

THE CLEAN POWER PLAN: Protecting Iowa Agriculture & Working Lands

The Clean Power Plan to cut carbon pollution from U.S. power plants 32% by 2030 will protect Iowa agriculture, improve our economy, and increase our energy independence – all while maintaining an affordable, reliable energy supply.¹

Carbon Pollution is Costing Iowa Agriculture

Carbon pollution (i.e., carbon dioxide or CO₂) contributes to increased challenges for agricultural producers. While the impacts of carbon pollution occur over time, they are costing Iowa farmers *today*.

Increased Weed Growth & Management Costs

Weeds are the largest cause of global crop production losses, costing the U.S. more than \$11 billion per year in weed control.² Increased carbon pollution will make weed management even more difficult and costly:

- Rising carbon pollution **increases weed growth** and sources of invasive species,³ creating more competition between crops and weeds.⁴
- The most widely used herbicide in the U.S., **glyphosate (RoundUp™)**, **loses its efficacy** on weeds grown at projected carbon pollution levels.⁵ More chemicals and more frequent spraying will be needed to maintain current efficacy, increasing time and input costs for farmers.⁶

Increased Insect Pressure & Crop Diseases

Insects and diseases are the second and third highest causes of global crop production losses after weeds.⁷ As carbon pollution levels rise, these challenges are also likely to become more costly:⁸

- The Japanese beetle,⁹ western corn rootworm,¹⁰ soybean looper,¹¹ and soybean aphid,¹² are among **insects that thrive better** with elevated levels of carbon pollution in the air.¹³ Increased pressure from these insects will cause increased damage to crops¹⁴ and increase pest management costs due to more frequent application of pesticides.¹⁵
- Elevated carbon pollution contributes to conditions that may **accelerate the evolution of plant pathogens**¹⁶ and increase the “survival and proliferation of disease-causing agents.”¹⁷

Increased Weather Variability

Carbon pollution contributes to increased weather variability,¹⁸ making it more difficult for Iowa farmers to manage risk, maintain profits, or simply get into the field:

- In 2012, farmers faced **drought conditions** that led to reduced crop production and even complete crop failure in some locations.¹⁹ Many Iowa farmers then experienced **flooding, excessive rainfall** and cool spring temperatures in 2013 that delayed planting and even prevented entire planting in areas.²⁰ This wet period was again followed by another unusually dry summer and early fall, further decreasing production.²¹
- Shifting precipitation patterns have **reduced workable field days** during the April through mid-May period by 3.8 days.²²
- From 2008 to 2012 alone, **weather events cost Iowa \$5.6 billion in crop damage** and other economic losses.²³ In the future, increased weather variability is expected to alter soil water availability and temperature, potentially decreasing crop yields between 15 - 20%.²⁴

Increased Ozone & Crop Yield Losses

Carbon pollution contributes to conditions which increase concentrations of ground-level ozone:²⁵ By 2030, **soybean yield losses from ozone** alone are predicted to increase by 9-19%.²⁶

Increased Animal Feed Costs & Decreased Quality

Impediments to crop production from rising carbon pollution could negatively impact the availability, price, and even quality of livestock feed: “Elevated carbon pollution has been associated with reduced nitrogen and protein content, causing a reduction in grain and forage quality and reducing the ability of pasture and rangeland to support grazing livestock.”²⁷

Decreased Animal Health, Growth & Reproduction

- Carbon pollution contributes to increases in **stressful heat conditions** that can cause animals to alter their metabolic rates and behavior, potentially reducing efficiency in meat, milk or egg production.²⁸
- Carbon pollution contributes to conditions which can **increase the range and proliferation of livestock diseases** (e.g., anthrax, blackleg, and hemorrhagic septicemia).²⁹

Meeting the Challenge of Rising Carbon Pollution

Power plants are our nation's single largest source of carbon pollution.³⁰ Despite this fact, there have been *no limits* on the amount of carbon pollution power plants can emit.

- 80% of Iowans support limiting the amount of carbon pollution from power plants.³¹

The Clean Power Plan establishes these first-ever, federal limits on carbon pollution from existing power plants by setting state-specific carbon pollution reduction goals based on each state's energy portfolio. States have broad flexibility to determine how to best achieve their goal. Because Iowa is a national leader in wind energy generation and manufacturing, the state is well-equipped to meet its carbon reduction goal: Under the Clean Power Plan, Iowa has one of the least stringent state goals in the country.³²

The Clean Power Plan Will Increase Iowa's Energy Independence

Despite its leadership in wind energy, Iowa remains one of the most coal-dependent states in the country.³³ And because Iowa has no active coal mines within its borders, all of Iowa's coal demand must be imported from outside the state.³⁴

- \$590M is spent each year to import coal to Iowa, costing each Iowan \$193 annually.³⁵

The Clean Power Plan will help decrease Iowa's coal-dependence: By encouraging clean energy growth, the Clean Power Plan gives Iowans the opportunity to invest in their state's own renewable energy resources, and in turn increase Iowa's energy security and self-reliance.

The Clean Power Plan Will Strengthen Iowa's Economy

Meeting carbon reductions under the Clean Power Plan with wind energy would not only allow Iowa to become more energy independent, but would also provide economic benefits for rural landowners and local communities -- without any regulation of agriculture.

- Iowa farmers/landowners already receive more than \$16 million annually in lease payments from wind turbines.³⁶
- Total increased assessed value of property with wind turbines in Iowa through 2013 is estimated to be \$2.6 billion.³⁷

As a national leader in wind energy generation and manufacturing, Iowa's economy could benefit from helping to meet an increased demand for renewable energy.

- Iowa could sell its own excess wind energy to other states with more stringent carbon reduction goals or less clean energy to meet their own goals.
 - Iowa could also sell Iowa-made wind turbines and components to other states. Currently, Iowa has 15 manufacturing facilities that produce wind turbine parts,³⁸ and over 75 Iowa companies in the wind supply chain.³⁹
-

The Clean Power Plan Will Maintain Energy Affordability & Reliability

Increasing our self-reliance on renewable wind energy under the Clean Power Plan will increase our energy independence, helping to keep Iowa's electricity rates low and its energy supply stable.

- Iowa's electricity rates have remained below the national average during peak wind energy growth,⁴⁰ and our energy supply has remained stable. In fact, studies show that the grid can handle much higher levels of renewable energy while maintaining and even strengthening reliability.⁴¹
 - Iowans can expect increased savings under the Clean Power Plan. By 2030, the Clean Power Plan is projected to save the average American family about \$7 on their monthly electric bills (a savings of more than \$80 per year).⁴²
-

¹ This 32% estimated reduction is from 2005 carbon pollution levels. See, U.S. Environmental Protection Agency, *By the Numbers: Cutting Carbon Pollution from Power Plants*, <http://www.epa.gov/airquality/cpp/fs-cpp-by-the-numbers.pdf>

² J. Hatfield et al., Ch. 6: Agriculture, *Climate Change Impacts in the United States: The Third National Climate Assessment* (J. M. Melillo et al., eds., U.S. Global Change Research Program) 158 (2014), available at: <http://nca2014.globalchange.gov/report/sectors/agriculture>

³ *Id.*

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

⁹ *Id.*

¹⁰ *Id.*

¹¹ *Id.*

¹² *Id.*

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ *Id.*

²¹ *Id.*

²² *Id.*

²³ *Id.*

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ *Id.*

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.*

⁴² *Id.*