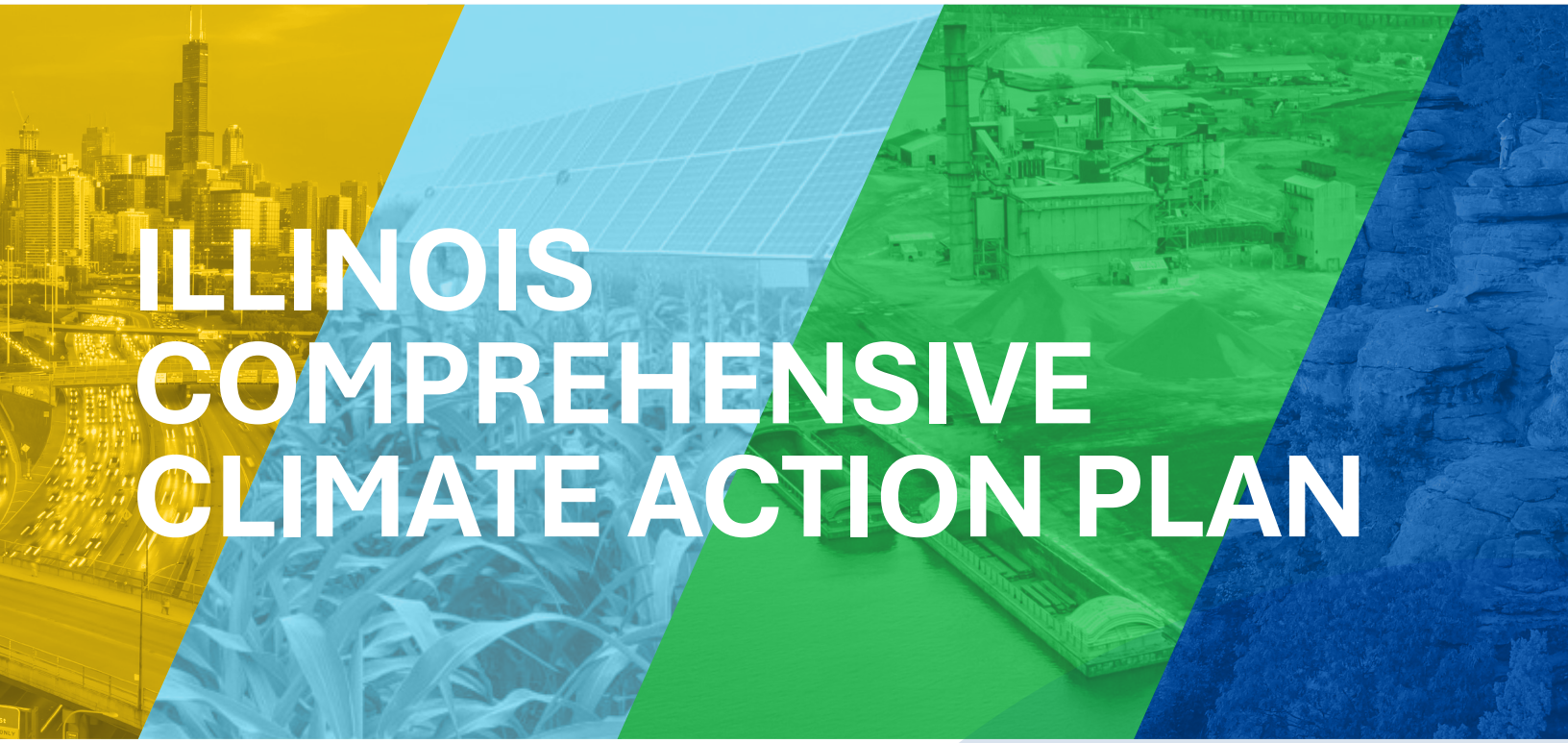

ILLINOIS COMPREHENSIVE CLIMATE ACTION PLAN

June 1, 2026

State of Illinois

Illinois Environmental Protection Agency

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Springfield, IL 62704-9276

The Illinois Environmental Protection Agency consulted with state agencies and offices in the development of this report including the Department of Agriculture, Department of Commerce and Economic Opportunity, Department of Transportation, Department of Natural Resources, Office of the Governor, Illinois Power Agency, and Illinois Commerce Commission. The Agency also consulted with the Chicago Metropolitan Agency for Planning, and the Lake Michigan Air Directors Consortium (LADCO). The Agency also received and considered comments from the Champaign-Urbana Public Health District, Illinois Nature Preserves Commission, and entities within the University of Illinois. The contents of this report do not necessarily represent the views of all collaborating entities.

This report is a product of the Illinois Environmental Protection Agency. It was developed by Energy and Environmental Economics Inc (E3) at the direction of the Agency and climate advisor JC Kibbey.

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Acronym Definitions

Acronym	Definition
BAU	Business-as-Usual
BEV	Battery Electric Vehicle
CARB	California Air Resources Board
CCAP	Comprehensive Climate Action Plan
CCS	Carbon Capture and Storage
CEJA	Climate and Equitable Jobs Act
CMAQ	Congestion Mitigation and Air Quality Improvement
CMS	Department of Central Management Services
CO2e	CO2-equivalent
COBRA	CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool
CPRG	Climate Pollution Reduction Grants
CRGA	Clean and Reliable Grid Affordability Act
CTE	Career and Technical Education
DAC	Direct Air Capture
DCEO	Department of Commerce and Economic Opportunity
DERA	Diesel Emissions Reduction Act
E3	Energy and Environmental Economics
EE	Energy Efficiency
EIA	Energy Information Administration
EITE	Energy-Intensive, Trade-Exposed
EPA	Environmental Protection Agency
EV	Electric Vehicle
GEMM	Greenhouse Gas Emissions and Energy Management for Manufacturing
GHG	Greenhouse Gas
GWP	Global Warming Potential
HFC	Hydrofluorocarbon
HFCV	Hydrogen Fuel Cell Vehicle
HVAC	Heating, Ventilation, and Air Conditioning
ICC	Illinois Commerce Commission
ICCT	International Council on Clean Transportation
ICE	Internal Combustion Engine
ILLINOIS EPA	Illinois Environmental Protection Agency
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
LDV	Light Duty Vehicles
LULUCF	Land Use, Land Use Change, and Forestry
NEVI	National Electric Vehicle Infrastructure
MDOT	Maryland Department of Transportation
MHDV	Medium- and Heavy-Duty Vehicles
MMT	Million Metric Tons

Acronym	Definition
MW	Megawatt
NREL	National Renewable Energy Laboratory
NWL	Natural and Working Lands
O&M	Operations and Maintenance
ODS	Ozone-Depleting Substance
PCAP	Priority Climate Action Plan
PFC	Perfluorocarbon
PHEV	Plug-in Hybrid Electric Vehicle
SCM	Supplementary Cementitious Material
SIT	State Inventory Tool
TBtu	Trillion British Thermal Units
TOD	Transit-Oriented-Development
USDA	United States Department of Agriculture
VMT	Vehicle Miles Traveled
ZEV	Zero Emissions Vehicle

Executive Summary

This Comprehensive Climate Action Plan (CCAP) serves as a roadmap to illustrate potential state actions Illinois can take to achieve its climate commitments, building upon the foundation laid by the Priority Climate Action Plan (PCAP) submitted to the U.S. EPA in early 2024. While the PCAP focused on "shovel-ready" implementation measures, the CCAP expands the scope to a comprehensive, economy-wide analysis. Developed by Energy and Environmental Economics Inc (E3) for the Illinois Environmental Protection Agency (Illinois EPA), this document incorporates a robust Greenhouse Gas (GHG) inventory covering the years 2005 through 2023, updated projections for near-term (2030) and long-term (2050) emissions, and a suite of quantified reduction measures aimed at closing the gap between current trajectories and state targets.

The analysis utilizes the Pathways model, a stock rollover and emissions accounting tool developed by E3, to forecast future energy demand and emissions. Unlike a general equilibrium model, Pathways allows for the comparison of user-defined scenarios, specifically tracking the turnover of energy-consuming devices like vehicles and furnaces, to quantify the impacts of potential policy interventions. This rigorous modeling approach enables the state to evaluate the emissions abatement potential, incremental costs, and workforce implications of specific strategies across major sectors, ensuring that the plan is actionable and grounded in Illinois' specific economic and energy landscape.

Emissions Projections

Three core scenarios and two net zero scenarios were modeled to assess Illinois' future emissions trajectories and determine the level of intervention required to meet state goals.

Three Core Scenarios

1. The **Business-as-Usual (BAU)** scenario serves as a baseline, depicting a future with no new state policy interventions where adoption of clean technologies remains at current levels. This scenario highlights that market forces alone are insufficient to achieve deep decarbonization, with emissions decreasing only marginally as older stock is retired.

2. The **Current Policies** scenario models the impact of existing legislation, most notably the Climate and Equitable Jobs Act (CEJA), which requires a transition to 100% carbon-free electricity by 2050, alongside the Electric Vehicle Rebate Act and energy efficiency standards. While these policies drive significant reductions, particularly in the power sector, a gap remains to reach economy-wide carbon neutrality.

3. Consequently, the **Increased State Action** scenario was developed to model a suite of incremental measures, ranging from clean heat standards to industrial decarbonization, designed to accelerate progress and achieve the deep emission reductions necessary by 2050.

Two Net Zero Scenarios

The **Moderate Efficiency and Flexibility** scenario and the **High Efficiency and Flexibility** scenario are both designed to meet net zero emissions by 2050 through ambitious energy and nonenergy abatement strategies; these scenarios are covered in Appendix B.

Increased State Action Findings by Sector

ELECTRICITY

The **electricity** sector is the linchpin of Illinois' decarbonization strategy, primarily driven by the binding requirements of CEJA. While electricity emissions have already dropped 60% since 2005 due to factors like the reduction in coal generation and the increase in renewables, achieving zero emissions by 2045 will require sustained enforcement of CEJA's emissions reduction schedule. The key GHG reduction measure modeled is the strict adherence to CEJA's interim and final targets, ensuring that the grid decarbonizes rapidly while supporting the electrification of other sectors like transportation and buildings.

TRANSPORTATION

The **transportation** sector is the largest source of GHG emissions in the state. The analysis finds that significant reductions are achievable through a combination of vehicle electrification and demand management. Key GHG reduction measures include replacing federal incentives with state rebates for light-duty vehicles (LDVs) and medium- and heavy-duty vehicles (MHDVs), implementing public fleet EV requirements, and pursuing land-use and transportation policies that will increase the number of trips Illinoisans take by walking, biking, and transit while reducing the number of vehicle miles traveled (VMT) in personal vehicles. The Increased State Action scenario projects that these measures could result in net cost savings for the state from 2035 onwards, driven largely by electric vehicles' lower fuel and maintenance costs.

BUILDING

The analysis finds that emissions from the **building** sector derived from heating demand must decrease significantly. Key GHG reduction measures include the implementation of a clean heat standard, larger heat pump incentives than are currently available, and all-electric building codes for new construction. While these measures incur upfront costs for equipment and envelope upgrades, they can lead to energy bill savings for many customers, and they are projected to reduce buildings sector emissions by 64% by 2050 in the Increased State Action scenario.

INDUSTRIAL

The **industrial** sector requires targeted regulatory and incentive-based approaches to address process emissions and high-heat requirements. Key findings highlight the potential for decarbonization in manufacturing through efficiency and electrification. Key GHG reduction measures include facility emissions standards similar to Colorado's Greenhouse Gas Emissions and Energy Management for Manufacturing (GEMM) rule (requiring 20% reductions for large emitters), a net zero cement requirement by 2050, and "Buy Clean" procurement programs to lower the carbon intensity of construction materials used in public projects.

AGRICULTURE WASTE AND LAND USE

Reductions in **agriculture and waste** focus on mitigating methane and nitrous oxide. For the waste sector, the key measure is the implementation of landfill methane rules that are more stringent than federal standards, aiming for a 38% reduction in landfill emissions by 2035. In agriculture, the analysis identifies significant potential in managing livestock and soil emissions. Key measures include incentives for best practices such as cover crops, reduced tillage practices, implementing precision agriculture, and improved manure management, which are projected to reduce manure emissions by 44% by 2050 and fertilizer emissions by 50% by 2035.

The analysis for **lands** is closely integrated with agricultural strategies, focusing on the sector's capacity to act as a carbon sink. Inventory results show that the Land Use, Land-Use Change, and Forestry (LULUCF) sector currently sequesters approximately 14.5 MMT CO2-equivalent (CO2e) annually. The key strategy involves incentivizing climate-smart land management practices that enhance soil health and carbon storage, ensuring that Illinois' natural landscapes continue to offset residual emissions from other sectors. Strategies to improve natural carbon sequestration include phased forest expansion, targeted wetland reflooding, expanding urban greenspace, and targeted restoration of degraded grasslands

Other Impacts

The transition to a clean energy economy presents a complex economic picture with significant long-term benefits. While the Increased State Action scenario requires upfront investments in infrastructure and technology, particularly in the buildings sector, these are balanced by substantial savings in the transportation sector due to reduced fuel consumption. By 2050, the analysis suggests that the fuel savings and efficiency gains will help offset the capital costs of transition. In addition to monetary benefits of fuel savings, the analysis quantifies the benefits of reduced GHG emissions in the form of social cost of carbon, and the significant health benefits of reduced co-pollutant emissions which are a co-benefit of many GHG mitigation measures. These co-pollutant health benefits are significant, providing billions of dollars of health benefits by 2050.

Illinois currently boasts a clean energy workforce of over 132,000 people, with strong clusters in energy efficiency and renewable generation. Key workforce findings indicate that while the state has a diverse talent base, specific gaps exist in high-growth occupations such as solar installation and EV maintenance. The analysis highlights that while many priority occupations offer wages above the state median, some frontline roles still lag behind. Crucially, the plan identifies a need for targeted training and support for workers in fossil fuel industries facing displacement, ensuring a just transition. Existing programs funded by CEJA, such as the Clean Jobs Workforce Network, provide a solid foundation for upskilling the workforce to meet the demands of the Increased State Action scenario.

The Illinois Environmental Protection Agency intends to provide a separate status report update to this action plan as provided for in its grant agreement with US EPA.

Introduction

CPRG Overview

The U.S. Environmental Protection Agency (EPA) Climate Pollution Reduction Grant (CPRG) program provides funding for states to develop and implement climate action plans that aim to reduce greenhouse gas (GHG) emissions. Under the planning phase of the CPRG process, the U.S. EPA provided funds to states, metropolitan areas, tribes and territories to design climate action plans that incorporate a variety of measures to reduce GHG emissions. Illinois' Priority Climate Action Plan (PCAP), the first CRPG deliverable, was submitted to EPA on March 1, 2024.

In November 2024, the Illinois Environmental Protection Agency (Illinois EPA) was awarded $430 million through the CPRG Implementation Grant to support the following five priority emissions reduction measures: clean and efficient buildings, industrial decarbonization, clean transportation and freight, climate-smart agriculture, and planning for the transition to a 100% carbon-free power. Together, the climate measures identified in the Implementation Grant will reduce more than 57 million metric tons of GHG emissions over the next twenty-five years.

This report – the Comprehensive Climate Action Plan (CCAP), builds upon Illinois' PCAP and the Implementation Grant application. The CCAP provides an actionable climate roadmap for Illinois to achieve its climate commitments and incorporate the feedback of a diverse range of stakeholders. Additional information on the CCAP process can be found in EPA's CCAP technical assistance forum.

CCAP Purpose and Scope

The purpose of the CCAP is to develop a set of industry-specific reduction measures and consider a broad range of environmental, economic, and health-related outcomes. The CCAP scope is described below:

- **GHG inventory:** A comprehensive inventory for all GHG emissions and sinks by emission source
- **GHG projections:** Near-term and long-term projections of GHG emissions
- **GHG targets:** Economy-wide near- and long-term GHG targets
- **Quantified GHG measures:** Full suite of implementation measures to help reach GHG reduction targets covering key emissions sectors – industry, electricity, transportation, buildings, agriculture/waste, industry, and natural and working lands
- **Authority to implement:** Indication of statutory or regulatory authority to implement the measure
- **Funding availability:** Identification of other funding programs available to the state
- **Workforce analysis:** Analysis of anticipated workforce shortages and identify potential solutions
- **Benefits analysis:** Quantified estimates of co-pollutant reductions, plus optional additional discussion on air quality improvements, improved public health, climate resilience, etc.

Approach to Developing the CCAP

This Comprehensive Climate Action Plan was developed by Illinois EPA to assess the economy-wide GHG emissions reduction impacts of a set of key GHG reduction measures. These measures build on the PCAP and CPRG Implementation Grant Application.

1 GHG Emissions Inventory

Inventory Methodology

The Illinois CCAP inventory accounts for historical GHG emissions in the state for 2005, the emissions baseline year, through 2023, the most recent year for which full emissions data are available. The baseline line year of 2005 was established as part of Executive Order 2019-06, which states that Illinois "must continue to fulfill, uphold, and exceed the objectives of the Paris Climate Agreement,"[1] and the United States' nationally determined contributions (NDCs) under the Paris Climate Agreement use 2005 as the baseline year.[2]

The Illinois CCAP inventory uses data from US EPA's *2025 Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2023*, in particular the Draft All State GHG Inventory Data (Inventory by State) workbook.[3] Unlike the State Inventory Tool (SIT), which is a tool developed by EPA to help states develop GHG emissions inventories based on either default or state-entered data, the Inventory by State is a completed data product that is designed to be consistent with the national GHG data developed for 1990-2023. Because there may be differences between the Inventory by State and the outputs of the SIT when run with default inputs due to differences in methods, data, and level of completeness, US EPA provides a detailed crosswalk of differences between the methodology of the SIT and the Inventory by State.[4]

The emissions sectors used in the Illinois CCAP inventory are consistent with the five inventory reporting sectors recommended by guidance from the Intergovernmental Panel on Climate Change (IPCC), with further disaggregation of the energy sector, as shown in Table 1 below.[5]

Table 1: IPCC and Illinois CCAP inventory sectors

IPCC Inventory Sector	Illinois CCAP Inventory Sector
Transportation	Electricity Generation
	Residential
	Commercial
	Industry
	Transportation
	Coal Mining
	Oil and Gas Fugitives
Agriculture	Agriculture
Industrial Processes and Product Use (IPPU)	Industrial Processes and Product Use (IPPU)
Land Use, Land-Use Change and Forestry (LULUCF)	Land Use, Land-Use Change and Forestry (LULUCF)
Waste	Waste

[1] https://www.illinois.gov/government/executive-orders/executive-order.executive-order-number-6.2019.html
[2] https://unfccc.int/sites/default/files/2024-12/United%20States%202035%20NDC.pdf
[3] https://www.edf.org/freedom-information-act-documents-epas-greenhouse-gas-inventory
[4] https://www.epa.gov/system/files/documents/2024-09/factsheet_crosswalk-between-ghgibystate-and-sit_august_2024.pdf
[5] https://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html

Emissions are estimated according to international reporting guidelines set forth by the IPCC and used by EPA for the national GHG emissions inventory. Specifically, the emissions methodology includes the following:

- **Production-Based Emissions Accounting:** In contrast to consumption-based approaches, which account for emissions generated as a result of end-use demand in a state (accounting for emissions associated with imported electricity, for example), the Illinois CCAP inventory and the underlying EPA Inventory by State use a production-based approach that only accounts for emissions generated within the geographic boundaries of each state.
- **Global Warming Potential:** The Illinois CCAP inventory uses a 100-year Global Warming Potential (GWP) to calculate CO2 equivalent values for non-CO2 emissions. The GWP is a metric of how much a given gas, such as methane, contributes to global warming, relative to CO2. The 100-year GWP values for the Illinois CCAP inventory are taken from the IPCC Fifth Assessment Report (AR5) and are the same values used by EPA for the national GHG emissions inventory.[6]
- **Biomass and Biofuel Consumption:** Consistent with IPCC methodological guidelines and the methodology of the EPA national GHG emission inventory, CO2 emissions from biomass and biofuel combustion are not directly included in net emissions totals. While emissions from biofuels can vary widely depending on feedstock and production process under lifecycle emissions accounting (and this should be considered when developing policies that affect the use of biofuels), the lifecycle emissions accounting framework is not directly compatible with state and national inventory accounting guidelines from IPCC/EPA and thus is not included in the Illinois CCAP inventory. California provides an example of these two accounting frameworks existing side-by-side; while the state uses lifecycle emissions accounting to evaluate the emissions intensity of fuels in the Low Carbon Fuel Standard program, any biofuels consumed are treated as carbon neutral when developing the state's annual GHG inventory.[7,8]

Inventory Results

In 2005, gross GHG emissions in Illinois (excluding natural carbon sinks in the LULUCF sector) were 301 million metric tons of carbon dioxide equivalent (MMT CO2e), while net GHG emissions were 285 MMT CO2e. Electricity generation and transportation together combined for more than half of gross GHG emissions in 2005, and these two sectors along with fossil fuel combustion from industry accounted for more than two-thirds of gross emissions. Residential and commercial buildings, and non-combustion sources from fossil fuel production, industrial processes, waste, and agriculture accounted for the remainder of emissions. Table 2 below shows the emissions by sector for 2005.

Table 2. 2005 GHG emissions by sector

Sector	Emissions (MMT CO2e)	Share of Gross Emissions
Electricity Generation	95.6	32%
Transportation	75.2	25%
Residential	24.7	8%
Commercial	11.8	4%
Industry	36.3	12%
IPPU	19.3	6%
Coal Mining	3.8	1%
Oil and Gas Fugitives	5.2	2%
Waste	8.6	3%
Agriculture	20.4	7%
Gross Total	**300.9**	**100%**
LULUCF	-15.7	-
Net Total	**284.6**	-

[6] https://www.ipcc.ch/site/assets/uploads/2018/02/WG1AR5_Chapter08_FINAL.pdf
[7] https://ww2.arb.ca.gov/our-work/programs/low-carbon-fuel-standard
[8] https://ww2.arb.ca.gov/sites/default/files/2025-11/nc-2000_2023_ghg_inventory_trends.pdf

In absolute terms, Illinois emitted 249 MMT of GHGs in 2005. Note that while the mass of non-CO2 GHGs like nitrous oxide, methane, and fluorinated gases emitted is orders-of-magnitude less than CO2 emissions, the high global warming potential (GWP) of these gases means their emissions are significant on a CO2e basis. Both the CO2e and absolute emissions of each GHG, in addition to their share of gross emissions (measured in CO2e) is broken down in Table 3.

Table 3. Emissions (MMT CO2e, MMT, %) by gas type, 2005

Sector	Emissions (MMT CO2e)	Emissions (MMT)	Share of Gross Emissions in MMT CO2e
CO2 (carbon dioxide)	248	248	83%
N2O (nitrous oxide)	19	0.07	6%
CH4 (methane)	22	0.77	7%
HFCs (fluorinated gases)	12	0.004	4%

Net and gross emissions for Illinois in 2023 were 193 and 207 MMT CO2e, respectively, resulting in a 32% drop in net emissions relative to the 2005 base year. Transportation was the largest sector, contributing 28% (57 MMT CO2e) of gross emissions, followed by electricity generation at 18% (38 MMT CO2e) and Industry at 15% (30 MMT CO2e). Table 4 shows the contributions of each sector to statewide emissions in 2023.

Table 4. 2023 GHG emissions by sector

Sector	Emissions (MMT CO2e)	Share of Gross Emissions
Electricity Generation	38.3	18%
Transportation	57.2	28%
Residential	21.7	10%
Commercial	13.7	7%
Industry	30.6	15%
IPPU	10.7	5%
Coal Mining	3.3	2%
Oil and Gas Fugitives	4.2	2%
Waste	6.3	3%
Agriculture	21.2	10%
Gross Total	**207.2**	**100%**
LULUCF	-14.5	-
Net Total	**192.7**	-

In absolute MMT terms, Illinois emitted 182 MMT of GHG. Table 5 lists emissions by gas type in both MMT CO2e and absolute MMT, as well as their share of gross emissions measured in MMT CO2e. Shares of emissions of both nitrous dioxide and methane increased relative to 2005, although this is caused in large part by the reduction in CO2 emissions.

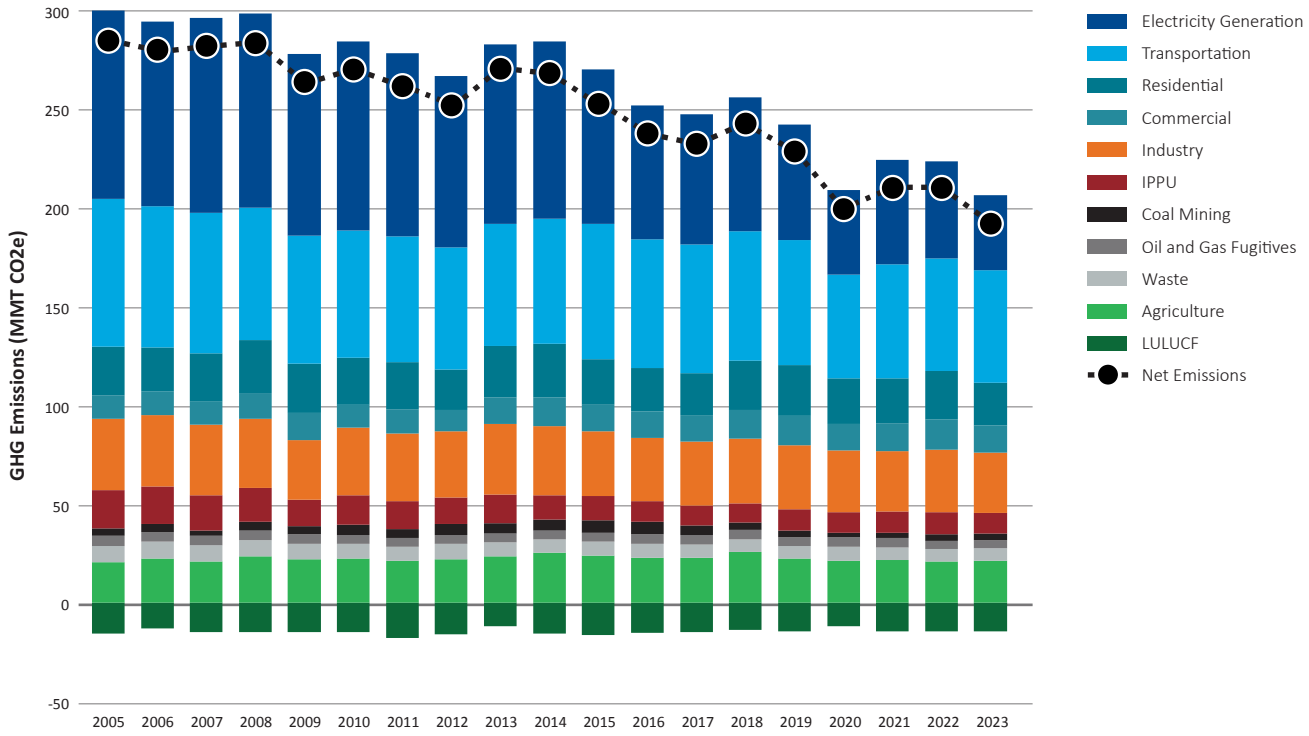
Table 5. Emissions (MMT CO2e, MMT, %) by gas gype, 2023

Sector	Emissions (MMT CO2e)	Emissions (MMT)	Share of Gross Emissions in MMT CO2e
CO2 (carbon dioxide)	181	181	81%
N2O (nitrous oxide)	19	0.07	8%
CH4 (methane)	18	0.67	8%
HFCs (fluorinated gases)	7	0.002	3%

Since 2005, the share of statewide emissions coming from the electricity generation sector have decreased from 32% to 18% in 2023; the shares from all other sectors have increased. However, in absolute terms the State has seen a significant drop in emissions across almost every sector, with only the Agriculture and Commercial sectors seeing a growth in emissions between 2005 and 2023. The emissions sink (net reduction) from LULUCF also declined slightly, resulting in a net increase in emissions. These trends are discussed in more detail in the following section.

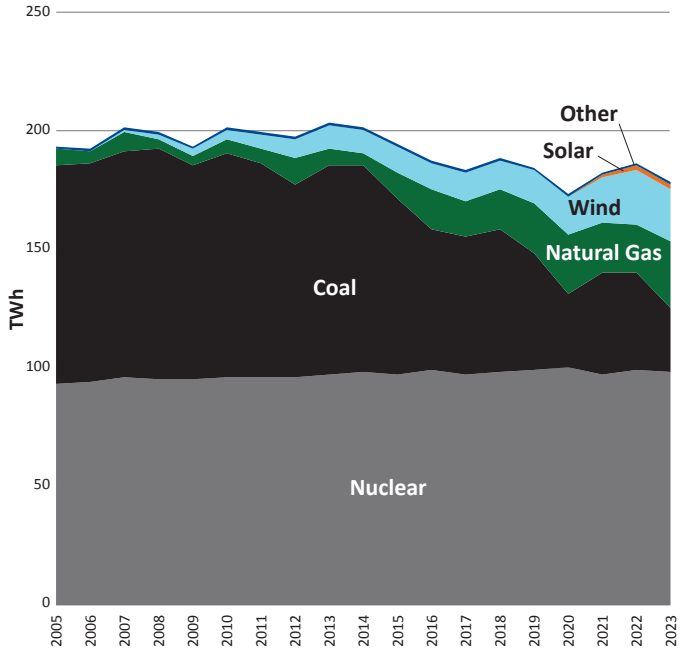
Inventory Trends and Analysis

Figure 1. Annual state-wide emissions (MMT CO2e) by sector, 2005-2023



Net GHG emissions in Illinois have decreased 32% from 285 MMT CO2e in 2005 to 193 MMT CO2e in 2023. Several factors are responsible for this change. The electricity generation sector saw a steep decline in emissions, from 96 MMT CO2e in 2005 to 38 MMT CO2e in 2023, a 60% drop. While this has happened in part due to electric generation having decreased slightly from 194,000 GWh in 2005 to 185,000 GWh in 2023, the main source of the decreased electric sector emissions is the gradual switch from coal-powered generation to natural gas- and wind- powered generation. From 2009, coal generation steadily decreased, resulting in natural gas generation overtaking coal as the second-largest power source (after nuclear) in 2023.[9] In particular, coal produced 48% (92 TWh) of net electricity generation in-state in 2005, which decreased to 15% (27 TWh) of net electricity generation in 2023. In contrast, natural gas and wind accounted for 16% (92 TWh) and 12% (22TWh), respectively, of Illinois' electricity generation in 2023, up from 4% (7 TWh) and 0% (0 TWh), respectively, of the net electricity mix in 2005.[10] Figure 2 below shows the change in generation by resource type in Illinois between 2005 and 2023.

Figure 2: In-state electricity generation in Illinois by resource type, 2005-2023



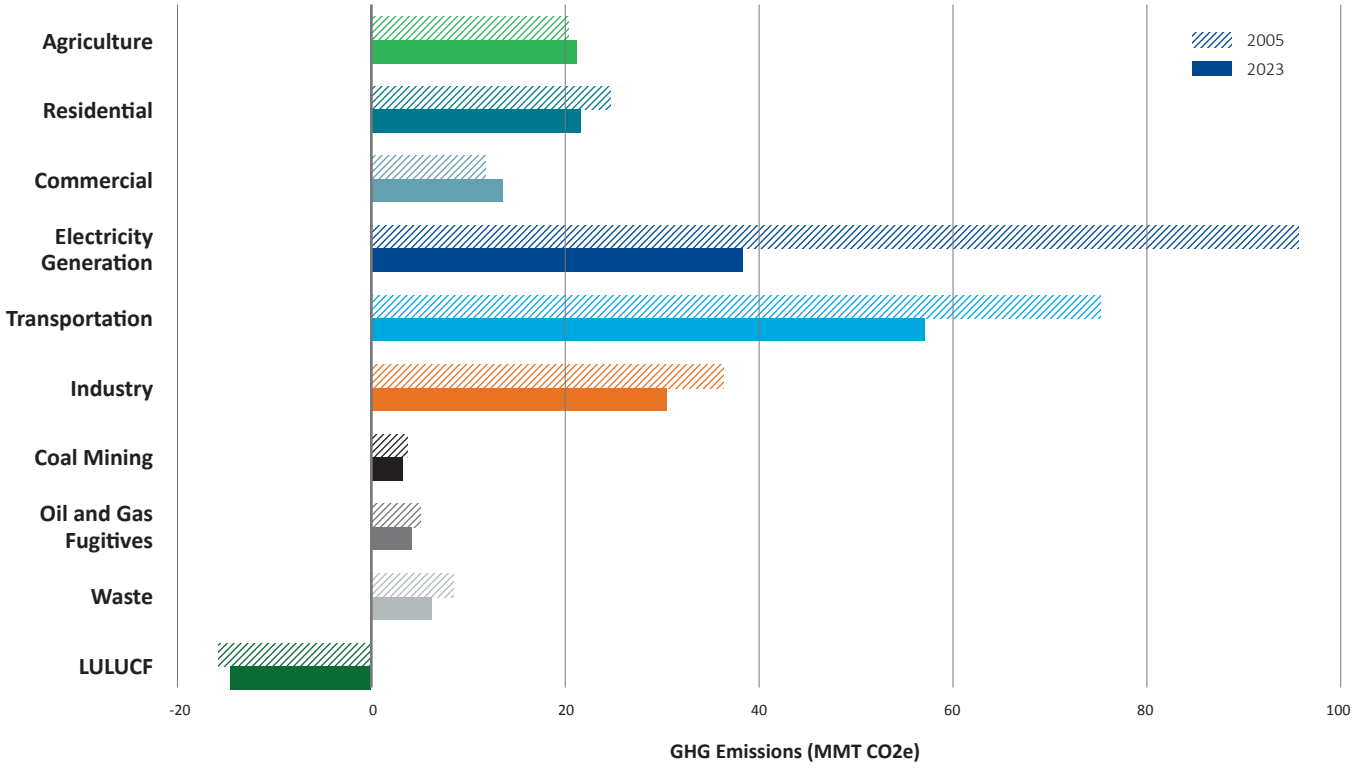
[9] https://www.eia.gov/state/analysis.php?sid=IL.
[10] Ibid.

The transportation sector also saw a large decrease in emissions, from 75 MMT CO2e in 2005 to 57 MMT CO2e in 2023, a 24% decrease. Transportation-related emissions have gradually decreased almost annually, with the biggest exception being a large increase from 2020 to 2021 as the state recovered from the COVID-19 pandemic. The gradual trend, excluding the pandemic recovery year, is driven by consistent gains in the fuel efficiency of vehicles due to increasingly stringent fuel efficiency standards, and by gradual EV adoption.

Illinois has offered biodiesel tax incentives and has a phased approach to annually increase the proportion of biofuel in biofuel-diesel blends required to reach tax-exempt status as a qualifying biofuel.[11] Because of the accounting approach used in Inventory by State, emissions related to biodiesels are attributed to either the Agriculture or LULUCF sectors, depending on how they are produced. This is consistent with and could in part have caused the increase in gross emissions from Agriculture from 2005-2023 and the decrease in gross sequestration from LULUCF from 2005-2023, coupled with decreased transportation emissions.

Finally, the Industry sector has reduced emissions from 33.3 MMT CO2e in 2005 to 28.4 MMT CO2e in 2023, a 15% decrease. As in the electricity sector, this is driven largely by a switch from coal to natural gas as an energy source. A moderate drop in industrial emissions due to coal, from 8.6 MMT CO2e in 2005 to 5.8 MMT CO2e in 2023, coincided with a slight increase in industrial emissions due to natural gas, from 13.5 MMT CO2e in 2005 to 14 MMT CO2e in 2023.

Figure 3. Comparison of 2005 and 2023 state-wide emissions (MMT CO2e) by sector



[11] https://afdc.energy.gov/fuels/laws/BIOD?state=IL

II

Near-Term and Long-Term GHG Reduction Targets

Illinois has two primary, existing GHG reduction targets.

1. First, the state is committed to the principles and goals of the Paris Climate Agreement, as established in Executive Order 2019-06. This means adhering to the United States nationally determined contribution (NDC) and emissions target under the Agreement: reducing greenhouse gas emissions 50-52% below 2005 levels by 2030, and to net zero no later than 2050.

2. Second, under Public Act 102-0662, colloquially known as the Climate and Equitable Jobs Act ("CEJA"), it is the policy of the state to rapidly transition to 100% clean energy by 2050. Among other policies intended to achieve this target, the bill includes a binding emissions reductions schedule for the power sector, which is described in detail in 415 ILCS 5/9.15 in the Illinois Compiled Statutes. These emissions reductions will proceed unless implementing them would reduce reliability or resource adequacy below acceptable levels.

Given Illinois net emissions in the 2005 base year, achieving the NDC-aligned 50-52% reduction by 2030 would lead to net emissions between 137-143 MMT CO_2e by 2030.

This Plan contains potential measures which would help the State achieve emissions reductions. These measures do not constitute binding commitments. They represent identified opportunities and a feasible pathway for emissions reductions that may serve as guidance for Illinois to achieve its climate goals as articulated in Executive Order 2019-06 and elsewhere. The ability for Illinois to realize these targets will depend on many factors including economic trends, consumer behavior, receipt of federal funding, cost reductions in clean energy technologies, market and supply chain development, and development of private and public infrastructure.

GHG Emissions Projections

Emissions projections for the scenarios modeled in this CCAP were performed in Pathways, a stock rollover and emissions accounting tool developed by E3. Pathways is not an optimization or general equilibrium model but instead allows for comparison of user-defined scenarios of future energy demand and emissions to explore the impacts and implications of potential climate and energy policies.

Variables that impact final energy demand in the model (e.g., customer adoption of electric vehicles, amount of space heating demanded per household), are specified by the user. The Pathways model accounts for annual energy demand and greenhouse gas emissions by sector and is benchmarked to the Illinois statewide energy demand in 2024 as the model start year. For key end uses like building space heating and on-road vehicles, the Pathways model tracks the rollover of stocks each year by accounting for older devices retiring at the end of their lifetime, and new devices sold to replace them. This allows the model to account for the long lifetime of energy consuming devices like vehicles, furnaces, and boilers.

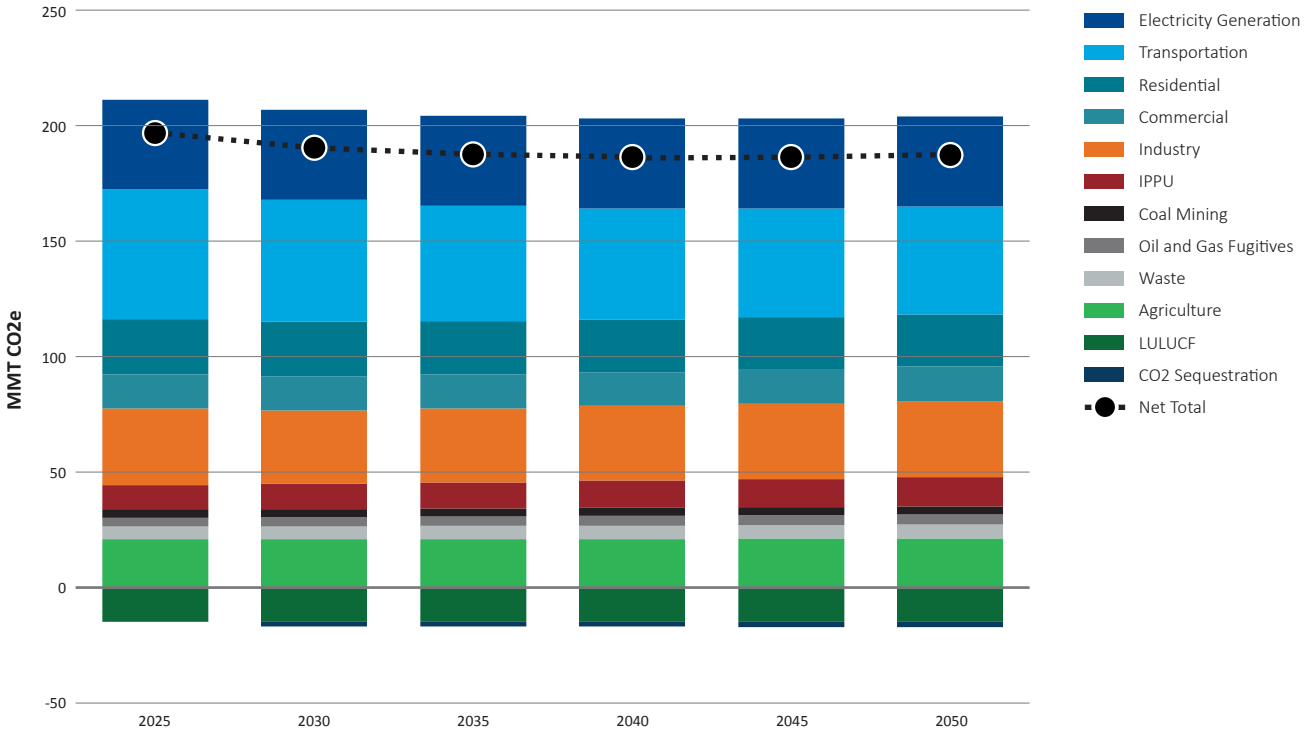
For other energy demands in the industrial and off-road transportation sectors, the model accounts for total energy demand by fuel type within each sector and allows the user to apply energy efficiency or fuel-switching measures in the future. Finally, the model accounts for annual emissions from non-energy or non-combustion sources (e.g., methane from landfills) and includes the option to apply mitigation measures to emissions from these sources.

BAU Scenario

The Business-as-Usual (BAU) scenario depicts the future of Illinois energy use and emissions without any incremental state policy intervention or market changes. Adoption of electric vehicles and devices remain at current levels, no additional energy efficiency measures are implemented, and nonenergy emissions from sectors such as agriculture or waste remain unabated. There is some decrease in energy demand and emissions as older, less efficient vehicles and household devices are retired and replaced with newer, more efficient models, but this does not meaningfully change economy-wide emissions. The BAU scenario includes assumptions around data center electric load growth; data center electricity demand is expected to increase substantially, from 31 TBtu in 2024 to 281 TBtu in 2038; from 2038-onwards, data center load is held constant. This increase in electricity demand is included across all scenarios. Although future data center load growth is uncertain, this topic will be explored more under the 2026 Integrated Resource Plan (IRP).[12]

The BAU scenario is not meant to be used as a planning scenario; instead, it is a counterfactual scenario against which the two modeled scenarios, discussed below, are compared to understand relative costs, benefits, and emissions abatement.

Figure 4: Emissions projection under the BAU scenario



[12] https://www.icc.illinois.gov/informal-processes/Integrated-Resource-Plan

Current Policy and Increased State Action Scenarios

Illinois has explored two core scenarios with different levels of state policy intervention and activity across energy and environmental sectors. These scenarios measure the emissions abatement potential, incremental costs, and incremental benefits relative to the BAU scenario given these different levels of government action. These scenarios, the **Current Policy Scenario** and the **Increased State Action Scenario**, are described below. Illinois has also explored two distinct pathways to achieving net zero emissions by 2050 via the **Moderate Efficiency and Flexibility Scenario** and the **High Efficiency and Flexibility Scenario**; these scenarios are described in detail in Appendix B.

Current Policy Scenario Emission and Energy Projections

The Current Policy scenario is designed to show emissions projections under current state-specific policies. The projections demonstrate emissions reductions potential from existing policy and highlight the remaining gap to future GHG targets to guide in future policymaking. Current policies represented in this scenario are included in Table 6 below. This scenario does not include the recently passed Clean and Reliable Grid Affordability Act (CRGA), which establishes state procurement of 3 gigawatts (GW) of grid-scale battery storage by 2030, lifts a moratorium on new nuclear reactors, provides $10 million to fund Thermal Energy Network pilots, establishes the Geothermal Homes and Businesses Program to allocate an additional $10 million to geothermal projects, directs utilities to establish virtual power plant programs, revises energy efficiency targets including a minimum level of spending for low-income households, and offer time-of-use pricing for residential customers.[13]

Table 6: Policies represented in Current Policy scenario

Sector	Measure	Description
Electricity Generation	Renewable Portfolio Standard (RPS)	Requires investor-owned utilities to reach the following shares of renewable electricity in their retail sales through Illinois Power Agency programs and procurements: 40% by 2030, 50% by 2040.
	Power plant emission reductions	Requires in-state electricity generating units (EGUs) to reduce all GHG and co-pollutant emissions to zero by 2045.
	Energy efficiency resource standards	Annual electricity demand growth rate through 2030 aligned with utility and ISO forecasts from the Illinois 2025 Draft Renewable Energy Access Plan, which are expected to be reflective of utility energy efficiency programs (ComEd and Ameren have energy savings targets of 21.5%[14] and 16%[15], respectively, by 2030).
Transportation	EV purchase incentives	Electric Vehicle Rebate Act offers up to $4,000 with the purchase of a new or used all-electric vehicle.
	Zero emissions transit bus requirement	HB1342 directs Service Boards to purchase only zero emissions buses starting in 2026.
Buildings	Building codes	Energy Efficient Building Act requires all new residential and commercial buildings to follow comprehensive energy conservation code; most renovations, additions, and repairs must also follow energy conservation code.
CO2 Sequestration	Planned carbon removal projects	CO2 Sequestration represents any carbon sequestered via carbon capture and storage (CCS) or direct air capture (DAC). The Current Policy scenario includes the planned CCS projects included in the EPA Class VI permit queue.

[13] https://www.illinoisgreenalliance.org/illinois-just-passed-the-clean-and-reliable-grid-act-heres-what-the-building-industry-needs-to-know

[14] https://icc.illinois.gov/api/web-management/documents/downloads/public/future-of-gas/ComEd%202022-25%20Energy%20Efficiency%20Plan.pdf#:~:text=The%20overall%20ComEd%20savings%20goal%20is%20the,CPAS%20of%2021.5%25%20by%202030%2C%20and%20subsequent&text=program%20umbrella%20is%20expected%20to%20attain%2034%25%20of

[15] https://ameren.mediaroom.com/news-releases?item=1602#:~:text=Invest%20$114%20million%20per%20year,individuals%20through%20energy%20efficiency%20investment.

Figure 5: Emissions projections under Current Policy scenario

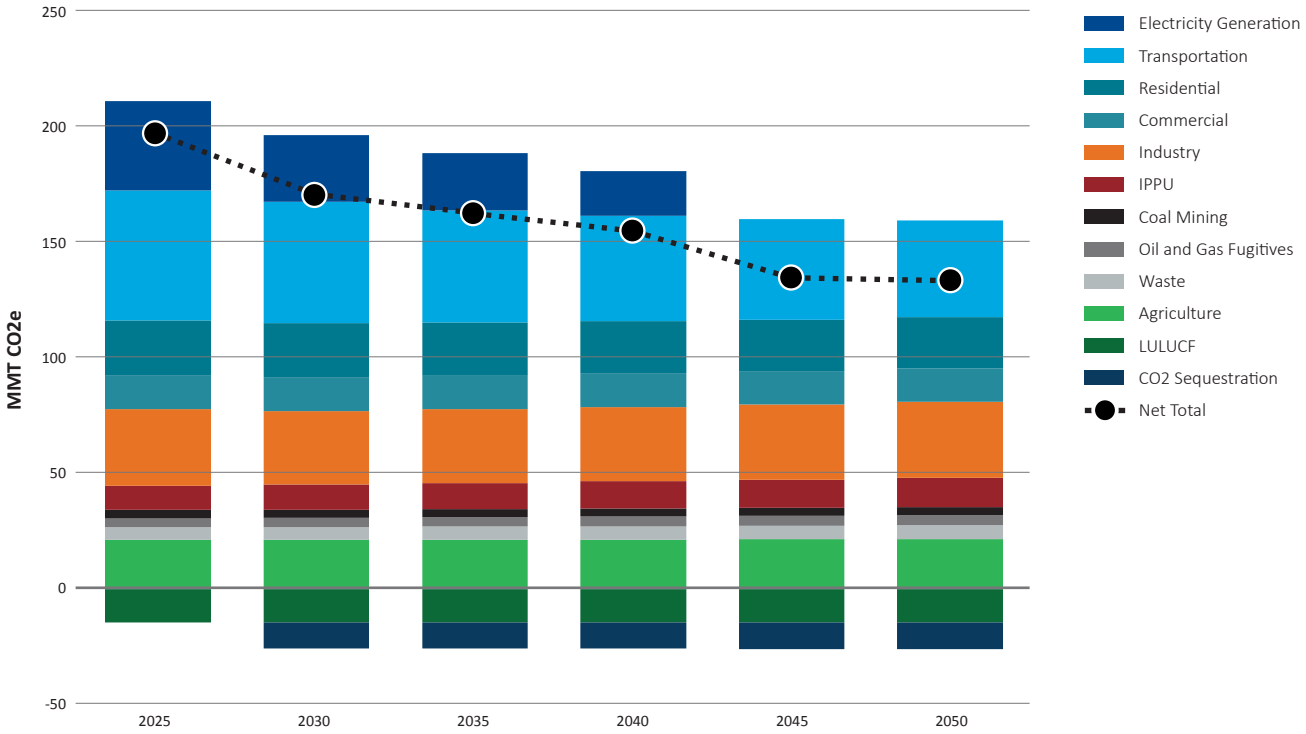


Table 7: Emissions projections under Current Policy scenario (MMT CO2e)

Sector	2030	2040	2050
LULUCF	-15	-15	-15
CO2 Sequestration	-11	-11	-11
Agriculture	21	21	21
Waste	6	6	6
Oil and Gas Fugitives	4	4	4
Coal Mining	4	3	3
IPPU	11	12	13
Industry	32	32	33
Commercial	15	14	15
Residential	23	23	22
Transportation	52	46	42
Electricity Generation	29	19	0
Net Total	**171**	**155**	**133**
Net Reduction vs Baseline (%)	**40%**	**46%**	**53%**

Figure 6. Energy demand projections under Current Policy scenario

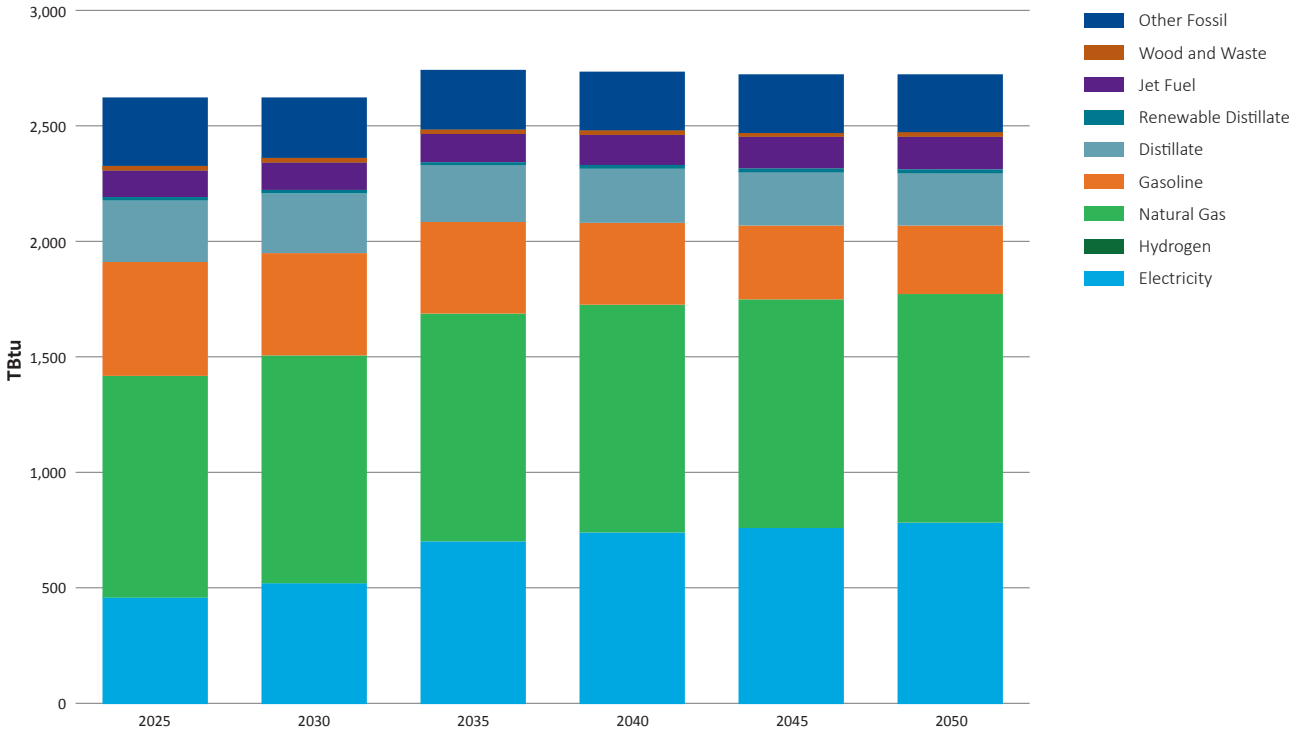


Table 8. Energy demand projections under Current Policy scenario (TBtu)

Fuel	2030	2040	2050
Electricity	520	742	782
Hydrogen	0	0	0
Natural Gas	988	983	992
Gasoline	442	353	295
Distillate	255	237	227
Renewable Distillate	16	14	13
Jet Fuel	120	130	144
Wood and Waste	18	18	19
Other Fossil	260	254	250

Increased State Action Scenario Emission and Energy Projections

The Increased State Action Scenario includes all the policies modeled in the Current Policy scenario, as well as additional policies proposed to achieve further emissions abatement in Illinois. The Increased State Action scenario's incremental policies span across measures in the transportation sector, residential and commercial sectors, industry, waste, and natural and working lands. These measures are outlined in the Emissions Reduction Measures and Increased State Action Scenario Projections section, but high-level results of the Increased State Action scenario are shown below in Figure 7 and Figure 8.

Figure 7. Emissions projections under Increased State Action scenario

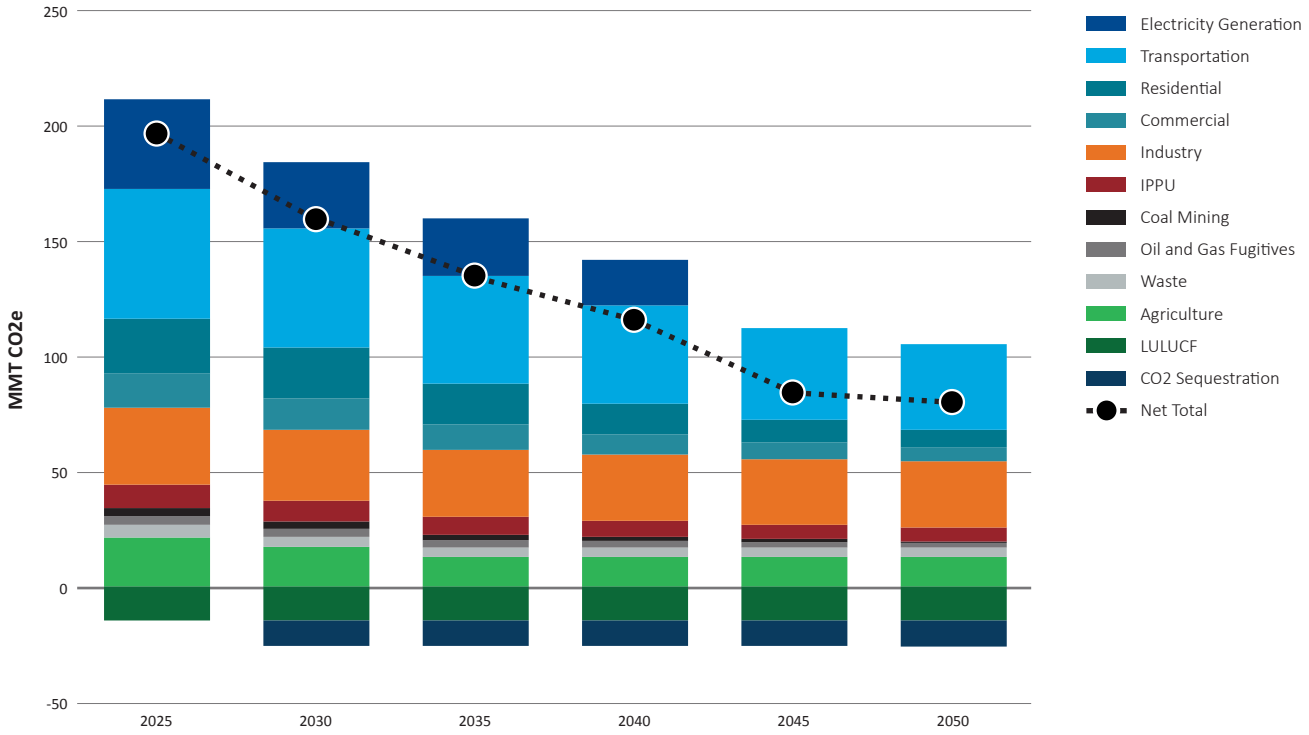


Table 9. Emissions projections under Increased State Action scenario

Sector	2030	2040	2050
LULUCF	-15	-15	-15
CO2 Sequestration	-11	-11	-11
Agriculture	17	13	13
Waste	5	4	4
Oil and Gas Fugitives	4	3	2
Coal Mining	3	2	1
IPPU	9	7	6
Industry	31	29	28
Commercial	14	9	6
Residential	22	13	8
Transportation	51	43	37
Electricity Generation	29	19	0
Net Total	**158**	**116**	**79**
Net Reduction vs Baseline (%)	**45%**	**59%**	**72%**

Figure 8. Energy demand projections under Increased State Action scenario

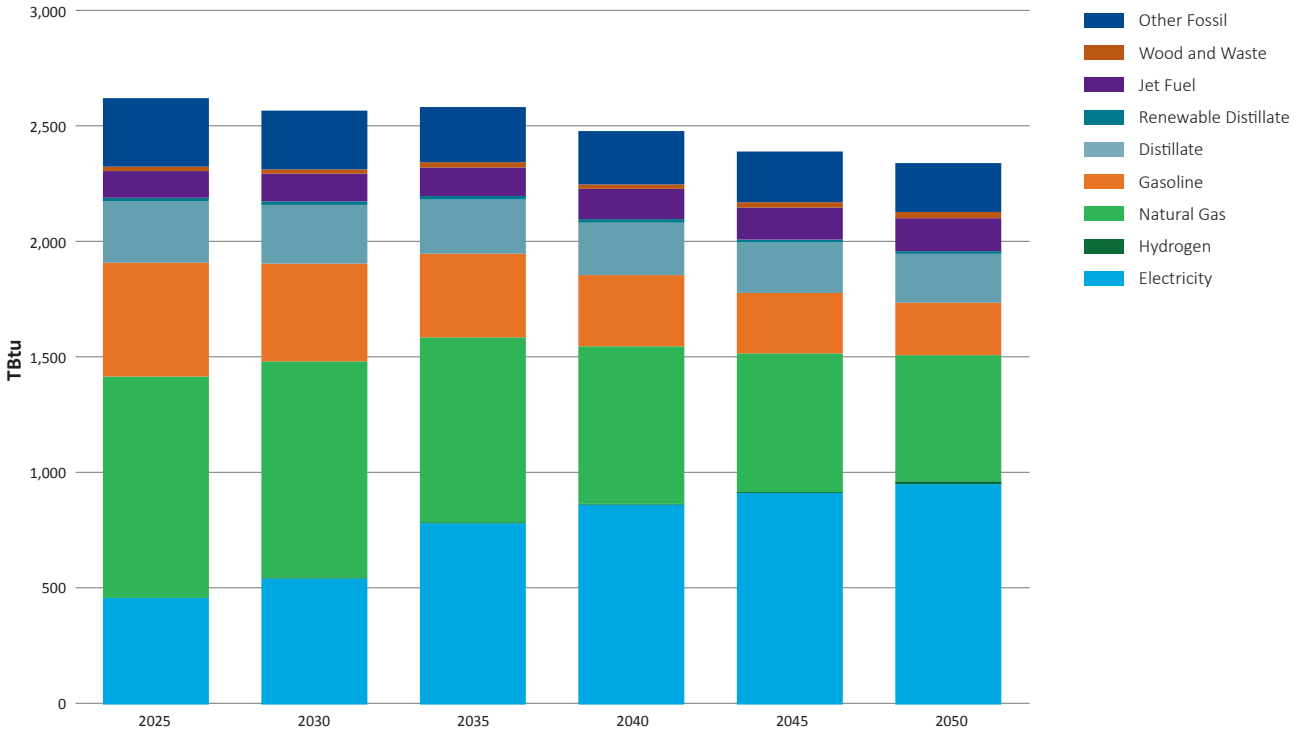


Table 10. Energy demand projections under Increased State Action scenario (TBtu)

Fuel	2030	2040	2050
Electricity	546	862	954
Hydrogen	1	5	9
Natural Gas	935	683	547
Gasoline	423	306	227
Distillate	253	227	210
Renewable Distillate	16	14	12
Jet Fuel	120	130	144
Wood and Waste	19	22	24
Other Fossil	253	229	214

Emissions Reduction Measures and Increased State Action Scenario Projections

Emission Reduction Measures Summary

The Increased State Action scenario includes fifteen incremental GHG reduction measures designed to be adopted in the near-term but achieve long-term GHG emissions reductions. Each reduction measure represents a policy, program, or initiative aimed at reducing emissions from key sectors such as transportation, buildings, and industry. Together, they illustrate the range of actions that could be initiated in the near term to accelerate progress towards lowering statewide emissions. Table 11 lists the measures modeled in the Increased State Action scenario along with a brief description of the policy mechanism or modeling approach. Existing policies, such as CEJA, were incorporated into the Current Policy Scenario described above.

Table 11. Policies represented in Increased State Action scenario

Sector	Measure	Description
Transportation	LDV EV Incentives	Rebates for light duty EVs worth up to $7,500 per vehicle that would replace lost federal incentives
	MHDV ZEV Incentives	Rebates for medium and heavy-duty ZEVs worth up to $40k that would replace lost federal incentives
	Land Use VMT Reductions	New building construction is concentrated in high density regions based on Chicago MSA CCAP
	Public Fleet EV Requirements	All purchases of state & municipal fleet vehicles are EVs
Residential & Commercial	Clean Heat Standards	Requires a 22% reduction in emissions from natural gas in buildings by 2035, based on CO rules
	Heat Pump Incentives	Incentives of up to $10k per home for a whole-home heat pump, based on MA incentive levels
	All-Electric Building Codes	Includes all-electric new construction codes starting in 2029, based on NY law
	Envelope Upgrade Incentives	Incentives of up to $4-9.5k per home for envelope upgrade incentives based on VT program
	Lawn and Landscaping Equipment Electrification	All gasoline-powered equipment electrified by 2035
Industry & IPPU	Facility Emissions Standards	Requires a 20% reduction for certain large manufacturing facilities by 2035, based on CO rules
	Net Zero Cement	Requires net zero emissions from cement production by 2050, based on CA law
	Buy Clean Programs	Requires reduction in emissions intensity of cement, glass, and iron & steel used in public construction
	HFC Phaseout Program	Backstop EPA SNAP[16] regulations on HFCs based on CA, WA, and NY programs
Waste	Landfill Methane Rules	Stronger landfill methane monitoring and abatement regulations based on OR, MD, and WA rules
Agriculture	Incentives for Best Practices	Incentives up to $200/tCO2e for non-CO2 emissions reductions
Coal Mining, Oil and Gas Fugitives	Achievement of Technical Potential	Emissions associated with the extraction and transfer of fossil fuels are expected to decrease in line with the abatement levels projected in the EPA non-CO2 mitigation technical potential[17]

[16] Significant New Alternatives Policy Program

[17] https://www.epa.gov/global-mitigation-non-co2-greenhouse-gases

Emission Reduction Measures

ELECTRICITY

The primary emission reduction measure for the electricity sector is the power plant emissions reduction schedule in CEJA, which sets binding clean energy generation targets for the sector, and is included in both the Current Policy and Increased State Action scenario.

Policy Overview

CEJA prescribes emissions reduction requirements for electric power plants in Illinois based on their fuel source (natural gas, coal, and oil), their proximity to equity investment eligible (disadvantaged) communities, their co-pollutant emissions, heat rates, and if they are owned by public or private entities. While the emissions reduction requirements for interim years vary based on these characteristics, CEJA requires that all power plants with capacity over 25 MW reach zero GHG emissions by 2045. In addition to the emissions reduction requirements for power plants, the RPS requires investor-owned utilities meet an increasing share of retail sales with renewable electricity, rising to 50% by 2040.

Modeling Assumptions

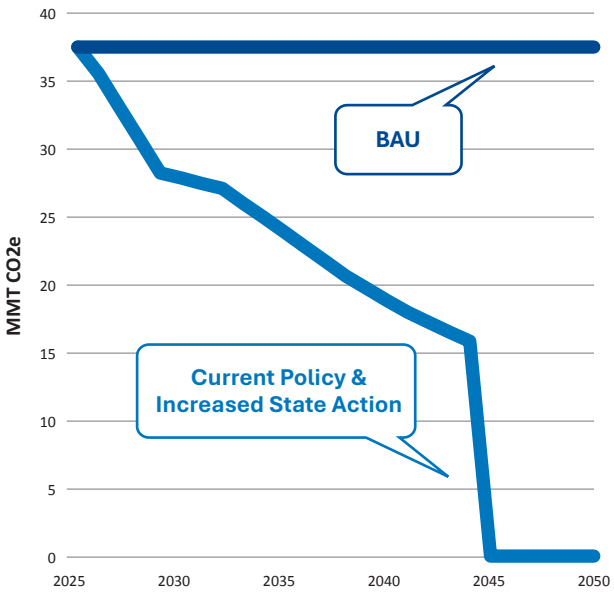
The electricity sector modeling for this analysis was informed by the 2024 release of the National Renewable Energy Laboratory (NREL) Standard Scenarios, a set of forward-looking scenarios of the power sector in the United States that are updated annually.[18] While NREL models a wide range of technology and policy scenarios, E3 chose to leverage outputs from the Mid-case with No Tax Credits and No CAA 111 Representation (EPA Section 111d power plant standards) case since this provides the closest representation of federal policy as of November 2025. However, the trajectory of power sector emissions for Illinois does not vary significantly across the NREL scenarios due to federal policy or technology assumptions because of CEJA and RPS requirements. Although small power plants may still have greenhouse gas emissions after 2045, these emissions are expected to be minor; for simplicity, Illinois' electricity sector emissions are expected to reach zero by 2045 in all cases for this modeling exercise. E3 calculated the average annual electricity emissions intensity from the Mid-case without IRA tax credits or EPA Section 111d power plant standards and applied this to the electricity demands in the Current Policy and Increased State Action scenarios to estimate total electricity sector emissions by year.

[18] https://www.nrel.gov/analysis/standard-scenarios

Measure Results

Figure 9 below shows the emissions from the electric sector in the BAU scenario, as well as emission from the Current Policy and Increased State Action scenarios.

Figure 9. Electricity GHG emissions by scenario



Regulatory Authority and Funding Availability

Illinois' regulatory authority for the electricity sector measures is already established as the measures are existing policies. All power plants subject to the emissions reduction requirements of CEJA must report emissions annually to Illinois EPA, and all retail customer load subject to the RPS requirements is served by incentive programs and competitive procurement processes to procure renewable energy credits administered by the Illinois Power Agency (IPA); the Illinois Commerce Commission enforces compliance with the RPS requirements. No external funding sources are specified to ensure achievement of the RPS or power plant emissions reduction requirements, and both programs contain cost mitigation measures to limit the impact of the policies on electricity customers.

Benefits and Costs

Detailed analysis of the costs of meeting Illinois' electricity sector policy goals is currently under way as part of the 2026 Illinois Integrated Resource Plan (IRP). The electricity sector modeling conducted for this analysis is not as detailed as the ongoing analysis from the IRP, and the cost results reported here should only be interpreted as high level estimates that would be superseded by any results from electricity sector-specific studies conducted by the state.

To estimate electricity sector costs, the annual electricity sector capacity and generation by resource data from the NREL 2024 Standard Scenarios were combined with generating resource costs from the NREL 2024 Electricity Annual Technologies Baseline (ATB)[19] and electric sector fuel prices and transmission and distribution costs from the EIA Annual Energy Outlook 2025 (AEO).[20]

Because electricity sector costs are paid by end users in the residential, commercial, industrial, and transportation sectors, we report electricity costs along with the other costs for those sectors. This also allows for a clearer understanding of how costs change for end users in those sectors over time (e.g., the transportation sector sees less spending on gasoline but more on electricity as more vehicles electrify). The monetized climate and health benefits of reduced fossil fuel combustion in the electricity sector are included in the economy-wide cost and benefits shown in the Benefits Analysis section.

[19] https://atb.nrel.gov/electricity/2024/data
[20] https://www.eia.gov/outlooks/aeo/

TRANSPORTATION

Under the Transportation GHG emissions reduction measure, Illinois is considering four key policies. These policies are aimed at promoting the purchases of electric vehicles to reduce emissions from internal combustion engine (ICE) cars and trucks, as well as reducing overall vehicle miles traveled (VMT) to lower transportation energy demand. It should be noted that while electric vehicles' electricity demand contributes to emissions from electricity generation, vehicles running on electricity do not contribute tailpipe emissions. Electric vehicles are therefore considered zero emissions vehicles, and are consistently referred to as such across the industry. The emissions associated with electricity demand are counted under the Electricity sector and are determined by the portfolio of electricity generation resources included in the grid mix at a given time.

Policy Overview

These policies included in Increased State Action scenario are outlined below.

- **LDV EV Incentives:** This policy would require Illinois to issue rebates of up to $7,500 per vehicle with the purchase of a light-duty EV. These rebates would replace previous federal incentives to accelerate battery electric vehicle (BEV) and plug-in hybrid electric vehicle (PHEV) adoption.
- **MHDV ZEV Incentives:** Similarly to the previous policy, Illinois would replace previous federal incentives and provide rebates of up to $40,000 per vehicle with the purchase of an electric or hydrogen fuel cell (HFCV) medium- or heavy-duty vehicle; both vehicle types fall under the category of zero emissions vehicles (ZEVs).
- **Land Use VMT Reductions:** This policy would require a shift in city and municipality planning. New construction would be concentrated in high-density regions to reduce the need for community members to drive. This reduction in VMT would decrease energy demand and abate emissions from LDVs. Achieving VMT reductions requires a robust mobility and land use strategy that promotes mode walking, biking, and the use of public transportation. Implementing this type of plan will require ongoing discussions and coordination across the state.
- **Public Fleet EV Requirements:** The electrification of public fleets operated by municipalities and state agencies is a policy that would support Illinois's climate and clean transportation goals. This measure would require replacing internal combustion engine vehicles in state and municipal flees with BEVs.

It should be noted that the Increased State Action Scenario also includes ambitious transit bus electrification projections; however, given that this is driven by existing state policy (HB1342[21]), it is also included in the Current Policy Scenario. Therefore, bus electrification will not be included as an incremental GHG emissions reduction measure.

Modeling Assumptions

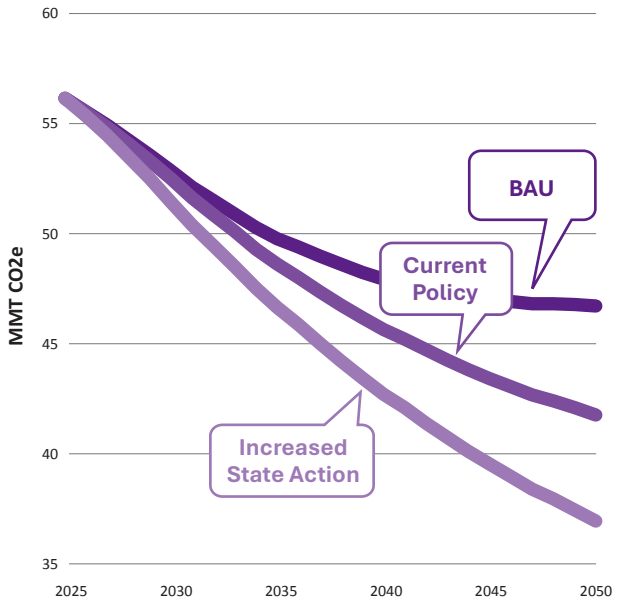
- **LDV EV Incentives:** Research shows that the previously available federal incentives increased the share of light-duty vehicle (LDV) sales made up of EVs by 36%.[22] Based on the natural rate of EV sales growth, this equates to a 17% BEV sales share and 5% PHEV sales share by 2040; by 2050, BEV and PHEV sales reach 41% and 13%, respectively. Under the Current Policy scenario, BEV and PHEV sales are only expected to reach 30% and 9%, respectively, by 2050.
- **MHDV ZEV Incentives:** Further research shows that the previous federal MHDV ZEV incentives increased medium-duty ZEV sales by 95%, and heavy-duty ZEV sales by 170%.[23] This leads to ZEV sales shares in 2050 ranging from 20-83%, depending on the class of MHDV.
- **Land Use VMT Reductions:** IL is expected to decrease LDV VMT by 9% by 2050 through this measure.[24]
- **Public Fleet EV Requirements:** According to the IL Secretary of State data, 2% of annual LDV purchases are attributable to State and Municipal governments.[25] Therefore, under this measure an additional 2% of LDV purchases each year are expected to be BEVs.

[21] https://legiscan.com/IL/bill/HB1342/2023
[22] https://salatainstitute.harvard.edu/quantifying-trumps-impacts-on-ev-adoption/
[23] https://energyinnovation.org/wp-content/uploads/2022/11/Implementing-the-Inflation-Reduction-Act-A-Roadmap-For-Federal-And-State-Transportation-Policy.pdf
[24] https://engage.cmap.illinois.gov/comprehensive-climate-action-plan
[25] https://www.ilsos.gov/content/dam/departments/vehicles/statistics/activereg/2025/activereg103125.pdf

Measure Results

Figure 10 below shows the emissions over time from the transportation sector across scenarios.

Figure 10. Transportation GHG emissions by scenario



Regulatory Authority and Funding Availability

- **EV Incentives:** Illinois EPA has an existing Electric Vehicle Rebate Program established through the EV Rebate Act. The existing incentive amounts for EVs are dependent on vehicle price and customer income; in order to provide higher incentives to further accelerate EV adoption for both LDV and MHDVs, the General Assembly would need to approve additional funding.[26]
- **VMT Reductions:** These can be made possible by promoting dense, transit-oriented development. Municipalities have the regulatory authority to implement this type of development; for example, in Chicago the Mayor's Office and the Departments of Planning and Development, of Housing, and of Transportation created the Connected Communities Ordinance to implement Chicago's Equitable Transit-Oriented Development (ETOD) Policy Plan.[27] The regulatory authority of the State is to be determined; Governor J.B. Pritzker has proposed zoning standards that will promote denser development and help alleviate the housing shortage.[28]
- **Public Fleet EV Requirements:** There are existing initiatives from both the state government and municipal governments in Illinois to transition public fleets to EVs. The Government Zero Emission Vehicle Act (ZEV Act) of 2023 directed that, beginning January 1, 2030, all passenger vehicles, excluding law enforcement vehicles, purchased or leased by a governmental unit be zero-emission vehicles. The Illinois Department of Central Management Services (CMS) has since established a statewide Electric Vehicle Supply Equipment (EVSE) joint purchase master contract to support agency compliance with the ZEV Act. Successful implementation of the State fleet transition will require coordinated deployment of charging infrastructure, including site readiness, electrical capacity, and utility upgrades, across state-owned and leased facilities. CMS is actively executing pilot site assessments and will coordinate the portfolio-wide rollout of charging infrastructure to support State agencies' transition to EVs. Additionally, the City of Chicago has a target to transition 100% of the municipal fleet to zero emissions vehicles by 2035.[27,28] The state agencies and municipal government departments already have authority over vehicle procurement decisions but may require additional funding approvals. The primary near-term barriers to accelerating this transition are charging infrastructure availability across state-owned and leased facilities. Additional barriers include limited EV manufacturing capacity and government contract availability of EV models, limited battery driving range across vehicle classes, and slow battery charging times.[29,30]

In terms of funding availability, there are complementing federal funding sources that provide capital to promote transportation efficiency and electrification, as identified in the Illinois Priority Climate Action Plan. These sources include the Diesel Emissions Reduction Act (DERA) funding[30] and the Congestion Mitigation and Air Quality Improvement (CMAQ) program.[31] Additional funding for transportation electrification is available under the National Electric Vehicle Infrastructure (NEVI) Program; however, the NEVI program has been the subject of ongoing litigation.[32] Additionally, the CPRG implementation grant will aid Illinois in implementing the policies outlined above to advance clean transportation in the state, with $32.4 million allocated for MHDV ZEV deployment and $44.3 million allocated for MHDV ZEV charger deployment. Capitalized financing mechanisms administered by the Illinois Finance Authority may support fleet electrification, vehicle procurement, and charging infrastructure deployment at scale.

[26] https://epa.illinois.gov/topics/ceja/electric-vehicle-rebates.html
[27] https://www.chicago.gov/city/en/sites/equitable-transit-oriented-development/home/connected-communities-ordinance.html
[28] https://www.illinois.gov/news/release.html?releaseid=32326
[29] https://epa.illinois.gov/content/dam/soi/en/web/epa/topics/climate/documents/Illinois%20Priority%20Climate%20Action%20Plan.pdf
[30] https://www.epa.gov/dera
[31] https://www.fhwa.dot.gov/environment/air_quality/cmaq/
[32] https://www.congress.gov/crs-product/IN12556

Although it's not being explicitly modeled, the analysis implicitly assumes more deployment of EV charging infrastructure. The State currently receives funding for charging infrastructure deployment from the VW Settlement.[33] Going forward, more funds will be made available via CEJA, CRGA, and CPRG funding.[34,35] CRGA grants the Illinois Environmental Protection Agency statutory authority to issue grants for electric vehicle charging infrastructure beginning in 2028.[36]

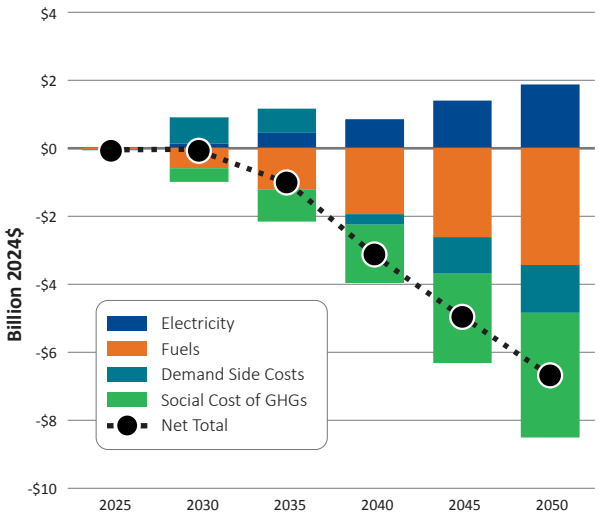
Benefits and Costs

Transportation measures result in net cost savings as vehicle electrification expands across light-, medium-, and heavy-duty sectors. The capital cost of electric vehicles is expected to continue to decline and eventually become lower than that of internal combustion engine vehicles. Vehicle cost assumptions are based on estimates from the International Council on Clean Transportation (ICCT)[37] and California Air Resources Board (CARB)[38]. These upfront cost savings, combined with reduced fuel and maintenance expenses, are sufficient to offset the costs of investing in charging infrastructure across the state.

The figure below summarizes the incremental total resource cost of transportation measures, relative to the BAU scenario. Total costs reflect the combined value of changes in vehicle capital, charging infrastructure, fuel, and maintenance costs. These costs represent the statewide cost of achieving the level of ambition within each scenario and ultimately could include a mix of state-funded program costs, federal-funded program costs, and investments by individual consumers. The values exclude the value of avoided GHG and air quality emissions. Negative values indicate net cost savings, while positive values represent net costs. The transportation sector experiences statewide cost savings as the upfront cost of electric vehicles is expected to eventually fall below that of internal combustion engine vehicles. In addition, electric vehicle adoption reduces fuel and maintenance expenses, further reducing statewide costs.

From 2035 onwards, the transportation sector measures in the Current Policy and State Action scenarios result in net benefits relative to the BAU scenario, as can be seen in Figure 11. The largest net benefit component comes from reduced gasoline and diesel consumption caused by vehicle electrification. The corresponding savings in GHG emissions is monetized using the social cost of carbon specified by the US EPA at a 2% Ramsey Discount Rate.[39] Health and air quality benefits are not included here but will be covered in the economy-wide cost analysis section later in this report.

Figure 11. Increased State Action transportation net costs relative to Business-as-Usual[40]



[33] https://epa.illinois.gov/topics/air-quality/driving-a-cleaner-illinois/vw-settlement.html

[34] https://epa.illinois.gov/topics/ceja.html

[35] illinoisclimatebank.com/financing-programs/commercial-industrial-businesses/heavy-duty-charging/

[36] https://www.ilga.gov/Legislation/PublicActs/PrinterFriendly/104-0458

[37] Mulholland, Eamonn. 2022. "Cost of electric commercial vans and pickup trucks in the United States through 2040". https://theicct.org/wp-content/uploads/2022/10/ev-cost-benefits-2035-oct22.pdf; https://theicct.org/wp-content/uploads/2022/01/cost-ev-vans-pickups-us-2040-jan22.pdf; https://theicct.org/wp-content/uploads/2023/01/ira-impact-evs-us-jan23-2.pdf

[38] California Air Resources Board Staff. 2019. "Public Hearing To Consider The Proposed Advanced Clean Trucks Regulation. Staff Report: Initial Statement Of Reasons". https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2019/act2019/isor.pdf

[39] https://www.epa.gov/system/files/documents/2023-12/epa_scghg_2023_report_final.pdf

[40] Demand Side Costs capture vehicle and charger costs

RESIDENTIAL & COMMERCIAL

Illinois explored five potential carbon reduction strategies in the residential and commercial sectors: clean heat standards, heat pump incentives, all-electric building codes, envelope upgrade incentives, and lawn/landscaping equipment standards. Most of the energy consumption and corresponding GHG emissions in the residential and commercial sectors are related to the combustion of natural gas in buildings for space and water heating. As such, the GHG reduction measures in this CCAP are aimed to support residential dwellings and businesses in Illinois by reducing natural gas consumption through electrification of heating and energy efficiency. Further, electrified buildings will emit decreasing GHG emissions over time as the electricity mix decarbonizes in compliance with CEJA. The buildings sector is being studied more in depth under the ongoing Future of Gas process at the Illinois Commerce Commission.[41]

Policy Overview

- **Clean Heat Standards:** This policy would require a 22% reduction in emissions from natural gas use in buildings by 2035 and is based on the Colorado Clean Heat plan, which requires gas distribution utilities to reduce the GHG emissions.[42] Measures to reduce emissions may include energy efficiency programs, methane leakage reduction, low-carbon fuel blending (like green hydrogen or renewable natural gas), and electrification.
- **Heat Pump Incentives:** Incentives of up to $10,000 per home for a whole-home heat pump, based on rebate levels currently available in Massachusetts.[43]
- **All-Electric Building Codes:** This policy requires all new buildings to have all-electric appliances starting in 2029, based on the New York State All-Electric Buildings Law that was originally scheduled to go into effect in 2026, though implementation has recently been delayed.[44,45]
- **Envelope Upgrade Incentives:** Incentives of up to $4,000 to $9,500 per home for envelope upgrade incentives, based on a similar program in Vermont.[46]
- **Lawn and Landscaping Equipment Electrification:** Aimed at reducing the emissions from lawn equipment by electrifying gasoline-powered devices. The analysis assumes that all gasoline-powered equipment will be replaced with electric equipment by 2035.

Modeling Assumptions

- **Clean Heat Standards:** The Colorado Clean Heat Plan requires gas distribution utilities to reduce GHG emissions by 4% by 2025, and 22% by 2030, from a 2015 baseline. However, to reflect the time it would require Illinois to adopt a similar measure, a 5-year delay was modeled, such that the 4% reduction target is achieved by 2030, and the 22% reduction target is achieved by 2035. Historical natural gas consumption in the buildings sector in Illinois was sourced from EIA to model this measure.[47]
- **Heat Pump Incentives:** The *NREL Heat Pumps for All – Economic Dashboard* was used to estimate the percentage of residential households in Illinois would have a positive lifetime NPV when purchasing a heat pump after a $10,000 incentive.[48] When combined, the Clean Heat Standard and the Heat Pump Incentive resulted in a 60% sales share for heat pump in gas-heated dwellings, and a 100% sales share in propane-heated dwellings by 2035. Propane heating was able to achieve full phase-out by 2035 due to it being a relatively more expensive fuel than natural gas.
- **All-Electric Building Codes:** This policy was modeled by assuming every new building in Illinois installs a heat pump and an efficient building shell. The heat pump installed in new construction is assumed to be a cold-climate heat pump with a COP of 3 (increasing to 3.5 by 2050), and the building shell is assumed to reduce space heating demand by 10% relative to the reference building shell.
- **Envelope Upgrade Incentives:** This measure assumes that 4% of residential dwellings receive a basic shell retrofit annually by 2035, increasing to 10.5% in 2050. Space heating demands are assumed to decrease by 5% after an envelope upgrade retrofit.

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[41] https://www.icc.illinois.gov/programs/Future-of-Gas-Workshop
[42] https://puc.colorado.gov/cleanheatplans
[43] https://www.masssave.com/residential/rebates-and-incentives/heating-and-cooling/heat-pumps
[44] https://nyassembly.gov/all-electric-buildings/
[45] https://www.cbsnews.com/newyork/news/ny-all-electric-building-law-delayed/
[46] https://www.efficiencyvermont.com/rebates/list/home-performance-with-energy-star
[47] https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SIL_a.htm
[48] https://public.tableau.com/app/profile/nrel.buildingstock/viz/Heatpumpsforall-Economicdata/Coverpage

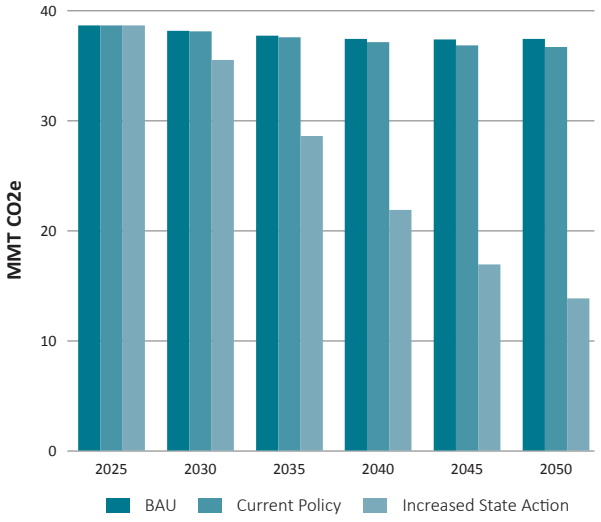
- **Lawn and Landscaping Equipment Electrification:** In the Pathways model, lawn and landscaping equipment energy demand falls under the commercial sector; specifically, this falls under "commercial other," which captures the energy demand associated with commercial activity outside of our specified commercial subsectors like space heating, cooking, and water heating. The extent to which liquid fuel demand would decrease from this measure was estimated based on the assumed gasoline use attributed to commercial lawn and landscaping equipment.

Measure Results

In the buildings sector, the BAU and Current Policy scenarios both result in relatively flat emissions trajectories, as seen in Figure 12. In the Increased State Action scenario, GHG emissions in the buildings sector decrease from 39 MMT of CO2e in 2025 to 14 MMT in 2050, a 64% decrease.

The bulk of these reductions come from the Clean Heat Standard and Heat Pump incentive measures, as they are responsible for displacing most of the natural gas use currently responsible for space and water heating in the residential and commercial sectors. All-electric building codes contribute relatively less to GHG emissions reductions since Illinois has a low building stock loss rate and new build rate.[49] However, as is the case with building envelope upgrades, dwelling occupants will benefit from lower bills and improved thermal comfort through these measures, which is outside the scope of this report.

Figure 12. Residential & commercial GHG emissions by scenario



Regulatory Authority and Funding Availability

As expressed in the PCAP and CPRG Implementation Grant application, as a state actor Illinois has a diverse set of strategies available to accelerate electrification and energy efficiency in the residential and commercial sectors. Examples of which authorities could help advance modeled policies can be found below:

- **Clean Heat Standard:** In Colorado, the state legislature established the Clean Heat Plan program and requires each gas distribution utility to file plans with the Colorado Public Utilities Commission (PUC), who has the authority to approve or deny plans. A clean heat standard in Illinois would likely also be administered by the state's utility regulator, the ICC, who has already initiated a Future of Gas proceeding where clean heat standards are a topic of study.[50] Both legislation and executive action could potentially provide the authority for the state to adopt a clean heat standard.
- **Heat Pump Incentives:** While Illinois does not currently have a state-wide heat pump incentive, Illinois EPA and the state's two regulated electric utilities administer home efficiency rebates, home electrification and appliance rebates, and other rebates. Previously, funding for Illinois EPA rebate program came from federal funds established through the Inflation Reduction Act (IRA) and allocated to the state by the U.S. Department of Energy.51 Given the uncertainty around federal funding for heat pump incentives in the near-term, funding for increased incentives from Illinois EPA will likely need to be provided through the state legislature. For the utility heat pump rebate programs, increased incentives would need to be approved by the ICC as part of the utilities' energy efficiency plans. Beyond incentives, the Illinois Finance Authority administers financing mechanisms that can cover the upfront costs for building electrification and energy efficiency.
- **All-Electric Building Codes:** The State Building and Residential Codes Act went into effect on January 1, 2025; this policy authorizes the Capital Development Board, in consultation with the Department of Natural Resources and Illinois EPA, to set minimum statewide building codes for commercial and residential buildings based on The International Code Council.[52] The Illinois Stretch Energy Code allows municipalities or projects, with approval from the Capital Development Board, to achieve a higher level of energy efficiency than the minimum standard.[53] Both the minimum or stretch building codes could be revised to promote all-electric new construction.

[49] https://www.census.gov/data/tables/time-series/demo/popest/2020s-total-housing-units.html
[50] https://icc.illinois.gov/programs/Future-of-Gas-Workshop
[51] https://epa.illinois.gov/topics/energy/energy-rebates.html
[52] https://www.ilga.gov/Legislation/BillStatus?DocNum=2368&GAID=17&DocTypeID=SB&LegId=147260&SessionID=112
[53] https://cdb.illinois.gov/business/codes/illinois-energy-codes.html

- **Envelope Upgrade Incentives:** Illinois currently offers incentives for weatherization to low-income households through the Illinois Home Weatherization Assistance Program, which is funded through both federal and state appropriations.[54] Similar to the incentives for heat pumps, increased incentives for weatherization would require additional appropriations.
- **Lawn and Landscaping Equipment Electrification:** Accelerating the electrification of lawn and landscaping equipment could occur through multiple regulatory pathways. The Illinois PCAP included offering financial incentives for electric equipment, municipalities around the U.S. have passed local laws restricting the use of gas-powered equipment, and California has adopted the Small Off-Road Engines (SORE) program that sets emissions standards for new equipment (although federal approval would be needed for other states to adopt similar rules).[55,56,57]

Benefits and Costs

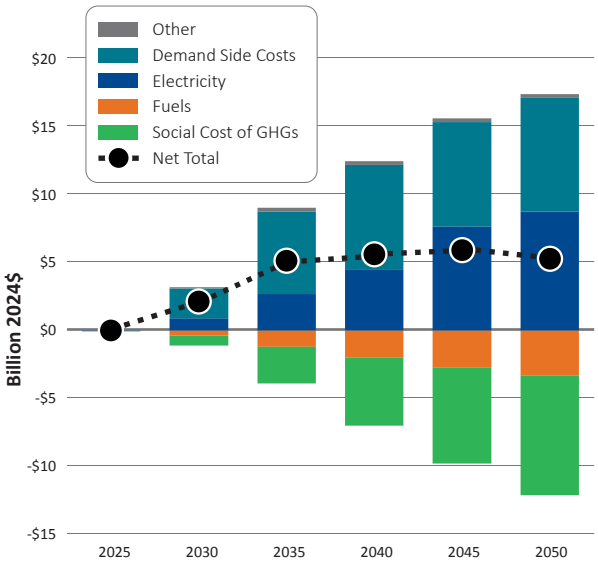
In the two policy scenarios, the buildings sector experiences a net cost increase relative to the BAU Scenario. These higher costs are primarily driven by investments in efficient and increasingly electric heating, ventilation, and air-conditioning (HVAC) systems, as well as additional building envelope and equipment efficiency upgrades. Equipment cost assumptions are based on the U.S. Energy Information Administration's (EIA) Updated Buildings Sector Appliance and Equipment Costs and Efficiencies.

As older systems are replaced with high-efficiency and electric alternatives, upfront capital expenditures rise, particularly in the near term. However, these incremental costs are partially offset by long-term reductions in fuel consumption and operating expenses as electricity use replaces fossil fuel heating and efficiency improvements reduce total energy demand. Over time, these investments contribute to a more efficient and modernized building stock that improves comfort, reduces emissions, and supports Illinois' broader transition toward a clean energy economy.

The figure below summarizes the incremental total resource cost of building sector measures relative to the BAU Scenario. These costs reflect the combined value of changes in building equipment capital, installation, fuel, and operating costs. These costs represent the statewide cost of achieving the level of ambition within each scenario.

Since these are statewide resource costs, any internal transfers, such as state- or utility-funded energy efficiency (EE) programs, neither increase nor decrease this statewide resource cost. The values exclude the value of avoided GHG and air quality emissions. Negative values indicate net cost savings, while positive values represent net costs. The cost savings seen in the Increased State Action scenario are the result of avoided climate damages due to lower GHG pollution and reduced spending on liquid and gaseous fuels due to electrification. It is important to note that the cost savings embedded here for avoided natural gas spending only includes the wholesale price component of natural gas, as this spending is directly avoidable by reducing consumption. Additional cost savings could be available from reduced spending on gas system infrastructure, but because the potential savings amount is uncertain and likely does not scale linearly with throughput declines, it was not estimated for this report. The ICC Future of Gas proceeding is currently developing a detailed action plan for Illinois gas utilities' future infrastructure investments that will examine this question in detail.

Figure 13. Increased State Action residential and commercial net costs relative to Business-as-Usual[58]



[54] https://dceo.illinois.gov/communityservices/homeweatherization.html
[55] The notice of funding opportunity for Illinois EPA is expected in 2026.
[56] https://www.law.georgetown.edu/environmental-law-review/blog/the-debate-over-gas-powered-leaf-blowers-gusts-into-federal-court/
[57] https://ww2.arb.ca.gov/resources/fact-sheets/sore-small-engine-fact-sheet
[58] Demand Side Costs capture building equipment costs, such as heat pumps, water heating equipment, and any other devices related to buildings energy demand

INDUSTRY & WASTE

The state explored three potential carbon reduction strategies in the industrial sector, one strategy to reduce industrial processes and product use (IPPU) emissions, and one strategy to reduce waste emissions. For simplicity, industry and IPPU emissions are combined in the emissions figures below.

Policy Overview

The three modeled strategies in the industrial sector are as follows:

- **Facility Emissions Standards:** This policy involves the establishment of GHG emissions limits for large industrial emissions sources, modeled on a similar program established in Colorado. As part of the Greenhouse Gas Emissions and Energy Management for Manufacturing 2 (GEMM 2) rule, manufacturing facilities in Colorado that emit more than 25,000 metric tons of CO2e per year are required to reduce their emissions 20% by 2030.59 An earlier complimentary rule, GEMM 1, regulates emissions for energy-intensive, trade-exposed (EITE) industries like iron and steel and cement.60 The GEMM 2 rule requires industrial emitters to submit compliance plans and achieve annual emissions reductions through a combination of energy efficiency, electrification, alternative fuels, fuel switching, and participation in approved credit or offset mechanisms.
- **Net Zero Cement:** This policy would require 100% of cement production to be decarbonized by 2050
- **Buy Clean Programs:** These programs would require a reduction in carbon intensity of materials used in publicly funded construction projects. These programs would be based on multiple state programs and Federal-State Buy Clean Partnership during the Biden Administration.[61]

The strategy modeled to reduce IPPU emissions is the Hydrofluorocarbon (HFC) Phaseout Program:

- **HFC Phaseout Program:** The program would require HFC emissions to be reduced based on the EPA projection of Allowance Allocation and Reporting program[62] and Technology Transitions rule.[63]

Lastly, the strategy modeled to reduce waste emissions is:

- **Landfill Methane Rules:** Illinois would implement rules requiring landfill emissions standards that are stronger than current federal regulations similar to those recently adopted in Colorado.[64]

Modeling Assumptions

- **Facility Emissions Standards:** The modeled industrial facility limits are based on those of the Colorado GEMM program and leverage facility-specific emissions data from the EPA Greenhouse Gas Reporting Program (GHGRP). This rule is modeled as a 5% reduction in fossil fuel use due to increased energy efficiency by 2035 in the paper manufacturing subsector, and a 10% reduction by 2035 in the chemicals, food, metal-based durables, other, plastics, and wood products subsectors.

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[59] https://cdphe.colorado.gov/apcd/GEMM-phase-2-rule

[60] https://cdphe.colorado.gov/apcd/GEMM-phase-1-rule

[61] https://usclimatealliance.org/wp-content/uploads/2024/11/FACT-SHEET_-Biden-_Harris-Administration-Advances-Cleaner-Industrial-Sector-to-Boost-American-Manufacturing-and-Cut-Emissions-_-The-White-House.pdf

[62] https://www.epa.gov/climate-hfcs-reduction/regulatory-actions-allowance-allocation-and-reporting

[63] https://www.epa.gov/system/files/documents/2024-11/epa-hq-oar-2021-0643-0227_attachment_1.pdf

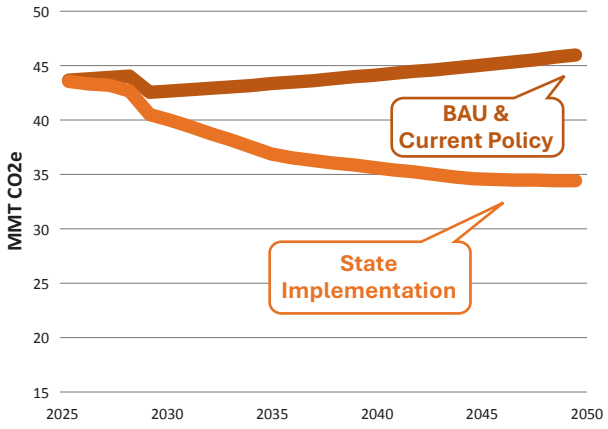
[64] https://cdphe.colorado.gov/apcd/landfill-methane-reductions

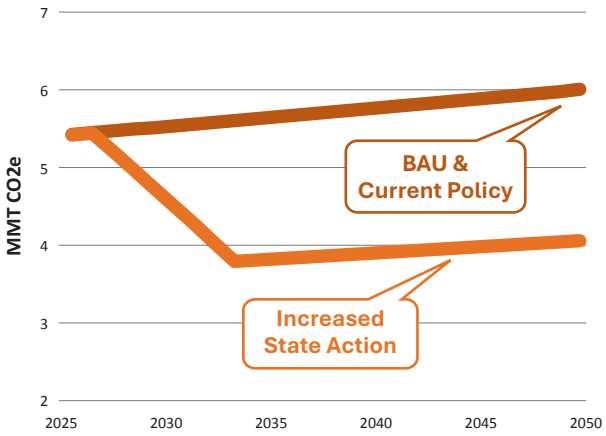
- **Net Zero Cement:** It is assumed that 100% of coal, petroleum coke, and natural gas used in the cement production process is replaced by biomass by 2050. Additionally, overall energy demand decreases by 40% by 2050 due to Supplementary Cementitious Material (SCM) use.
- **Buy Clean Programs:** These programs would be applied to the aluminum, glass, and iron and steel manufacturing subsectors. Depending on the subsector, it's assumed that 20-27% of distillate and natural gas use within these manufacturing processes would be converted to electricity use.
- **HFC Phaseout Program:** This program is assumed to reduce the IPPU emissions from cement production by 40%, and to reduce the emissions from ozone-depleting substances (ODS) substitutes by 70% by 2050. ODS substitutes include HFCs and perfluorocarbons (PFCs).
- **Landfill Methane Rules:** The Landfill Methane Rules are assumed to reduce landfill emissions by 38% by 2035.

Measure Results

Figure 14 below shows the emissions for the Industry sector and the IPPU sector over time in the BAU and Current Policies scenarios, as well as the reduced emissions in the Increased State Action scenario.

Figure 14: Industry & IPPU (top) and waste (bottom) sector emissions by scenario





Regulatory Authority and Funding Availability

- **Facility Emissions Standards:** In Colorado, the Colorado Air Quality Control Commission (AQCC) developed the facility emissions standards regulations after being granted greenhouse-gas rulemaking authority by the state legislature through HB19-1261.[65] A similar program could potentially be implemented in Illinois through legislation or executive action (e.g., as part of the Illinois EPA State Implementation Plan).
- **Net Zero Cement:** In California, the legislature directed the California Air Resources Board (CARB) to develop a comprehensive strategy for the state to reach a net zero GHG emissions intensity for the cement sector in California by 2045 as part of Senate Bill 596 (SB 596).[66] While the exact policy mechanisms that will be used to achieve this target are still being developed, they could include incentives for producers or consumers, emissions intensity standards for cement used on public projects, or new regulations. Enacting these policies could require new legislative action or new executive direction and agency rulemakings.
- **Buy Clean Programs:** This measure would impact procurement for public or publicly funded projects, and would therefore likely be Bureau of Strategic Sourcing and the State's Independent Chief Procurement Office.[67] In the case of California, implementing these procurement standards required legislative action in the form of the Buy Clean California Act.[68] Both legislation and executive action could potentially provide the authority for the state to adopt a Buy Clean Program.

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[65] https://cdphe.colorado.gov/apcd/GEMM-phase-2-rule

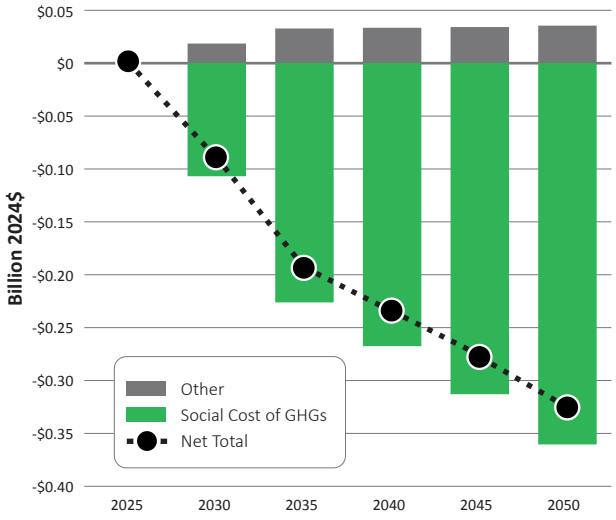
[66] https://cdphe.colorado.gov/apcd/GEMM-phase-1-rule

[67] https://usclimatealliance.org/wp-content/uploads/2024/11/FACT-SHEET_-Biden-_Harris-Administration-Advances-Cleaner-Industrial-Sector-to-Boost-American-Manufacturing-and-Cut-Emissions-_-The-White-House.pdf

[68] https://www.epa.gov/climate-hfcs-reduction/regulatory-actions-allowance-allocation-and-reporting

- **HFC Phaseout Program:** Illinois does not currently have regulatory authority to implement an HFC phaseout program, but authorization for this type of program could be granted via legislative or executive action. The potential for Illinois to implement this program is implied by the existence of HFC phaseout programs implemented by other states. For example, New York's Department of Environmental Conservation implemented Part 494/495, which includes a Refrigerant Management Program.[69] Additionally, the Illinois PCAP included the Fluorinated Gas Reduction Program; Illinois received $22.2 to implement this program from the CPRG.[70]
- **Landfill Methane Rules:** Landfills are regulated under Title 35 of the Illinois Administrative Code (Chapter I, Subchapter I).[71] In order to make changes to the code to enforce stricter landfill emissions standards, the change must follow the provisions of the Illinois Administrative Procedure Act and all procedures set by the Joint Committee on Administrative Rules.[72]

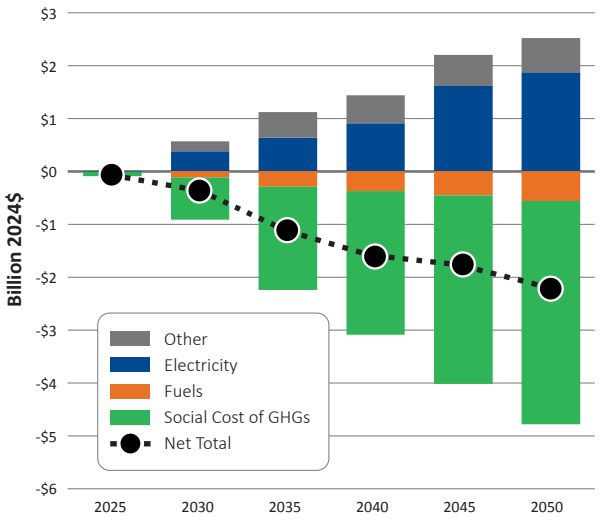
Figure 16. Increased State Action waste net costs relative to Business-as-Usual



Benefits and Costs

Figure 15 and Figure 16 below show the net economy-wide costs attributed to the industry and IPPU sectors, as well as the waste sector, under the Increased State Action scenario relative to the BAU scenario. All sectors provide a net benefit to society relative to the BAU scenario, which is largely due to the avoided social cost of emissions.

Figure 15. Increased State Action industry and IPPU net costs relative to Business-as-Usual



[69] https://www.epa.gov/system/files/documents/2024-11/epa-hq-oar-2021-0643-0227_attachment_1.pdf

[70] https://cdphe.colorado.gov/apcd/landfill-methane-reductions

[71] https://pcb.illinois.gov/SLR/IPCBandIEPAEnvironmentalRegulationsTitle35

[72] https://www.ilga.gov/legislation/ILCS/details?MajorTopic=GOVERNMENT&Chapter=GENERAL%20PROVISIONS&ActName=Illinois%20Administrative%20Procedure%20Act.&ActID=83&ChapterID=2&SeqStart=&&C-hapAct=FullText

NATURAL & WORKING LANDS

This measure provides State funding to incentivize climate smart agricultural practices. Specifically, this policy promotes agricultural practices aimed at promoting soil health, reducing fertilizer emissions, and reducing methane emissions from livestock.

Policy Overview

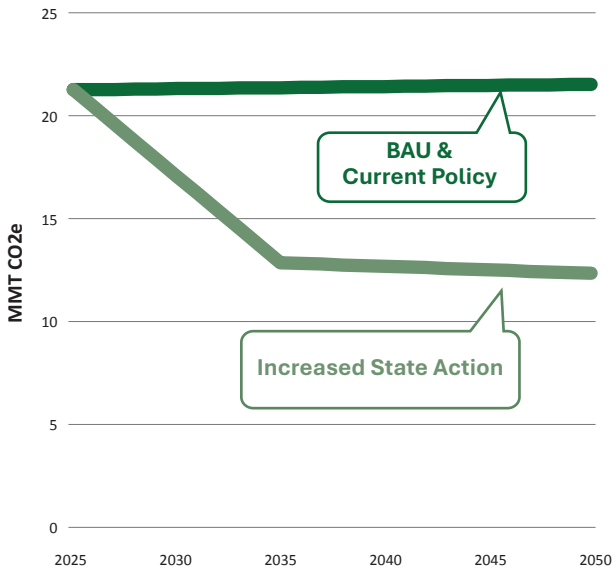
Illinois is already pursuing sustainable agricultural practices as part of the Illinois Nutrient Loss Reduction Strategy, but this measure aims to further incentivize climate smart practices and reduce agricultural emissions. Incentives provided under this measure are assumed to reach $200 per MT CO2e abated. While this report takes a high-level view of natural and working lands (NWLs), the Illinois Department of Natural Resources (Illinois DNR) is engaged and committed to ongoing work through programs like the Conservation Reserve Program, Illinois' Conservation Reserve Enhancement Program, the Illinois Wildlife Action Plan,[73] and the Forestry Assistance Program.[74] Further, additional specific assessment of NWLs strategies is being conducted under a separate collaboration among IL Dept of Agriculture, Illinois EPA and Illinois DNR, with technical support provided by U of I.

Modeling Assumptions

Manure emissions abatement assumptions are based on EPA non-CO2 abatement potential data, and the anticipated abatement achieved at a $200/tCO2e abatement price. This data indicates that manure emissions will decrease by 44% by 2050. Fertilizer emissions are assumed to decrease by 50% by 2035.

Measure Results

Figure 17. Agriculture GHG emissions by scenario



[73] https://dnr.illinois.gov/conservation/iwap.html
[74] https://dnr.illinois.gov/conservation/forestry/forestry-assistance-program.html

Regulatory Authority and Funding Availability

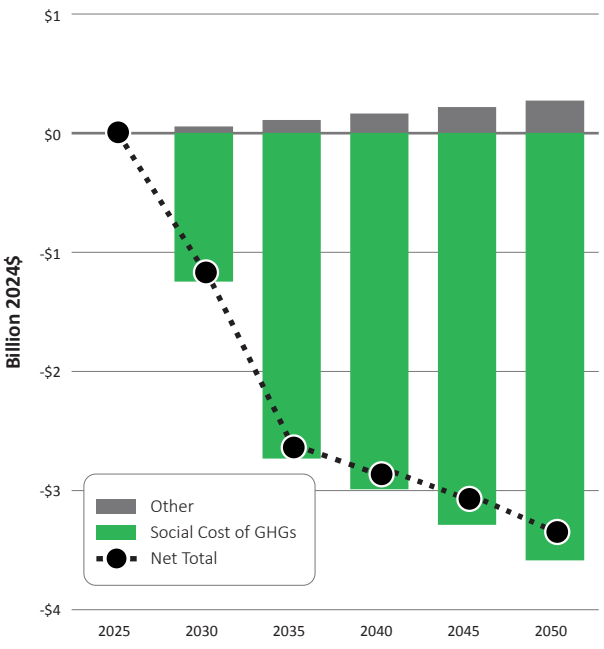
Sustainable agriculture in Illinois is supported by the Partners for Conservation Program. The Program provides funding via the sustainable agriculture grant program, the soil and water conservation district grants program, and the conservation practices cost-share program.[75] These funds are allocated to programs under Illinois EPA, the Department of Agriculture, and the Department of Natural Resources. The Program was established by the General Assembly in 1995, and has been extended periodically.[76] Expansion of the Program to cover new agricultural measures would depend on additional appropriation.

Certain federal funding sources provide complementary funding opportunities for sustainable agricultural practices. For example, the United States Department of Agriculture (USDA) provides funding through the Conservation Stewardship Program,[77] the Agricultural Conservation Easement Program,[78] and the Environmental Quality Incentives Program.[79] Additionally, Illinois will receive almost $100 million in funding for climate-smart agriculture under the CPRG; $73.4 million was awarded to implement crop management practices, such as no-till farming and cover crops, and $26.2 million was awarded for biomethane management.[80] CPRG funding will contribute to near-term gains in this area, but additional funding will be crucial to achieving further emissions abatement in the agriculture sector. In addition to grant-based programs, capitalized financing mechanisms administered by the Illinois Finance Authority may support large-scale nature-based solutions.

Benefits and Costs

Figure 18 shows the costs within the agriculture sector under the Increased State Action scenario, relative to the BAU scenario. As shown, there are some incremental mitigation costs associated with the scenario; however, the avoided social cost of emissions is significant. These avoided costs lead to a net benefit on the societal level.

Figure 18. Increased State Action agriculture net costs relative to Business-as-Usual



[75] https://agr.illinois.gov/resources/conservation.html
[76] https://dnr.illinois.gov/conservation/pfc.html
[77] https://www.nrcs.usda.gov/programs-initiatives/conservation-stewardship-program
[78] https://www.nrcs.usda.gov/programs-initiatives/agricultural-conservation-easement-program
[79] https://www.nrcs.usda.gov/programs-initiatives/environmental-quality-incentives-program
[80] https://epa.illinois.gov/content/dam/soi/en/web/epa/topics/climate/documents/2025%20CPRG%20presentation%20for%20public%20engagement%20v3.pdf

IV

Benefits Analysis

Methodology

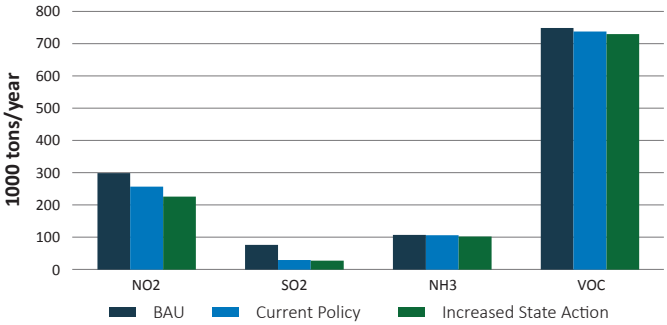
In addition to reducing GHG emissions, the measures described above would result in the reduction of co-pollutants that are significant to the environment and human health.

E3 used the CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA) version 5.2 from the US EPA to assess changes in air pollution and resulting health benefits.[81] Drawing on established national estimates and related data, COBRA provides default pollution levels by county and source category. The source pollutants represented include nitrogen dioxide (NOx), sulfur dioxide (SO2), ammonia (NH3), primary fine particulate matter (PM2.5), and volatile organic chemicals (VOC). E3 projected how these source pollutants would change over time by scaling default COBRA entries according to modeled changes in energy demand and electricity generation. Entries in the PATHWAYS outputs were mapped to pollution tiers in COBRA, and new pollution profiles were built out by scenario and year. The COBRA model receives annual source pollution as an input and then simulates how these source pollutants are transported across the region and are transformed into secondary PM2.5 and ozone (O3) pollution. Finally, COBRA returns changes in the annual average PM2.5 and O3 concentrations, as well as resulting avoided mortality and health benefits, expressed in terms of both total incidents and dollar amounts. Notably, this methodology assumed that pollution from other states and from non-energy related sources within Illinois remained constant over time.

Co-Pollutant Analysis

The mapping of scenario results to co-pollutant sources shows the potential for significant declines in future co-pollutants within Illinois. In 2050, relative to the BAU scenario, Current Policy achieves a 42,000-ton reduction in NO2 pollution, a 47,000-ton reduction in SO2 pollution, a 1,000-ton reduction in NH3 pollution, a 4,000-ton reduction in primary PM2.5 pollution, and an 11,000-ton reduction in VOC pollution. The Increased State Action scenario goes further, achieving in 2050 a 73,000-ton reduction in NO2 pollution, a 49,000-ton reduction in SO2 pollution, a 5,000 -ton reduction in NH3 pollution, a 5,000-ton reduction in primary PM2.5 pollution, and a 20,000-ton reduction in VOC pollution. These results can be seen in Figure 19.

Figure 19. 2050 Co-pollutant source by scenario



Substantial reductions are achieved in the electric generation and transportation sectors for both Current Policy and Increased State Action. The Increased State Action scenario notably accelerates the co-pollutant reductions not only from the transportation sector, but also residential and commercial.

COBRA models the reductions in source pollution as leading to decreases in the annual average concentrations of PM2.5 and O3. COBRA reports concentrations at the county level, and these results were then weighted by population to provide representative state values. By 2050, the Current Policy scenario achieves a 0.18 micrograms/m3 reduction in final PM2.5 and a 0.61 micrograms/m3 reduction in O3 relative to BAU. Meanwhile, the State Action scenario in 2050 achieves a reduction of 0.34 micrograms/m3 in PM2.5 and 1.30 micrograms/m3 in O3 relative to BAU. These reductions can be viewed on a percentage basis in Figure 20 and Figure 21.

Figure 20. PM2.5 concentration reductions across scenarios

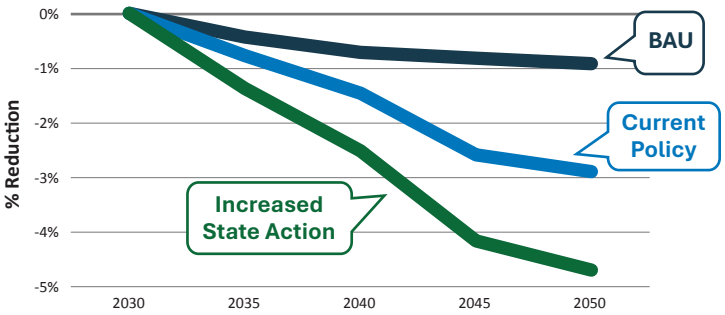
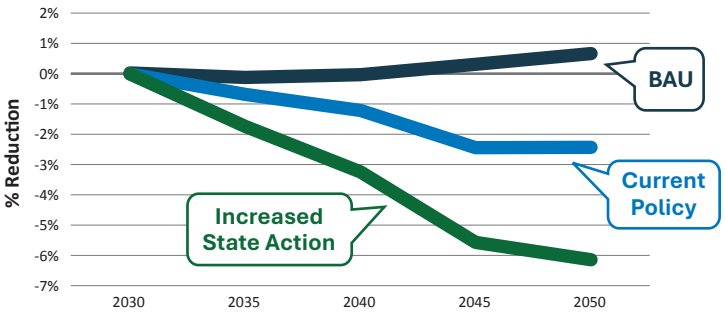


Figure 21. O3 Concentration reductions across scenarios



[81] US Environmental Protection Agency. CO-Benefits Risk Assessment Health Impacts Screening and Mapping Tool (COBRA). https://www.epa.gov/cobra

Health Benefits

The projected reductions in PM2.5 and O3 concentrations are modeled in COBRA as providing a range of health benefits. In 2050, the improved air quality under Current Policy is estimated to avoid between 202 and 329 premature deaths per year, while the Increased State Action scenario would avoid between 392 and 631 premature deaths per year. Accounting for the valuation of avoided premature deaths along with other, non-fatal avoided health impacts suggests the Current Policy scenario would provide $4.5-$7.2 billion in health benefits per year in 2050, while Increased State Action would provide $8.8 -$13.8 billion in health benefits per year in 2050. Monetary health benefits represent avoided healthcare costs and increased worker productivity.

Figure 22. Annual avoided health outcomes in 2050 under the Increased State Action scenario, relative to the BAU scenario

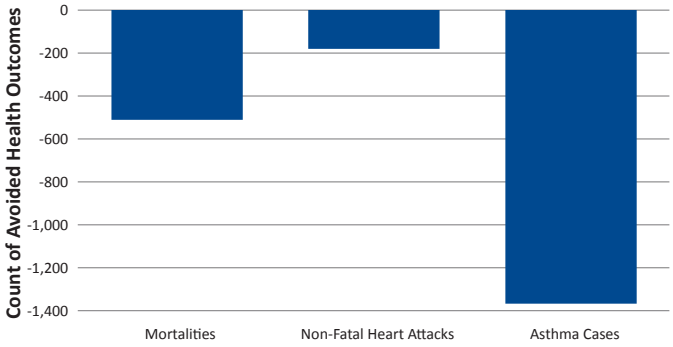


Table 12. Range of public health benefits gained under scenario, relative to BAU scenario (billion $)

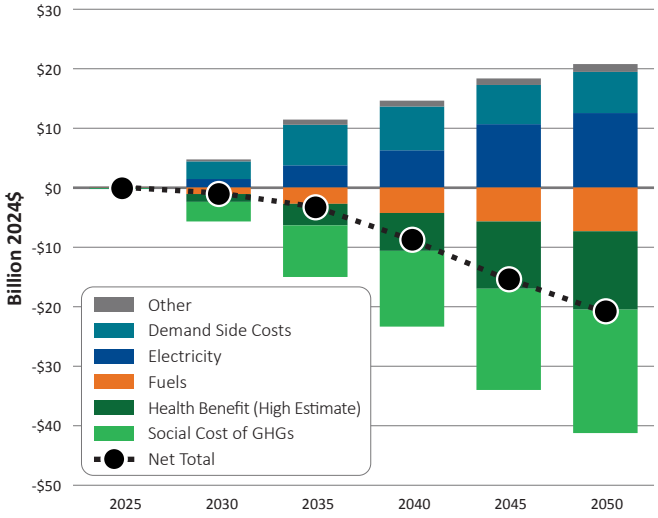
Scenario	2030	2035	2040	2045	2050
Current Policy	0.46 – 0.74	1.02 – 1.65	1.78 – 2.86	3.73 – 5.98	4.33 – 6.90
Increased State Action	0.79 – 1.31	2.25 – 3.66	3.96 – 6.34	7.10 – 11.27	8.44 – 13.27

Economy-wide Cost Analysis

Implementing the emissions reduction measures described above in the Implementation Scenario Projections will require new investments in infrastructure, end use devices, and cleaner fuels. These investments will also create benefits in the form of cost savings from reduced fossil fuel consumption, greater efficiencies, reduced GHG emissions, and improved health and air quality benefits. To comprehensively assess these costs and benefits, Illinois combined all the net costs and benefits economy-wide across all three scenarios modeled, as can be seen in Figure 23, which represents the net costs of the Increased State Action scenario relative to the Business-as-Usual scenario.

Including the monetized benefits of reduced GHG emissions and health benefits, the total annual net benefit of the Increased State Action scenario reaches $21 billion by 2050. On the benefits side, reduced GHG emissions contribute $21 billion, health benefits contribute $13 billion, and fuel savings contribute $7 billion. On the cost side, increased electricity demand results in an incremental $13 billion by 2050 and demand-side costs (e.g. heat pumps, electric vehicles) contribute $7 billion. This analysis shows that the measures proposed in the Increased State Action scenario would result in large net benefits over time.

Figure 23. Economy-wide net costs for Increased State Action relative to BAU



V

Workforce Planning Analysis

This section examines the underlying Illinois economy and workforce ecosystem, providing important economy-wide context that impacts the clean energy workforce.

In this section, 'clean energy' refers to a subsection of the overall climate economy and workforce. Clean energy includes workers in Clean Power, Clean and Efficient Buildings, Clean Transportation and Freight, and Clean Industry. The broader 'climate workforce' includes Clean Energy workers, along with Climate-Smart Agriculture. These two terms are utilized throughout this section in order to identify different portions of the economy being discussed.

Economy-Wide Workforce Trends

Illinois has a strong labor market, with most people of traditional working age employed. Illinois' labor force participation rate ranks 19th in the nation with an overall participation rate of 64.0% in August 2025.[82] Eight in ten (81.5%) prime-working age (25-54) Illinois residents were employed in August 2025.[83] These participation rates suggest that Illinois has a workforce that remains engaged in the labor market and likely responsive to workforce development efforts and job growth opportunities. However, relatively high labor force participation alongside ongoing labor market challenges does not eliminate the need for additional climate workforce investment; rather, it heightens the importance of targeted strategies to connect workers to emerging clean energy careers and ensure employers can meet growing demand. The Illinois 2026 Modification of the Illinois 2024-2027 WIOA State Plan[84] emphasizes the need for a workforce system that is adaptive, coordinated, and closely aligned with employer demand. The actions detailed in this 2026 Modification align with the clean energy specific workforce dynamics highlighted within this section.

Training and Education

While there are various skills required by climate workers specific to industries and technologies, many foundational and technical skills are already in abundance in the existing workforce. The Nathalie P. Voorhees Center for Neighborhood and Community Improvement found the top three technology skills in the climate workforce[85] to be spreadsheet software like Microsoft Excel, word processing software like Microsoft Word, and database user interface and query software like Microsoft Access.[86] These technological skill requirements are not unlike the overall workforce, presenting easy transition opportunities for many workers from other fields.

Career and Technical Education

Career and Technical Education (CTE) programs are key training mechanisms for entering the climate workforce, especially in the construction, installation, maintenance, and repair segments of the industry.

In 2024, Illinois had 285,732 students enrolled in CTE programs statewide. The state's CTE program aligns with national career clusters and includes an additional Illinois-specific **Energy** cluster.[87] **Career clusters serve as organizing frameworks within CTE, grouping related occupations and skills into structured pathways that help schools design curricula, guide student course selection, and align training with industry needs**. By establishing an Energy cluster, Illinois formally recognizes clean energy as a distinct career pathway, ensuring students have access to coursework, work-based learning, and certifications that prepare them for emerging roles in the state's evolving climate economy.

Across all clusters, 96.6% of CTE program participants graduated in 4 years and 97.1% of students graduated overall in 2025, a clear signal of strength for the programs.[88] The projections from the Association for Career and Technical Education find that by 2031 30% of Illinois jobs will require education beyond high school but less than a bachelor's degrees, which are ideal opportunities for CTE graduates. The Association for Career and Technical Education also highlighted the following key sectors CTE programs prepare students for: advanced manufacturing, energy agribusiness and food processing, and transportation, distribution and logistics.[89]

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[82] "Labor Force Participation Rate for Illinois." FRED: Federal Reserve Bank of St. Louis, September 19, 2025. https://fred.stlouisfed.org/series/LBSNSA17; Committee, United States Joint Economic. "Illinois Employment Update." U.S. Congress Joint Economic Committee, September 19, 2025. https://www.jec.senate.gov/public/index.cfm/republicans/il/.

[83] "Characteristics of the Employed and Unemployed in Illinois: Tracking Differences among Demographic Groups." Illinois Department of Employment Security, April 2025. https://ides.illinois.gov/resources/labor-market-information/tracking-differences.html.

[84] https://www.illinoisworknet.com/WIOA/Resources/pages/stateunifiedplan.aspx

[85] This report uses green economy workforce as opposed to climate workforce.

[86] "Green Economy Occupations in the Chicago Region," *Nathalie P. Voorhees and Center for Neighborhood and Community Improvement*, Fall 2022. https://uofi.app.box.com/s/3yd4zk1h5025wdyzysm00s6e8vjloweea.

[87] "2024 Career and Technical Education Annual Report." Illinois State Board of Education, January 13, 2025. https://www.roe21.org/wp-content/uploads/2025/03/CTE-Annual-Report.pdf.

[88] "Career and Technical Education: Perkins Measures- Graduation Rate," *Illinois Report Card 2024-2025*, https://www.illinoisreportcard.com/State.aspx?source=trends&source2=perkinsmeasures_graduationrate&Stateid=IL.

[89] "CTE in Illinois," *Association for Career and Technical Education*, June, 2025, https://www.acteonline.org/wp-content/uploads/2025/06/Illinois-CTE-Fact-Sheet-June-2025.pdf.

Many CTE programs focus specifically on preparing students for jobs in the state's climate workforce including Illinois Green Economy Network's EV technology partnerships through the Illinois Community College Board's Rev Up EV! Community College Initiative.[90] Heartland Community College launched a variety of EV certifications in 2021 including certificates in EV Energy Storage, EV maintenance and light repair, EV senior advisors, and an EV technology certificate and degree program and more recently received a $525,000 grant to further develop these programs in 2024.[91] Since 2021, Heartland Community College has partnered with Rivian Automotive for an apprenticeship program for Industrial Maintenance Technicians, from which Rivian has successfully hired graduates.[92]

CTE Program Challenges and Improvements

Illinois' CTE system has long played an important role in workforce preparation, and continued refinement presents an opportunity to make these programs even more effective.

Survey results show that rural districts face significant barriers that hinder the impact of their CTE programs, including educator shortages, insufficient facilities and equipment, limited career-exploration opportunities, and disproportionately low levels of state support. CTE facilities are commonly inadequate due to outdated or insufficient equipment, limited specialized space, and broader resource constraints that prevent programs from meeting modern instructional requirements.[93] A 2024 report from the Association of Illinois Rural and Small Schools listed the following recommendations to state and university partners:

- Develop support mechanisms for rural educators;
- Increase funding and regional collaboration;
- Build public understanding of CTE's role; and
- Strengthen state agency coordination.[94]

Strengthening rural CTE aligns with a wider push to improve work-based learning opportunities across Illinois. Since 2019 and the passage of Illinois Works Jobs Programs Act, the state has seen consistent growth in apprenticeships. However, those interested in work-based learning opportunities face barriers, including the practice of employers offering unpaid internships, which are often not economically feasible for residents from low-income and working-class backgrounds.[95]

The Current State of the Illinois Climate Workforce

Illinois stands out as a leader in the climate economy, especially in clean energy. The state has more than 132,000 workers in the clean energy subsection[96] of the climate economy as of 2024—making it the largest clean energy workforce in the Midwest and the fifth largest in the country. Energy efficiency accounts for the majority of these jobs, with close to 90,000 workers, followed by roughly 19,000 employed in renewable energy generation.[97] Additionally, clean energy jobs offer high wages for Illinoisians. In 2020, the average clean energy wage was $77,686, compared to the average total economy wages in the mid-$60,0000 range.[98]

Building out the climate economy is expected to generate substantial new employment opportunities. Within the renewable energy power generation sector, particularly solar and wind, job gains are projected to range from 7,200 to 21,000 under low- and high-growth scenarios.[99]

While net job growth is anticipated in the energy transition, declines are also expected across certain legacy energy industries as part of an overall market trend. The Illinois Department of Labor has estimated a total 4,887 job losses from fossil fuel sector closures between 2021–2045. Most of these job losses (2,500) are from coal mines, while coal plants are projected to shed 1,850 jobs, and gas plants are expected to lose 537 jobs. Efforts to target those workers for retraining and future employment opportunities such as those in the Displaced Energy Worker Bill of Rights are especially important in regions with the most expected job losses.[100]

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[90] Kate Michaels and Amanda Bergson-Shilcock, "Workforce Partnerships for an Inclusive Clean Energy Workforce: State Policy Approaches and Recommendations," *National Skills Coalition*, December, 2024, https://nationalskillscoalition.org/wp-content/uploads/2024/12/NSC-CleanEnergyPartnerships_web.pdf; "Clean Energy," *Illinois Community College Board*, https://www.iccb.org/divisions/career-and-tech-education/clean-energy/.

[91] "Transportation: Illinois Community Colleges and Sustainable Transportation," *Illinois Green Economy Network: A Community College Partnership*, https://www.igencc.org/transportation/#:~:text=Illinois%20Community%20Colleges%20and%20Sustainable,other%20emissions%2Dreducing%20transportation%20options; "Heartland awarded $525K grant for programs," *Heartland Community College*, January 22, 2024, https://www.heartland.edu/news/2024/1.2024RevUpGrant012224.html#:~:text=January%2022%2C%202024,Community%20College%20President%20Keith%20Cornille; "Heartland Community College Right-to-Know Disclosure," *Heartland Community College*, March, 2024, https://www.heartland.edu/documents/consumerInfo/Chart-I-Single-Year-Cohort.pdf; "Student Right to Know," *Heartland Community College*, https://www.heartland.edu/consumerInfo/studentRightToKnow.html.

[92] "Rivian apprenticeship program hits new milestone," *Heartland Community College*, December 20, 2022, https://www.heartland.edu/news/2022/12.2022IndustrialMaintenanceApprentices12.20.22.html.

[93] Growing Rural IL Success through CTE Programs." The Association of Illinois Rural and Small Schools, July 2024. https://airssedu.org/cte/2024-report/.

[94] Ibid.

[95] Nguyen, Jessie, and Bridget Craig. "Students, Women in Trades Advocate for More Career and Technical Education." NPR Illinois, April 1, 2025. https://www.nprillinois.org/education-desk/2025-04-01/students-women-in-trades-advocate-for-more-career-and-technical-education.

[96] Clean energy is a subsection of the overall climate workforce. Clean energy includes workers in Clean Power, Clean and Efficient Buildings, Clean Transportation and Freight, and Clean Industry. The climate workforce includes Clean Energy workers, along with Climate-Smart Agriculture.

[97] https://myrenewableresource.org/2025/10/22/report-illinois-leads-midwest-in-clean-energy-jobs-creation/

[98] https://uofi.app.box.com/s/sqi94k0knl33f54a96uhczod6etsd0is

[99] Kenneth A. "Energy Transition Workforce Commission Phase I Report: Climate and Equitable Jobs Act Economic and Workforce Effects Preliminary Analysis." Illinois Department of Labor, February 2, 2023. https://dceo.illinois.gov/content/dam/soi/en/web/dceo/events/energy-transition-workforce-commission/etwc_phaseireport.pdf.

[100] Ibid.

The state has already committed significant resources to climate workforce development. This includes CEJA programs that total between $68-82 million in annual investment in workforce development, designed to target residents facing barriers to employment.[101] This funding supports Illinois residents in Equity Investment-Eligible Communities, including R3[102] and Environmental Justice communities.[103] CEJA included funds to establish the Clean Jobs Workforce Network Program, which is creating hubs across the state that offer training, certification, and skill development, as well as wraparound services supporting participant completion in these workforce development programs.[104] CEJA also funds the Returning Resident Clean Jobs Training Program, which trains people incarcerated in Illinois Department of Corrections facilities for jobs in the clean energy workforce upon their release. The Solar Training Pipeline Program funds programs that provide training for people who are or were in the foster care system to become installers authorized to work on projects under Illinois' Solar for All Program.

Through funding from the Illinois EPA's Climate Pollution Reduction Grant, the Illinois Department of Commerce and Economic Opportunity (DCEO) plans to broaden the CEJA funded Clean Jobs Workforce Network Program and Clean Energy Contractor Incubator Program, targeting additional communities and incorporating training in clean building technologies. The effort will also include new workforce initiatives to prepare fleet and freight operators for heavy-duty vehicle electrification and charging infrastructure.[105]

CEJA focuses on ensuring career opportunities for Illinois communities that are economically disadvantaged and have faced barriers to employment, as well as those disproportionately impacted by climate change and coal plant or mine closures.[106] This focused work is carried out through various methods, including recruiting local community members to be energy transition navigators who connect community members to programs and services.[107]

Job quality remains a core emphasis of the CEJA, which ties eligibility for state-supported clean energy incentives to compliance with U.S. Department of Labor prevailing wage standards and provides resources through the Clean Energy Contractor Incubator Program to help contractors meet those requirements.[108,109] Recent legislative action has further strengthened these provisions: the Clean and Reliable Grid Act (CRGA), which passed in October 2025 and was signed into law in January 2026, and will take effect June 1, 2026, will require project labor agreements for community solar projects above 3 megawatts (MW), lowering the threshold from 5 MW.[110] This change is intended to reinforce labor standards, expand opportunities for in-state workers, and ensure that clean energy investments deliver high-quality jobs across Illinois.

Key Findings

1 **Illinois has a robust climate economy, with workers participating across all five CCAP sectors—some in highly specialized roles and others working across multiple areas.** This breadth is a major economic strength. With tens of thousands of jobs distributed across renewable generation, energy efficiency, electric vehicles, clean industry, and climate-smart agriculture, Illinois is one of the few states with significant employment across the full climate value chain, including manufacturing. Such sectoral variety reduces vulnerability to fluctuations in any single market and supports progress on multi-sector decarbonization, which is essential for meeting the state's climate goals. This varied industry mix also fuels innovation, as cross-sector technology exchange and collaboration strengthen Illinois' broader climate and advanced manufacturing ecosystem.

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[101] Esther Kim, "Building CEJA from the ground up: Ambitious goals, robust funding, and complex challenges," *Chicago Jobs Council*, September 8, 2025, https://www.cjc.net/articles/building-ceja-from-the-ground-up-ambitious-goals-robust-funding-and-complex-challenges.

[102] An R3 community is an Illinois community that has experienced concentrated harm from gun violence, excessive incarceration, and economic disinvestment, making it eligible for Restore, Reinvest, Renew (R3) investments. https://r3.illinois.gov/

[103] Illinois Solar for All, "Environmental Justice Communities," *Illinois Power Agency*, https://www.illinoissfa.com/environmental-justice-communities/.

[104] "CEJA Workforce Training Programs," *Illinois Department of Commerce and Economic Opportunity*, https://dceo.illinois.gov/ceja/workforce-training-programs.html.

[105] *Illinois Environmental Protection Agency*, "Climate Pollution Reduction Grant Implementation Plan." https://epa.illinois.gov/content/dam/soi/en/web/epa/topics/climate/documents/soi-cprg-implementation-grant.pdf.

[106] Illinois General Assembly, Public Act 102-0662, https://www.ilga.gov/documents/legislation/publicacts/102/102-0662.htm.

[107] Ibid.

[108] Ibid.

[109] Ibid.

[110] Lauren Skirball, "Illinois Supercharges Clean Energy with New CRGA Bill," *Lightstar*, November 5, 2025. https://www.lightstar.com/news/crga-post.

2 **Illinois' current economic conditions indicate that growth in climate jobs is precisely the kind of boost that can strengthen the state's economy and expand access to high-quality employment.** The climate measures outlined in the state's CCAP offer an opportunity to generate additional economic activity and new workforce demand tied to meeting emissions-reduction goals. In addition, CEJA not only incentivizes climate-related projects, further increasing demand for skilled workers, but also embeds labor standards, ensuring jobs are high-quality.

3 **The climate job workforce system—funded in large part through CEJA—is strong, as evidenced by the numerous training and workforce-related opportunities in each priority sector.** This report highlights 27 different workforce initiatives throughout the state to support workforce development of the priority climate sectors, and this list is not exhaustive. In addition, DCEO completed a training inventory of programs related to entry-level clean energy occupations, identifying over 1,100 training programs throughout various sectors, including solar and wind, automotive, electrical, building and construction, building maintenance, and manufacturing.[111]

4 **Job quality is a central focus of CEJA, and current trends in select priority occupations, such as Solar Installers, highlight an ongoing tension between rapid job growth and job quality.** Nationally, solar installation jobs have expanded quickly but are often characterized by relatively low wages and employment volatility compared to other energy occupations. Illinois reflects this pattern: while many climate-related roles offer strong wages, four of the twenty-two priority occupations crucial to achieving climate goals pay below the state median wage, indicating uneven job quality across the sector.

Recognizing these challenges, Illinois has not pursued workforce expansion in isolation. The state has paired workforce development with policies designed to shape both labor demand and job quality. These include stronger labor and equity requirements in renewable energy programs, such as prevailing wage requirements, minimum equity standards, and job training requirements. Additionally, incentive structures through programs such as Illinois Shines and Illinois Solar for All increase demand for solar projects while conditioning participation on labor and equity standards. Together, these approaches aim to ensure that growing demand for clean energy projects translates into more stable, higher-quality employment opportunities, rather than reinforcing existing wage disparities.

5 **New, climate-friendly technologies will require new technical competencies and skills for workers.** For example, HVAC workers need to possess the skills and capabilities to install heat pumps, while farm workers will need to utilize new, more sustainable farming practices. Research from the University of Illinois Climate Jobs Institute and national agencies reports on agriculture highlights the need for expanded technical expertise to implement new technologies and practices effectively.

6 **Additionally, upskilling and retraining programs are essential to equip workers with these competencies.** As climate initiatives, particularly in areas such as clean buildings and freight electrification, reshape skill requirements, the state's workforce system is seeing growing demand for short-term credentials, incumbent-worker training, and integration of climate-related competencies into existing apprenticeship and technical education programs. The need for these additive trainings reflects the fact that most climate occupations build on established trades and professional roles, requiring workers to layer new technical skills onto existing foundations rather than shift into entirely new careers.

7 **Illinois' climate workforce ecosystem is highly collaborative, with strong partnerships across unions, training providers, community-based organizations, employers, research institutions, and the public sector.** Substantial public investment through CEJA and related programs has fostered active coordination among these stakeholders, supporting shared goals around job quality and workforce readiness. As this ecosystem continues to expand, overlapping program areas and similar workstreams can create complexity for participants, highlighting the importance of continued alignment and clear communication to ensure that workers and employers can navigate opportunities effectively.

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[111] *Illinois Department of Commerce and Economic Opportunity*, "Illinois Clean Energy Jobs and Training Program Inventory," March 9, 2023. https://dceo.illinois.gov/content/dam/soi/en/web/dceo/ceja/documents/il-clean-jobs-training-program-inventory_032823.pdf & Natural Resources Defense Council, "Governor Pritzker Signs Clean and Reliable Grid Affordability Act into Law," January 8, 2026. https://www.nrdc.org/press-releases/governor-pritzker-signs-clean-and-reliable-grid-affordability-act-law.

Recommendations

1. **Continue to integrate affordable clean energy into regional economic and workforce development strategies.** Illinois should capitalize on the economic advantages of low-cost clean energy by linking it directly to talent development, business attraction, and job creation. This includes identifying and preparing sites for clean energy production and manufacturing, coordinating infrastructure improvements, and ensuring that local training providers, workforce boards, and employers are aligned around anticipated skill needs. As clean energy industries remain among the strongest areas of economic growth, positioning communities with both clean energy assets and a prepared workforce will be critical to attracting new employers, supporting industry expansion, and ensuring that Illinoisans can access high-quality jobs.

2. **Continue to support clean energy manufacturers and their surrounding communities.** Illinois is a national leader in clean energy manufacturing. Continuing to enable and foster these industries can help the state attract national and international investment and further unlock agglomeration effects and industry cluster development. This clean energy manufacturing ecosystem includes sizable footprint of EV manufacturers and EV supply chain manufacturers, making the sector an important example of the broader opportunities and challenges facing climate-related manufacturing in the state. While the EV sector faces fluctuating market conditions, the state should continue to prioritize close coordination with local economic development organizations, workforce boards, training providers, and employers to support both EV firms and other clean energy and advanced manufacturers. The partnership between Rivian and Heartland Community College serves as a model for employer–training provider coordination, aligning workforce training with the needs of EV manufacturing. More broadly, sustained support through infrastructure planning, site readiness, supply-chain development, and targeted workforce initiatives will be essential to maintaining Illinois' competitiveness in the clean energy manufacturing sector and to ensuring that the state continues to attract and retain advanced manufacturing investment.

3. **Continue building on Illinois' robust labor standards within climate policy.** Illinois has already established an important foundation through prevailing wage requirements for supported renewable energy projects through Illinois Shines,[112] apprenticeship and trainee requirements in certain programs like Solar for All,[113] and project labor agreement requirements for larger projects,[114] among other measures. Building on this foundation, the state should continue to expand access to apprenticeships, pre-apprenticeships, and wraparound support services to support entry to high-quality, family-sustaining jobs in organized labor while facilitating program graduate connections with employers.

4. **Career pathways, particularly through the pre-apprenticeship route, should continue building on strong partnerships that already exist among pre-apprenticeship providers, building trades, and employers.** Programs such as Climate Works and the Illinois Works Pre-Apprenticeship Program already require providers to establish relationships with local unions, helping create a foundation for participant transition into registered apprenticeships.[115] Even so, openings in apprenticeship programs do not always match the number of qualified graduates of pre-apprenticeship programs. To strengthen these pathways, the state should continue supporting closer coordination among unions, employers, and pre-apprenticeship providers to improve placement outcomes, align training capacity with apprenticeship demand, and facilitate participants' access to ongoing support services after entering apprenticeship, ensuring their continued success.[116]

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[112] Illinois Shines. "Prevailing Wage Hub." https://illinoisshines.com/prevailing-wage-hub/.

[113] Illinois Solar for All. "Job Training." https://www.illinoissfa.com/vendors/job-training/.

[114] Illinois Power Agency. *Transition to an Equitable Clean Energy Future: Labor and Equity Requirements for IPA Renewable Programs and Procurements.* March 20, 2024. https://ipa.illinois.gov/content/dam/soi/en/web/ipa/documents/20240320-transition-to-an-equitable-clean-energy-future-march-20-webinar-final.pdf.

[115] Illinois Department of Commerce & Economic Opportunity, "Illinois Work Jobs Program Act." https://dceo.illinois.gov/illinoisworks.html.

[116] Ibid.

5 **Strengthen communication and coordination across the climate workforce ecosystem.** As Illinois expands its climate workforce efforts, stronger alignment with job demand is crucial. State agencies, utilities, training providers, and labor partners will be essential to aligning training with actual job descriptions, improving placement and retention rates, and establishing clear pathways from training to employment. Employers need to be engaged in the design of training programs and in signaling real-time market demand. Government agencies and labor partners can act as coordinating bodies, facilitating relationships between employers and training providers. Additionally, as new efforts layer onto the state's existing workforce infrastructure, agencies must work closely together to align activities, reduce overlap, and present a coherent system that is easy for participants and employers to navigate. Proactive collaboration with research partners and workforce organizations can help the state integrate emerging insights, strengthen program design, and advance a more efficient and effective climate-workforce system.

6 **Continue strengthening targeted support mechanisms for displaced workers.** Illinois is leading the nation's conversation on worker transitions through actions like the state's Displaced Energy Worker Bill of Rights currently offers policy support for displaced workers through mechanisms such as access to job training, career planning, unemployment insurance, scholarships to children who are dependents of a displaced energy worker, and more.[117] Building on these support systems that go beyond workers' employment status to their skillsets, wages, families, and increasing awareness and ensuring utilization of supports will be key to a just transition. Additional targeted assistance could include sector-based job matching, career navigation, and targeted placement strategies that connect displaced workers to growing industries, particularly manufacturing and other climate-related sectors, where their skills can be most readily transferred.

[117] Illinois workNet Center. "Layoff Assistance for Workers." https://www.illinoisworknet.com/LayoffRecovery/Pages/LayoffAssistanceforWorkers.aspx#:~:text=The%20Displaced%20Energy%20Worker%20Bill%20of%20Rights,Scholarship%20Program%20*%20Displaced%20Energy%20Worker%20Dependent.

VI

Stakeholder Engagement

Initial Engagement Strategy and Process

Throughout 2025, Illinois EPA led a comprehensive, multi-phase stakeholder engagement process to guide the development of the CCAP. This extensive outreach directly informed the design of climate strategies, ensuring the final plans are technically rigorous while reflecting local priorities and community insights.

To solicit direct input on the CCAP, Illinois EPA hosted nine public listening sessions in June and July 2025. Six of these were held in-person at public university facilities across the state, ensuring geographic representation with two sessions each in Edwardsville (southern Illinois), Springfield (central Illinois), and Chicago (northern Illinois). Additionally, the Agency held three virtual listening sessions; while two were originally scheduled, a third was added at the request of stakeholders. In total, approximately 250 people participated in these sessions, with attendance split roughly evenly between in-person and virtual options.

Beyond the listening sessions, Illinois EPA utilized several other channels to gather public feedback:

- **Online Survey:** A survey addressing priorities and concerns regarding climate change and energy received responses from approximately 350 participants.
- **Written Comments:** Stakeholders were invited to submit detailed feedback in writing. The Agency received 29 written comments, 16 from individuals and 13 from organizations.
- **Inter-Agency Collaboration:** Illinois EPA collaborated closely with the Chicago Metropolitan Agency for Planning (CMAP), which is currently drafting a comprehensive climate action plan for the Chicagoland area. The two agencies have met regularly for over a year to align their efforts.

To ensure broad awareness and participation, the listening sessions, survey, and opportunities for written comment were publicized through:

- **Emails** to a list of approximately 1,300 stakeholders subscribed to CPRG and CCAP updates.
- **Posts** on the Illinois EPA LinkedIn account
- **Direct outreach** by the Illinois EPA community engagement team.

Summary of Results

Stakeholders from across Illinois, including environmental coalitions, community-based organizations, public health professionals, academic institutions, and industry experts, have provided extensive feedback on the state's climate planning. Through public meetings, webinars, surveys, and written comments, community members, municipal leaders, advocates, technical experts, and the public shared perspectives on priorities, barriers, and opportunities across sectors. Common themes included the urgent need for implementation, stronger coordination across agencies and sectors, and deep, sustained engagement with Environmental Justice communities. Feedback also emphasized affordability, equitable access to programs, workforce transition, and localized capacity building. These insights informed both the content and structure of the Climate Action Strategy by helping to prioritize near term action, refine policy design, and align strategies with community identified needs.

Key findings by category are discussed in detail below.

Key Findings

1 *Cross-Cutting Themes*

Public Health

A foundational theme communicated to Illinois EPA is that the CCAP must be rooted in environmental justice and public health. Stakeholders urge the state to move beyond a narrow focus on GHG mitigation to address the cumulative impacts of pollution on overburdened communities.

- **Public Health as a Central Goal:** Climate change is framed as a direct health crisis, with impacts ranging from worsening air quality due to wildfire smoke and agricultural pollutants to extreme heat and the spread of vector-borne diseases. Commenters recommend integrating public health outcomes, such as asthma rates and water quality improvements, into all project evaluation criteria.
- **Prioritizing Vulnerable Communities:** There is a strong call to ensure that the communities most harmed by pollution and climate change are the first to benefit from state investments. This includes prioritizing the reduction of co-pollutants like diesel particulate matter and nitrogen oxides (NOx) alongside carbon emissions.
- **Adaptation and Resilience:** Stakeholders emphasize that the CCAP must fully integrate adaptation and resilience strategies to protect Illinoisans from the climate impacts already occurring, such as extreme heat and flooding.

Implementation, Governance, and Workforce Development

Another cross-cutting theme is that the success of the CCAP hinges on effective implementation and governance.

- **State Capacity and Coordination:** Stakeholders highlight the need for strong cross-agency coordination to avoid duplicative programs and customer confusion. Many noted that state agencies are understaffed and require increased capacity to administer new programs effectively.
- **Streamlined Access to Information:** A near-universal recommendation is the creation of a centralized, "one-stop-shop" web portal for all state and federal climate-related programs, grants, and incentives. This would simplify a confusing landscape for residents, businesses, and local governments.
- **Workforce Development:** One stakeholder stresses the importance of engaging with the existing workforce and their unions (e.g., pipefitters, electricians), who may be skeptical of new technologies. Training must focus on upskilling the current workforce, not just new entrants. Building on the workforce development implemented as part of CEJA, stakeholders also call for expanded barrier reduction funds (e.g., for childcare and transportation) to ensure equitable access to training programs. A proactive plan for workers who will be displaced from the fossil fuel industry is also considered essential.

2 *Sector-Specific Recommendations*

Agriculture and Land Use

A significant portion of feedback, particularly from agricultural and conservation groups, calls for a fundamental transformation of Illinois' agricultural system. Commenters express concern that the current plan invests too heavily in marginal, short-term practices like cover crops on corn-soy systems.

- **Shift to Systemic Change:** Recommendations include shifting subsidies and support away from the current corn-soybean system, which is heavily reliant on nitrogen fertilizers, a major source of GHG emissions. Stakeholders also raised concern with biofuels and raised questions about whether they are beneficial or harmful to the climate.
- **Prioritize Perennial and Regenerative Systems:** There is strong support for investing in diversified cropping systems, rotational grazing, and converting marginal farmland to permanent perennial vegetation like prairies and forests.
- **Protect Natural Lands:** Stakeholders advocate for prioritizing the protection and restoration of wetlands, floodplains, and forests as critical, cost-effective carbon sinks that provide numerous co-benefits, including improved water quality, flood control, and biodiversity.
- **Re-evaluate "False Solutions":** Many commenters urge the state to avoid investing in what they term "false solutions," such as methane digesters for concentrated animal feeding operations (CAFOs) and the continued use of cropland for biofuels like ethanol. Commenters cited concerns about harmful impacts of these practices to the climate, local air quality, and land use. It should be noted that Illinois EPA has not categorized these strategies as false solutions; this feedback was received by stakeholders through the initial phase of public engagement.

Power and Utilities

Building on the foundation of the Climate and Equitable Jobs Act (CEJA), stakeholders call for accelerated decarbonization of the power sector.

- **Data Centers:** A widespread and urgent concern is the massive energy and water consumption of new data centers. A strong consensus emerged that data centers should be required to bring their own sources of clean power and not strain the public grid or shift costs to consumers.
- **Planning and Transparency:** Recommendations include establishing a statewide Office of Energy Modeling to ensure transparent and accurate forecasting. There is also a significant focus on reforming municipal and cooperative utilities, which often lack the transparency, planning, and incentives to transition away from fossil fuels. The Clean and Reliability Grid Affordability Act passed by the legislature in October 2025 would address both issues upon becoming law.
- **Grid Modernization:** Stakeholders support the buildout of grid-scale battery storage, including an equitable "Storage for All" program, and leveraging transmission planning to connect new renewable resources more efficiently. The Clean and Reliability Grid Affordability Act passed by the legislature in October 2025 would also address these issues upon becoming law, at least in part.

Transportation

Transportation is identified as Illinois' largest source of GHG emissions, and feedback calls for a strategy that goes beyond simply replacing gasoline cars with electric vehicles (EVs).

- **Reduce Vehicle Miles Traveled (VMT):** A primary recommendation is to reduce overall driving by investing heavily in public transit, walking, and biking infrastructure. This includes requiring integrated land use and transportation planning to encourage equitable, transit-oriented development.
- **Electrify Freight:** Environmental justice groups highlight the severe health impacts of diesel pollution from freight, particularly in Chicago-area communities. They call for adopting clean truck rules, electrifying loading docks and drayage vehicles, and using indirect source rules to regulate pollution from freight hubs.
- **Equitable EV Adoption:** To ensure an equitable transition, stakeholders recommend point-of-sale rebates for EVs to make them more affordable for low-income households and prioritizing charging infrastructure in environmental justice communities.

Buildings and Industry

Feedback emphasizes the need to curb emissions from buildings and industry by moving away from methane (natural gas) and prioritizing efficiency and electrification.

- **End Gas System Expansion:** A key recommended near-term action is to end ratepayer-funded subsidies for new gas line extensions, which lock in fossil fuel infrastructure.
- **Adopt a Clean Heat Standard:** In the long term, stakeholders advocate for an enforceable emissions reduction target for the building sector, such as a Clean Heat Standard, to require a transition to low-emission heating services.
- **Industrial Decarbonization:** Experts recommend a dual strategy of maximizing energy efficiency and electrifying industrial processes, particularly using technologies like industrial heat pumps. Addressing the cost disparity between electricity and natural gas is seen as critical for accelerating this transition.

Summary and Key Findings

- **Implementation and coordination:** Stakeholders broadly expressed frustration with slow progress and emphasized the need for immediate, well-funded implementation of climate strategies, rather than additional planning phases. Participants frequently noted the fragmentation of climate-related efforts across agencies and called for better coordination, especially in areas like transportation, land use, housing, and energy infrastructure.
- **Equitable access and community trust:** Equity was a dominant concern especially in the context of electrification, transit investments, and incentive programs. Stakeholders called for prioritization of low-income and EJ communities when pursuing GHG reduction strategies, more user-friendly program/funding design, and meaningful community engagement that builds long-term trust.
- **Clean energy and electrification:** Electrification of buildings and transportation paired with grid modernization and expansion of distributed energy resources was seen as central to achieving climate goals. There was strong interest in heat pumps, EV charging, and solar access. At the same time, stakeholders stressed the need to address barriers to building electrification, find solutions to prevent displacement or gentrification after building upgrades, and address the split incentive between landlords and renters. Participants also emphasized the need for broader EV charging infrastructure to support transportation electrification and expanded public transit access.
- **Affordability and workforce transition:** Stakeholders expressed concern about affordability impacts of climate policy, especially on vulnerable populations. There was strong support for workforce transition planning, job training, and protecting workers currently in fossil fuel-related industries. Participants highlighted the need for the growing workforce to include jobs with good wages, benefits, and opportunities for advancement.

Public Comments on Final Draft

In April 2026, Illinois EPA published a draft version of the CCAP report for public comment; the comment period went until May 2026. The team received feedback from various stakeholder groups ranging across environmental groups, trade associations, community advocacy groups, and individuals. Across the feedback collected, some consistent themes emerged; these areas of suggested improvement are discussed below. Public comments will also be posted in their entirety online. Several stakeholders requested that the public comment window be extended beyond the period provided. The public comment period was extended by one week to address these requests. The CCAP's development timeline is constrained by federal grant requirements that set a fixed deadline for final plan submission, which limited Illinois EPA's ability to extend the comment window for this draft. Illinois EPA remains committed to continued engagement with all stakeholder groups, including those who noted they were under-represented in the initial process, as the State implements climate and energy policies moving forward.

1 *Additional Detail*

Various stakeholders requested additional detail within the CCAP report regarding modeling assumptions, implementation plans, and policy assumptions. Some specific areas where additional detail was requested include:

- **Increasing electric loads and resulting resource adequacy concerns:** several stakeholders pointed out that increasing electricity demand from building electrification, transportation electrification, and data center load growth can lead to concerns around electrical grid reliability; this is particularly salient following the 2025 resource adequacy study that indicated there are potential reliability challenges in the coming years.[118] Given that the IRP process is ongoing separately from this workstream, the CCAP purposely analyzed the electric sector growth at a high level. Questions around resource adequacy and electric system infrastructure changes will be addressed through the IRP.
- **Additional detail around modeling assumptions:** stakeholders requested more transparency around electrification and fuel switching assumptions, along with how assumptions account for factors such as technological readiness, workforce shortage, and economic conditions. Modeling assumptions are explained and data sources are provided where appropriate throughout the report; providing more granular information would require additional work through sector-specific analyses. Examining each sector more closely as opposed to providing high-level, economy-wide information is a priority for future workstreams.
- **Additional geographic granularity:** stakeholders called for more geographic granularity in the health analysis, and implementation plans for individual municipalities. While these recommendations are valid in that impacts and implementation varies by location and other municipality-specific considerations, the CCAP is a statewide, high-level analysis. This type of detail would be more feasible for projects with narrower scopes.
- **Mode-shift details:** stakeholders perceived and raised concerns about the modeling in the transportation sector being primarily focused on electrification as opposed to promoting mode-shift and an increase in public transportation utilization. As noted in the Transportation Policy Overview section of this report, the Increased State Action scenario does include assumptions around LDV VMT reduction. Decreasing LDV VMT would involve mode-shifting as stakeholders requested. Achieving these goals will require a robust strategy around public transportation and mobility infrastructure planning, as well as a complimentary land use strategy.

2 *Level of Ambition*

Some stakeholders' feedback centered around the level of ambition outlined in the CCAP, either as a whole or regarding specific sectors. Specific feedback includes:

- **Economy-wide emissions reduction:** some stakeholders stated that the overall CCAP was not sufficiently ambitious in terms of emissions abatement, particularly in non-energy sectors. It should be noted that while the main body of the CCAP highlights the Current Policy and Increased State Action scenario, the report's appendix covers two Net Zero scenarios. Both scenarios include ambitious projections around both energy and non-energy emissions. Regarding the ambition in the Current Policy and Increased State Action scenario, these scenarios were meant to result in a realistic range of emission outcomes given current and proposed policies and regulations. The Net Zero scenarios would achieve emissions reductions aligned with the targets in the Paris Climate Agreement.

[118] https://ipa.illinois.gov/content/dam/soi/en/web/ipa/documents/20251215-illinois-ra-study-2025-final.pdf

- **Industrial emissions abatement:** stakeholders commented on the ambition in terms of industrial decarbonization. Stakeholders requested that facility emissions standards should apply to industrial facilities emitting more than 10,000 MT CO2e per year as opposed to the proposed 25,000 MT CO2e, and to separate industrial processes by heat level when modeling decarbonization. These requests, while valid, would likely require a more in-depth, industry-focused analysis. The CCAP's industrial modeling was largely informed by the EPA's Greenhouse Gas Reporting Program, which has a minimum facility emissions threshold of 25,000 MT CO2e to require reporting; modeling energy demand and emissions from smaller facilities would require more in-depth research, which was not the focus for this high-level analysis. Regarding process heat assumptions, the Net Zero scenarios assume that low-heat processes can be electrified, using 140° C as the cutoff temperature. Some stakeholders mentioned that the cutoff temperature should be raised, but the analysis uses the conservative figure of 140° C; future work may revisit this assumption.
- **Coal mining and oil and gas emissions:** stakeholders cited a perceived lack of ambition regarding reduced emissions from coal mining and oil and gas extraction, citing the Illinois' Billion-Dollar Blind Spot report by Northwestern Pritzker's Bluhm Legal Clinic.[119] In response, clarifying points were added to the Emission Reduction Measures Summary section, which outlines the underlying assumptions of the Increased State Action scenario, stating that the scenario assumes emissions reductions in coal mining and oil and gas extraction based on the technical potential projected in the EPA Non-CO2 mitigation data. In the Net Zero scenarios, as discussed in the appendix, oil and gas emissions are reduced further to represent a more ambitious outlook.
- **Landfill methane tracking:** stakeholders pointed out that the current method of tracking landfill methane emissions may be insufficient and suggested satellite tracking or airborne remote sensing to more accurately estimate emissions. Illinois EPA is aware that to effectively track and reduce waste emissions, more modern approaches need to be considered.

3 *Agriculture and Biofuels*

Stakeholders provided mixed feedback regarding the use of biofuels. Some stakeholders argued that utilizing biofuels for decarbonization should be a primary strategy, while other stakeholders argued that biofuels should be used sparingly or not at all as a climate mitigation strategy. In the initial phase of stakeholder feedback, some stakeholders deemed biofuel production a "false solution" for climate planning given uncertainty around land use emissions.

Similarly, there was mixed feedback regarding the approach to emissions reduction in the agriculture sector. Some stakeholders called for a less incentive-driven approach to agricultural emissions abatement and more regulations focused on emissions targets and mandates. However, agricultural groups expressed that providing incentives for climate smart agricultural practices would be their preferred approach, and expressed concern about mandated electrification of agricultural equipment or mandated emissions abatement from fertilizer use.

Regarding biofuels, biofuels were used in a targeted manner when appropriate; issues around land use-related emissions make their climate benefit uncertain. Illinois EPA assumed biofuels would be used strategically in hard-to-abate sectors such as aviation and industry. This approach is aligned with the findings of the United Nations Intergovernmental Panel on Climate Change (IPCC) sixth assessment report: "Bioenergy could be particularly valuable for sectors with limited alternatives to fossil fuels ... Its long-term role in low-carbon energy systems is therefore uncertain ... the environmental impact of bioenergy production at scale remains uncertain and varies by region and application."[120]

In terms of agriculture, Illinois EPA chose to focus on voluntary, incentive-driven programs similar to existing agricultural programs that have proven to be successful in Illinois, and which agricultural stakeholders have supported. The plan does not model or contain mandated electrification of agricultural equipment or mandated emissions abatement from fertilizer use. Reducing emissions from agricultural activity will require additional discussion and coordination across state agencies, agricultural groups, farmers, environmental groups, and other stakeholders connected to the agricultural sector in Illinois. Livestock-focused stakeholders also requested that Illinois EPA re-evaluate methane digesters and other manure-management technologies and broaden the set of recognized climate-beneficial livestock practices, an area Illinois EPA will continue to assess in coordination with agricultural stakeholders.

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[119] https://wwws.law.northwestern.edu/legalclinic/environmental/documents/illinois-billion-dollar-blind-spot-1-23-26.pdf

[120] https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_FullReport.pdf

4 Carbon Capture and Storage

Stakeholders also provided mixed feedback regarding assumptions around CCS. As mentioned in the Current Policy and Increased State Action scenario descriptions, both scenarios exclusively include already-planned CCS projects in the EPA Class VI permit queue. That said, the net zero scenarios include additional emissions abatement via CCS. Illinois EPA is aware that CCS is not currently widely deployed at scale. However, the technology availability is evolving and it may be available at scale in the long term. The IPCC included CCS and other methods of carbon dioxide removal in recent modeling.[121] As with biofuels, Illinois EPA has chosen to align with the IPCC given the institution's position as a global leader in climate planning and assumes some level of CCS deployment in long-term emissions abatement.

5 Ensuring a Just Transition

Some stakeholders raised concerns that the CCAP did not provide enough detail on how the state will ensure the clean energy transition will be a just transition. Specific areas of consideration include support for displaced workers and affected energy communities. Illinois has extensive policies ensuring equitable workforce development, as outlined in the Workforce Planning Analysis section of this report, including the Energy Community Reinvestment Act specifically aimed at protecting displaced fossil fuel workers and revitalizing energy communities as part of the clean energy transition.[122] Illinois requires prevailing wages for state-supported, clean energy projects via the Prevailing Wage Act,[123] and is committed to enforcing fair labor standards.[124]

Additionally, stakeholders raised environmental justice concerns relating to issues other than greenhouse gas emissions. For example, stakeholders brought up possible issues with drinking water contamination, pesticide drift, and exposure to CAFOs, all of which would have a disproportionate impact on rural communities or low-income populations. Although these issues are important for the health and safety of Illinois residents, they do not fall under the scope of the CCAP.

Stakeholders also raised concerns about cumulative pollution burdens in environmental justice communities, the water and energy footprint of growing data center load, and the need for continued brownfield remediation. While the CCAP focuses on greenhouse gas emissions, the modeling does include co-pollutant estimates for PM2.5, NOx, SO2, and NH3, which inform the health-benefits analysis. Cumulative Impact Assessment frameworks are an active area of policy development in Illinois, including ongoing work in the City of Chicago and pending state legislation, and Illinois EPA implements its existing Environmental Justice Enforcement Strategy to address disproportionate pollution impacts in overburdened communities. Concerns related to data center resource demand and brownfield redevelopment will continue to be addressed through Illinois EPA's permitting and remediation programs as well as parallel state planning processes, including the 2026 Integrated Resource Plan. Illinois EPA has a number of resources aimed at monitoring and regulating operations that could negatively impact these communities.[125,126]

6 Additional Climate Planning

A common thread across stakeholder feedback was the need for ongoing analysis, planning, stakeholder engagement, and policymaking regarding Illinois' energy and climate landscape. The state is committed to providing clean energy and reducing emissions across the economy in order to hit ambitious climate targets in the coming years. Illinois EPA appreciates the breadth of input received during the public comment period; while not every recommendation could be incorporated into this iteration of the CCAP, stakeholder input will continue to inform parallel state planning processes such as the Integrated Resource Plan and the Future of Gas. Illinois EPA encourages interested stakeholders to participate in these processes. Further, Illinois EPA will explore additional opportunities for stakeholder engagement around climate planning after the final CCAP has been completed.

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[121] https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_FullReport.pdf
[122] https://www.ilga.gov/Legislation/ILCS/Articles?ActID=4222&ChapterID=5&Print=True
[123] https://labor.illinois.gov/laws-rules/conmed/prevailing-wage-act.html
[124] https://labor.illinois.gov/laws-rules/fls.html
[125] https://epa.illinois.gov/general-information/drinking-water.html
[126] https://epa.illinois.gov/topics/water-quality/watershed-management/cafos.html

Conclusion

The Illinois CCAP provides a roadmap for the state to achieve an ambitious level of decarbonization by mid-century. Using results from the E3 Pathways model, this CCAP investigates three distinct emissions scenarios: BAU, Current Policy, and Increased State Action. BAU represents a future with no additional policy or market intervention. Current Policy represents a future under current state policies, specifically the CEJA, renewable portfolio standards, energy efficiency standards, and ZEV bus standards. Finally, the Increased State Action scenario represents a future under ambitious climate action, modeling fifteen additional measures to the Current Policy scenario. These measures include but are not limited to Public Fleet EV requirements, Land Use VMT reductions, heat pump incentives, all-electric building codes, HFC phaseout programs, and landfill methane regulations. While ambitious climate action requires large up-front investments to support the implementation of these programs, the modeling shows that, taking health and social benefits into account, the economy experiences large net cost-savings, by as much as $21B annually (in 2024 real dollars) in 2050.

This CCAP demonstrates Illinois' commitment to providing a clean, healthy, and affordable way of life for all Illinoisans. While Illinois has achieved significant climate progress over the past two decades—net GHG emissions have already decreased 60% since 2005—several key challenges remain, particularly the decarbonization of Illinois' industrial and agricultural sectors. Another challenge is the equitable workforce transition away from legacy energy industries. Illinois has already invested significantly in stakeholder feedback and programs to support workers through the energy transition, with programs such as the Displaced Energy Worker Dependent Transition Scholarship, demonstrating the state's commitment to proactively addressing the challenges to translating the roadmap laid out in this CCAP into reality.

The vision laid out in this plan requires the collaboration of private industry, state agencies, local government, and engaged citizens to achieve lasting emissions reductions, healthier communities, and expanded job opportunities that support Illinois' families. By implementing well-informed policy and collaborating with stakeholders, Illinois can continue to be a climate leader, all while supporting a thriving economy and workforce, and cleaner air for all.

Appendix A. Appendix

A.1. Crosswalk Between IL CCAP and CPRG Requirements

Table 13: Crosswalk between Illinois EPA CCAP components and EPA CPRG requirements

Requirement	Met in Illinois EPA CCAP?	Relevant Chapter
GHG Inventory	Yes	GHG Inventory
GHG Emissions Projections	Yes	Emissions Projections
GHG Reduction Targets	Yes	Near-Term and Long-Term GHG Reduction Targets
Quantified GHG Reduction Measures	Yes	GHG Reduction Measures
Benefits Analysis	Yes	Benefits Analysis
Authority to Implement GHG Reduction Measures	Yes	GHG Reduction Measures
Intersection with Funding Availability	Yes	GHG Reduction Measures
Workforce Planning Analysis	Yes	Workforce Planning Analysis
Meaningful Engagement	Yes	Stakeholder Engagement

Appendix B. Net Zero Scenario Analysis

B.1 Introduction and Purpose

This appendix presents the results of a net-zero scenario analysis conducted as a supplement to the Increased State Action scenario described in the main body of this CCAP. Two net-zero scenarios were designed to examine how Illinois could achieve economy-wide net-zero greenhouse gas emissions by 2050. While the Increased State Action scenario demonstrates a 72% reduction in net emissions by 2050 relative to 2024 levels, these net-zero scenarios explore the additional measures, alternative fuel strategies, and carbon dioxide removal (CDR) investments needed to close the remaining gap to net zero and meet the state's goal of net zero emissions by 2050 per executive order 2019-06. This analysis will complement the ongoing ICC Future of Gas proceeding focused on the buildings sector and future natural gas use, as well as the Resource Adequacy Mitigation Plan and Integrated Resource Plan process examining the electric sector in detail.

This analysis was informed by a series of technical working group (TWG) meetings held in February and March 2026, covering the transportation, industry, and agriculture and lands sectors, as well as internal modeling refinements. These sessions provided critical stakeholder feedback on feasibility, data sources, and technology readiness that shaped the final scenario design.

Illinois can achieve net zero emissions by 2050, but doing so will be challenging. Achieving a net zero emissions target requires extensive action across every sector of the economy, reliance on emerging technologies not yet deployed at scale, significant shifts in land use and development patterns, and substantial investment in carbon dioxide removal infrastructure. Even under the assumptions in these scenarios, residual emissions of approximately 10 MMT CO_2e remain, requiring CDR or other offsets to reach the net zero target.

B.2 Scenario Design and Assumptions

The net zero scenarios build on the full suite of policies and measures in the Increased State Action scenario, with additional ambition across all sectors to push emissions toward zero. Both net zero scenarios lean on high levels of energy efficiency, electrification of end uses that traditionally rely on fossil fuels, alternative low-carbon fuels (hydrogen, renewable jet fuel, renewable distillate, renewable natural gas), and carbon dioxide removal. In recognition of the uncertainties around technology readiness and consumer adoption, rather than presenting a single net zero scenario, the analysis presents two distinct net zero pathways representing different strategies for balancing energy supply and demand in the context of a net zero economy. Each scenario reaches net zero emissions by 2050, but the scenarios differ in the relative emphasis placed on energy supply infrastructure versus demand-side management.

B.2.1 Net Zero – Moderate Efficiency and Flexibility

The Moderate Efficiency and Flexibility scenario represents a net zero pathway characterized by higher peak electricity loads and greater reliance on biofuel supply to meet remaining fossil fuel demands. This scenario assumes full electrification of buildings with 32% of households using hybrid heat pumps (maintaining a fossil fuel backup to be used for space heating during the coldest weeks of the year) in 2050, rapid market share expansion for electric vehicles (100% ZEV sales for LDVs by 2035 and MHDVs by 2040), and deep industrial decarbonization through efficiency, electrification, and carbon capture. Under this scenario, it's assumed that households using hybrid heat pumps use the backup system for 20% of their space heating demand; this reduces winter peak electricity demand on the grid but requires maintaining gas distribution infrastructure and a higher renewable natural gas (RNG) blend of 12%. Renewable fuels constitute 77% of remaining diesel supply, and 38% of remaining LPG supply by 2050. Renewable gas, distillate, and LPG blends are meant to reflect conservative assessments of biofuel availability sourced from waste and residues rather than purpose-grown crops. Renewable fuels also cover 42% of jet fuel demand in 2050, while the remaining 58% is assumed to be synthetic jet kerosene. CDR deployment is scaled based on the current EPA Underground Injection Control Class VI permit data, with the remaining carbon gap addressed through biorefining and CCS rather than DAC due to cost-effectiveness.

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127 https://www.illinois.gov/government/executive-orders/executive-order.executive-order-number-6.2019.html

128 https://www.icc.illinois.gov/programs/Future-of-Gas-Workshop

129 https://ipa.illinois.gov/electricity-procurement/ra-planning/ra-mitigation-plan.html

130 https://www.icc.illinois.gov/informal-processes/Integrated-Resource-Plan

131 https://awsedap.epa.gov/public/single/?appid=8c074297-7f9e-4217-82f0-fb05f54f28e7&sheet=51312158-636f-48d5-8fe6-a21703ca33a9&theme=horizon&bookmark=6218ffed-bb6e-42e4-a4f1-52d8-7e036a1b&opt=ctxmenu

Key characteristics of this scenario include:

- **Higher peak electricity loads:** Even with hybrid heat pumps, the large-scale electrification of transportation and industry produces substantial peak demand growth that requires significant generation, transmission, and distribution investment.
- **Greater biofuel supply requirements:** The retention of gas infrastructure for hybrid heating and remaining combustion applications requires higher volumes of RNG, renewable distillate, and sustainable aviation fuel (SAF), placing greater demands on biofuel sourcing from waste and residues.
- **Significant demand-side intervention:** VMT reductions and development pattern changes remain at baseline NZ levels without the additional smart development measures.

B.2.2 Net Zero – High Efficiency and Flexibility

The High Efficiency and Flexibility scenario represents another net zero pathway that places greater emphasis on demand-side measures, energy efficiency, peak mitigation strategies, and land use changes and achieves lower peak electricity loads and reduced biofuel consumption. This scenario incorporates both ground-source heat pumps and hybrid heat pumps to demonstrate a reduction in both electrical grid peak demand and biofuel consumption. This pathway results in lower supply-side stress through greater peak mitigation, even greater energy efficiency gains, and other demand-side measures including changes to development patterns and voluntary farmland conversions. Key assumptions include:

- **Residential shift:** Development shift toward multifamily buildings over single-family homes, reducing heating and cooling loads.
- **Heat pump technology:** Increased share of ground source heat pumps (GSHPs) relative to air source heat pumps (ASHPs) to improve overall electricity efficiency, with hybrid heat pump backup reduced from 20% to approximately 9% based on ResStock data.
- **VMT reductions:** LDV VMT reduction target increased to 20% by 2050, aligning with targets set by other states such as Minnesota. Higher-density development aims to increase access to public transit and enable mode switching from LDVs to bus and walking/biking.
- **Aviation:** A 4% decrease in aviation demand by 2050 based on ICCT research.

Table 14. 2050 key assumptions comparison across net zero scenarios

Sector	Moderate Efficiency and Flexibility	High Efficiency and Flexibility
Buildings	• 32% of households use hybrid heat pumps • Fossil backup covers 20% of space heating demand • Emphasis on air source heat pumps • 12% RNG blend • Baseline development patterns	• 48% of households use hybrid heat pumps • Fossil backup covers 9% of space heating demand • Higher ground source heat pump adoption • Lower RNG blend (reduced gas backup) • Shift toward multifamily housing
Transportation	• 100% ZEV sales: LDVs by 2035, MHDVs by 2040 • 9% LDV VMT reduction by 2050 • No aviation demand reduction • 42% renewable jet fuel; remainder synthetic kerosene	• 100% ZEV sales: LDVs by 2035, MHDVs by 2040 (same) • 20% LDV VMT reduction by 2050 • 4% decrease in aviation demand by 2050 • 42% renewable jet fuel with lower total demand
Electricity	Fully decarbonized power sector in line with CEJA requirements	
Industry	• Electrification of processes below 140°C • 58% hydrogen in iron & steel • Energy efficiency per NREL subsector data	• Same electrification and hydrogen assumptions • More ambitious energy efficiency gains
Agriculture & Lands	• 50% N_2O abatement by 2035 • 27% enteric/manure reduction by 2050 • Agricultural equipment electrified at half the HDV rate	
Renewable Fuels	• 77% renewable diesel, 38% renewable LPG by 2050 • Higher biofuel volumes due to gas infrastructure retention	Lower biofuel volumes due to reduced total demand
Carbon Removal	• 9.3 MMT CO_2e planned CDR (EPA Class VI permits) • 6.8 MMT CO_2e remaining gap, closed via biorefining + CCS	• 9.3 MMT CO_2e planned CDR (same) • 6.7 MMT CO_2e remaining gap, closed via biorefining + CCS

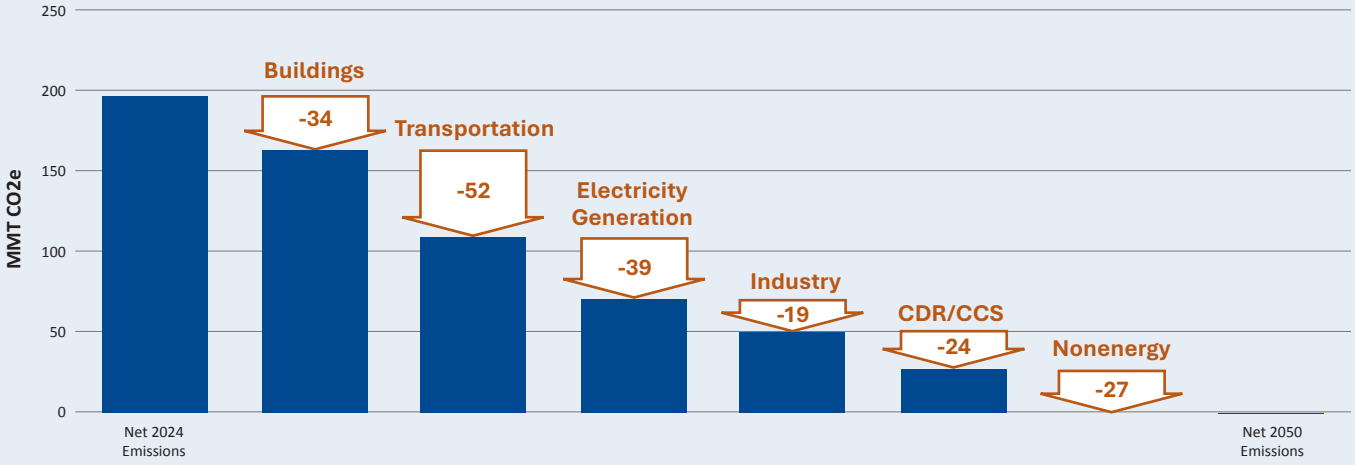
132 https://climate.state.mn.us/sites/climate-action/files/cc-mn4-04b.pdf
133 https://theicct.org/wp-content/uploads/2022/06/Aviation-2050-Report-A4-v8.pdf

B.3 Results

B.3.1 Cross-cutting

Figure 24 shows the contribution of each sector to economy-wide emissions reductions between 2024 and 2050 under the Moderate Efficiency and Flexibility scenario. The largest reductions come from the electricity sector (driven by CEJA's net-zero grid requirement by 2045) and transportation (driven by ZEV adoption and renewable fuels), followed by buildings electrification and industrial decarbonization. Agriculture and lands provide a modest net carbon sink of roughly 5 MMT CO_2e. After accounting for all sector-level reductions, approximately 10 MMT CO_2e of residual emissions remain from hard-to-abate sources, which are offset through carbon dioxide capture and removal to reach the net-zero target.

Figure 24. Greenhouse gas emissions reduction by sector, 2024-2050

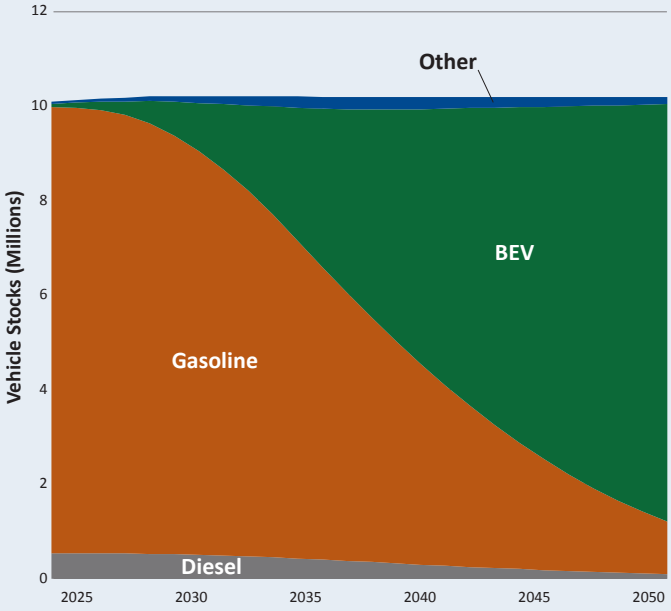


B.3.2 Transportation

By 2050, transportation emissions reach 4.3 MMT CO2e under the Moderate Efficiency and Flexibility scenario, representing a 92% reduction relative to 2024. On-road emissions account for 3.3 MMT CO2e, with the remainder from aviation, rail, and marine. ZEVs account for 89% of LDV stock, 81% of MDV stock, and 75% of HDV stock by 2050. Electricity makes up the largest share of transportation energy demand at 37% (169 TBtu), with additional clean fuels including renewable jet fuel (129 TBtu), hydrogen (55 TBtu), and renewable distillate (31 TBtu). A potential ICE vehicle buy-back program was identified as a more straightforward lever than further VMT reductions or accelerated ZEV sales to eliminate the remaining on-road emissions.

Under the High Efficiency and Flexibility scenario, transportation emissions reach 4.0 MMT CO2e, representing a 93% reduction relative to 2024. While ZEV stock shares are consistent across scenarios, the High Efficiency and Flexibility scenario assumes more ambitious VMT reduction potential driven by higher-density development patterns, which decreases emissions and energy demand.

Figure 25. Total vehicle stock by vehicle type in net zero scenarios[134]



[134] 'Other' represents CNG, PHEV, and HFCV stocks

Table 15. On-road transportation sales and stock shares in net zero scenarios

Sector	Moderate Efficiency and Flexibility	High Efficiency and Flexibility
Light-Duty Vehicles	2035: 95% BEV, 5% PHEV 2040: 100% BEV	89%
Medium-Duty Vehicles	2040: 100% BEV	81%
Short-Haul Heavy-Duty Vehicles	2040: 85% BEV, 15% HFCV	75%
Long-Haul Heavy-Duty Vehicles	2040: 45% BEV, 55% HFCV	75%

B.3.3 Residential and Commercial Buildings

Both NZ scenarios require near-complete electrification of space and water heating in buildings, building on the clean heat standard and heat pump incentives from the Increased State Action scenario. The two scenarios differ in their approach to managing the resulting peak load. The Moderate Efficiency and Flexibility scenario assumes 32% of households use hybrid heat pumps, and that the fossil fuel backup system covers 20% of space heating energy demand. This means that the backup system is engaged only during extreme cold, which moderates the peak electricity demand caused by space heating electrification. However, maintaining fossil system also requires maintaining Illinois' gas distribution infrastructure and using a higher RNG blend percentage to meet emissions targets.

The High Efficiency and Flexibility scenario assumes that more homes use hybrid heating systems as opposed to all-electric heat pumps (48% of homes in 2050) but assumes that the fossil backup system covers only 9% of space heating energy demand. This scenario also assumes higher GSHP adoption and a development shift toward multifamily housing. This scenario results in lower peak electricity demand and lower biofuel consumption but would require more demand-side intervention to implement.

Figure 26. Total residential heat pump sales (whole home + hybrid) by scenario

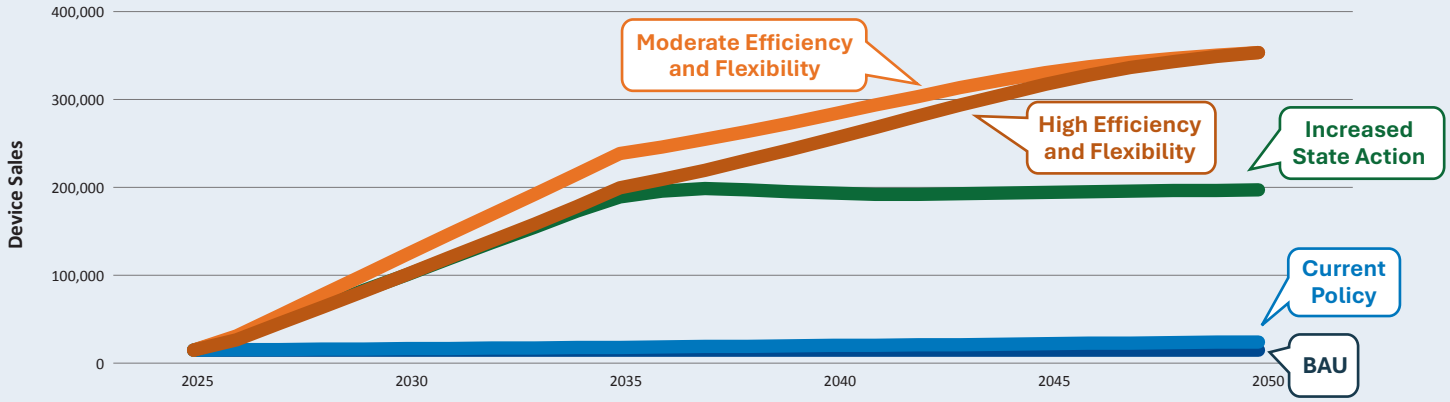
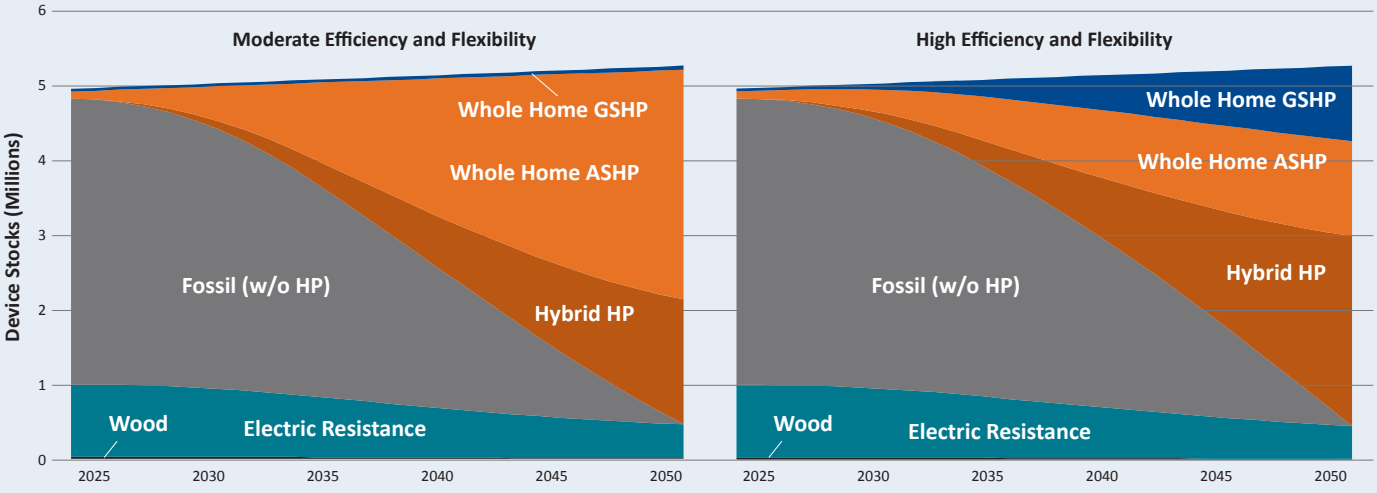


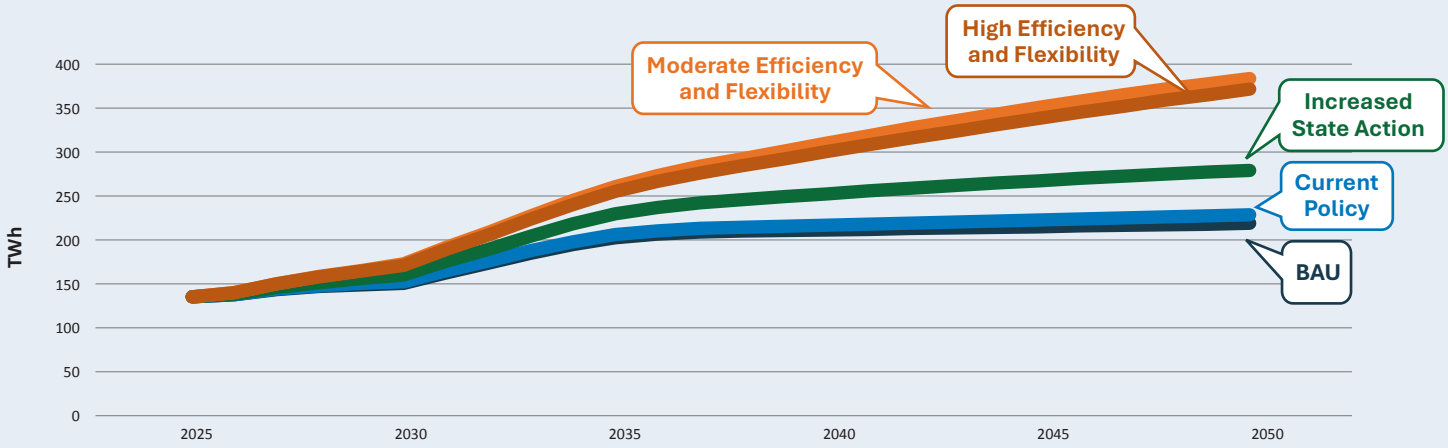
Figure 27. Residential space heating stocks by device type in net zero scenarios



B.3.4 Electricity and Fuels

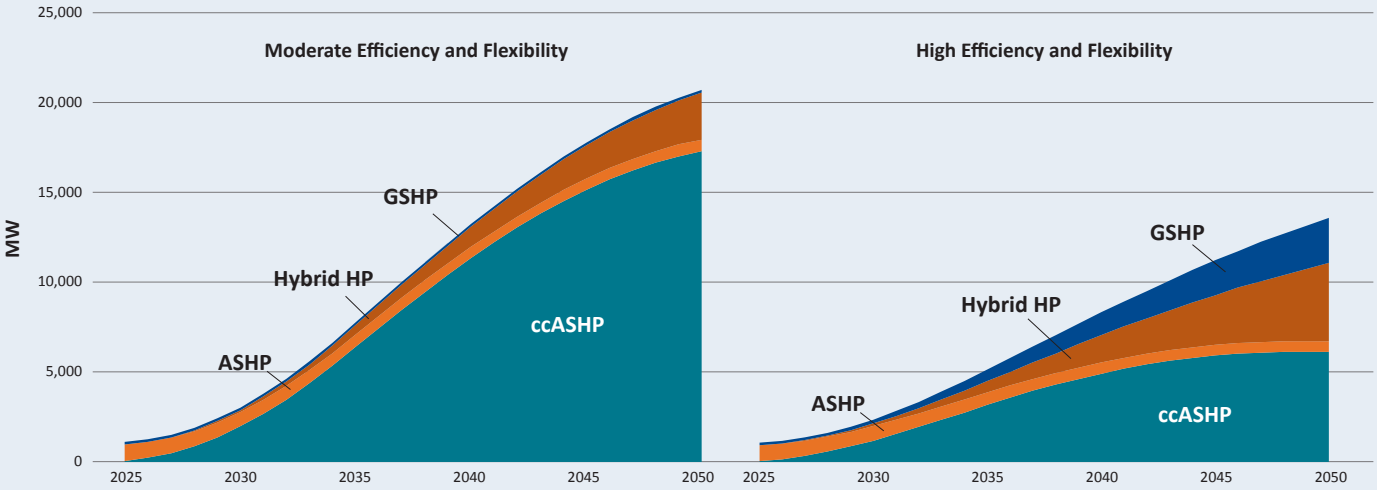
The electricity sector reaches net zero emissions by 2045 under CEJA in all scenarios. The net zero scenarios do not require additional electricity generation measures beyond CEJA compliance; however, the large-scale electrification of transportation, buildings, and industry significantly increases total electrical load. The Clean and Reliable Grid Affordability (CRGA) Act, signed into law in January 2026, is expected to support grid reliability and affordability as this load growth materializes.

Figure 28. Electricity demand by scenario



Widespread electrification of space heating is central to both net-zero pathways, but it introduces a significant challenge for the electric grid: winter peak demand. Figure 29 illustrates the potential contribution of residential space heating alone to system winter peak load under each scenario, calculated at the coldest hour of the year. While this does not capture the full picture of system peak (which also includes transportation, commercial, and industrial electrification loads), it highlights the scale of the infrastructure challenge that heating electrification presents. Under the Moderate Efficiency and Flexibility scenario, reliance on air source heat pumps with limited fossil backup produces a larger peak contribution, which would require substantial investment in generation, transmission, and distribution capacity. The High Efficiency and Flexibility scenario moderates this peak through a combination of demand-side strategies, including greater adoption of ground source heat pumps, a shift toward multifamily housing, and a higher share of hybrid systems with reduced fossil backup. These two pathways illustrate a core tradeoff in reaching net zero: absent extensive implementation of demand-side measures such as ground source heat pumps and development pattern changes, Illinois will need to rely more heavily on supply-side infrastructure buildout to maintain grid reliability during winter peaks.

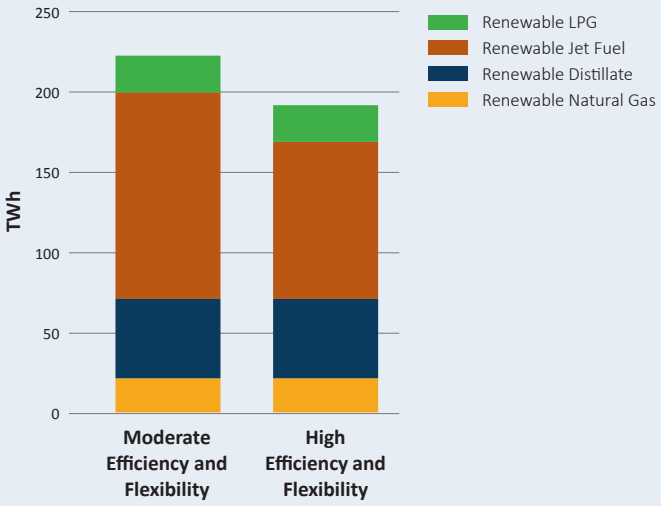
Figure 29. Residential space heating contribution to peak load in net zero scenarios[135]



[135] Space heating contribution to peak is measured by calculating residential space heating load at the coldest hour of the year (using January 28 at 6 AM based on ResStock load shapes). Calculations include impact of efficient building shell installations and efficient device adoption, which leads to a conservative estimate of peak contribution.

Figure 30 compares the volume and composition of biofuel demand across the two net-zero scenarios in 2050. Renewable jet fuel and renewable distillate make up the largest shares in both pathways, reflecting the difficulty of electrifying aviation and portions of heavy-duty freight. The High Efficiency and Flexibility scenario reduces total biofuel needs through a modest reduction in aviation demand, easing pressure on waste- and residue-based biofuel supply chains.

Figure 30. 2050 biofuel demand by fuel type



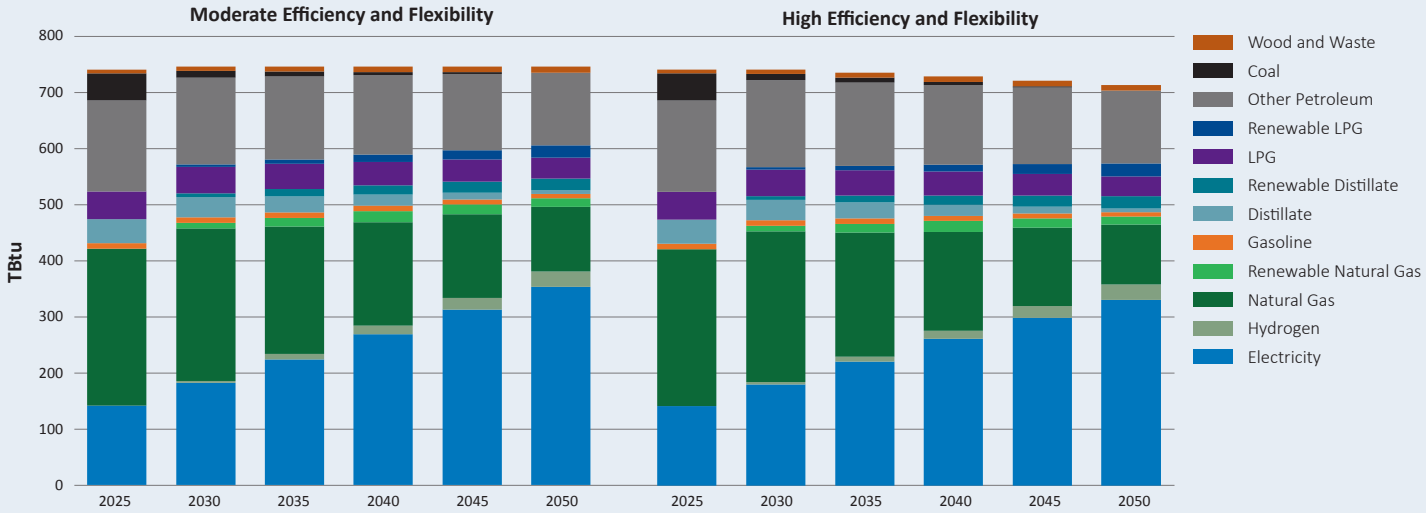
B.3.5 Industry and Industrial Processes

Across both net zero scenarios, decarbonization is driven by electrification of processes below 140°C (informed by NREL data), hydrogen use in iron and steel production (covering 58% of coal and gas use, informed by US Steel's 2050 target[136]), net zero cement standard utilizing supplementary cementitious materials, and assumed conversion of Archer Daniels Midland's coal-fired operations to natural gas starting in 2029.

The members of the industry-focused TWG provided helpful feedback, largely emphasizing the importance of energy efficiency in industrial processes. Along with these electrification assumptions, E3 included energy demand reductions (applied to both electricity and fossil fuel use) based on NREL energy efficiency data for each subsector.[137]

Based on this strategy, electricity makes up 47% of industrial energy demand under the Moderate Efficiency and Flexibility scenario in 2050. Pre-CCS emissions are 17.5 MMT CO2e, largely driven by refining (5.3 MMT CO2e) and IPPU (3.5 MMT CO2e). CCS is estimated to capture 7.8 MMT CO2e from industry and IPPU, yielding total net industrial emissions of 9.6 MMT CO2e in 2050 (a 78% decrease relative to 2024). The High Efficiency and Flexibility scenario assumed a more ambitious level of energy efficiency, which reduces energy demand and emissions. This scenario results in pre-CCS emissions of 17.0 MMT CO2e, and net emissions of 9.5 MMT CO2e.

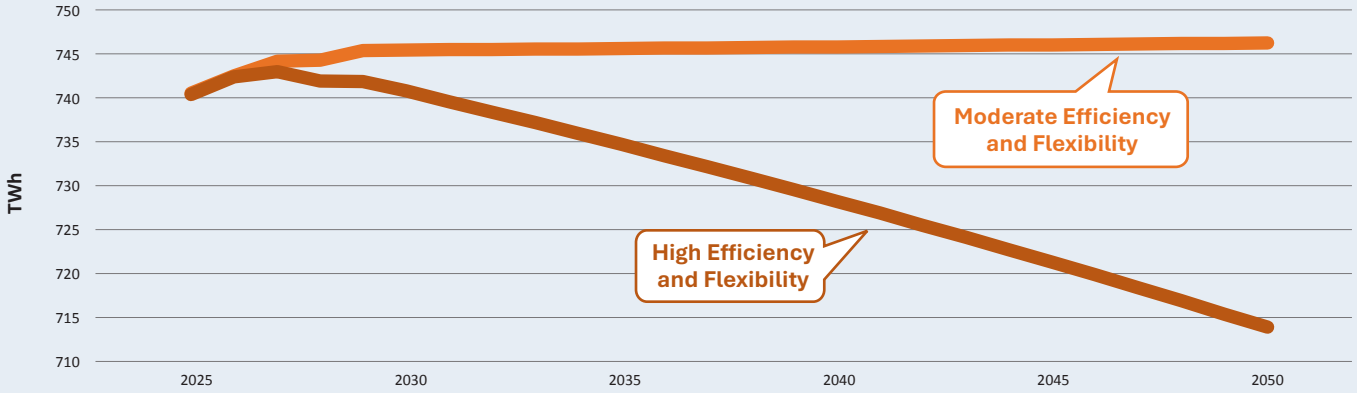
Figure 31. Industrial energy demand by fuel across net zero scenarios



[136] https://www.ussteel.com/sustainability/roadmap-to-2050

[137] https://docs.nlr.gov/docs/fy19osti/71990.pdf

Figure 32. Total industrial energy demand across net zero scenarios

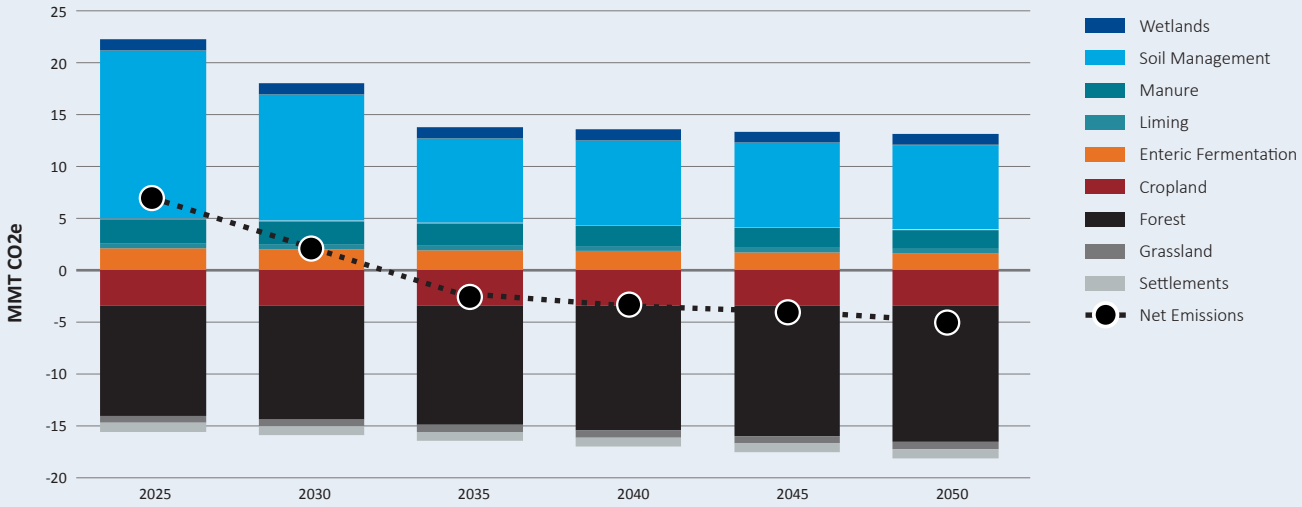


B.3.6 Agriculture and Lands

In the net zero cases in 2050, the combined land use and agriculture sectors yield net emissions of-5.0 MMT CO2e (i.e., a net carbon sink), with agriculture emissions at 12.1 MMT CO2e and LULUCF removing 17.1 MMT CO2e. Soil management remains the largest agricultural emissions source (8.1 MMT CO2e) despite 50% N2O abatement by 2035. Enteric fermentation and manure emissions each decrease by 27% by 2050 based on EPA non-CO2 mitigation technical potential.[138]

The amount of CO2 sequestered in forest carbon sinks increases by 23% by 2050 and grassland sinks increase by 7%, based on the findings on natural and working lands shared in a working paper from LEAM Laboratory at the University of Illinois at Urbana-Champaign.

Figure 33. Emissions by land use type and agricultural activity



In terms of emissions from agricultural equipment as opposed to soil management and livestock practices, the net zero scenarios assume that a portion of gasoline and distillate demand is replaced by electricity or hydrogen. This rate of fuel switching is tied to the rate at which ICE heavy-duty vehicles are replaced by BEVs and HFCVs; however, stakeholders in the agriculture-focused TWG expressed their uncertainty about all-electric farming equipment. Accounting for this feedback, E3 took a more conservative approach and assumed that agricultural gasoline and distillate demand is electrified or converted to hydrogen half as quickly as heavy duty trucking.

B.3.7 Waste

The net zero scenarios include more ambitious waste sector emissions mitigation, relative to the Increased State Action scenario. State waste reduction programs and policies are assumed to decrease emissions from landfill and wastewater treatment facilities. In 2050, waste emissions total 3.4 MMT CO2e, which represents a 46% decrease from 2024.

[138] https://www.epa.gov/global-mitigation-non-co2-greenhouse-gases

B.4 Carbon Dioxide Removal and Residual Emissions

Even under the ambitious assumptions of both NZ scenarios, residual emissions of approximately 16 MMT CO2e remain in 2050 from hard-to-abate sources across transportation, industry, agriculture, and waste. Bridging this gap requires carbon dioxide removal (CDR) through a combination of strategies. As mentioned above, baseline CDR emissions are based on the existing EPA data. The EPA Class VI permit queue indicates that about 9.3 MMT CO2e will be captured annually from planned projects. The remaining emissions gap is assumed to be addressed through biorefining with CCS.

Table 16. Planned carbon removal and remaining emissions gap in net zero scenarios

Planned Removal	Remaining Gap – Moderate Efficiency and Flexibility	Remaining Gap – High Efficiency and Flexibility
9.3 MMT CO2e	6.8 MMT CO2e	6.7 MMT CO2e

B.5 Key Challenges and Uncertainties

While the net zero scenarios demonstrate that multiple pathways to net zero emissions exist for Illinois, the analysis reveals several fundamental challenges that will require sustained policy commitment, technological innovation, and stakeholder engagement in the future:

- **Grid capacity and reliability:** Widespread electrification of transportation, buildings, and industrial processes dramatically increases total electrical load, requiring additional build-out and/or more efficient utilization of generation capacity, transmission infrastructure, and distribution networks. Ensuring grid reliability during winter peak demand, particularly under scenarios with significant heating electrification where hybrid or geothermal heat pumps are not widely adopted, is a critical challenge.
- **Gas system:** The extent to which homes and businesses adopt all-electric space heating, water heating, and cooking devices has significant implications on the size of the gas system, as well as gas prices. These uncertainties are better addressed through more focused analysis of the gas system; a potential avenue for this type of analysis will be the Illinois Future of Gas Proceeding, initiated by the Illinois Commerce Commission.[139]
- **Biofuel supply and sourcing:** The NZ Scenario relies on significant volumes of renewable fuels (jet fuel, distillate, RNG). Ensuring these are sourced from waste and residues rather than purpose-grown crops is essential for maintaining the environmental integrity of the emissions reductions. Biofuel emissions accounting remains an evolving area of research.
- **Industrial hard-to-abate sectors:** Refining and IPPU remain the largest industrial emission sources even after aggressive electrification and CCS. Large-scale CCS deployment (8.7 MMT CO2e) has not been demonstrated at this scale in Illinois and depends on CO2 pipeline and storage infrastructure development.
- **Agricultural emissions:** Soil N2O remains the single largest source of agricultural emissions in 2050 at 8 MMT CO2e even with 50% abatement. Additional mitigation requires practices that may be challenging to implement at scale.
- **CDR deployment risk:** The net zero target ultimately depends on CDR to offset residual emissions. CDR technologies (particularly DAC) are not yet commercially proven at scale, and cost projections carry significant uncertainty. Overreliance on CDR could mask the need for direct emissions reductions.
- **Cost and equity implications:** While the NZ Scenarios will lead to greater health and social benefits, these scenarios also require substantially greater investment than the Increased State Action scenario, particularly in building electrification, CCS infrastructure, and CDR. Ensuring that costs are distributed equitably and that vulnerable populations are protected from affordability impacts will require careful policy design.

[139] https://www.icc.illinois.gov/programs/Future-of-Gas-Workshop