

2ND ANNUAL MASON ENERGY SYMPOSIUM ENERGY-WATER NEXUS



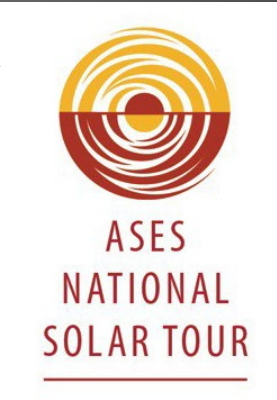
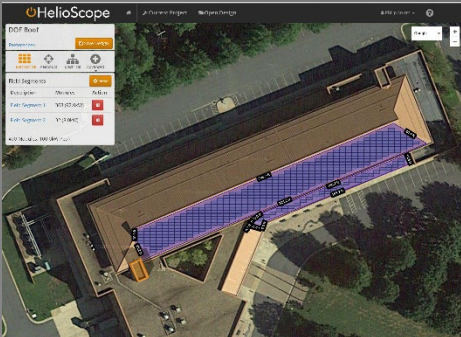
LAND-BASED WIND

Wind Energy Panel
April 26, 2018

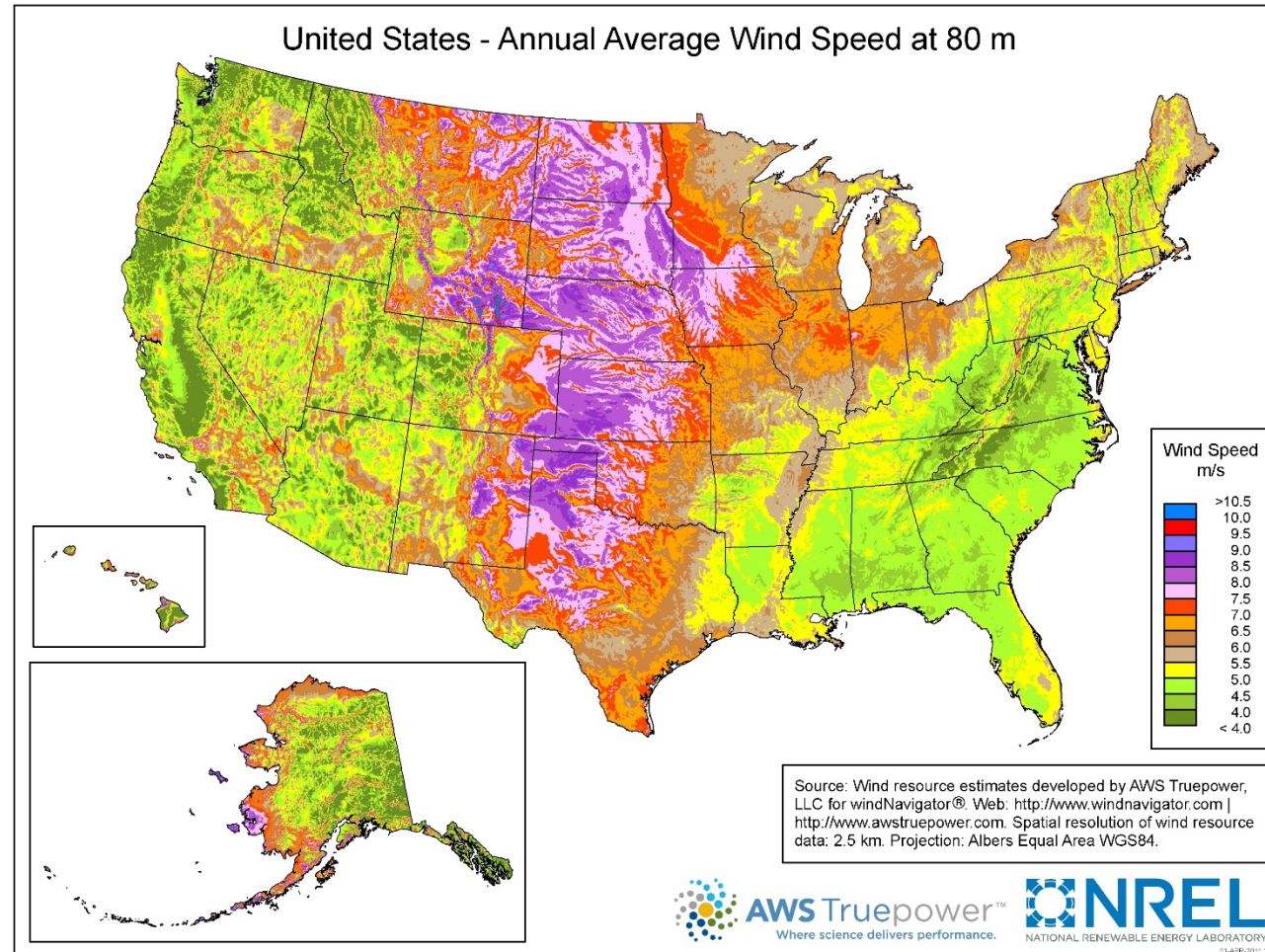
Remy Pangle
Center for Wind Energy at JMU



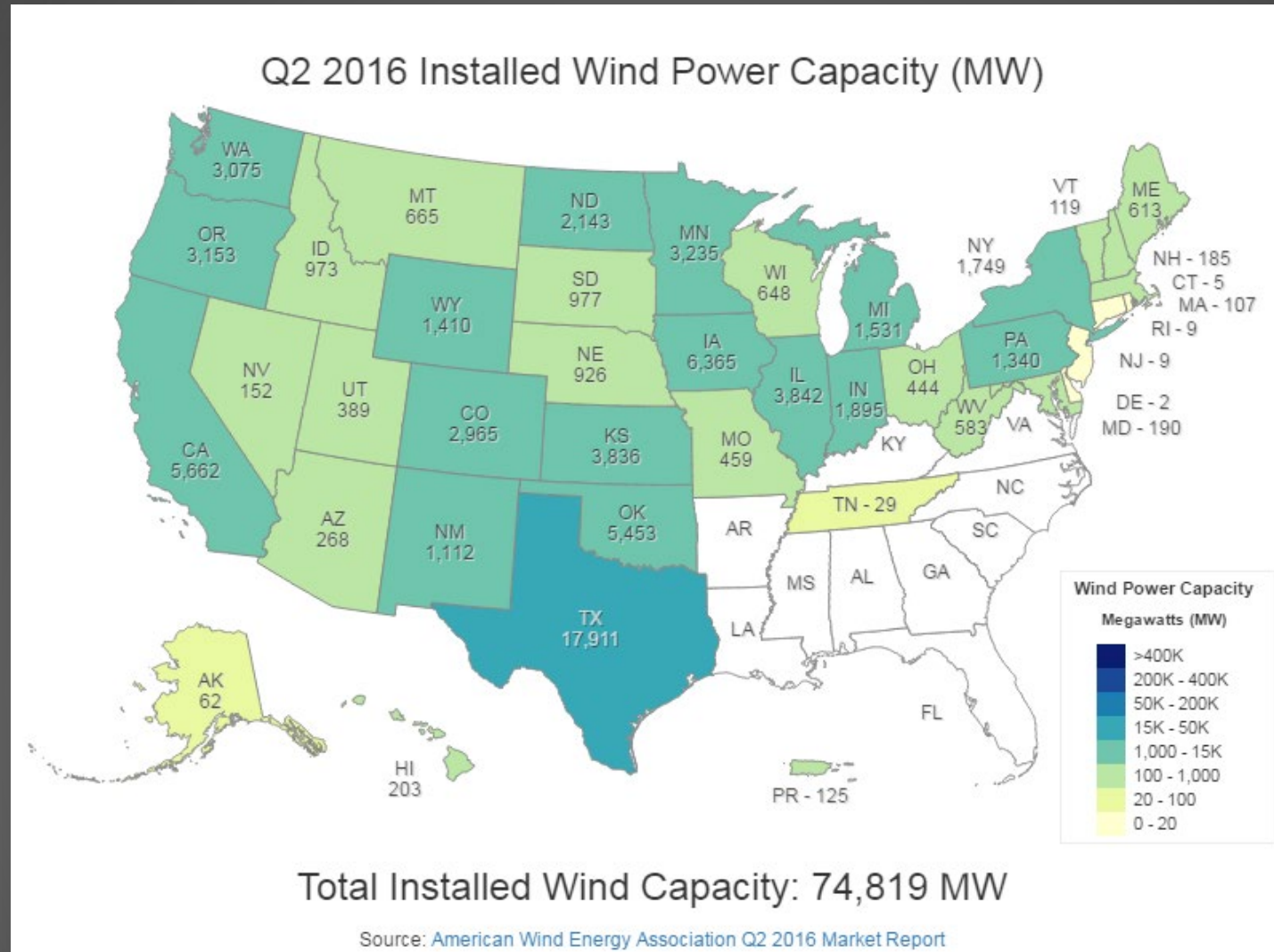
JAMES MADISON UNIVERSITY



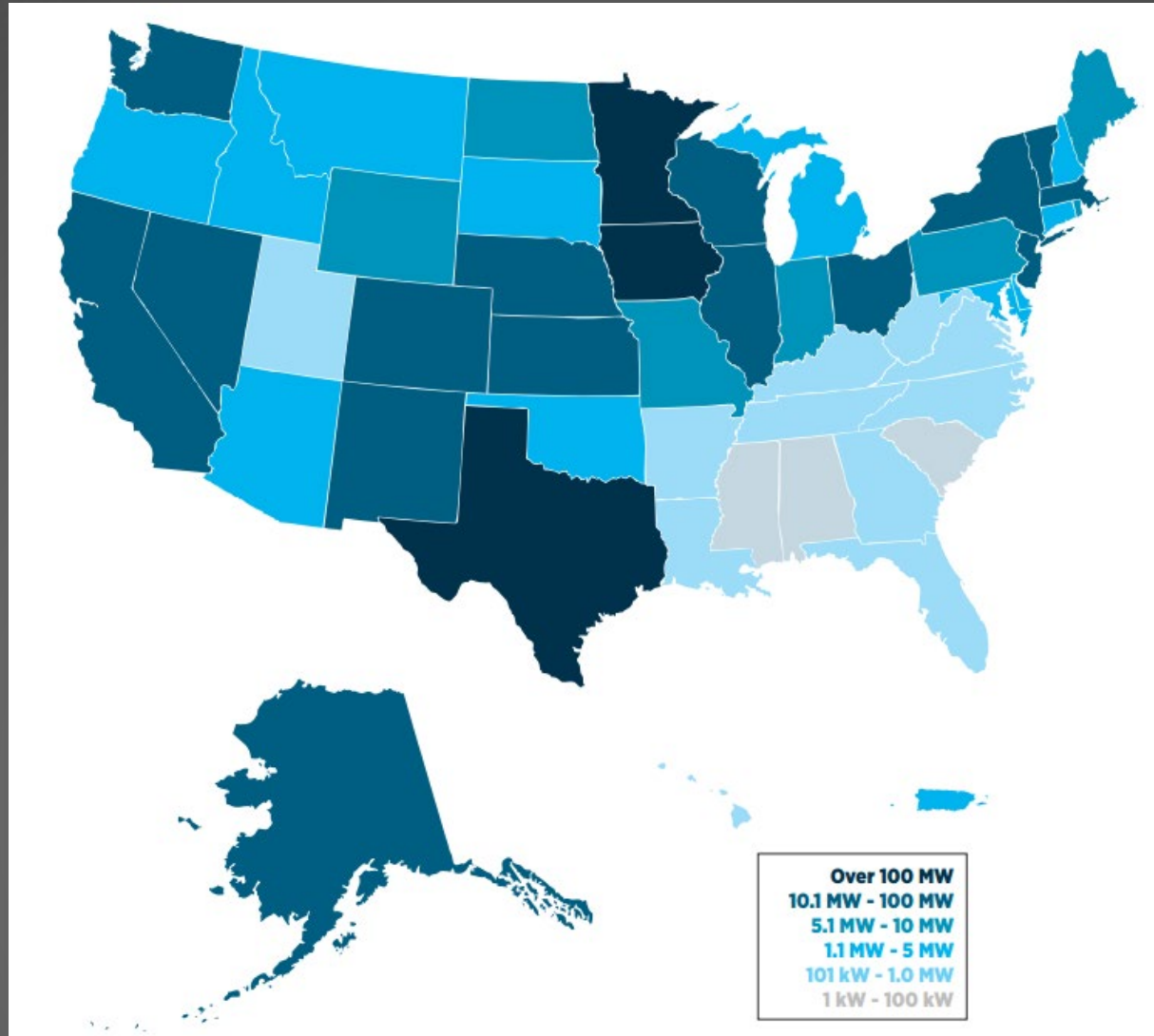
THE US HAS LOTS OF WIND ENERGY POTENTIAL



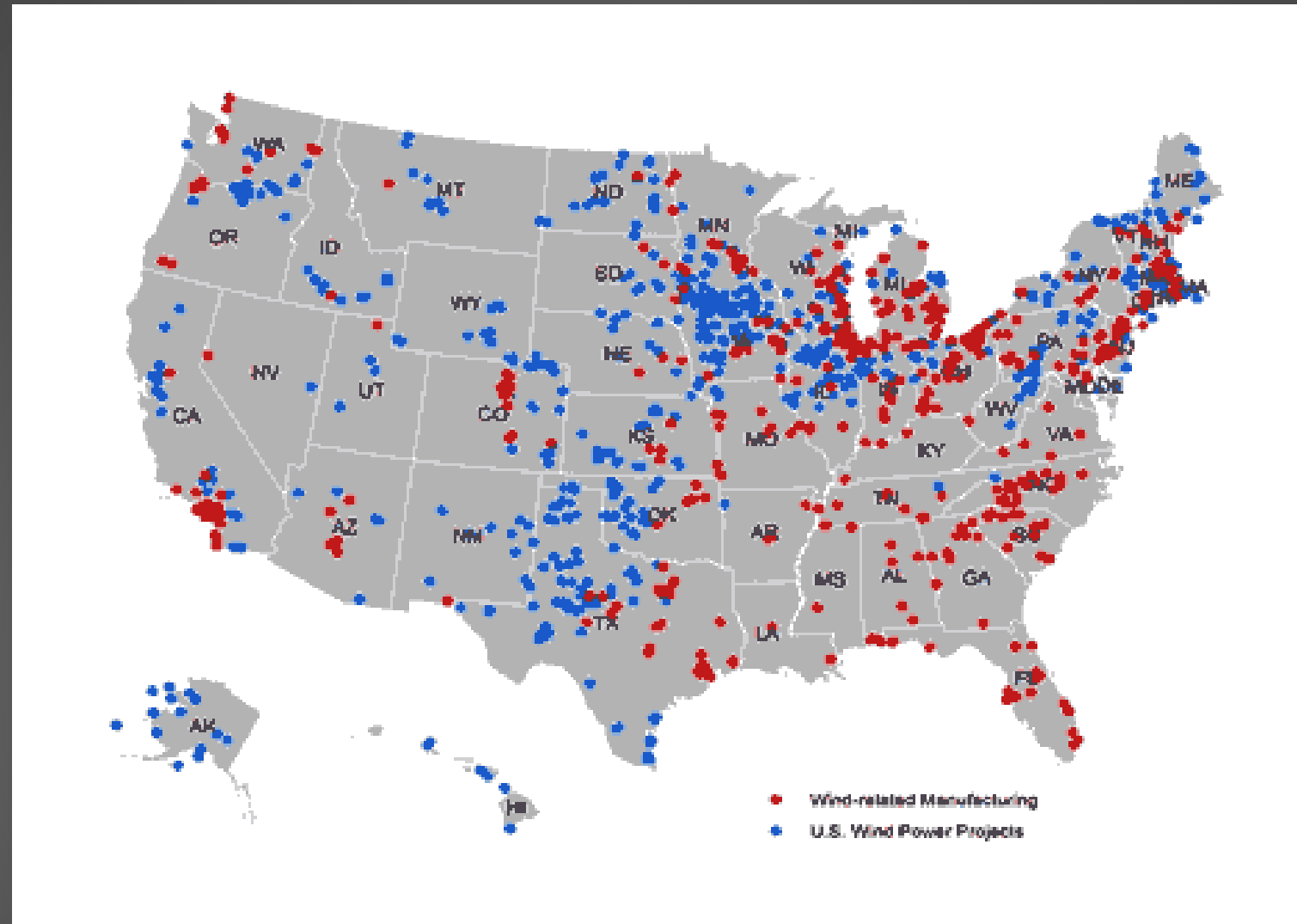
5.5% OF THE US' ELECTRICITY IS FROM WIND



SOME OF THAT IS SMALLER TURBINES

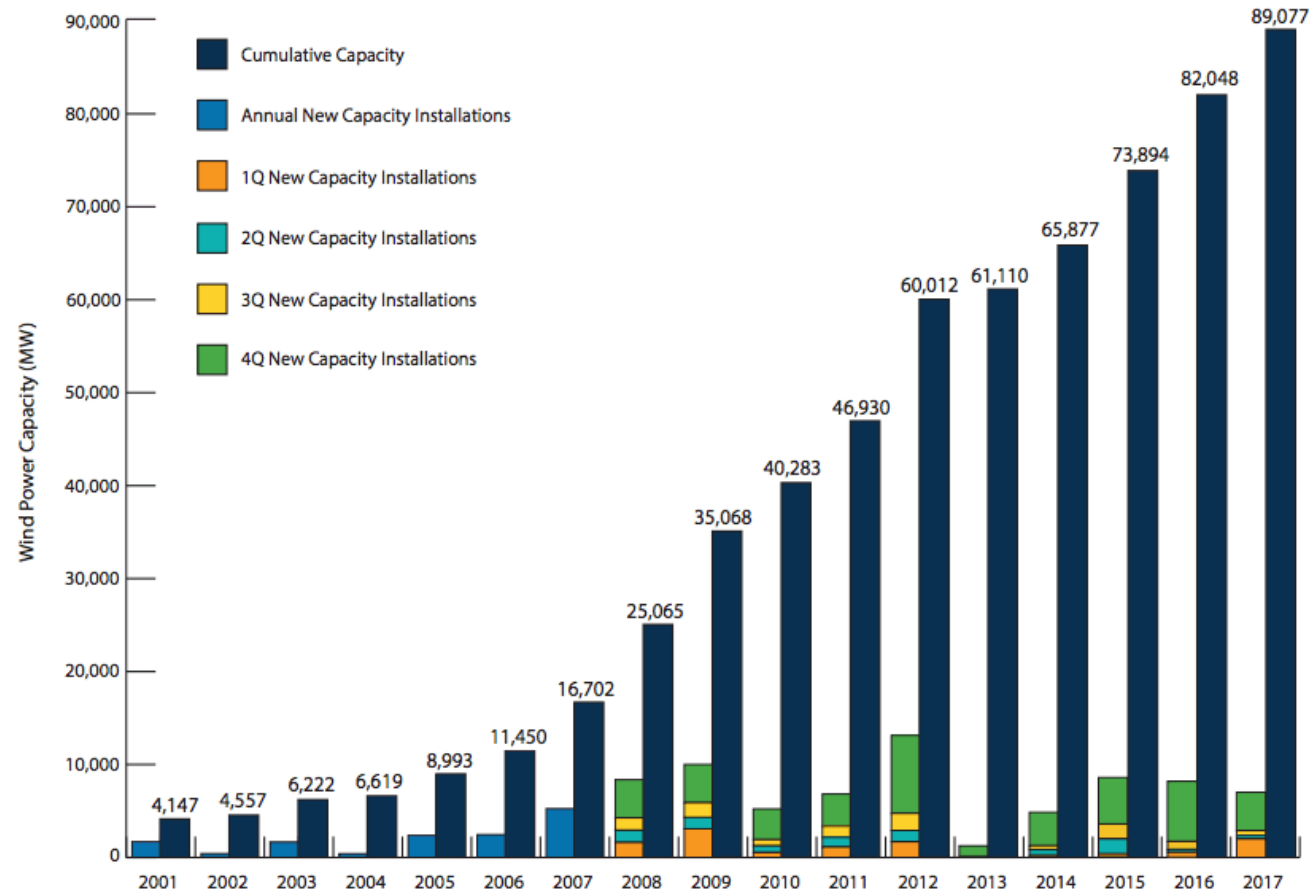


WIND FARMS HAVE A LARGE SUPPLY CHAIN



THE WIND INDUSTRY IS GROWING STEADILY

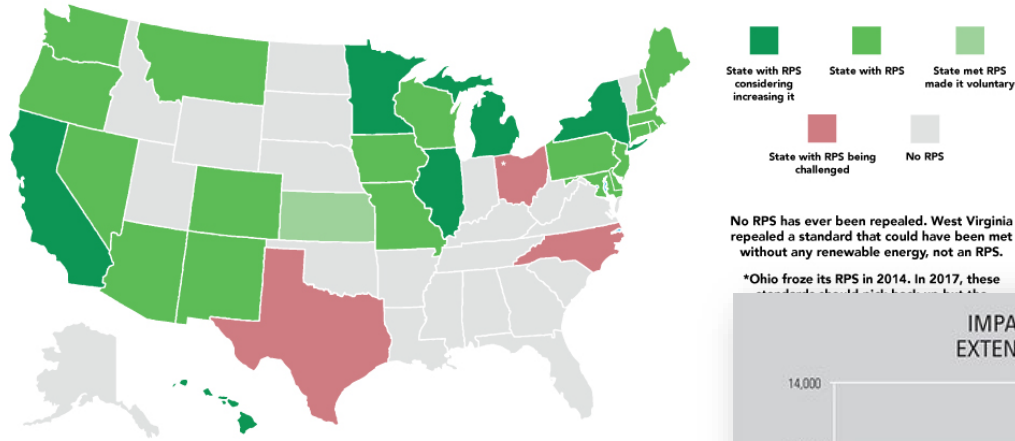
U.S. New Annual and Cumulative Wind Power Capacity Growth



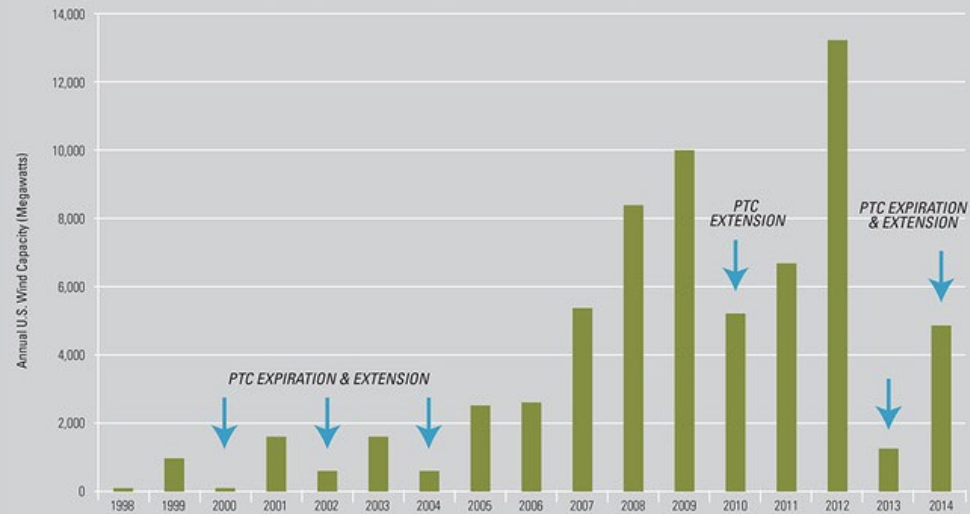
Note: Utility-scale wind capacity includes installations of wind turbines larger than 100-kW for the purpose of the AWEA U.S. Wind Industry Quarterly Market Reports. Annual capacity additions and cumulative capacity may not always add up due to decommissioned and repowered wind capacity. Wind capacity data for each year is continuously updated as information changes.

GOOD POLICY IS KEY

Renewable Portfolio Standard Legislation as of May 2015



IMPACT OF PRODUCTION TAX CREDIT EXPIRATION AND EXTENSION ON U.S. ANNUAL INSTALLED WIND CAPACITY

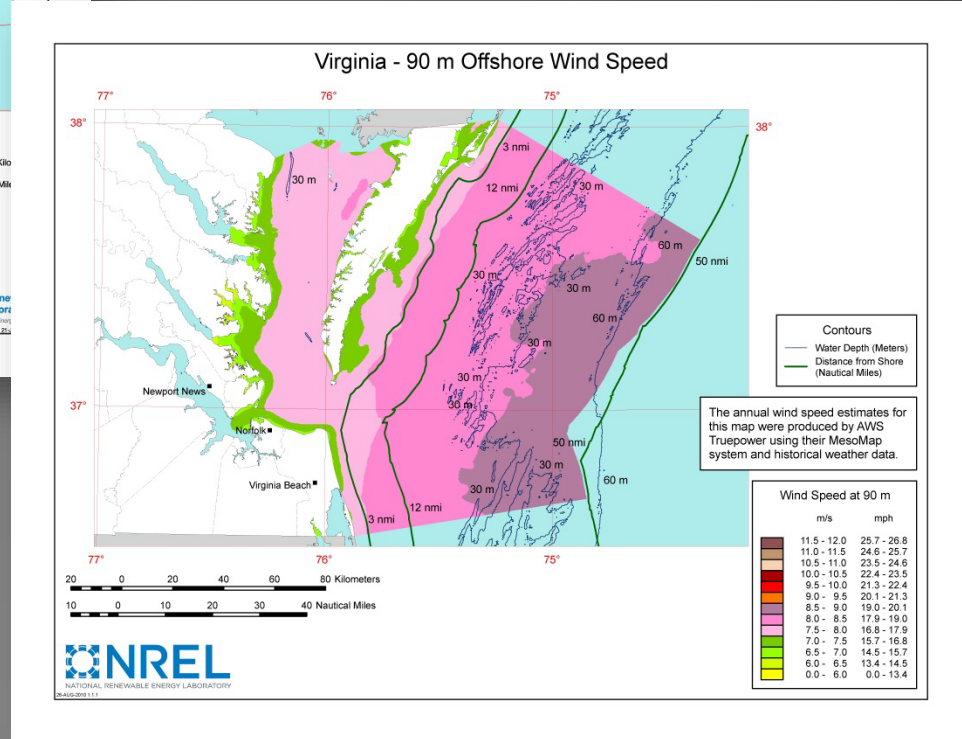
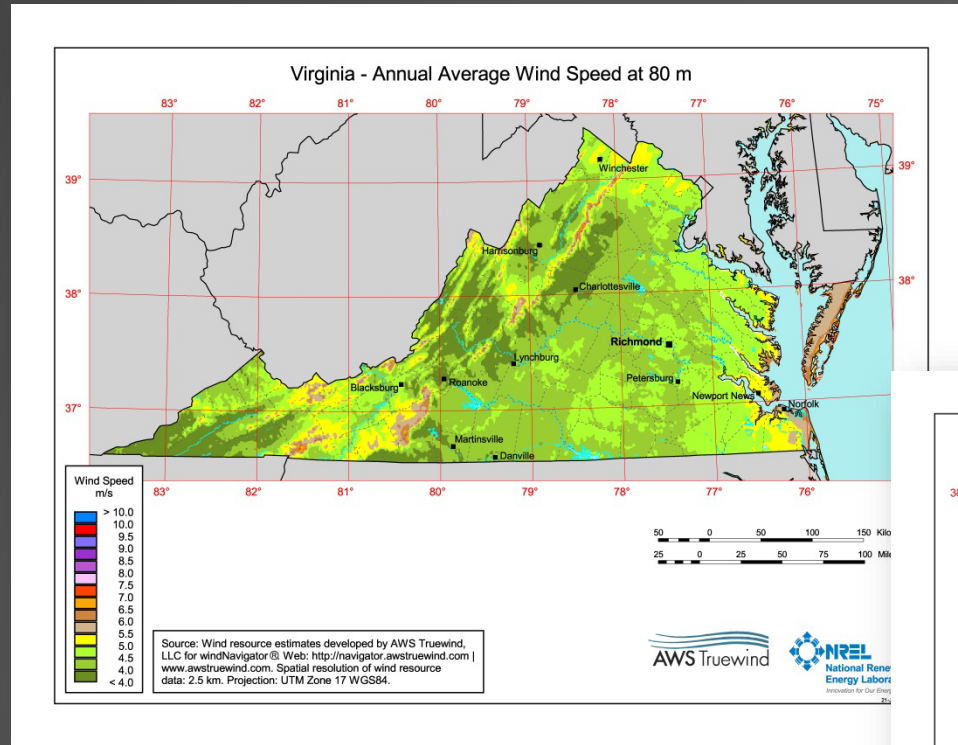


SOURCES: COMPILED BY UCS BASED ON DATA FROM DOE 2014 AND AWEA 2015

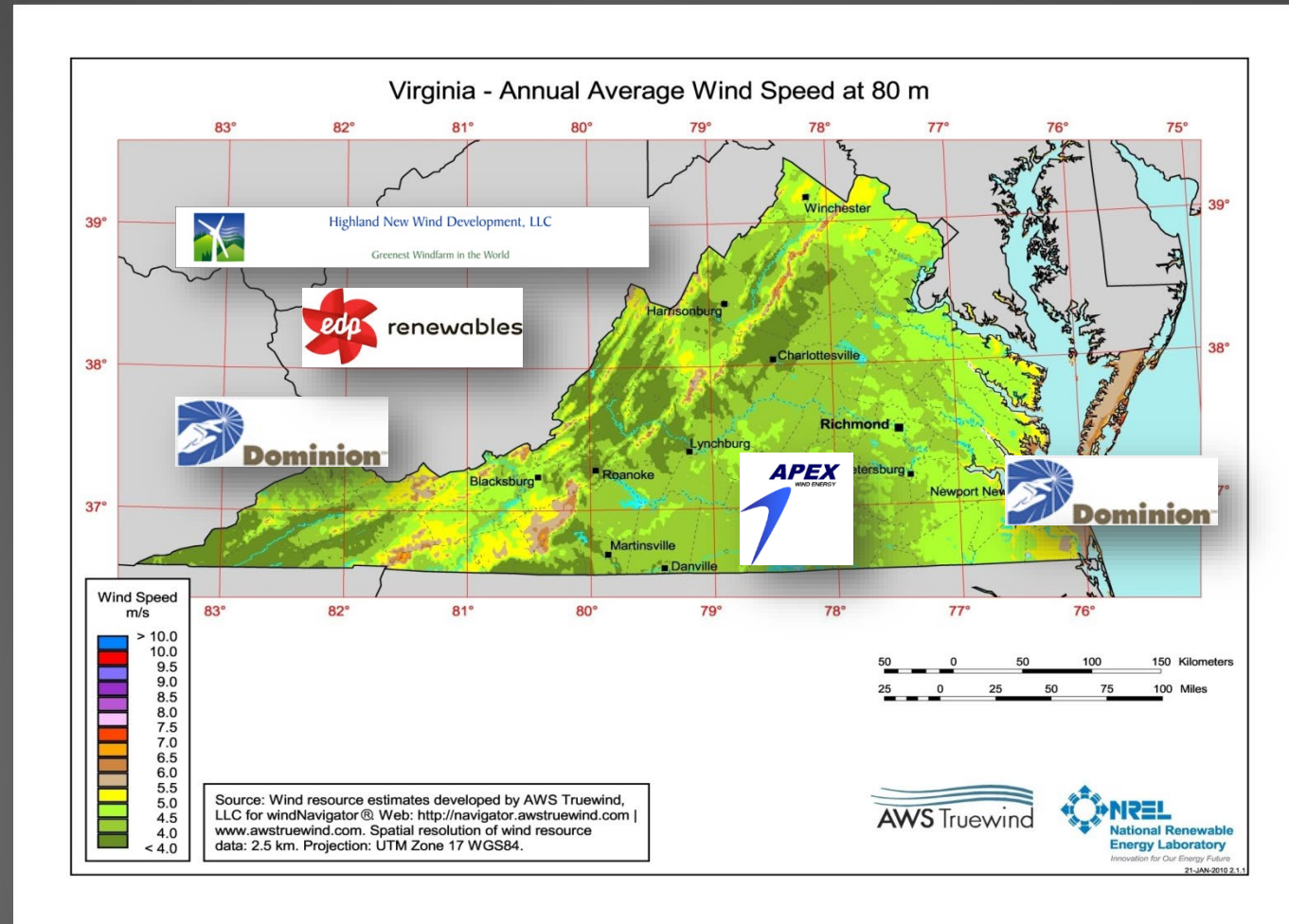


WIND ENERGY IN VIRGINIA

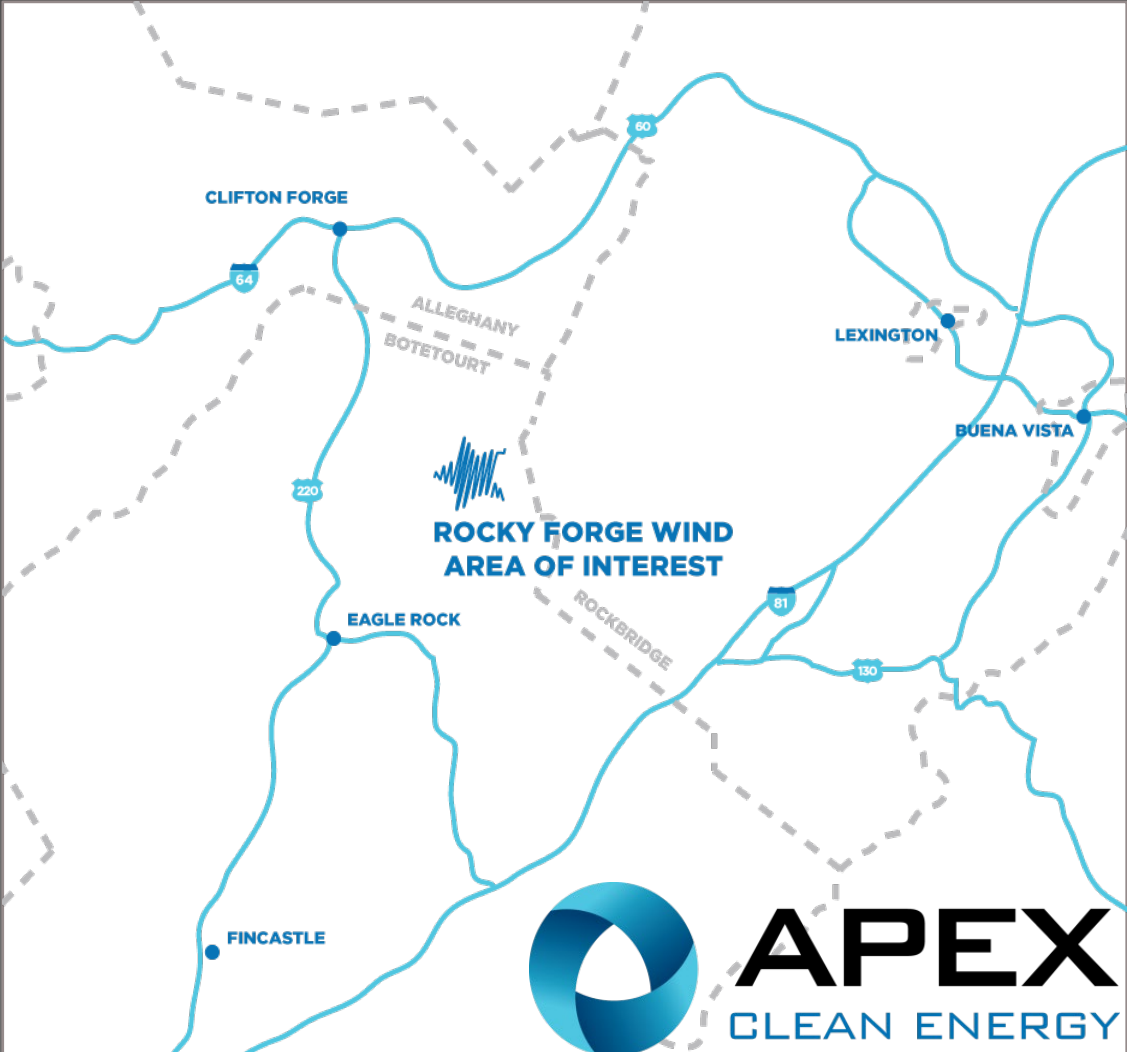
VIRGINIA HAS GOOD WIND POTENTIAL



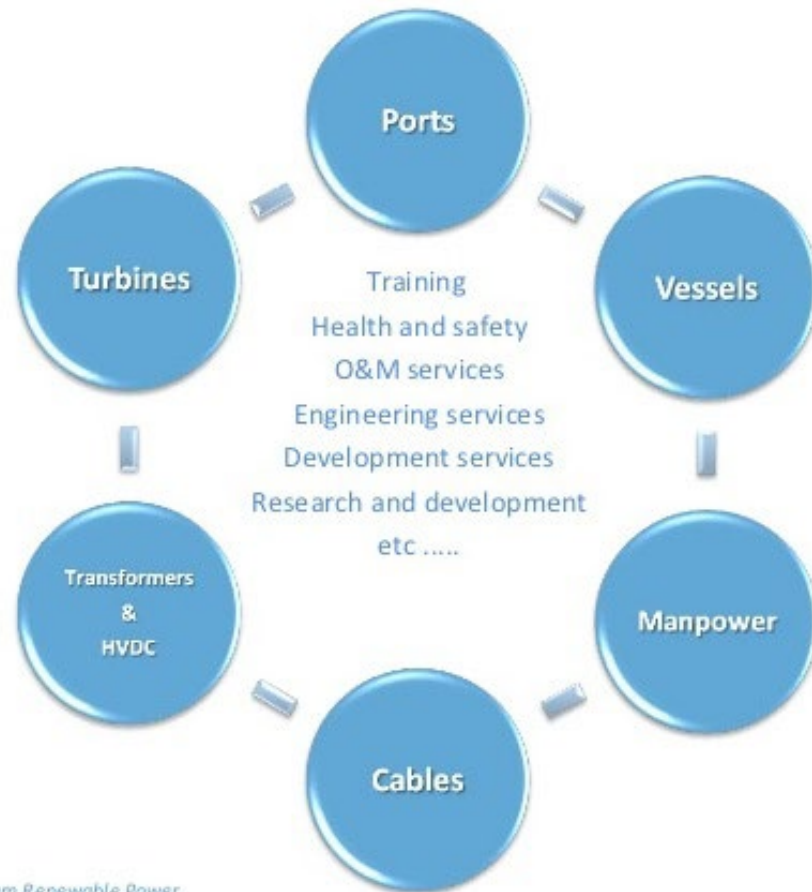
PROJECTS ARE BEING PROPOSED AND PROSPECTED



ROCKY FORGE IS IN THE PROCESS OF GETTING STATE PERMITS



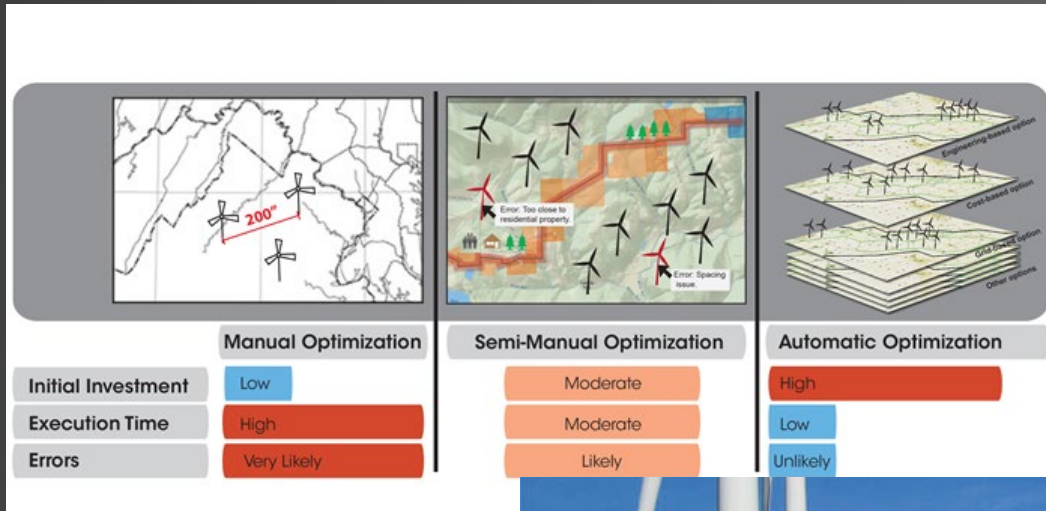
VIRGINIA WILL LEVERAGE THEIR SUPPLY CHAIN ASSETS FOR OFFSHORE WIND



Source: Mainstream Renewable Power



THERE ARE STILL SCIENCE AND POLICY ISSUES TO ADDRESS

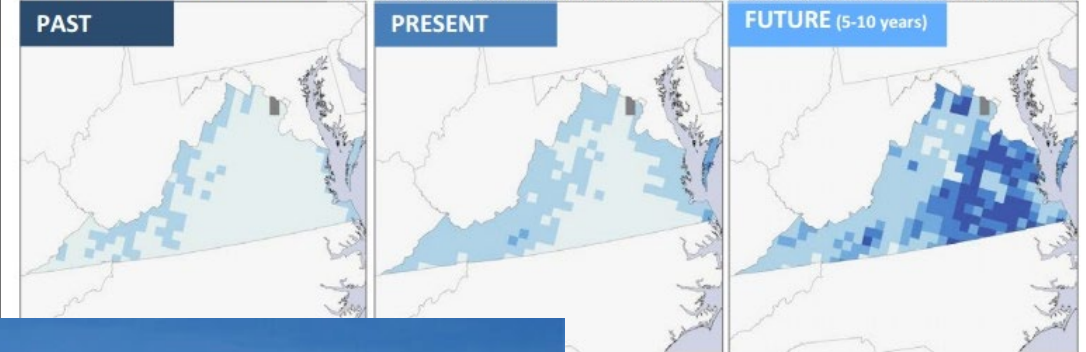


Virginia Wind Energy Fact Sheet

December 2014

Resource Potential

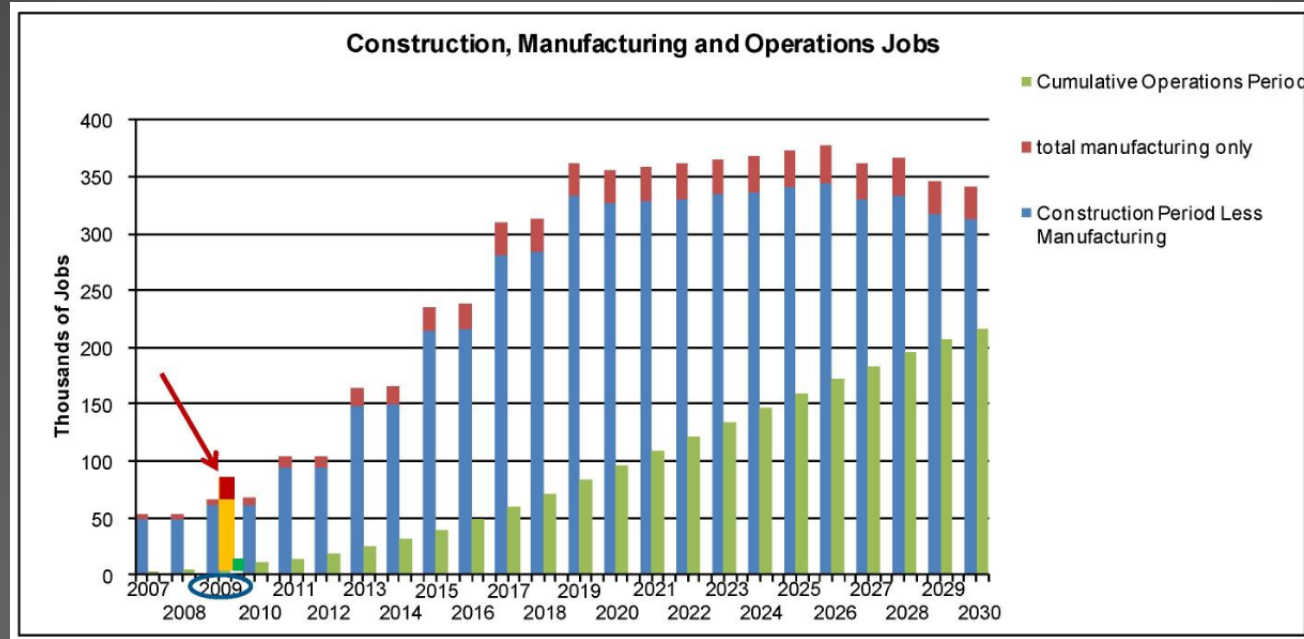
Maps below estimate areas where wind energy could be economically viable* when using available turbine technology. Not all areas shown can be developed.



Manufacturers have developed larger turbines and longer energy output, which significantly increases potentially viable areas for wind energy, especially in the Southeast. **Current Technology** Potential: 140m Height | **Future Technology**** Potential: 258.4 TWh/year

This technology trend is continuing, which significantly increases potentially viable areas for wind energy, especially in the Southeast. **Current Technology** Potential: 140m Height | **Future Technology**** Potential: 258.4 TWh/year

LOTS OF WORKFORCE NEEDS



COMMUNITY OUTREACH PLAYS AN IMPORTANT ROLE



WHAT MASON CAN DO TO HELP!

- ▶ Be informed and inform others
 - ▶ Check up on wind energy facts
 - ▶ Write letters to the editor
 - ▶ Put on a community event
- ▶ Work with industry to identify engineering and science research needs
- ▶ Review current legislation (state and federal) and write to your legislators



Jonathan J. Miles, Ph.D.
Director

Remy Pangle
Co-Director,
Education Manager

Dustyn Vallies
Outreach and Web Manager

Alec Barney
Facilities Manager

1401 Technology Drive, Suite 120
MSC 4905
Harrisonburg, VA 22807
540-568-8770

vacenter4windenergy@jmu.edu

QUESTIONS?

<http://jmu.edu/wind>



Visit our Facebook Page to ask questions, give feedback, see current events and project photos, and stay up-to-date on what's happening at the Center and with wind energy throughout Virginia!



Join our LinkedIn Group to engage in discussions, participate in polls, read current articles, and ask questions!



Skype us via VACenterforWindEnergy to ask questions or just chat with us!

