

Written Testimony of Douglas P. Scott

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Before the:

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Subcommittee on Clean Air and Nuclear Safety

On the Issue of:

“Oversight: Environmental Protection Agency’s Clean Air Regulations –

One Year after the CAIR and CAMR Federal Court Decisions”

July 9, 2009

Mr. Chairman and Members of the Committee: My name is Doug Scott and I am the Director of the Illinois Environmental Protection Agency. I want to thank Senator Carper and the other members of the Senate Subcommittee on Clean Air and Nuclear Safety for this opportunity to testify on Illinois’ regulations to control sulfur dioxide, nitrogen oxides and mercury emissions from the State’s coal-fired power plants.

I received a Bachelor’s Degree with honors from the University of Tulsa in 1982, and received a graduate Juris Doctor law degree with honors from Marquette University in 1985. I served as Assistant City Attorney and City Attorney for the City of Rockford, Illinois from 1985 to 1995. I also represented the City on a number of environmental issues. From 1995-2001 I served as an Illinois State Representative for the 67th District and served on the House Energy and Environment Committee, and was a member of the committee that rewrote the States’ electric utility laws. I was elected to the Office of the Mayor of Rockford in April 2001 and served a four-year term and served as President of the Illinois Chapter of the National Brownfields Association. I was appointed as the Director of the Illinois EPA by Governor Rod Blagojevich in July 2005, and have served as Chair of the Air Committee of the Environmental Council of the States (ECOS), the national organization of state environmental agency leaders.

I am pleased to be here to provide testimony on the “three pollutant” approach and Illinois’ experience in reaching agreements with our state’s three largest coal-fired power plant system owners. My testimony will provide background information and a broad overview of the

development of Illinois' multi-pollutant reduction agreements. I will address some of the measures the Illinois EPA took during rule development to ensure that we relied on accurate and current information as we crafted the rule.

Illinois Multi-Pollutant Regulatory Approaches

Illinois is a large industrial state with a population of about 13 million people and a gross state product of \$522 billion. Each of these are approximately four percent of the U. S. total and ranks Illinois as fifth among the nation in these categories. Illinois obtains more than 40 percent of its electricity from coal-fired power plants and sits on top of 38 billion tons of coal, giving it the third largest coal reserves in the nation. Coal-fired power plants in Illinois constitute the largest source of man-made emissions of mercury (Hg) and sulfur dioxide (SO₂), and one of the largest sources of nitrogen oxides (NO_x). Illinois is home to 21 large coal-fired plants that operate electric generating units.

Over the last several years in Illinois, exceptional progress has been made in reducing the emissions that contribute to ozone and particulate matter (PM) air pollution, as well as reducing toxic Hg emissions that deposit into and contaminate Illinois' waters and fish. In particular, the Illinois Environmental Protection Agency (Illinois EPA) reached landmark multi-pollutant standard agreements with the three largest coal-fired power plant systems operating in Illinois: Midwest Generation, Ameren and Dynegy. These three companies represent 88% of Illinois' 17,007 megawatts of coal-fired electric generating capacity and account for hundreds of thousands of tons of air emissions each year.

These multi-pollutant standards (MPS) are expected to result in measurable air quality improvements in Illinois and also in regional air quality by dramatically reducing Hg, SO₂, and NO_x emissions from Illinois' coal-fired power plants. The agreed-to multi-pollutant standards are one of the most important environmental and public health advances in Illinois in recent decades. They represent the largest reductions in air emissions ever agreed to by individual companies in Illinois under any context, whether through an enforcement action or regulation.

As a result of the knowledge and experience gained through Illinois' efforts, the Illinois EPA supports a comprehensive national strategy for reducing emissions of multiple pollutants from electric generating units. A comprehensive, integrated approach benefits both regulators and the regulated community. Multi-pollutant approaches should supplement, not replace, the existing Clean Air Act programs such as New Source Review (NSR), Maximum Achievable Control Technology (MACT) standards and regional haze, as well as other important statutory requirements for achieving and sustaining clean air.

In meeting emission goals, the regulated community should be afforded flexibility, where appropriate, which may include an emissions trading mechanism for NO_x, and SO₂, but not pollutants where local impacts are of great concern or where concentrated emissions at a local scale may occur – as in the case of Hg. Any multi-pollutant strategy must also ensure that regions, states and localities retain their authority to adopt and implement measures which are more stringent than those of the federal government.

A 3-pollutant approach for controlling the emissions of Hg, SO₂, and NO_x from coal-fired power plants can have numerous advantages over the traditional, single pollutant schemes. For example, a well crafted multi-pollutant standard can increase the protection of public health and the environment, reduce pollution more cost-effectively, and offer greater certainty to both industry and regulators. Since Hg emission reductions can be obtained as a “co-benefit” from the control devices used to reduce SO₂ and NO_x, it makes sense to allow companies the option to synchronize the control of these pollutants, provided that public health and the environment are likewise positively impacted. Whereas the federal Clean Air Mercury Rule (CAMR) single-mindedly tackled mercury emissions, and the federal Clean Air Interstate Rule (CAIR) addressed SO₂ and NO_x, Illinois was able to use a multi-pollutant strategy that accomplishes the aforementioned benefits in a unified regulatory framework accounting for planning, engineering, availability of financing and other issues that accompany a multi-pollutant control strategy.

Illinois believes the most feasible method of obtaining reliable emission reductions in a cost-effective manner is through a combination of emission rate based limits along with emissions trading. Although sources under the MPS are not allowed to utilize allowances to meet the

numeric emissions standards, sources are free to sell or trade allowances that are generated as a result of emissions being below the allowable emission rates. This provides an incentive for companies to go beyond the reductions required under the MPS in order to recover some of the costs associated with the control measures taken. Moreover, emissions' trading is recognized to provide market incentives for sources to control emissions as far and as fast as reasonably possible. Of note is that emissions trading under a cap and trade program has historically resulted in the highest emitting plants making the deepest reductions in emissions – a key finding that strongly supports the inclusion of emissions trading into any control strategy.

Illinois Multi-Pollutant Agreements

The catalyst for Illinois' agreements was the position taken in early 2006 that Illinois would propose an aggressive mercury regulation focused on cutting mercury emissions by 90% from coal-burning power plants by mid-2009. After the Illinois EPA presented its findings in support of the mercury rule during two weeks of well-attended and hotly contested public hearings, the Agency was approached by Ameren who expressed a desire to work with the Agency toward common goals. Subsequent to long hours of negotiation, an alternative standard was proposed that involved allowing some flexibility in complying with the mercury standards in exchange for commitments to also significantly reduce SO₂ and NO_x emissions from Ameren's coal-fired power plants. This initial agreement led to similar discussions and agreements with Illinois' other two large coal burning systems, Dynegy and Midwest Generation.

The agreements reached and memorialized in the Multi-Pollutant Standard (MPS) and Combined Pollutant Standard (CPS) are significant not only for the magnitude of emissions reductions that occur, but also for the rule support that accompanied the agreements. The Illinois mercury rule was vehemently opposed by a unified coal-fired power industry. The initial agreement established that mutual goals were achievable, set the guiding principles, and opened the door for other companies to follow –which they did. Ultimately, the mercury rule was unanimously approved in 2006 by both the Illinois Pollution Control Board and the Joint Committee on Administrative Rules, the two governing oversight bodies for regulations in Illinois.

Both the MPS and CPS provisions provide some flexibility on the timing of mercury reductions in exchange for commitments to make significant reductions in both SO₂ and NO_x. All of the provisions include some level of trading restrictions on SO₂ and NO_x allowances provided under CAIR. Ameren, Dynegy and Midwest Generation will install a multitude of pollution control equipment on their boilers costing several billion dollars, including wet and dry scrubbers, selective catalytic reduction (SCR) and selective non-catalytic reduction (SNCR) devices, and fabric filters. Recent discussions with representatives of Illinois' coal-fired power plants indicate that they are all preparing to meet the requirements of the MPS and CPS, which initiate in 2010. In doing so, a wide array of emissions control equipment costing billions of dollars will come on-line in Illinois over the next several years. Illinois coal-fired power plants have already installed and begun operating numerous halogenated activated carbon injection (ACI) systems for mercury control. The first of many new scrubbers for SO₂ control will begin operation shortly. Fabric filter controls will accompany the installation of many of the scrubbers and result in the co-benefit of particulate matter reductions. Selective catalytic reduction devices and other new NO_x controls are being scheduled for installation across Illinois. The shutdown of a few of the older, most polluting electric generating units began in December 2007 with two more units scheduled for shutdown by December 2010.

Illinois Mercury Rule

The Illinois mercury rule is designed to achieve a high level of mercury control, based on Illinois EPA's finding that there exists mercury control technology that is both technically feasible and economically reasonable. Mercury emissions may be reduced through the application of control technology specifically designed to control mercury (e.g., activated carbon injection), or through co-benefit from other control technologies designed to control SO₂, NO_x, and PM. Depending on several variables, including coal and boiler type, there are a number of control technologies that will achieve 90+% removal of mercury. Mercury emissions control technology is a rapidly advancing field, with halogenated sorbents being an affordable and effective option for most applications. Although there may be some challenges to achieving 90% removal of mercury for

all applications, in almost every case each of these challenges can be overcome or addressed through technology that is economically reasonable and available today.

The Illinois mercury rule provides substantial flexibility in order to reduce the costs of compliance and risk of noncompliance for power plants. This flexibility includes the ability to meet either a 90% reduction or an output based standard of 0.0080 pounds mercury/GWh, phasing in standards over a period of 3 ½ years with a less restrictive standard in phase one, compliance by averaging of emissions, and the avoidance of installing controls on units that will be shutdown in the near future provided companies make an enforceable commitment to shutdown those units by a date certain.

Additional flexibility is provided via a “Temporary Technology Based Standard” (TTBS) that provides relief for units that install appropriate mercury controls but do not achieve full compliance. Eligible units only need to operate the mercury controls in an optimal manner to comply. This provision is available through June 2015 and can be used by up to 25% of a company’s generating capacity.

Companies may choose to voluntarily comply with the MPS or CPS as an alternative to the otherwise applicable requirements of the mercury rule. These provisions provide additional flexibility in regards to mercury control in return for companies achieving significant reductions in the emissions of SO₂ and NO_x.

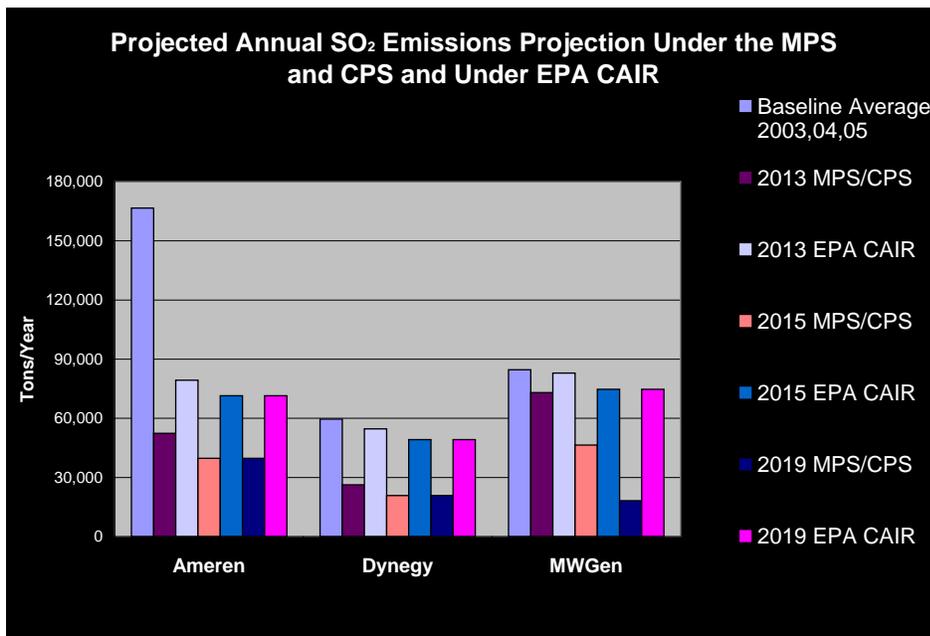
Under the MPS and CPS, companies can commit to voluntarily meet numerical emission standards for both NO_x and SO₂ and in return are provided additional flexibility in complying with the mercury emission standards. The MPS and CPS provisions also contain restrictions on the trading of NO_x and SO₂ allowances provided under CAIR. By regulating the emissions of NO_x and SO₂ and restricting the trading of allowances, the MPS and CPS have obvious implications for the proposed CAIR NO_x and SO₂ cap and trade program. As modeling has demonstrated, the benefits of these reductions will mostly impact Illinois and a few of the closest neighboring states (i.e., Indiana, Wisconsin and Missouri) with lesser benefits further downwind. While the positive impacts of the reductions are most significant within Illinois and its closest

neighbors, Illinois does support emissions trading as the most cost effective controls will be installed and the timing of controls is likely to occur more quickly than under a command and control option.

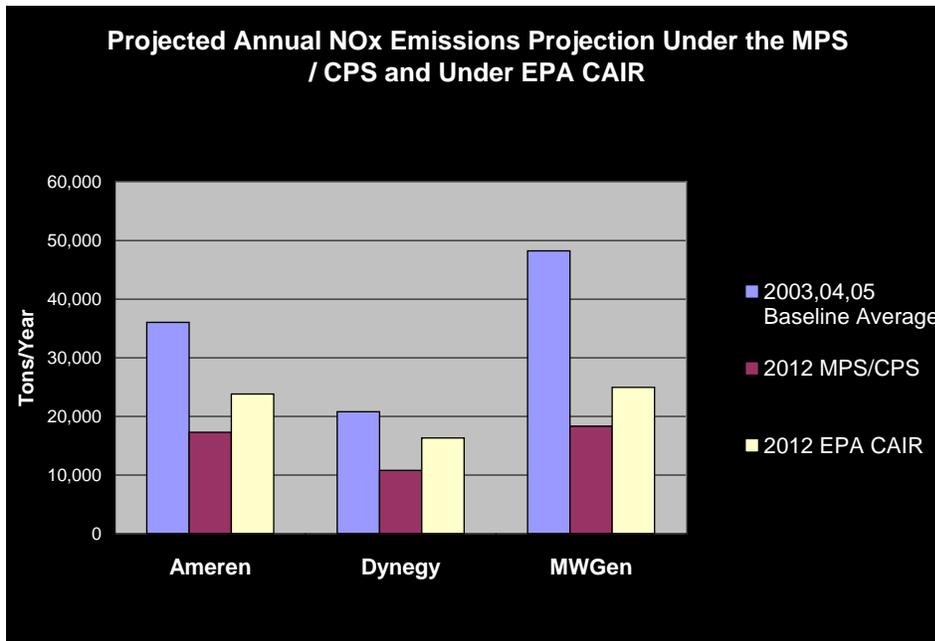
Emission Reductions

The combination of the Illinois mercury rule, CAIR, and the MPS and CPS will have enormous positive impacts, reducing mercury, SO₂ and NO_x emissions far beyond the levels required under the federal CAMR and CAIR alone.

Under CAIR, U.S. EPA estimates that coal-fired power producers in Illinois would only have been required to reduce their SO₂ emissions by 34%, not the estimated 76% for Ameren, 65% for Dynegy, and 80% for Midwest Generation required under the MPS and CPS. The emissions of NO_x are likewise expected to be reduced beyond the levels obtained by the model CAIR. In addition, both the MPS and CPS contain trading restrictions designed to ensure that the SO₂ and NO_x reductions occur in Illinois.



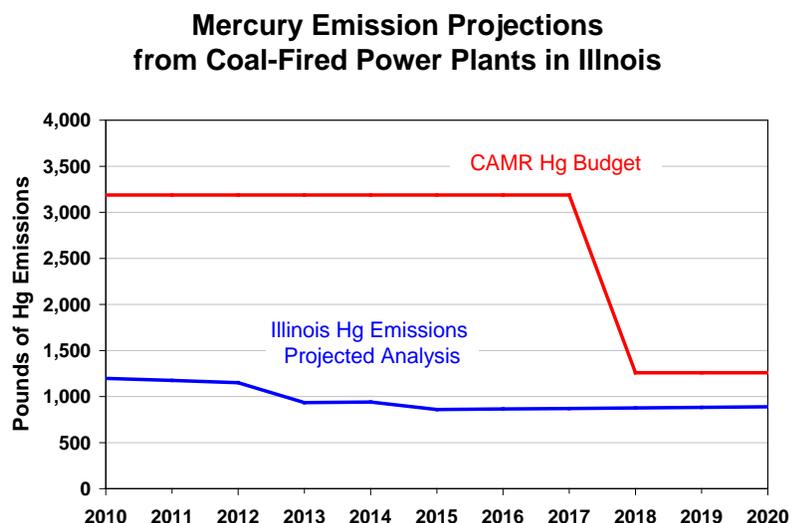
The reductions agreed to under the MPS and CPS for SO₂ and NO_x are expected to go a long way toward helping Illinois achieve attainment of the ozone and PM standards. The modeling demonstrates that the emission reductions are very substantial.



The Illinois EPA estimates the total emission reductions from all three power companies at:

- SO₂ = 233,600 tons per year eliminated
- NO_x = 61,434 tons per year eliminated
- Mercury = 7,040 pounds per year eliminated

Under CAMR, coal-fired power producers in Illinois would have only been required to reduce their mercury emissions by 47% in 2010 and 78% by 2018, not the 90% reduction by 2009 specified in the Illinois rule. The timing of mercury reductions for



those sources that opt-in to the MPS or CPS is essentially the same, and the amount of reduction is expected to be close to 90%, although the companies will not be required to comply with the 90% reduction requirement on a 12 month rolling basis until 2015. Sources under the MPS and CPS are expected to have mercury emission reductions that exceed the required 90% after 2015 due to the co-benefit reductions achieved from the installation of controls needed to comply with the corresponding SO₂ and NO_x standards.

Impacts of Emissions Reductions

Under the agreements between the Illinois EPA and Midwest Generation, Ameren and Dynegy, the decreases in Hg, SO₂, and NO_x emissions are estimated to far exceed the reductions required under the federal CAMR and CAIR.

In regards to mercury, over time Illinois expects to see reductions in deposition of Hg to Illinois' lakes and streams and corresponding mercury decreases in Illinois' fish, making those fish caught in Illinois waters safer to eat. There will be several recognized benefits to the State from tighter mercury controls beyond the expected public health benefits that come with a reduction in deposition to Illinois' waters and fish. Such benefits include support for existing jobs and the potential for additional jobs resulting from the installation and operation of additional pollution control devices.

The benefits of removing SO₂ and NO_x are well established and most notably will result in reductions in both particulate matter and ozone. SO₂ is a precursor to particulate matter and NO_x is a precursor to both particulate matter and ozone. Particulate matter related annual benefits include fewer premature fatalities, fewer cases of chronic bronchitis, fewer non-fatal heart attacks, fewer hospitalization admissions (for respiratory and cardiovascular disease combined) and should result in fewer days of restricted activity due to respiratory illness and fewer work loss days. Moreover, there should be health improvements for children from reduced upper and lower respiratory illness, acute bronchitis, and asthma attacks.

Ozone health-related benefits are expected to occur during the summer ozone season and include fewer hospital admissions for respiratory illnesses, fewer emergency room admissions for asthma, fewer days with restricted activity levels, and fewer days where children are absent from school due to illnesses. In addition, there should be ecological and welfare benefits. Such benefits include visibility improvements; reductions in acidification in lakes, streams, and forests; reduced nutrient replenishing in water bodies; and benefits from reduced ozone levels for forests and agricultural production.

CAMR and CAIR Vacatur Impact on Illinois Regulations:

On February 8, 2008, the United States Court of Appeals for the District of Columbia Circuit vacated the federal CAMR. The Illinois mercury rule is separate from the federal CAMR and therefore the vacatur of CAMR had minimal impact on the Illinois rule. However, this court action raised concerns regarding the status of certain federal provisions dealing with the monitoring of mercury emissions. Given the uncertainty surrounding federal mercury monitoring provisions, the Illinois EPA determined that a revision to the Illinois mercury rule was appropriate. The revisions focused on the methods used to measure or monitor mercury emissions, and did not include any revisions to the control standards themselves. The rule was amended to allow a source to demonstrate compliance for a three year period using stack testing. The Illinois mercury rule remains in full effect and all Illinois companies began complying with the rule on July 1st of this year.

In July of 2008, the U.S. Court of Appeals for the District of Columbia Circuit (DC Court of Appeals) vacated the CAIR rule in its entirety. After entertaining motions for reconsideration from the parties, on December 23, 2008, the same court issued an opinion stating that the federal CAIR was remanded to U.S. EPA without vacatur. U.S. EPA subsequently confirmed that it has begun implementation of CAIR starting January 1, 2009. Illinois CAIR is in full effect. For a number of reasons, the vacatur and reinstatement of Phase I of CAIR have had minimal impact on Illinois sources and the MPS and CPS remain in effect. However, for the reasons discussed below, Illinois strongly favors federal multi-pollutant legislation to “remedy” the flaws in CAMR and CAIR.

The decision of the DC Court of Appeals vacating CAIR in part, i.e., vacating Phase II of CAIR but reinstating Phase I of CAIR, has thus far had minimal impact on Illinois. CAIR Phase I required reductions up until the beginning of CAIR Phase II in January 1, 2015. Although Illinois relied upon CAIR Phase I as part of our 8-hour ozone (85 ppb) and annual PM_{2.5} attainment plans, air quality in Illinois' two 8-hour ozone (85 ppb) and annual fine particulate matter nonattainment areas has improved to a very significant degree without these expected reductions. As a result, all but one monitor is in attainment for these standards, and it is expected to be in attainment in 2012. Because the MPS and CPS result in significant reductions before 2015, Illinois is not dependent on CAIR Phase II reductions for the newest 8-hour standard (75 ppb) or the newest daily fine particulate matter standards, and for which attainment plans are not yet due. Despite the improvement in air quality, Illinois would have much more significant problems in demonstrating attainment in its state implementation plan if CAIR Phase I was not reinstated.

There is some concern that Illinois coal-fired power plants may delay or cancel some controls that were being installed to comply with CAIR Phase I due to the loss of value in SO₂ and NO_x allowances. The market value of these allowances is uncertain, because there is controversy over whether the DC Court of Appeal's opinion has disallowed an emissions trading program. As a result, companies have no incentive to go beyond the reductions required by CAIR Phase I because the incentive to install controls early due to the cost recovery benefit of the allowances obtained is removed. Also, many companies have a significant number of banked allowances available for their use or for sale, and these banked allowances will be depleted rather than companies meeting the "emissions cap" through installation and operation of pollution control equipment, perhaps even to the extent of not operating existing or recently installed controls. However, we believe the MPS and CPS should keep Illinois sources on track for installation and operation of the planned control devices and reductions.

After the vacatur of CAIR, the Northeast and Midwest states began a process, called the "State Collaborative Process", the stated intent of which was to develop a multi-pollutant strategy to achieve levels of NO_x and SO₂ reductions from the electric utility sector in the 28-state CAIR

region as expeditiously as possible that would remedy CAIR's flaws in accordance with the Court's July 11, 2008 opinion and satisfy the requirements of the Clean Air Act to attain the 1997 national ambient air quality standards (NAAQS) for ozone and PM. While significant progress was made in developing a framework for a CAIR replacement rule, no final recommendation to USEPA has yet been developed. The participating states disagree over the level of reductions that should be required, whether best available controls should be required on every power plant or just the larger/largest units, the timing of controls, whether emissions trading (or even intra-state emissions averaging) is allowable under the Court's decision, and whether a replacement rule can forestall Section 126 petitions under the Clean Air Act.

It is Illinois' experience that emissions trading will result in the greatest amount of reductions at the lowest cost. More importantly, emission trading will encourage companies to install controls earlier, and go beyond required reduction levels, as compared to a command and control strategy. Under a command and control strategy, the regulatory compliance deadline must be set such that there is 100% assurance that every affected source will be able to comply in consideration of the time necessary for planning, engineering and construction deadlines. In other words, there must be sufficient availability of engineering firms, control equipment and construction companies to plan, engineer, build and install all of the pollution control equipment required for compliance. Such a regulatory compliance date would certainly be difficult to establish and likely result in far fewer reductions in the near term when compared to an approach that includes emissions trading. Also, the construction season in many of the affected CAIR states is limited to a 7 to 8 month window, when electric demand is at its highest, further complicating this approach.

In addition to regulatory compliance deadlines, sources (and the states) must be concerned with power outages. In Illinois' opinion and experience in negotiating the MPS and CPS, within the CAIR region, it is not practical (and may not be possible) to retrofit all coal-fired power plants of any significant size (e.g., 25 MWe or more) in the same 3-year window (or even 5-year window). A command and control strategy necessarily sets a date certain for compliance for each affected and similarly situated source. Emissions trading will allow those time frames to be compressed, as source by source compliance is not required.

As Illinois discovered during its MPS and CPS negotiations, there are very significant costs associated with installing pollution controls of the magnitude negotiated under Illinois' rules – estimated in excess of 3 billion dollars. While this cost may seem small on a kilowatt hour basis, these companies must obtain a rate increase if they are in a regulated state or financing if they are in a deregulated state like Illinois. The ability to obtain a rate increase or financing for these projects is uncertain and takes time, which must be accounted for in a compliance date for any command and control strategy. Emissions trading will allow those time frames to be compressed as well, as source by source compliance is not required.

The vacatur of both CAMR and CAIR emphasizes the high risk associated with moving forward with federal regulations subject to widespread opposition and controversy. Federal regulations will almost certainly be challenged, potentially resulting in further delay of a vital strategy for the states to achieve attainment of the federal air quality standards. Section 126 petitions will surely also be filed by any state that believes its neighbor and upwind states could do more to address nonattainment, even if the complaining state's air quality issues are largely a result of emissions from its own sources (area, mobile and point) and even if the targeted other state(s) has done more to address emissions from its coal-fired power plants than the complaining state. Section 126 petitions will use precious resources that are needed to address the newest recent daily PM_{2.5} standard, the revised 8-hour standard (75 ppb), the newest lead standard, and the recently-announced, revised NO₂ standard. Federal multi-pollutant legislation represents the best option for addressing the points of disagreement among the states, without being bound by interpretations of the scope and flexibility provided under the 1990 Clean Air Act amendments, and in a way that best serves the goal of obtaining the greatest reductions in SO₂, NO_x and Hg, in the shortest possible time frame, while taking into account electric costs and reliability.

In conclusion, the multi-pollutant approach taken in Illinois for controlling the emissions of Hg, SO₂, and NO_x from coal-fired power plants has numerous advantages. Whereas the federal CAMR focuses solely on mercury emissions, and CAIR concentrates on SO₂ and NO_x, Illinois' has taken a combined approach that exceeds the goals in the context of a single regulatory framework, accommodating engineering and construction issues and outage schedules, as well as

financing issues. The result has been a tremendous win-win-win for the environment, public health and the regulated community.

Multi-Pollutant Standard & Combined Pollutant Standard – Required Emissions Rates and % Reductions

	CAIR in IL ¹	CAIR in IL ¹	Midwest Generation		Ameren		Dynegy	
	Emission Rate (lbs/mmbtu)	% Reduction	Emission Rate (lbs/mmbtu)	% Reduction	Emission Rate (lbs/mmbtu)	% Reduction	Emission Rate (lbs/mmbtu)	% Reduction
SO₂								
2010					0.50	52%		
2013	0.50	31%	0.44	13.7%			0.24	56%
2014			0.41	19.6%	0.43	56%		
2015	0.45	34%	0.28	45.1%	0.25	76%	0.19	65%
2016			0.195	61.8%				
2017			0.15	70.6%	0.23	78%		
2018			0.13	74.5%				
2019	0.45	34%	0.11	78.4% ²	0.23	78%	0.19	65%
NO_x								
Annual – 2012	0.15	44%	0.11	62% ³	0.11	52%	0.10	48%
Annual - 2015	0.12	55%	0.11	62% ³	0.11	52%	0.10	48%
Seasonal - 2012	-	-	0.11	51%	0.11	22%	0.10	25%

¹CAIR emission rate numbers from page 5 of the June 28, 2005 USEPA presentation to LADCO

(http://www.ladco.org/reports/rpo/Regional%20Air%20Quality/June28_2005/June-Workshop/CAIR%20LADCO%20.pdf).

Percent reductions from the USEPA website that provides CAIR reductions expected in Illinois (<http://www.epa.gov/cair/il.html>).

Emissions used for calculations are from Clean Air Markets Divisions of USEPA.

²80% including planned shutdowns.

³68% including planned shutdowns.

Note: Ameren SO₂ rates reflect changes to allowable rates as contained in proposed revision to Illinois mercury rule.

Percent Mercury Reductions from CAMR, Illinois Combined Pollutant Standard (CPS) and Multi-Pollutant Standard (MPS)

Beginning Period	CAMR	Midwest Gen - CPS	Dynegy - MPS	Ameren - MPS
Mid 2008		21%		
Mid 2009		84% (ACI installed on most units)	(ACI installed on most units)	(ACI installed on most units)
2010	47%		86%	86%
2011		90% (ACI on all units)		
2013 ¹		90%	90%	90%
2015 ²		>90%	94.4%	93.5%
2018	78%	95%		

¹All units have controls installed that are designed to achieve 90% reduction in mercury emissions.

²Several units at plant have combination of Scrubber, Baghouse, SCR and/or ACI and many units will achieve greater than 90% reduction in mercury emissions.

All numbers are Illinois EPA estimates.

