

Behind the Meter Wind for Public Institutions

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www.entegritiywind.com

Behind the Meter: High Value, Simple



Public Institutions: On-ramp for Wind

- Schools
- Correctional Facilities
- Municipal Loads (water treatment)

- Access to capital
- Predictable decision making process
- Available Space

- Community projects garner community support
- Networked for the public benefit



A few pictures....

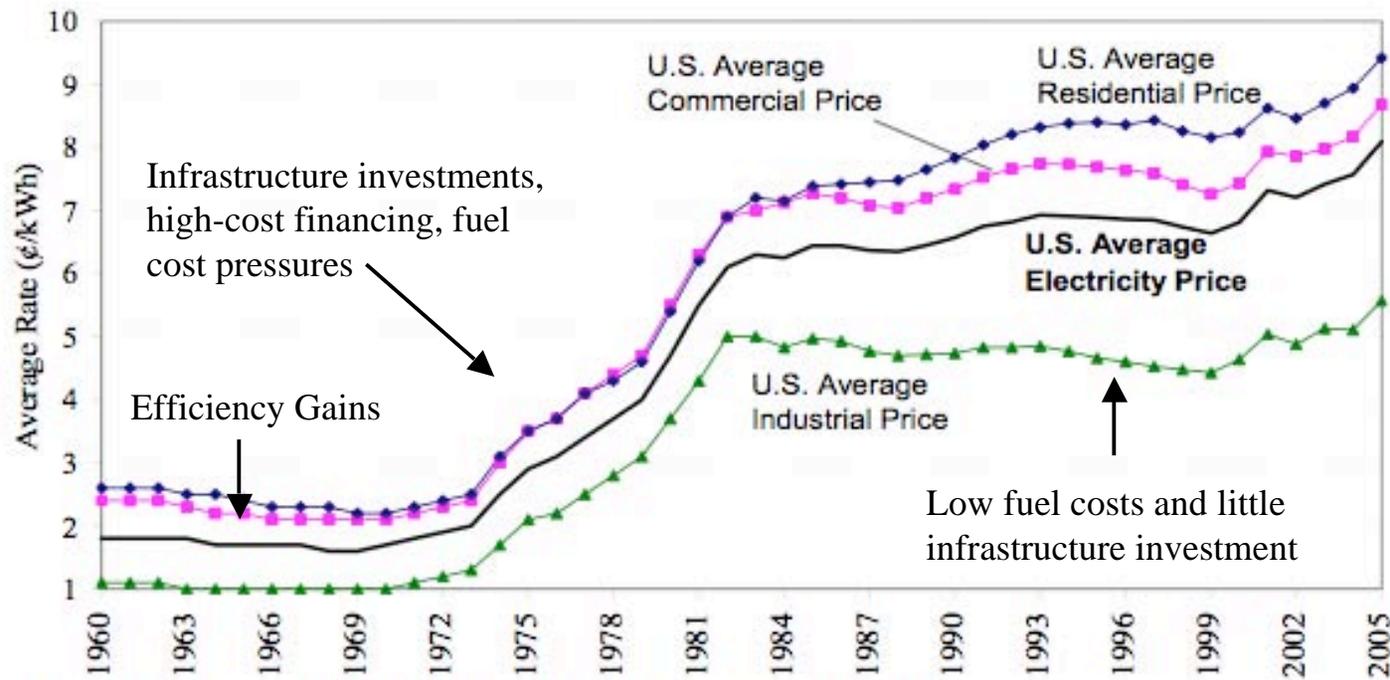






Energy Cost as a Project Driver

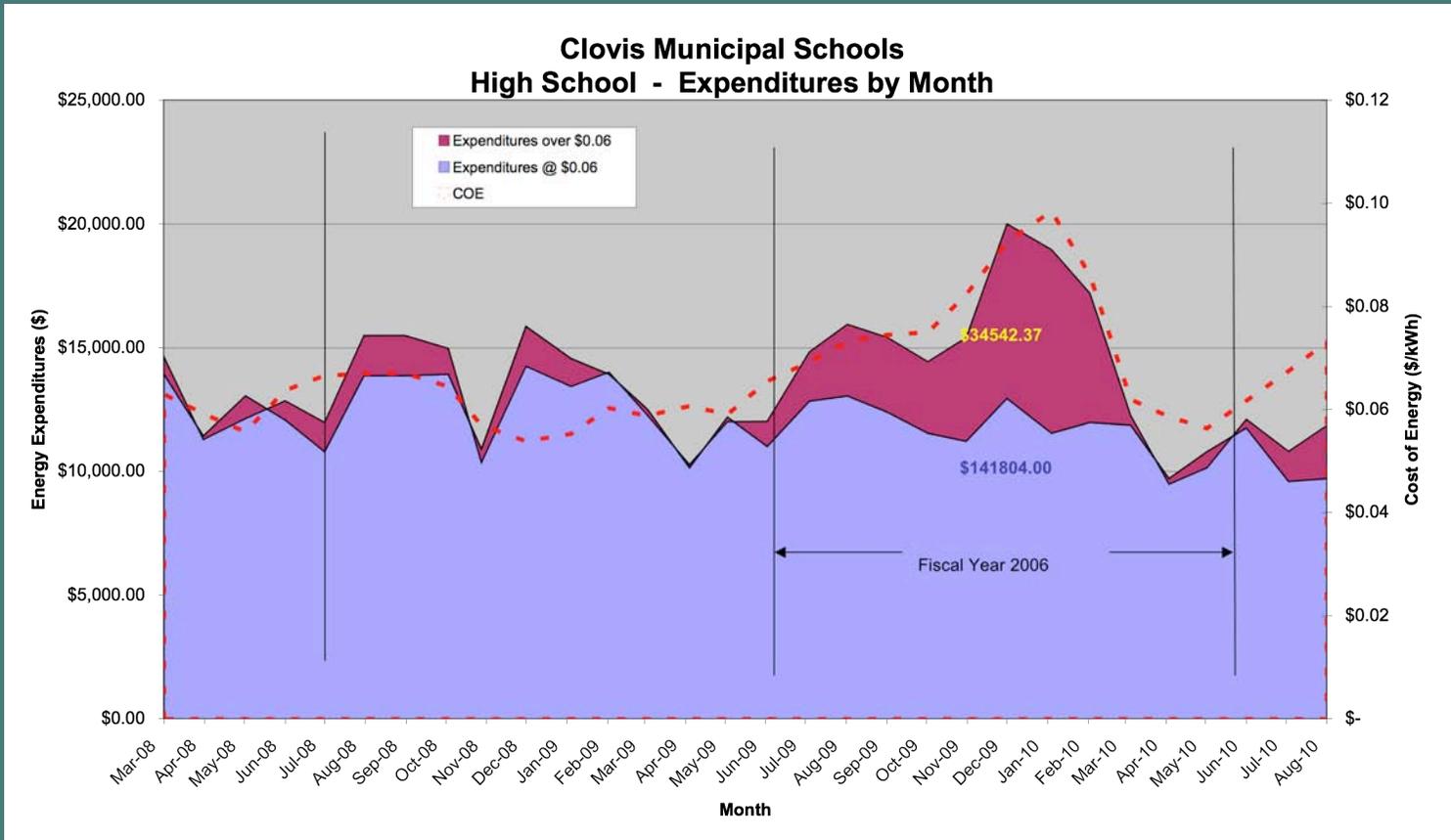
U.S. Electricity Prices by Class of Customer (\$ Nominal)



Sources: EIA Annual Energy Review 2004 and EIA Monthly Energy Review March 2006.

Similar to 72'-84', electricity costs are expected to rise, but this time both infrastructure and fuel cost increases are the drivers.

Paying utility bills is not a choice



Unexpected Expenditures

Tools to Control the Cost of Energy

- Efficiency measures reduce consumption
- Efficiency does not control the cost of energy.
- On-site renewable generation does control the cost of energy.
 - Wind, Solar and Geothermal Energy are all no-cost fuel resources.



Utility Scale Wind versus Distributed Wind

Value depends on your perspective



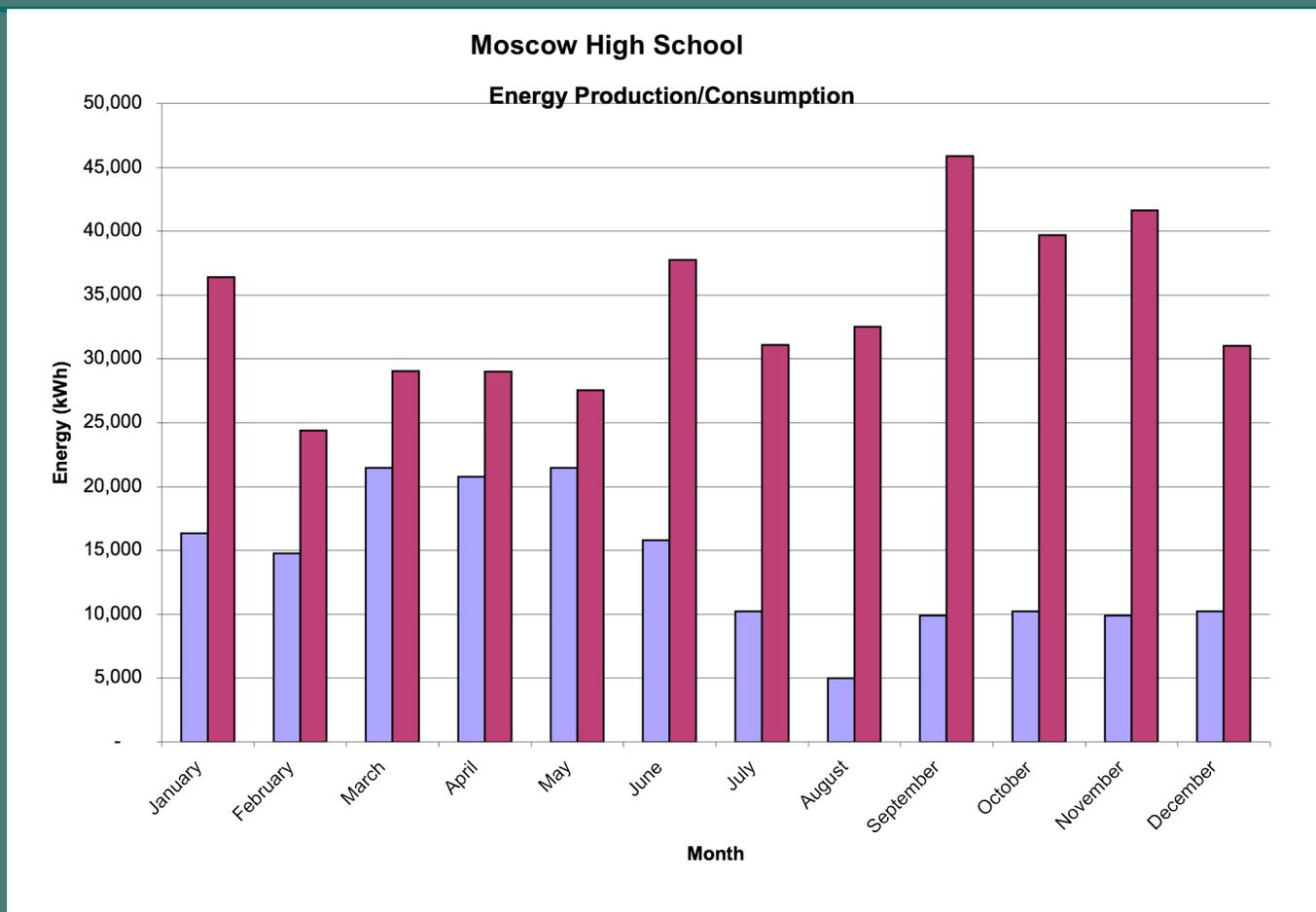
3 - 5 ¢/kWh
(fixed value)



7 - 16 ¢/kWh
(increasing value)



Load Matches Production Magnitude and Seasonality

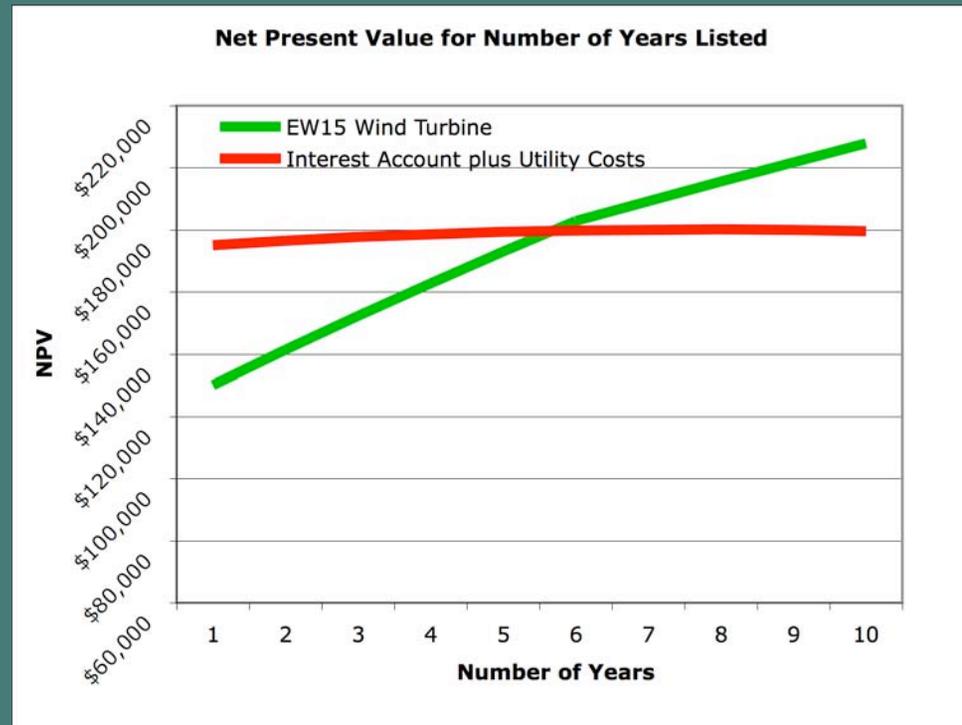


One (1) turbine provides about 35% of the
annual energy needs

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Economics - 1 Turbine Project (K12 Location)

- Production - 150,000 kWh/yr
- Project Cost - \$175,000
- Current COE - \$0.065/kWh
- \$0.02/kWh Revenue from RECs
- Wind COE \$0.06/kWh
- 30% - 40% of energy costs become fixed
- Less than 7 year time horizon to exceed Business as Usual



What makes a successful project?

- Compelling Economics
 - Wind Resource
 - Cost of Energy
 - Sufficient Load (size and seasonality)
 - Available Financing/Finances
 - Green Energy Markets*
 - Policy*
- Appropriate Site
- Cooperative Utilities
- Corporate, Institutional, Community Values

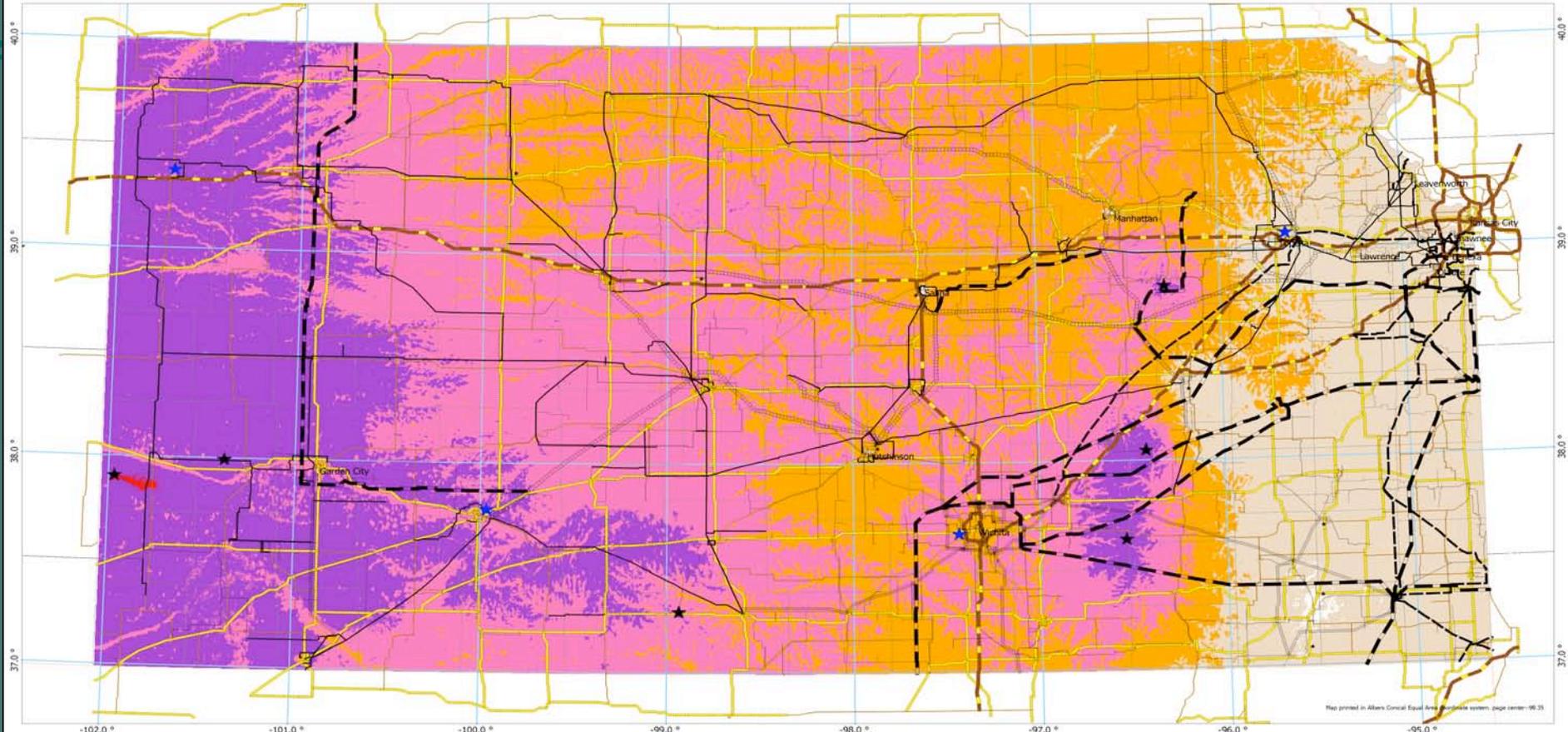
*Helpful, but not critical



Wind Resource

Kansas Wind Resource Map

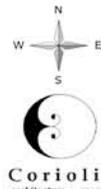
(Estimated average yearly wind speeds at 50 meters in meters/second)



Kansas Wind Speed Legend

Kansas Cities		Electric Transmission Lines		Wind speed at 50M		Wind Power Density at 50 m W/m ²	
□	KS cities > 25K pop		Voltage in KW		(m/s)	(mph)	
—	Kansas Highways	34.50	0 - 5.60	0 - 12.5	0 - 12.5	0 - 200	
—	State Route	69.00	5.60 - 6.40	12.5 - 14.3	12.5 - 14.3	200 - 300	
—	US Route	115.00	6.40 - 7.00	14.3 - 15.7	14.3 - 15.7	300 - 400	
—	Interstate Route	138.00	7.00 - 7.50	15.7 - 16.8	15.7 - 16.8	400 - 500	
★	Meteorological Site	161.00	7.50 - 8.00	16.8 - 17.9	16.8 - 17.9	500 - 600	
★	NWS	230.00	8.00 - 8.80	17.9 - 19.7	17.9 - 19.7	600 - 700	
★	FAA	345.00	> 8.80	> 19.7	> 19.7	> 700	
★	UWIG						

Power classes in the legend are based on the average speed and a Weibull k value of 2.0, but not all locations will have the same power class for a given wind speed.



Coriolis
architecture • energy



The wind resource estimates presented on this map were developed by Coriolis-AE using WindMap®, a program developed by BrowerCo. WindMap is a mass conserving model based on NOAA, a program developed in the 1970s by the U. S. Department of Energy. The spatial grid resolution is of 300 (app) meters.

The resource estimates have NOT been validated by the National Renewable Energy Laboratory (NREL) or independent meteorologists. All wind energy development projects should confirm wind resources by direct measurements in accordance with wind energy industry standards.

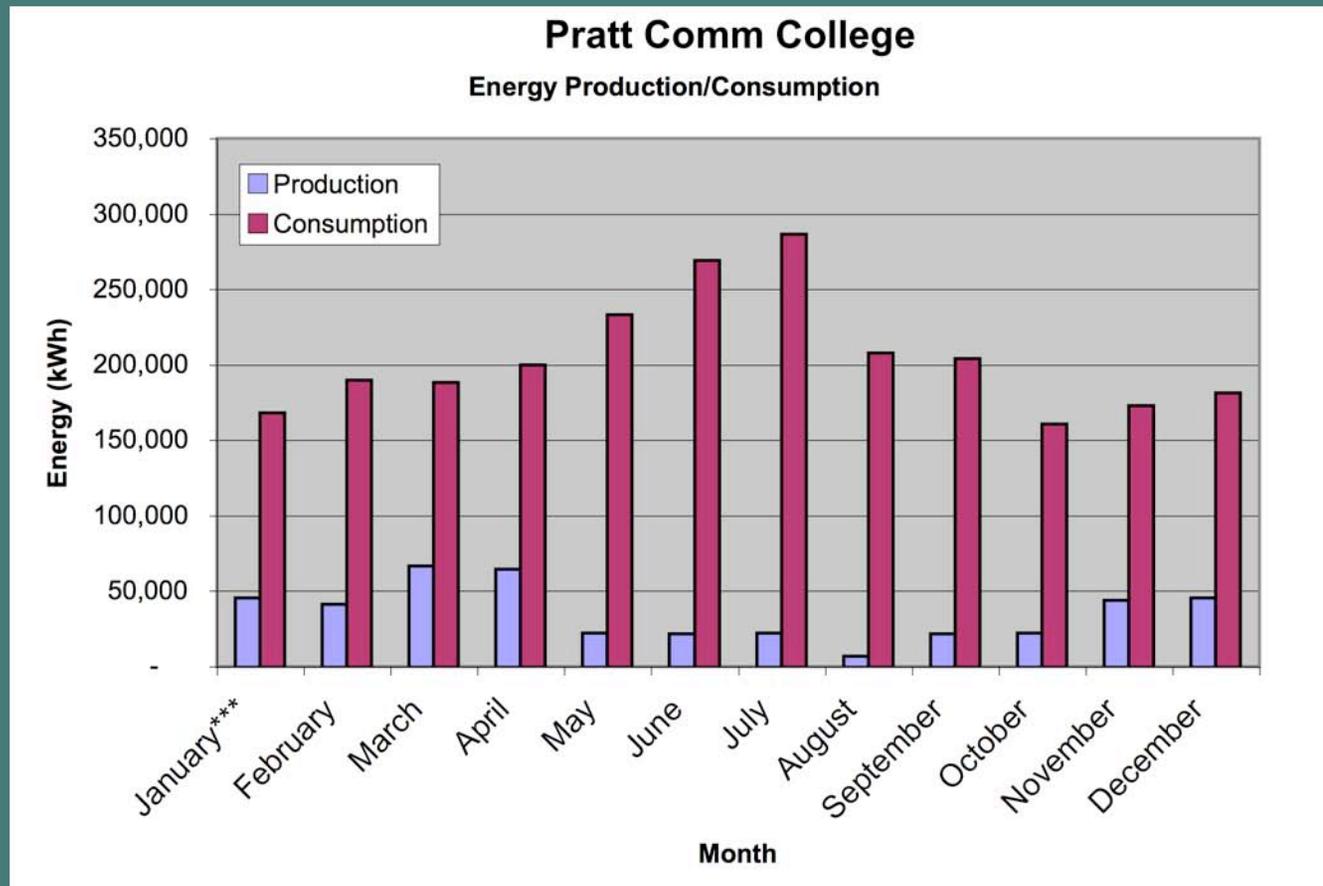
Development of this map was performed under contract with the Kansas Corporation Commission Energy Program with funding from the U. S. Department of Energy's Wind Powering America program.

Available Space, Great Locations...



Load Matches Production

Pratt Community College



3 Turbines Provide ~20% of the Facility's
Annual Needs, \$46,000/year Savings

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Distributed Wind

A Smart Choice for Controlling Energy Costs

- Distributed Wind has High Value
 - Stable, Predictable Energy Costs
 - Readily Available
 - Proven, Reliable Technology
 - Attractive Rate of Return
 - Leverages Capital Monies to yield Operational Savings
- Indirect (Direct) Benefits
 - Environmental Leadership
 - Education Value
 - Favorable Visibility
 - Innovative Image



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