Testimony of Dr. Bryan W. Shaw, Chairman of the Texas Commission on Environmental Quality

As Chairman of the Texas Commission on Environmental Quality (TCEQ), I appreciate the opportunity to provide testimony and information to the U.S. Senate Subcommittee on Clean Air and Nuclear Safety at the hearing entitled "Oversight: Review of EPA Regulations Replacing the Clean Air Interstate Rule (CAIR) and the Clean Air Mercury Rule (CAMR)". This is a critical topic regarding the effect of recent EPA actions on the environment, electric reliability, and commerce throughout our nation, as well as in the state of Texas. As I have said before, a strong economy does not need to come at the cost the environment and Texas has shown that to be true.

The TCEQ regularly weighs matters that effect the environment and economy. We value regulation that addresses real environmental risks while being based on sound science and compliance with state and federal statutes. In every case where Texas disagrees with EPA's action, it is because EPA's action is not consistent with these principles.

NESHAP/MACT Utility Rule

On May 3, 2011, the United States Environmental Protection Agency (EPA) proposed a National Emission Standards for Hazardous Air Pollutants (NESHAP) rule for coal- and oil-fired electric utility steam generating units (EGU) under Section 112 of the federal Clean Air Act (FCAA). The proposed NESHAP rule (40 Code of Federal Regulations (CFR) Part 63, Subpart UUUUU) would establish maximum achievable control technology (MACT) emission limits for certain hazardous air pollutants (HAP) for new and existing EGUs rated equal to or greater than 25 megawatts (MW) that are fired with coal, liquid oil, or solid oil-derived (e.g., petroleum coke or petcoke) fuels as well as integrated gasification combined cycle (IGCC) EGUs. The proposed rule would also establish work practice standards, monitoring, testing, recordkeeping, and other requirements for affected EGUs.

The TCEQ staff's evaluation indicates that the proposed rule is not feasible for coal-fired EGUs. Based on the current state of technology, the TCEQ anticipates that no new coal-fired EGUs will be built in the country if the EPA adopts the rule as proposed and that many existing coal-fired EGUs will be shut down. The TCEQ is very concerned about the severe adverse impacts that the EPA's proposed NESHAP rule and other EPA regulatory initiatives targeting EGUs may have on the reliability of the electrical power system in Texas and consequently, adverse effects on other sectors of the economy and public.

The TCEQ considers many aspects of the proposed NESHAP rule to be technologically infeasible for coal-fired EGUs, in particular the proposed emission limits for new units. We believe that this regulation as proposed will effectively end construction of new coal-fired EGUs in the country for the foreseeable future. The EPA's own Integrated Planning Model (IPM) results support this assessment. Such an outcome is contrary to Section 112 of the FCAA. Section 112(d)(3) is clear that new unit emission limits must be achievable. While the EPA has certain discretion on setting MACT emission limits for new units under Section 112(d), the EPA cannot establish emission limits that cannot be achieved with available technology. TCEQ believes that the proposed NESHAP will severely impact the reliability of the electrical power system despite the EPA's claims to

the contrary. It is not reasonable for the EPA to claim there is no risk to electrical power reliability from this proposed NESHAP when the proposed rule would prohibit new construction of coal-fired EGUs, a component of the current electrical power fleet that is vital to the stability of electrical power system and meeting the energy needs of the citizens of Texas.

A recent study conducted by NERA Economic Consulting (NERA) estimates that the number of coal unit retirements resulting from the proposed utility NESHAP rule and the Clean Air Transport Rule (CATR) will be substantially greater than that projected by the EPA. The EPA estimates the coal unit retirements from these two regulatory initiatives to total approximately 11 gigawatts (GW) in capacity. NERA estimates that approximately 48 GW of coal units will retire as a result of these two rules, almost five times greater than the EPA's estimate.

Just last week, the Brattle Group, a consulting firm of economic and financial experts, presented an analysis to the Public Utility Commission of Texas (PUC) that estimated coal-fired shutdowns within the Electric Reliability Council of Texas (ERCOT) resulting from these regulations would range between 5 GW and 12 GW, depending on power prices. These estimates may still be low because Brattle's assessment did not predict the shutdown announced earlier in the week of CPS San Antonio's 841 MW Deeley plant, nor does it include non-ERCOT, such as the possible retirement of AEP's Welsh 2 plant, mentioned at the same PUC meeting.

We question whether it is appropriate for EPA to establish energy policy for the country. In multiple parts of the preamble of the proposed NESHAP rule, the EPA mentions encouraging or achieving cleaner fuels for EGUs. FCAA Section 112 may not be used as a mechanism for EPA to drive national energy policy. In particular, Section 112(d)(3) specifies that the EPA must determine MACT limits based on the best controlled "similar" source. The EPA is ignoring this provision of Section 112(d)(3) when it seeks to establish emission limits that are "fuel neutral," as the EPA describes, to encourage and achieve cleaner fuel-burning EGUs and thereby affect the fuel mix of the nation's electrical energy fleet. The EPA is, in fact, setting energy policy for the country by undertaking regulatory initiatives that the EPA admits result in a complete shift in new electrical power production capacity.

Furthermore, the utility NESHAP rule is littered with multiple, significant errors that EPA made in the MACT analysis for the proposed mercury limits on coal-fired EGUs as well as other aspects of the proposed rule. More specifically, the EPA's quality assurance and quality control procedures for the data handling and processing for this regulatory effort are clearly flawed. In addition to the major errors made by the EPA in converting reported mercury emissions that was recently publicized, the TCEQ has found other errors and discrepancies in the data used in the MACT analysis. The EPA should review all the data relied upon for this regulatory effort to assure the public and the regulated community that the EPA is using correct data and calculations for this MACT analysis.

Next, the EPA's economic analysis is misleading and misrepresents the actual costs and benefits of the proposed rule. EPA has relied on co-benefits associated with emission reductions of non-HAP pollutants to justify the exorbitant cost of this regulation.

Basic cost information, such as expected capital and operating costs for expected control equipment, is not provided to support the EPA's estimated $10.9 billion annualized social cost estimate. Furthermore, as the EPA admits (76 FR 24979), nearly all of the monetized benefits are the result of assumed co-benefits from emission reductions from particulate matter (PM) and other non-HAP pollutants. The EPA projects the annualized private compliance costs to the power industry in 2015 to be $10.9 billion (in 2007 dollars) and approximately $10 billion in both 2020 and 2030. EPA values the benefits of reduced mercury at $5 million or less. It nevertheless projects total benefits of between $59 billion to $140 billion (using a 3% discount rate) and $53 billion to $130 billion (using a 7% discount rate) due almost entirely to expected co-benefits from reductions in mortality related to emissions of particulate matter with aerodynamic diameter of 2.5 micrometers or less ($PM_{2,5}$) assuming a 55% reduction in sulfur dioxide (SO_2) emissions beyond the base case, including the proposed Clean Air Transport Rule (CATR). Given that SO_2 is not a HAP and is already regulated under other FCAA requirements, the EPA should re-analyze its benefit analysis to only account for benefits associated with the specific HAP to be regulated. While the EPA includes assumed co-benefits in their monetized benefits analysis, the costs of co-impacts that would affect the social cost estimates do not appear to be included, such as job losses outside the EGU sector (RIA, Table 9-6, page 9-15) and costs to third parties due to higher energy prices and decreased reliability. The EPA's approach to their cost-benefit analysis is misrepresentative and biased toward the benefit.

If EPA confined its cost benefit analysis to only the specific HAP that poses a hazard to public health after imposition of the requirements of the FCAA, any health benefits would be insubstantial compared to the cost of regulation. In the EPA's 2005 reconsideration of the 2000 finding, they take the reasonable position that "it may not be "appropriate" to regulate remaining utility HAP emissions if the health benefits expected as the result of such regulation are marginal and the cost of such regulation is significant and therefore substantially outweighs the benefits." Regulation cannot be "appropriate" where, as here, its direct benefits associated with reductions in HAP emissions are substantially outweighed by its costs.

Toxicological Evaluation

<u>Mercury</u>

EPA misrepresents the risks associated with mercury emissions and ignores the negligible effects of this rule on risk reduction.

The TCEQ acknowledges public concerns with methylmercury in the environment, but U.S. EGUs do not contribute significantly to the current potential risk to public health resulting from all natural and anthropogenic sources of mercury worldwide. Any mercury reductions resulting from the proposed utility NESHAP rule would result in an insignificant change in the overall risk from mercury from all sources. Thus, the

potential risk from other sources of mercury would still remain and the timeframe for reductions, if any, in levels of mercury in fish tissue is impossible to predict. The production of methylmercury in water bodies is complex and influenced by a number of factors in addition to deposition, including land use, water and sediment chemistry.

The EPA takes the position that it must consider EGU mercury emissions in conjunction with other sources of mercury deposition, and that if all sources of mercury deposition pose a hazard to public health or the environment that EPA is then required to regulate mercury from EGU (and by extension, all utility HAP) emissions under Section 112. This position leads to extreme conservatism where even a de minimis amount of emissions would have to be regulated. The EPA's analysis for mercury states that "if U.S. EGU impacts to watersheds included in the risk assessment were zeroed-out, for a significant majority of those watersheds, total exposure would still exceed (and in most cases, significantly exceed) the RfD."

The legislative history of Section 112(n)(1)(A) indicates that Congress viewed mercury emissions as a global phenomenon and that an uncontrollable amount of risk from mercury would remain regardless of the extent to which U.S. utilities are controlled (Legislative History of the Clean Air Act Amendments of 1990, at 872 (Oct. 27, 1990) (statement of Sen. Durenberger)). In the EPA's 2000 finding, it was estimated that about 60% of total mercury deposited in the U.S. came from U.S. anthropogenic air emission sources. The EPA further said that of that 60%, approximately 30% was from U.S. EGU mercury emissions, which translated into about 18% of total deposition in the U.S. at that time. In 2000, the EPA also estimated that EGU mercury emissions would increase from 46 tons in 1990 to over 60 tons in 2010. Contrary to EPA's 2000 scenario, U.S. mercury emissions did not increase, but actually decreased to less than 30 tons a year. It is apparent that these estimates were inaccurate. In the preamble to the current utility NESHAP proposal, it is stated that EGUs, on average, contribute about 2% of total mercury deposition across the country. These discrepancies raise serious questions as to the basis of the 2000 finding.

Multiple sources of data suggest the EPA has overestimated the effects of methylmercury at low concentrations in its estimate of the reference dose (RfD). It is likely the RfD is too conservative, as it is based on a study from the Faroe Islands where the types of seafood consumed (whale meat and blubber) were very different from the typical consumption of seafood in other countries and contained other contaminants, including PCBs. Other organizations tasked with deriving a safe exposure level, including ATSDR, have used other available and more relevant studies involving methylmercury exposure in fish consumers to evaluate risk and have developed levels higher than the EPA's RfD.

Furthermore, the TCEQ is unaware of any documented adverse human health effects in the U.S. resulting from fish containing methylmercury. This runs contrary to the EPA's assertion that fish ingestion leading to blood mercury levels above the RfD constitute a public health hazard. The TCEQ's position is supported by recent data from the Centers for Disease Control's (CDC) National Health and Nutrition Examination Survey (NHANES), 2003-2008. The CDC's survey shows the mean blood mercury level for

pregnant women is 0.69 micrograms per liter (µg/L) (far below the EPA's RfD for methylmercury of 5.8 µg/L in blood). Furthermore, all blood mercury levels of 8,373 participants aged one year and older in the U.S. who took part in NHANES during 2003–2004 were below 33 µg/L, with an average blood mercury level of 0.797 µg/L and a 95th percentile blood mercury level of 4.90 µg/L. Although some individuals did have blood mercury levels greater than the RfD, none had blood mercury levels above the effects level (58 µg/L) associated with an increased proportion of abnormal scores on the Boston Naming Test for children exposed in utero.

A Texas-specific study conducted in 2004 by Texas Department of State Health Services (DSHS) determined that even when subsistence fishers are eating fish from Caddo Lake with elevated methylmercury, women of child-bearing years did not have blood mercury levels greater than the RfD. Thus, the connection between methylmercury in fish and adverse health effects in the U.S. is not fully understood and could involve other factors. For example, the protective effects of fatty acids and selenium in fish consumed by populations that eat large amounts of fish were not taken into account in the EPA's assessment. Because of the uncertainties involved in using the RfD and the lack of evidence that reductions in mercury emissions would provide any widespread reduction in concentrations of methylmercury in fish, the EPA should instead focus efforts on those regulations that would have a measurable and real public health benefit to the U.S. population.

Non-mercury HAPs

The EPA's rationale for determining that it is appropriate and necessary to regulate non-mercury HAPs is contrary to its 2000 finding, is scientifically unsound, arbitrary, and neither appropriate nor necessary.

The EPA incorrectly states that it made an appropriate and necessary finding for non-mercury HAP in 2000. The EPA did not, in fact, find that non-mercury HAP posed a public health risk in 2000 and the additional analysis performed for the utility NESHAP rule does not support such a finding for non-mercury HAP today.

The EPA repeatedly makes the claim that the volume of HAPs emitted by EGUs demonstrates that it is appropriate and necessary to control non-mercury HAPs through this rule. However, Congress' direction to the EPA under Section 112(n)(1)(A) of the FCAA requires EPA to regulate utilities *only if* the EPA finds that utility emissions pose a hazard to public health after imposition of the requirements of the FCAA. Based on the EPA's own inhalation risk assessment and the EPA's own admission in the proposed rule, public health risks are well within acceptable ranges for all non-mercury HAPs. Regulation is therefore not "appropriate."

The EPA defends its appropriate and necessary determination for acid gases with unsupported and untested conclusions that acid gas emissions from EGUs aggravate acidification of ecosystems. However, Section 112(n)(1)(A), which is the basis for listing EGUs, only speaks to hazards to public health after imposition of the requirements of the FCAA as a basis for such listing. Since, for example, the maximum chronic impacts of hydrogen chloride (HCl) emissions noted in the case study were less than 10% of the

reference concentration developed by the EPA, it is apparent that HCl emissions from EGUs do not pose a hazard to public health.

Furthermore, the EPA calculated emission factors for hydrofluoric acid were omitted from the case study risk assessment and, therefore, little can be deduced about the potential for public health hazard. Basing regulation of acid gases on ecosystem effects, especially effects that are not supported with adequate technical justification, is not supported under Section 112(n)(1)(A).

Finally, both acid gases and PM are regulated through other programs of the FCAA. As discussed in other TCEQ comments, regulation is therefore not "necessary."

Technological feasibility, MACT floor analysis, and proposed emission limits

The EPA's MACT floor analysis for existing lignite coal-fired EGU subcategory (designed to burn coal with a caloric value less than 8,300 Btu/lb and a height-to-depth ratio of 3.82 or greater) is flawed and does not include the minimum number of units required by Section 112(d)(3)(A).

The MACT floor analysis for mercury emissions from new and existing EGUs designed to burn lignite (coal having a calorific value of less than 8,300 Btu/lb in a unit with a furnace height-to-depth ratio of 3.82 or greater) only considered the emissions of two facilities. For existing sources, the MACT floor cannot be less stringent than the average emission limitation achieved by <u>the best-performing 12 percent of existing sources for source categories with 30 or more sources, or the best-performing 5 sources for source categories with fewer than 30 sources</u>. In the document National Emission Standards for Hazardous Air Pollutants (NESHAP) Maximum Achievable Control Technology (MACT) Floor Analysis for Coal- and Oil-fired Electric Utility Steam Generating Units – REVISED, dated May 18, 2011, the EPA states that the subcategory of new and existing EGUs designed to burn a coal having a calorific value of less than 8,300 Btu/lb in a unit with a furnace height-to-depth ratio of 3.82 consists of less than 30 units. As such, a minimum of five sources should have been used in developing the MACT floor per Section 112(d)(3)(A). The EPA's revised mercury MACT analysis spreadsheet indicates that the EPA had emissions data on 11 units within this subcategory, six of which are located within Texas. Emissions data on more than five units were available to the EPA for this subcategory, and the EPA has provided no justification for their deviation from the requirements of Section 112(d)(3)(A). Furthermore, the EPA is only using a single run from each of the two units selected for the existing unit MACT floor that gives the lowest possible result and thereby ignores test data that would raise the average emission result. This is compounded by the fact that the EPA is using the overall deviation from all the runs from the units to adjust the average. It is not statistically valid to apply a deviation to an average result when the deviation is determined from a larger population than the average. The EPA must apply the deviation from all the runs to the average result of all the runs.

In other words, EPA has cherry-picked data, using different approaches for establishing various MACT floor limits, some of which are highly questionable from a scientific and a common-sense perspective. In some cases, a single test run is used to set the emission limits. In other cases, the EPA has established the emission limit using test runs where the results were below the method detection limits by arbitrarily multiplying the detection limit by three.

Multiple and drastically different approaches have been used to select the emissions data for establishing various MACT floor limits. In some MACT floor analyses, the EPA uses the average of three test runs from the unit selected for the new unit MACT floor. In other analyses, the EPA uses the lowest run of three test runs. In at least one case, the EPA MACT floor analyses spreadsheet indicates that the mean of multiple runs is used, when in reality the cell formula for the mean uses the average of a single cell representing the lowest test run with no explanation given. Such variability in the data selection process without explanation renders any decision premised on such data technically specious and arbitrarily skewed. The EPA should be using a consistent approach to selecting the data for establishing the MACT floors and provide a detailed explanation of their approach. Any deviation from the process must be justified and explained clearly so the public has the opportunity to comment. In addition, relying on isolated test runs to establish regulatory emission limits when additional data is available is questionable and technically unsound. The EPA should be making maximum use of the data available rather than arbitrarily excluding valid test data.

The speciated non-mercury metal HAPs limits are derived piece-meal from eight different coal-fired EGUs with different fuels (lignite, bituminous, and subituminous fuels) and different designs (conventional boilers and fluidized bed-fired), and these limits are not feasible based on the data that the EPA relied upon to perform the MACT analysis. None of the units that EPA used to develop the non-mercury metal HAP limits for new units actually meet all the limits.

<u>Emission limits during startup, shutdown, and malfunctions</u>
EPA is revising provisions that address startup shutdown malfunction provisions such as those mentioned previously. This is a result of a 2008 court case involving the exemption in the general provisions of 40 Code of Federal Regulations Part 63 that exempted sources from complying with NESHAP emission standards during start-up, shutdown, and malfunctions. The EPA has been revising various NESHAP rules in response to the court mandate since last year. The EPA's approach has varied from rule to rule. However, for the utility NESHAP rule, EGUs would be required to meet the same emission rates established for "normal operation" as they would during start-up, shutdown, and malfunction. As the EPA has proposed this rule, these changes create a scenario where compliant operation is simply not possible.

<u>Compliance schedules</u>
The EPA is inappropriately relying on states to provide a one-year extension to the compliance time allowed rather than delay finalization of the NESHAP rule. States are encouraged to begin working with utility companies early to assess which sites may need extension; however, the EPA has provided no clear guidance on how states should

handle such extensions. Inconsistency in how states handle requests for extensions could create localized grid reliability issues and possible interstate conflicts for EGUs that service multiple states.

The TCEQ disagrees with the EPA's assessment that retrofitting existing facilities to meet the proposed NESHAP is achievable. Support information in EPA's proposed NESHAP includes an Assessment of Retrofits for the Air Toxics Rule. Specifically, the EPA estimates in Table 1 of its Assessment that 146 gigawatts (GW) worth of fabric filter baghouses will have to be constructed. This translates to approximately 300 to 400 fabric filters baghouses, depending upon the size of units retrofitted, in a three year period or four year period including the one extension. EPA also estimates additional scrubbers, selective catalytic reduction (SCR) systems, and carbon injection systems would need to be built. EPA's Assessment of Retrofits for the Air Toxics Rule does not factor-in construction required by the EPA's Clean Air Transport Rule that requires additional scrubbers, SCRs, and particulate controls be added at power plants. **Such large scale retrofit initiatives to any single industry have never before been mandated and implemented in a three to four year period.** EPA's assessment also does not take into consideration permitting and building production facilities to provide activated carbon, trona[1], and other pollution control technologies that will be used by utilities to comply with the proposed NESHAP standards.

The TCEQ also objects to the EPA's stated belief (76 FR 25054) that the ability of permitting authorities to grant one-year extensions along with other compliance tools ensures the emissions reductions will occur "while safeguarding completely against any risk of adverse impacts on the electricity system reliability."

Electric grid reliability

EPA asserts that the federal government will take action to ensure grid reliability, but provides no specifics for the states and the public on which to comment.

Instead of specifics, EPA makes several vague statements about steps to ensure a reliable and reasonably-priced supply of electricity, particularly regarding localized issues, without providing any details concerning what authority would be exercised. In one discussion (76 FR 24979), the EPA indicates that the federal government will work with companies to ensure a reliable and reasonably priced supply of electricity. In a separate discussion (76 FR 24979), the EPA states that it believes it has the ability to work with companies making good faith efforts to comply with the standards so that consumers in those areas are not adversely affected. The EPA should be clear about the steps it may take and what the federal government might do to provide all parties the opportunity to comment on the appropriateness and legality of such contemplated actions by EPA and other agencies of the federal government.

The TCEQ does not agree with the EPA's assumptions in its electrical power system reliability assessment or the EPA's assertions that there is sufficient surplus reserve margin in the electric generating capacity to avoid grid reliability problems from EGU

[1] Trona is a material used in dry sorbent injection for acid gas control.

retirements that the EPA anticipates. This disagreement is based on the fact that the EPA's assumptions and conclusions are not consistent with recent information from ERCOT. Reliability of the electrical power system cannot be evaluated in the grossly simplistic way that the EPA proposes. Instead of relying on EPA's IPM to assess reliability, the EPA must reevaluate the impact of their regulatory initiatives on the nation's electric grid reliability based on regional program information such as ERCOT's.

The EPA maintains that grid reliability should not be impacted. However, in the EPA's RIA and in their white paper entitled "Resource Adequacy and Reliability in the IPM Projects for the Toxics Rule," the EPA makes several incorrect assumptions. The EPA indicates that IPM only applies limitations on transmission capability between regions and assumes unlimited transmission capability within a model region (e.g., power generated anywhere in ERCOT can be transmitted anywhere in ERCOT); and this is not correct. Electrical power cannot be transmitted in an unlimited manner from anywhere to anywhere within a region as large as ERCOT. Fundamental principles of electrical transmission such as thermal restrictions on transmission lines and voltage stability restrict the distance that power can transmitted over power lines within the region. Further, the EPA indicates that IPM reduced the operational capacity from excess reserves that are assumed unnecessary in order to meet the approximately 10 GW of retired capacity that is expected from the proposed rule. However, it is unclear how or whether the EPA has accounted for units classified as Reliability-Must-Run (RMR) facilities that are necessary to ensure grid reliability in specific local areas.

The 25% surplus reserve margin that EPA cites as an indication that projected retirements will not affect reliability is a national average and is not consistent with ERCOT's local projections for Texas. While information from ERCOT indicates that the ERCOT region currently has 15.9% of surplus reserve (ERCOT 2010 Capacity, Demand, and Reserve Report, Winter Update, January 6, 2011), ERCOT expects that this surplus reserve will drop to 13.6% by 2017 even without impacts of the EPA's regulatory initiatives, which is slightly less than ERCOT's target reserve of 13.75%. A recent ERCOT report entitled "Review of the Potential Impacts of Proposed Environmental Regulations on the ERCOT System," was issued on May 11, 2011 and focused mainly on gas unit replacement. The report found that without additional replacement generation, the reserve margins could be reduced to less than 2% by 2015 as a direct result of the EPA's regulatory initiatives on EGUs. This estimated drop in reserve margins is significant, given the ERCOT report did not have time to fully analyze/consider the impacts of the NESHAP rule on coal-fired powered plants, which may jeopardize reserve margins to an even greater extent. The report also anticipates localized impacts on transmission reliability in the Houston and Dallas-Fort Worth areas. Copies of these ERCOT reports are available at: http://www.ercot.com/news/presentations/.

If the EPA adopts the utility NESHAP rule as proposed, the TCEQ expects severe consequences to the reliability of the Texas electrical power system in the short term for the existing coal-fired EGU fleet and in the ability of the utility industry to meet the future energy demands of Texas. The consequences of the risks to the electrical power system are beyond the EPA's superficial analysis of the potential impact to the cost of

electricity. In the public health and environmental evaluation for this proposed NESHAP, the EPA must consider the consequences to public health and the environment resulting from unavailable, unreliable, or unaffordable electricity.

Even considering the EPA's attempt to correct the major errors it made in calculating mercury emissions, the TCEQ does not consider the proposed NESHAP rule to be feasible for the coal-fired EGU fleet in Texas. **If the proposed NESHAP is adopted without major changes from the proposal, the TCEQ is very concerned that the reliability of the Texas electrical power system will be severely compromised.** The TCEQ anticipates that the ultimate outcome of the proposed NESHAP rule may be rolling blackouts and cost-prohibitive electricity. Without reliable and affordable electricity, sensitive populations may be at risk during severe winter weather or hot summer temperatures. Additionally, failure of the electrical power system for even a short duration has adverse environmental consequences as well. A power failure on wide geographic scale results in the operation of tens of thousands of back-up emergency generators, which are typically diesel-fired engines. Rather than pointing to vague steps that the EPA and the federal government may take to address electrical power system reliability problems after they occur, the EPA should be considering the consequences of their actions on the electrical power system and building an adequate safety margin into their rulemaking efforts to ensure that the electrical power system of the country is protected.

Clean Air Transport Rule

The EPA proposed a rule, known as the Clean Air Transport Rule (CATR), requiring 31 states and the District of Columbia to reduce power plant emissions that contribute to ozone and fine particle pollution in other states. The proposal is intended to help eastern states meet Federal Clean Air Act (FCAA) obligations regarding interstate transport of air pollution for the 1997 eight-hour ozone and fine particulate matter ($PM_{2.5}$) and 2006 $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS). The proposal would require reductions in the ozone season (May through September) of nitrogen oxides (NO_X) emissions that cross state lines for states under the ozone requirements and reductions in annual sulfur dioxide (SO_2) and NO_X for states under the $PM_{2.5}$ requirements. The proposed rule includes Texas only under the ozone season requirements, but sought comment on the inclusion of Texas as a "Group 2 SO2 Trading" state. To assure emissions reductions, the EPA is proposing to immediately implement federal implementation plans (FIP) for each of the states covered by the rule; and states may subsequently choose to develop State Implementation Plan (SIP) revisions to replace the federal plan.

This rule represents another case where EPA has inadequately rationalized the need for a complex regulatory scheme to solve a non-existent problem. TCEQ is focused on the possibility that EPA may include Texas for transport that influences $PM_{2.5}$ concentrations, which would be illegal and unjustified. However, even if Texas was removed from the $PM_{2.5}$ transport portion of CATR, there are still significant errors and technical flaws associated with Texas' inclusion in the ozone transport portion.

Particulate Matter Transport

The CATR, as proposed in August 2010 by EPA, did not include Texas in the annual program for nitrogen oxides (NO_x) and SO_2 emission reductions to address $PM_{2.5}$ transport. In fact, EPA's proposed rule acknowledges that Texas power plant emissions, as modeled by EPA, do not exceed the threshold for inclusion in the $PM_{2.5}$ portion of CATR. Within this rule, EPA has developed a questionable scenario under which CATR would make higher sulfur coals more cost effective than lower sulfur fuels. The cascading result of this price point is that Texas' SO_2 emissions would cause an air quality effect exceeding the threshold. EPA uses this scenario to take comment on whether Texas should be included in the program as a "group 2" state. EPA conjectures,

> [I]**f** . . . price effects took place and **if** the rule is finalized as proposed, sources in states not covered by the proposed rule **might** choose to use higher sulfur coals. Increased uses of such coals **could** thus increase SO_2 emissions in those states.[2] (Emphasis added.)

In no part of this 256 page rule (or its subsequent three notices) does the EPA provide Texas with proposed emission limits, allocation budgets, or specify proposed requirements for Texas. If the EPA wanted to consider including Texas in the SO_2 Group 2 Trading Program because of assumed future concerns with $PM_{2.5}$, then the EPA should have proposed the rule in that manner or proposed an alternative that included Texas so that affected entities would be given adequate notice to comment. Further, any inclusion of Texas in the $PM_{2.5}$ program should be proposed with an adequate rationale and evidence supporting the need for this inclusion. If the final rule does include Texas in the SO_2 Group 2 Trading Program at adoption of this rulemaking, potentially regulated entities would have been denied the opportunity to comment on the adequacy of the SO_2 budgets, new unit set-aside, and variability limits.

Procedurally, if Texas is included in the final rule, the rule would satisfy neither the Administrative Procedure Act nor the President's Executive Order calling for adequate notice and participation from affected parties. EPA's disregard of these procedural, legal obligations portends more litigation and judiciary involvement in their final resolution at significant cost to the public.

Technically speaking, this rule is another example of EPA fabricating a scenario in order to justify its actions. Consider that the inclusion of Texas relies first on the assumption from EPA's models that the cost of low sulfur coal will increase and the cost of high sulfur coal will decrease. The second assumption on which their argument relies is the notion that switching coal types is not only logistically possible, but legally possible. All coal-fired power plants in Texas operate under state and federal permits that have explicit restrictions on fuel types as well as SO_2 emissions limits. Significant emission increases resulting from fuel switching would require permit modifications that would certainly require an assessment and authorization of additional SO_2 emissions. EPA ignores or disregards the significant effort that would be required to obtain this type of

[2] See 75 FR 45284.

large-scale permit modification, especially in light of the recent revision of the SO_2 NAAQS. In the TCEQ's comments on the proposed rule, staff also identified significant mischaracterizations of the current fuel mix for at least four facilities in Texas. This type of flawed logic and inaccurate technical analysis should not be used as a basis for any rule, much less under the hypothetical scenario that EPA devises as a means to include Texas in this program.

Economic effects

This rule, if we correctly understand its final form, puts at risk the economic future of power generation and those dependent on affordable electricity in Texas. It also places vulnerable citizens at a significant health and safety risk. For example, elderly and low-income populations whose health and welfare are dependent on reliable energy would face significant adverse consequences resulting from such a rule. While air pollution regulation is certainly necessary to protect the health of our citizens, the elements of this regulation pertaining to Texas' SO_2 emissions are not necessary for public health protection, and only result in negative consequences.

The President's Executive Order calls for "careful analysis of the likely consequence of regulation, including consideration of underlying science, or alternatives, of costs and benefits and of simplified, harmonized, and flexible methods for achieving regulatory goals." Because the possibility of including Texas was not adequately fleshed out as a part of the rule proposal, EPA certainly did not adequately assess the impacts of this rule on Texas, nor did Texas have the opportunity to comment on the possible consequences.

If coal-fired power plants in Texas are faced with these significant emission reductions, decisions regarding the operation of these plants may result in considerable reductions in the safety margins of power operation of this state. Said differently, the strong disincentives for operation of coal-fired power plants would undoubtedly result in significant cost to energy consumers including the possible shutdown of base-load units. Manufacturing and production plants also rely on affordable energy to continue or even expand operation. This economic "ripple effect" has certainly not been fully considered by EPA. Again, because the proposal did not contain any specifics on how Texas would be regulated under this scheme, we are not able to fully evaluate the significant effects, such as shutdowns, of this rule.

The resulting effect of increased cost of power and power shortages, such as rolling blackouts, would not only jeopardize the personal and economic health of Texas citizens, but also endanger lives. Whether it is cost-prohibitive to operate electricity or electricity is simply unavailable, vulnerable populations, such as the elderly and low-income, will be put at risk if EPA pursues inappropriate regulation of SO_2 in Texas under the guise of $PM_{2.5}$ transport.

Ozone Transport

In order to establish the need to regulate Texas under the ozone transport portion of CATR, the EPA takes a baseline emission inventory, conducts photochemical modeling

and assesses the impacts on other nonattainment areas to determine that controls are necessary in Texas. EPA's technical analysis is flawed at each step of this process.

First, the emissions included in the modeling do not account for significant NO_x emissions reduction in the Houston-Galveston-Brazoria area. In fact, EPA assumes that at least 19,000 tons per year of NO_x emissions would be present in a future year that have been already reduced under the Texas SIP. Second, and not surprisingly because the inventory is flawed, EPA's model over-predicts in both Texas and in East Baton Rouge, Louisiana, which is the one area to which Texas is linked in the proposed rule. Of particular concern is the fact that Baton Rouge is currently monitoring well below the 1997 eight-hour ozone standard, with a 2009 design value of 80 parts per billion (ppb), and the EPA has just finalized a determination of the attainment for the area under the 1997 eight-hour ozone standard. Therefore, we question EPA's rationale in deciding to include Texas given EPA has acknowledged that the Baton Rouge area is no longer a nonattainment area.

In its comments provided to EPA on this rule, TCEQ identified inconsistencies in design value calculation methods, underestimated cost per ton for NO_x reductions, and inaccurate information in its planning model for numerous facilities in Texas. Therefore, EPA's technical analysis used to support Texas' inclusion in the Transport Rule ozone-season NO_x trading program relies on incomplete data, flawed modeling, and modeling calculations contrary to actual monitored values. The EPA is misleading the public and itself about the quality of information used to form the cornerstone of the Transport Rule.

SIP Gap

Under the FCAA section 110(k), the EPA has a non-discretionary duty to take final action on revisions to State Implementation Plan (SIP) submittals made by states within 18 months of submittal. EPA's failure to act on TCEQ's SIP submittals has caused a significant "SIP Gap" in Texas. While there is an expected delay between TCEQ's rule adoption and EPA approval/disapproval, numerous years of delay has caused and continues to cause uncertainty for the regulated community and the general public who want to understand environmental laws that govern their business or the industry in their community.

To legally force EPA to act on some of TCEQ's SIP submittals, a lawsuit was filed by Business Coalition for Clean Air. In 2009, EPA entered into a settlement agreement that binds EPA to act on 24 SIP submittals by specific time frames. These SIP submittals appear to be taking priority over all other submittals, even though TCEQ continues to submit rule revisions that address EPA concerns, such as public participation – however, an expeditious and meaningful review by EPA has yet to occur.

As of June 21, 2011, EPA has exceeded its federally-mandated 18 month timeframe for about 40 SIP submittals from the TCEQ. The oldest of these is from December 1989 (although those rules have been subsequently amended).

On August 9, 2010, I sent a letter to EPA expressing my concern that EPA and TCEQ have drifted away from the agreement made at an October 8, 2009 meeting that we would work together on fixing rules. This agreement was subsequently confirmed in a TCEQ letter dated October 23, 2009. EPA's response continued to find additional faults with TCEQ's air permitting program and made little effort to get back to the agreement to review and fix TCEQ rules.

Most recently - in what appears to be motivated by one of the looming settlement agreement deadlines - EPA sent a letter requesting the TCEQ withdraw its SIP submittal of the previous oil and gas standard permit and permit by rule. In lieu of EPA thoroughly reviewing the rules to specify any deficiencies, TCEQ was requested to withdraw its rules 16 years after they were submitted to EPA.

Perhaps EPA's most well-known and most detrimental (to-date) failure to act is their inaction on the Texas Flexible permit program, which EPA delayed by almost thirteen years. During this thirteen year period, over one hundred flexible permits were issued to major Texas businesses such as refineries, petrochemical companies, and power plants. At the same time, TCEQ and EPA continued to discuss the flexible permit program, which EPA did not formally disapprove in a September 2009 Federal Register Notice, when EPA clearly identifying perceived deficiencies. To continue working on solutions to EPA's identified issues with the flexible permits, TCEQ revised its rules. Regardless, all the flexible permit holders have been required to tell EPA how they plan to transition to a different type of permit or be subject to EPA enforcement.

TCEQ, the citizens of Texas, and the regulated community need certainty from EPA to ensure the continued protection of public health and the environment in conjunction with sustainable economic growth.

Conclusion

EPA's practice of prosing technically flawed and inadequate rules, in combination with a lack of action where needed within the SIP process, leaves all sectors of industry in a reactive mode. How could any facility plan for economic growth where tomorrow's regulatory demands are in constant flux?

Unfortunately, the energy sector is a captive recipient of EPA's attention. Unlike other industry, the possibility of moving to a more industry-friendly regulatory environmental outside of the US is not an option. These regulations have vast economic effects, not limited to the direct energy generation costs that will be felt by every energy consumer, but also through the indirect effects of higher costs associated with the cost of manufacturing goods, and regrettably, the potential for lost jobs, as all sectors struggle to absorb these costs.

Businesses need certainty to drive our economy and thrive. Businesses should be subject to reasonable and appropriately protective regulation. For citizens to be protected from harmful pollution, both federal and state governments need to focus

their resources on real risks, instead of creating false crises that frighten the public and misuse public resources.