

US EPA ARCHIVE DOCUMENT



# **The Clear Skies Act of 2003**



## **District of Columbia and Clear Skies**



# Highlights of Clear Skies in the District of Columbia

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- **District of Columbia emissions of NO<sub>x</sub> remain unchanged in 2020 due to Clear Skies. Because there are no coal-fired units in the District of Columbia, EPA projects no emissions of SO<sub>2</sub> or mercury.**
- **The health benefits in the District of Columbia would total \$360 million annually (\$66 million under the alternative estimate) and include approximately 50 fewer premature deaths (30 under the alternative estimate).**
- **In addition, the District of Columbia would receive environmental benefits including improved visibility and reduced nitrogen loading in waterways.**
- **Clear Skies does not significantly impact electricity prices. With or without Clear Skies, electricity prices in the electricity supply region that includes the District of Columbia are expected remain near or below 2000 prices.**

# Clear Skies: An Innovative Approach to Improving Human Health and the Environment

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## Why Clear Skies?

- **Air quality has improved, but serious concerns persist**
  - The District of Columbia's citizens suffer ill effects from air pollution, including asthma attacks and premature death
- **Electricity generation sector remains a major emissions source**
  - Very cost-effective to control the power sector, relative to other sources
  - Sources are concerned about upcoming complex and burdensome regulations

## Advantages of the Clear Skies Approach

- **Guarantees significant nationwide emissions reductions – beginning years before full implementation**
  - Delivers dramatic progress towards achievement of critical health and environmental goals
- **Uses proven, market-based flexible approach with incentives for innovation**
  - Recognizes environmental needs as well as industry constraints, allowing industry to better manage its operations and finances while lowering risks to the public
  - Sources are projected to install pollution controls to enable continued reliance on coal
- **Increases certainty across the board for industry, regulators, and consumers**

# Clear Skies Sets a Firm Timeline for Emission Reductions

**2004: The NO<sub>x</sub> SIP call (summertime NO<sub>x</sub> cap in 19 Eastern States + D.C.)**

**2004**

The existing Title IV SO<sub>2</sub> cap-and-trade program provides an incentive and a mechanism to begin reductions upon enactment of Clear Skies years before regulatory action under the current Act.

**2008: Clear Skies NO<sub>x</sub> Phase I (2.1 million ton annual cap assigned to two Zones with trading programs)**

**2008**

**2010: Clear Skies Hg Phase I (26 ton annual cap with a national trading program)**

**2010**

**2010: SO<sub>2</sub> Phase I (4.5 million ton annual cap with a national trading program)**

**2018: Clear Skies NO<sub>x</sub> Phase II (1.7 million ton annual cap assigned to two Zones with trading programs)**

**2018**

**2018: Clear Skies Hg Phase II (15 ton annual cap with a national trading program)**

**2018: Clear Skies SO<sub>2</sub> Phase II (3.0 million ton annual cap with a national trading program)**

# Under Current Clean Air Act Power Plants Would Face a Complex Set of Requirements

## NSR Permits for new sources & modifications that increase emissions

### Ozone

1-hr Serious Area Attainment Date

Designate areas for 8-hr Ozone NAAQS

1-hr Severe Area Attainment Date

Marginal 8-hr Ozone NAAQS Attainment Date

8-hr Ozone Attainment Demonstration SIPs due

Assess Effectiveness of Regional Ozone Strategies

Moderate 8-hr Ozone NAAQS Attainment Date

Possible Regional NO<sub>x</sub> Reductions ? (SIP call II)<sup>1</sup>

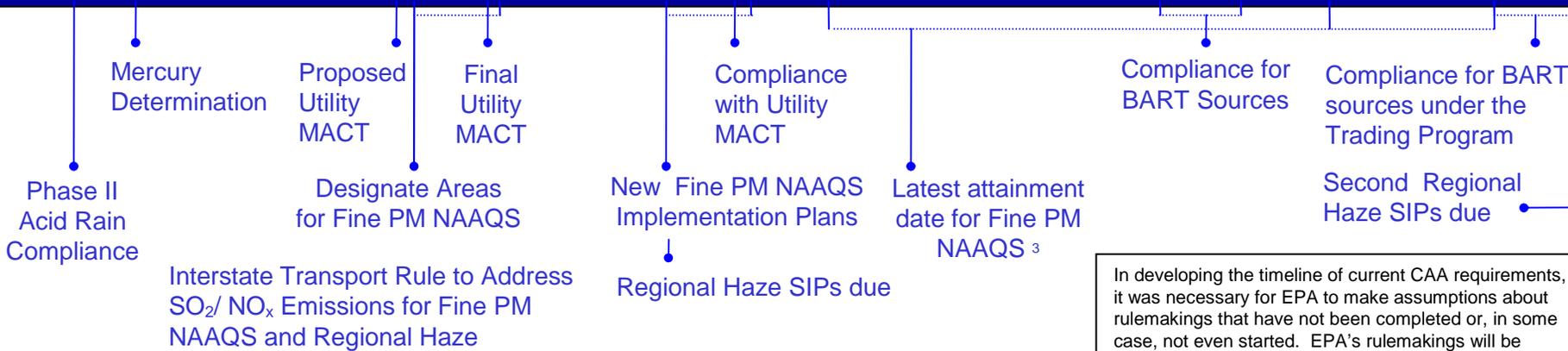
**Note:** Dotted lines indicate a range of possible dates.

<sup>1</sup> Further action on ozone would be considered based on the 2007 assessment.

<sup>2</sup> The SIP-submittal and attainment dates are keyed off the date of designation; for example, if PM or ozone are designated in 2004, the first attainment date is 2009

EPA is required to update the new source performance standards (NSPS) for boilers and turbines every 8 years

Serious 8-hr Ozone NAAQS attainment Date



### Acid Rain, PM<sub>2.5</sub>, Haze, Toxics

In developing the timeline of current CAA requirements, it was necessary for EPA to make assumptions about rulemakings that have not been completed or, in some case, not even started. EPA's rulemakings will be conducted through the usual notice-and-comment process, and the conclusions may vary from these assumptions.

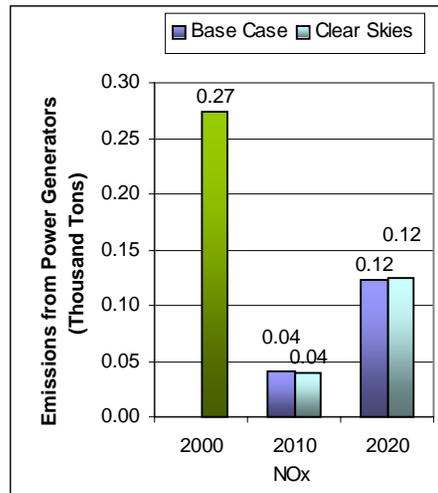
# Emissions in the District of Columbia under Clear Skies

Emissions in the District of Columbia (2020) would be significantly reduced from 2000 levels:

- 54% reduction in NO<sub>x</sub> emissions

***There are no coal-fired units in the District of Columbia and EPA projects no emissions of SO<sub>2</sub> or mercury in D.C.***

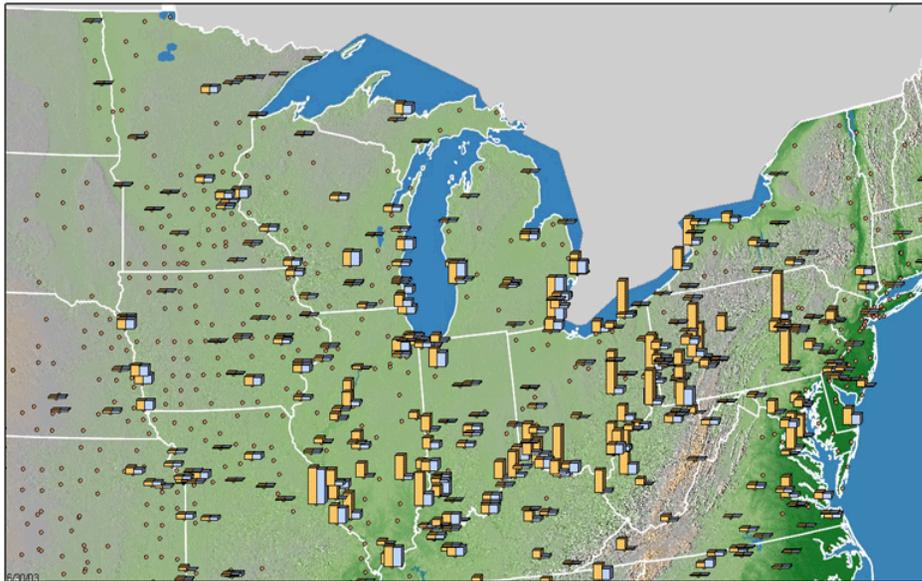
**Nitrogen Oxide Emissions: Current (2000) and Existing Clean Air Act Regulations (base case\*) vs. Clear Skies in the District of Columbia in 2010 and 2020**



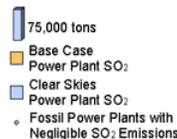
Note: The base case using IPM includes Title IV, the NO<sub>x</sub> SIP Call, NSR settlements, and state-specific caps in CT, MA, MO, NC, NH, TX, and WI. It does not include mercury MACT in 2007 or any other potential future regulations to implement the current ambient air quality standards or other parts of the Clean Air Act. Base case emissions in 2020 will likely be lower due to state and federal regulatory actions that have not yet been promulgated.

# Emission Reductions under Clear Skies

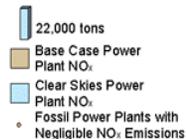
Emissions in the District of Columbia and surrounding states would decrease considerably. These emission reductions would make it much easier for the District of Columbia to comply with the national air quality standards.



Projected SO<sub>2</sub> Emissions from Power Plants with the Base Case and Clear Skies (2020)  
Midwest



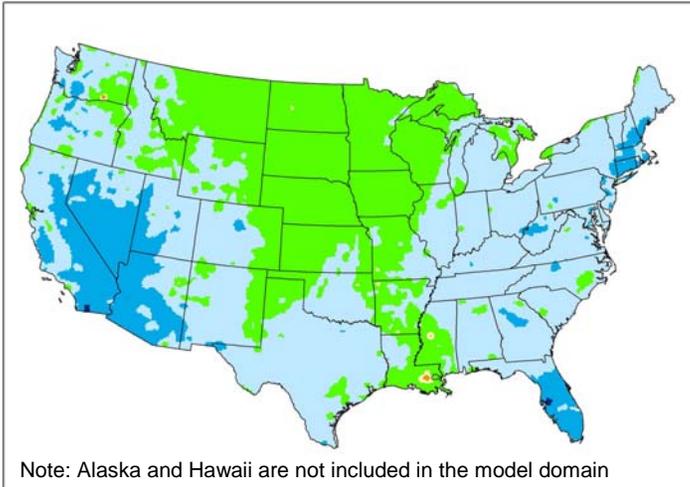
Projected NO<sub>x</sub> Emissions from Power Plants with the Base Case and Clear Skies (2020)  
Midwest



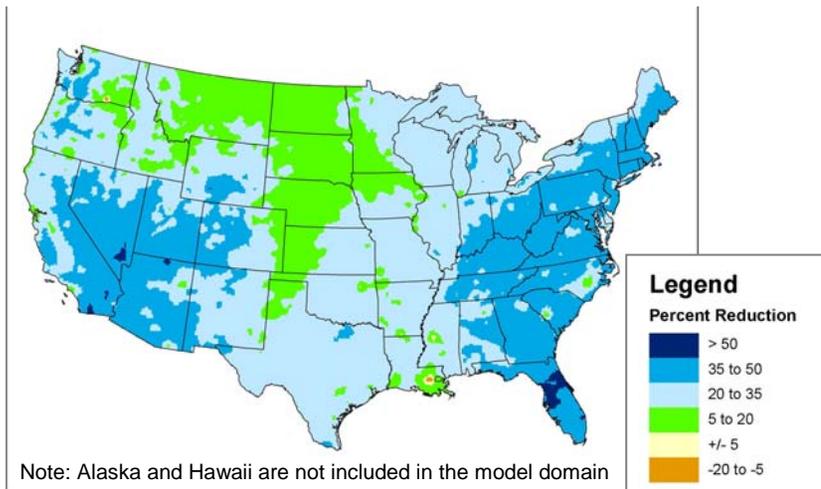
Note: The base case in IPM includes Title IV, the NO<sub>x</sub> SIP Call, NSR settlements, and state-specific caps in CT, MA, MO, NC, NH, TX, and WI. It does not include mercury MACT in 2007 or any other potential future regulations to implement the current ambient air quality standards or other parts of the Clean Air Act. Base case emissions in 2020 will likely be lower due to state and federal regulatory actions that have not yet been promulgated. Emissions projected for new units in 2020 are not reflected.

# Clear Skies Environmental Benefits in the District of Columbia

## Projected Changes in Nitrogen Deposition in the District of Columbia with the Base Case in 2020 Compared to 2001



## Projected Changes in Nitrogen Deposition in the District of Columbia with Clear Skies and the Base Case in 2020 Compared to 2001



## Clear Skies Provides Environmental Benefits in the District of Columbia

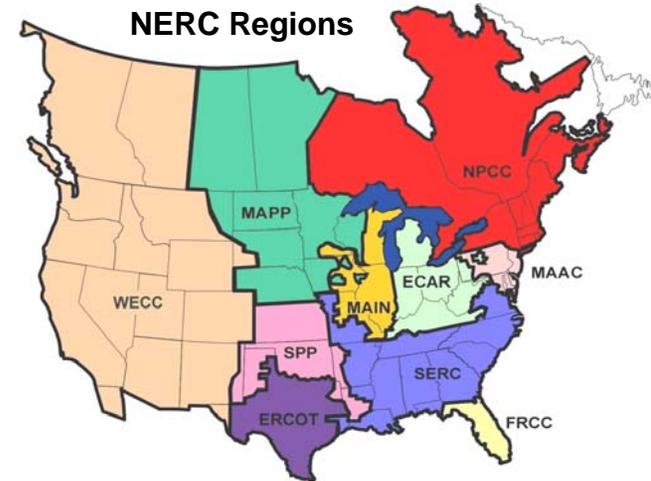
In comparison to existing programs,

- Visibility would improve perceptibly in the District of Columbia.
  - The value of improved visibility for District of Columbia residents who visit National Parks and Wilderness areas nationwide would be \$11 million each year by 2020.
- Sulfur deposition, a primary cause of acid rain, would decrease by 30-60%.
- Comparing the maps at left indicates that oxidized nitrogen deposition to the Chesapeake Bay watershed would be reduced by up to 20% beyond what is expected under the Base Case.
  - Chesapeake Bay States, including NY, VA, MD, PA, DE, WV and DC, recently agreed to incorporate the nitrogen reductions resulting from Clear Skies legislation as part of their overall plan to reduce nutrient loading to the Bay.
- Mercury deposition would decrease by 5-15% across much of the state and up to 60% in some areas.\*

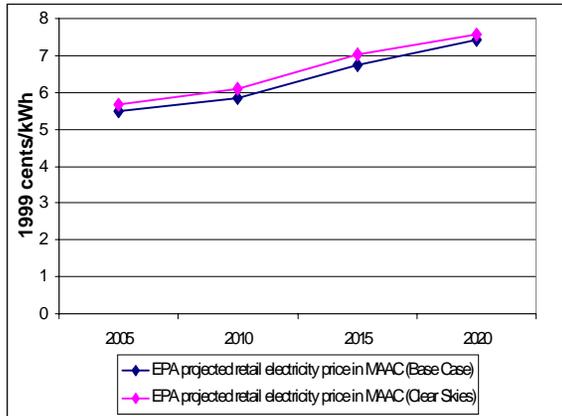
\* These results are based on modeling the Clear Skies mercury cap without triggering the safety valve.

# Electricity Prices in the District of Columbia under Clear Skies

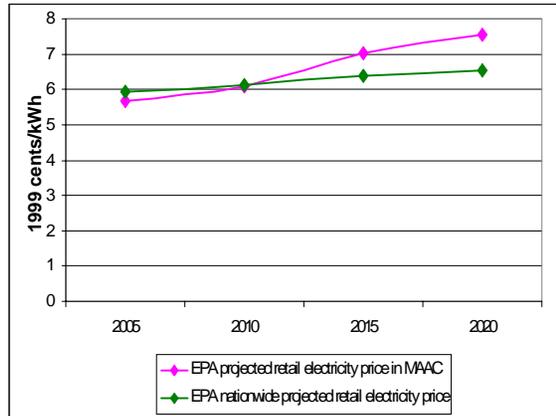
- With or without Clear Skies, retail prices in the North American Electric Reliability Council (NERC) MAAC region (the electricity supply region that contains the District of Columbia) are projected to increase between 2005 and 2020.
- With Clear Skies, retail prices are projected to be approximately 2.1 – 4.2% higher between 2005 and 2020 than in the absence of the legislation.



Projected Retail Electricity Prices in the District of Columbia under the Base Case and Clear Skies (2005-2020)



Projected National Retail Electricity Prices and Prices in the District of Columbia under Clear Skies (2005-2020)



In 2000, the average retail electricity price in the District of Columbia was approximately 7.5 cents/kWh, which was above the average *national* retail price of approximately 6.7 cents/kWh.

Note: The base case using IPM includes Title IV, the NO<sub>x</sub> SIP Call, NSR settlements, and state-specific caps in CT, MA, MO, NC, NH, TX, and WI. It does not include mercury MACT in 2007 or any other potential future regulations to implement the current ambient air quality standards or other parts of the Clean Air Act. Base case emissions in 2020 will likely be lower due to state and federal regulatory actions that have not yet been promulgated.

# Costs and Benefits in the District of Columbia under Clear Skies

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## Benefits Outweigh the Costs

- **In the District of Columbia, Clear Skies is projected to cost approximately \$13 million annually by 2020 while providing health benefits totaling approximately \$360 million annually.**
- **The increases in production costs under Clear Skies represent only a small percentage of total retail electricity sales revenue in the District of Columbia.**
  - Retail electricity sales revenue in the District of Columbia was almost \$0.8 billion in 2000.
  - Adjusting these sales revenues by the same growth rate used for the modeling of costs would result in revenues of \$1.2 billion annually in 2020.
- **Nationwide, the projected annual costs of Clear Skies (in \$1999) are \$4.3 billion in 2010 and \$6.3 billion in 2020; the nationwide benefits of Clear Skies are expected to be over \$113 billion annually by 2020.**
  - An alternate estimate projects annual health benefits totaling \$23 billion.

Note: Costs include capital costs, fuel, and other operation and maintenance costs (both fixed and variable) associated with the achievement of the emissions caps in the legislation (for example, the installation and operation of pollution controls). These state-level production costs are estimates; they do not account for the costs associated with the transfer of electricity across regions, nor the costs or savings that could be associated with allowance movement between sources.

### Clear Skies....

- **Guarantees significant emissions reductions – beginning years before full implementation**
- **Uses a proven and flexible market-based approach with incentives for innovation**
- **Increases certainty across the board for industry, regulators, and consumers**

# Notes on EPA's Analysis

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- The information presented in this analysis reflects EPA's modeling of the Clear Skies Act of 2003.
  - EPA has updated this information to reflect modifications:
    - Changes included in the Clear Skies Act of 2003.
    - Revisions to the Base Case to reflect newly promulgated rules at the state and federal level since the initial analysis was undertaken.
  - The Clear Skies modeling results presented include the safety valve feature
- This analysis compares new programs to a Base Case (Existing Control Programs), which is typical when calculating costs and benefits of Agency rulemakings.
  - The Base Case reflects implementation of current control programs only:
    - Does not include yet-to-be developed regulations such as those to implement the National Ambient Air Quality Standards.
  - The EPA Base Case for power sector modeling includes:
    - Title IV, the NO<sub>x</sub> SIP Call, NSR settlements, and state-specific caps in Connecticut, Massachusetts, Missouri, New Hampshire, North Carolina, Texas, and Wisconsin finalized before March 2003.
  - For air quality modeling, the Base Case also includes federal and state control programs, as well as the Tier II, Heavy Duty Diesel, and Non-Road Diesel rules.
- **For more information regarding the Clear Skies Act, please visit the EPA website:**

(<http://www.epa.gov/clearskies>)

