

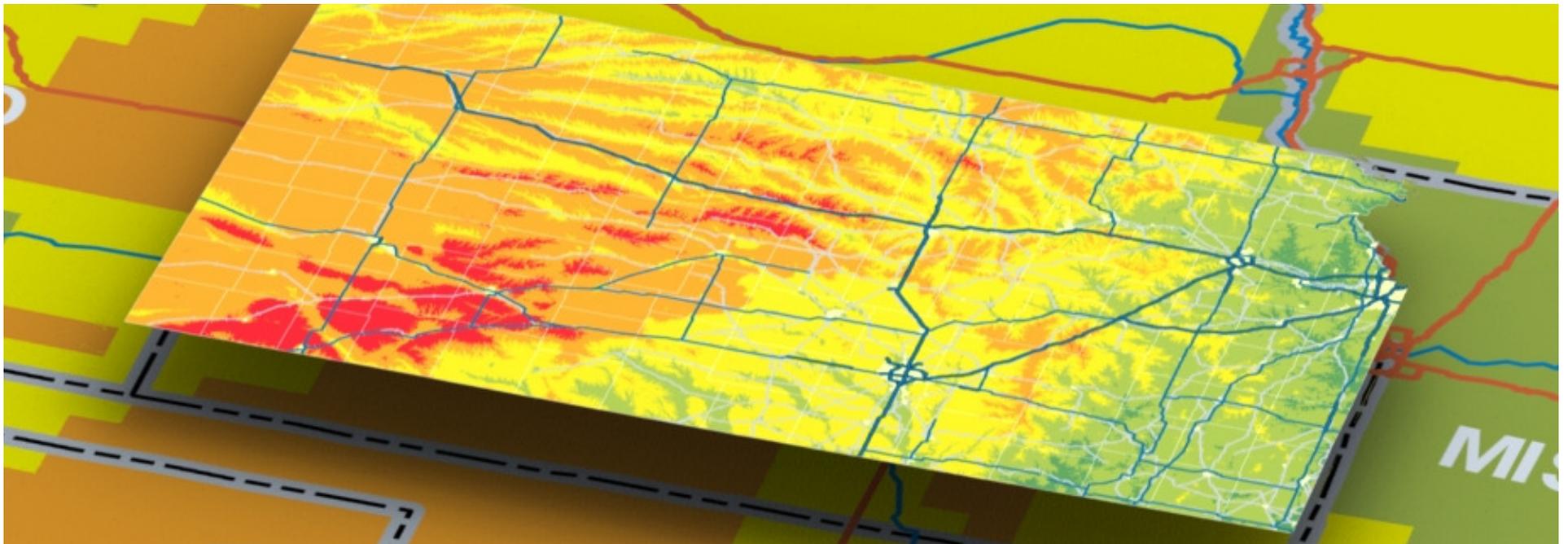
# Kansas Windpower *Supply Chain Initiative*

Rick Windholz, Senior Engineer



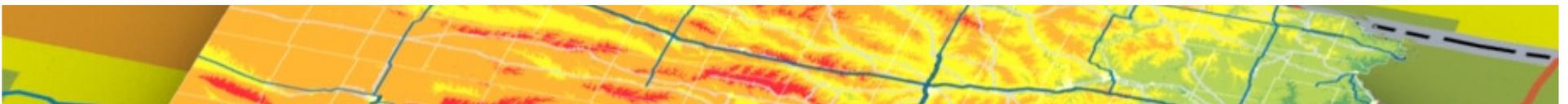
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# AMI Overview

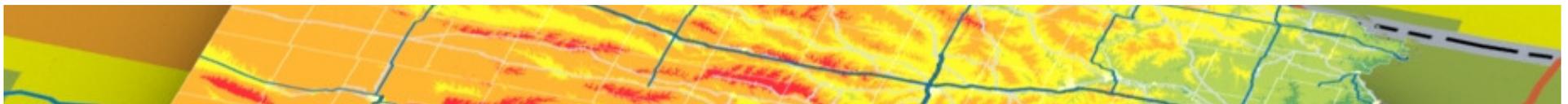
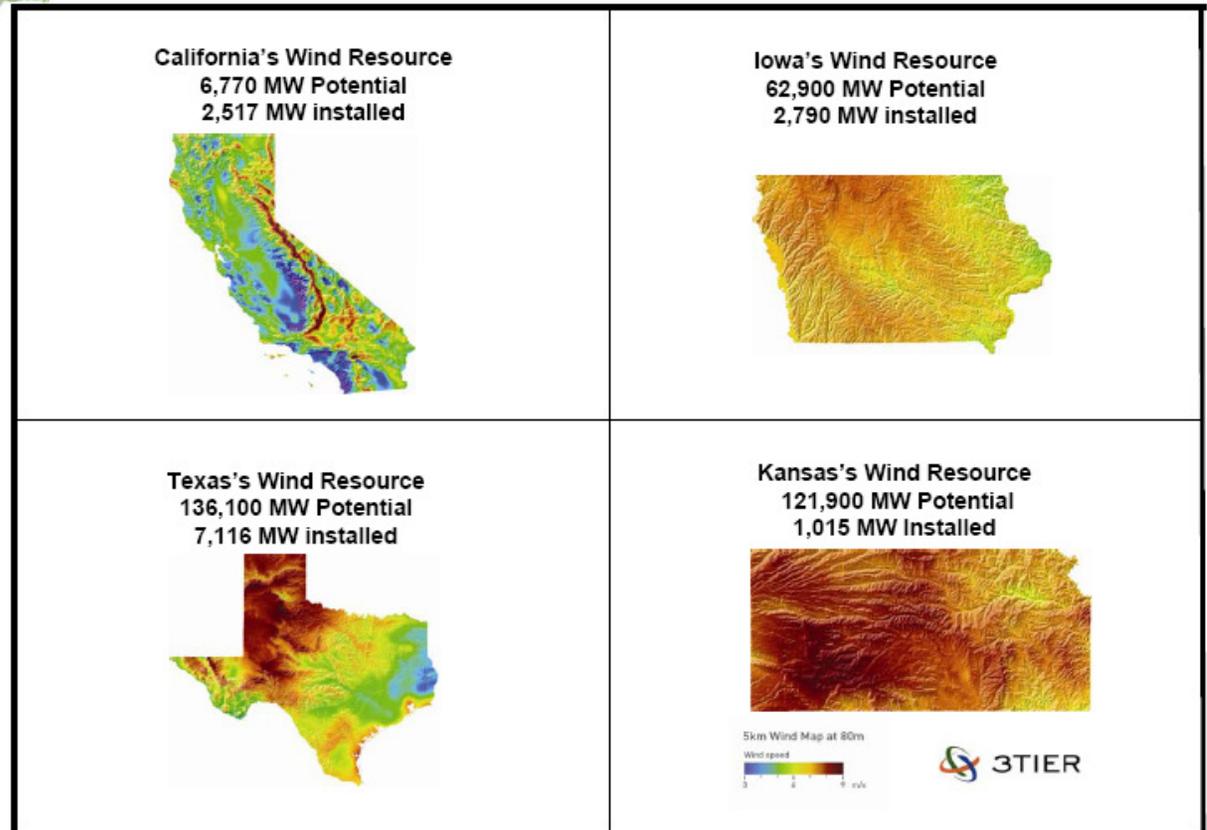
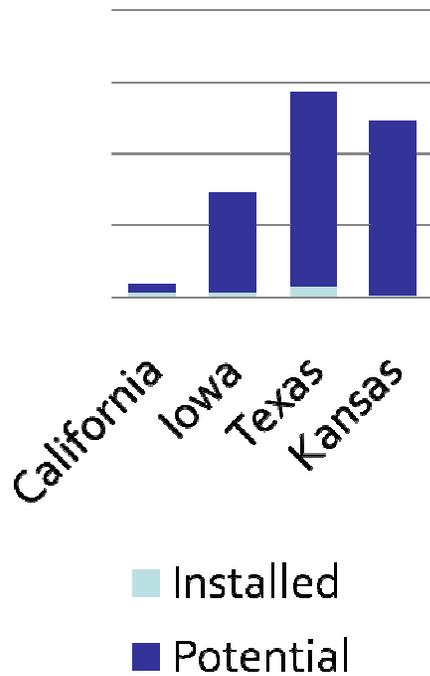
- Manufacturing assistance program, KSU Engineering College (since 1985)
- Mission: to advance technologies, people, and companies through collaborative engineering and business partnerships
- Product design, process development/improvement, and business planning services
- Partner with KDOC to grow KS windpower supply chain



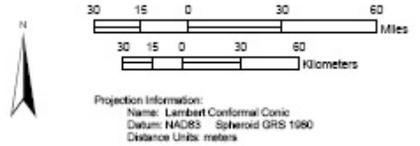
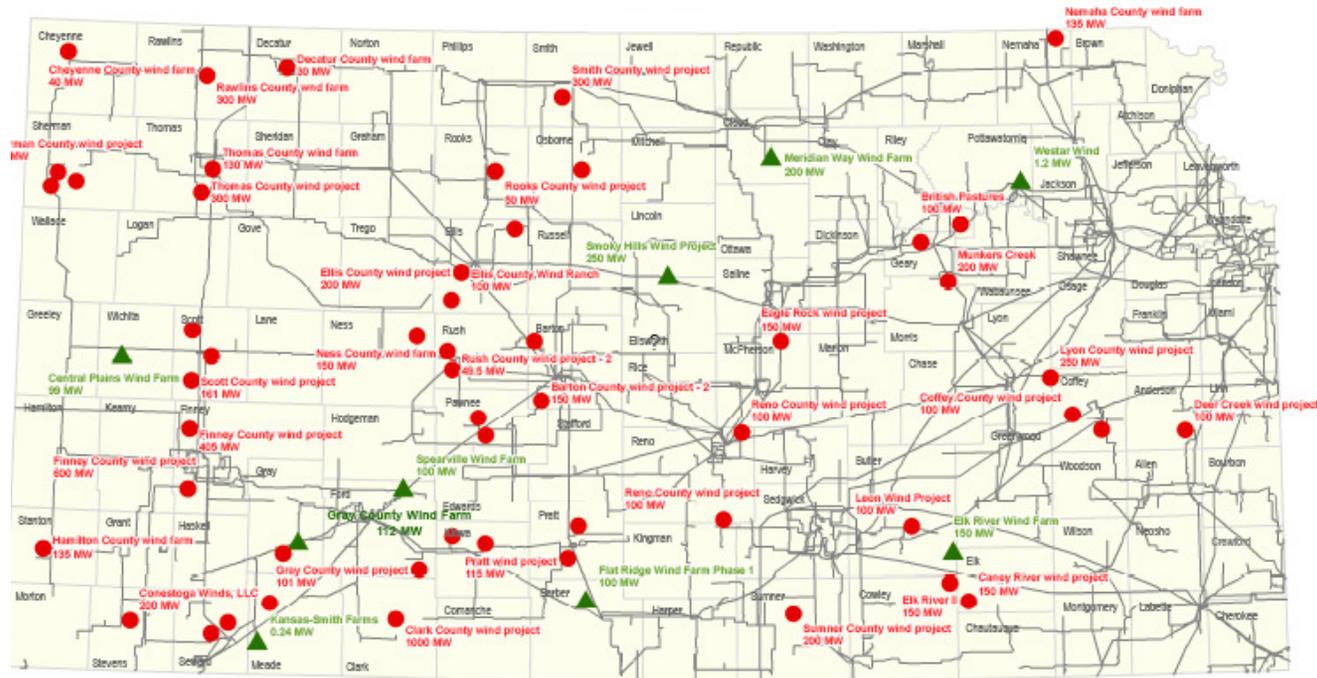
# Wind Resources



Kansas Has Been Blessed with a Unique Resource: Substantial and Statewide Resources Equal to or Greater than Other Key States



# Existing & Proposed Wind Projects



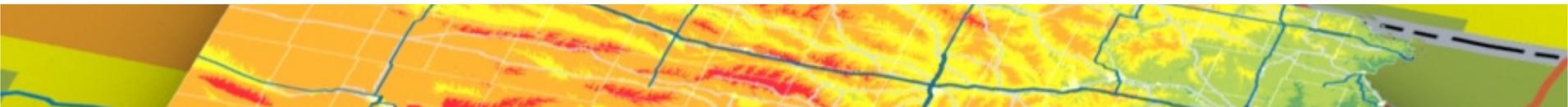
**Legend**

**Status**

- ▲ Existing
- Under Construction
- Proposed

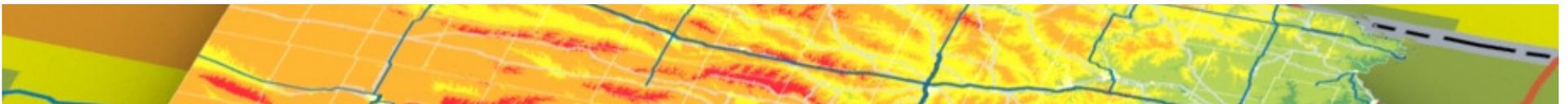
Electrical Transmission Lines also shown

For more information on individual wind projects, go to the Kansas Energy Information Network - Wind Projects page [www.KansasEnergy.org/wind\\_projects.htm](http://www.KansasEnergy.org/wind_projects.htm)



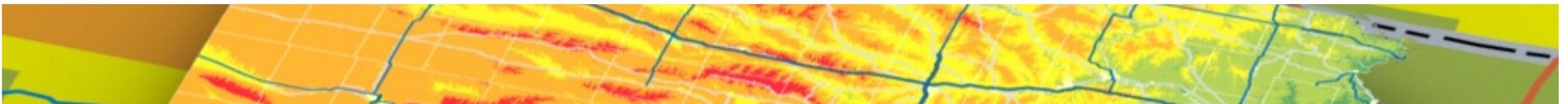
# Turbine Manufacturing

- Large-wind (utility-scale) 4x manufacturing capacity increase needed for 20% by 2030
- Migration of overseas OEMs to the US
  - Logistics a key consideration
  - Domesticating the supply chain
- Supply chain factors in US
  - Scale
  - Reliability
  - Global market competitiveness
- Small-wind 30x within 5 years



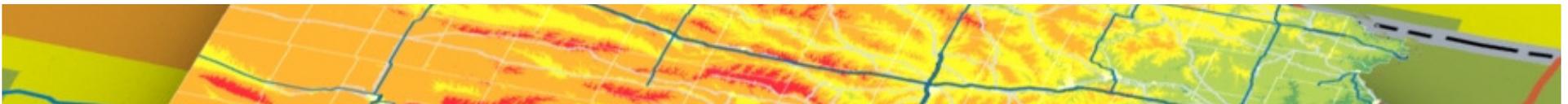
# Challenges for Suppliers

- 20 year life => High quality & reliability
- Large & precise parts
- Low volumes & serial production
- Cost competitiveness & continuous improvement
- On-time delivery
- Translation of European “equivalency” standards
- Communicating with OEMs



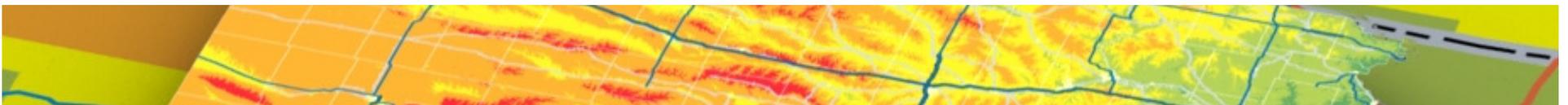
# Opportunities for Kansas Companies

- **Raw material**: steel, copper, fiberglass, epoxy, aluminum, plastics, rubber
- **Part fabrication**: gears, shafts, castings, metal fabrication, fasteners/hardware, cables/wiring/connectors, electrical components, subassemblies
- **Component manufacture**: towers, blades, gearboxes, generators, converters, control system, transformers, drives, bearings, hydraulic units
- **Wind turbine assembly**: design, engineering, certification, software, assembly, testing, erection, logistics, commissioning, service



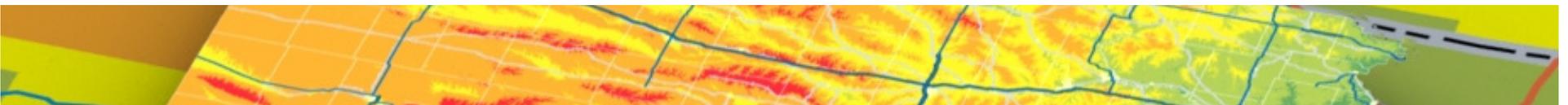
# Kansas' Current Supply Chain Efforts

- Recruit suppliers to Kansas to support OEMs
- Create networks to connect Kansas companies to the industry
- Develop resources for integrated technical & business planning assistance
- Assist workforce development
- Assess Kansas supplier's capabilities

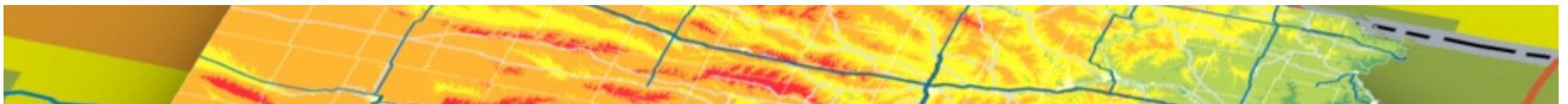
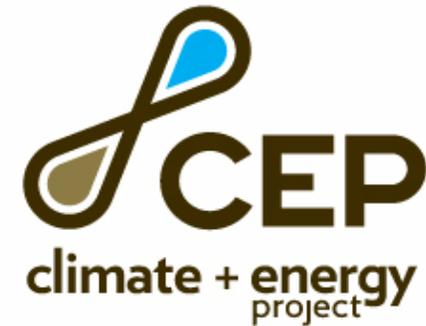


# Kansas Wind Supply Chain Survey

- Identify current and prospective windpower suppliers
- Collect information for survey sponsors
  - Assess capabilities of KS suppliers
  - Info to AWEA & prospective windpower companies

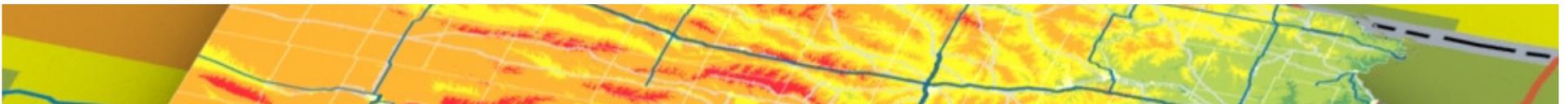


# Survey Partners



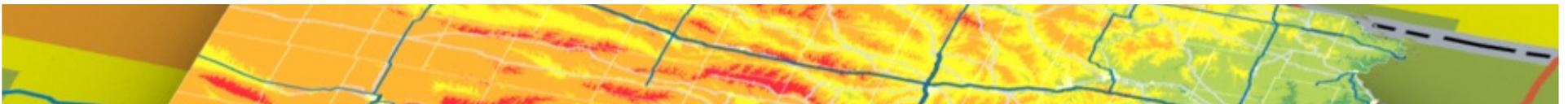
# Preliminary Survey Results

- Few respondents currently supplying wind industry
- Those active in windpower plan expansion
- Majority of respondents interested in supplying the wind industry
- Most respondents in “gathering info” stage
- Major barriers
  - Contacts & networking
  - Lack of knowledge
  - Product specifications



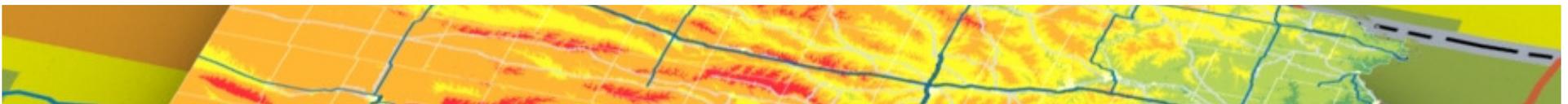
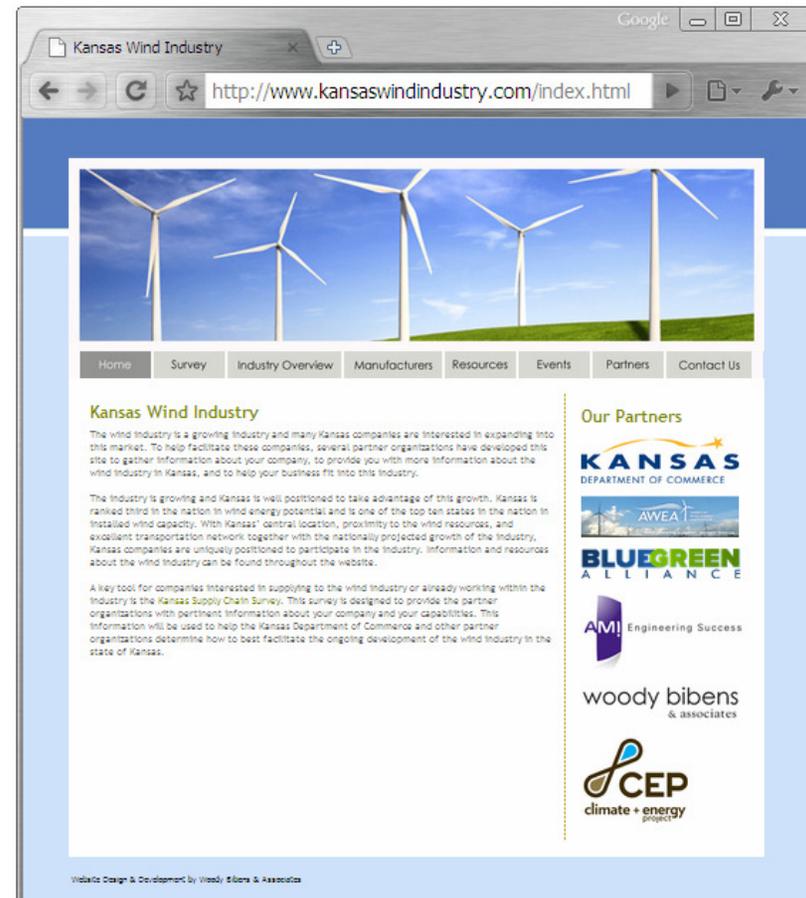
# Potential State Support Activities

- Industry contacts and networking
- Partner with local/nationwide organizations
- Education (wind workshops)
- Readiness assessments
- Business case development
- Technical assistance
- Workforce development
- Wind farm construction & maintenance



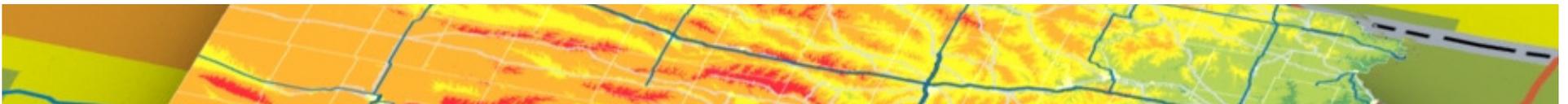
# Survey is Still Open!

- Go to [www.kansaswindindustry.com](http://www.kansaswindindustry.com)
- Click on the "Survey" tab



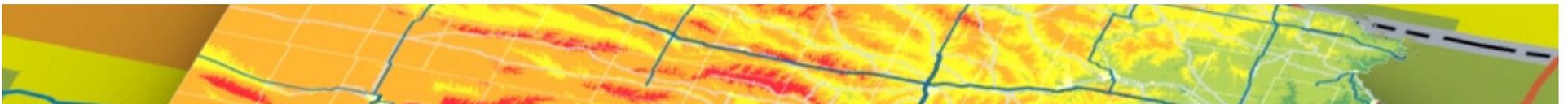
# Upcoming AWEA Events

- *Windpower Supply Chain Workshop* (Detroit, MI), November 3-5, 2009
- *Small & Community Wind Conference & Exhibition* (Detroit, MI), Nov 3-5, 2009
- *WINDPOWER 2010 Conference & Exhibition* (Dallas, TX), May 23-26, 2010, [www.windpowerexpo.org](http://www.windpowerexpo.org)
- More info at [www.awea.org](http://www.awea.org) & [www.kansaswindindustry.com](http://www.kansaswindindustry.com)



# What Can You Do?

- Learn about the industry
- Attend next KS Wind Supply Chain Workshop (January 14 – Wichita)
- Join AWEA
- Participate in Kansas windpower survey ([www.kansaswindindustry.com](http://www.kansaswindindustry.com))
- Great Lakes Wind Network on-site assessment
- Tell AMI or State of KS what you need help with



# Questions?

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785-532-0466, [rwindholz@amisuccess.com](mailto:rwindholz@amisuccess.com)

