

# FUELING THE WINDS OF CHANGE IN GUAM

## Joint Region Marianas Energy Analysis: Military Consumption, Conservation, and Renewable Energy



In FY11 Joint Region Marianas (JRM) purchased 358 million KWh at an average cost of \$.27 per KWh; as such, JRM spent over \$72 million on energy alone (consumption figures for FY12 were similar).

Approximately 83% of purchased energy powers shore-based operations and support infrastructure. Visiting and local ships consumed 31 million KWh and the region lost over 28 million KWh due to line losses!

From FY03 to FY12 the region experienced a net reduction in energy use intensity (EUI) of almost 7% and a net increase in energy consumption of almost 8%.

Naval Base Guam Housing has decreased its total footprint by almost 30% since FY03 but only decreased its energy consumption by 4% resulting in a 40% increase in EUI. This is primarily due to the large inventory of moth-balled facilities that have been demolished since FY03.

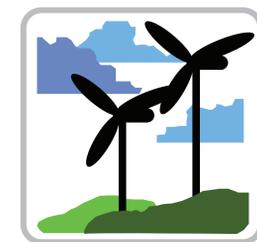


In order to meet Energy Independence and Security Act (EISA) and Navy goals JRM has implemented its own energy management program to include awareness campaigns and energy retrofit projects.

A benchmark analysis was conducted on over 600 regional facilities (accounting for over 75% of region-wide consumption) and a potential energy savings of 84.6 million KWh (30% of the JRM annual energy consumption) was identified.

36 facilities within this analysis account for 71 percent of the total region-wide potential savings.

Facilities were cross-checked for past and future energy conservation retrofit projects. Many of the future projects were focused on buildings below benchmark consumption levels. Additionally, many of the facilities with the highest EUIs did not have planned energy projects.



In 2009 the JRM constructed its first 250KW ground mounted solar PV array. JRM also has several roof-mounted and BIPV arrays.

Guam Power Authority (GPA) recently entered into an agreement with a third party provider to purchase renewable power at \$.19 per KWh; less than what JRM pays for fossil fuel derived power.

Through a combination of power purchase agreements (PPAs) and conventional energy projects JRM can produce \$35 million KWh annually via solar power (resulting in a 20-yr cost savings of \$194 million) Potential locations were also sited in this analysis.

This analysis also determined that through PPAs JRM can produce over 37 million KWh annually via wind power (resulting in a 20-yr cost savings of \$195 million).

This analysis also recommends joint ventures with GPA in the production of a waste-to-energy plant on Guam.