How Increased Clean Energy Deployment in Indiana Can Pave the Way for Lower Bills

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Prepared for Advanced Energy United
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Energy affordability is a growing crisis in Indiana. Projected load growth could further increase costs.

From 2024 to 2025, Indiana residential customers served by investor-owned utilities saw average bill increases of 18%.

- CenterPoint and NIPSCO customers experienced the greatest bill increases, at 25% and 27% respectively.
- On average, Indiana residential customers paid $28 more per month in 2025 than 2024, with CenterPoint and NIPSCO customers' monthly bills increasing by $44 and $49 respectively (assuming 1000 kWh monthly usage).

Indiana utilities are projecting significant load growth in the coming decade. This could create further electricity cost increases.

- Indiana's annual energy demand is projected to more than double by 2035.

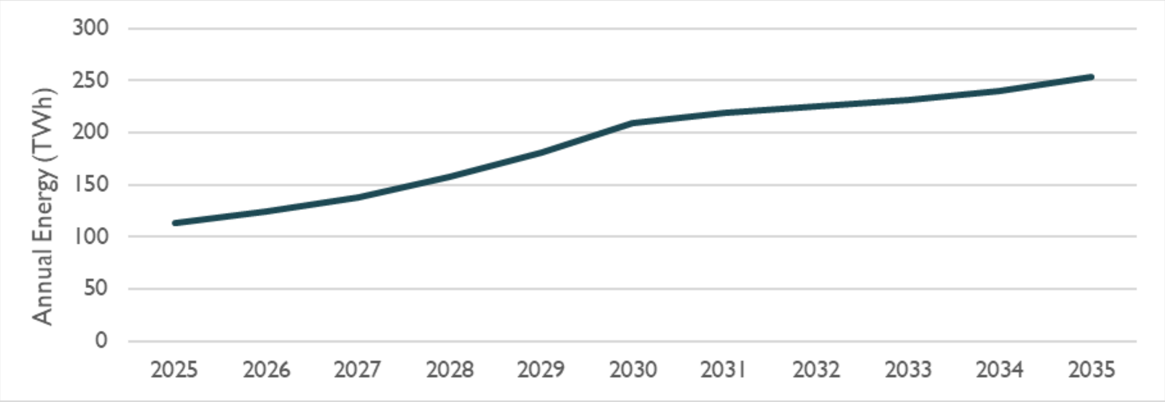
At a time when new low-cost energy sources are needed most in Indiana, local permitting processes are creating an uncertain and risky business environment. This impairs the ability of new energy resources to come online quickly, meet increasing demand and mitigate rising electricity costs.

MONTHLY INDIANA RESIDENTIAL CUSTOMER BILLS, ASSUMING 1000 KWH USAGE

Investor Owned Utility	2024	2025	Monthly Delta	Percent increase
AES Indiana	$141	$158	$17	12%
CenterPoint	$177	$221	$44	25%
Duke	$130	$156	$26	20%
I&M	$160	$167	$6	4%
NIPSCO	$184	$234	$49	27%
IOU Average	$159	$187	$28	18%

Source: Table 3 from Indiana Utility Regulatory Commission (IURC) 2025 Electricity Residential Bill Survey

INDIANA ANNUAL ENERGY DEMAND FORECAST



Sources: Indiana utility IRPs, MISO and PJM 2025 forecasts.

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Deploying more clean energy in Indiana will reduce electricity costs

Accelerating the deployment of in-state solar, wind and battery storage will improve Indiana's ability to serve its high projected load growth and reduce customer exposure to volatile wholesale markets.

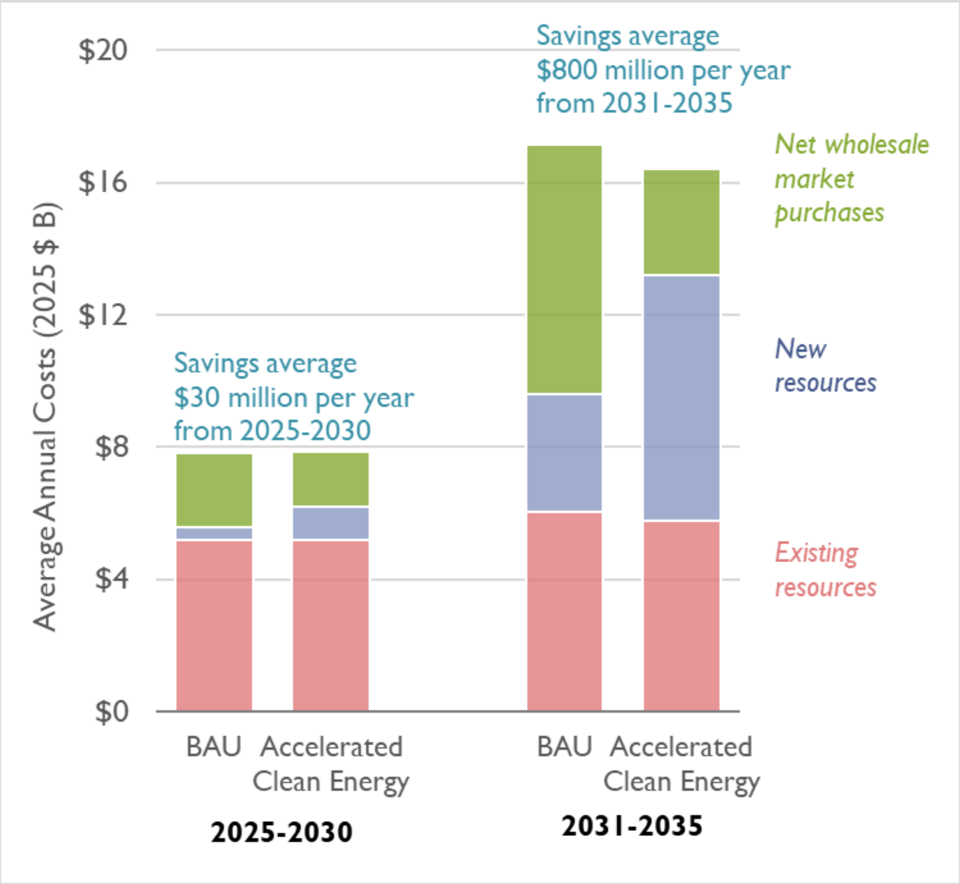
Relative to a Business-as-usual (BAU) scenario, an Accelerated Clean Energy scenario saves $3.6 billion cumulatively over the modeled period.

- From 2028-2035, this scenario saves an average of $800 million per year.
- Savings increase over time, reaching annual savings of $1.3 billion by 2035

The reduced system costs associated with the Accelerated Clean Energy scenario translate into average cumulative residential bill savings of $90-$410 per customer over the modeled period.

- From 2028-2035, residential customers save an average of $11-51 per year.
- Annual bill savings also increase over time, reaching $45-102 per year by 2035.
- *Ranges reflect average impacts for utilities located in MISO and PJM. Bill impacts will ultimately also vary by utility territory, as well as RTO.*

AVERAGE ANNUAL INDIANA SYSTEM COSTS BY CATEGORY



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Project approach: Using scenario analysis to evaluate benefits of clean energy deployment

- **Local permitting processes** are currently limiting the deployment of in-state clean energy resources in Indiana. These constraints on in-state resource availability are driving up system costs and exacerbating current affordability concerns.
- **We assess the potential for the accelerated deployment** of clean energy technologies to mitigate increasing electricity costs in Indiana.

- **We use EnCompass to conduct capacity expansion modeling** to evaluate two scenarios with varying levels of clean energy resource availability.
  - EnCompass is an industry standard tool used by many utilities, including those in Indiana, to conduct long-term resource planning.
- **We then translate system costs** into utility-level, residential bill impacts.

Model input assumptions
We primarily relied on recent Indiana utility integrated resource plan (IRP) data and other publicly available data sources to develop our model input assumptions.

The technical appendix contains further detail on modeling assumptions.

Project approach: Using scenario analysis to evaluate benefits of clean energy deployment

ASSUMED DIFFERENCES IN MODELED SCENARIOS

<table>
<tr><th>Scenario</th><th>Assumed availability of new in-state clean energy resources</th><th>Assumed availability of new in-state gas power plants</th><th>Load forecasts</th></tr>
<tr><td>Business-as-usual (BAU)</td><td>Deployment of clean energy resources (including solar, wind, and batteries) is limited based on historical build rates.</td><td rowspan="2">New in-state gas power plant additions are limited based on data from MISO and PJM’s interconnection queues and long backorder wait times due to limited global turbine manufacturing capacity. We assume that due to current supply chain constraints and long interconnection queue wait times, no additional gas power plants, beyond the current queue entrants, can get built by 2035.

Assumed constraints on new gas power plant additions are consistent across both scenarios.</td><td rowspan="2">Load forecasts are based on the reference cases included in the most recent Indiana utility IRPs.

Load forecasts are consistent across both scenarios.</td></tr>
<tr><td>Accelerated Clean Energy Deployment</td><td>Improved permitting processes enable increased availability of clean energy resources, greater than what can be achieved in the BAU scenario.

We ensure realistic build trajectories by continuing to model some limitations on clean energy resources additions based on data from PJM and MISO’s interconnection queues and utility-specific IRP assumptions.</td></tr>
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Indiana utilities are forecasting 140 TWh of load growth

FIGURE 1. ANNUAL ENERGY DEMAND FORECAST BY UTILITY

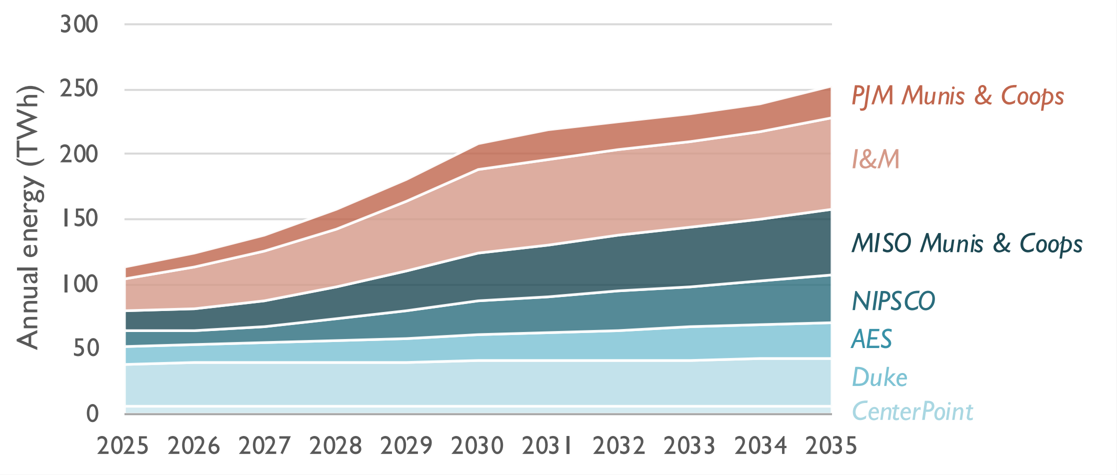
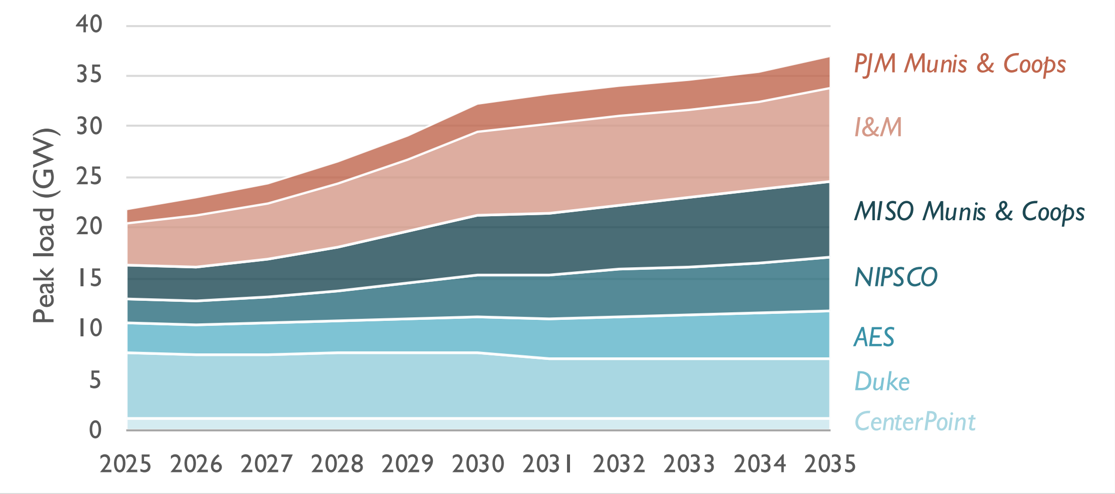


FIGURE 2. PEAK DEMAND FORECAST BY UTILITY



Aggregate statewide load is expected to grow significantly in the next decade.

- Annual electricity demand is projected to increase by 140 TWh from 2025 to 2035, a 124% increase relative to 2025 levels.
- Peak demand is projected to grow by 15 GW from 2025 to 2035, a 70% increase relative to 2025 levels.
- This load growth is largely due to new large load customers, as well as electrification of buildings and other end uses.

Statewide load growth is not evenly distributed across utilities.

- From 2025 to 2035, annual energy demand in I&M, NIPSCO, and AES is projected to grow by 2-3X, with peak demand increasing by 1.5-2X.
- Growth in the CenterPoint and Duke service territories is more modest, with peak demand staying relatively consistent over the same period.

Note: Load forecasts for investor-owned utilities (IOUs) are based on reference cases from the most recent utility IRPs. For load served by municipal utilities and cooperatives, we escalated current demand using zonal load growth rates from MISO and PJM forecasts.

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To serve its increasing loads, Indiana needs a diverse mix of new resources

Increasing load growth nationally is leading to significant supply chain constraints for new gas turbines. Interconnection queues will also limit rapid new gas additions.

- Recent wait time estimates are around 7 years for a new gas turbine.
- Gas power plants only make up approximately 10% of Indiana capacity currently waiting in PJM and MISO interconnection queues (see table to right).
- Slow queue processing times will limit the ability for additional gas plants, beyond those already waiting in the queue, to get built before 2035.

Siloed IRP planning processes are leading the Indiana utilities to, in aggregate, overestimate the amount of new gas capacity that can be built in the state over the next 10 years

- The four IOUs for which IRP build limit data is transparent and publicly available make an aggregate assumption that 6 GW of gas can be built per year by 2030, rising to 11 GW per year by 2035.
- Utility specific build limits from the most recent IRPs are summarized in the Technical Appendix.

Clean energy resources are more readily available to serve this growing load.

- These resources aren't facing the same wait times issues as new gas turbines, due to a more diversified supply chain.
- Collectively, solar, wind and batteries make up approximately 90% of resources currently waiting in interconnection queues in Indiana.
- Clean energy resources can also be built in a more modular fashion, reducing the probability of large stranded asset costs, if actual load growth is lower than expected.

To serve its increasing loads, Indiana needs a diverse mix of new resources

RESOURCE CAPACITIES (GW) CURRENTLY IN PJM AND MISO QUEUES, IN INDIANA

	MISO	PJM
Gas	5	1
Wind	2	4
Solar	10	25
Batteries	8	6

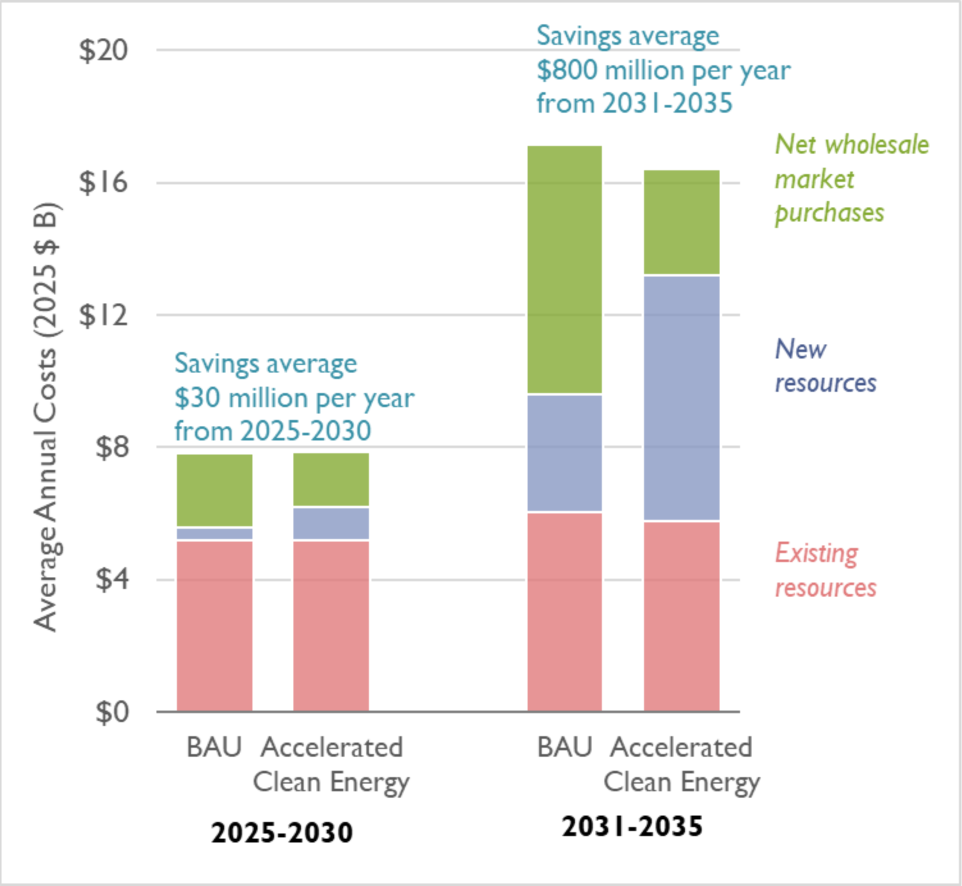
Why aren't clean energy resources facing the same wait times as gas turbines?

There are a small number of turbine manufacturers worldwide, with three companies responsible for over two-thirds of global turbine construction. These companies are not planning to significantly ramp up production and risk overexposure for an uncertain and potentially short-term trend. Instead, they are selling the near-term "premium slots in 2028 and 2029" to the highest bidder, according to GE Vernova's CEO.

In contrast, clean energy supply chains are more diversified and distributed, with manufacturing spread across a greater number of facilities. As a result, these resources are more able to ramp up production, meaning they are less vulnerable to supply chain crunches.

Renewable energy resources can displace expensive wholesale market purchases

AVERAGE ANNUAL INDIANA SYSTEM COSTS



Note: All system costs in this analysis are forward-going. They do not include sunk costs in undepreciated assets that would be recovered from ratepayers in both scenarios.

In the Accelerated Clean Energy scenario, incremental new renewable energy starts coming online in 2028, reducing wholesale energy and capacity market purchase needs relative to the BAU.

- From 2031-2035, the Accelerated Clean Energy scenario saves an average of $800 million per year, relative to the BAU scenario.
- Cumulatively, the Accelerated Clean Energy scenario saves a total of $3.65 billion over the model period.

Cost savings increase over time.

- By 2035, the annual cost of the Accelerated Clean Energy scenario is $1.3 billion lower than the BAU scenario.

PJM and MISO's wholesale markets are both experiencing high price volatility due to regional load growth and supply side challenges. Accelerating deployment of in-state resource builds will lower Indiana's exposure to these markets, reducing short- and long-term risk.

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Lower system costs save Indiana residential customers between $45 and $101 per year by 2035

By 2035, average bill savings reach $55 per year.

- From 2028 through 2035, Indiana residential customers save an average of $19 per year on electricity bills.
- Bill savings would continue to increase beyond the model period, as the annual carrying costs of new build resources decrease over time, leading to greater net savings relative to the BAU scenario.

Bill savings are not evenly distributed across the state

- Average bill savings over the 2028-2035 period range from $11 to $51 and 2035 savings range from $45 to $101 per month, depending on the RTO territory.
- In general, potential bill savings will be greatest in utility service territories with high load growth or with large fossil plants that have near-term retirement dates. Clean energy has the greatest potential to avoid expensive wholesale market purchase needs in these territories.

The magnitude of commercial and industrial customer (C&I) bills and corresponding bill impacts will vary widely based on their energy consumption.

- Our estimates of bill impacts for a typical C&I customer suggests that these customers will have bill impacts that are directionally consistent with residential bill impacts.

Lower system costs save Indiana residential customers between $45 and $101 per year by 2035

AVERAGE ANNUAL RESIDENTIAL BILL DELTA BETWEEN BAU AND ACCELERATED CLEAN ENERGY SCENARIO (2025$)

Service territory	Average annual bill savings over 2028-2035	Annual bill savings in 2035
MISO Portion of Indiana	-$11	-$45
PJM Portion of Indiana	-$51	-$101
Statewide load weighted average	-$19	-$55

Which Indiana utilities are in which RTO?

- MISO – AES, CenterPoint, Duke and NIPSCO
- PJM – I&M

Both the MISO and PJM portions of Indiana also contain load that is served by municipal utilities (munis) and cooperatives (co-ops).

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Increasing clean energy additions will unlock cost saving benefits for Indiana

The Accelerated Clean Energy scenario contains an ambitious, yet realistic trajectory of in-state clean energy builds, based on utility IRP build limits and the PJM/MISO queues.

FIGURE 1. NAMEPLATE CAPACITY, BAU SCENARIO

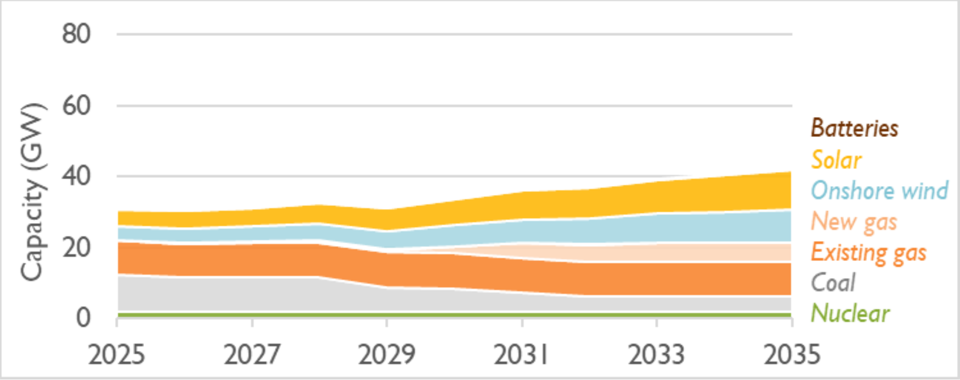
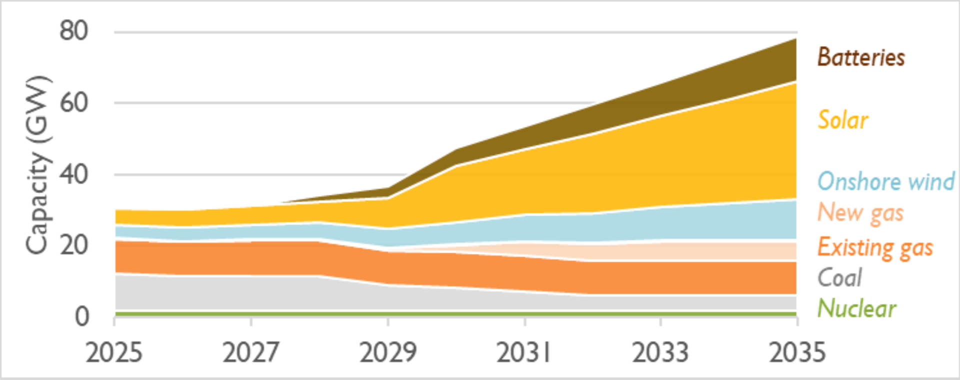


FIGURE 2. NAMEPLATE CAPACITY, ACCELERATED CLEAN ENERGY SCENARIO



Clean energy resources can meaningfully contribute to Indiana's resource adequacy.

- Battery storage, paired with clean energy generation resource additions, avoid capacity market purchases in the Accelerated Clean Energy scenario, relative to the BAU.
- In-state clean energy resources enable Indiana utilities to meet legislative requirements to procure in-state capacity.
  - IN Code § 8-1-8.5-13 (2024) specifies that utilities may only procure up to 15 percent of their capacity from wholesale markets.
  - In the BAU scenario, many of the utilities are noncompliant with this legislative requirement.

Historical rates of in-state clean energy additions are too slow to meet the projected demand.

- On average, from 2020-2024, Indiana built only 735 MW of solar PV, 755 MW of wind, and 15 MW of battery storage per year.
- From 2028-2035, the Accelerated Clean Energy scenario builds an average of 4 GW of solar PV, 1 GW of wind, and 2 GW of battery storage per year.

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Clean energy resources can avoid 9 TWh of energy imports per year from neighboring states

FIGURE 1. ANNUAL GENERATION AND LOAD, BAU SCENARIO

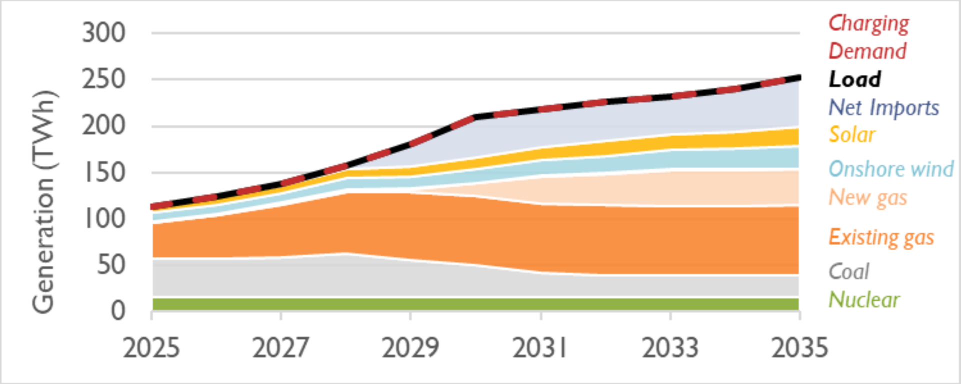
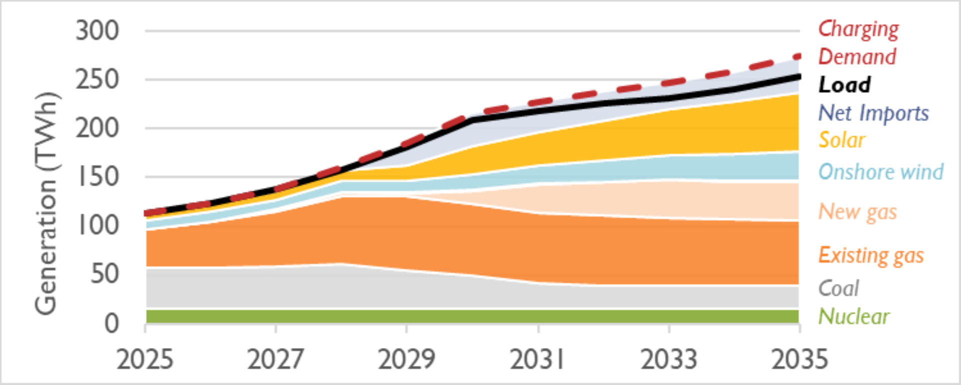


FIGURE 2. ANNUAL GENERATION AND LOAD, ACCELERATED CLEAN ENERGY SCENARIO



Note: Charging demand reflects the total energy generation requirement, after accounting for round-trip-efficiency losses incurred by cycling battery storage resources.

The Accelerated Clean Energy scenario gets a greater share of its energy generation from solar, and to a lesser extent, wind, relative to the BAU.

- By 2035, the Accelerated Clean Energy scenario has an additional 41 TWh of solar generation and 6 TWh of wind generation per year, relative to the BAU scenario.
- Gas generation is similar in both scenarios.
- The higher quantities of clean energy generation in the Accelerated Clean Energy scenario displace wholesale market purchases.

Increased deployment of clean energy resources reduces reliance on energy imports.

- The Accelerated Clean Energy Scenario can meet a greater portion of its load with local energy generation sited in Indiana, relative to the BAU.
- Due to the assumption that clean energy resource builds are limited based on historical deployment rates in the BAU, Indiana is forced to rely on importing an average of 19% of its load + charging demand by the latter half of the model period (2031-2035).
- In contrast, the Accelerated Clean Energy scenario only imports an average of 13% of its load + charging demand per year over this period. This represents a reduction of 13 TWh less imports per year, relative to the BAU.

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Technical Appendix

EnCompass model and topology

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About EnCompass:

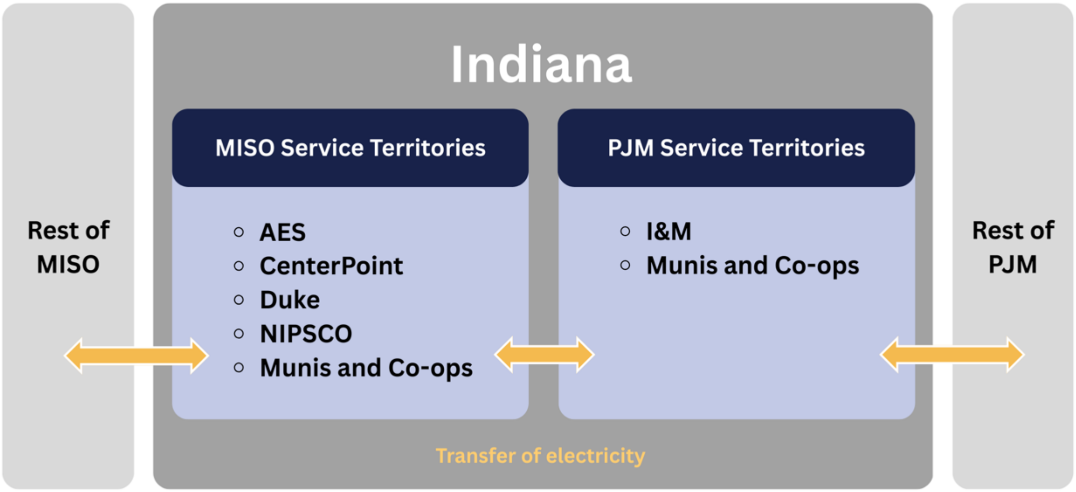
- EnCompass is an industry standard capacity-expansion and production-cost power systems model used by many utilities, including utilities in Indiana, to conduct long term utility-scale resource planning and operations analysis.
- EnCompass provides unit-specific, detailed forecasts of the composition, operations, and costs of the regional generation fleet given the assumptions described in this document.
- Synapse has populated the model using the *EnCompass National Database*, created by Horizons Energy. More information on EnCompass and the Horizons dataset can be found at *https://www.yesenergy.com/encompass-power-system-planning-software*.

Modeled regions: Indiana is split into seven zones, corresponding to the five Indiana IOUs (Duke, I&M, CenterPoint, AES, and NIPSCO) and two zones representing non-IOU load in either PJM or MISO

Transmission connections:

- Modeled transmission constraints are based on data from Horizons National Database and NERC transfer capabilities.
- Zones within the PJM and MISO service territories of Indiana are assumed to be able to freely transfer electricity with each other.

MODEL TOPOLOGY



Key input assumptions

Input	Value
Years modeled	• 2025-2035
Loads	• Based on utility IRP load forecasts, including base case assumptions for EVs, distributed solar, and new large loads. Load growth in non-IOU zones is assumed to follow growth rates of the relevant RTO load forecasts (either PJM or MISO's 2025 forecasts).
New Resource Maximum Build Limits	• BAU case: Annual build limits are based on historical rates of resource additions, sourced from EIA data. • Accelerated deployment case: Annual and cumulative build limits are based on utility IRP build limits, as well as current interconnection queue data. • Statewide constraint on new gas in both scenarios is based on MISO and PJM interconnection queue data
New Resource Costs	• Blend between utility IRP costs in short term and NREL ATB Moderate in longer term • **OBBA** updates to clean energy tax credit phase-out schedules are assumed
Wholesale market prices	• Energy market prices are informed by Indiana utility IRP forecasts. • Capacity market prices are assumed to clear at or near their price caps through 2035.
Fuel prices	• NYMEX in short term blended with EIA AEO 2025 Reference Case in long term
GHG regulations	• EPA 111 rules are not included.

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Overview of Indiana utility-specific IRP build limit assumptions

What are build limits?
Modeled build limits are used to represent real life constraints on the maximum amount of new resources that a utility can add in a given timeframe. They reflect technical and logistical factors such as interconnection queue delays, supply chain constraints, limitations on labor or other challenges.

- We compiled this data from the most recent (or currently ongoing) Indiana utility IRPs.
- Because we were missing build limit data for some of our modeled regions (municipal utilities or "munis", coops and NIPSCO), we developed build constraints for these regions based on the other Indiana utilities' constraints, scaled to reflect differences in customer loads across utilities.
- Since the aggregate utility build limits exceed the current queue capacities, especially for new gas, we further imposed statewide build limits based on the current queue data.

TABLE 1. INDIANA UTILITY IRP BUILD LIMITS (MW)

Utility	Resource	Max annual additions in 2030	Max annual additions in 2035	Max cumulative additions
Duke	CT	850	850	-
	CC	719	3,372	-
	Wind	300	400	-
	Solar	1,600	1,800	-
	Storage	1,200	1,300	-
AES	CT	960	960	2,880
	CC	1,360	1,360	4,080
	Wind	400	600	8,000
	Solar	1,000	1,000	8,000
	Storage	2,400	2,400	4,800
CenterPoint	CT	1,120	1,120	1,120
	CC	-	1,078	1,078
	Wind	1,400	1,400	3,000
	Solar	700	700	2,300
	Storage	1,500	1,500	2,250
I&M	CT	920	1,250	920 through 2030, then 7,990
	CC	-	1,450	0 through 2030, then 5,600
	Wind	200	600	400 through 2030, then 4,000
	Solar	1,.650	1,650	2,963 through 2030, then 10,613
	Storage	650	650	1,188 through 2030, then 6,338

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