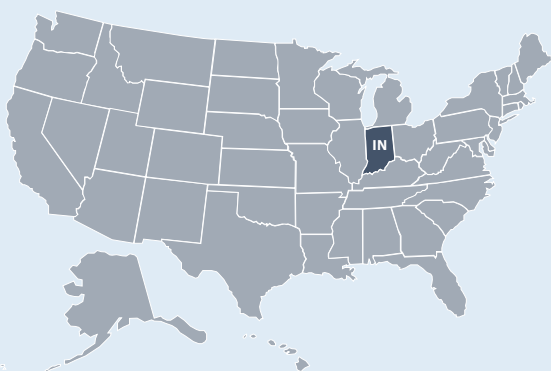




State of Indiana ENERGY SECTOR RISK PROFILE



Indiana State Facts



POPULATION

6.69 M



HOUSING UNITS

2.90 M



BUSINESS ESTABLISHMENTS

0.15 M

ENERGY EMPLOYMENT: 59,041 jobs

PUBLIC UTILITY COMMISSION: Indiana Utility Regulatory Commission

STATE ENERGY OFFICE: Indiana Office of Energy Development

EMERGENCY MANAGEMENT AGENCY: Indiana Department of Homeland Security

AVERAGE ELECTRICITY TARIFF: 9.75 cents/kWh

ENERGY EXPENDITURES: \$4,069/capita

ENERGY CONSUMPTION PER CAPITA: 406 MMBtu (11th highest out of 50 states and Washington, D.C.)

GDP: \$366.8 billion

Data from 2020 or most recent year available.

For more information, see the Data Sources document.

ANNUAL ENERGY CONSUMPTION

ELECTRIC POWER: 104,220 GWh

COAL: 44,800 MSTN

NATURAL GAS: 883 Bcf

MOTOR GASOLINE: 71,000 Mbbl

DISTILLATE FUEL: 38,600 Mbbl

ANNUAL ENERGY PRODUCTION

ELECTRIC POWER GENERATION: 179 plants, 102.5 TWh, 12.7 GW total capacity

Coal: 16 plants, 60.8 TWh, 17.0 GW total capacity

Hydro: 5 plants, 0.3 TWh, 0.1 GW total capacity

Natural Gas: 36 plants, 32.0 TWh, 9.0 GW total capacity

Nuclear: 0 plants

Petroleum: 13 plants, 0.1 TWh, 0.1 GW total capacity

Wind & Solar: 83 plants, 6.5 TWh, 2.6 GW total capacity

Other sources: 26 plants, 2.8 TWh, 0.9 GW total capacity

COAL: 31,500 MSTN

NATURAL GAS: 10 Bcf

CRUDE OIL: 1,600 Mbbl

ETHANOL: 28,400 Mbbl

Data from EIA (2018, 2019).

This State Energy Risk Profile examines the relative magnitude of the risks that the state of Indiana's energy infrastructure routinely encounters in comparison with the probable impacts. Natural and man-made hazards with the potential to cause disruption of the energy infrastructure are identified. Certain natural and adversarial threats, such as cybersecurity, electromagnetic pulse, geomagnetic disturbance, pandemics, or impacts caused by infrastructure interdependencies, are ill-suited to location-based probabilistic risk assessment as they may not adhere to geographic boundaries, have limited occurrence, or have limited historic data. Cybersecurity and other threats not included in these profiles are ever present and should be included in state energy security planning. A complete list of data sources and national level comparisons can be found in the Data Sources document.

Indiana Risks and Hazards Overview

- The natural hazard that caused the greatest overall property loss between 2009 and 2019 was **Thunderstorms & Lightning** at \$11 million per year (2nd leading cause nationwide at \$2.8 billion per year).
- Indiana had 61 Major Disaster Declarations, 0 Emergency Declarations, and 0 Fire Management Assistance Declarations for 2 events between 2013 and 2019.
- Indiana registered 8% fewer Heating Degree Days and 14% greater Cooling Degree Days than average in 2019.
- There is 1 Fusion Center located in Indianapolis.

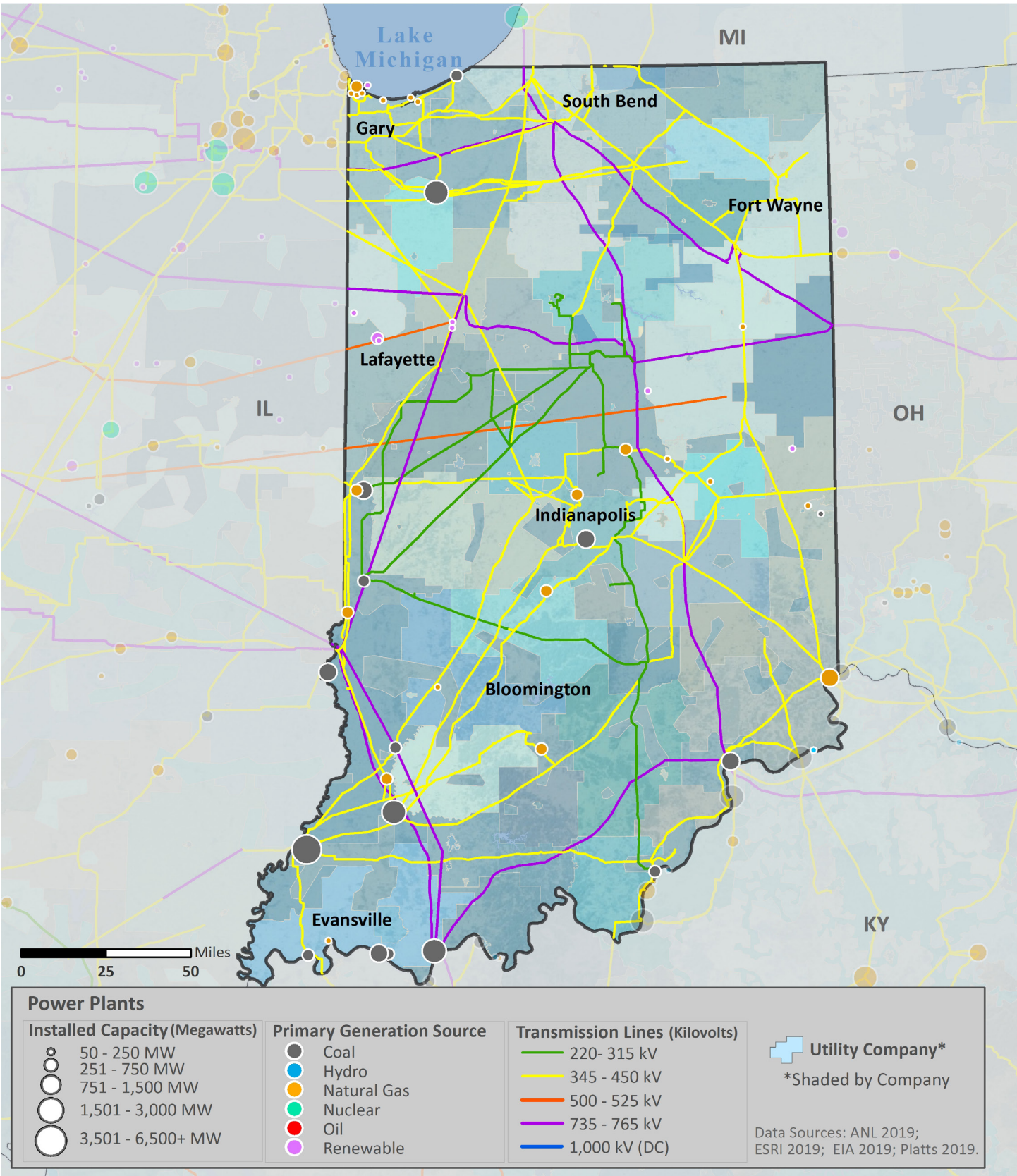
Annualized Frequency of and Property Damage Due to Natural Hazards, 2009–2019

	HAZARD FREQUENCY – Annualized	PROPERTY DAMAGE – Annualized (\$Million per year)
Drought	2	\$0
Earthquake (≥ 3.5 M)	<1	\$0
Extreme Heat	4	\$0
Flood	54	\$5
Hurricane	0	\$0
Landslide	0	\$0
Thunderstorm & Lightning	116	\$11
Tornado	16	\$10
Wildfire	<1	\$0
Winter Storm & Extreme Cold	35	\$4

Data Sources: NOAA and USGS



ELECTRIC









Electric Infrastructure

- Indiana has 113 electric utilities:
 - 5 Investor owned
 - 39 Cooperative
 - 68 Municipal
 - 1 Other utility
- Plant retirements scheduled by 2025: 8 electric generating units totaling 1,045 MW of installed capacity.

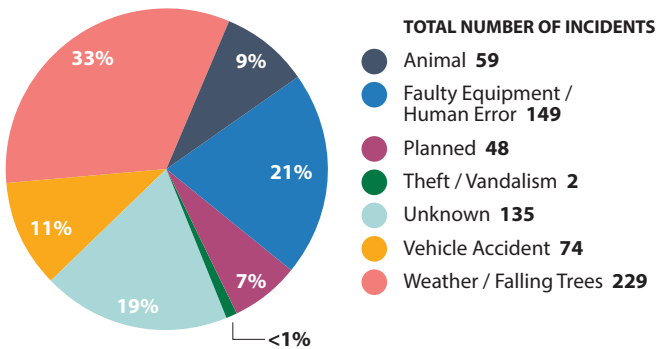
- In 2018, the average Indiana electric customer experienced 1.4 service interruptions that lasted an average of less than 1 hour.
- In Indiana, between 2008 and 2017:
 - The greatest number of electric outages occurred in **November** (10th for outages nationwide)
 - The leading cause of electric outages was **Weather or Falling Trees** (leading cause nationwide)
 - Electric outages affected 259,171 customers on average

Electric Customers and Consumption by Sector, 2018

	 CUSTOMERS	 CONSUMPTION
Residential 	88%	33%
Commercial 	11%	23%
Industrial 	<1%	43%
Transportation 	<1%	<1%

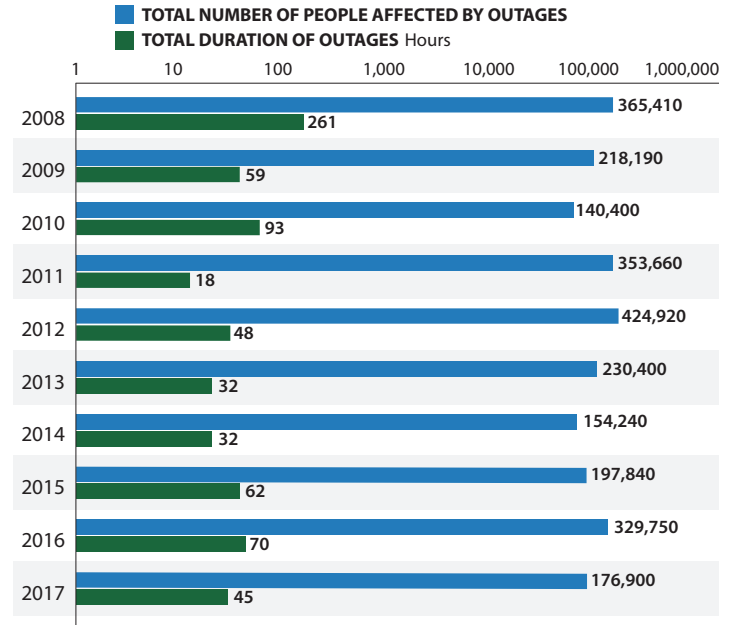
Data Source: EIA

Electric Utility-Reported Outages by Cause, 2008 – 2017



Data Source: Eaton

Electric Utility Outage Data, 2008 – 2017

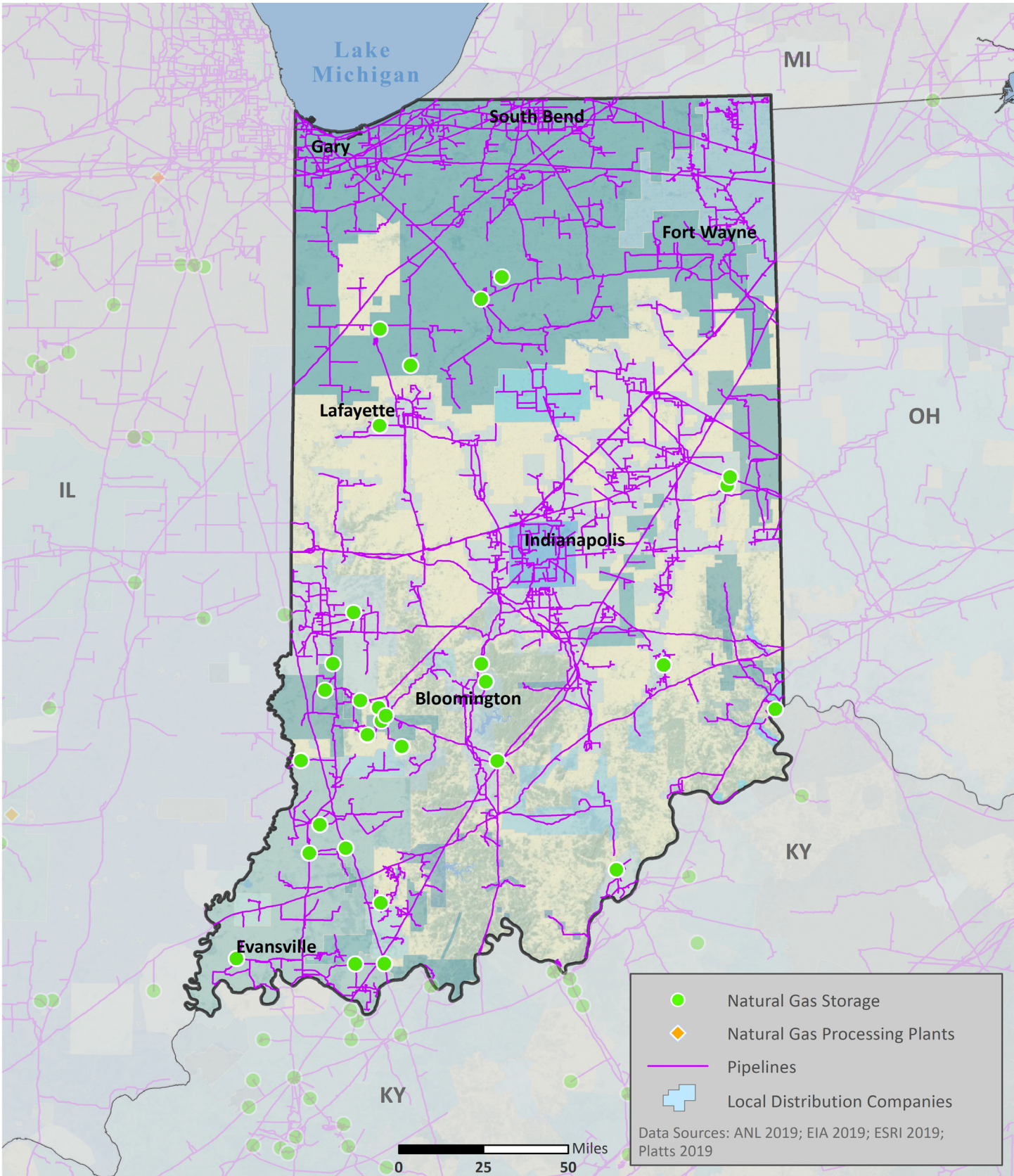


Note: This chart uses a logarithmic scale to display a very wide range of values.
Data Source: Eaton



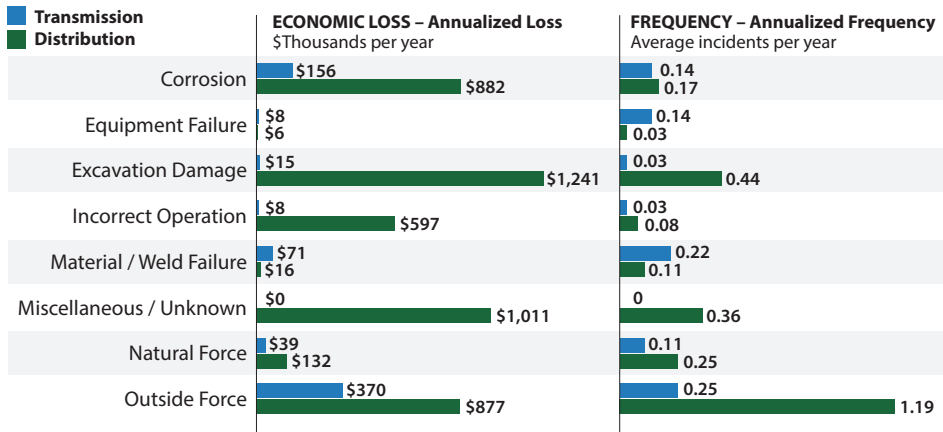


NATURAL GAS



Natural Gas Transport

Top Events Affecting Natural Gas Transmission and Distribution, 1984 – 2019



Data Source: DOT PHMSA

- As of 2018, Indiana had:
 - 5,326 miles of natural gas transmission pipelines
 - 41,701 miles of natural gas distribution pipelines
- 64% of Indiana’s natural gas transmission system and 19% of the distribution system were constructed prior to 1970 or in an unknown year.
- Between 1984 and 2019, Indiana’s natural gas supply was most impacted by:
 - **Outside Forces** when transported by transmission pipelines (3rd leading cause nationwide at \$20.65M per year)
 - **Excavation Damage** when transported by distribution pipelines (5th leading cause nationwide at \$16.56M per year)

Natural Gas Processing and Liquefied Natural Gas

Natural Gas Customers and Consumption by Sector, 2018

	CUSTOMERS	CONSUMPTION
Residential	91%	18%
Commercial	8%	11%
Industrial	<1%	54%
Transportation	<1%	<1%
Electric Power	<1%	17%
Other	<1%	<1%

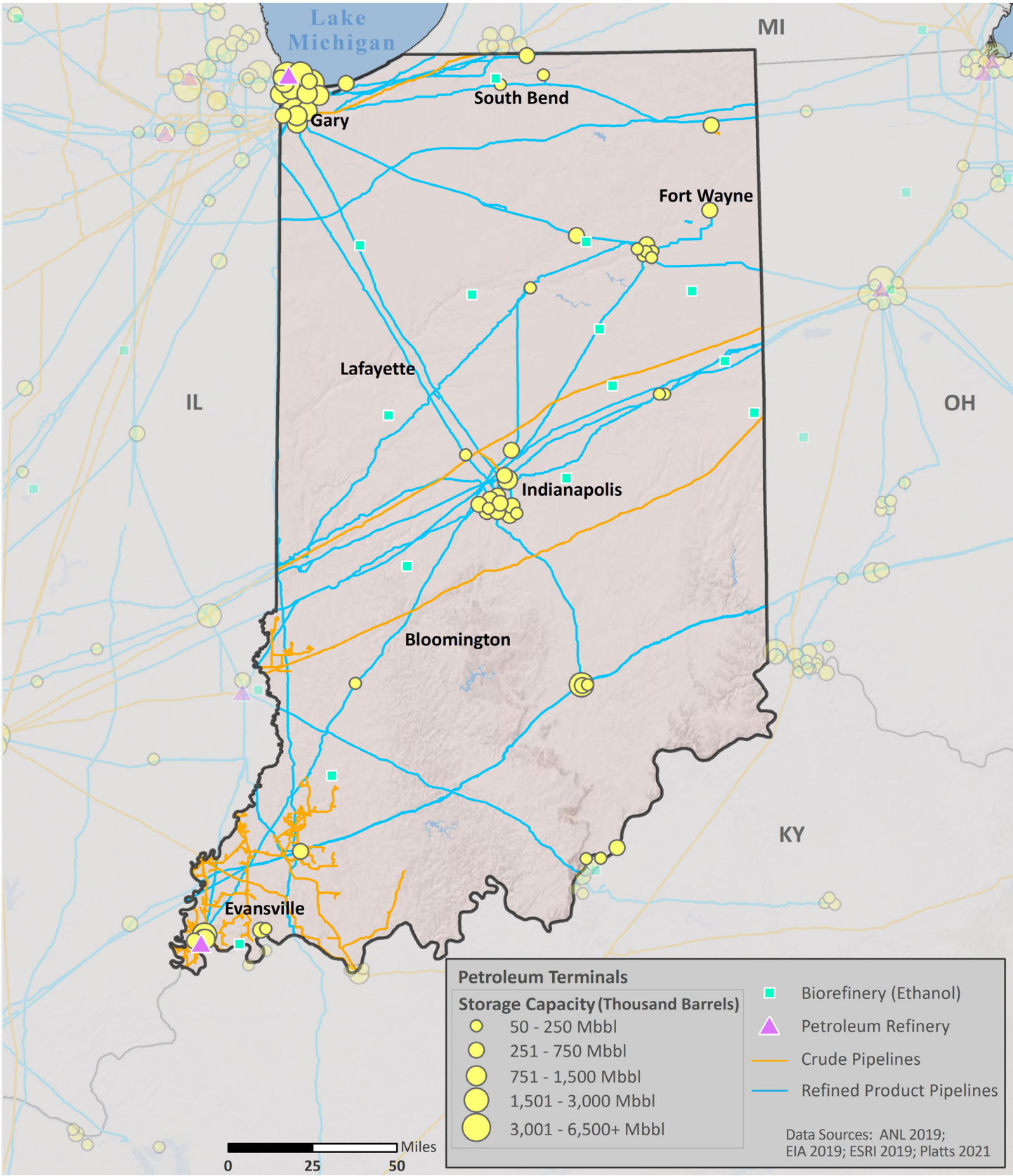
Data Source: EIA

- Indiana has 0 natural gas processing facilities.
- Indiana has 4 liquefied natural gas (LNG) facilities with a total storage capacity of 1,856,000 barrels.



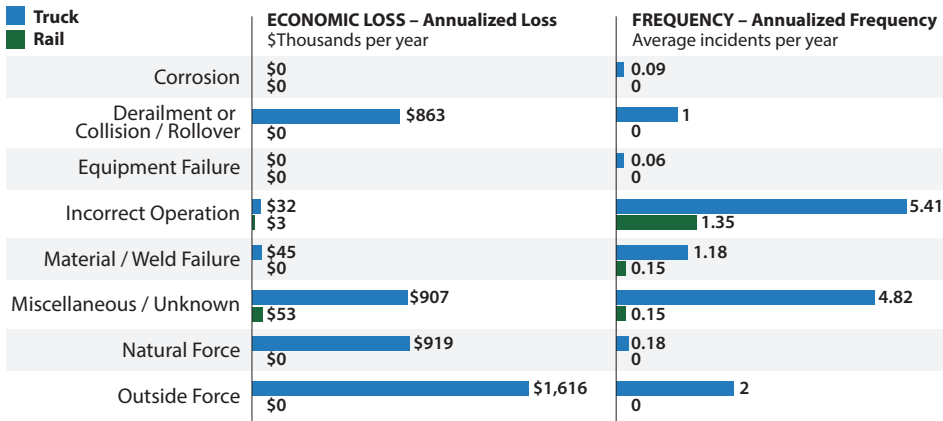


PETROLEUM



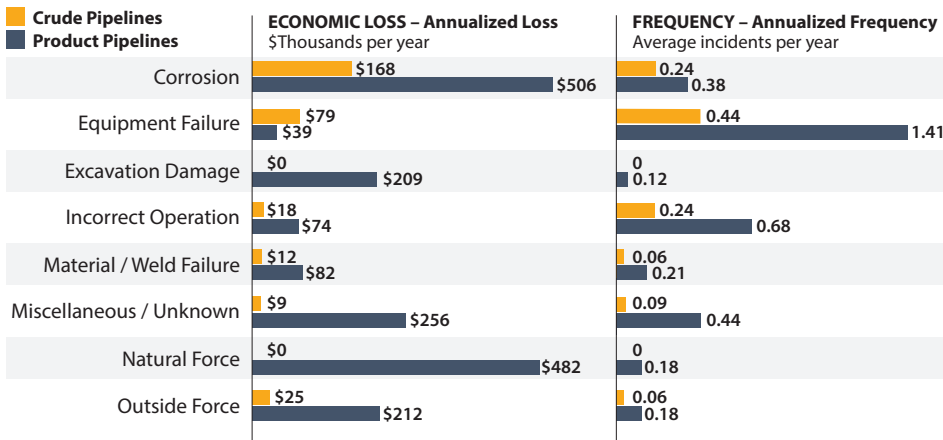
Petroleum Transport

Top Events Affecting Petroleum Transport by Truck and Rail, 1986 – 2019



Data Source: DOT PHMSA

Top Events Affecting Crude Oil and Refined Product Pipelines, 1986 – 2019



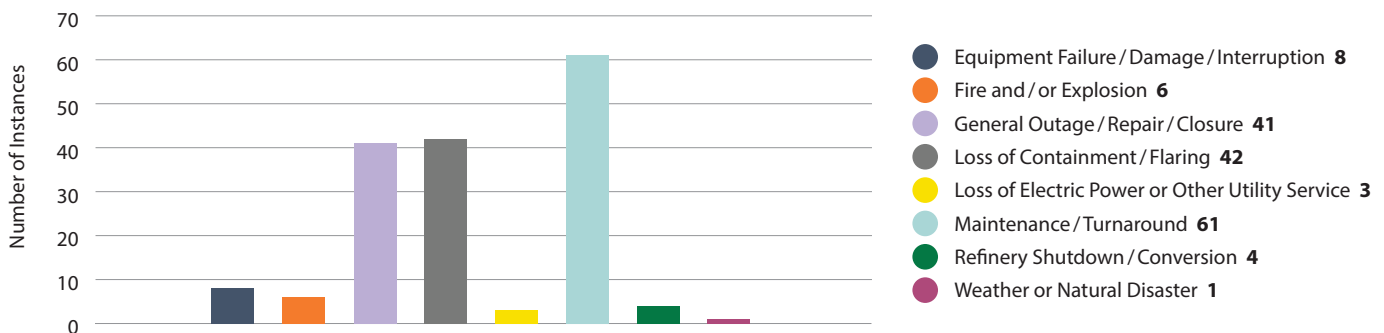
Data Source: DOT PHMSA

- As of 2018, Indiana had:
 - 668 miles of crude oil pipelines
 - 2,565 miles of refined product pipelines
 - 0 miles of biofuels pipelines
- 71% of Indiana’s petroleum pipeline systems were constructed prior to 1970 or in an unknown year.
- Between 1986 and 2019, Indiana’s petroleum supply was most impacted by:
 - Outside Forces** when transported by truck (2nd leading cause nationwide at \$60.45M per year)
 - Miscellaneous or Unknown** events when transported by rail (3rd leading cause nationwide at \$6.11M per year)
 - Corrosion** when transported by crude pipelines (3rd leading cause nationwide at \$14.51M per year)
 - Corrosion** when transported by product pipelines (2nd leading cause nationwide at \$15.20M per year)
- Disruptions in other states may impact supply.

Petroleum Refineries

- Indiana has 2 petroleum refineries with a total operable capacity of 458.8 Mb/d.
- Between 2009 and 2019, the leading cause of petroleum refinery disruptions in Indiana was:
 - Maintenance** (2nd leading cause nationwide)

Causes and Frequency of Petroleum Refinery Disruptions, 2009 – 2019



Data Source: Hydrocarbon Publishing