

Hello!

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APPLIED PRACTICAL EXPERIENCE: ENERGIZING PUBLIC HEALTH INVOLVEMENT IN THE ENERGY SECTOR

WIND ENERGY IMPACTS IN KANSAS COUNTIES

August 2023 – May 2024
Preceptors: Kari Bruffett, Linda Sheppard
Kansas Health Institute

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About the Kansas Health Institute



- Nonprofit, nonpartisan educational organization based in Topeka.
- Established in 1995 with a multi-year grant by the Kansas Health Foundation.
- Committed to convening meaningful conversations around tough topics related to health.



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Acknowledgments



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Project Inspiration and Wind Energy Landscape



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Inspiration for Project



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The New York Times

The Energy Transition

The Clean Energy Future Is Roiling Both Friends and Foes

Resistance to wind and solar projects, even from some environmentalists, is among an array of impediments to widespread conversion to renewables.

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Kansas ranks in top 5 for wind power in the US. What's ahead for renewable energy?

BY KATIE MOORE
UPDATED FEBRUARY 22, 2023 9:58 AM

US counties are blocking the future of renewable energy: These maps, graphics show how

Across America, local bans, moratoriums and construction impediments are blocking wind and solar energy with increasing levels of red tape. Here's what USA TODAY's analysis found.

Elizabeth Weise, Stephen J. Beard, Suhail Bhat, Ramon Padilla, Carlie Procell and Karina Zaleski USA TODAY
Published 1:39 a.m. ET Feb. 4, 2024 | Updated 10:40 a.m. ET Feb. 27, 2024

Battles over wind farms divide rural communities

YouTube - PBS NewsHour
Jul 14, 2023

Opposition to large solar and wind farms grows in Kansas

YouTube - USA TODAY
Feb 4, 2024

Rich, white communities most likely to oppose wind farms, study finds

By Ella Nitzert, CNN
4 minute read · Published 3:00 PM EDT, Mon September 25, 2023

Wind farms are transforming the Kansas landscape. Here's an effort to tone down their lights

KCUR | By Celia Llopis-Jepsen
Published March 1, 2023 at 3:00 AM CST

RURAL

In a Kansas known for open skies, green energy alters the horizon

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Federal Incentives for Renewable Energy Transition



Inflation Reduction Act



Production and Investment Tax Credits for Renewable Projects



Federal Grants



Reducing impacts of climate change



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The Biden Administration's Climate Goals



Reducing U.S.
Greenhouse gas
emissions 50-52%
below 2005 levels in
2030



Net-zero emissions
economy by 2050



Delivering 40% of the
benefits from federal
investments in
climate and clean
energy to
disadvantaged
communities



**Reaching 100%
carbon pollution-
free electricity
(CFE) by 2035**



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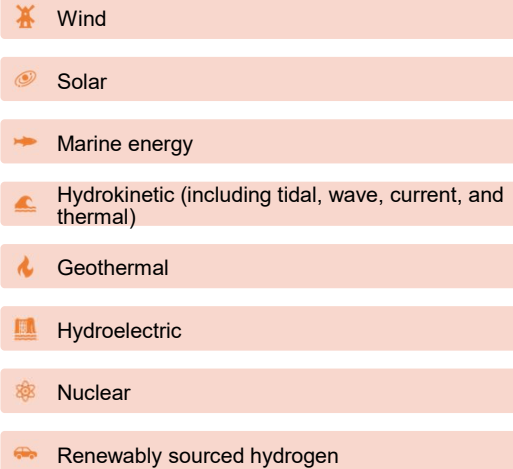
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Renewable Energy Transition

Reaching 100% carbon pollution-free electricity (CFE) by 2035 requires a transition to mostly renewable energy sources.



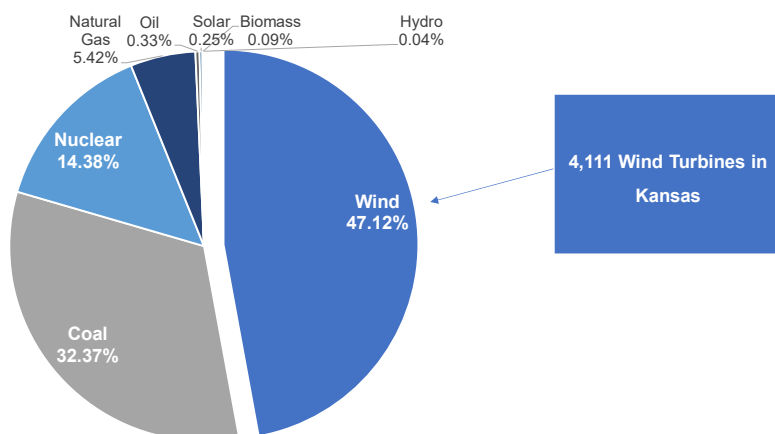
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Electric Grid Mix in Kansas



■ Wind ■ Coal ■ Nuclear ■ Natural Gas ■ Oil ■ Solar ■ Biomass ■ Hydro



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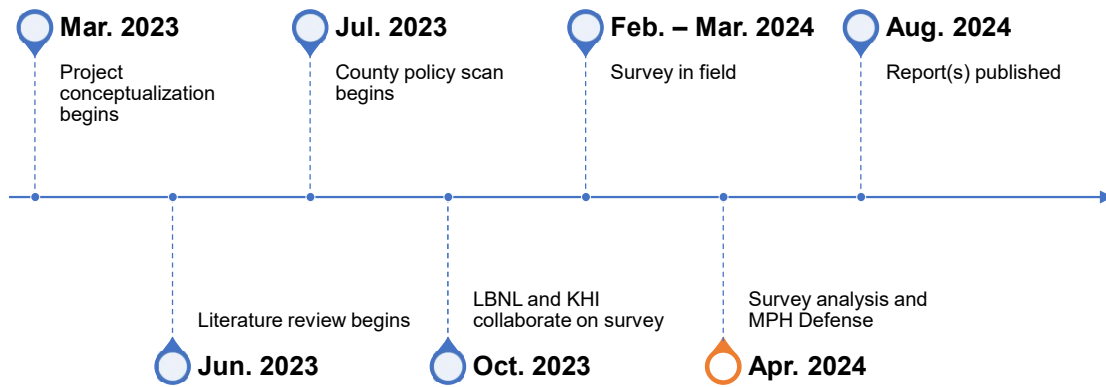
Source: U.S. Energy Information Administration's Open Data API, Electricity Net Generation.

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Project Timeline



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Survey



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Survey Objectives

The survey aimed to:

- Understand how local government officials in eight study states navigate wind project planning and assess available resources.
- Uncover how local officials have experienced planning, negotiation with developers, assessing community impacts, and facilitating engagement.
- Gather data to improve future wind project planning processes and resource allocation to support counties.



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Survey Recruitment

The following methods were taken to increase KS responses

- Attend KAC conference and promote survey
- Targeted email distribution
- Mailed physical copies



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Kansas Survey Sample and Responses

A total of 2,192 local officials were included in sample

- 214 Kansas Officials across 64 counties in sample
- 32 Kansas Respondents across 24 counties

Response Rate By State (Mar. 29, 2024)			
State	Responses	Sample	Response Rate
IA	29	284	0.10
IL	64	711	0.09
KS	32	214	0.15
MN	35	249	0.14
NE	21	216	0.10
OK	4	75	0.05
SD	6	100	0.06
TX	18	343	0.05



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Survey Questions



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Trusted Sources of Information

6. In general, what are your trusted source of information about wind energy?

	Not used	Not trusted	Somewhat trusted	Very trusted
State government resources, trainings, or staff	☐	☐	☐	☐
Federal government resources, trainings, or staff	☐	☐	☐	☐
County association resources, trainings, or staff	☐	☐	☐	☐
Conversations with other county officials	☐	☐	☐	☐
The wind energy industry (e.g. conversations with wind energy developers, industry reports)	☐	☐	☐	☐
Newspaper articles	☐	☐	☐	☐
Websites critical of wind energy (e.g. National Wind Watch)	☐	☐	☐	☐
Environmental non-profit organization websites (e.g. Sierra Club, Natural Resources Defense Council)	☐	☐	☐	☐
Academic or educational institutions, including Cooperative Extension offices	☐	☐	☐	☐
Social media	☐	☐	☐	☐
★ Input from constituents with lived experiences with wind energy	☐	☐	☐	☐



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Future Research Opportunity – Agricultural Impacts

8. To what extent do you agree with the following statements? I have access to sufficient research and information to understand the following impacts of wind projects on my community:

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
economic impacts	☐	☐	☐	☐	☐
public and community health impacts	☐	☐	☐	☐	☐
★ agricultural impacts	☐	☐	☐	☐	☐
community cohesion	☐	☐	☐	☐	☐



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County Priorities

10. How important are the following priorities for you as a local government official?

	Not at all	Slightly	Moderately	Very	Extremely
growing the economy	☐	☐	☐	☐	☐
improving public school quality	☐	☐	☐	☐	☐
managing population growth	☐	☐	☐	☐	☐
managing population loss	☐	☐	☐	☐	☐
environmental sustainability	☐	☐	☐	☐	☐
road maintenance and transportation services	☐	☐	☐	☐	☐
★ improving community and public health	☐	☐	☐	☐	☐
providing public services (e.g. garbage removal)	☐	☐	☐	☐	☐
advancing state priorities	☐	☐	☐	☐	☐
advancing federal priorities	☐	☐	☐	☐	☐



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Impact to County Priorities

11. In your opinion, to what extent does wind energy hinder or help these priorities?

	Significantly hinders	Somewhat hinders	No impact	Somewhat helps	Significantly helps
growing the economy	☐	☐	☐	☐	☐
improving public school quality	☐	☐	☐	☐	☐
managing population growth	☐	☐	☐	☐	☐
managing population loss	☐	☐	☐	☐	☐
environmental sustainability	☐	☐	☐	☐	☐
road maintenance and transportation services	☐	☐	☐	☐	☐
improving community and public health	☐	☐	☐	☐	☐
providing public services (e.g. garbage removal)	☐	☐	☐	☐	☐
advancing state priorities	☐	☐	☐	☐	☐
advancing federal priorities	☐	☐	☐	☐	☐



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Conditional Use Permit

15. As far as you know, which of the following planning processes, programs, or documents in your county deal with wind project development? Check all that apply.

- ☐ County siting or land use ordinance
- ☐ County's general, comprehensive, or master plan
- ☐ Development incentive program
- ☐ Property tax exemption policy
- ★ ☒ Conditional use permits
- ☐ None of the above [SKIP TO QUESTION 20 ON PAGE 8]



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Additions from KHI Team

31. What effect did the most recent **operational** wind project have in your county on...

	Greatly worsened	Worsened	Neither improved nor worsened	Improved	Greatly improved
the quality of public schools	☐	☐	☐	☐	☐
the fiscal health of the local gov't	☐	☐	☐	☐	☐
the local economy	☐	☐	☐	☐	☐
the beauty/aesthetics of the landscape	☐	☐	☐	☐	☐
the natural environment	☐	☐	☐	☐	☐
the health of residents near the wind project	☐	☐	☐	☐	☐
the health of the local agricultural sector (e.g. crops, livestock)	☐	☐	☐	☐	☐
the availability and cost of energy	☐	☐	☐	☐	☐
social or economic inequality	☐	☐	☐	☐	☐
community cohesion	☐	☐	☐	☐	☐



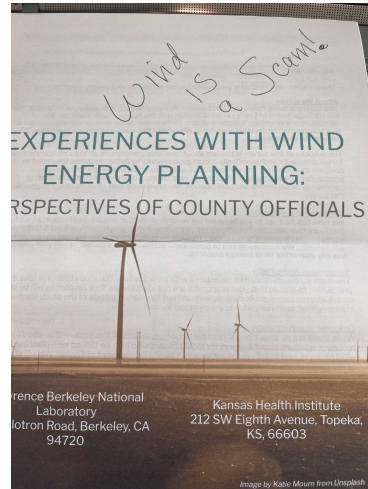
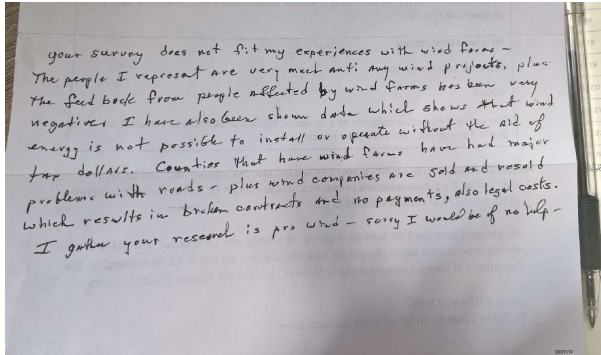
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Survey Feedback...



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County Policy Scan



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Potential Factors That Impact Health

The following factors were identified as causing potential impacts to health:

Noise

Shadow Flicker

Setbacks

Visual Impact Mitigation

Wildlife Mortality

Key Issues List



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Key Issues List (Ex. Coffey County)

- Land Use
- Electromagnetic Interference
- Visual Impact
- Reception Interference
- Noise
- Cultural Heritage
- Bird Migration / Strikes
- Native Vegetation / Weeds
- Endangered Species
- Cumulative Impact
- Soil Erosion
- Wildlife Habitat
- Water Quality
- Public Health and Safety
- Infrastructure
- Decommissioning / Restoration
- Aviation / Lighting
- Financial Surety Agreement



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Noise

Noise limits can be set so that turbines cannot exceed certain decibels (dBA).

- Most Kansas counties do not impose a noise limit.
- Harvey County had the lowest identified dBA limit at 45, while Barton County had the highest at 60.
- To mitigate impacts to sleep, Reno County limits noise to 45 dBA during the day and 40 dBA at night at the principal building.



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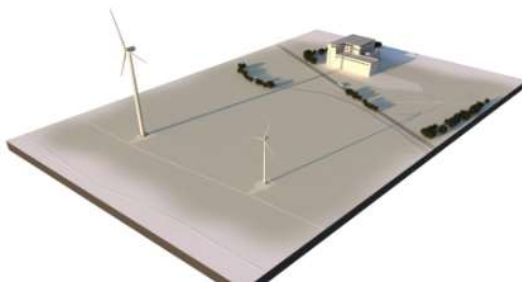
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Shadow Flicker

Turbine blades create a strobe effect at certain hours of the day.



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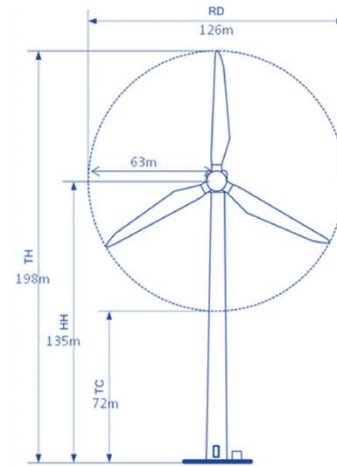
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Setbacks

The minimum distance required between wind turbines and other structures or features.

- Ranges between 500 to 3,000 feet for residential structures



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Visual Impact Mitigation

Counties can require developers to install or construct visual mitigation measures.

- Curtains
- Awnings
- Trees



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Wildlife Mortality

Wind turbines can cause increased bird and bat deaths. Counties can mitigate this by:

- Improved and informed site selection
- Informed curtailment by working with wildlife experts to determine high bird activity periods



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About the Policy Scan

Information from findings was organized in a table.

Kansas County	Turbines in County	Ordinance Status	Noise Limit	Shadow Flicker Limit	Visual Impact Mitigation	Setback - Non-Participating Landowners	Setback - Structures	Electromagnetic Interference (EMI) Mitigation	Bird Strike Monitoring	Decommissioning Plan	Key Issues List to be Addressed in Development Plan
Allen	59	Link to Ordinance	50 dBA	No	Yes	Max tip-height Multiplier 2; 1400 ft	Max tip-height Multiplier 1.1; 1000 ft	Yes	Yes	Yes	Yes
Barton	0	Link to Ordinance	65 dBA	No	Yes	Max tip-height Multiplier 1.1	Max tip-height Multiplier 1.1	Yes	Yes	No	No



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Moratoriums

22 counties have implemented moratoriums on wind energy development.

Moratoriums temporarily halt new projects but are not permanent. These periods are used to draft new zoning and regulations.



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Tallgrass Heartland Wind Moratorium

Protects Kansas' Flint Hills Tallgrass Prairie

- First declared in 2004
- Reaffirmed and expanded in 2011
- Governor Laura Kelly reaffirmed in 2020



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Future Project Activities



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Looking Ahead: Podcast Episode



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Looking Ahead: KHI Convening



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MPH Program Reflections



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Coursework

The following courses were of particular importance during my MPH experience:

- MPH 802 Environmental Health
- CDPLN 712 Sustainable Communities
- FDSCI 690 Principles of HACCP and HARPC
- FDSCI 731 Food Protection and Defense Concept



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Trip to Bay Area – Hetch Hetchy Regional Water System



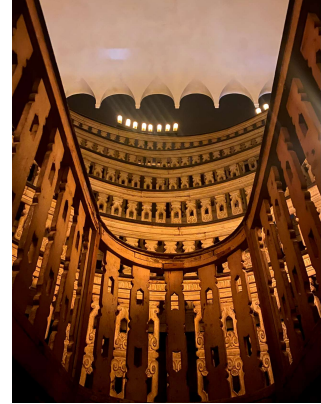
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Trip to Northern Italy



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THANK YOU!

Any Questions?



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