

Compliance with Cap and Trade Programs: The U.S. Experience

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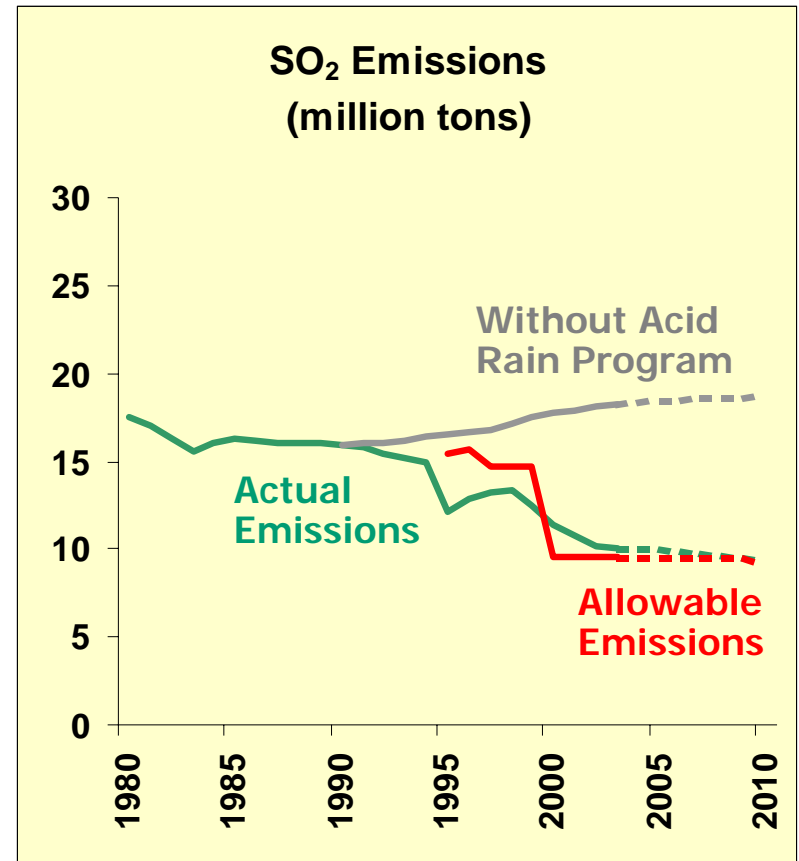


Overview of Presentation

- Brief introduction to U.S. SO₂ and NO_x programs
- 5 key elements of compliance/enforcement regime
 - Emissions measurement, reporting, verification
 - Allowance registries
 - Automatic excess emissions penalties and offsets
 - Enforcement actions for violations
 - Public access to emissions and trading data
- State vs. Federal roles on enforcement/compliance
- Addressing Spatial Issues (hotspots)
- Conclusions

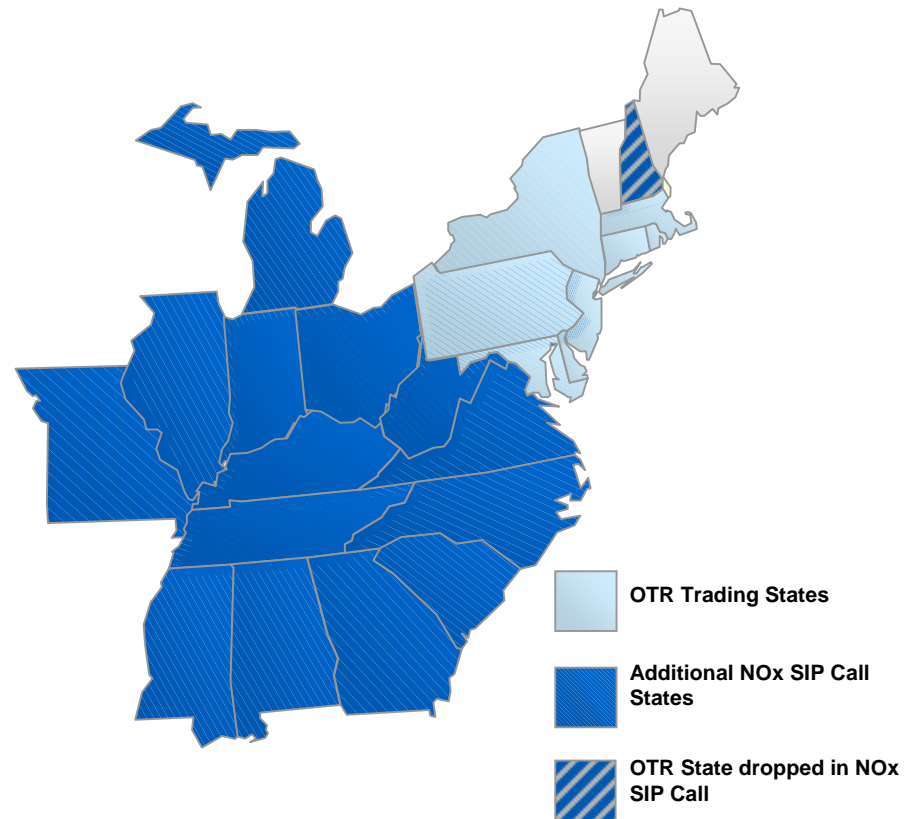
National SO₂ Trading Program

- **Goal:** Reduce acid deposition
- **Target:** Reduce SO₂ emissions from electric generators by 8.5 million tons (50% below 1980 levels)
- **Flexibility:** Trading and banking of allowances



Multi-State NO_x Programs

- Multi-state effort to reduce ozone levels
- Seasonal program- May – September
- Sources include electricity generators and industrial boilers
- Trading and banking



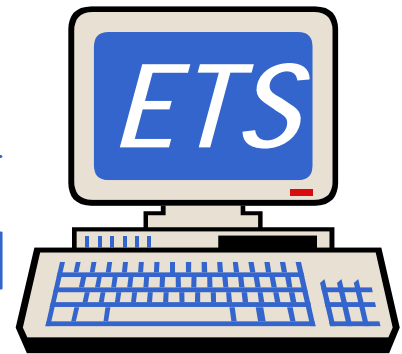
Emissions Measurement Goals for SO₂ and NO_x Programs

- Consistency
- Complete accounting with no underestimation
- Simplicity and transparency
- Incentives for accuracy and improvement
- Cost effectiveness and consistent administration
- Flexibility for small sources
 - 36% of the units must use Continuous Emissions Monitors (CEMS)
 - But this account for 96% of the total SO₂ emissions

Electronic Reporting and Feedback



Source electronically submits emissions data every quarter



EPA checks data quality and provides automated feedback to source



	Reporting Period or Quarterly	Cumulative or Cumulative Ozone Season	Annual	EPA Accepted
SO2	2633.4	5629.1	2633.4	2633.4
CO2	230774.0	601228.0	230774.0	230774.0
Heat Input	2249279.0	5013635.0	2249279.0	2249279.0
NOx Rate	0.3	0.3	0.3	0.3

Quality Assurance and Verification by EPA

- Certification of emissions monitoring systems
- Stringent daily, quarterly and annual QA checks and tests
- Conservative data substitution for missing data
 - Provides incentive for monitoring
 - Monitors running over 99% of the time
- Near 100% electronic auditing of emissions data
- Random on-site field audits and witnessing of QA tests

Allowance Registry

- Official record of allowance transfers
- Each allowance has a serial number
- Parties reach agreement, then authorise EPA to transfer allowances or transfer online
- Registry is not a trading platform

On-line Allowance Tracking System (OATS)

On-line Trading

Step 1 Please select the Account you want to transfer from; the Account you want to transfer to, and the Representative ID for that account; and for trades 'in perpetuity' check off the PERPETUITY FLAG

Transfer From

Account Number: 999900000482

Account Name: Allegheny Energy Supply Co, LLC

Representative ID: 17

Representative Name: David Benson

E-mail Address: dbenson@alleghenyenergy.com

Transfer To

00615000DG1A

Bellefonte

1110

Joseph Bynum

jrbynum@tva.gov

Perpetuity Flag

Step 2 Please select the Allowance blocks you want to transfer by checking them off.

Select	Year	Serial Start	Serial End	Amount
<input type="checkbox"/>	1998	5123472	5128620	5149
<input type="checkbox"/>	1999	5108373	5128620	20248
<input checked="" type="checkbox"/>	2000	8675672	8684565	8894
<input checked="" type="checkbox"/>	2001	8675673	8684565	8893
<input checked="" type="checkbox"/>	2002	8675672	8684565	8894
<input type="checkbox"/>	2003	8675673	8684565	8893

Compliance & Enforcement

- Annual reconciliation: Compare emissions with allowances and deducts one allowance for each ton of emissions
- Penalties for non-compliance
 - SO₂ Program:
 - Automatic offset (deduct allowance from next year's allocation)
 - Automatic financial penalty (\$2,900/ton of SO₂)
 - Possible civil and criminal penalties
 - NO_x Program
 - 3 allowances surrendered for each ton from next year's account (no automatic monetary penalty)
 - Possible civil and criminal penalties

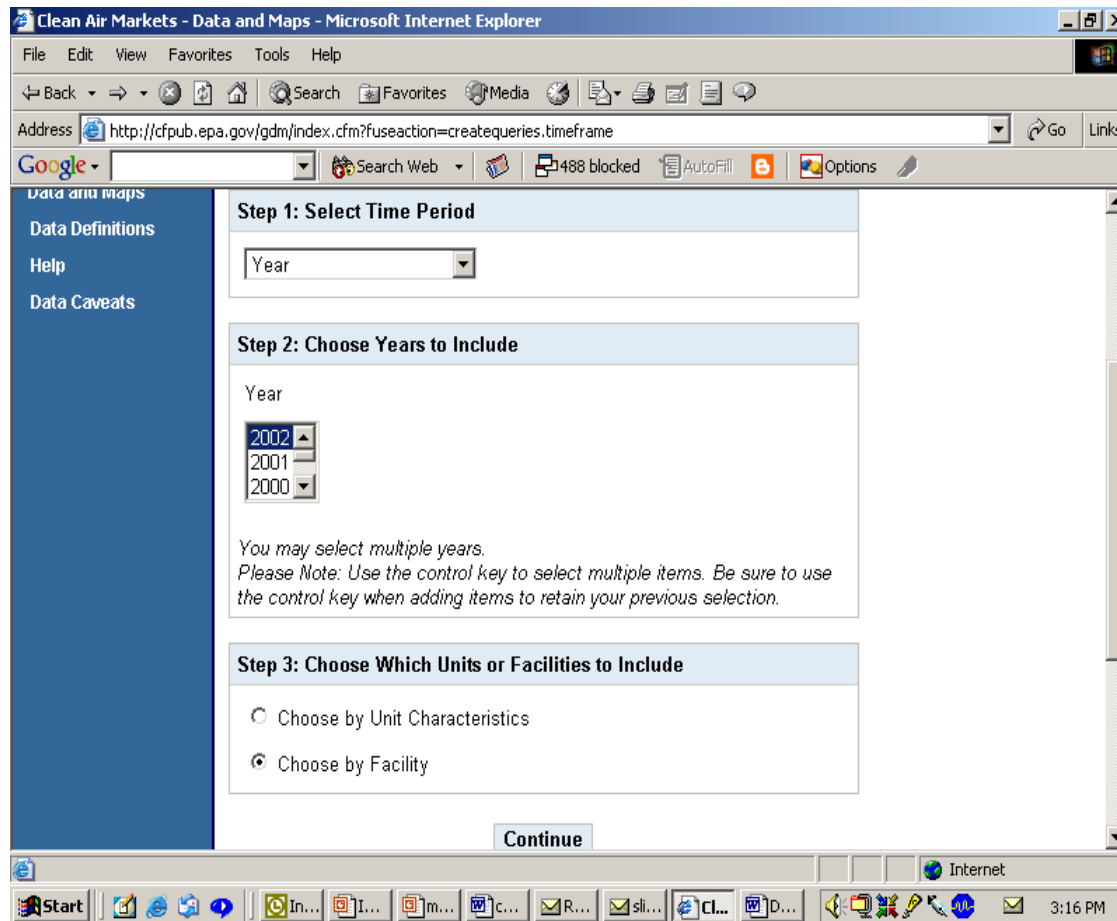
SO₂ Program—Compliance Rate

- 99.9% Compliance Rate
 - 15 excess emissions penalties over 9-year program life
 - Past penalties have ranged from \$2,682 to \$1,580,000
- Eight enforcement cases over 9 years
 - Average fine: \$50,000
 - Failure to install and operate monitors on time
 - Monitors installed, but failure to conduct periodic testing or report results

NO_x Program – Compliance Rate

- 99.9% Compliance Rate
 - 24 excess emissions penalties over the 4-year program life
 - Past penalties have ranged from 3 to 240 allowances

Public Access to Emissions Data



Public Access to Emissions Data

Clean Air Markets - Data and Maps - Microsoft Internet Explorer

Address: <http://cfpub.epa.gov/gdm/index.cfm?fuseaction=createqueries.output>

Google Search Web

488 blocked AutoFill Options

aveats

New Query **Print Report** **Download Data** **Report Definitions**

State Sort

All Columns Displayed

State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	SO ₂ Tons	CO ₂ Tons	NO _x Tons	Avg. NO _x Rate (lb/mmBtu)	Heat Input (mmBtu)	OP Hours
TX	Big Brown	3497	1	2002	43,412.8	5,354,234.0	3,810.0	0.15	50,485,256	8,278
TX	Big Brown	3497	2	2002	34,447.6	4,245,873.7	3,394.9	0.17	40,202,334	6,529
Totals					77,860.4	9,600,107.7	7,204.9		90,687,590	14,807

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Internet 3:23 PM

Public Access to Allowance Data

The screenshot shows a web browser window titled "EPA's Clean Air Market Programs: SO2 Allowance Tracking System: Transactions Report - Microsoft Internet Explorer". The address bar shows the URL: <http://www.epa.gov/airmarkets/tracking/ats/transactions.html>. The page content includes a navigation menu with links for Home, Business, Programs, Progress, Trading, Reports, Data and Maps, Monitoring, and Issues. The main heading is "SO2 Allowance Tracking System" followed by "Transactions Report".

The search form is organized into several sections:

- Geographic Location:** A dropdown menu currently set to "United States".
- Representative Last Name:** A text input field with a "Search Type" selector below it. The "Search Type" options are: :Exact, :Begins, and :Contains.
- Account ID:** Two text input fields labeled "Low:" and "High:".
- Account/Plant Name:** A text input field with a "Search Type" selector below it. The "Search Type" options are: :Exact, :Begins, and :Contains.
- Confirmation Date Range:** A section with the instruction "use yyyyymmdd (e.g., 12/20/2000 is entered as 20001220)" and two text input fields labeled "Start Date:" and "End Date:".
- Transaction Type Description:** A dropdown menu.

At the bottom of the form, there is a "Rows to view:" dropdown menu set to "50" and a "Submit Report" button. The browser's status bar at the bottom shows "Done" and "Internet".

Public Access to Allowance Data

Internet query capability

Transaction Report - Netscape

Location: <http://www.epa.gov/6703/atstdcd/owa/tpcttl>

ATS - Transaction Report

Event Num	Transaction Description	Transferee ID	Transferee Name	State	Transferee Rep	Transferor ID
2134	Purchase at EPA Auction	999900000048	Cantor Fitzgerald Brokerage		Bartels Carlton	000000000000
2168	Private Transfer	999900000044	Cantor Fitzgerald Brokerage		Bartels Carlton	002835000000
2169	Private Transfer	999900000044	Cantor Fitzgerald Brokerage		Bartels Carlton	002835000000
2170	Private Transfer	999900000044	Cantor Fitzgerald Brokerage		Bartels Carlton	002835000001
2171	Private Transfer	999900000044	Cantor Fitzgerald Brokerage		Bartels Carlton	002835000001
2172	Private Transfer	999900000044	Cantor Fitzgerald Brokerage		Bartels Carlton	002836000001
2173	Private Transfer	999900000044	Cantor Fitzgerald Brokerage		Bartels Carlton	002837000000
2174	Private Transfer	999900000044	Cantor Fitzgerald Brokerage		Bartels Carlton	002838000001
2175	Private Transfer	999900000044	Cantor Fitzgerald Brokerage		Bartels Carlton	002049000000
2176	Private Transfer	999900000044	Cantor Fitzgerald Brokerage		Bartels Carlton	000026000000
2177	Private Transfer	999900000044	Cantor Fitzgerald Brokerage		Bartels Carlton	000703001BL
2178	Private Transfer	002836000011	Avon Lake	OH	Couch, Jr. Howard	999900000004

Transaction Report - Netscape

Location: <http://www.epa.gov/6703/atstdcd/owa/tpcttl>

Transferor Name	State	Transferor Rep	Trans Total	Confirm Date	Allowance Year	Start Number	End Number	Amount
Auction Reserve		EPA Representative Authorized	2572	19930401	1995	10188	12759	2572
abula	OH	Couch, Jr. Howard	2317	19940330	2000	6022520	6024836	2317
abula	OH	Couch, Jr. Howard	1974	19940330	2000	6024837	6026810	1974
abula	OH	Couch, Jr. Howard	1779	19940330	2000	6026811	6028589	1779
abula	OH	Couch, Jr. Howard	1873	19940330	2000	6028590	6030462	1873
n Lake	OH	Couch, Jr. Howard	4984	19940330	2000	6035242	6040225	4984
ake	OH	Couch, Jr. Howard	6083	19940330	2000	6180865	6186947	6083
Shore	OH	Couch, Jr. Howard	5990	19940330	2000	6413079	6419068	5990
Watson	MS	Guthrie Bill	5000	19940330	1995	2662137	2667136	5000
Gaston	AL	Guthrie Bill	5000	19940330	1995	369865	374864	5000
en	GA	Guthrie Bill	10000	19940330	1995	549329	559328	10000
or Fitzgerald Brokerage		Bartels Carlton	20000	19940330	1995	369865	374864	5000

Type of transfer
(auction, private)

Buyer name and
account info

Seller name and
account info

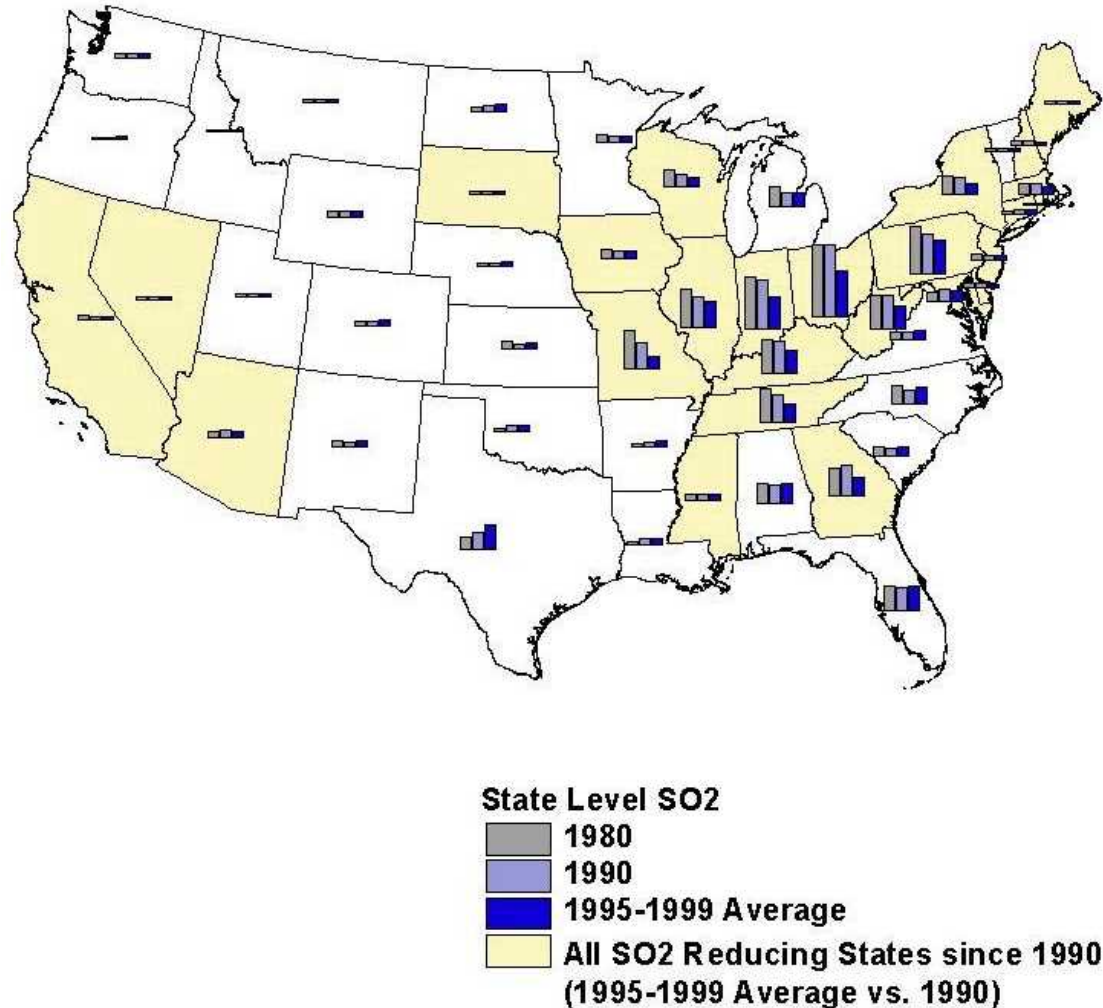
Confirmation date,
serial numbers and
total allowances
transferred

Roles of Federal and State Governments in Trading Programs

Design Element	SO ₂ Program	NO _x Program
Measurement Standards	Federal	Federal
Reporting Standards	Federal	Federal
Verification	Federal	Federal
Compliance Determination	Federal	Federal
Excess Emissions Penalties	Federal	Federal
Criminal and Civil Penalties	Federal	Federal
Enforcement Actions	Federal	States

Spatial Issues (hotspots)

- Greatest reductions in States with highest emissions
- Independent analyses (i.e., ELI, RFF, and EDF) have found that trading under the Acid Rain Program has not created hot spots
- States and localities have authority to address local air quality problems (including setting facility permit levels that would preclude use of allowances)



Conclusion—Keys to Success

- Accurate, complete, and consistent emissions measurement
- Predictable and credible consequences for non-compliance
- Transparency of emissions and trading information
- Use of information technologies to handle huge amounts of data