

BACKGROUND ON UTILITY-SCALE ENERGY PRODUCTION

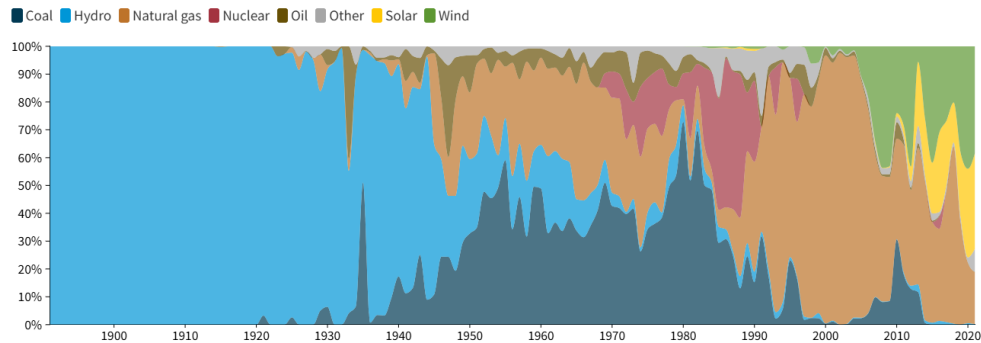
- Energy Generation and Utility Scale Considerations
 - History
 - Generation Markets
 - Future Needs
- Solar and Battery Energy Storage System Basics
 - Development Timeline



5 ERA'S OF ENERGY GENERATION

Transitions in electric generation capacity in the United States 1891-2021

Energy source shares are calculated as the percent of all new capacity additions in a year.



Source: U.S. Energy Information Administration
Boston University Institute for Global Sustainability | visualizingenergy.org | CC BY 4.0

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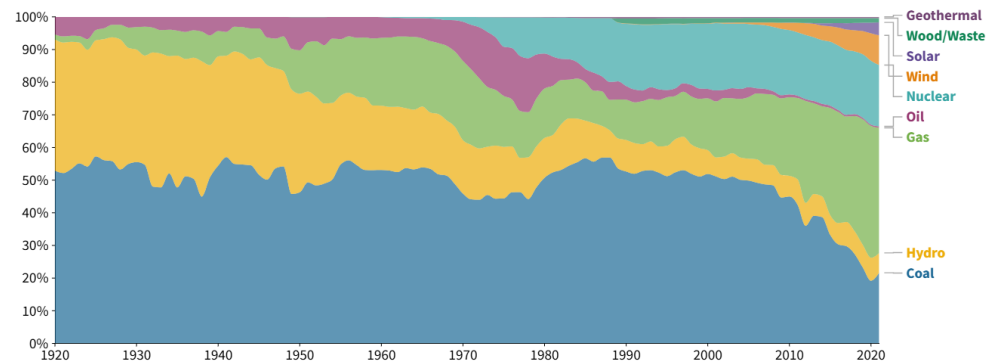
- 1800's-1920's
 - Hydropower Beginnings
- 1920's-1960's
 - Coal Surge
- 1960's-1980's
 - Fossil Fuel and Nuclear
 - Oil then Natural Gas
- 1990's-2000's
 - Natural Gas Transition
- 2000's-Present
 - Renewable Surge

[United States electricity history in four charts – Visualizing Energy](https://visualizingenergy.org)



ENERGY SOURCE SHARES

Energy source shares in United States electricity generation, 1920-2021



Source: U.S. Energy Information Administration; US Bureau of Census; author calculations
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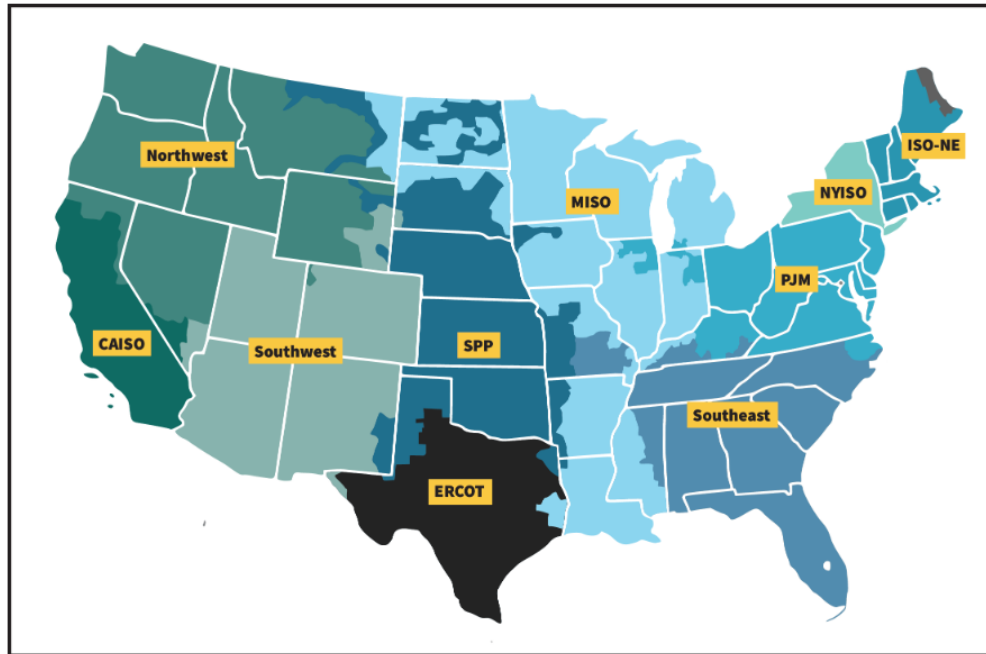
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- 1920's
 - > 50% Coal, 40% Hydro, 10% Oil/Natural Gas
- 1970's
 - Greater Diversity
 - Nuclear Ramp Up
- 2020+
 - Diversity of Generation
 - From 4 to 9 Sources

[United States electricity history in four charts – Visualizing Energy](#)



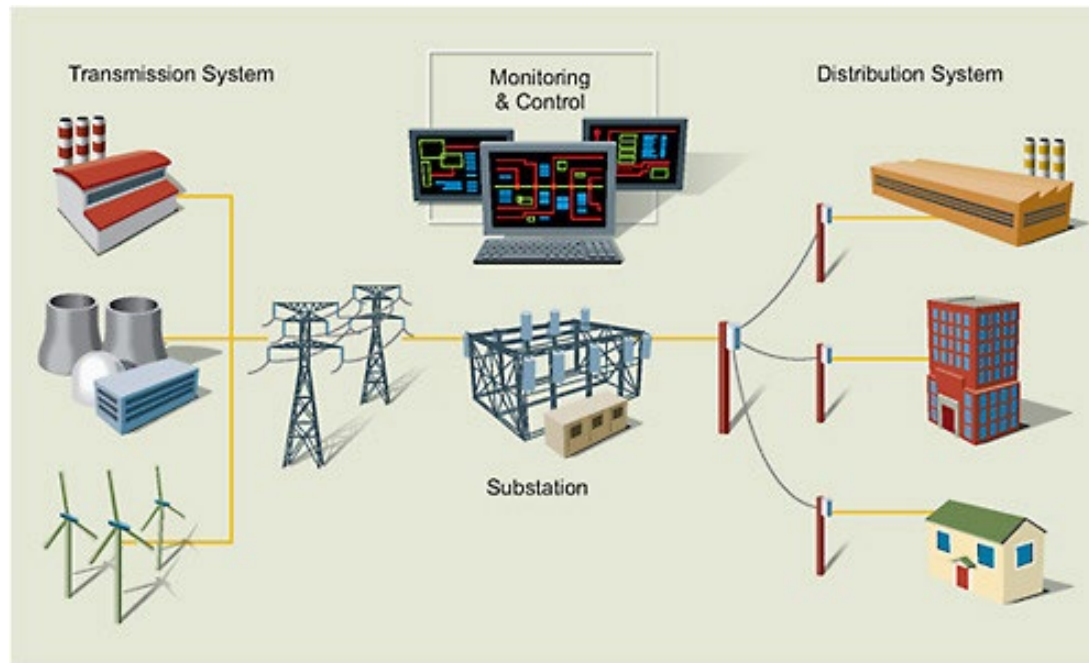
ELECTRICAL TERRITORIES



- **MISO** (Midcontinent Independent System Operator)
 - Indiana (15 States Montana to Michigan and Minnesota to Louisiana along with Manitoba, Canada)
 - Serving 45 million people with 79,000 miles of transmission lines
- **PJM**
 - Pennsylvania, New Jersey and Maryland and now serve many states including portions of Indiana and the Central East Cost including Pennsylvania to North Carolina and New Jersey to Illinois.
 - Serving 61 million people with 62,556 miles of transmission lines.



GENERATION, TRANSMISSION AND DISTRIBUTION



- GTD is Similar to that of a Roadway Network
 - Trips are Generated and have a Destination
 - Roads grow from local cul-de-sacs to interstate highways

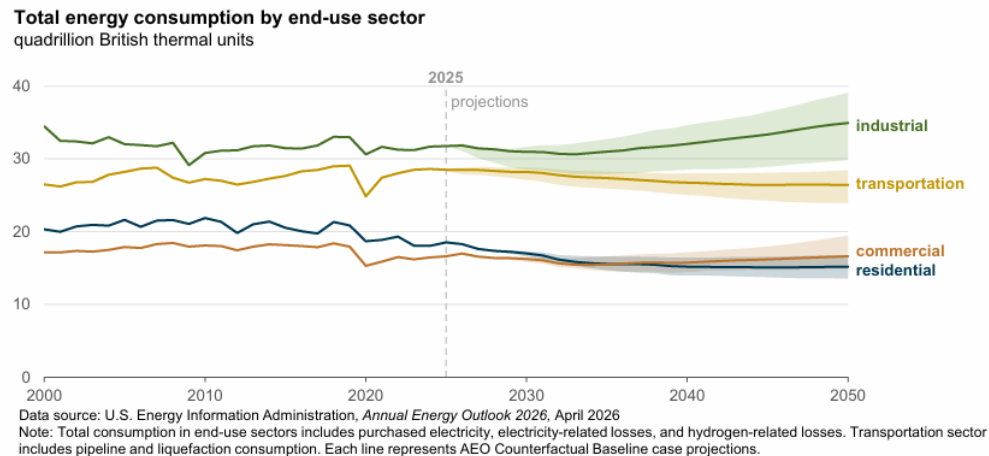


INDIANA TRANSMISSION LINES

- Transmission and Distribution Lines are in a variety of sizes
 - Transmission Lines as mapped are typically
 - 138kv
 - 345kv
 - 765kv
 - Distribution lines typically come in below this all the way down to the local roadside lines that services home and businesses



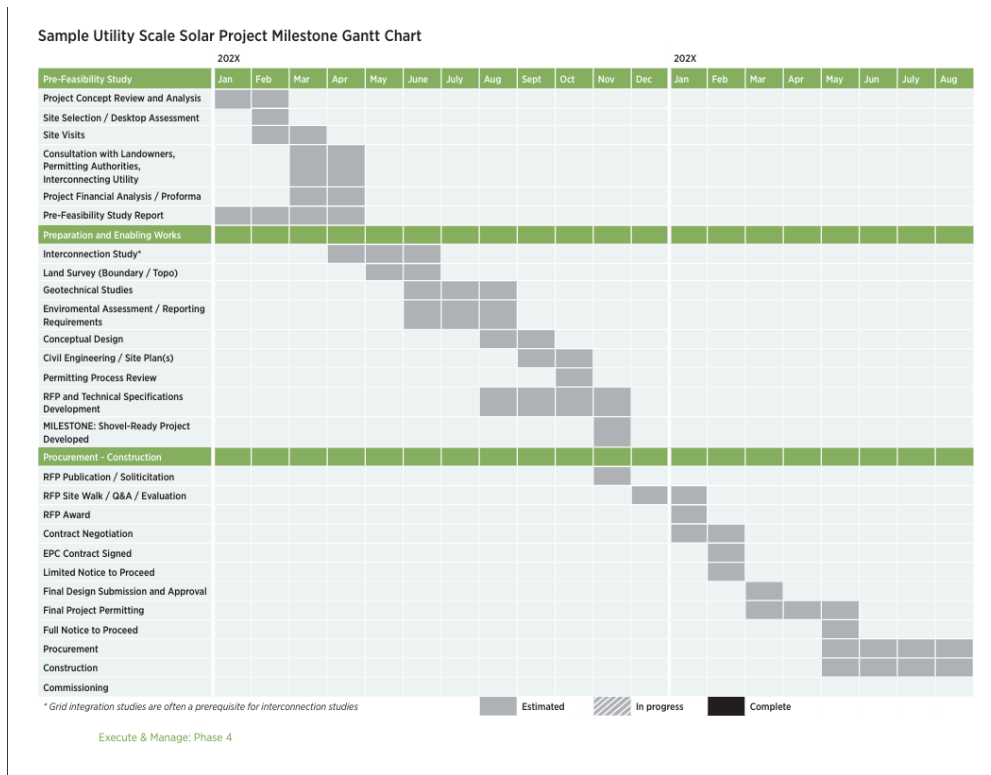
ENERGY CONSUMPTION BY SECTOR



- Energy Consumption shown over the past 25 years and where current policies are projecting stabilization and others showing growth.
 - Residential and Transportation remain stable
 - Commercial with slight growth
 - Industrial showing a wide variety from stable to high growth
- Impacts to projections
 - Surging demand for AI and Electrification
 - Renewable integration challenges
 - Affordability constraints



UTILITY SCALE GENERATION TIMELINE

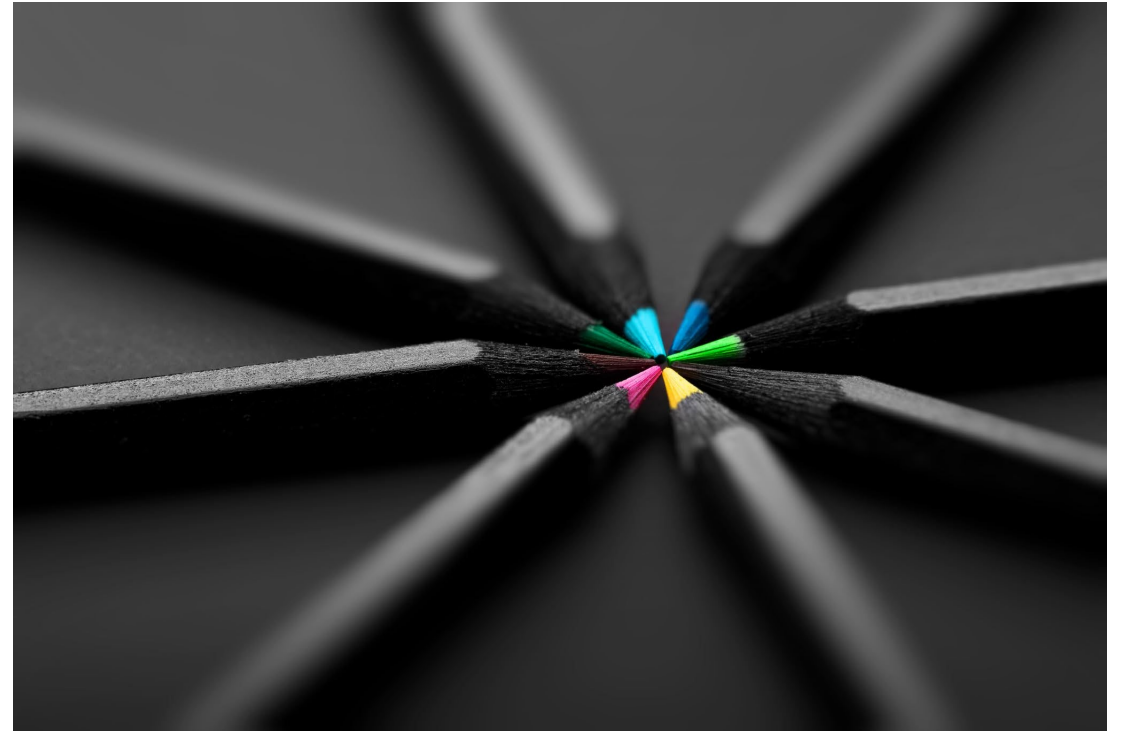


- Electrical generation is similar in some instances to other forms of development with various plans and approvals required.
- Energy Generators can take 3-5 years or up to 7-10+ years.



COMPREHENSIVE PLANNING

- Purpose of the Comprehensive Plan
 - Intention Based on Indiana Code(IC)
- Minimum Requirements/Options and Common Compositions
 - Basics of a Comp Plan
 - What COULD be Included
- Public Involvement
 - Initial Consideration
 - Additional Considerations



PURPOSE OF THE COMPREHENSIVE PLAN

- Indiana Code Intentions
 - Guide investment
 - Protect property values
 - Make communities healthier



MINIMUM AND OPTIONAL REQUIREMENTS

- Basics of a Comprehensive Plan
 - A statement of objectives for the future development of the jurisdiction;
 - A statement of policy for the land use development of the jurisdiction; and
 - A statement of policy for the development of public ways, public places, public lands, public structures, and public utilities.
- Optional Additions to a Comprehensive Plan
 - History of the Community
 - Identification of Redevelop Areas
 - Flood Control
 - Public and Private Utility Location
 - Transportation Facilities
 - Parks and Recreation



PUBLIC INVOLVEMENT

- Initial Consideration
 - Elected Officials
 - Business Owners
 - Plan Commission Members
 - Community Foundation
 - Chamber Directors
 - Economic Development Members
- Additional Considerations
 - Large Land Owners
 - Industry Representatives
 - Community Members with a passion for the future
 - Students/Youth

Who's Missing?

