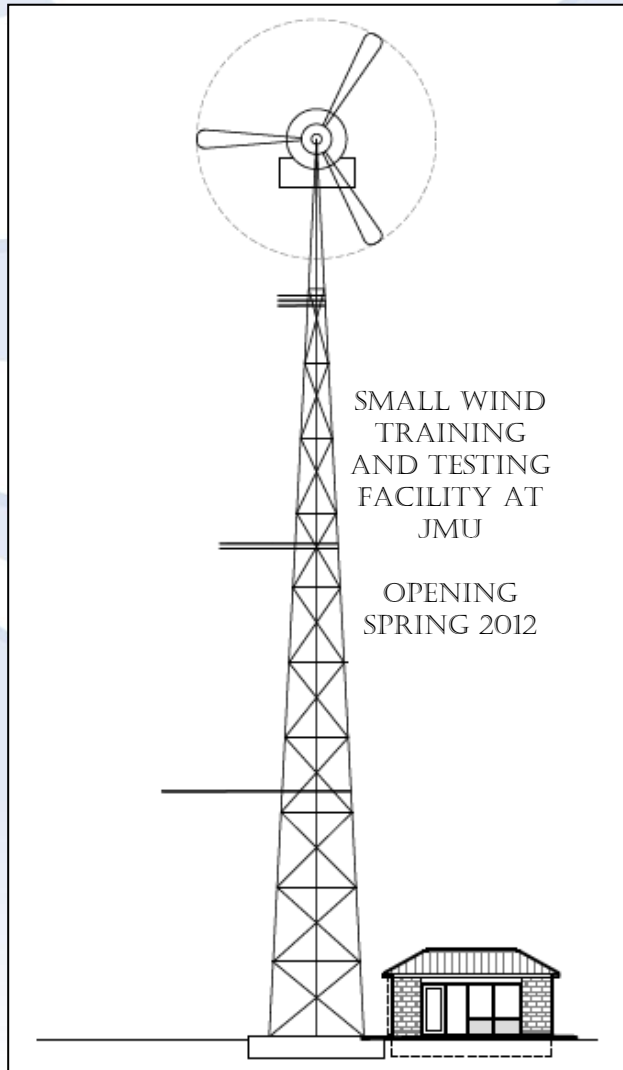


SMALL WIND TRAINING AND TESTING FACILITY



Small Wind Training and Testing Facility



- Under the leadership of President Linwood Rose, JMU has demonstrated a long-term commitment to advancing more sustainable practices at all levels – local, state, national, and international. The expansion of wind efforts at JMU to support the creation of jobs that will be critical to the successful deployment of wind power on land and offshore in Virginia is consistent with this commitment.
- The *Small Wind Training and Testing Facility* (SWTTF) will serve a range of purposes and needs associated with the development of a workforce in Virginia that is appropriately trained to advance the development and deployment of wind power in the Commonwealth.
- At the 2010 Virginia Statewide Wind Symposium at JMU, Lt. Governor Bolling announced an award of \$800,000 to JMU to design and construct the SWTTF. This is matched by nearly \$250,000 by JMU.



JMU Campus Map



Small Wind Training and Testing Facility



TRAINING

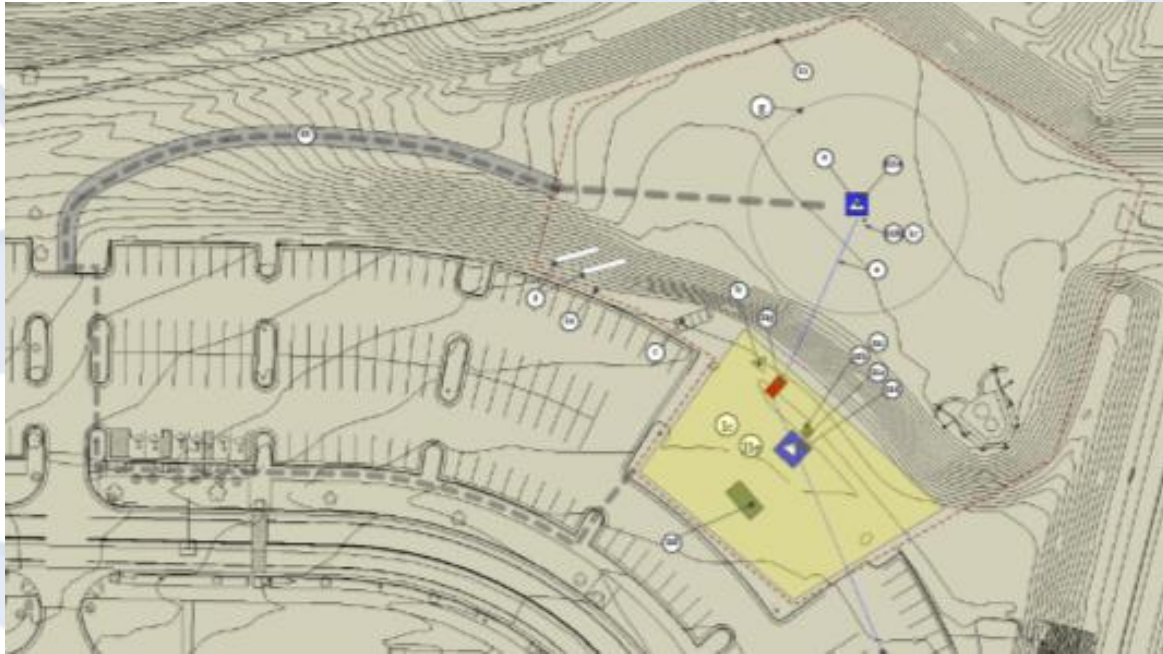
- Provides resource unique to the region
- Train future workforce for small wind industry
- Provide hands-on, experiential curriculum for all education levels (K12, 2-yr, 4-yr)
- Engage professionals who seek to enter the wind energy field

TESTING

- Power performance verification, prototype “shakedown” testing, research & improvements on existing technologies
- Robust met monitoring and wind assessment capability plus WeatherBug Professional to serve campus at large
- Turbine testing programs to be developed and led by interdisciplinary student team with faculty supervision



Small Wind Training and Testing Facility



EQUIPMENT AND CAPABILITIES

- Rohn 120-ft lattice tower topped with Bergey XL-R 7.5-kW turbine
- System hybridized with 2 kW of solar PV
- Interior and exterior lighting is hi-efficiency LED
- RE systems can operate in either grid-tied or stand-alone (coupled with battery bank) manner



Instrumentation at the SWTTF

- The SWTTF will be equipped with a robust suite of measuring/monitoring equipment
 - suite of 6 anemometers, 4 wind vanes, and 2 3-D sonic sensors installed at three elevations coupled to DAQ
 - WeatherBug Professional system



Training at the SWTTF

- The *Small Wind Training and Testing Facility* at JMU will provide the primary resource in Virginia for training developers and installers of small wind power projects and others from other trades who support such efforts. JMU is formalizing a curriculum package in conjunction with SED, Inc. of Rochester, NY that will offer the following units:
 - Business Planning
 - Technical Sales
 - Technology Selection
 - Permitting
 - System Design
 - Construction
 - Operations & Maintenance
- Inherent in these units are consideration for small wind ***safety, site assessment, installation, and troubleshooting.***



Testing at the SWTTF

- The *Small Wind Training and Testing Facility* at JMU will emulate, on a small scale, the National Wind Technology Center in Boulder, Colorado which represents the wind research arm of the U.S. DOE's National Renewable Energy Laboratory (NREL).
- The SWTTF will provide an independent testing capability in the region. The nearest small wind testing facility to JMU is situated at Appalachian State University in Boone, North Carolina. Virginia does not at present offer a capability for testing of small wind turbines; however, such a facility will be very useful to characterize and field-test new technologies, attract small wind manufacturing to Virginia, and to provide to students at four-year, two-year, and K-12 levels as well as the established and developing installer base the opportunity to learn the skills associated with testing of wind power technologies.

