Secure and Sustainable Energy in a Changing Climate: A U.S. Army Performance Metric

Goal

Develop a performance metric for base realignment that quickly and easily assesses energy consumption nation-wide at Army bases.

Background

- Ensuring a secure and sustainable energy future is at the forefront of federal policies and directives for the Army.
- Best Management Practices suggest first conserving energy.
- Adding renewable energy not only reduces greenhouse gas emissions but improves reliability.

Process

- Research how the Army accesses and uses energy sources.
- Research best management practices and develop a plan for a tool to be used as a metric.
- Results that allows for numerical ranking.

Findings

- Sources of installation energy use generally follow regional resources with the exception of Fort Wainwright in Alaska and Schofield Barracks in Hawaii.
- Although energy can be used very differently at installations, measuring the EUI can provide an interesting comparison.

The electric grid is a complex network of electrons balanced by electricity production at power plants, transformation of voltage at substations, and consumption by end users in residential, commercial and industrial sectors.

US Army bases energy consumption may consist of each of these sectors.

The charts indicate the energy makeup of seven case study Army bases for comparison.

Legend

- Electric Transmission Lines
- Electricity
- Natural Gas
- Propane Gas
- Coal
- Distillate Fuel Oil

This map shows the electrical grid infrastructure for the United States.

Each chart shows the relative electricity use compared to other energy sources such as:
- Natural Gas
- Propane Gas
- Distillate Fuel Oil
- Coal

This graphic shows the composition of the energy attribute use for optimization analysis.


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