









Wind Turbine Project Overview

- Installed (4) 1 MW wind turbines
- Located 185' towers on John Paul Jones Ridge
- Anchored by steel rods 40' deep into the rock
- Designed for 135 mph wind
- Develops 22 RPM with 140 mph tip speed
- Delivers 5% of annual kwh for the base



Construction Challenges

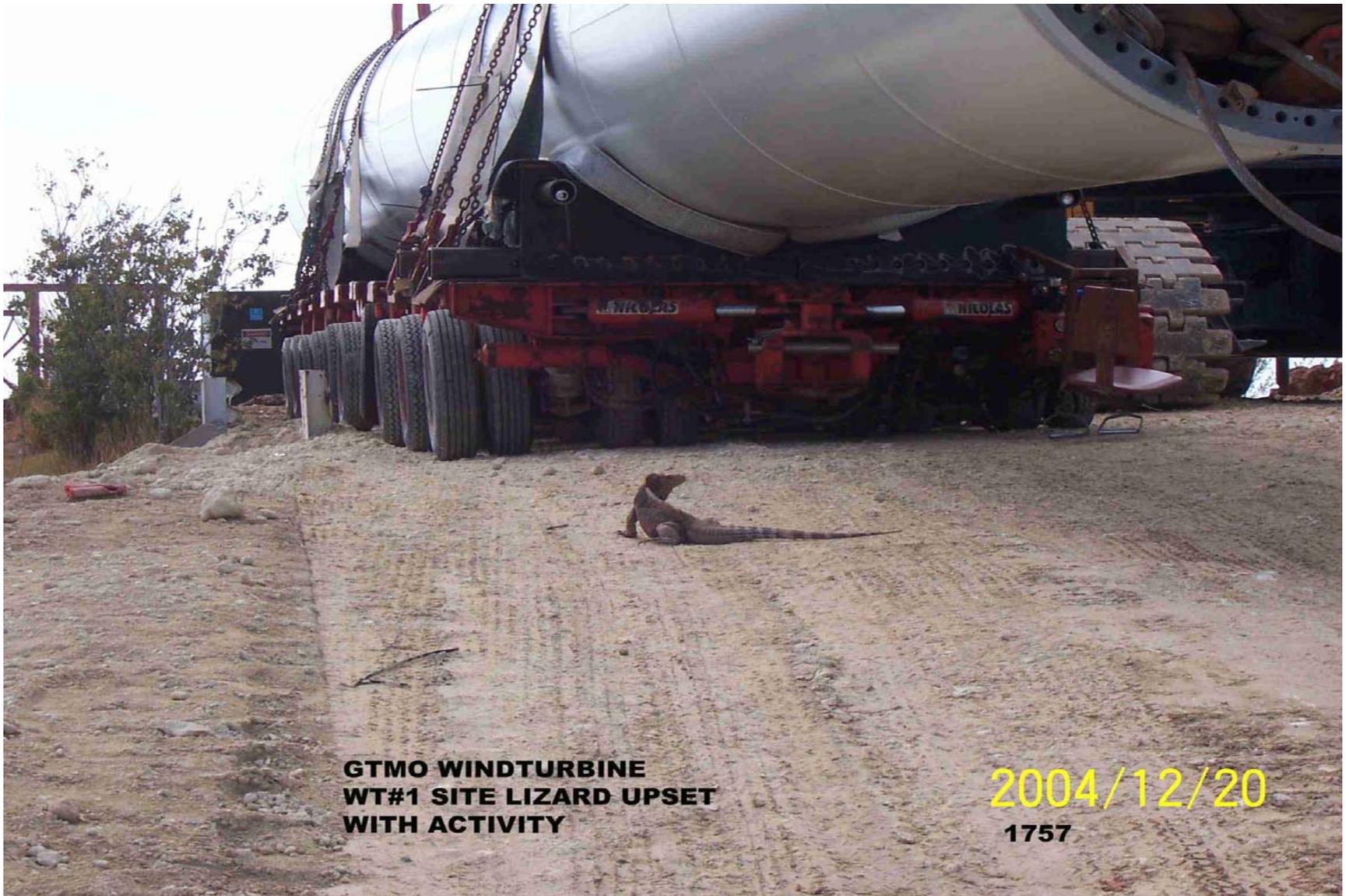
- Transported via ship from Denmark
- Specialty crane and logistics required
- Steep terrain hampered excavation
- Narrow ridges created dangerous conditions
- Hot weather and strong winds limited work
- Work stoppage for environmental concerns



5-11-2004



US Naval Base Guantanamo Bay, Cuba



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

**2004/12/20
1757**























 N-E-G MICON®













Economics

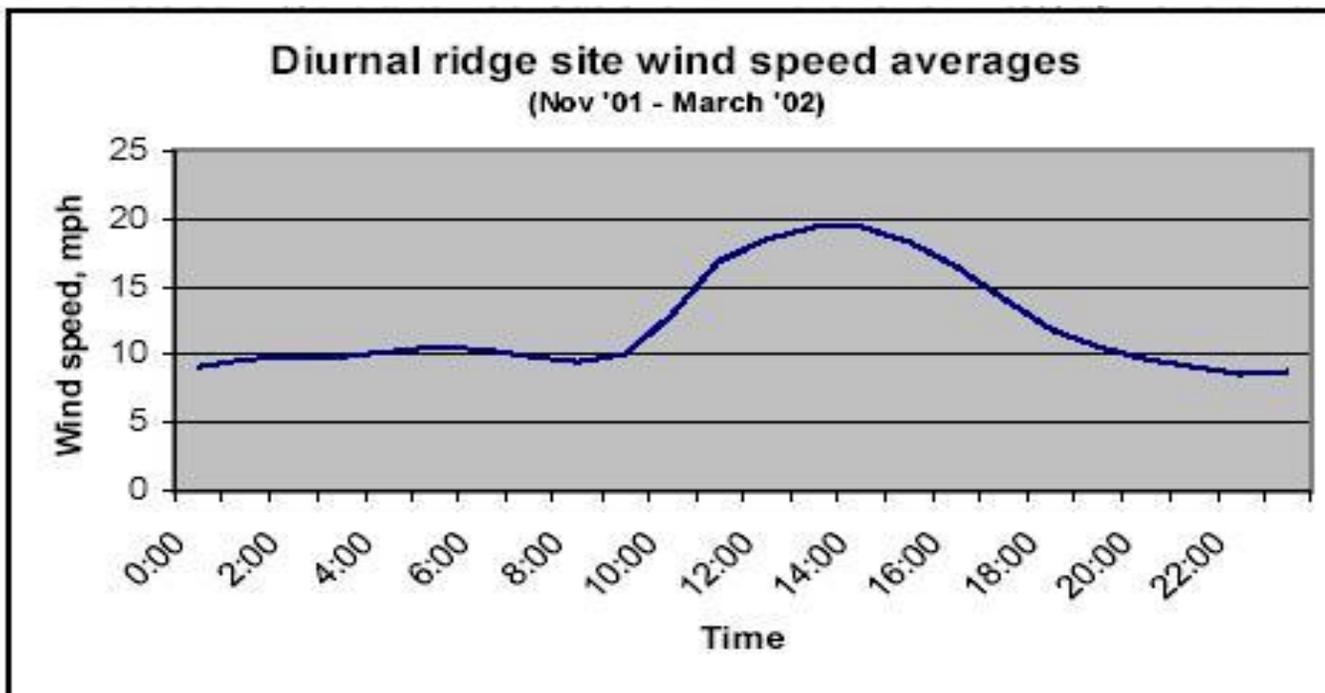
- \$11.8 M construction cost in 2005
- \$1.2 M first year savings
- 650,000 gallons of diesel fuel saved annually
- 13 M lbs. of greenhouse gasses avoided



Benefits of Project

Produces over 7,200,000 kilowatt hours of electricity.

The production from wind tracks closely to the peak needs for electricity at
GTMO





Performance Considerations

- Typical Meteorological Year (TMY)
- Wind data measurements
- Grid stabilization study
- Peak KW output vs. total KWH output
- High wind conditions



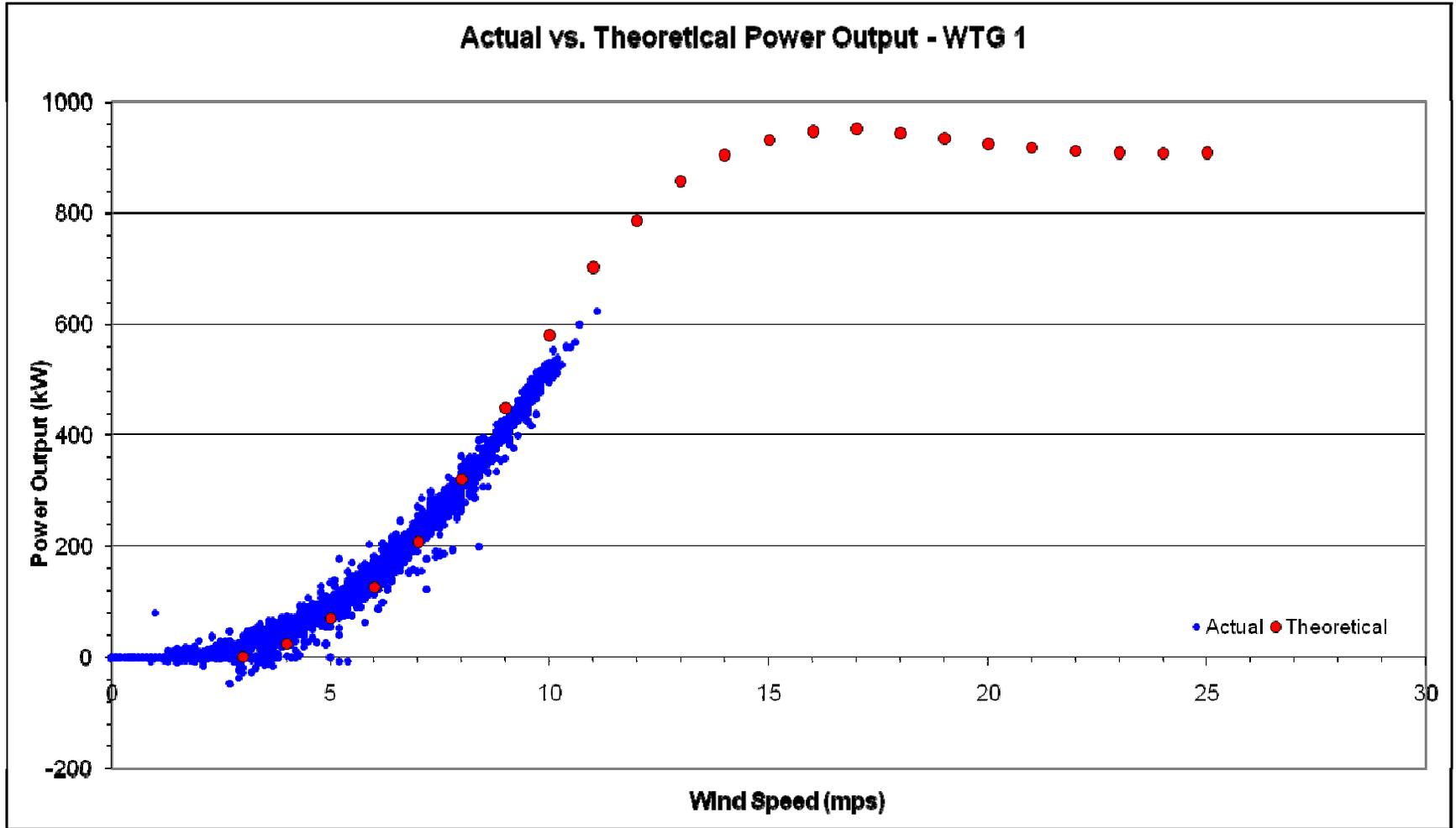
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Hurricane Dennis on July 7, 2005 at 1550 UTC, beginning to pass to the north of Jamaica. Jamaica, eastern Cuba, and Hispaniola are all obscured by the storm.



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Lessons Learned

- Warranty challenge and escrow account
- Spare parts and specialty tools purchase
- Managing expectations
- Communication with remote sites
- Fuel escalation rates

