

Critical Systems (CSCM13) Coursework Program Print out for  
Power Grid Energy Stabilizer Setzer System  
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## Scenario 1

```
=====
Power Grid Energy Stabilizer Setzer System
=====

Please type in current electricity consumption as read by the sensor (in Watts)
5000
Please type in current electricity supplied as read by the sensor (in Watts)
5000

*****
Electric consumption =      5000 watts
Electric supply =      5000 watts
Reserve status = Not_Activated
Electricity remaining in reserve = 1000000 watts
Remaining supply to refill battery = 0 watts
*****
```

In scenario 1, the user is asked to input the consumption measurements and the supplied measurements. In this case, they match and the need to use or refill battery and purchase energy is not required.

## Scenario 2

```
=====
Power Grid Energy Stabilizer Setzer System
=====

Please type in current electricity consumption as read by the sensor (in Watts)
5000
Please type in current electricity supplied as read by the sensor (in Watts)
4000

*****
Electric consumption =      5000 watts
Initial electric supply =      4000 watts
Electric supply =      5000 watts
Reserve status = Activated
Electricity remaining in reserve = 999000 watts
Remaining supply to refill battery = 0 watts
*****
```

In scenario 2, the consumption is greater than the supply. The automatic use of the reserve battery takes place and the battery status is set to active.

## Scenario 3

```
=====
Power Grid Energy Stabilizer Setzer System
=====

Please type in current electricity consumption as read by the sensor (in Watts)
960000
Please type in current electricity supplied as read by the sensor (in Watts)
0

Electric consumption =      960000 watts
Initial electric supply =          0 watts
Electric supply =      960000 watts
Reserve Levels at Critical! Reserve status = Activated
Electricity remaining in reserve =      40000 watts
Remaining supply to refill battery = 0 watts

The battery reserve is under critical levels
Would you like to buy non renewable energy from another company to refill the ba
ttery back above level critical?

Please type (y/n)? Please enter a non-empty string
y

- After Refilling Reserves -

Electricity remaining reserve =      50001 watts
```

In Scenario 3, consumption is significantly greater than the supply. The battery reserves go below the critical level of 50,000 watts, so the user is asked if he wants to purchase more energy.

## Scenario 4

```
=====
Power Grid Energy Stabilizer Setzer System
=====

Please type in current electricity consumption as read by the sensor (in Watts)
960000
Please type in current electricity supplied as read by the sensor (in Watts)
0

Electric consumption =      960000 watts
Initial electric supply =          0 watts
Electric supply =      960000 watts
Reserve Levels at Critical! Reserve status = Activated
Electricity remaining in reserve =      40000 watts
Remaining supply to refill battery = 0 watts

The battery reserve is under critical levels
Would you like to buy non renewable energy from another company to refill the ba
ttery back above level critical?

Please type (y/n)? Please enter a non-empty string
n
```

In Scenario 4, is the same as scenario 3 except that the user here did not choose to purchase energy from another energy company.

## Scenario 5

```
Please type in current electricity consumption as read by the sensor (in Watts)
10000
Please type in current electricity supplied as read by the sensor (in Watts)
0
=====

!!!
System Critical
Entire system hasnt got enough energy to meet demand
Automatic purchase of energy from non renewable energy company
Supply increased to = Status_System,Supplied_Measured

=====
Electric consumption =      10000 watts
Initial electric supply =      0 watts
Electric supply =      10000 watts
Reserve Levels at Critical! Reserve status = Activated
Electricity remaining in reserve =      0 watts
Remaining supply to refill battery = 0 watts
=====

The battery reserve is under critical levels
Would you like to buy non renewable energy from another company to refill the battery back above level critical?

Please type (y/n)? Please enter a non-empty string
```

In scenario 5, the battery had 0 watts left and the consumption was greater than the supply. Since the system is fail-safe it automatically purchased energy to meet demand. In addition, since the battery level was below critical levels it asked the user if they wanted to purchase energy to refill the batteries.

## Scenario 6

```
=====
- After Refilling Reserves -
Electricity remaining reserve =      40000 watts
=====

The battery reserve is under critical levels
Would you like to buy non renewable energy from another company to refill the battery back above level critical?

Please type (y/n)? Please enter a non-empty string
nn

Please type in current electricity consumption as read by the sensor (in Watts)
10000
Please type in current electricity supplied as read by the sensor (in Watts)
100000
=====

Electric consumption =      10000 watts
Initial electric supply =      100000 watts
Electric supply =      100000 watts
Reserve Levels at Critical! Reserve status = Not_Activated
Electricity remaining in reserve =      40000 watts
Remaining supply to refill battery =      90000 watts
=====

=====
- After Refilling Reserves -
Electricity remaining reserve =      130000 watts
=====
```

In scenario 6, the supply was greater than the consumption, so the remaining energy from the supply was used to refill the battery reserves.