

# **Sonic Detection and Ranging (SODAR) Data Collection and Evaluation Report**

Penn Virginia Resource Partners and Eagle Land Holding Company

Republic Energy Surface Mine Operations

Kayford Mountain Area, Raleigh County, West Virginia

(Data Evaluation Period: March 4, 2011 to April 18, 2012)

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Site Photos

*SecondWind* Site Information Form and Checklist

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## **1.0 Introduction**

Marshall University's Center for Environmental, Geotechnical and Applied Sciences (CEGAS) has partnered with the West Virginia Division of Energy to perform initial screening and wind resource data collection to assess wind energy development opportunities at selected surface mine properties in West Virginia using Sonic Detection and Ranging (SODAR) technologies. This report has been compiled with assistance from Marshall University's Center for Business and Economic Research (CBER), with funding for this study provided under joint partnership from the Appalachian Regional Commission and the West Virginia Division of Energy.

### **1.1 Project Location and Site Conditions**

The site is located at the Republic Energy surface mine complex, located in the Kayford Mountain area of Raleigh County, approximately 3 miles West of the community of Kingston and the WV Turnpike (Interstate 64 and 77). The area was accessed using Kayford Mountain Road, then using the Republic Mining haul road. The site includes several thousand acres or existing and reclaimed surface mine lands. The SODAR was placed on a reclaimed ridgeline at Latitude 37.96839, Longitude -81.34753, at an elevation of 2,861 feet (872 meters) above mean sea level. This area is along a network of ridgelines, part of large reclaimed surface mine area, with active surface mine operations located generally west, northwest and northeast. A general site location map is provided in Appendix A.

The immediately surrounding area consists of reclaimed surface mine property. Minimal ground vegetation is present, and much of the immediate area is in the early stages of reclamation. An access road and electric power lines are located generally north of the SODAR location, with minimal traffic and/or related noise from surface mine operations that would affect SODAR data collection. Reclamation activities are ongoing in the immediate area. Republic Mining's maintenance and office facilities are located to the immediate north.

The main property owner of reclaimed, current and future tracts of the Republic mining complex is Penn Virginia Resource Partners with smaller tracts owned by various landowners. The tract where the SODAR was located is owned by Eagle Land Holding Company.

### **1.2 Data Collection Description**

Wind resource data was collected using a Triton™ Sonic Wind Profiler, manufactured by SecondWind, utilizing SODAR technology. Data collection occurred during the period of March 4, 2011 to April 18, 2012. Photos showing the Triton unit and surrounding area are included in Appendix A.

