

## Where we are at the end of 2012

On New Year's Eve, the four Georgia Mountain Community Wind ("GMCW") 2.5 MW wind turbines were generating power from the wind resource flowing across Georgia Mountain and sending electricity to Burlington's First Night celebration. The year-end achievement was acknowledged by Burlington Electric Department ("BED"), the purchaser of the plant's output, Green Mountain Power ("GMP"), the interconnecting electric utility, and ISO-New England, the regional grid operator, when all recognized December 31, 2012 as the first day of commercial operation.

## Here's how it all came together

Atop Georgia Mountain's 1440' elevation, skilled crews mounted an intense, dedicated effort through the cold and windy conditions of December to complete the plant by year-end.



*Turbine 3 rotor being assembled late in the afternoon of December 6, 2012.*

Once the crane work was done, 'Mechanical Completion' was the next step toward operation. This involved installing buckets, platform supports, wiring, lifts, power converters, meteorological sensors, FAA lighting atop the nacelles, cooling radiators, and other accessory equipment in and at the base of each wind turbine.

Once completed, 'Electrical Commissioning' could begin. This involved testing the power converter and electronic control systems within the base of each wind turbine. During the first week of December, completing and testing the mechanical and electrical sub-assemblies in the bases of a couple of the turbines occurred, while the last rotor was lifted to the generator of Turbine 3 early in the morning on Saturday December 8th. Completion of the heavy lifting work kicked off Cianbro's and JA McDonald's demobilization of the large crane and heavy equipment off the mountain before real adverse winter weather arrived. Alone, the Manitowoc 16000 crane required disassembly and 20 +/-



*From North Road in late December, GMCW are readying for operation.*

Cianbro Corporation, the balance of plant contractor, Goldwind America, the wind turbine supplier, and electrical crews from GMP, RLC Electrical Engineers and 3-Phase Line Construction, and others completed the remaining tasks that enabled the GMCW wind turbine to produce and deliver electricity to BED.

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tractor trailer loads to transport it offsite. By the middle of the month the site was tidied up for winter, including removal of shipping containers, turbine component rigging and other installation equipment. With most construction equipment gone, technicians focused their attention inside the turbines to complete the mechanical and electrical testing phases.

In parallel with the internal turbine work and in preparation for producing the first power, all electrical systems and communications systems required testing, inspecting, and



*Newly commissioned wind turbines enjoy flexing their "wings" in the breeze on New Year's Day.*



*Lifting a rotor requires relatively low winds – a rare occurrence on Georgia Mountain in the winter.*

commissioning. This included the 34 kV collection system from the wind turbines down to North Road and the associated switch-gear at the interconnection point. The SCADA (Supervisory Control And Data Acquisition) system that communicates meteorological data and provides remote wind turbine performance monitoring were tested. As well, GMP went through similar processes on its new transmission and communications equipment in order to receive and meter the power. By mid-December local and regional transmission utilities issued the “okay to generate” and the pad-mount transformers were energized in mid-December. The first “test power” was produced 12/19/12.



*Martha Staskus, Jim Harrison and David Blittersdorf watch a turbine’s operation from the control monitor inside the base of T4.*

***The technology performs well***

GMCW’s Goldwind turbines use sophisticated, cutting edge technology within the electrical and mechanical systems. This enables the wind turbines’ rotor blades to rotate at variable speeds, reducing structural and mechanical loads, while delivering steady Alternating Current (AC) to the electrical grid, all without the use of a gearbox. The wind turbines’ permanent magnet AC generators output is converted to Direct Current (DC), and then back to AC at a constant frequency by converters located in the tower bases. Using this direct drive, permanent magnet generator technology, performance is improved and maintenance needs lowered. Simply, this results from lower loads and fewer moving internal parts compared to turbines with standard generators and gearboxes.

***Outreach planning***

While this electric generation plant is not open to the public, several groups’ and individuals’ requests to visit the site have and are being accommodated, and plans are underway to welcome more visitors. The Milton Independent announced Chad Abramovich, from Milton, as the winner of its GMCW Photo Contest. Congratulations to Chad for his beautiful capture of the wind turbines during construction. GMCW looks forward to awarding Chad with his *Tour of the Turbines*.



*Georgia schools STEM Coordinator, JoAnn Harvey, left, visited the site with two parents to gather answers for student-prepared questions.*

***Questions and contact . . .***

GMCW’s 10 megawatt wind generation project is locally owned and developed and is providing long-term, clean electricity along with economic and environmental benefits to Vermonters. The project uses land owned by the Harrison Family of Georgia and Green Crow Corp., a timber products company locally based in Waterbury, VT. The 4-wind turbine, renewable energy project harnesses the power of the winds flowing across the Champlain Valley with two turbines in Milton and two in Georgia and generates the annual electric usage of approximately 4,200 average Vermont households. GMCW is the first commercial-scale wind project in Chittenden & Franklin Counties. The Burlington Electric Department is using its electrical output and environmental attributes.



*Photo courtesy of Chad Abramovich and Milton Independent*

The GMCW Information Line (802-242-1476) remains available, providing 24/7 message access to key project personnel. Project owners, David Blittersdorf and The Harrison Family, along with the project team, thank the neighbors and surrounding businesses for welcoming us to the community. We look forward to being a good neighbor and actively participating in the community.

Martha Staskus, GMCW Project Manager, Northeast Wind