

AFCEC:

- Manages the Installation Restoration Program at the MMR.
- Constructed nine pump and treat plants to remediate groundwater contamination
- Has implemented a robust optimization program to reduce the carbon footprint and utility cost associated with the treatment systems

FOR MORE INFORMATION:

Douglas Karson
AFCEC Community
Involvement Lead
HQ AFCEE/MMR
322 East Inner Road
Otis ANGB, MA 02542
(508) 968-4678 x2
Cell: (508) 566-6628
douglas.karson@us.af.mil

Rose Forbes, P.E.
Project Manager
AFCEC/MMR
322 East Inner Road
Otis ANGB, MA 02542
(508) 968-4670 x5613
Cell: (210) 324-9495
rose.forbes@us.af.mil

WWW.MMR.ORG

ACRONYMS

ft - feet

GE - General Electric

M - million

MW - Megawatt

MWhr - Megawatt-hour



WHAT IS WIND II AND WHERE IS IT?

Wind II includes two GE 1.5 MW wind turbines and a new substation. The two turbines are located in the northern area of the MMR, over 3000 (ft) from the nearest resident. The wind turbines started operating on 08 Nov 2011.

The wind turbines have an 80 m (262 ft) hub height, a 77 m (253 ft) rotor diameter, and are approximately 119 m (390 ft) tall.

The project is jointly funded by the Air Force and the Army.

Refer to the Oct 2011 Fact Sheet for additional information.

HOW MUCH DOES AFCEC SPEND IN ELECTRICITY?

Electrical costs for the AFCEE program ranged from \$2 million in 2009 to \$1.6 million in 2012. The GE wind turbines were projected to generate 7620 MWhrs annually (29% capacity factor) and offset the utility costs by 50%-60%. In addition, the wind turbines were expected to reduce the air emissions associated with the fossil fuel power supply for the treatment systems by the same range of 50%-60%.

HOW MUCH ENERGY AND CREDIT HAS BEEN GENERATED BY WIND II TO DATE?

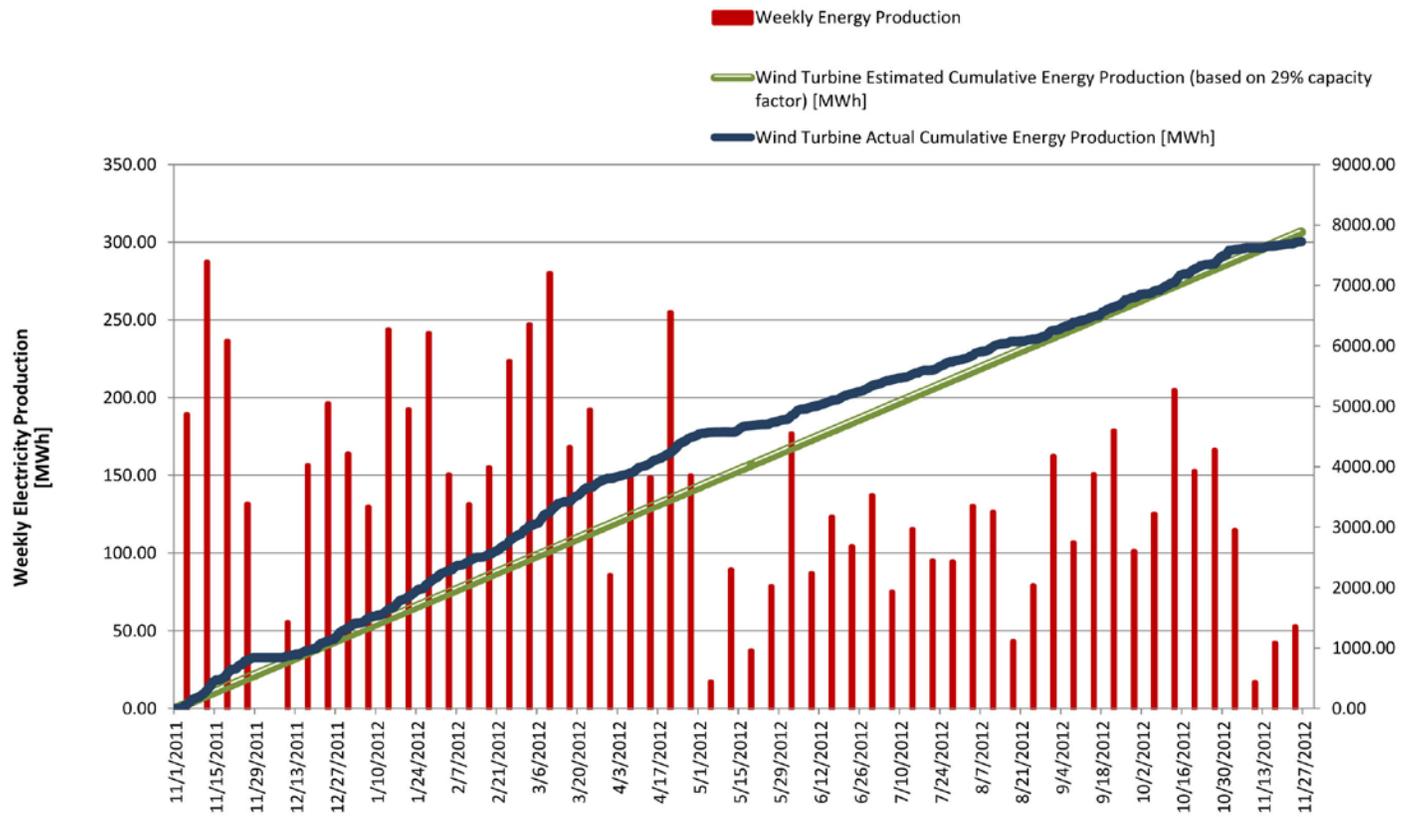
Since startup on 08 November 2011 through 26 November 2012, the wind turbines have generated 8183 MWhrs, resulting in a credit of \$923,133.

HOW DOES THE PERFORMANCE COMPARE WITH EXPECTATIONS?

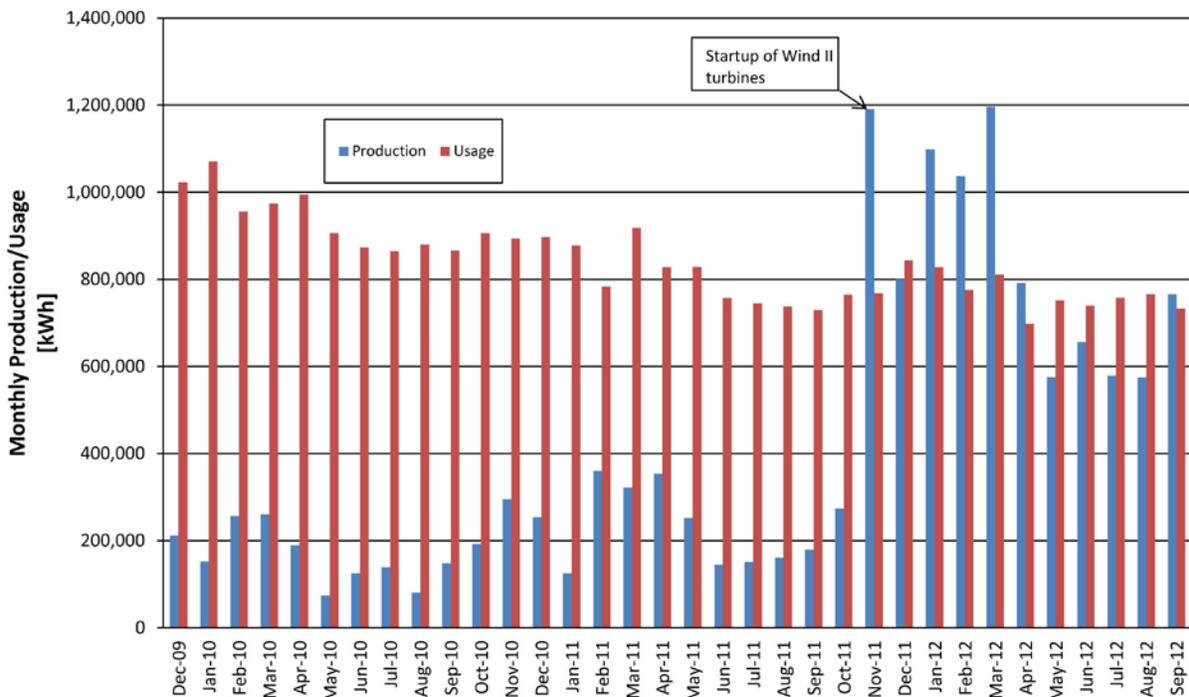
The GE wind turbines have performed as expected. Based on a 29% capacity factor, the wind turbines were projected to produce 7620 MWhrs annually. Actual production over a one year timeframe, from startup on 08 Nov 2011 through 07 Nov 2012, was 7645 MWhrs. The operation of the wind turbine offset carbon dioxide emissions by 5007 tons.

The GE wind turbines would have performed better than expected over the year; however, there were a few incidences that impacted performance. The wind turbines were shut down by NSTAR for two weeks in December 2011 for work they were doing on their transmission line. A few minor mechanical problems and outages caused by electrical storms shut the turbines down for a few extra days during the year. GE's 24/7 monitoring of the wind turbines and their immediate response to problems has reduced the impacts on performance.

The first figure below reports the monthly energy production and compares the actual cumulative energy production against expectations. The second figure compares the energy used in the AFCEC remediation program against the energy produced by the Wind I and Wind turbines.



MMR Wind Turbine Production vs. Remediation Project Usage
Since Wind I Startup



kWh = kilowatt-hours