Master of Public Health

Applied Practice Experience

ENERGIZING PUBLIC HEALTH INVOLEMENT IN THE ENERGY SECTOR:

ASSESSING WIND ENERGY IMPACTS IN KANSAS COUNTIES

by

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submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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Chapter 1 - Portfolio Products

At the time of my APE/ILE experience, I was employed at the Kansas Health Institute (KHI). I have been with KHI since 2021 and have had the opportunity to be a part of a diverse range of projects and topic areas. KHI supports effective policymaking through nonpartisan research, education, and engagement. KHI's approach to projects and work is rooted in evidence-based information, objective analysis, and civil dialogue, which enables policy leaders to be champions for a healthier Kansas.

My interest in renewable energy and prior experience in environmental health (KCMO Health Department Environmental Public Health Specialist I) led me to pursue a project researching wind energy and its impact on Kansas communities. Policymakers and communities are calling for further research to assess the potential health impacts of living near wind turbines on both humans and wildlife. In May 2023, I began conceptualizing this project by attending (virtually) Douglas County Commissioner meetings as they began revising their wind development policies.

As the wind energy landscape evolves, county officials play a crucial role in shaping and overseeing projects. This involves planning, negotiation with developers, and active engagement with the community during project proposals. To adopt a proactive stance, local government officials need a comprehensive understanding of potential project impacts and be attuned to the specific needs and concerns of the community. This project evaluates various community impacts, including effects on residents' health, local wildlife, economic incentives, and housing. Addressing these impacts can provide a foundation for developing community-specific policies applicable to current and future wind energy developments.

The APE/ILE project's objective was to examine the approach and discussion surrounding these projects, and how publicly available policies incorporate specific impacts on human, animal, and environmental health. However, obtaining current county policies on wind

development posed challenges. For example, some counties openly share their zoning and land use policies, while others do not. Similarly, accessibility varies, with some policies only available in physical copies that require faxing, or an in-person visit to a county government office. And some counties appear to lack policies altogether, even those with operational wind projects.

For commercial wind projects (e.g., wind farms), evaluating human and environmental impacts is essential. Mitigation measures may be necessary to demonstrate efforts to minimize impacts on participating landowners or neighbors near the wind project. While some counties incorporate these provisions into their policies, others do not. These policies can take the form of land use and zoning regulations, applications for conditional use permits, or in counties without zoning, the implementation of a moratorium. A moratorium involves temporarily suspending or halting the development process or consideration of projects. This temporary pause is implemented with the expectation that the county will, in good faith, establish comprehensive development policies in the future.

To identify existing policies and assess the incorporation of health impact considerations during the planning of wind development projects, I completed the following activities for my APE:

1. Conducted a wind energy policy scan of Kansas counties and compiled findings into an Excel spreadsheet.
2. Established a partnership with Lawrence Berkeley National Laboratory (LBNL) to survey county commissioners on their experiences with wind projects.

Table 1.1 Summary of Portfolio Products

Portfolio Product	**Description**
Wind Energy Policy Scan	In Kansas, local county officials are responsible for creating policies to regulate wind development within their counties and deciding on the approval or denial of wind

	energy projects. The wind energy policy scan consisted of searching all 105 county websites and utilizing national wind ordinance and turbine location databases to identify existing policies. Subsequently, these policies were assessed to determine whether they incorporated considerations for health impacts. The findings were compiled in an Excel spreadsheet.
Collaboration on Lawrence Berkeley National Laboratory (LBNL) Survey	The survey seeks to gain insights into county commissioners' experiences and perceived impacts from wind projects. I, along with other KHI staff, contributed to survey questions, reviewed the final survey draft, and assisted in recruiting Kansas county commissioners to pilot the survey. Additionally, I attended the Kansas Association of Counties (KAC) conference to promote the survey.

Table 1.2 Portfolio Products and Competency Addressed

Portfolio Product	**Number and Competency Addressed**	
Wind Energy Policy Scan	4,15	Interpret results of data analysis for public health research, policy, or practice Evaluate policies for their impact on public health and health equity
Collaboration on LBNL Survey	7,13,19	Assess population needs, assets and capacities that affect communities' health Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes Communicate audience-appropriate public health content, both in writing and through oral presentation

Chapter 2 - Competencies

Table 2.1 Summary of MPH Foundational Competencies

Number and Competency		Description
4	Interpret results of data analysis for public health research, policy or practice	I conducted a policy scan that included analyzing data from the national wind project and policy databases. I translated data obtained from different national wind ordinance and project tracking databases into Kansas-specific findings.
7	Assess population needs, assets and capacities that affect communities' health	I listened to county commissioner meetings and the Kansas House Energy, Utilities and Telecommunications Committee to inform project research questions and contribute to LBNL survey.
13	Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	I affirmed KHI's partnership with the KAC and established a new partnership with LBNL. Additionally, I contacted the University of Kansas's Just Energy Transitions and Place project team to identify areas for future partnerships and projects.
15	Evaluate policies for their impact on public health and health equity	I conducted a scan of wind development county and state policies and whether they included considerations for impacts to human and environmental health.
19	Communicate audience-appropriate public health content, both in writing and through oral presentation	I recruited county commissioners for the survey at the KAC Conference in Wichita. I explained the purpose of the survey and asked if they had input on the survey during a presentation. I create figures from policy scan to be used in a KHI issue brief.

Competency 4 – When completing the wind development policy scan in Kansas counties, I relied on ordinance databases, such as the Department of Energy's Wind Exchange Ordinance Database, to identify policies within the last 5 years. In response to recent federal incentives under the Inflation Reduction Act and increased pressure to expand wind energy in the state, several counties have revised their policies. Some

have adopted more permissive measures, while others have chosen to prohibit future wind developments. Additionally, I visited all 105 Kansas county websites to identify specific policies related to wind development beyond the 5-year database search window. The findings were then compiled into an Excel Spreadsheet. Additionally, my quantitative research team and I analyzed and developed key findings from the Kansas-specific LBNL survey findings as well as findings from the eight other study states to draw comparisons. Additionally, I and other KHI staff were able to review and contribute sections to LBNL's publications that utilized survey data and other findings.

Competency 7 – Effective and community-specific research necessitates community engagement, whether direct or indirect. I engaged indirectly by virtually attending Douglas County Commissioner meetings, where discussions often relied on anecdotal information but also sought input from wind energy experts. It became evident during this period that impacts on human and environmental health consistently hinder wind development expansion. For direct engagement, I attended the KAC conference in Wichita, Kansas. Conversations at the conference, particularly on 'unknown impacts to human health,' highlighted the need for more education and research on long-term effects of wind energy development. Commissioners raised concerns about agricultural impacts, such as crop damage from turbines and potential disruption to livestock behavior due to turbine-induced stress. These insights were incorporated into the survey questionnaire.

Competency 13 – Lawrence Berkeley National Laboratory (LBNL), a research institute housed under the Department of Energy's Office of Sciences, sought collaboration with the Kansas Association of Counties (KAC) to assist in their survey on county commissioners' experiences and challenges with wind projects in eight study states, including Kansas. The findings from the survey will contribute to a report of recommendations, which will be published in July 2024. Facilitating collaboration as an existing partner to KHI, KAC acted as a liaison between KHI and LBNL. This led to KHI's involvement in LBNL's project activities and contributions to the survey for commissioners across all study states. This collaborative effort enhances the survey with state-specific findings.

KHI staff played a key role in reviewing and suggesting survey additions related to potential health impacts identified through a literature review, Douglas County Commissioner meetings, local news articles, and discussions at the KAC conference. Additionally, I was able to pilot the survey with commissioners in Kansas and in the other study states.

Competency 15 – The goal of the policy scan was to provide a snapshot of what wind development policies look like across Kansas, and to gain understanding about how projects are informed and permitted. A literature review was also completed, summarizing peer-reviewed resources on the potential health impacts of wind turbines on individuals and communities. These findings shaped the framework for examining current wind development policies and their inclusion of health impact considerations.

Searches for peer-reviewed literature on wind turbines and their potential health impacts were retrieved from online databases and academic libraries, such as KSU Libraries, PubMed, ScienceDirect, and Google Scholar. Policies were retrieved from county websites, news articles and national databases.

Competency 19 –Wind development has a disproportionate impact on rural and frontier areas of Kansas, driven by the open, and vast expanses of unobstructed land for building wind turbines, and consistent wind speeds. I was able to communicate effectively with county commissioners at the KAC conference through an informal presentation regarding the survey and purpose of this project. I was also able to translate technical aspects of wind projects in county policies into figures and discussion.

Table 2.2 MPH Foundational Competencies Course Mapping

22 Public Health Foundational Competencies Course Mapping	MPH 701	MPH 720	MPH 754	MPH 802	MPH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to the breadth of settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy or practice	x		x		
Public Health and Health Care Systems					
5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets and capacities that affect communities' health		x		x	

8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	x
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision making		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815, FNDH 880 or KIN 796				
19. Communicate audience-appropriate public health content, both in writing and through oral presentation	DMP 815, FNDH 880 or KIN 796				

20. Describe the importance of cultural competence in communicating public health content		x			x
Interprofessional Practice					
21. Perform effectively on interprofessional teams		x			x
Systems Thinking					
22. Apply systems thinking tools to a public health issue			x	x	