



## VIRTUAL ENGINEER/ENERGY CONSERVATION DASHBOARD

Complete Energy Dashboard for the United States Navy

### Meeting Mandated Conservation Goals

In response to the Secretary of the Navy’s mandated energy conservation goals, U.S. Navy personnel turn to Hexagon US Federal’s Energy Conservation Dashboard. Meeting these conservation goals allows the Navy to achieve energy security and independence. In 2013, the Department of Defense (DOD) and Chief of Naval Operations (CNO) announced similar energy goals for the Navy and the Fleet adding increased urgency to comply with the mandate.

The Virtual Engineer/Energy Conservation (VE/EC) Dashboard project is a web-based graphical user interface using dashboards that provide an up-to-date, online view of energy information, identify energy use trends and problem areas, and enable analysis of energy data. Together, these tools enable stakeholders to make informed decisions. Users have the ability to drill-down and roll-up cost and energy data. This allows detailed views of the data by date, time, fleet, ship type, class, flight, homeport, system, equipment type, and equipment among other classifications.

### Driving Change

To meet these energy goals, the Fleet has an immediate need for energy metrics to drive change—providing near real-time and historical data, quantifying strategies to reduce consumption, validating shipyard hotel services, and enabling effective decision processes. The VE/EC Dashboard system will help the Navy achieve energy security and independence by meeting energy conservation and alternative energy goals.

Using an enterprise-level business intelligence framework the VE/EC Dashboard identifies, integrates, displays, compares, and analyzes different aspects of energy data from a disparate variety of Navy data sources. This effort also provides specific dashboards to support different user communities. The VE/EC system uses an extensible architecture to allow adding

ships, data sources, and analyses. It is available on both the U.S. Navy network and onboard Navy ships with an Internet connection making accessibility effortless.

### The Dashboards

Our dashboards are typically used to measure the performance of an enterprise system. Users can define, monitor, and analyze system performance based on key performance indicators (KPI) displayed in the dashboard. For the VE/EC project, some KPIs will include power, cost, and efficiency for selected equipment, ships, and times.

A set of the VE/EC dashboards can provide a single, comprehensive interface that allows users to see both the “big picture” and the details. Users can drill-down from a summary overview to see specific, supporting details as necessary. Likewise, a user can also roll-up data to view the overall bigger picture. Finally, a user may be able to navigate to other dashboards displaying related KPI data.

The VE/EC user interface supports several types of dashboards, including:

- Performance—Information shown relative to baselines or targets
- Role Based—Information specific to a user role, such as homeport, TYCOM, or CO
- Breakdown—Breakdown of information using multiple dimensions
- Time-Series Graph—Plot of data over time
- Analytical—Allows users with appropriate permissions to construct ad-hoc queries

Incorporated into the Dashboard, the Report Center allows users to select and run standard reports. Users with appropriate permissions can also define custom reports. Knowledge Management is supported by document libraries and lists “Lessons Learned” and document “Energy Cost Savings”.

## Benefits

The VE/EC system helps the U.S. Navy achieve energy security and independence goals by capturing and documenting energy cost savings and tracking fleet fuel use relative to CNO goals. It allows users to analyze energy data from multiple sources with standard analysis, reporting, and decision support capabilities. It presents energy data tailored to the needs of specific stakeholders, and it turns data into information. Implementation of the VE/EC dashboard brings an array of benefits such as:

- Access an up-to-date, online view of Fleet energy information
- Transform data from multiple disparate sources into meaningful information
- Identify energy use trends and problem areas
- Reduce costs associated with developing and generating standard and customized Fleet energy reports
- Increase efficiency by mining and analyzing energy data
- Provide stakeholders customized and detailed near real-time and historical data including tailored key performance indicators (KPI)
- Explore large quantities of raw data transformed into meaningful energy information for the stakeholders
- Reach operational objectives by measuring and understanding benchmarks and progress
- Enable effective decision processes
- Develop effective strategies through strategic enterprise reporting
- Enhance collaboration through data sharing and interoperability
- Increase accuracy through analytic tools and predictive analysis models
- Efficiently employ the Web-based interface across Navy networks including ships

## Capabilities

VE/EC Dashboards allow users to focus on important information, identify trends and problem areas, and make informed decisions. Dashboards provide an up-to-date, online view of information that can be used to replace multiple reports or even answer “ad-hoc” questions not addressed by standard reports. Explore our list of robust energy dashboard capabilities in the table below.

### VE/EC Dashboard Standard Capabilities

Investigate and compare energy use across fleet, homeports, ship class, ships and equipment
Capture and document energy cost savings
Display standard online views and reports
Display performance dashboards to quickly summarize relevant status at a glance
Display information users can drill-down through for further details
Define and capture metrics and baselines of data
Compare and rank energy metrics for different ships and time periods
Investigate energy loss due to system operation and equipment lineup
Display operational energy data, equipment line-up, baselines, targets, and costs
Investigate energy loss due to equipment inefficiency or crew behavior
Investigate incorporating Energy Conservation Measures (ECM)
Provide tools for ad-hoc analysis and predictive analysis
Evaluate possible scenarios to optimize operation and lower costs
Incorporate alerts such as an e-mail distribution to personnel within custom set alert parameters
Annotate data points in a time-series graph
Capture lessons learned

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