

# *INDIANA RENEWABLE ENERGY*

*Siting through Technical Engagement and Planning (R-STEP™)*

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## Indiana R-STEP Kickoff Webinar

December 12, 2024



Extension - Community Development

This material is based upon work supported by the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy (EERE) through the Renewable Energy Siting through Technical Engagement and Planning (R-STEP) program. R-STEP is administered with support from the Partnership Intermediary Agreement (PIA) that the U.S. Department of Energy (DOE) has established with EnergyWerx.




**U.S. DEPARTMENT  
OF ENERGY**  
AWARDEE™






Extension - Community  
Development




United States Department of Agriculture



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**mail:**  
U.S. Department of Agriculture  
Office of the Assistant Secretary for Civil Rights  
1400 Independence Avenue, SW  
Washington, D.C. 20250-9410; or

**fax:**  
(833) 256-1665 or (202) 690-7442;

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IN R-STEP and Purdue Extension programs are open to everyone. We are required to report race, ethnicity, and gender of program participants to the U.S. Department of Agriculture (USDA). Only total numbers across all programs are reported so USDA will not be able to identify your individual responses. Your responses are voluntary and help IN R-STEP and Purdue Extension to improve their programming. Thank you.



# R-STEP Overview

- Renewable Energy Siting through Technical Engagement and Planning
  - Program of the Department of Energy, Office of Energy Efficiency and Renewable Energy
  - Expands decision-making capacity and expertise of state and local governments around large-scale renewable energy planning, siting, and permitting
  - Provides funding and technical assistance support
- State-based collaboratives, 3-year programs
  - Round 1:
    - Indiana
    - Iowa
    - Michigan
    - Mississippi
    - North and South Carolina
    - Wisconsin
  - Round 2:
    - Colorado
    - Georgia
    - Idaho
    - Oklahoma
    - Pennsylvania
    - Washington

<https://www.energy.gov/eere/renewable-energy-siting-through-technical-engagement-and-planning>

Indiana experiencing increased interest in renewable energy generation much like other Midwest U.S. states driven by:

- Federal and state incentives and state renewable portfolio standards and/or non-binding goals
- Market conditions

Renewable energy projects are complex and include:

- Matching energy availability to demand
- Meeting regulatory and engineering requirements
- Local community acceptance

## Renewable portfolio standards across the U.S.

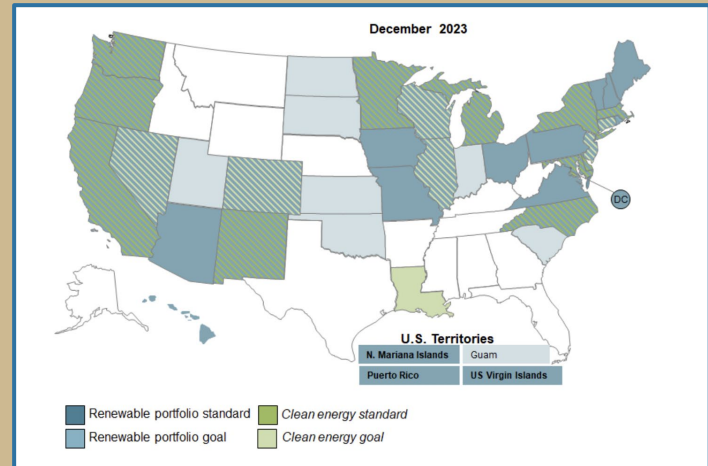
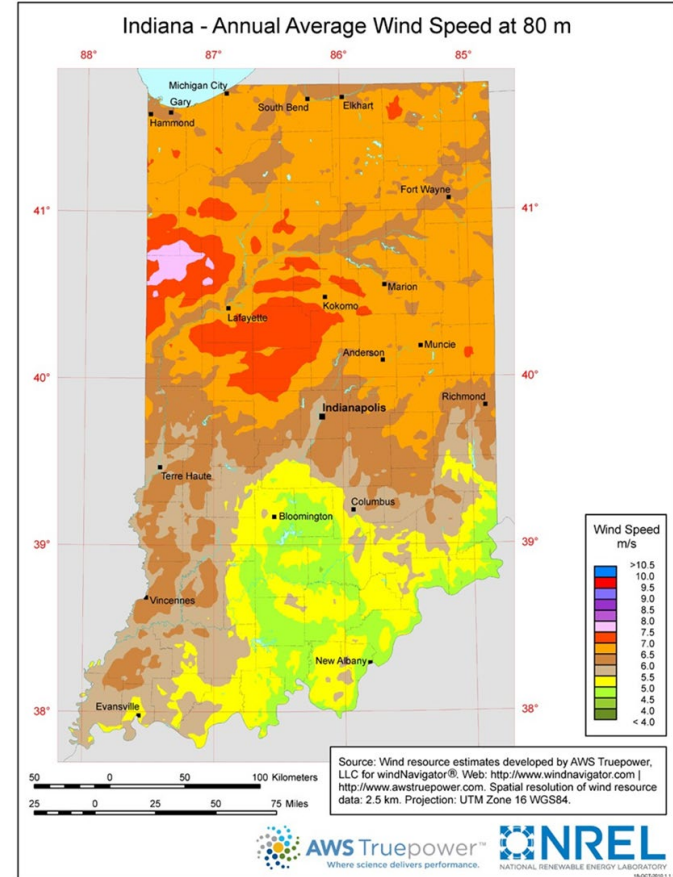
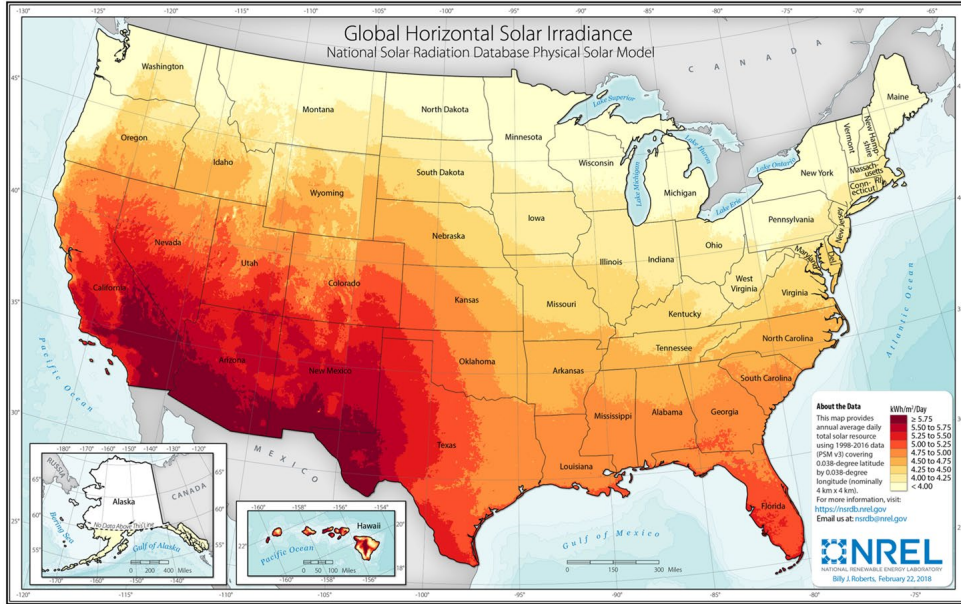


Image source:  
2023 Renewable Energy Report,  
Indiana Utility Forecast





Source: 2021 Renewable Energy Report, Indiana Utility Forecast

Indiana is 10<sup>th</sup> in total energy use per capita (2023)

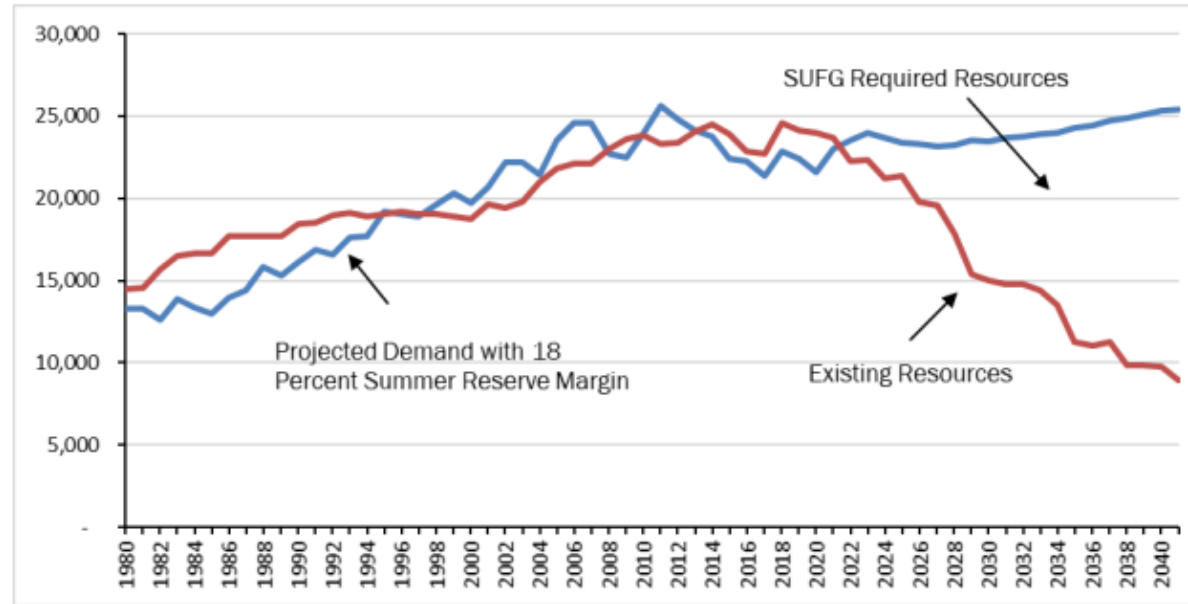
We have used more electricity than we have produced since 2012. In 2022, 13% of our electricity supply came from other states.

In 2013, 84% of the electricity generation was coal-fired.

Since then about 5,000 MW of coal-fired electricity capacity has been retired with another 3,900 MW scheduled to be retired by 2028.

Renewable resources accounted for 14% of our total electricity generation in 2023.

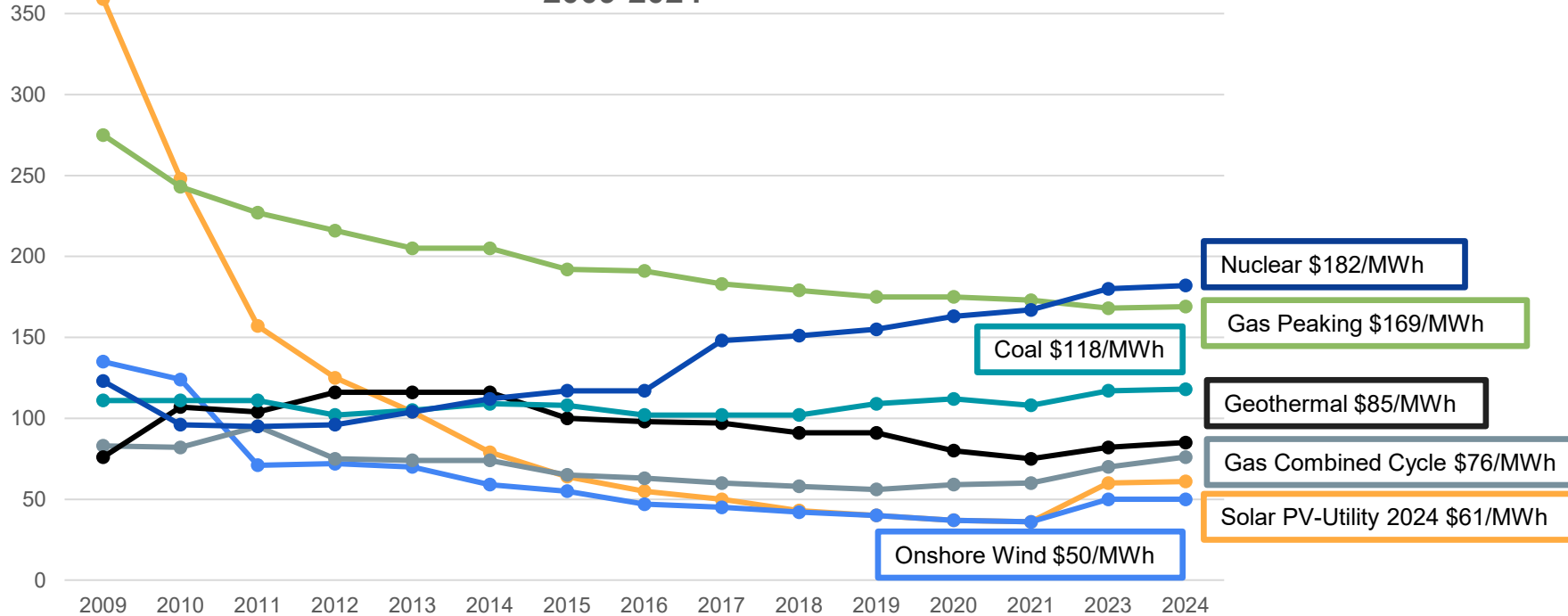
**Figure 1-3. Indiana Total Demand and Supply in MW (Summer Season) (SUFG Base)**



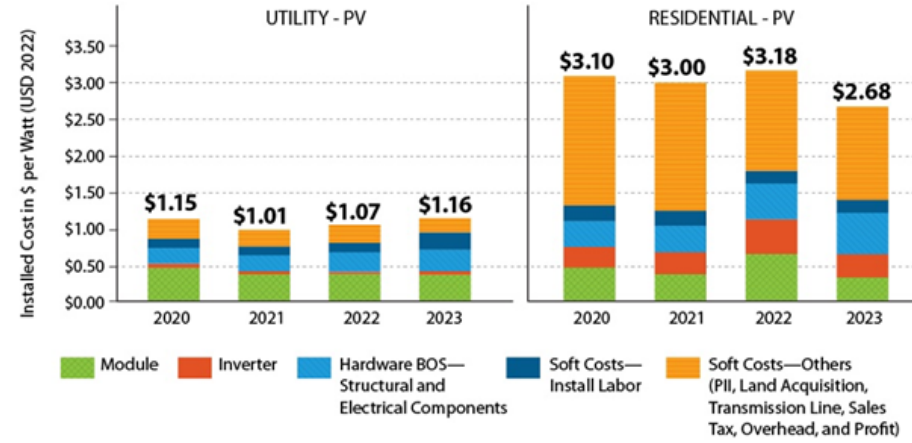
Due to data availability restrictions at the time that SUFG prepared the modeling system to produce this forecast, the most current year with a complete set of actual historical data was 2021.

Therefore, 2022 and 2023 numbers represent projections.

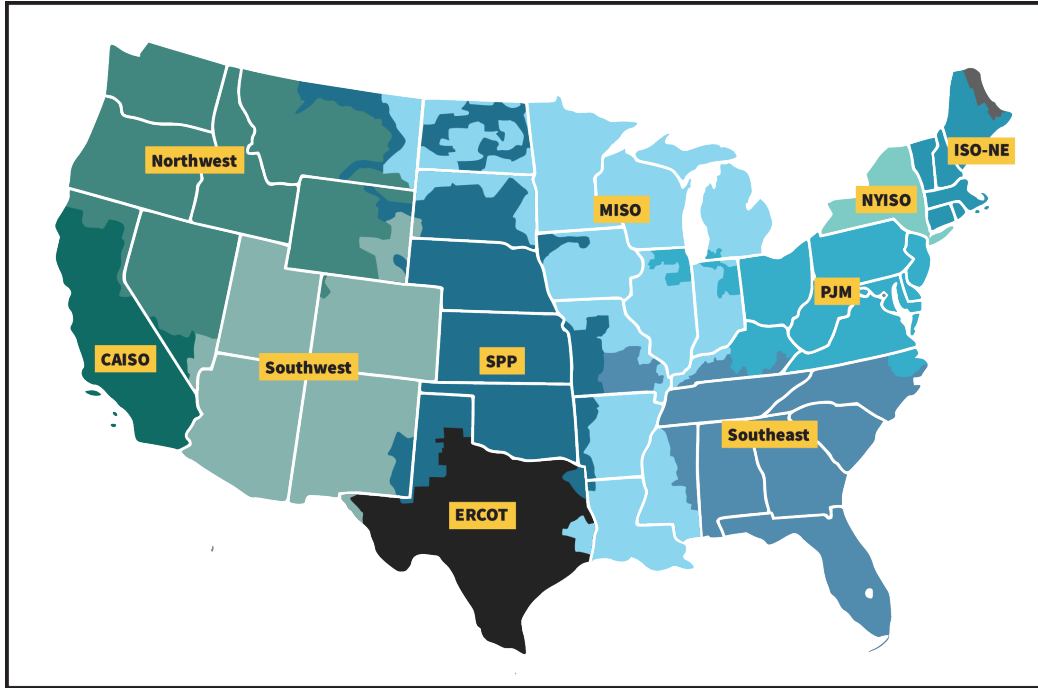
Levelized Cost of Energy Comparison, Unsubsidized from 2009-2024



- Larger utility-scale PV projects (>50 MW) cost 13% less than smaller projects (5-50 MW) per watt in 2023. ([Utility-Scale Solar, 2024 Edition](#))
- The levelized cost of energy (LCOE \$/MWh with tax incentives) for residential rooftop PV is 3-12 times higher than utility-PV. ([Lazard 2024](#))
- Tracking increases energy production by 15-20% ([Oviatt and Deline 2024](#))



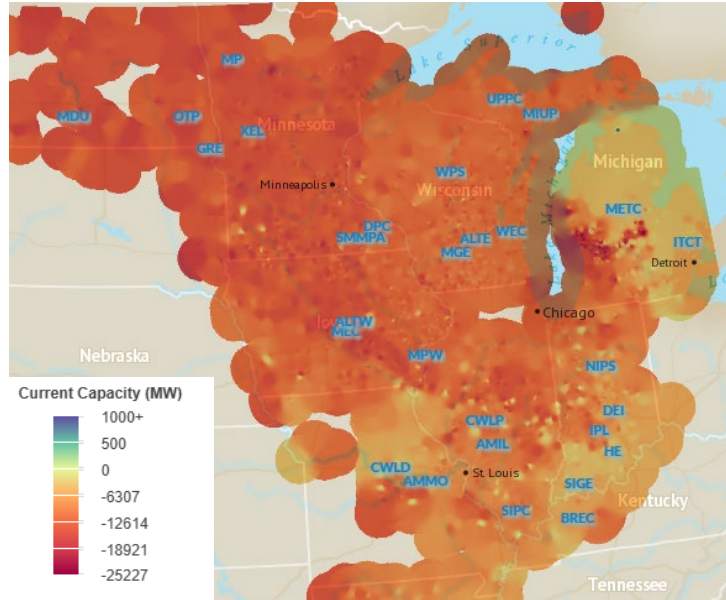
Source: [NREL News 2023](#)



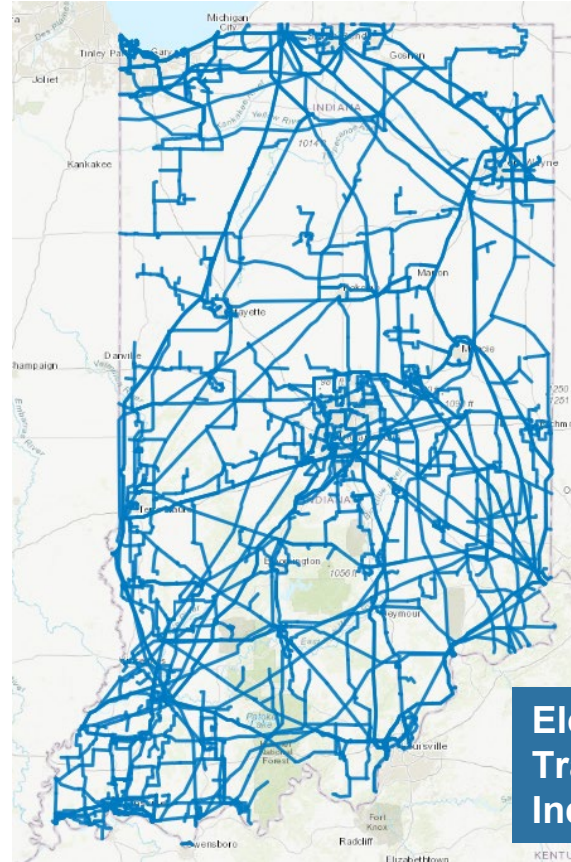
Source: Federal Energy Regulatory Commission

- Schedule generation, transmission, and reserves
- Planning for the grid system
- Manage the system in real-time
- Non-profit organizations
- Regulated by the Federal Energy Regulatory Commission

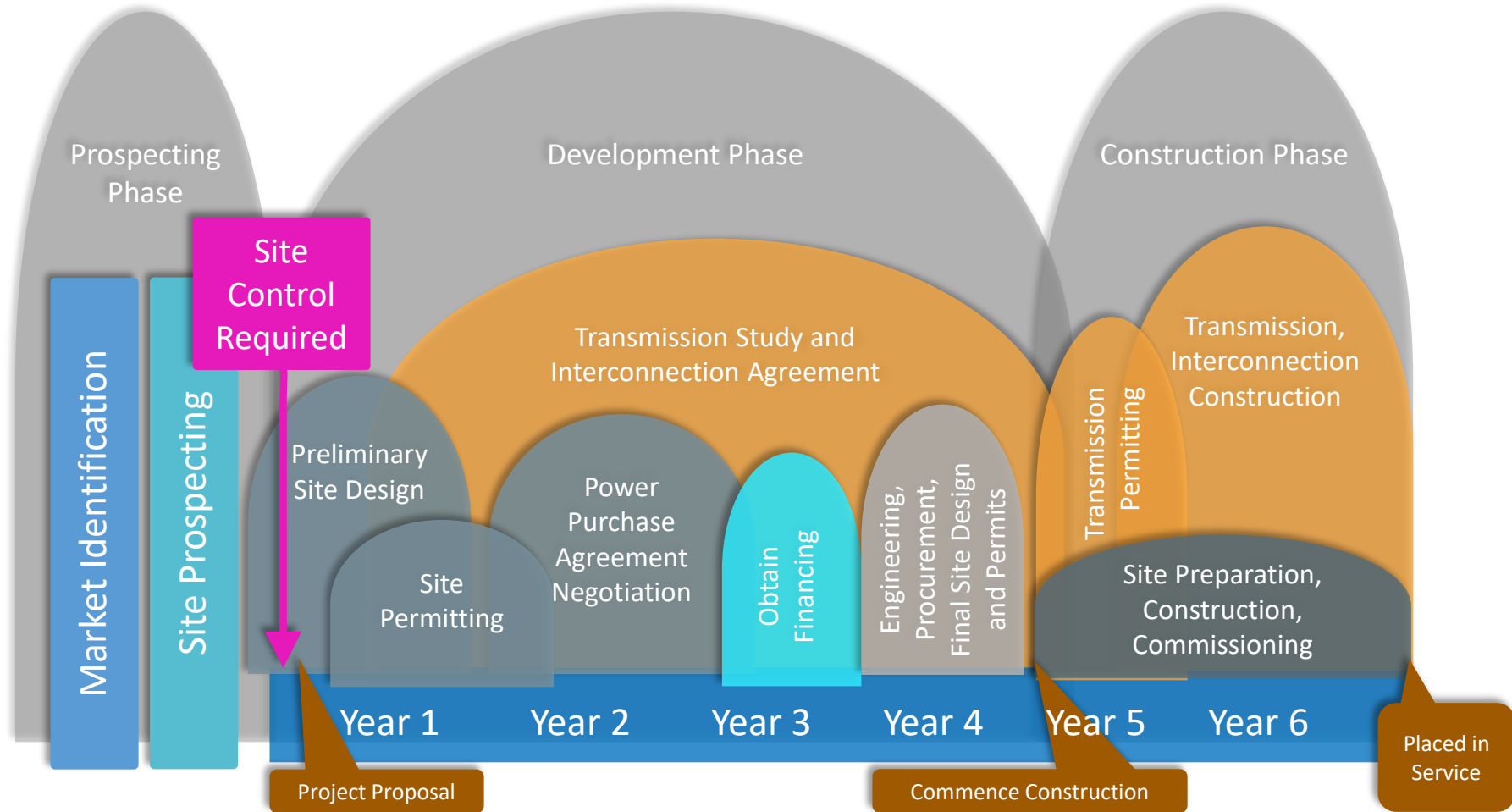




**MISO Interactive Interconnection Capacity Availability Map, 2024**



Interconnection availability and costs play a significant role in the siting of any electricity generation.



## Hypothetical Utility-Scale PV Development Timeline (250 MW)

Source: NREL, modified from SEIA <https://ei-spark.lbl.gov/generation/utility-scale-pv/project/>



## What are developers looking at?

- Transmission capacity and reasonable upgrade costs
- Market zones where a project can be financeable/marketable and competitive
- No other disqualifying impacts (airspace, wildlife, radar, wetlands/topography, land use, etc)
- Good solar/wind resource
- A predictable or amenable policy environment

*IN R-STEP*

# Indiana R-STEP



## Core Team

- Purdue Extension Community Development
- Indiana Office of Energy Development
- Ball State University
- Center for Energy Education
- Center for Infrastructure & Economic Development
- IN-ACRE
- Indiana Chapter of American Planning Association
- Indiana University Public Policy Institute
- JWM Co
- Myerson Consulting



## Steering Committee

### Core Team +

- AgrilInstitute
- American Farmland Trust
- Association of IN Counties
- Bose McKinney
- Clean Grid Alliance
- Climate Democracy Initiative
- Donovan Energy
- Duke Energy
- EDP Renewables
- Indiana Electric Cooperatives
- Indiana Michigan Power
- Indiana State Department of Agriculture
- Solvenergy
- Solar United Neighbors



## Vision

Communities throughout Indiana will be empowered to make informed local renewable energy decisions as a result of shared expertise from the collaborative network formed by this funding. The renewable energy planning and technical assistance collaborative will support data-driven local decision-making, considering the needs of communities, effects on the local economy, land rights and use, local workforce, and the broader energy landscape.



## Project Overview & Focus

Develop an initiative that will address barriers to renewable energy planning, siting, and permitting in Indiana by:

1. Forming and cultivating a collaborative of community leaders and technical assistance experts to support decision-making for large-scale renewable energy resources.
2. Developing a technical resource and community engagement hub to assist communities with renewable energy planning, evaluation, and decision-making.

- Economic analyses (Ball State and TNC)
  - Conduct analyses of effect of wind and solar facilities on residential property values and economic impact of local regulatory environment
- Needs assessments (PU Ext with input from team)
  - Launch statewide focus groups, interviews, surveys with planners, local decision-makers, and developers to inform technical assistance
- Ordinance inventory update (PU Ext)
  - Coordinate with county plan commissions to display trends and county snapshots

A Snapshot of Renewable Energy Land Use Regulations in

## Benton County



Farmland Coverage  
96.50% land in farms

Population Density  
21.5 per sq. mi.

Housing Unit Density  
9.3 per sq. mi.

Population (2020)  
8,719 ↔

County Type  
Rural

PCPI (2019)  
\$42,135

### COMMERCIAL SOLAR ENERGY SYSTEM STANDARDS

Use standards for CWECSs beyond zoning district's standards unless otherwise specified.

ZONING DISTRICT	PERMITTED USE / SPECIAL EXCEPTION
All districts except residential	Special Exception
REZONE REQ: NO ADDITIONAL PROCESSES: NONE	

#### SETBACKS & BUFFERS

Setback	75' from ROW
Municipal Buffer	None
Use Buffer	200' from primary dwelling
Reciprocal Buffer (CM)	None

#### OTHER DEVELOPMENTAL STANDARDS

Minimum Lot Size	5 acres
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#### DEFINITION

Convert and deliver electricity to a utilities transmission lines

#### PLANS & STUDIES REQUIRED

\* Upon request

- ☒ Decommission Plan
- ☒ Economic Development Agreement
- ☒ Maintenance Plan
- ☒ Transportation/Road Use Plan
- ☐ Vegetation/Landscape Plan
- ☐ Environmental Assessment

### COMMERCIAL WIND ENERGY CONVERSION SYSTEM STANDARDS

Use standards for CWECSs beyond zoning district's standards unless otherwise specified.

ZONING DISTRICT	PERMITTED USE / SPECIAL EXCEPTION
All districts, except residential	Special Exception
REZONE REQ: NO ADDITIONAL PROCESSES: NONE	

#### SETBACKS & BUFFERS

Setback	350' or 2.2 times the tower height
Municipal Buffer	1500'
Use Buffer	1,000' from existing residence, occupied structure, place of public gathering and platted subdivisions
Reciprocal Buffer	None

#### OTHER DEVELOPMENTAL STANDARDS

Maximum Height	None
Minimum Blade Clearance	15'
Maximum Noise Level	41-75 dB depending on hertz
Shadow Flicker	None
Braking System Standards	Yes
Color Standards	Yes
Warnings/Hazard Protection Standards	None
Fence/Climb Prevention Standards	Yes
Lighting Standards	None
Interference	Yes

#### DEFINITION

Wind energy conversion system that delivers electricity to a utility's transmission lines.

#### PLANS & STUDIES REQUIRED

\* Upon request

- ☒ Decommission Plan
- ☐ Economic Development Agreement
- ☐ Maintenance Plan
- ☒ Transportation/Road Use Plan
- ☒ Vegetation/Landscape Plan
- ☐ Environmental Assessment
- ☐ Sound Study
- ☒ Emergency/Fire Safety Plan
- ☒ Drainage/Erosion Control Plan
- ☒ Liability Insurance
- ☐ Property Value Guarantee
- ☒ Certificate of Design Compliance
- ☒ Certification by Engineer
- ☐ Other plans or studies



- Community engagement process and curriculum (PU Ext)
- GIS tool process and engagement (TNC and PU Ext)
- Publications (IU, Myerson Consulting, CN Consulting, PU Ext, OED, and potentially others)
  - Guidebook, Fact Sheets, Videos
  - Commercial wind and solar ordinance resources for the Energy Ready Community certification

- Renewable energy education workshops (Center for EE)
  - Center for Energy Education workshop model for regional engagement
- Local/regional renewable energy tours (PU Ext, CN Consulting and partners)
- Webinar series
  - Rural landowners (IN-ACRE)
  - Community planning considerations for local government (APA-IN and PU Ext)
- Outreach and education presentations (Team)
- Networking events (IN-ACRE)

- Increase coordinated support for renewable energy education, planning, and resource access, focusing on under-resourced communities
  - Internal team capacity building
  - Data and exercises in community processes to help identify underrepresented populations in community engagement
  - Identify communities without professional planners

## **Purdue Extension's Approach**

**IN R-STEP**

<https://extension.purdue.edu/cdext/>



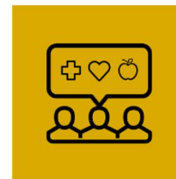
HOME ABOUT ▼ THEMATIC AREAS ▼ DATA RESOURCES NEWS

Extension Home > Community Development

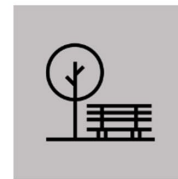
#### THEMATIC AREAS



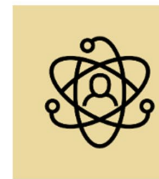
Community Economics &  
Workforce Development



Community Health



Community Planning



Leadership & Civic  
Engagement

# Community Development

Strengthen the capacity of local leaders, residents, businesses, and organizations to build resilient, inclusive,

Decision makers delegate some level of responsibility for preparing plans to stakeholders

- Process designed for
  - dialogue to resolve conflicts
  - developing a shared vision
  - formulating creative solutions and achieving objectives
- Program design and selection of engagement activities are important aspects of successfully



- Support voluntary community certifications to build on successes and increase awareness of land use topics (ex. IOED Solar and Wind Energy Ready Communities)
- Enhance collaboration pathways for land use planning topics
  - Establish connections to peer communities that have undergone similar development
  - Support local, facilitated convening opportunities and working groups on land use decision making
- Support professional development expectations for lay planning decision makers

- **Comprehensive Plan Goals and Objectives**

- What goals will these developments support
- What goals will they conflict with

- **Conflicting Land Uses**

- What are the primary concerns or issues
- What tools/standards would help to

- **Public Infrastructure and Investment**

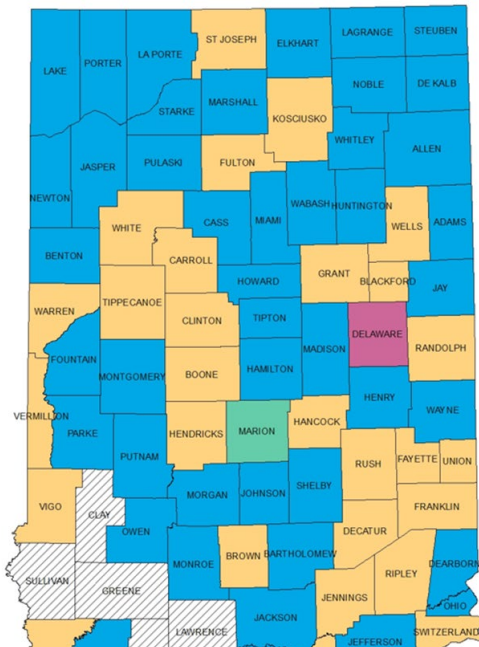
- How do these developments add to public infrastructure and investment
- What measures need to be put in place to protect or remediate public infrastructure

- **Externalities**

- What are the positive or negative externalities of these developments



- Provides research-based resources and education programs on land use issues impacting communities
- Audiences include government officials, citizen/lay planners, residents
- Purdue Extension educators serve on Area and Advisory Plan Commissions across state
  - Extension educators may still play a role as nonvoting members if not residing in



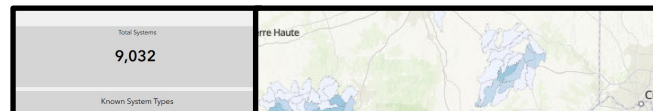
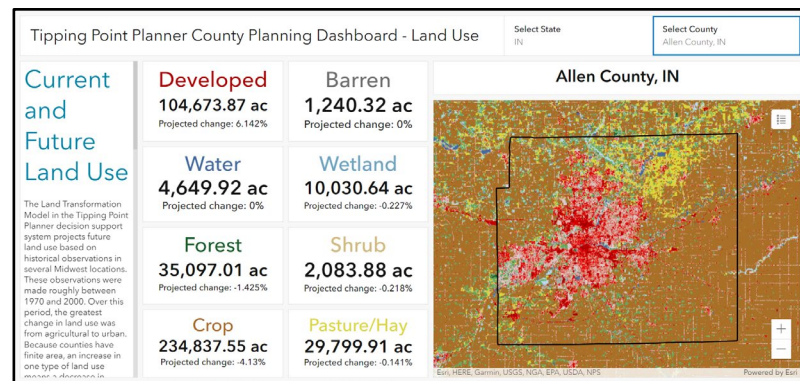
### American Citizen Planner-Indiana

- Online training for Area and Advisory Plan Commission members and others interested in land use planning
- Offered state-wide annually three times per year in spring, summer, and fall
  - Over 250 participants to-date
- 31 topics (and counting) detailing core planning theories, practices, and processes, including:
  - Ethics
  - Legal foundations
  - Comprehensive planning
  - Planning Tools & Processes



## Community Planning Technical Assistance

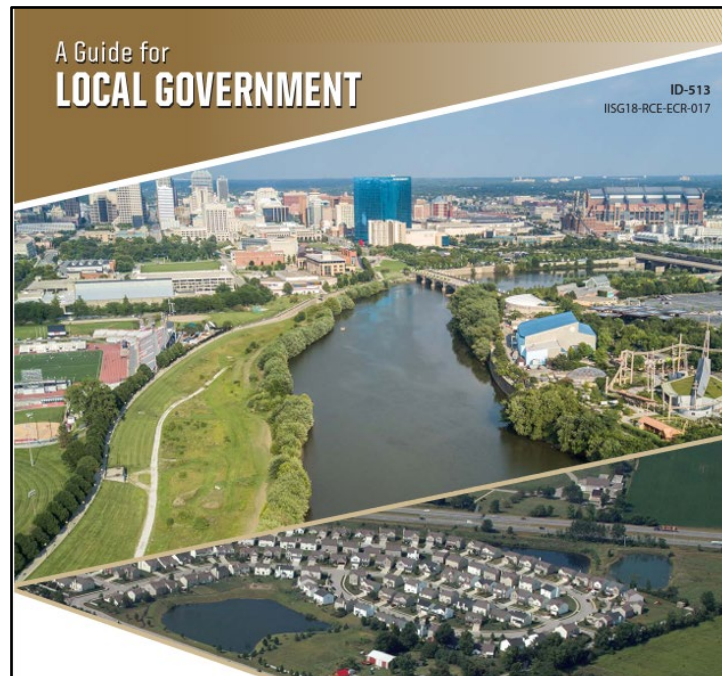
- Convene and coach working groups in collaboration with decision making bodies to support local planning and ordinance development
- Community planning topic examples:
  - Housing
  - Natural resources conservation
  - Parks and public spaces
  - Renewable energy
  - Septic systems
- Support education through decision-



## Guidebook and Extension Publications

### Community Planning for Agriculture and Natural Resources: A Guide for Local Government

- Developed by Purdue Extension and the Indiana Land Resources Council
- Sections:
  - Economic Development Policy Tools
  - Built Environment and Natural Resources
  - Food and Agriculture
  - Planning for Agritourism
  - Forestry and Natural Resources



# How to Engage with IN R-STEP



## Activities Completed to Date

- Contract discussions and documents with DOE
  - Signed contract, Month 1 = August 2024
  - Paperwork & Coordination, August to October 2024
    - Project Charter, Technical Assistance Plan, Inclusive Excellence Plan
- Hired Community Resilience Specialist Kayla Wright, June 2024
- Meet and greet introductions/discussions
- Marketing templates
- List-serv
- Pilot bus tour with collaborative, November 2024
- Launched website (Information Hub): <https://puext.in/rstep>

- Begin webinar series
  - Landowners
- Schedule regional workshops (and potentially host one)
- Draft needs assessment methodology for DOE review
- Draft economic study of regulatory environment methodology for DOE review
- Draft ordinance inventory
- Draft process for educating and engaging communities on GIS tools for DOE review
- Schedule bus tours and host first tour
- Schedule peer-to-peer networking opportunities



## Next Quarter Activities

**We can assist Indiana communities with data, tools, and educational resources to support informed utility-scale renewable energy planning.**

- network hub of online resources
- peer-to-peer networking events
- in-person and online learning opportunities through webinars, tours, conferences and workshops
- research products for planning and economic development
- facilitate community meetings





## Stay Connected

- IN R-STEP Website: <https://puext.in/rstep>
- Purdue Extension Community Development Newsletter
- R-STEP Email List
- Reach out to us with questions or additional resources

If you'd like to be added to our contact list, please scan the QR Code and fill out the form with your information.





## Thank You

**Tamara Ogle**, Community Development Regional Educator  
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## Your Feedback



Your feedback is important to IN-RSTEP.

Please scan the QR code to access our evaluation survey. This survey is voluntary and anonymous.