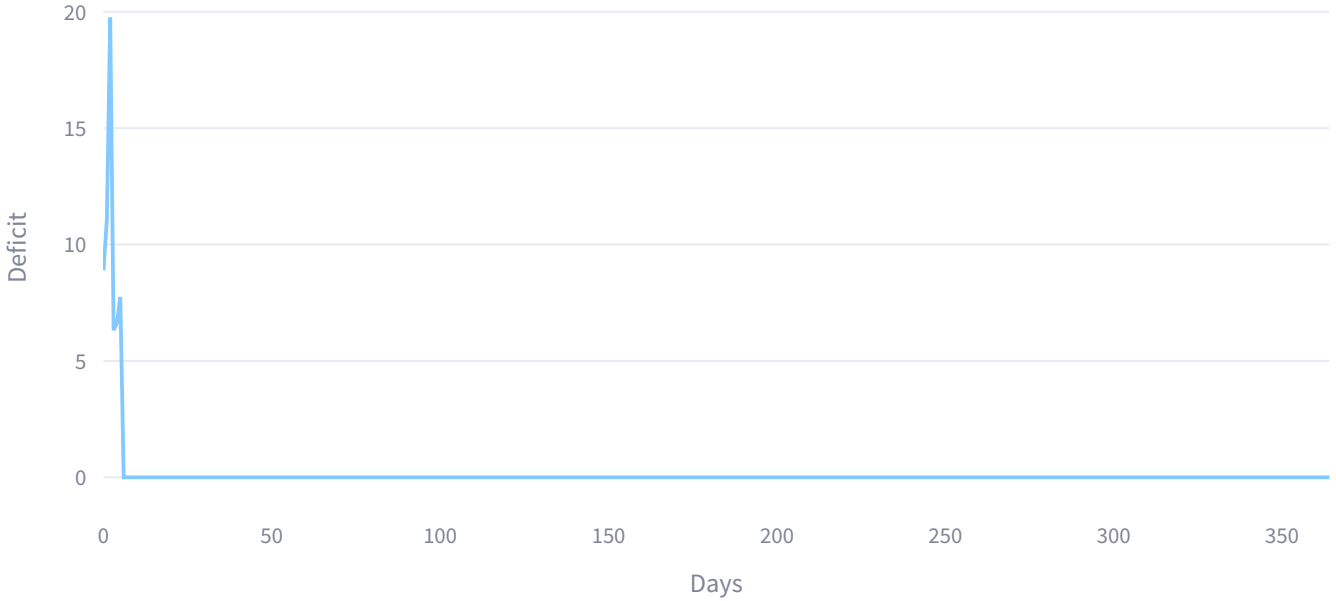


Deficit per day in Circuit 2

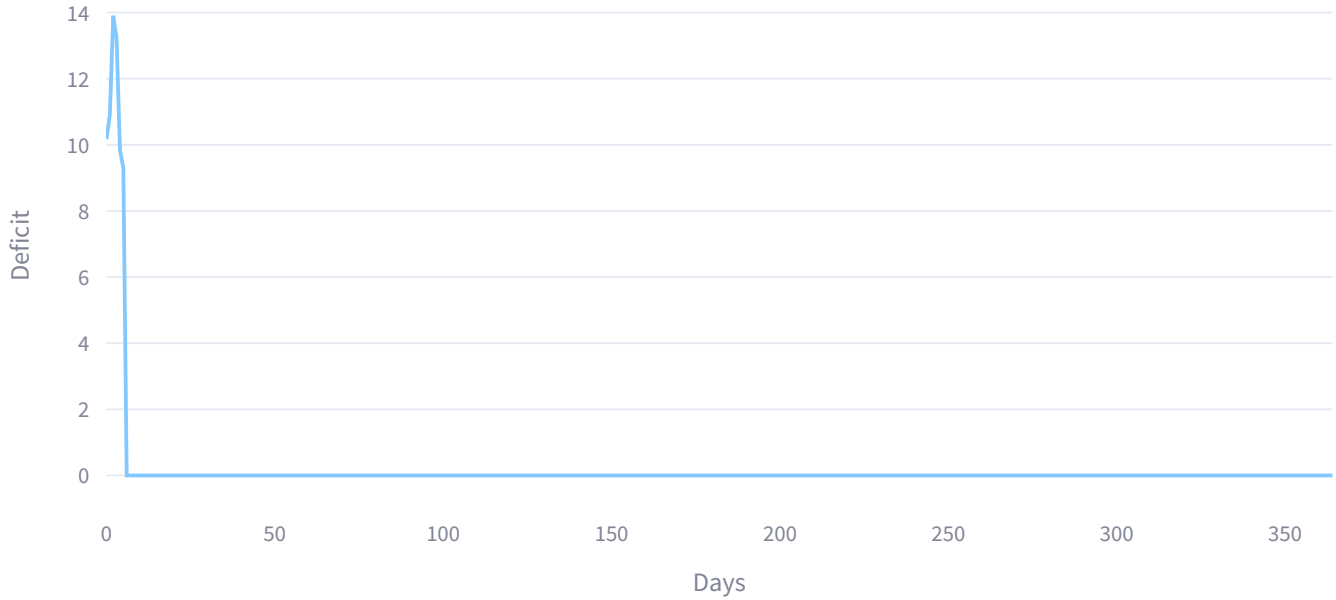


Deficit per day in Circuit 3

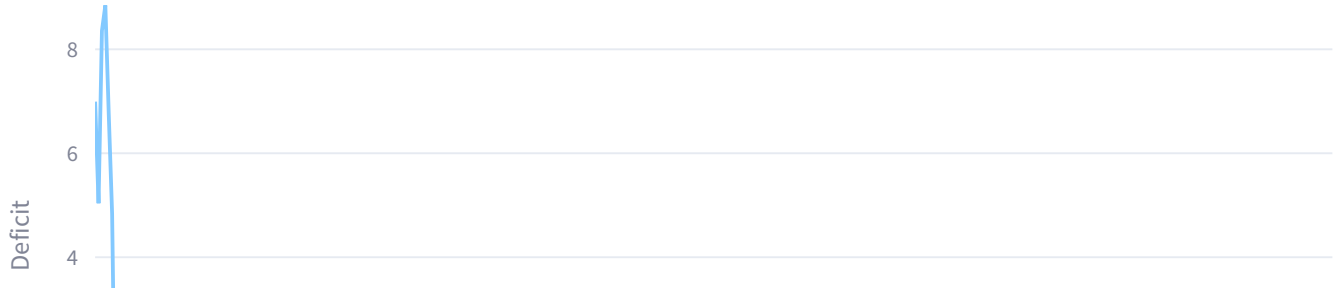
Deficit per day in Circuit 4



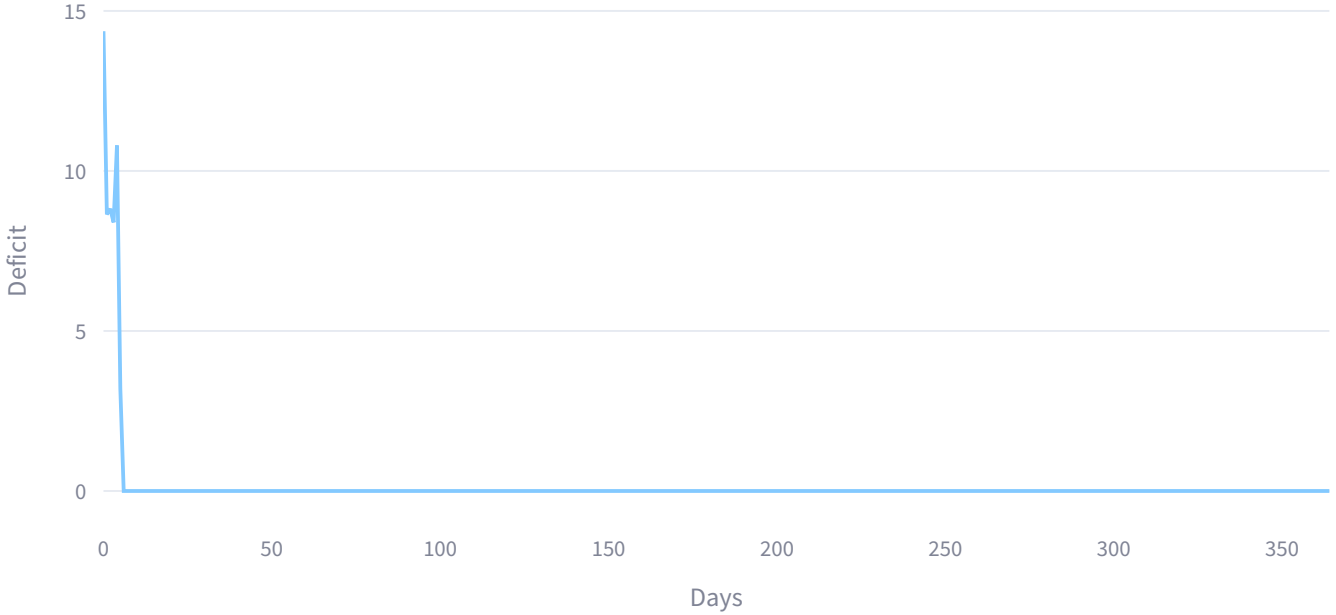
Deficit per day in Circuit 5



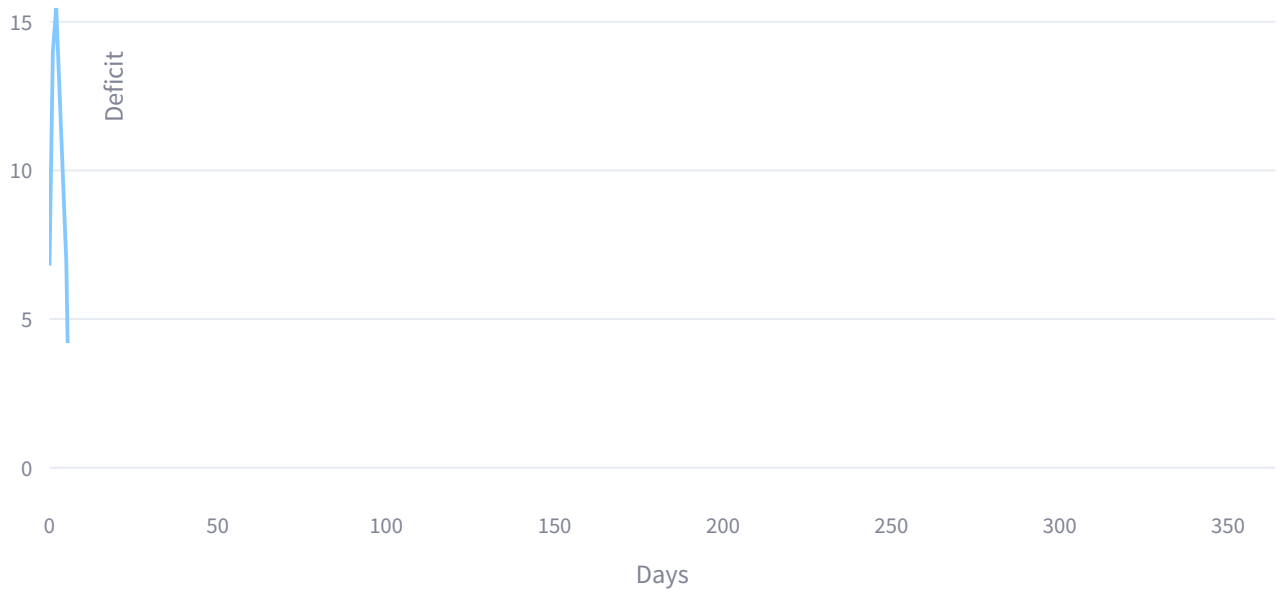
Deficit per day in Circuit 6



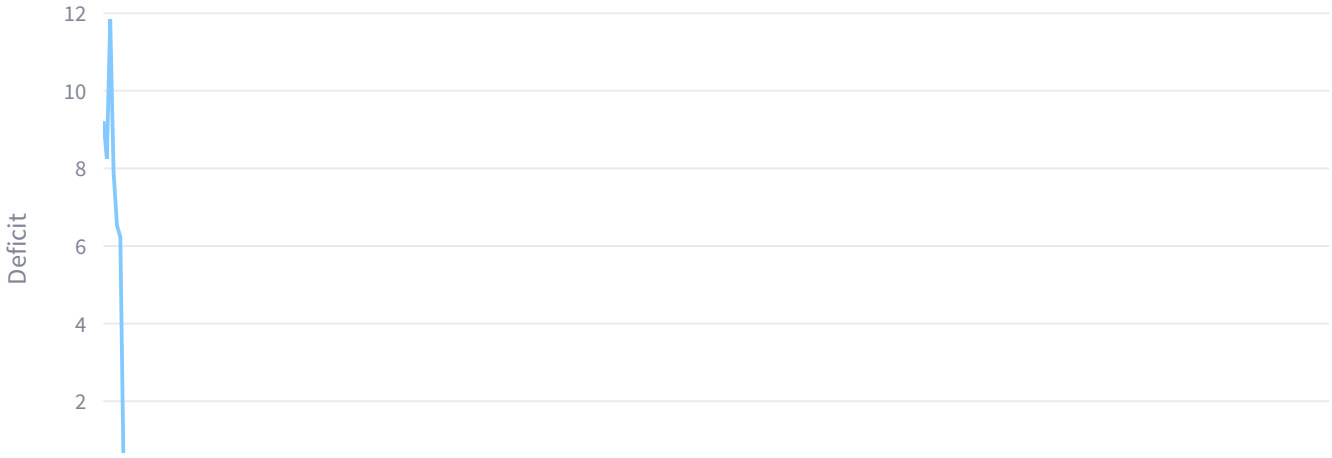
Deficit per day in Circuit 7

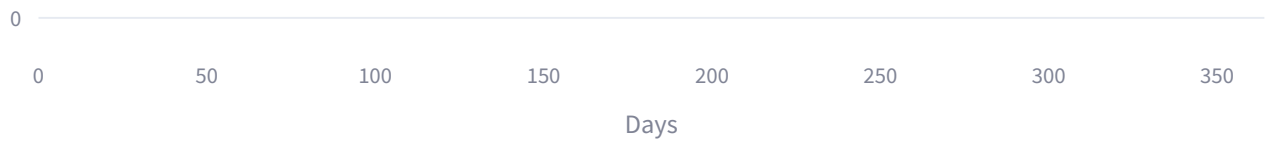


Deficit per day in Circuit 8



Deficit per day in Circuit 9

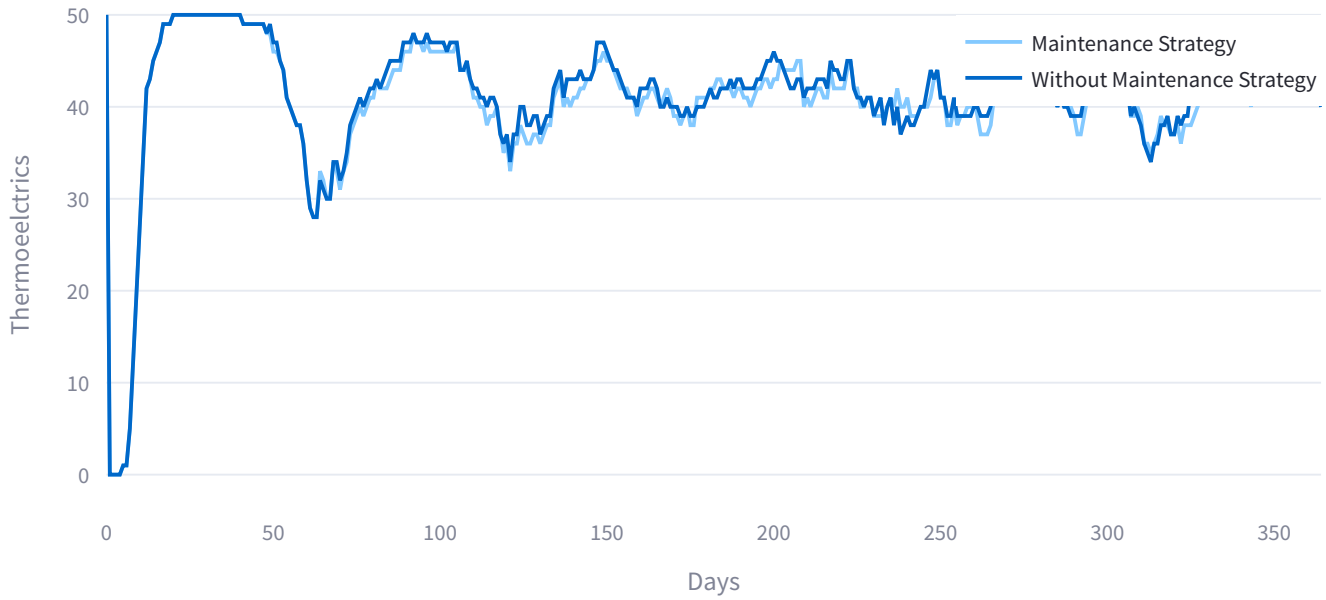




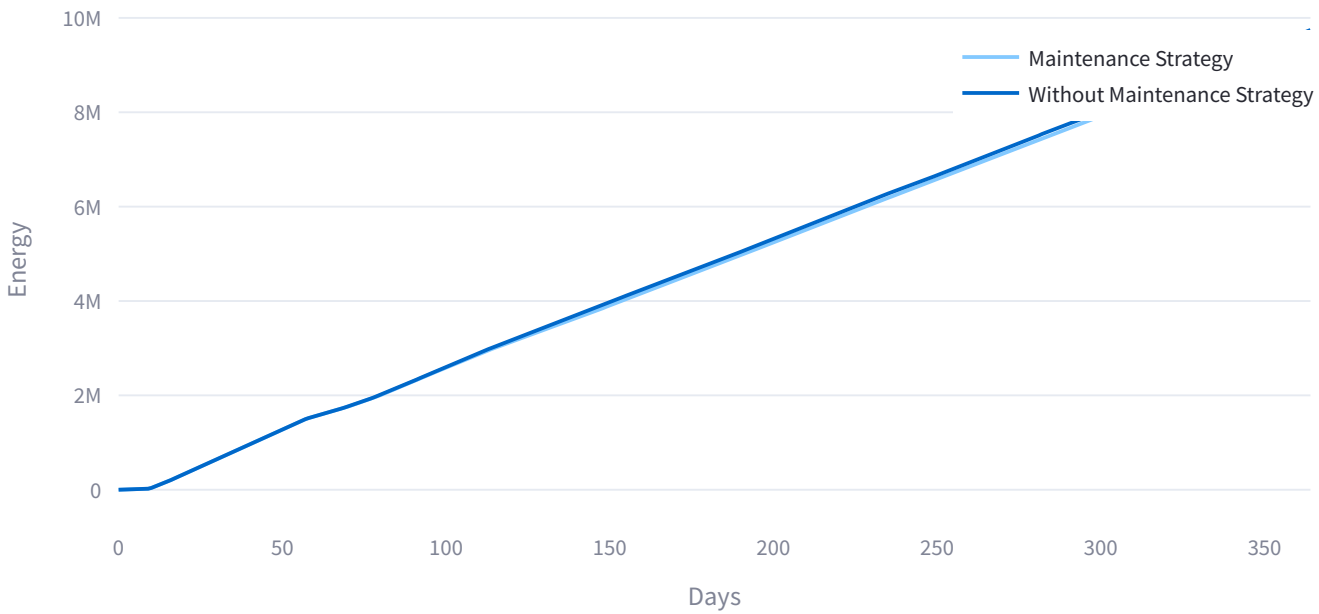
Fourth Experiment: Maintenance VS Non Maintenance

Comparing the two strategies

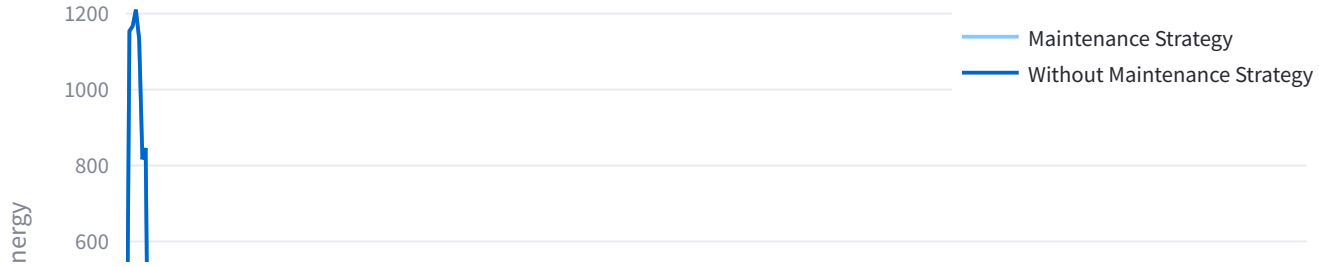
Working Thermoelectric per day



Stored Energy per day



Deficit per day



Repeat the experiments K-times

K-Simulations

300

1 1000

Results

Non Maintenance

Average in 300 simulations: Working Thermoelectrics: 41.663488584474884 Deficit: 13.11161367336521

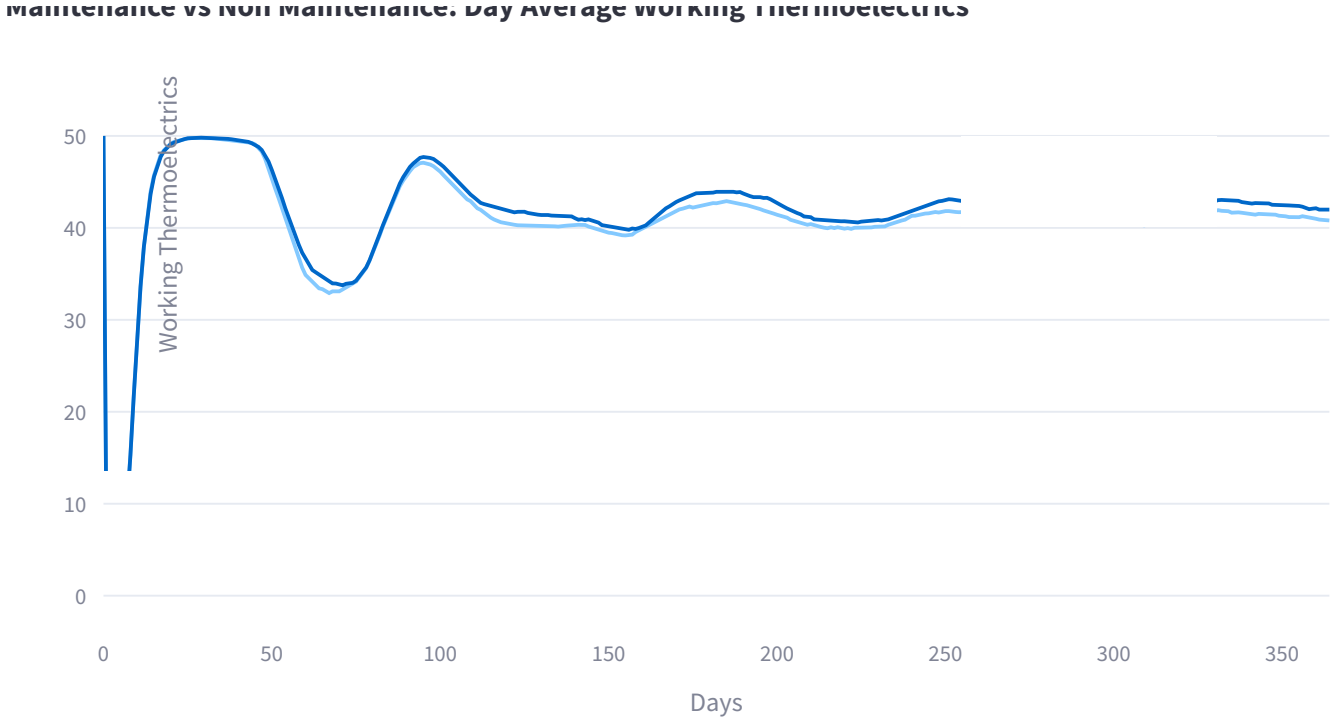
Stored Energy: 4897126.873294909

Maintenance

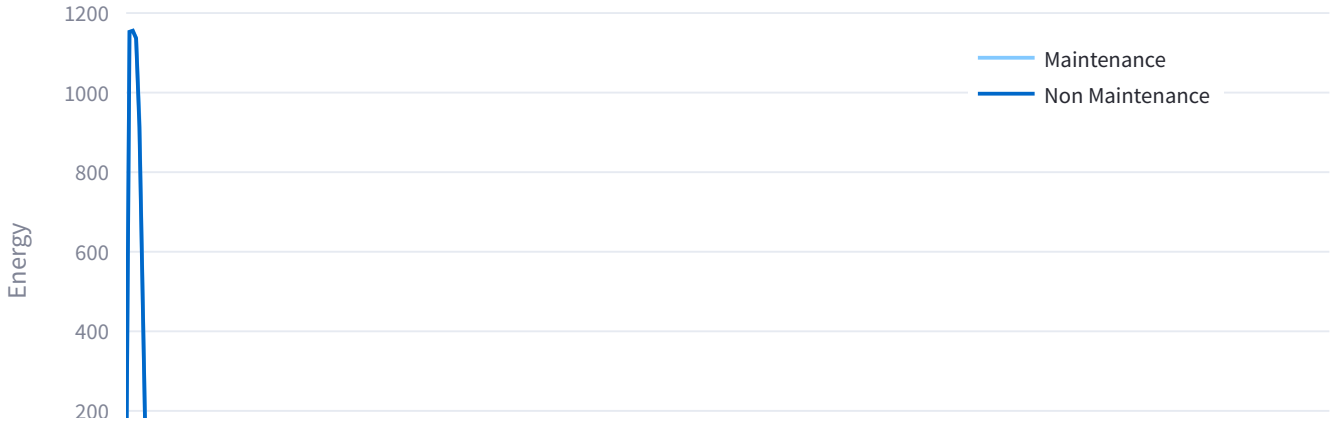
Average in 300 simulations: Working Thermoelectrics: 40.861342465753424 Deficit: 13.13654247798994

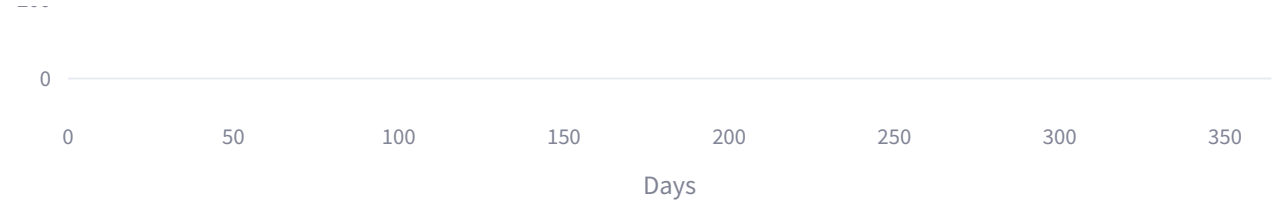
Stored Energy: 4824178.288879546

Maintenance vs Non Maintenance: Day Average Working Thermoelectrics



Maintenance vs Non Maintenance: Day Average Deficit





Maintenance vs Non Maintenance: Day Stored Energy