



**Pit Stop:  
Timely  
Procurement  
Topics**

# **Renewable Power Project Procurement Using ESPC**

*Presented By:*

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**Renewable Power**

**N O R E S C O**



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## **Agency Funding Choices Available**

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- **Energy Conservation Investment Program (ECIP)**
- **Military Construction Funding (MILCON)**
- **Utility Energy Service Contracting (UESC)**
- **Enhanced Use Lease (EUL)**
- **Energy Savings Performance Contracting (ESPC)**



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## **Energy Policy Act of 2005**

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- **OLD Goal: Reduce 1985 (baseline year) energy consumption by 35% by 2010**
- **NEW Goal: Reduce annual energy consumption by 2% from 2006 to 2015**
- **EO 13123, Section 402: Agencies shall maximize use of available alternative financing mechanisms, including ESPC**
- **Defense Authorization Act signed (Dec. 2005)**
  - ✓ **Reauthorization of ESPC through Sept. 30, 2016**



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## **ESPC Basics**

- **Contracting vehicle that provides an opportunity to turn wasted energy into capital improvements**
- **Improvements/Energy Conservation Measures (ECMs) are financed by the Energy Services Company (ESCO)**
- **ESCO investment is paid back from energy and O&M savings**
- **Customer budget is not affected**
- **Savings and performance are guaranteed**
- **At end of contract term Agency retains 100% of the future energy savings**



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## **ESPC Requirements**

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- **Up to 25-year financed term**
- **Measurement and Verification (M&V) required**
- **Annual payments to ESCO can not exceed annual savings**
- **Annual payments must be paid with utility and energy-related O&M savings**



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## **Why DOE Super ESPC?**

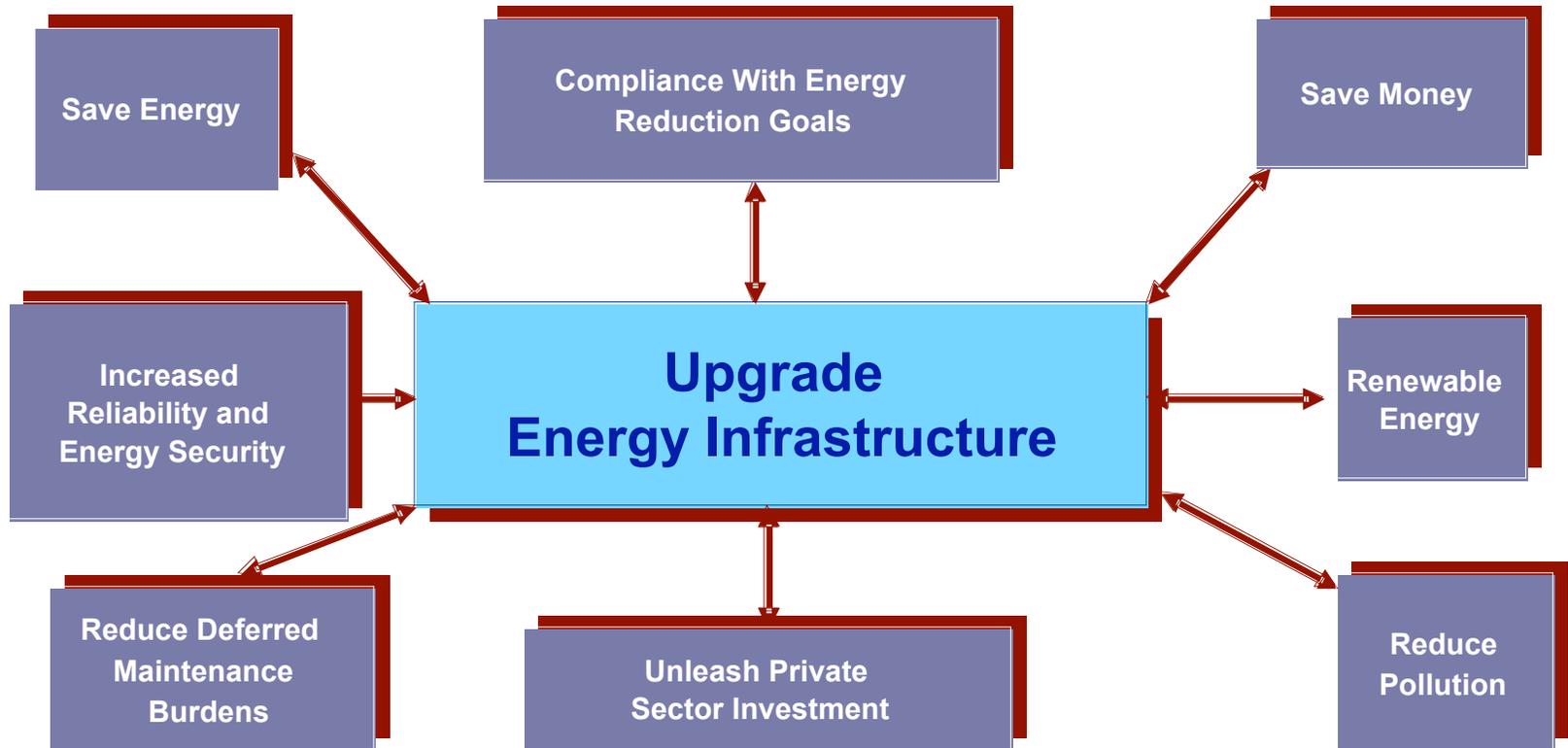
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- **Super ESPCs are available throughout six DOE regions**
- **DOE Workshops are available for Federal Agency training**
- **DOE Super ESPC process has been proven over time**
- **Process is continually being improved via DOE and Federal working groups**



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## Goals for ESPC Projects





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## Costs Paid From Existing Utility/O&M Budgets



- Savings fund facility improvements
- Pay the ESPC contractor with savings
- Achieve cost savings for the facility
- Achieve Mandated Energy Reduction Goals



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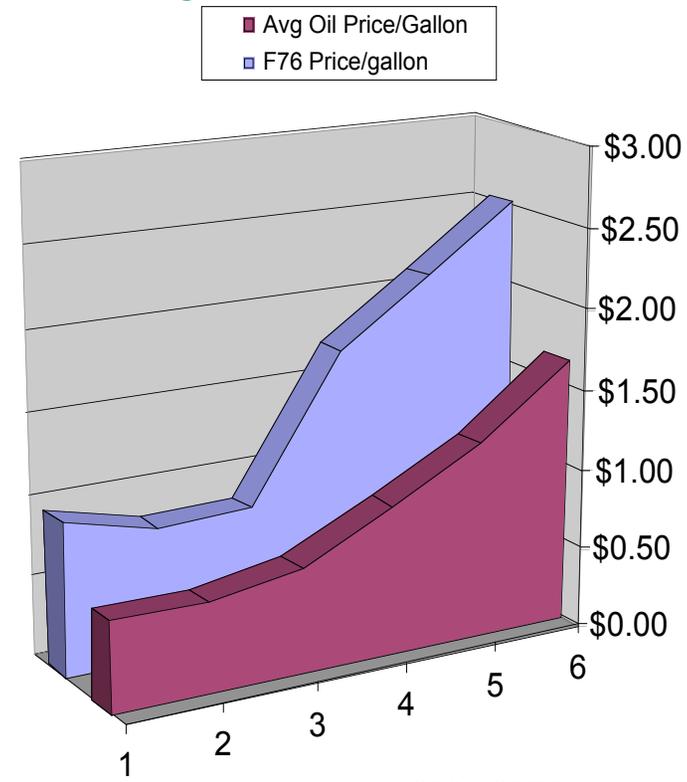
***Why did the U.S. Navy want a  
Renewable Power Project at  
Guantanamo Bay?***



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- Increase of “Mission” meant more demands on diesel generators to supply power.
- More Energy Security Was Needed. (Distributed Generation)

### Average Oil and F76 Costs





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- The U.S. Navy has been a wind technology leader
- Investigating wind turbine projects for last 30 years
- Installed wind turbines at San Clemente in the 1990's.





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## **Determine the Wind Resource**





## *Renewable Power Project Procurement Using ESPC*



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## **John Paul Jones Hill – Guantanamo Bay**

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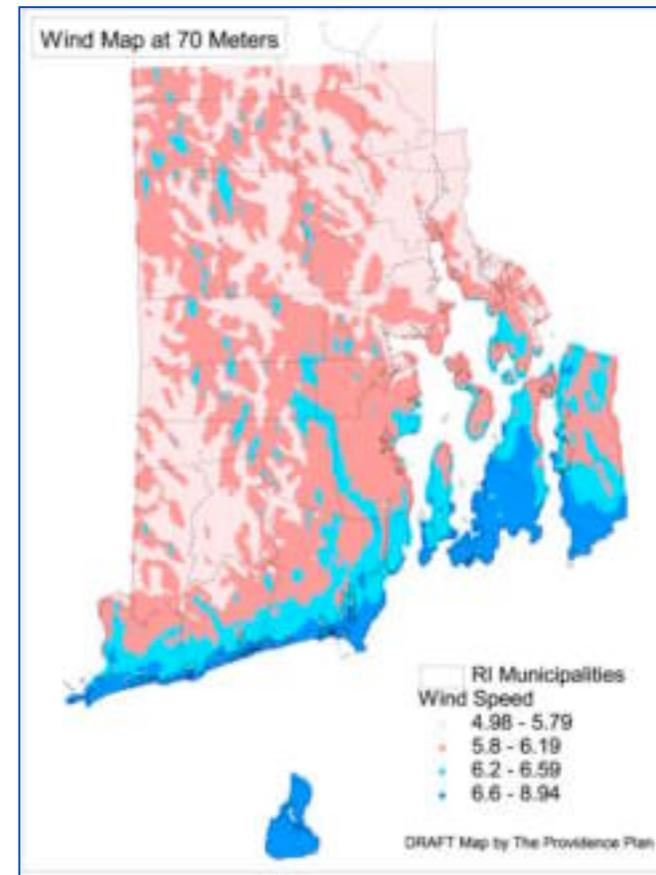




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## Regional Wind Maps

**Regional Wind Maps  
available thru NREL and  
AWSTRUEWINDS**





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- Wind Metering System Installed at 50' and 65'
- 12 months of data collected, and correlated to airport data to predict wind turbine power production

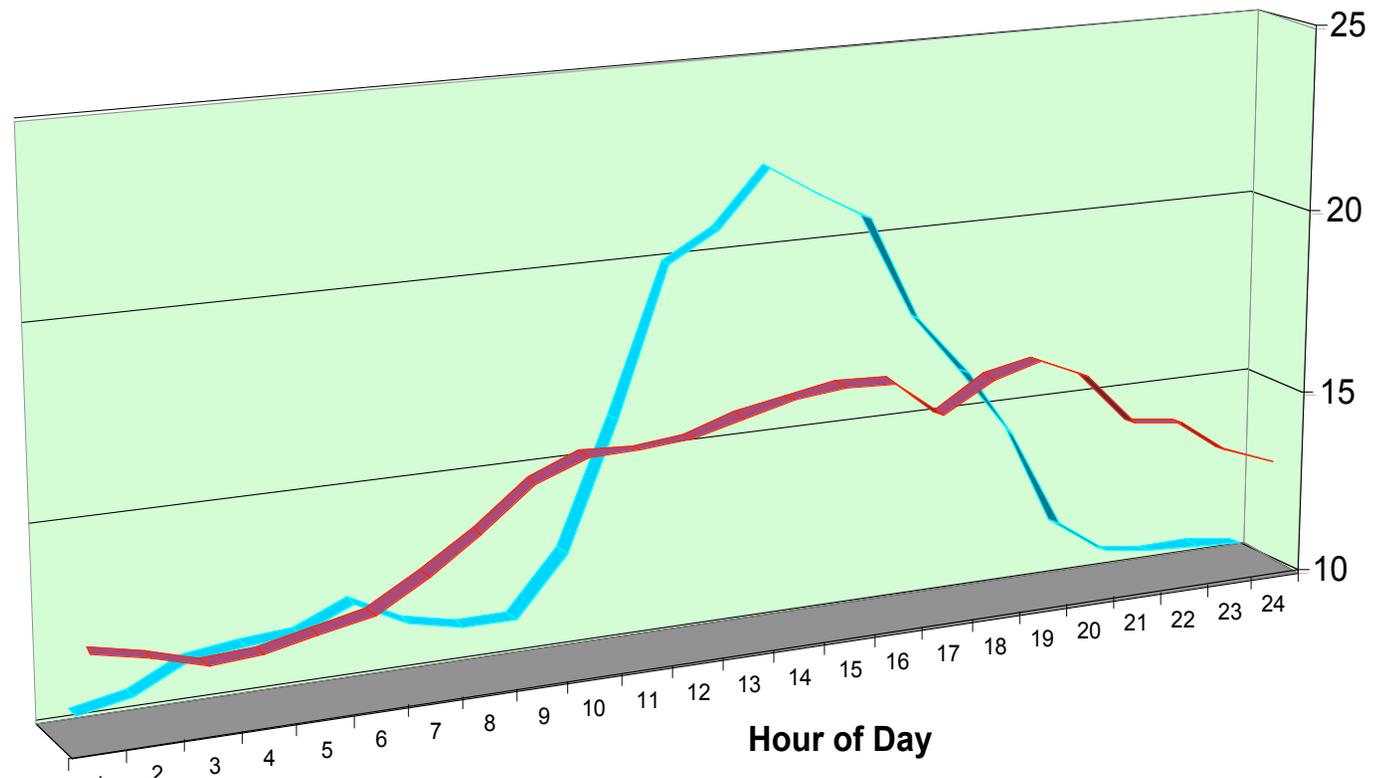




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**GTMO Power to Wind Diurnal**

■ "Power Demand (MW)" ■ Wind (MPH)





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## **Guantanamo Bay, Cuba**



## Environmental Issues

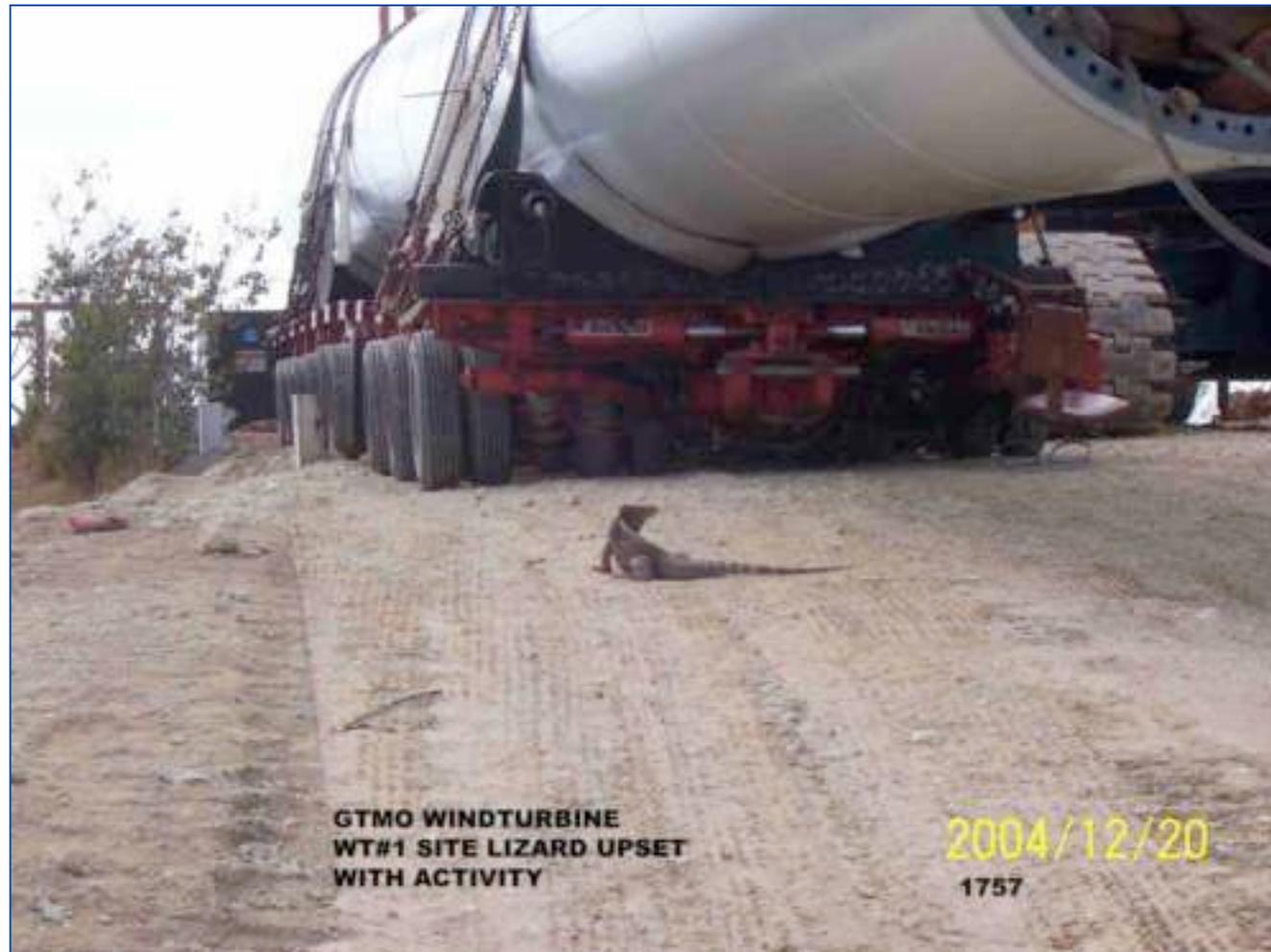


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**GTMO WINDTURBINE  
WT#1 SITE LIZARD UPSET  
WITH ACTIVITY**

**2004/12/20  
1757**



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A screenshot of a computer monitor displaying two overlapping web browser windows. The background window is titled "FCI-V Turbine Remote Interface" and shows a large silhouette of a wind turbine on the left. Below the turbine are links for "Data Archive", "Reset Log", and "FCI-V". The foreground window is titled "FCIVCAM - Microsoft Internet Explorer" and displays a "D-Link SECURICAM Network Audio Internet Camera" interface. It features a live video feed of a wind turbine in a field, with a timestamp of "2006/02/08 10:07:48 AM". The browser's address bar shows a URL starting with "https://fov.turbine.redirector.net/fov/turbine/securecam/". The Windows taskbar at the bottom shows the Start button and several open applications, including "Microsoft...", "C:\Doss...", "FCI-V Tu...", and "FCIVCA...". The system clock in the bottom right corner shows "10:04 AM".



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FCI-V Turbine Remote Interface - Microsoft Internet Explorer

File Edit View Back Forward Stop Refresh Search Favorites Media Print Address https://fvturbine.redirector.net/fvturbine/secure/main... Go

Y! Search Web Mail Bookmarks Flags Sign Out

## FCI-V Turbine Remote Interface

Tue Feb 7 19:18:49 2006

[Turbine STOP](#) | [Turbine START](#)



Status Code:	0	Gen RPM:	1200
Active Power:	-3.1 kW	Hub RPM:	14
Wind Speed:	2.7 m/s	g Energy:	61476.4 kWh
Nacelle Dr:	47°	G Energy:	507378.3 kWh

Rect Power:	-29.1 kW	Gear Bearing Temp:	59°C
Power Factor:	-24	Gear Oil Temp:	40°C
Voltage:	342.67 V	g Temp:	34°C
Amps:	28.33 A	G Temp:	30°C
Frequency:	60.0 Hz	Ambient Temp:	21°C
		Nacelle Temp:	23°C

Status Code Def: No errors

Yesterday's Statistics:

Average kW:	10.4 kW	Min Power:	0.4 kW
Average Windspeed:	1.3 m/s	Windspeed @ Min Power:	3.1 m/s
Max Power:	284.8 kW	g Production Total:	61476.4 kWh
Windspeed @ Max Power:	8.3 m/s	G Production Total:	507378.3 kWh

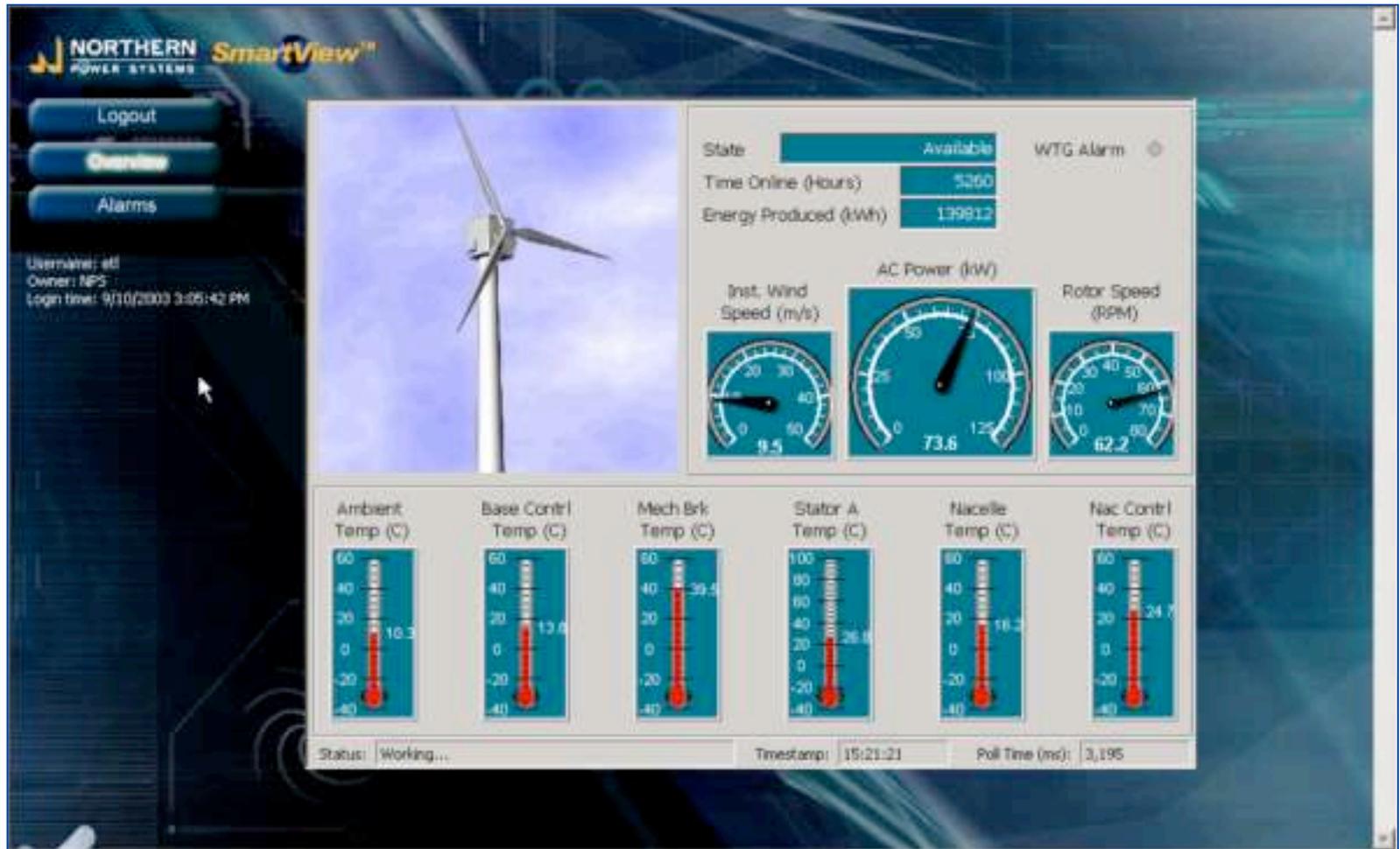
[Data Archive](#) | [Reset Log](#) | [FCI-V.CAM \(Turbine Camera\)](#)

Done

Start Microsoft... FCI-V T... We2p C... CPP F... Internet 7:15 PM

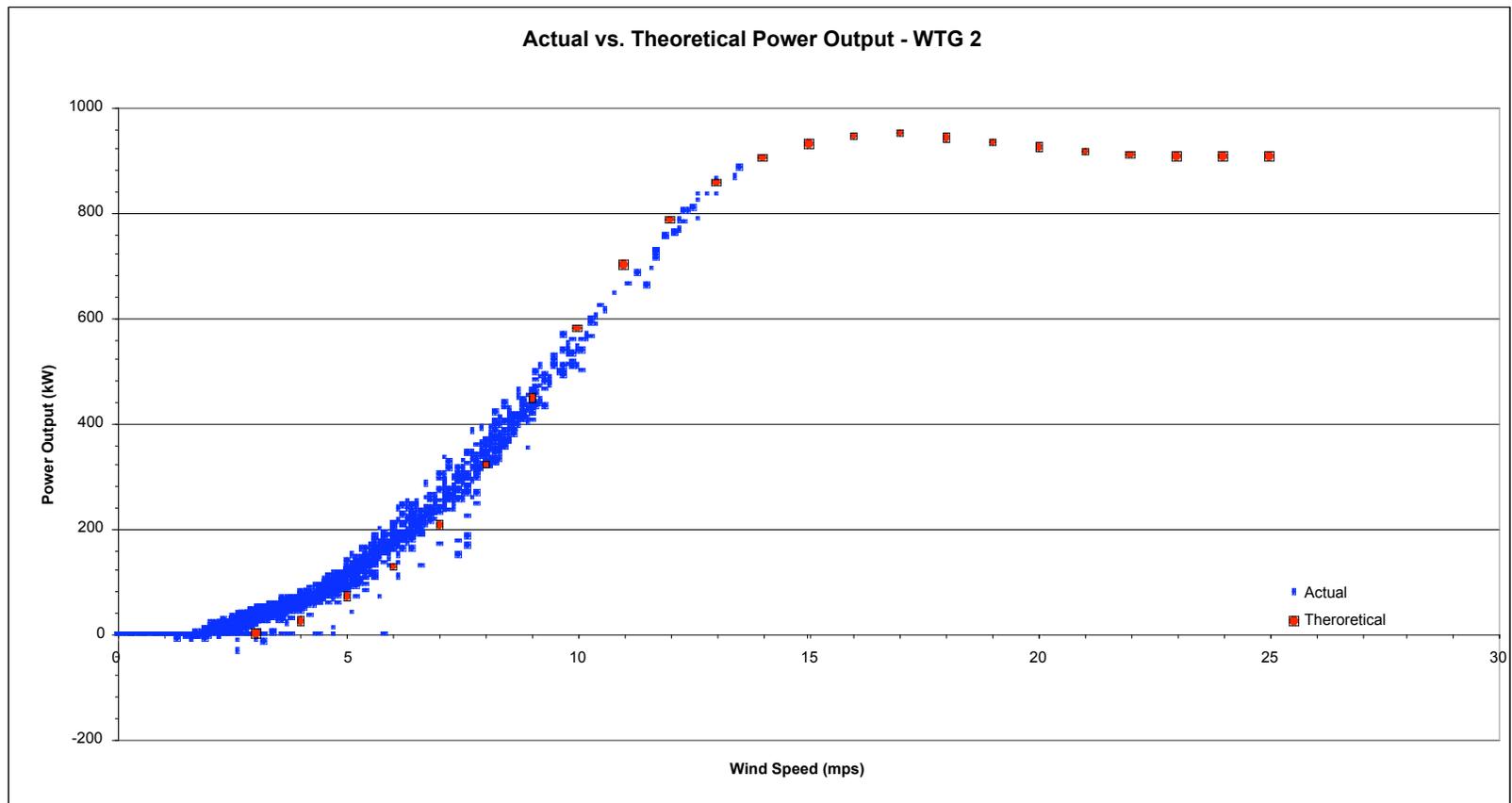


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## **U.S. Navy Base – Guantanamo Bay, Cuba**



**Facility Size:** 5,412,267 sq. ft.  
**Type of Contract:** Navy Caribbean ESPC  
**Term of Contract:** 14 Years  
**Total Capital Cost:** \$26,000,000  
**Total Annual Savings:** \$3,200,000

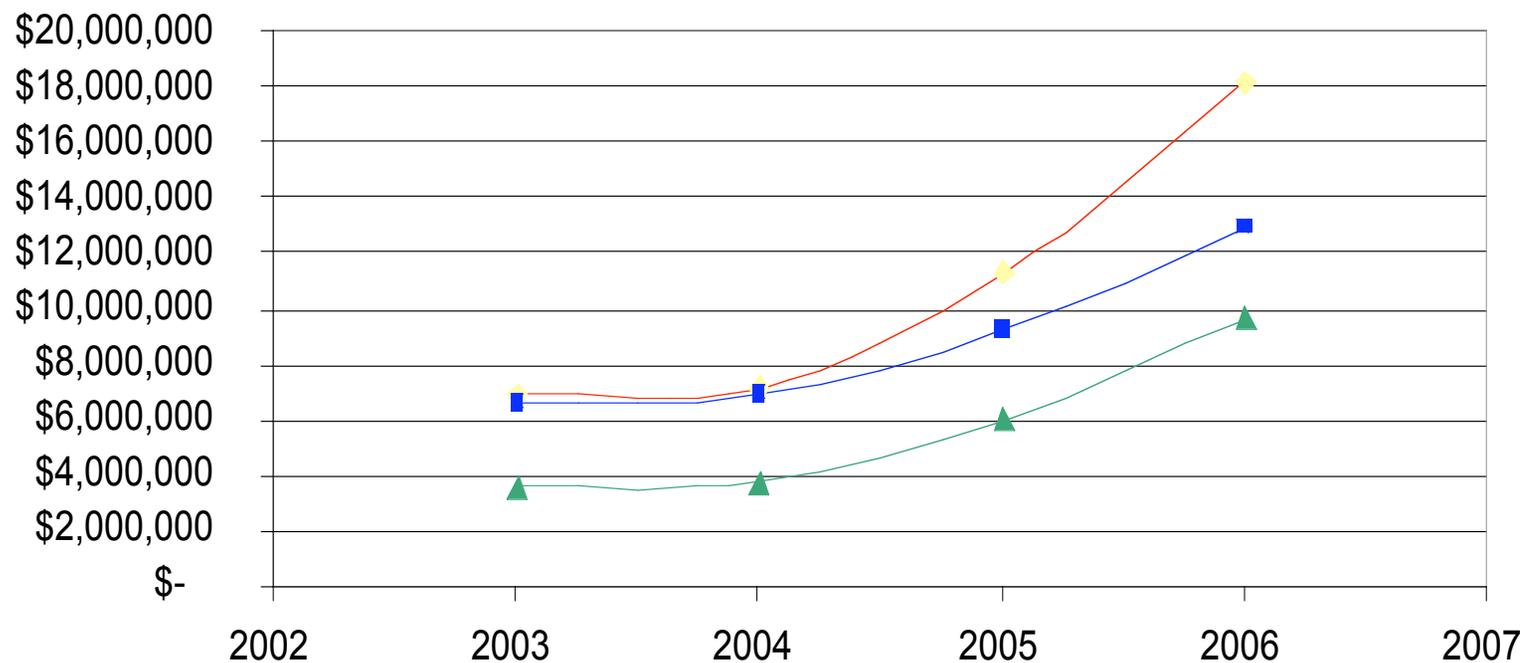
### **Technologies:**

- World's largest wind diesel hybrid system
- 3.8 MW wind turbine project – the largest for the Department of Defense.
- Four – 950 kW wind turbine generators
- Replacement of four MUSE generators
- Energy efficient lighting and water conservation
- This partnership between NORESKO and the Navy will:
  - ✓ Save over 650,000 gallons of fuel
  - ✓ Reduce greenhouse gas emissions by over 13,000,000 pounds per year.



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## Annual Costs - GTMO



◆ Energy with no ESPC     
 ▲ Energy with ESPC  
■ Energy with ESPC + Contractor Payments



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## Navy Region Southwest

NORESCO built **one of the largest federal solar photovoltaic systems** in the nation: a 750 kW solar photovoltaic (PV) covered parking structure along with a 30 kW roof-mounted PV array at Coronado Naval Base.



## FCC Victorville, CA

NORESCO built the **first ESPC project** for the Bureau of Prisons at the Federal Correctional Center, Victorville CA, which includes a 750 kW wind turbine and a covered parking structure covered in solar panels.





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## **Summary**

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- **The use of ESPCs is encouraged by the Federal Government**
- **ESPC is one of the best ways to upgrade infrastructure including **Renewable Power Projects** at Federal facilities while reducing America's dependence on foreign oil**
- **The savings and performance are guaranteed for the term of the contract**