OVERVIEW
The Virginia Center for Wind Energy at James Madison University (VCWE@JMU) recognizes the need to provide education for students on wind energy and other alternative energies. We aim to provide access to wind energy education resources for educators in order to ensure the future leaders of the wind industry are learning about energy using hands on activities. We have compiled activities from many curricula and sources to provide an array of resources to teach Science, Technology, Engineering, and Math (STEM) concepts to address the required Standards of Learning (SOL) using the real world issue of renewable energy.

RESOURCES
ACTIVITIES AND LESSON PLANS
We provide activities and lesson plans from online curricula or other online sources and make them available on our website (http://aeer.cisat.jmu.edu) in one location. These activities and lesson plans cover the following topics:

- GIS/GPS and Maps
- Nature of Science
- Energy conservation
- Alternative Energy Sources (wind, currents, solar, waves and biodiesel coming soon)

Map data is available on the website for GIS extensions to all wind activities.

ONLINE CURRICULA
We offer a one-stop shop to access various FREE online curricula related to energy, such as National Energy Education Development (NEED), Wind Wise Education, Facing the Future, Kilowatt Ours, Project Learning Tree, NOAA Education, and the GLOBE Program.

WEBQUESTS
We have created a wind energy webquest that is available on our website. This webquest is in the process of being updated with current information, so stay tuned! We also had a JMU student create a Climate Change webquest last semester and it should be online soon. Check back frequently as we will be creating more webquests on related energy topics. If you have an idea for a topic please contact us!

PRESENTATIONS
Through our various education and outreach events we have created many presentations on wind energy – from very basic overviews of wind energy in Virginia to presentations about specific programs or aspects of wind energy. Many of these presentations are available on our website for educators to use in the classroom.

SERVICES
CLASSROOM VISITS
We offer visits to classrooms around Virginia to teach students about wind energy. We have a variety of activities that we can bring and topics we can cover. All of the kits in the Lending Library are available to bring to the classroom and custom activities can be created. Our most popular activity is our Wind Turbine Design Challenge where students design, build, and test their own wind turbine blades on our model wind turbine. We can also speak to a number of topics from wind energy in general, to energy conservation, and any specific topic that you may request. Please email us to request a classroom visit and we will work with you to create an agenda for the day/class that works for you. You may be asked to help provide materials for any activity requested.

CAMPUS VISITS AND TOURS
We also invite schools to come and visit our campus to learn about alternative energy. We have a solar array and are in the process of constructing a new Small Wind Training and Testing Facility (SWTTF) with two wind turbines. While on campus students will have an opportunity to tour our facilities and can participate in wind and solar activities to learn more about alternative energy. Please email us to request a visit and we will work with you to create an agenda for the day that works for you.
TEACHER TRAINING
We offer a myriad of teacher training workshops throughout the year. Topics include NEED Wind Energy, WindWise, Energy Conservation - Kilowatt Ours, GLOBE, and GPS/GIS. Not all of these trainings are free of charge, but some are. Pricing will be discussed when you contact us or in any informational emails we send out. Most teacher trainings are eligible for CEU credits through JMU's Office of Outreach and Engagement. Email us to get on our mailing list to hear about upcoming training workshops.

MUSEUM EVENTS AND EXHIBITS
VCWE@JMU works with many museums and informal science education institutions around the state to help them incorporate wind energy education. We have participated in many special events and have set up displays about wind energy in Virginia. We can also set up mini-workshops for visitors to participate in at your request.

We also encourage museums and informal science education institutions to develop permanent exhibits about energy conservation and alternative energy, with wind energy being a focus. Installing a wind turbine at the museum is a great way to educate the community about wind energy and provides a great source of hands-on and place-based education for kids with access to real-time wind and energy data.

Please email us to request a museum visit or to plan a special event on alternative or wind energy or to begin developing an alternative or wind energy exhibit.

SMALL WIND TURBINE INSTALLATION ASSISTANCE
As the administrator of the Virginia Wind for Schools program, VCWE@JMU offers assistance to 3-4 Host Schools each year in developing and installing a small wind project on their campus. There is an application process by which schools are selected as Host Schools each year. Applications are due in March. For more details about the Virginia Wind for Schools program and the application process, please visit our website (http://aeer.cisat.jmu.edu/wfs.html).

VIRGINIA KIDWIND CHALLENGE
Starting this year, VCWE@JMU will be hosting a statewide challenge for middle and high school students. Teams will design wind turbines and compete to generate the most electricity and to impress the judges with their design process. The next competition will be held on May 16, 2012 at JMU. For more information on the Challenge and registration, please see our website at http://aeer.cisat.jmu.edu/challenge.html.

LENDING LIBRARY
We offer a library of educational resources for educators to borrow for use in their classroom. This is a FREE resource but there are limitations. The borrower must pick up the kit (no shipping) and must replenish any consumable materials. If anything is broken or not replaced the $25 deposit will not be refunded. Items for lending include:

- Educational Resource Library (story and activity books)
- Energy Conservation kits
- Measuring the Wind kits
- Understanding Wind Turbines kits
- NEED Wind Energy kits (available at additional locations around the state)

See our website for a complete list of all kits available and contact us to request a kit.

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