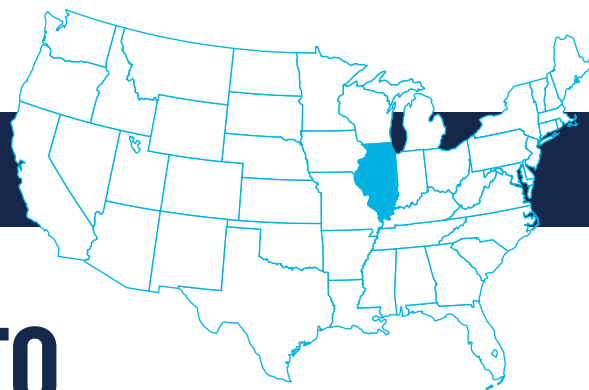




ISSUE BRIEF

AN ILLINOIS PATHWAY TO CUTTING CARBON POLLUTION

The Clean Power Plan, finalized by the U.S. Environmental Protection Agency, is a game changer. It sets the first-ever limits on carbon pollution from power plants, the nation's largest source of the pollution that is driving dangerous climate change. We need to act now because we already are seeing its effects in extreme weather, deeper drought, and more wildfires. This carbon pollution limit for power plants in Illinois is achievable, largely through increasing the state's clean and renewable energy sources, along with improving the energy efficiency of its homes and businesses.

The EPA's standards set a limit for power plant pollution in each state. The state carbon pollution limit is expressed in two ways: as a mass-based standard designating a maximum number of tons of carbon dioxide that may be emitted by covered plants and allowing for some load growth over the years; or as a rate-based standard expressed as a number of pounds of CO₂ per megawatt-hour (MWh) of electricity generated from covered plants for each time period. The standards allow each state the flexibility to design its own cost-effective pathway toward a cleaner electricity system. Under a mass-based standard, Illinois would reduce its carbon pollution from all power plants from 96.1 million tons in 2012 to less than 67.2 million tons in 2030.¹ In limiting its pollution, Illinois will benefit from the expansion of its clean energy sources, adding jobs to its clean energy economy, which already employs 104,400 workers. The actions that Illinois takes now will move it toward a healthier, economically productive, clean energy future.

THE EPA'S CLEAN POWER PLAN PROMISES GREAT BENEFITS FOR ILLINOIS AND THE NATION

The Clean Power Plan will reduce the nation's carbon pollution from fossil-fueled power plants 32 percent below 2005 levels by 2030.² As we curb carbon pollution, the nation will reap major health and environmental benefits, and by 2030 the average household will save about \$85 a year on its energy bills.³ Climate change will be especially costly in Illinois unless we act now to reduce its impact. Heat waves like the deadly one in July 1995 in Chicago, which killed more than 700 people, could occur as often as once every two years by the 2050s.⁴ A Harvard analysis shows that the health benefits from reducing particle pollution and smog from power plants could save 2,100

lives and prevent 760 hospitalizations in Illinois from 2020 to 2030.⁵ By decreasing the impacts of climate change and reducing the burden of health costs associated with power plant pollution, altogether the EPA standards will provide benefits of up to \$54 billion in 2030. That includes preventing up to 3,600 premature deaths, 1,700 heart attacks, 90,000 asthma attacks, and 300,000 missed work and school days.⁶ These benefits far outweigh the estimated national compliance costs of \$8.4 billion in 2030.

POLLUTION LIMITS ARE READILY ACHIEVABLE

The EPA set carbon pollution limits for each state's power plants based on three pollution-reduction approaches, or "building blocks." However, these blocks are not prescriptive; they are simply the EPA's method for estimating achievable pollution cuts from power plants. The Clean Power Plan gives states ample flexibility to meet these standards in any way they choose. NRDC encourages Illinois to be creative and think "outside the blocks," drawing on resources like demand-side energy efficiency. Illinois can now decide on its own path to reduce carbon pollution from power plants in the state—a path that will determine the level of economic, environmental, and public health benefits to Illinois residents.

The adoption of a flexible, market-based framework in combination with complementary state clean energy policies will allow Illinois to cost-effectively meet its carbon pollution limit largely by expanding renewable wind and solar energy and improving the energy efficiency of its buildings and industry.

Several of Illinois's oldest and dirtiest coal plants (about 3,400 MW) have already been retired or are slated to be retired or converted to natural gas by 2020.⁷ And,

FIGURE 1: PATHWAY TO MEETING ILLINOIS'S CARBON POLLUTION LIMITS¹⁰

Figures 1A and 1B demonstrate the electricity-generation mix and pollution levels as a result of Illinois's existing clean energy policies and planned retirements ("clean energy scenario").

FIGURE 1A: ELECTRICITY MIX, CLEAN ENERGY SCENARIO

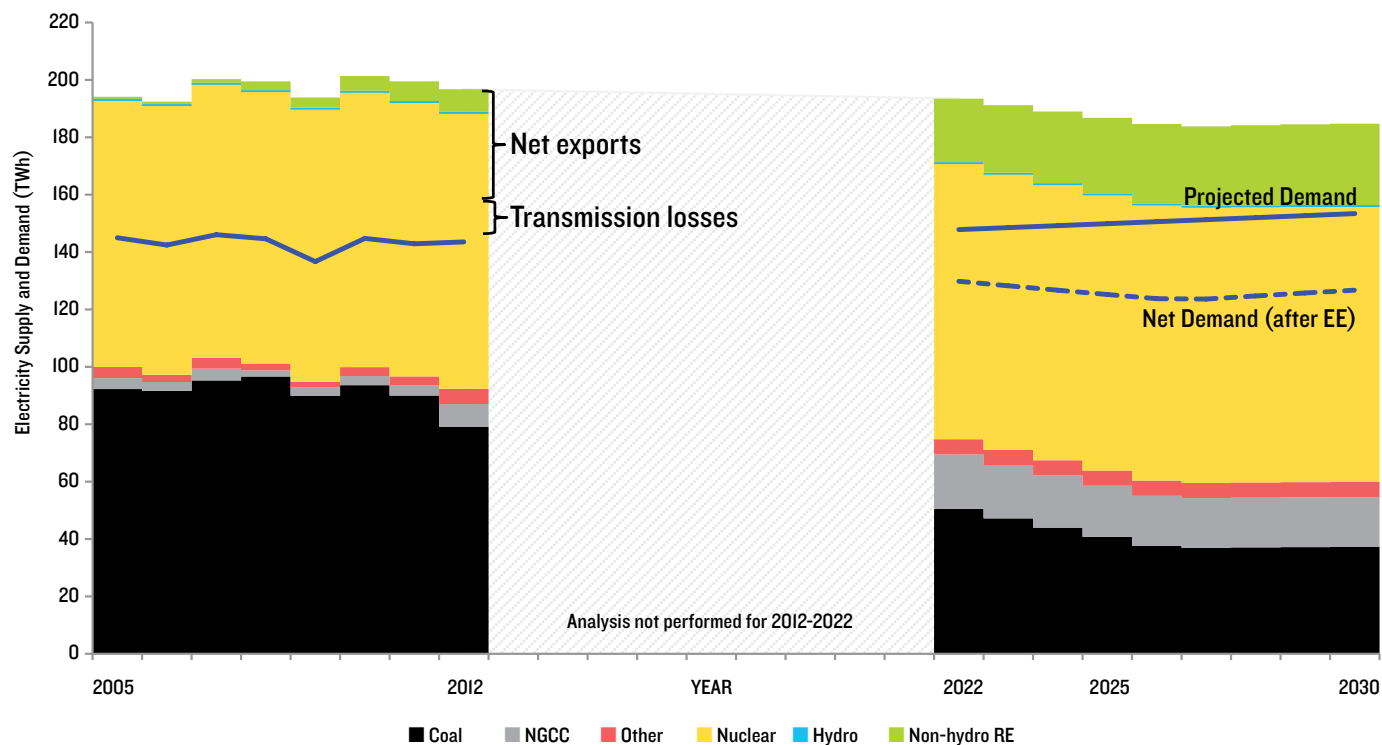
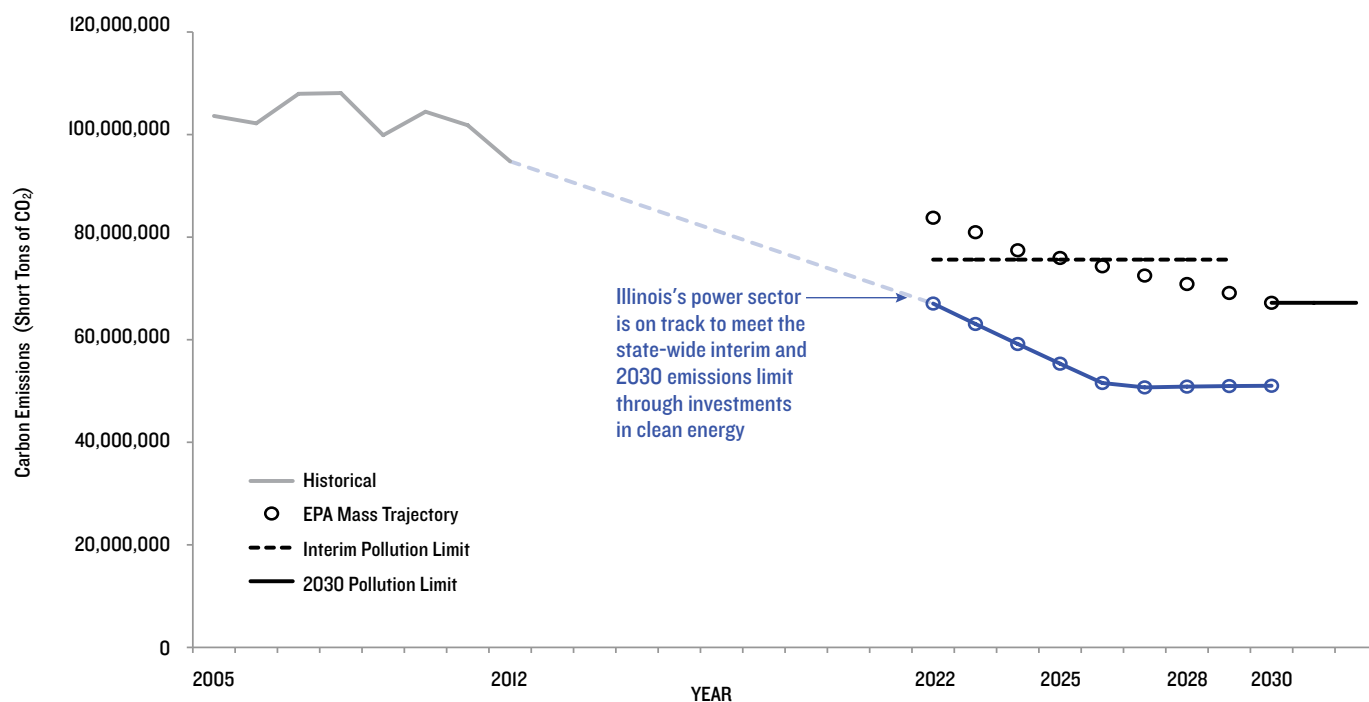


FIGURE 1B: CARBON EMISSIONS PROJECTIONS, CLEAN ENERGY SCENARIO



under Illinois's current clean energy standards, with the much-needed technical fixes described below, renewable energy will account for 25 percent of the covered utilities' electricity sales by 2026.⁸ Further, energy efficiency programs will reduce energy waste by at least 2 percent annually in 2016 and every year thereafter.⁹ These expected changes to the state's power sector are predicted to get the state into compliance with the 2030 mass-based limit of 67.2 million short tons of CO₂.

However, the state's clean energy standards face real implementation barriers, and this endangers the state's ability to cost-effectively reduce its carbon pollution and meet the EPA's limits. By addressing the fragmented market problems for renewable energy and the state's budget cap that limits utility investment in energy efficiency, Illinois can meet and surpass its clean energy standards. If the state fully achieves its clean energy goals, it could reach full compliance with its carbon pollution limit, as shown in Figure 1.

Currently, several pending energy policies are under consideration in Illinois. However, only one policy, the Illinois Clean Jobs Bill (S.B. 1485/H.B. 2607), makes the necessary changes to the state's clean energy policies to achieve the EPA's new carbon limits. It would double the state's investment in energy efficiency, fix systemic challenges to the renewable energy standard, and expand the target from 25 percent renewable energy by 2025 to 35 percent by 2030. It would also direct the Illinois EPA to pursue a mass-based cap on carbon emissions and direct the proceeds from any carbon market back into energy efficiency and renewable energy, which would stimulate new job growth and greater customer savings. The Clean Jobs Bill would also provide direct assistance for customers who struggle to pay their electric bills, offer worker training, and target investment in vulnerable communities.

By doubling Illinois's investment in energy efficiency to cumulatively reduce electricity usage by 20 percent by 2025, and by ramping up the amount of renewable energy the state's utilities purchase to 35 percent by 2030, Illinois

would be a net exporter of both electricity and carbon allowances or credits, giving the state a new clean resource to export, similar to any other Illinois exports such as corn or soy. Moreover, by increasing the state's clean energy development, it is expected that the Illinois Clean Jobs bill would put tens of thousands of people to work across the state, employing an average of 32,000 people each year, according to the Illinois Science and Technology Institute.¹⁰ Electricity customers would save an average of \$100 a year on their utility bills through the increase in energy efficiency, according to the Citizens Utility Board, a consumer watchdog group.¹¹

PRIMARY POLICY OPTIONS

States can pick from a number of policy approaches to reduce carbon pollution. The following are key conclusions from extensive analyses of state plan options under the Clean Power Plan.¹³

- Significant pollution reductions can be achieved at very low cost with energy efficiency and renewable energy. Energy efficiency is a smart and cost-effective option, and these clean energy investments have been found to reduce customers' energy bills.
- Because regional approaches that create larger trading markets significantly reduce costs, states across the country are exploring regional policy approaches and trading, from developing a regional plan to writing individual plans with common elements and trading across borders. Regional consistency also reduces market distortions and pollution "leakage" across state borders.
- The lowest-cost policy choice is a mass-based approach, as long as the allowance value or permit revenue is paid for by polluters and reinvested for customer benefit.

The best compliance approaches are simple, tested, and low-cost. They have high environmental integrity and are easily interconnected across states and regions. A mass-based approach—paired with essential, complementary clean energy policies—would fulfill all these criteria.

WHY ARE COMPLEMENTARY POLICIES IMPORTANT IN A MARKET-BASED FRAMEWORK?

As Illinois has demonstrated, clean energy policies can drive economic gain and reduce emissions. While these policies need not be included in a state plan to demonstrate enforceable limits on carbon emissions, they can complement a market-based compliance strategy to ensure the lowest-cost and most effective carbon pollution reductions.

Investment in energy efficiency and renewable energy can provide numerous benefits to customers, including lower wholesale prices, reduced energy bills, and less reliance on volatile fuel markets.¹⁴ These investments can also lower the overall costs and maximize the benefits of a market-based emissions reduction program. A recent analysis of states participating in the Regional Greenhouse Gas Initiative (RGGI) found that net economic benefits and job creation were highest in states with the greatest levels of reinvestment in energy efficiency.¹⁵

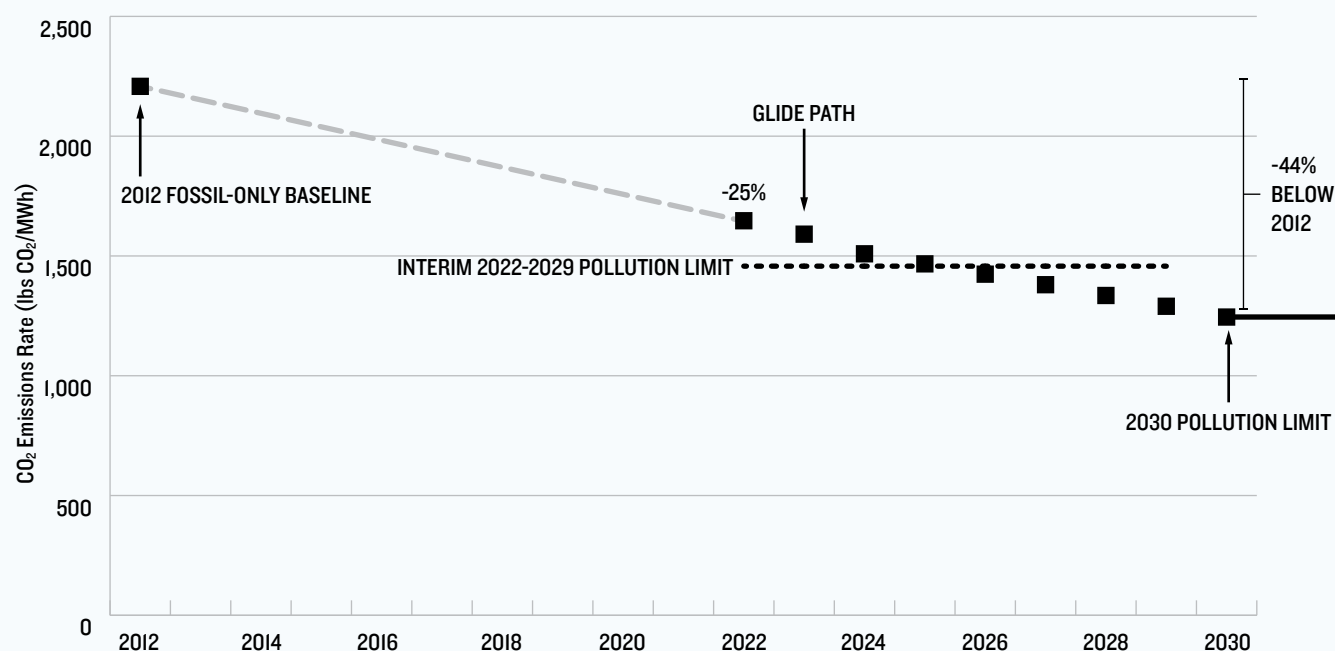
WHAT IS THE CARBON POLLUTION LIMIT FOR POWER PLANTS IN ILLINOIS?

After unprecedented stakeholder outreach and review of millions of public comments, the EPA carefully reconsidered and revised its emissions limits to be more consistent nationally, accounting for the interconnected nature of the electric grid. The EPA set separate, nationally uniform rates for coal and natural gas power plants, treating all plants equally. Illinois's rate-based limit is based on the share of each of those resources within the state. The final (2030) rate-based emissions limit for power plants in Illinois is 1,245 pounds of CO₂ per MWh generated. The EPA provides additional guidance on how to convert rate-based emissions limits into mass-based emissions limits, and NRDC has analyzed compliance with Illinois's mass-based limit (covering existing and new sources) in Figure I on page 2.

Table I: Carbon Pollution Limits for Illinois Power Plants

Period	Rate-based limit (lbs CO ₂ /MWh)	Mass-Based Limit, All sources (short tons)
Baseline (2012)	2,208	96, 106, 169
Interim Period 2022-2029	1,456	75, 619, 224
2030 & Beyond Target	1,245	67, 199, 174

FIGURE 2: CARBON POLLUTION LIMITS FOR ILLINOIS'S POWER PLANTS



INCENTIVES FOR EARLY INVESTMENTS IN RENEWABLES AND ENERGY EFFICIENCY

Early investments in renewables and energy efficiency can help states comply in two ways. First, in a rate-based policy approach, a power plant can purchase credits from energy efficiency, wind, solar, and other renewable energy projects developed after 2012 and still generating electricity in 2022 and beyond. In a mass-based approach, the non-emitting energy efficiency and renewable energy will also contribute to meeting the emissions goal and reduce costs.

In addition, the final Clean Power Plan creates the voluntary Clean Energy Incentive Program (CEIP). The CEIP is designed to recognize emissions reductions that occur before the compliance period begins in 2022. It will allow states to give bonus allowances or credits—which have monetary value—to qualifying renewable electricity generation and energy efficiency investments in low-income communities in 2020 and 2021. Renewable energy and energy efficiency projects are eligible if they are initiated after the state submits its complete state plan—creating an incentive for states to complete their plans early.

NEXT STEPS FOR ILLINOIS

While states have flexibility to decide on any pollution reduction pathway, some approaches will result in more benefits for the environment, the economy, and electricity customers. Table 2 outlines key decision steps for Illinois to consider as the state designs a plan to meet the carbon pollution limits for its power plants.

These policy options work with many available cost-effective programs that deliver clean energy benefits and keep electricity affordable for everyone, including low-income communities.¹⁶ Prioritizing investment in

energy efficiency and renewable energy will keep costs down and avoid overutilizing natural gas.

As Illinois considers the full range of options to reduce carbon pollution from power plants operating in the state, an open and transparent process is essential to crafting a strong state plan that meets all of Illinois's goals. Robust engagement with the full range of interested stakeholders will ensure that Illinois chooses the best path forward, reducing its reliance on fossil fuels and moving toward a clean energy future.

Table 2: Three key decision steps for developing a state plan

Decision Steps	Description
Choose a rate-based or mass-based approach	Option 1: Rate-based, Blended Rate Each generator must meet the state-wide emissions limit in pollution per unit of electricity generated (lbs CO ₂ /MWh). Fossil power plants that pollute above the intensity standard must buy credits from generators or efficiency providers that operate below the standard.
	Option 2: Rate-based, Dual Rate Each generator must meet applicable emissions rate limit (steam or NGCC) in pollution per unit of electricity generated (lbs CO ₂ /MWh). Fossil steam units that pollute above the steam rate must buy credits from new non-emitting resources (including efficiency) or incremental NGCC generation (above 2012 levels). NGCC units can only purchase credits from new non-emitting resources (including efficiency).
	Option 3: Mass-based, Existing Sources Only The state has a total emissions limit (tons CO ₂) that is a fixed amount. The state limit includes some amount of load growth above 2012 levels. Existing power plants have to hold an allowance, issued by a state agency, for every ton of CO ₂ emitted. These allowances could be auctioned, with the value returned to customers or used to expand complementary programs.
	Option 4: Mass-based, All Sources (Existing and New) A state may choose to include new power plants in the mass-based standard, which has the advantage of treating all power plants the same in electric power markets, regardless of when they were built. Under this approach, the limit is adjusted upwards to account for the emissions of new power plants meeting any load growth that was not already covered in the limit for existing sources, above.
Opt for an individual state plan or a plan linked with other states	The state can submit its own individual plan or coordinate with neighboring states on common policy approaches. Regional approaches include both formal multistate plans and agreements to link, such as adopting common elements to facilitate trading. Linkage and trading are likely to be much easier under a mass-based approach. Benefits of regional coordination include: • LOWER COST—A larger market is more efficient and reduces costs. • IMPROVED ENVIRONMENTAL OUTCOME—Regional approaches avoid different price signals across state boundaries, which also helps avoid emissions leakage and higher-than-anticipated national emissions. • STRONGER ELECTRIC GRID—A larger market and additional flexibility reduce concerns about electric grid reliability. • EQUAL TREATMENT—Generators, market participants, and customers face more consistent market signals, costs, and benefits.
Formulate state plan details and complementary policies	• In a mass-based approach, the state has to decide how to distribute allowances and either return the value to customers or give away the value to emitters. If pollution allowances are auctioned to emitters, the state will generate revenue that can be reinvested to reduce customers' electricity bills through energy efficiency investments, rebates, or other state programs. • Complementary measures like clean energy standards and improved utility rate designs can also help address market barriers to investment. • Complementary policies can also address important equity issues for workers in transition, people of color, low-income communities, and others. Complementary policies may include worker retraining, investments in energy efficiency, and direct bill assistance.

ENDNOTES

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- 12 The Natural Resources Defense Council has analyzed Illinois’s compliance trajectory using the Clean Power Plan compliance tool developed by MJ Bradley & Associates. This tool, designed to perform a simple resource analysis for each state, is available at www.mjbradley.com/about-us/case-studies/clean-power-plan-evaluation-tools. Note: the clean energy scenario (blue) emissions projection in Figure 1B corresponds to the “Achieved” line in the tool for the different scenarios. This scenario assumes clean energy displaces in-state coal. This may be similar to a policy scenario envisioned in the Illinois Clean Jobs legislation (S.B. 1485/H.B. 2607) in which Illinois adopts a mass-based cap with regional trading while ramping up renewable energy and energy efficiency standards, which would create an incentive for clean energy to displace in-state fossil emissions below the cap—allowing Illinois to sell excess allowances. Other assumptions: new NGCCs run at a capacity factor of 55 percent; new power plants are covered by the emissions limit. For simplicity, this analysis assumes all projects in the interconnection queue are built. However, not all of this capacity is necessarily likely to be built, in which case Illinois could comply with less displacement of existing in-state fossil generation. This assumption can be adjusted in the Interconnection Queue feature.
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