



Chapter 1: Program Basics

The Acid Rain Program (ARP) and the Clean Air Interstate Rule (CAIR) are cap and trade programs designed to reduce emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) from covered power plants. Both programs were in effect in 2013. The ARP covers power plants across the contiguous United States while CAIR covers power plants in 27 eastern states. The NO_x Budget Trading Program (NBP) operated from 2003 to 2008 in the eastern United States during the summer months and was replaced by CAIR in 2009. In 2015, EPA's Cross-State Air Pollution Rule (CSAPR) replaced CAIR.

Analysis and Background Information

Acid Rain Program

Title IV of the 1990 Clean Air Act (CAA) Amendments established the ARP to achieve reductions in SO₂ and NO_x emissions from coal-fired power plants. In contrast to traditional command and control regulatory methods that establish specific emissions limitations, the ARP introduced a novel allowance trading system that harnessed the incentives of the free market to reduce pollution. This was done in two phases. Phase I began in 1995 and affected the largest coal-burning units in 21 eastern and midwestern states. Phase II began in 2000 and expanded the program to include smaller units fired by coal, oil and gas. Under Phase II, EPA also tightened the annual SO₂ emissions limits, with a permanent annual cap set at 8.95 million allowances, starting in 2010. The NO_x program has a similar results-oriented approach and program integrity through measurement and reporting. However, it does not "cap" NO_x emissions as the SO₂ program does, nor does it utilize an allowance trading system. Instead, the ARP NO_x program provisions apply boiler-specific NO_x emission limits – or rates – in pounds per million British thermal units (lb/mmBtu) on certain coal-fired boilers.

NO_x Budget Trading Program

The NO_x Budget Trading Program (NBP) was a market-based cap and trade program created to reduce NO_x emissions from power plants and other large combustion sources to address regional pollution transport that contributes to ozone nonattainment in the eastern United States. The program was a central component of the NO_x SIP Call, promulgated in 1998. All 20 states covered by the NO_x SIP Call participated in the NBP, which operated from 2003 to 2008. In 2009, CAIR's NO_x ozone season program began, effectively replacing the NBP to continue achieving summertime NO_x emission reductions from the power sector.

Clean Air Interstate Rule

The Clean Air Interstate Rule (CAIR) required 24 eastern states to limit annual power sector emissions of NO_x and SO₂ to address regional transport that contributes to the formation of soot (fine particulate matter). It also required 25 states to limit ozone season power sector NO_x emissions to address regional transport that contributes to the formation of smog during the summer ozone season. Similar to the ARP, CAIR used three separate market-based cap and trade programs to achieve emission reductions.

The CAIR NO_x ozone season and annual programs began in 2009, while the CAIR SO₂ annual program began in 2010. CSAPR replaced CAIR starting on January 1, 2015.



Cross-State Air Pollution Rule

EPA issued the Cross-State Air Pollution Rule (CSAPR) in July 2011. As amended, CSAPR requires 28 states in the eastern half of the United States to significantly improve air quality by reducing power plant emissions that cross state lines and contribute to ozone and fine particle pollution in other states. CSAPR was scheduled to replace CAIR starting on January 1, 2012. However, the timing of CSAPR's implementation was affected by D.C. Circuit actions that stayed and then vacated CSAPR before implementation. On April 29, 2014, the U.S. Supreme Court reversed the D.C. Circuit's vacatur, and on October 23, 2014, the D.C. Circuit granted EPA's motion to lift the stay and shift the CSAPR compliance deadlines by three years. Accordingly, CSAPR Phase I implementation began January 1, 2015, with Phase II to begin in 2017.

Next Steps to Address Interstate Air Pollution Transport

EPA is working with state partners on the next steps to address transported air pollution for more recently finalized health-based air quality standards, specifically the 2008 ozone NAAQS. In addition, EPA will continue supporting efforts across the United States that reduce SO₂ and NO_x emissions by implementing existing programs, finalizing pending rules, and working with regional, state, and local air quality planners to evaluate the need for complementary clean air actions.

Key Points

The Acid Rain Program (ARP)

- The ARP covers fossil fuel-fired power plants across the contiguous United States and sets annual emission requirements for SO₂ and NO_x, the primary precursors of acid rain.
- The SO₂ program sets a permanent cap on the cumulative amount of SO₂ that may be emitted by electricity generating units (EGUs). The final annual SO₂ cap is set at 8.95 million tons, a level of about one-half of the emissions from the power sector in 1980.
- NO_x reductions under the ARP are achieved through a rate-based approach that applies to a subset of coal-fired EGUs.

The NO_x Budget Trading Program (NBP)

- The NBP was a cap and trade program which operated from 2003 to 2008, requiring NO_x emission reductions from affected power plants and industrial units in 20 eastern states and D.C. during the summer ozone season (May to September).
- In 2009, the CAIR NO_x ozone season program replaced the NBP to continue summertime NO_x reductions from the power sector.

The Clean Air Interstate Rule (CAIR)

- CAIR required 27 eastern states and the District of Columbia to reduce power sector SO₂ and/or NO_x emissions to address regional interstate transport for the 1997 PM_{2.5} and ozone National Ambient Air Quality Standards (NAAQS). CAIR required reductions in annual emissions of SO₂ and NO_x from power plants in 24 states and D.C. and emission reductions of NO_x during the ozone season from 25 states and D.C.



<http://www.epa.gov/airmarkets/progress>

- CAIR included three separate cap and trade programs to achieve the required reductions: the CAIR SO₂ annual trading program, the CAIR NO_x annual trading program, and the CAIR NO_x ozone season trading program.
- A December 2008 court decision kept the requirements of CAIR in place temporarily but directed EPA to issue a new rule to address interstate transport. CAIR was replaced by CSAPR starting on January 1, 2015.

The Cross-State Air Pollution Rule (CSAPR)

- CSAPR was developed in response to the December 2008 court decision on CAIR and replaced CAIR starting on January 1, 2015.
- CSAPR addresses regional interstate transport of fine particle and ozone pollution for the 1997 ozone and PM_{2.5} NAAQS and the 2006 PM_{2.5} NAAQS. CSAPR requires a total of 28 eastern states to reduce annual SO₂ emissions, annual NO_x emissions and/or ozone season NO_x emissions.
- CSAPR includes three separate cap and trade programs to achieve these reductions: the CSAPR SO₂ annual trading program, the CSAPR NO_x annual trading program, and the CSAPR NO_x ozone season trading program.

More Information

Acid Rain Program (ARP) <http://www.epa.gov/airmarkets/programs/arp/index.html>

Clean Air Interstate Rule (CAIR) <http://www.epa.gov/airmarkets/programs/cair/index.html>

NO_x Budget Trading Program (NBP) / NO_x SIP Call <http://www.epa.gov/airmarkets/programs/nox/>

Cross State Air Pollution Rule (CSAPR) <http://www.epa.gov/airtransport/CSAPR/index.html>

Cap and Trade Basics <http://www.epa.gov/airmarkets/programs/capandtrade.html>



Figures

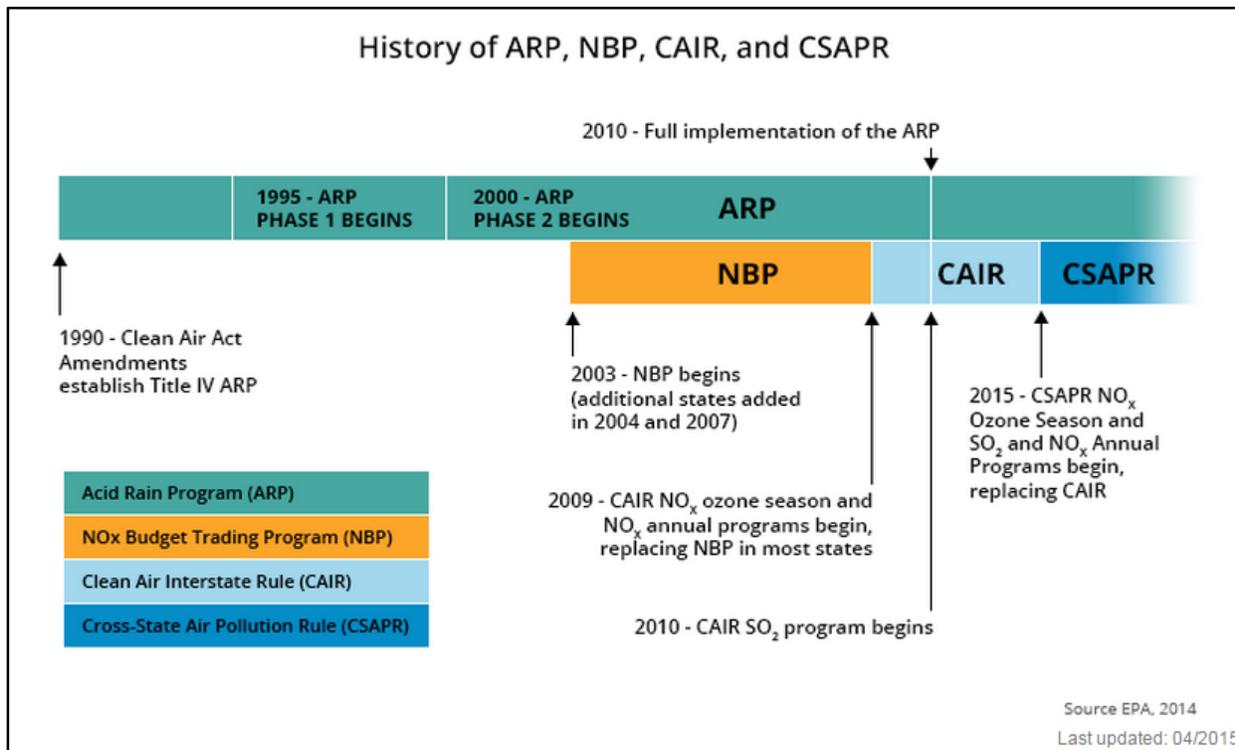


Figure 1. History of ARP, NBP, CAIR, and CSAPR

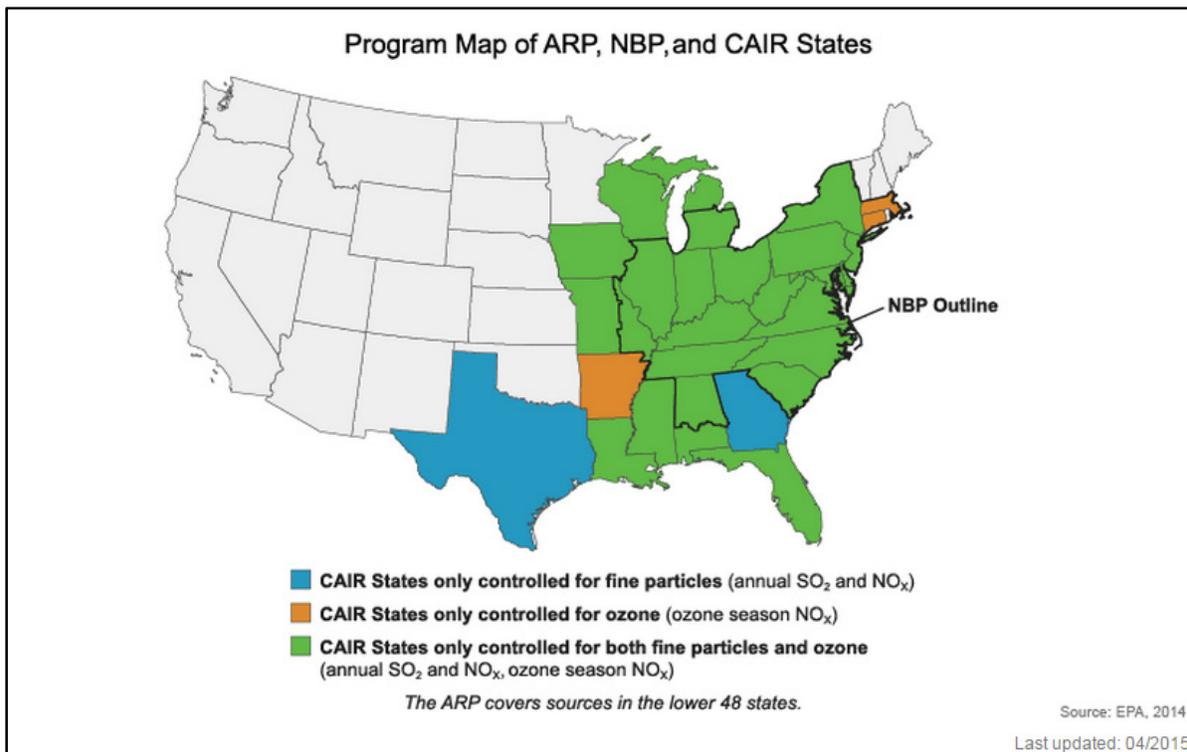


Figure 2. Program Map of ARP, NBP, and CAIR States

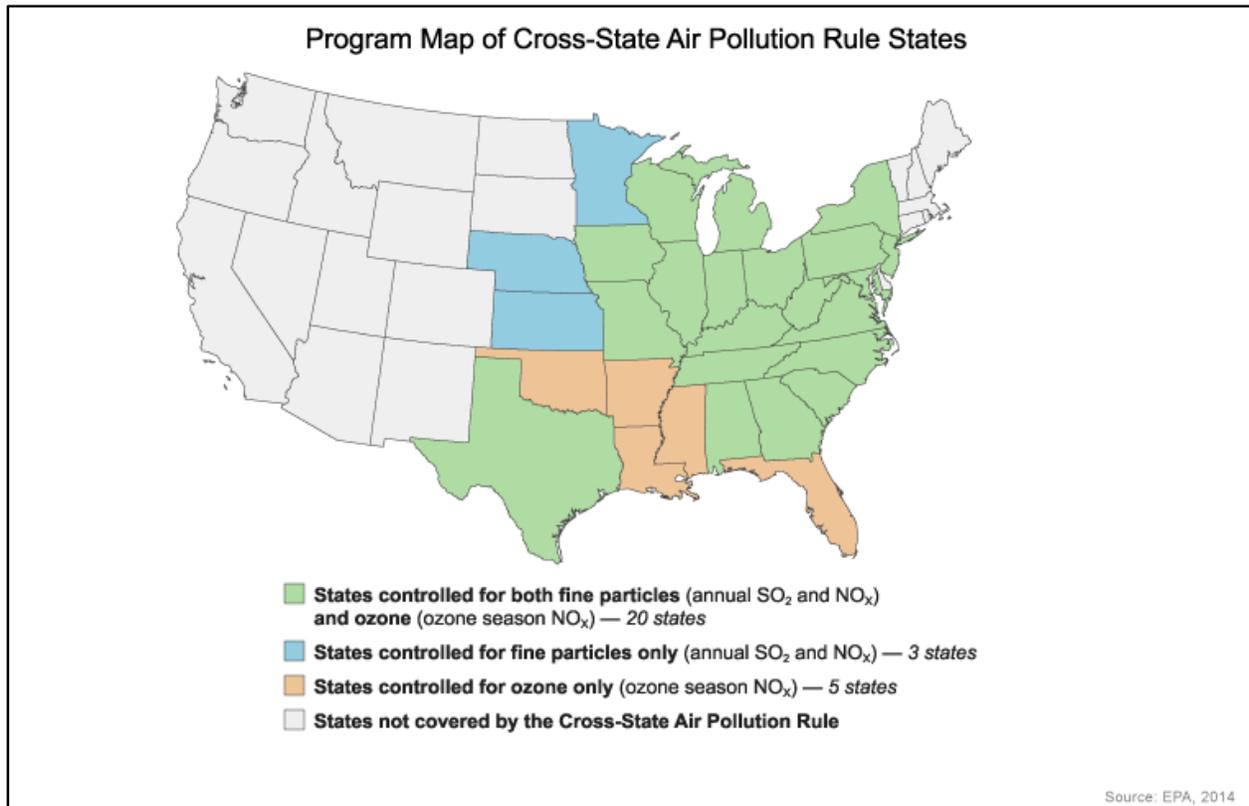


Figure 3. Large Map of Cross-State Air Pollution Rule