COMMENTS BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY REGARDING EMISSION GUIDELINES FOR GREENHOUSE GAS EMISSIONS FROM EXISTING ELECTRIC UTILITY GENERATING UNITS; REVISIONS TO EMISSION GUIDELINE IMPLEMENTING REGULATIONS; REVISIONS TO NEW SOURCE REVIEW PROGRAM; EPA DOCKET ID NO. EPA-HQ-OAR-2017-0355

I. Summary of Notice

On August 31, 2018, the United States Environmental Protection Agency (EPA) issued a proposed rule in the *Federal Register* concerning emission guidelines for greenhouse gas (GHG) emissions from existing electric utility generating units (EGU) under Federal Clean Air Act (FCAA), §111(d), also identified as the Affordable Clean Energy (ACE) rule. The proposal also includes proposed revisions to the emission guideline implementing regulations for state plans developed under FCAA, §111(d) and for the New Source Review (NSR) permitting program. The proposed ACE rule establishing state guidelines for GHG emissions from existing EGUs would serve as a replacement to the EPA's Clean Power Plan (CPP) rule finalized October 23, 2015. The EPA has also proposed a repeal of the CPP rule, which was published in the *Federal Register* on October 16, 2017.

II. Comments

A. General Comments

1. While the Texas Commission on Environmental Quality (TCEQ) supports some elements of the proposed revisions to the implementation rules and the proposed ACE rule, as discussed in these comments, the TCEQ maintains that any replacement to the CPP rule is premature while the EPA is reconsidering the FCAA, §111(b) rule in 40 Code of Federal Regulations (CFR), Part 60, Subpart TTTT. (General)

As the TCEQ, Public Utility Commission of Texas, and the Railroad Commission of Texas indicated in comments submitted on the EPA's Advance Notice of Proposed Rulemaking (ANPR) on emission guidelines for GHG from existing EGUs, it is premature for the EPA to be proposing a replacement rule for the CPP rule. The legality of both the FCAA, §111(b) New Source Performance Standards (NSPS) rule and the §111(d) CPP rule have been challenged in petitions filed in the D.C. Circuit Court of Appeals, and these cases currently remain abated by orders of the court. If the EPA should decide to repeal the GHG emissions NSPS rule for new, modified, and reconstructed EGUs then the EPA would have no legal authority to adopt any rule to set GHG emission guidelines for existing EGUs under §111(d). Until the EPA has fully reviewed the NSPS Subpart TTTT rule and its authority to regulate new or modified sources of GHGs under §111(b), as well as established a clear finding of endangerment from GHGs from this source category following the statutory text in §111(b)(1)(A), the EPA should not begin the process of replacing the CPP rule. However, while the proposed ACE rule is premature, the following comments are provided for the EPA's consideration. The TCEQ also appreciates the components of the proposed ACE rule and the emission guideline implementation rule that are based on comments submitted on the ANPR by the TCEQ, Public Utility Commission of Texas, and the Railroad Commission of Texas.

B. Proposed ACE Rule

1. The TCEQ supports the EPA's proposed interpretation of best system of emission reduction (BSER) and determination of heat rate improvement (HRI) as the BSER for affected coal-fired EGUs. (C-2)

The TCEQ agrees with the EPA's proposed interpretation that BSER is source-based and is limited to emission reduction measures that can be implemented on-site by the affected source. This departure from how the BSER was applied in the CPP rule is consistent with the statutory text of FCAA, §111(a)(1) and is in line with prior actions taken under FCAA, §111 for both existing sources and NSPS. The EPA's previous stance taken on the application of BSER in the CPP rule extended beyond what a source itself could implement and beyond the EPA's authority by evaluating the electric grid and states' energy policies as a whole. The EPA is not granted authority under FCAA, §111 to establish BSER in this way. The TCEQ submitted comments on this previous legal interpretation of BSER, arguing that the EPA was using FCAA, §111(d) to regulate 'outside the fence,' which is beyond the authority given by Congress through its definition of BSER.

The EPA determined the BSER for coal-fired EGUs is HRI. The TCEQ supports this determination and agrees that it is within the FCAA, §111 statutory limitation that the BSER can be implemented to and at a source. This selective approach gives states the flexibility to determine the heat rate improvement best for a particular unit given its site-specific operating details while also allowing for implementation of an HRI measure not listed and avoids imposing burden on states to evaluate every single HRI possibility. The EPA's identified list of candidate technologies constituting the best HRI for coal-fired EGUs provides clarity and guidance on the expectation of a state's responsibility in fulfilling its BSER evaluation in setting standards of performance for state plan purposes.

2. The proposed ACE rule imposes a substantial burden on regulatory agencies and permitting authorities responsible for implementation, and on regulated facilities. (General, C-4, C-14)

Although the TCEQ recognizes that the EPA has improved many aspects of the proposed ACE rule over the CPP rule, there would still be a significant impact to state regulatory agencies and permitting authorities that would be responsible for evaluating their population of existing EGUs and developing appropriate standards of performance, on a unit-specific basis, to implement the emission guidelines. As discussed in TCEQ Comment B.7., although the preamble implies that only coal-fired EGUs will be affected by the proposed rule, the rule text itself appears to encompass all fossil-fuel fired EGUs with a capacity greater than 25 megawatts (MW) as affected sources, with some exemptions. The TCEQ is the primary administrator and enforcer of environmental rules in Texas and given the number of potentially affected EGUs in Texas, conducting unit-specific evaluations of HRI potential represents a substantial administrative and technical burden.

If the applicability of units that must be included in the state plan is limited to only coal-fired steam generating EGUs, then approximately 30 units in Texas would be expected to be subject to the state plan, considering recent and expected retirements. However, as discussed in TCEQ Comment B.7., the EPA's applicability for EGUs that

must be addressed in the state plan is unclear and other fossil fuel-fired EGUs may need to be addressed in the state plan. Furthermore, as discussed in TCEQ Comment B.8., the EPA's proposed requirement that a unit must have always had a federally enforceable permit limiting annual net electric sales to qualify for the exemption in 40 CFR §60.5755a(a)(2) further complicates determining the exact number of units that could be subject to the emission guideline requirements. If traditional natural gas-fired steam generating EGUs are subject to the final state plan requirements, the total number of units that the TCEQ may have to evaluate could be between 90 and 100. If heat recovery steam generators (HRSG) with natural gas combined cycle (NGCC) EGUs are subject, the potential number of units would substantially increase further.

The TCEQ routinely evaluates Best Available Control Technology (BACT) for new and modified facilities, but the scope of a unit-specific BSER evaluation is well beyond current BACT reviews and would require considerable data that is currently not generally available to the TCEQ. Such data includes, but is not limited to, current and historical unit performance, projected remaining useful life, and projected future utilization of the unit. Gathering and evaluating this data for each applicable unit would require significant resources and effort by the TCEQ and by the regulated entities that would be responsible for providing this information.

3. The TCEQ disagrees with the EPA's estimated information collection request (ICR) cost impact to states derived from the expected recordkeeping and reporting burden associated with developing, implementing, and enforcing a state plan to limit carbon dioxide (CO_2) emissions from existing EGUs. The EPA should reevaluate the costs to the states after engaging with state agencies to better determine the impacts. (C-72)

The EPA's ICR claims that the estimated annualized cost to the 43 states expected to respond totals $21,500. The EPA indicates that this cost is based on the recordkeeping and reporting burden associated with a state plan, but it is unclear what specific information the EPA used in its calculation. Although the number of affected EGUs in each state varies, the TCEQ is confident that for Texas alone, $21,500 is a fraction of the cost it will require to develop a state plan considering the magnitude of technical work, number of affected sources, and the number of skilled staff hours involved. Consequently, this cost estimate severely mistakes the total cost that will be incurred by the 43 states projected to report. It is anticipated that numerous staff working in many TCEQ program areas across the agency will need to contribute and participate in the ICR response. Such contributions may include information such as rulemaking to require EGUs to provide source-specific operating information, collecting and evaluating emissions data reported by affected EGUs, analyzing control technologies, and developing an application for compliance tracking and reporting. Especially in the development of a state plan, the TCEQ would have to expend a significant amount of staff resources on obtaining source-specific information needed to determine standards of performance since it does not have the same authority as EPA to require its affected sources to supply such information. It is likely that many of the activities needed to develop a state plan would in fact be a burden passed on to the state and would not be part of the normal course of activities since an emissions guideline program like ACE is not currently in place in Texas. The EPA should meaningfully reevaluate the costs that would be imposed upon states and provide a more realistic cost estimate considering the magnitude of staff hours likely required. The TCEQ

cannot provide estimates of staff hours at this time due to the uncertainties with applicability and other aspects in the rule that need clarification, as discussed in the TCEQ's comments. The EPA should engage with the states prior to finalizing the rule to provide clarification and obtain information to better determine the cost impact of the ACE rule.

4. The complex nature of the work required to determine the standards of performance for each affected unit and develop a state plan may require up to five years be allowed for state plans to be submitted. (C-52)

As discussed in TCEQ Comment C.2., the TCEQ appreciates the EPA's proposal to grant additional time to states for state plan development. However, some of the information necessary to perform the review that the EPA is contemplating with its BSER guidelines to establish standards of performance is not information that is normally submitted to the TCEQ in permitting actions or that the TCEQ will have ready access to. Furthermore, companies may have to perform site-specific assessments to even determine the current status of their equipment to provide the TCEQ with the necessary information. States do not necessarily have the broad authority that the EPA has under FCAA, §114 and the TCEQ may need to implement separate rulemaking solely to require the affected sources to submit the information needed to perform the analyses. Here is a possible timeline for taking such a staged approach.

- TCEQ rulemaking to require sources to perform site assessments: 1.5 year
- Sources perform site assessments and submit results to TCEQ: 0.5 year
- TCEQ staff perform analysis to determine unit-specific standards of performance: 1.5 years
- Final state plan proposal and adoption with accompanying rulemaking or other enforceable mechanisms: 1.5 years

Note that these stages are sequential and cannot be overlapped. Depending on the number of affected units, the TCEQ estimates that up to five years may be needed for the state to submit an initial state plan once the EPA has finalized the emission guidelines. If more than just coal-fired EGUs are subject to the final emission guidelines, then additional time beyond five years may be needed. The approach is similar to the approach used for best available retrofit technology (BART) analyses under the EPA's Regional Haze Rule. However, while BART analyses focused on environmental upgrades, the ACE rule focuses on HRI assessments and may require additional time for the companies and the TCEQ to evaluate possible measures to improve heat rates on a unit-specific basis. Furthermore, as discussed in TCEQ Comments B.5. and C.5., the EPA is proposing to require substantial information with the state plan submittal, such as projected future operations and, if increments of progress are required, a schedule of contracting and construction, which companies will not have without discussing with possible contractors. The TCEQ suggests that states be allowed five years to submit state plans rather than three years as proposed by the EPA.

5. Some of the state plan content requirements proposed in 40 CFR §60.5740a(a)(4) should be removed because the requirements are unnecessary and place significant burden on the states. (C-46)

While the EPA should list the state plan content requirements of the ACE rule, the EPA is proposing to require information that does not appear to have any purpose toward evaluating whether the state has properly performed the analysis to determine the standards of performance or to ensure enforceability of the state plan. Specifically, the following items listed under §60.5740a(a)(4) are of concern.

- A summary of each affected EGU's anticipated future operation, including: annual generation; CO_2 emissions; fixed and variable operations and maintenance costs; heat rates; electric generation capacity and capacity factor - §60.5740a(a)(4)(i)(A - F)
- A timeline for implementation of unit-specific actions - §60.5740a(a)(4)(ii))
- All wholesale electricity prices - §60.5740a(a)(4)(iii)
- A time period of analysis that must extend through at least 2035 - §60.5740a(a)(4)(iv)

Additionally, requiring power generation companies to provide forward-looking data and financial projections such as anticipated future operation, fixed and variable costs, maintenance costs and more, could have market implications. The TCEQ has concerns this type of information may be considered to be either proprietary information of market participants or unavailable entirely. In a competitive market, power generation companies use such measures to price their bids into the wholesale market, and to divulge those publicly would be to reveal proprietary information related to business strategy. Regarding other data requested for a state plan, such as wholesale prices and future utilization of a particular unit, the nature of such information is inherently speculative and unknowable even to the operators given that the wholesale market responds to real-time demand, which constantly changes.

The possible future generation, fuel prices, maintenance cost, and other elements under §60.5740a(a)(4)(i)(A - F) as well as wholesale electricity prices under §60.5740a(a)(4)(ii) are not relevant to a demonstration of compliance with the standard of performance or whether the state has properly determined the standards of performance. A state plan must have specific dates for compliance with the standards of performance. Requiring the states and the affected companies to provide a unit-specific timeline of when different steps are taken to reach compliance by the specified date is unnecessary and burdensome. Furthermore, expecting the states to perform these analyses through at least 2035 serves no purpose and puts a significant burden on the state as such an analysis would require extensive modelling of the electric utility system in Texas, which is beyond the expertise of the TCEQ. Unless the EPA can provide a clear and rational justification why these components are necessary for the EPA to evaluate state plan submittals and ensure enforceability of the standards of performance, the EPA should remove the above-listed items from the state plan content requirements.

6. The state plan content requirements should not include open-ended provisions that allow the EPA to require states to submit any information the EPA deems necessary. (C-46)

Under the state plan content requirements in §60.5740a(a)(8)(iii), the proposed rule requires that the states must include any other materials necessary to support evaluation of the plan by the EPA. Such an open-ended content requirement would make it impossible for the TCEQ to know whether a state plan submittal is complete. Content requirements for the state plan must be clear and specific. Section 60.5740a(a)(8)(iii) and any other similar open-ended provisions affecting state plan content requirements should be removed from the rule.

7. The EPA should clarify whether the ACE rule applies to only coal-fired steam generating units, consistent with its BSER determination, or if it applies more generally to any fossil fuel-fired steam generating unit that otherwise meets the applicability criteria. (C-4)

The proposed definition of affected EGUs in 40 CFR §60.5775a refers to all fossil fuel-fired steam generating units; however, the EPA's proposed determination of BSER applies only to coal-fired steam generating units. Specifically, in the ACE rule the EPA is proposing to determine that HRI is the BSER for affected existing coal-fired EGUs and is proposing a list of candidate HRI technologies for states to use in establishing standards of performance for coal-fired EGUs. The proposed definition of affected EGUs is inconsistent with the EPA's own BSER determination. While the proposed rule preamble interchanges the terms "coal-fired" and "fossil fuel-fired" in its discussion of affected sources, the proposed rule language in §60.5775a specifically states "fossil fuel-fired." The EPA does not provide a rationale for why the affected EGUs are not limited to "coal-fired" steam generating units, consistent with its BSER determination, apart from the fact that EPA is taking comment on the definition of affected EGUs. The proposal is also unclear whether the ACE rule is intended to apply to HRSG at NGCC units. Although the rule preamble sections concerning HRI for natural gas-fired stationary combustion turbines and averaging and trading both imply that NGCC units are not affected units under the proposed ACE rule, the way the rule applicability is defined under §60.5775a and 40 CFR §60.5780a does not specifically exclude HRSG at NGCC units from the rule. It is possible that there are existing natural gas-fired or other fossil fuel-fired units that would not meet any of the exclusion criteria in §60.5780a and could therefore be subject to the ACE rule.

8. The EPA should remove the phrase "and always has been" from the exemption in §60.5780a(a)(2). (C-4)

Proposed §60.5780a(a)(2) would exclude from being an affected unit a steam generating unit that is, and always has been, subject to a federally enforceable permit limiting annual net-electric sales to one-third or less of its potential electric output, or 219,000 MWh or less. The EPA has provided no justification for the requirement in §60.5780a(a)(2) that a steam generating unit "always has been" subject to a federally enforceable permit limiting annual net-electric sales. If an affected unit is currently subject to a federally enforceable permit limit as stringent as the stated criteria for exclusion at the time of submittal of the state plan, it should be eligible for exclusion regardless of whether that permit limit "always has been" in place. Furthermore, the EPA does not include such a provision in similar exemptions in other federal

regulations applicable to EGUs, such as the Cross-State Air Pollution Rule Nitrogen Oxides Ozone Season Group 2 Trading Program, 40 CFR Part 97, §97.804(b)(1)(i)(B)).

9. The EPA should clarify in the rule language at §60.5755a that the percentage ranges of HRI potential for the measures listed in Table 1 of the preamble are only provided to illustrate the EPA's estimated potential for these measures and their inclusion as candidate technologies for the EPA's BSER determination, but they are not the actual percentages that would apply to all affected sources. (C-7)

The EPA indicates in the proposed rule preamble that each of the technologies listed in Table 1 of the proposed rule preamble (83 FR 44757) may not be available or appropriate for all types of EGUs and that the actual HRI performance for each of the technologies will be unit-specific. The state is expected to use the information provided by the EPA in Table 1 as guidance. The EPA must make clear in the standard of performance requirement in §60.5755a(a)(2) that when the state considers the applicability of each of the technologies in §60.5740a(a)(1), the state will not be held to the percentage improvement ranges for the measures listed in Table 1. If a state finds that a potential measure evaluated at a specific source has an HRI potential below the range listed in Table 1, the resulting standard of performance determined based on this analysis must still be approvable by the EPA, assuming all other technical requirements under §60.5755a have been met. Often, the EPA refers to "guidelines" and "guidance" documents in a way that implies they are not necessarily "requirements," but then are ultimately used by the EPA as a basis for approvability of a state action, thereby giving states very little flexibility when implementing regulations. An example of this is the EPA's policy that control techniques guidelines establish presumptive reasonably available control technology under FCAA, §182(b)(2).

10. States may not have the authority to either require the shutdown of an affected source by a compliance deadline or to set a dual standard including an emission standard that is applicable only if an affected source does not shut down. (C-24)

The EPA is requesting comment on the proposed treatment of a source that has a "short" remaining useful life and suggests that the state could set an emission standard that would apply if the source does not shut down, presumably as estimated by its remaining useful life. First, the EPA should provide clarification on the meaning of "short" remaining useful life. Specifically, whether that definition should apply to sources projected to shut down before the submittal of the state plan, or instead, to shut down before the compliance deadline for similar sources. Second, the state may not have the authority to mandate that a source is shut down by a certain date. It is unclear how a state could develop a standard of performance that includes both an emission standard and a shutdown requirement. If the state is to consider remaining useful life in its determination of the standard of performance for a source, it should be unnecessary for a state to mandate a shut down if it sets a reasonable emission standard for that source.

11. The TCEQ supports and recommends allowing states to implement averaging and emissions trading programs as alternative compliance program options for affected coal-fired EGUs. (C-29, C-30)

Allowing states the option of implementing facility-wide averaging or an emissions trading program provides compliance flexibility for affected EGUs. The type of program employed should be at the discretion of a state since the state is responsible for implementation and enforcement of a state plan. These types of alternative compliance options are not replacing the BSER and do not preclude facility-specific evaluations or ignore the consideration of certain factors (e.g., remaining useful life) associated with establishing standards of performance. The EPA indicates that trading and averaging may not have been intended by Congress since the remaining useful life is a factor that can be considered by the state when assigning standards of performance. However, accounting for remaining useful life under an averaging or trading program should be no different than under setting individual standards of performance on a source-by-source basis. Similar to setting individual standards of performance for affected EGUs, the standards of performance achievable based on application of the BSER that can be applied to or at each source could be used in building an averaging approach or a statewide trading program for all affected units. These types of alternative compliance programs provide for flexibility in operation and variability in unit performance, size, dispatch, and dynamic electric market conditions but do not impede the state's ability to conduct a proper analysis of its affected sources to meet state planning requirements under FCAA, §111(d).

12. Electrical grid reliability is a critical "other factor" that states should and can evaluate when considering remaining useful life of a unit and setting standards of performance. The EPA should explicitly state in the final rule that states can consider grid reliability. (C-22)

The ACE rule does not take into account the unique aspects of the energy-only Electric Reliability Council of Texas (ERCOT) market, such as ERCOT's wholesale market design and security constrained economic dispatch of generation resources (SCED). Setting emission standards on EGUs that could limit or curtail power generation have the potential to harm grid reliability and the state needs to consider the potential risks to reliability. Texas is unique among all states in the fact that a large portion of the state operates in a vibrant and extremely successful competitive wholesale and retail electric market (ERCOT). Competitive wholesale electricity markets generally operate using security constrained economic dispatch (SCED).[1] That is, every electricity generator will

[1] In the Energy Policy Act of 2005, Congress defined SCED as the "operation of generation facilities to produce energy at the lowest cost to reliably serve consumers, recognizing any operational limits of generation and transmission facilities." Energy Policy Act of 2005, § 1234 (b), Public Law 109-58, 109th Congress, (Aug. 5, 2005). Both SPP and MISO operate using SCED. Under Texas law, the PUCT has been given broad authority to establish and oversee the competitive market in ERCOT. In PURA §39.001(a) the Texas Legislature stated, "that the production and sale of electricity is not a monopoly, warranting regulation of rates, operations and services and that the public interest in competitive electric markets requires that... electric services and their prices should be determined by customer choices and the normal forces of competition." TEX. UTIL. CODE ANN. § 39.001(a) (West 2007 and Supp. 2014). In PURA 39.001(d) the PUCT is required to "authorize or order competitive rather than regulatory methods to achieve the goals of this chapter to the greatest extent feasible and shall adopt rules and issue orders that are both practical and limited so as to impose the least impact on

bid into the market, and the grid operator will select the lowest set of the bids that meets demand. In well-functioning markets, generators are motivated to bid at or near their marginal cost of operation. Therefore, these markets provide strong incentives for every generator to maximize their efficiency through measures to reduce their heat rates and fuel consumption. Additional measures to reduce a unit's heat rate beyond those that generators already take in order to operate competitively could have the effect of making a unit economically unviable, which in turn could cause plants to exit the market, reduce generation reserves, and therefore harm the market's ability to meet grid demand.

The TCEQ interprets the proposed rule to allow consideration of such reliability concerns in the development of the state plan. The possible impacts to grid reliability are directly relevant when evaluating the remaining useful life of a unit, i.e., shortening the remaining useful life of unit may have harmful implications for grid reliability. Furthermore, the EPA states in the proposal that it intends for states to have considerable flexibility when setting emission standards.

> "In general, EPA envisions that, under the proposed program, the states would set standards based on considerations most appropriate to individual sources or groups of sources (*e.g.*, subcategories). These may include consideration of historical emission rates, effect of potential HRIs (informed by the information in EPA's candidate technologies described earlier in Section V), or changes in operation of the units, among other factors the state believes are relevant. As such, states have considerable flexibility in determining emission standards for units, as contemplated by the express statutory text." (83 FR 44763)

Also, as noted by the EPA, FCAA, §111(d)(1), explicitly requires the EPA to allow states to consider "among other factors, the remaining useful life of the existing source..." The EPA requested comment on what "other factors" besides remaining useful life a state can consider when setting emission standards. The TCEQ contends that grid reliability is a relevant other factor for §111(d) state plans applicable to power plants and requests that the EPA explicitly clarify in its final rule that grid reliability is a factor states may consider.

C. Proposed Emission Guideline Implementation Rule Revisions

1. The TCEQ supports the EPA's proposed definition of "emission guideline" in 40 CFR §60.21a(e). (C-50)

The TCEQ agrees with the EPA's proposed interpretation of an emission guideline clarifying that the purpose of the guideline document is to include information on the degree of emission reduction achievable through the application of BSER. The changes to this definition more effectively reflect the distinction in the EPA's and states' roles by eliminating the underlying suggestion that the EPA must set presumptive emission

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competition." TEX. UTIL. CODE ANN. §39.001(d) (West 2007 and Supp. 2014). In its wholesale market design rule for ERCOT, the PUCT directed that ERCOT's rules and protocols for operating the wholesale market, " shall be developed with consideration of microeconomic principles and shall promote economic efficiency in the production and consumption of electricity; support wholesale and retail competition" 16 Tex. Admin. Code § 25.501(a). Finally, the PUCT has directed that ERCOT wholesale market prices be established using SCED. 16 Tex. Admin. Code § 25.501(f).

limits. The FCAA intended states to set standards of performance for their affected sources based on the information provided by the EPA for the development of state plans. The proposed approach adheres to the statutory requirements under FCAA, §111 and is consistent with prior FCAA, §111(d) regulatory actions made by the EPA.

2. The TCEQ supports the proposed increase in the time allowed for state plans to be developed and submitted to the EPA. (C-44, C-45, C-52)

The EPA has proposed revisions to 40 CFR §60.22a and §60.23a that would require states to submit a state plan within three years after notice of the availability of a final emission guideline published under §60.22a. The current rules require states to submit a state plan within nine months of such notice of an emission guideline. The TCEQ is generally supportive of the proposed increase in time from nine months to three years; however, as discussed in TCEQ Comment B.2., given the complexity of gathering source information and evaluating potential improvements to EGUs subject to the proposed ACE rule, more than three years is expected to be necessary for state plan development under the ACE rule.

3. The TCEQ supports the concept of allowing electronic submittals of state plans as an option but recommends that the EPA allow state plans to be submitted either electronically or in traditional paper format. If the EPA develops a new platform for accepting state plans electronically, the TCEQ recommends that the platform be flexible enough to accept a wide range of document formats. (C-44, C-45)

While the TCEQ concurs with the EPA's belief that electronic submittals may reduce the burden of state plan submittals, some state agencies and permitting authorities may not have the technical expertise, software, hardware, and/or other infrastructure needed to prepare and reliably submit a state plan in an electronic format. In addition, there may be occasions when other factors (such as extended power outages, denial of service attacks, or other communication failures) make it difficult to submit a state plan electronically. For this reason, the TCEQ recommends that the EPA continue to allow states the option to submit state plans in paper form. As to the platform used for accepting state plans electronically, flexibility will be needed because state agencies and permitting authorities use a wide range of operating systems, applications, and other tools to generate the documentation needed to support a state plan. The TCEQ suggests that any platform developed by the EPA for the purpose of accepting state plans have the ability to accommodate a variety of document formats.

Additionally, the EPA has already established an electronic system for state implementation plan (SIP) submittals, the State Planning Electronic Collaboration System (SPeCS). The EPA has not specified whether a system for electronic submittal of state plans would be a separate or an existing system. However, if the EPA is contemplating creating a new system solely for state plan submittals then this may create confusion for states and the EPA. Modifying the existing SPeCS submittal system may be a simpler approach. Finally, electronic submittal of state plans will only ease burden on states if the EPA does not also require a hard copy be provided as well, whether by rule or informally. If the EPA decides to specifically require electronic submittal, then the regulation should also specify that states are not required to provide hard copies in addition to the electronic submittal.

4. While the TCEQ supports establishing a completeness review of state plans and specifying administrative criteria for completeness, some of the EPA's criteria for completeness are unnecessary and should be removed from the rule. (C-50)

The TCEQ appreciates the EPA proposing administrative criteria for completeness of a state plan, as was suggested in comments submitted on the ANPR for possible rulemaking to replace the CPP rule. However, some of the specific administrative criteria in proposed 40 CFR §60.27a(g)(2) are unnecessary or even place a significant burden on the state. Under provision §60.27a(g)(2)(iv), the EPA proposes to require states to indicate the changes made to the approved state plan and then provides as an example redline/strikethrough (83 FR 44807). However, in the preamble, the EPA states that for revisions to the approved plan, the submission *must* indicate the changes made to the approved plan by redline/strikethrough formatting (83 FR 44772). The TCEQ does not use redline/strikethrough in rulemaking activities because it is required to comply with the Texas Secretary of State's Office *Texas Register* formatting requirements to indicate changes during rulemaking. If the EPA intends to mandate redline/strikethrough formatting for revisions to state plans, the TCEQ would be required to create an entirely separate set of rulemaking documents solely to meet the EPA's formatting requirements for completeness criteria. This places an additional burden and cost on the states solely to meet an EPA preference. While the EPA needs to know what changes have been made to an approved plan when reviewing a submission, the specific format of how the state indicates those changes should not be set by rule and should not be included in the completeness criteria.

5. The proposed provisions regarding compliance schedules longer than 24 months in 40 CFR §60.24a(d)(1) and the increments of progress steps proposed in §60.21a(h) are unnecessary and create practical implementation issues with state plan development. (C-4)

The EPA's proposed §60.24a(d)(1) requires that a state plan must include legally enforceable increments of progress if the compliance date for the state plan is beyond 24 months after the due date for state plan submittal. However, the EPA's proposed definition of increments of progress in §60.21a(h) requires information that could be difficult or even impossible to obtain within the three years that EPA is proposing to allow for submitting state plans. Proposed §60.21a(h) lists the following steps to be included as increments of progress.

- Submittal of a final control plan
- Awarding of contracts for emission control systems or process modifications, or issuance of orders for purchase of components for emission control or process modification
- Initiation of on-site construction or installation of emission controls equipment or process change
- Final compliance

Companies will not necessarily know what specific changes will be needed until a final standard of performance has been determined and adopted for their specific units. Including enforceable deadlines for contracts, orders, and construction in the adopted state plan is problematic unless the standards of performance are adopted prior to the state plan being finalized. Furthermore, the companies must have time to assess their

specific strategies and provide the TCEQ with schedules for implementation. In addition to being impractical, the EPA's requirements for enforceable increments of progress are an unnecessary burden on the states and the affected companies. The state should only need to provide an adequate justification to the EPA why more than 24 months is needed for compliance. Some of the information listed in §60.21a(h) may be related to such a demonstration. For example, long construction times or contractor availability can lead to additional time for compliance. However, establishing enforceable deadlines for those changes does not itself justify the additional time. The TCEQ recommends that the definition of increments of progress in §60.21a(h) be deleted and §60.24a(d)(1) be revised to require states with compliance schedules longer than 24 months after the date required for state plan submittal to include supporting information justifying the compliance schedule set in the state plan.

6. The EPA should provide additional clarification as to the deadlines and timing associated with proposed §60.27a(g)(1), relating to the EPA's determination of completeness for a submitted state plan. (C-53)

Proposed §60.27a(g)(1) states that the EPA shall make a determination of completeness on the state plan within 60 days of the EPA's receipt of a state submission, but no later than six months after the date, if any, by which a state is required to submit the plan or revision. The latter part of this statement indicates that the EPA has until six months after the state's three-year deadline of the promulgated emission guidelines to review a state plan for completeness. However, further down in §60.27a(g)(1), the proposed rule states that any state plan or plan revision that has not been determined by the EPA by the date six months after *receipt* of the submission to have failed to meet the minimum criteria shall on that date be deemed by operation of law to meet such minimum criteria. This statement effectively indicates that the state plan would be automatically approved by the EPA if no determination of completeness is made by the date six months after EPA has received the state's submission. This appears to contradict the earlier statement that the EPA can make a determination up to six months after the date a state is required to submit a plan. If a state submits a plan well before the three-year deadline (for example, the plan is submitted two years following promulgation of the corresponding emissions guidelines), is the EPA's time frame to determine completeness either 1) six months after receipt of the state plan, or 2) six months after the three-year deadline by which the state was required to submit the plan?

7. The TCEQ is concerned that in many cases, the 12 months provided by proposed 40 CFR §60.28a for states to submit a revised state plan will not be sufficient. In addition, it is not clear how the proposed 12-month deadline of §60.28a would work in cases where the EPA publishes notice of a revision to an emission guideline within the three-year state plan development period after publication of the original final emission guideline. (General)

When the EPA publishes revisions to current or future emission guidelines, those revisions may range from minor or limited changes that can be relatively straightforward to incorporate into an existing state plan, to changes broad in scope and even control strategy or methodology that may require a level of research and development comparable to that needed for an original, full state plan. The TCEQ's administrative rulemaking process generally takes up to 18 months to complete, even

in cases that do not require rigorous research or development. The TCEQ recommends that the EPA allow at least 24 months for the development and submittal of state plan revisions following publication of the final revised emission guideline.

In addition, it is not clear how or whether the proposed 12-month deadline would apply in cases where the EPA publishes a revision to an emission guideline while the "original" final emission guideline is still in the three-year period when states are developing state plans. It would not be reasonable for states to be expected to complete and submit a *revision* to a state plan on or potentially before the deadline for the submittal of the original, final state plan. At a minimum, the TCEQ recommends that the EPA not require submittal of any revisions to a state plan within 24 months of the deadline for the submittal of the original state plan.

D. Proposed NSR Permitting Revisions

1. The proposed addition of an hourly emission increase test for purposes of major NSR applicability would require state rulemaking to implement and would create an inconsistency with how major NSR applicability functions for non-EGU sources. (General, C-61, C-62, C-66, C-67)

The EPA is proposing revisions to the NSR program with the intention of preventing NSR from being a barrier to the implementation of efficiency projects at EGUs. Specifically, the EPA has proposed an hourly emissions increase test as part of the evaluation of whether a change at an existing EGU would trigger major NSR applicability. The TCEQ has adopted state NSR regulations based on the current federal major NSR regulations, and rulemaking would be required to revise the current TCEQ regulations to coincide with the proposed changes to 40 CFR Parts 51 and 52. Although the EPA proposes the hourly emissions increase test as optional for states, if the TCEQ chose not to adopt the proposed changes, Texas could be at a regulatory disadvantage in terms of cost to implement HRI at existing facilities. Furthermore, this would disincentivize companies from investing in environmentally friendly HRI projects at sources in Texas versus HRI projects at holdings in other states. Finally, the EPA's proposal appears to apply the hourly emissions increase test to EGUs in general, not just those EGUs undergoing HRI projects for compliance with ACE rule. Not only does this create the regulatory issues mentioned above, this would create regulatory inconsistencies with all other industries. Other industries often trigger major NSR review when they implement more efficient processes, which allow them to increase annual production without increasing authorized hourly emissions.

E. Regulatory Impact Analysis (RIA)

1. The TCEQ appreciates the EPA's inclusion of cut-points in the co-benefits analysis and the EPA's sensitivity analysis. The TCEQ again encourages the EPA to further consider important methodological aspects of the underlying epidemiology literature and models and to quantify and clearly communicate uncertainty in the final analysis. (General)

The EPA's use of the lowest measured level (LML) of the premature mortality studies (Krewski et al. 2009 or LePeule et al. 2012) or the level of the 2012 particulate matter (PM) National Ambient Air Quality Standard (NAAQS) in the fine particulate matter ($PM_{2.5}$) benefits calculations is a notable improvement on the prior policy of predicting

benefits to 0 micrograms per cubic meter ($\mu g/m^3$). A similar cut-point approach should also be applied to ozone health benefits in this RIA. Effects below these cut-point levels are indeed highly uncertain, as represented in the EPA's justification for the level of the NAAQS in the respective final rules (USEPA 2012, USEPA 2015). In addition to the cut-point approach that helps evaluate the uncertainty of effects at low ambient concentrations, the TCEQ strongly encourages the EPA to continue efforts to quantify or mitigate other sources of uncertainty in its benefits estimation method.

2. The EPA should use the appropriate statistical concentration-response (C-R) function (relative risk, not hazard ratios) when calculating putative health effects from changes in pollutant concentrations. (General)

Cox proportional hazards models are commonly used to assess the association between changes in long-term mortality (and other health endpoints) and changes in pollutant concentrations. Cox proportional hazards models generate as their C-R function a hazard ratio, which describes the ratio in the populations being compared of the rate of an event (e.g. mortality) occurring for a person at a specific point in time, assuming that the event has not already occurred. A condition of the model is that the hazard ratio does not change over time. In contrast, the relative risk is the comparative cumulative risk at a particular time of the event occurring in one population compared to the other. The relative risk does change with time, for example two populations may have different mortality risks at early time points (e.g. smokers and non-smokers), but eventually all members of each population will die, and so their relative risk of mortality will be 1. As has been thoroughly described in a recent publication (Sutradhar 2018), the hazard ratio and the relative risk are not the same number, and one cannot be substituted for the other. Nor can they be easily converted.

While relative risk estimates can be used to estimate attributable risk (as is done in this RIA), the hazard ratio cannot be used to estimate attributable risk. In the ACE RIA (and other RIAs), it seems that hazard ratios are used in place of relative risks. For example, Krewski et al. (2009) clearly labels their effect estimates as hazard ratios, but the exact same numbers seem to be used as estimates for calculating attributable risk (as if they were actually relative risks). The EPA should make it clear that these two estimates are not interchangeable, and should endeavor to only use the appropriate estimate, and to make sure that the underlying estimate from the original studies has been properly labeled (e.g. LePeule et al. 2012 labels their C-R estimates as relative risk but states that they are derived from a Cox proportional hazards model).

3. In order to minimize uncertainty, the EPA should revise its method for selecting epidemiology studies that are used to quantify health impacts in benefits calculations. (General)

The EPA's health impact assessment currently includes a suite of epidemiology studies that provide concentration-response functions for various health endpoints. However, it does not appear that the EPA evaluated certain key elements of those studies to ensure that subsequent quantitative analysis would be considered reliable for the purpose of justifying a rule. For example, LePeule et al. (2012), which the EPA uses to calculate all-cause premature mortality due to $PM_{2.5}$ exposure, used measured particulate matter with a diameter of 10 micrometers or less (PM_{10}) concentrations and

visibility data to impute $PM_{2.5}$ exposures for 10-12 years of the study. Including such studies, along with the inherent uncertainty due to their methods, increases the uncertainty in the EPA's resulting risk estimate. A less uncertain approach would be to restrict the analysis to only those studies with the strongest methods, such as those with validated, measured $PM_{2.5}$ concentrations.

The EPA should also endeavor to ensure that study results are, in fact, comparable prior to pooling them in its benefits estimation process. Epidemiology studies use a wide variety of methods for calculating exposure concentrations. Of the $PM_{2.5}$ studies cited in this RIA, 24-hour average concentrations were averaged over periods of several days, two weeks, or two months; and annual averages were calculated over periods of up to seven years. Of the ozone studies, averaging times from single days to four weeks were used (the ozone NAAQS is based on a daily eight-hour maximum average). In addition to averaging time, older studies use data that may not be comparable to current or future conditions due to continuing decreases in ambient concentrations. According to the EPA's Report on the Environment, national ambient $PM_{2.5}$ concentrations have decreased 41% from 2000 to 2017 and only 12 individual monitoring sites had a 2016 design value above the annual $PM_{2.5}$ NAAQS. It is highly unlikely that ambient concentrations would begin to increase to previous levels, so it is unclear how useful associations based on data from the 1980s and 1990s are to predicting current and future health impacts. Selecting newer, well-conducted studies would not only provide a more reliable measure of $PM_{2.5}$ but would also produce more relevant and less uncertain risk estimates.

4. Because of the well-documented regional heterogeneity of $PM_{2.5}$, use of national effect estimates obscures associations from the original research. (General)

The ACE RIA appears to rely on national effect estimates for its calculation of health impacts. However, ambient $PM_{2.5}$ is known to have stark regional differences in concentration and in chemical constituents. For example, the EPA relies on Bell et al. (2008) for its quantification of cardiovascular hospital admissions. Although the EPA uses the single, nationwide β, the original authors only noted significant effects in the northeast. Effect estimates for the southeast, northwest, and southwest regions of the country were either null or negative. Therefore, use of the national estimate is inappropriate because it does not accurately represent the association in the original study. The EPA should use regional concentration-response functions for this analysis.

5. The study by Woodruff et al. (1997) is inappropriate for calculating $PM_{2.5}$-induced mortality. The EPA should remove benefits calculated using this paper in its final benefits calculation. (General)

Several recent EPA RIAs use Woodruff et al. (1997) to quantify PM-related infant mortality. Woodruff et al. paired infant mortality data from the National Center for Health Statistics with stationary ambient PM_{10} data from stationary air quality stations in counties with a population of at least 100,000 people. Each infant's exposure was assumed to be the two-month mean PM_{10} concentration for the metropolitan statistical area (MSA) based on the infant's address at birth. However, the EPA fails to consider that Woodruff et al. (1997) only evaluated potential associations between ambient PM_{10} (not $PM_{2.5}$) and infant mortality. No adjustment was made for the difference in size fraction, although the available scientific literature and EPA's own Integrated Science

Assessment acknowledges differences in mode of action and toxicity for different PM size fractions. Since the RIA's co-benefits are related only to $PM_{2.5}$, the use of a paper based on PM_{10} is inappropriate. In addition to the size fraction issue, there are several other important limitations of this study. The authors do not control for many important variables, such as maternal age, prenatal care, socioeconomic status, household income, or whether the infant was born full-term. The authors also used the PM_{10} concentration for the infant's MSA to represent exposure but do not consider whether infants, particularly those with health issues, were outside during the two-month study period nor do they provide details on how they dealt with the non-continuous nature of ambient PM_{10} sampling[2]. Because Woodruff et al. (1997) is not of high enough quality for this quantitative evaluation, the paper should be excluded from the analysis and the benefits should be recalculated.

6. The TCEQ continues to question the necessity of calculating co-benefits. (General)

Table 4-13 of the ACE RIA indicates that over 88% of the total forgone benefits are due to co-benefits. As stated in previous comments on EPA rules (e.g., Mercury and Air Toxics Standards and CPP rule), the practice of using co-benefit estimates that outweigh the direct benefits of a rule obscures the direct impact of the rule and brings in question whether decreases in the targeted pollutant are necessary in the first place.

7. If the EPA continues to calculate co-benefits in RIAs, the TCEQ urges the EPA to develop a public accounting mechanism that ensures benefits are not double-counted among different rules. (General)

As stated in the comment above and in previous TCEQ comments on EPA rules, monetized co-benefits can be substantial. Particularly since the pollutants reduced to achieve the monetized co-benefits ($PM_{2.5}$ and ozone) are both directly regulated in other rules and are responsible for the overwhelming majority of co-benefits in other rules, it is unclear how EPA ensures that the calculated benefits are restricted to the current rule. The TCEQ urges the EPA to develop an accounting mechanism to make this cross-reference easier for the public.

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