



Greenware Smart Energy Platform

You can finally make sense of your energy data to unlock savings!

The Greenware Smart Energy Platform (GSEP) is an easy-to-use application that helps your organization achieve energy savings through a secure, personalized online web portal. Whether you want to understand your utility costs, improve efficiency, install energy savings devices, explore alternative energy solutions or even determine your carbon footprint, GSEP provides the essential tools to meet your energy requirements.

Collect - Analyze - Alert - Report. By following these 4 steps, GSEP helps you to implement successful energy conservation projects, unlock savings and secure reliable returns on your investment.

1- Collect

GSEP has a built-in data acquisition engine able to collect in real-time the data from energy meters, flow meters, industrial controllers, sensors, SCADA, BMS, ERP systems etc. You can share data with 3rd party SCADA, automation, accounting systems and other reporting tools.

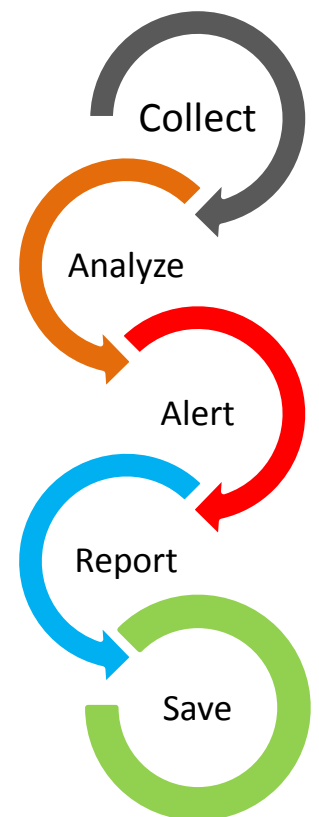


Illustration 1: Schematic of meter data collection and upload onto GSEP.



2- Analyze

The Greenware Smart energy Platform continually tracks and analyzes your energy consumption and cost data for accuracy, trends, anomalies and savings opportunities.



- ***Where, when and how is your energy used?***

The best way to find the most money in energy management is to look first at where it's being spent. GSEP provides a variety of charts and tables to analyze exactly where, when and how your energy is used. You can focus on specific days and times to effectively track changes in energy performance. Combined with the anomaly and peak power demand recognition function, you can easily target energy savings opportunities (e.g. turn off equipment outside of working hours, switch some of your operations to off-peak period etc.).



Illustration 2: Customized chart showing average power on Tuesdays from 3pm to 8pm.



Illustration 3: GSEP's utility monitoring dashboard.

- ***Benchmark your assets' energy performance***

GSEP's benchmarking tool helps you to compare your assets' energy performances based on customized Key Performance Indicators (KPI) to identify high performing facilities and pinpoint best practices that can be replicated within your asset portfolio. In doing so, GSEP establishes reference points for measuring and rewarding good performances of your sites and helps prioritize poor performing facilities for immediate improvement (e.g. replacement/adjustment of inefficient equipment etc.).

- ***Set energy-savings goals and regularly evaluate your progress***

Thanks to GSEP you can set clear and measurable goals which is critical for understanding intended results and developing effective energy/cost saving strategies.



2- Analyze

- **Forecast your energy usage**

GSEP analyzes your energy usage to predict your next bill, identify dangerous trends and implement corrective actions to save money.

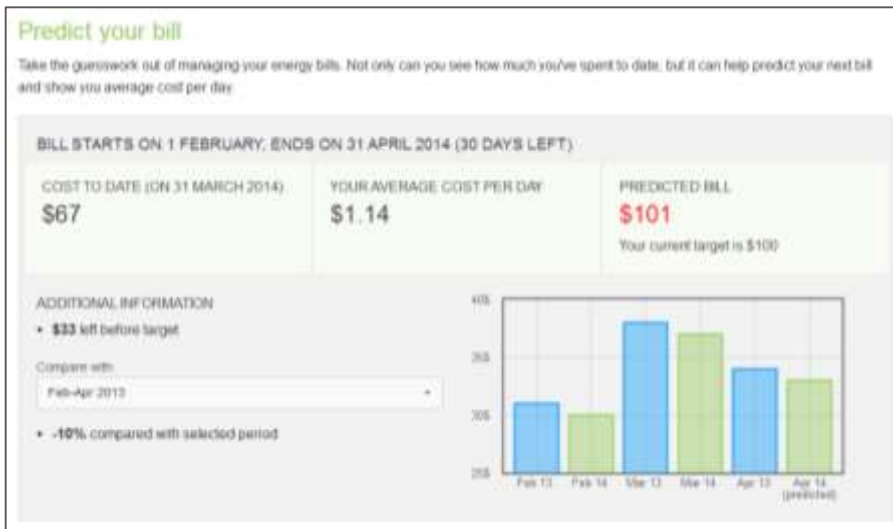


Illustration 4: Bill forecasting tool.



Illustration 5: Identify meters using a google map interface.

- **Verify utility bills accuracy and correct errors**

GSEP bill verification tool spots for you discrepancies between your utility bill and collected data and reports potential savings estimates. Quickly create graphs or export data for further investigation.

- **Monitor your power quality**

In industrial applications, attributes of the network such as the power factor, phase balance and harmonics are critical for the proper operation of many types of machineries. Monitoring power quality provides information about system disturbances and their possible causes which helps taking preventive actions to avoid equipment malfunctions and even damage or failure. Greenware can provide a wide range of electrical meters to suit your power quality monitoring needs.



Illustration 6: GSEP's power quality monitoring interface.



3- Alert

Set alerts to be notified when something is just not right with your system

Meet your energy-saving goals, avoid downtime or costly repairs thanks to GSEP's customizable alert tool. You can configure SMS, emails or phone calls alarms to be informed, act and report immediately on anomalies in energy data.

For example, notifications can be sent when:

- Negative trends are observed (e.g. consumption values exceed pre-defined thresholds based on consumption or cost),
- Abnormal spikes in consumption occur,
- Assets are not running or running outside operating hours,
- Power factor is falling under defined threshold,
- Failure occurred (faulty meter or power outage),

Alert list

Alert	Name	Status	Last time sent	Acknowledged	Edit	Number of hits
1	Alert #1	active	2014-02-28 18:30:00	Yes	✎	1
2	Test Alert	inactive	2014-02-14 11:30:00	No	✎	10
3	Oil Alert	inactive	2014-01-01 16:30:00	Yes	✎	2

[Add a new alert](#)

Edit Alert #1 On

Selection

Site:

Running:

Power:

Alarm:

Process/Equipment:

Send a text:

Alert name

Alert name:

Select time period

Start: End:

Start: End:

Days to exclude from alert time period

YYYY-MM-DD: All

Exclude list:

Alert rule definition

Using: Electricity Water Natural Gas Fuel

Parameters: Cost Consumption Power Power factor kWh

Logic: Inferior Superior Equal

Value:

Statistics: Total instantaneous value Average min. max.

Type of alert: SMS e-mail Phone call

Distribution list

To:

Mailing list:

Phone number:

Illustration 7: Alert setup tool.



Illustration 8: GSEP's alert setup page.



4- Report

What better way to understand, track and control your energy use than with your personalized reports? You can get valuable insight into your system's energy performance, energy costs, carbon footprint etc. with the powerful and intuitive reporting tools offered by GSEP. Reports can be generated manually and saved as Excel and other formats or scheduled to be automatically sent via email to multiple users. Reports templates include but are not limited to:



- Energy consumption/cost reports
- Assets energy performance benchmarking reports
- Predictive use/cost reports
- Cost allocation reports
- Carbon footprint reports

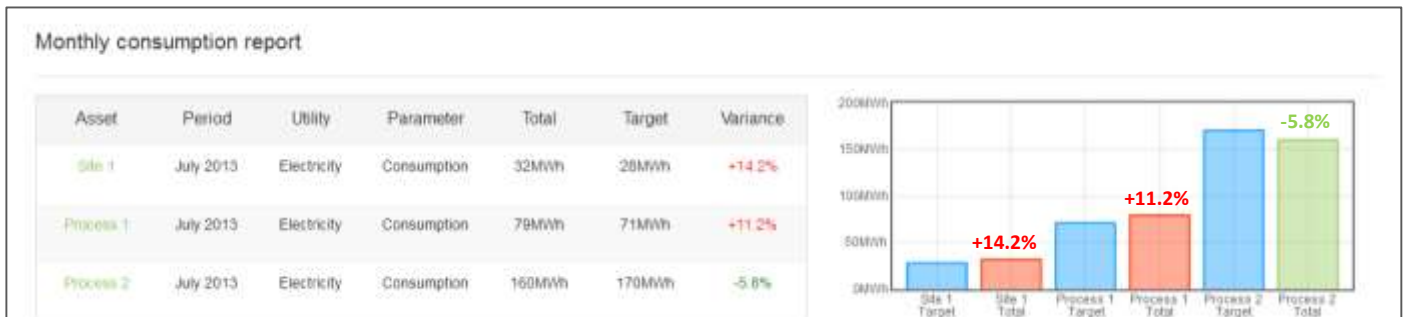


Illustration 9: Monthly consumption report.

Summary of Platform's Functions

- Customizable dashboards
- Data acquisition and integration
- Real-time utilities metering
- Trend analysis
- Benchmarking
- Energy consumption forecasting
- Energy and power quality analysis
- Utility bill verification for errors detection
- Customizable SMS/email/call alerts
- Carbon footprint computation
- Automated & manual energy reporting
- Interoperability with 3rd party systems (SCADA, BMS etc.)



Illustration 10: GSEP's reporting interface.