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COMMENTS ON EPA'S PROPOSAL TO REVISE EFFLUENT LIMITATIONS GUIDELINES RULES

America's Power submits the following comments to the Environmental Protection Agency (EPA or agency) on the proposed rule to revise the Effluent Limitations Guidelines (ELG) rules that apply to coal-fired electric generating units (EGUs) under the Clean Water Act (CWA).[1] These proposed revisions include extensions of compliance deadlines for the zero liquid discharge (ZLD) limitations imposed by 2024 ELG rule and a mechanism for providing site-specific flexibility under the both the 2024 and 2020 ELG rules. In addition, the proposal requests information relating to the availability and costs of ZLD technologies, which the agency intends to consider in a future rulemaking to repeal or revise the ZLD limitations.

By way of background, America's Power is the only national trade organization whose sole mission is to advocate at the federal and state levels on behalf of coal-fired electricity and the supply chain that supports the nation's coal fleet. Our membership is composed of electricity generators, coal producers, transportation companies, and equipment manufacturers.

OVERVIEW OF AMERICA'S POWER COMMENTS

Our comments are divided into two parts. The first part presents the reasons why EPA should promptly repeal the ZLD limitations that the 2024 ELG rule imposes for flue gas desulfurization (FGD) wastewater, bottom ash (BA) transport water, and combustion residual leachate (CRL). There are no existing technologies available for eliminating large volumes of discharges at coal-fired EGUs and, even if ZLD technologies are available (which is not the case), the costs of those technologies are prohibitive and therefore not "economically achievable."

The second part provides comments on EPA's current proposal to extend the compliance deadlines and provide site-specific flexibility for meeting the ELG requirements. These comments underscore why it is critically important for EPA to provide increased flexibility on the timeframes for electricity generators submitting their Notices of Planned Participation (NOPP) to EPA as well as the compliance deadlines for meeting the effluent discharge limitations established under both the 2020 ELG rule and the 2024 ELG rule. In support of EPA's proposed revisions, our comments address the following:

- EPA should adopt the proposed extension of the NOPP deadline because the six additional years are necessary for electricity generators to make decisions on how to comply with the 2024 ELG rule while also ensuring grid reliability.

- EPA should extend the ZLD compliance deadline to ensure reliability of the electric ity grid and address growing resource adequacy concerns.
- Supply chain disruptions also support the proposed five-year compliance extension for the three wastewater streams.
- The very short amortization period justifies an extension of the compliance deadlines that extend well beyond the proposed five-year extension.
- EPA should also extend the 2034 deadline to retire or otherwise cease coal combustion for coal-fired EGUs making the NOPP election so they can fully amortize major capital investments.
- The agency's proposal to provide site-specific flexibility is essential for minimizing unavoidable or unexpected problems that could force the premature shutdown of coal-fired EGUs or impose excessive ELG compliance costs.

While providing some immediate regulatory relief, these proposed revisions to the 2024 ELG rule do not remedy the root causes of the reliability risks and economic challenges posed by the rule. Those problems can only be addressed by repealing the 2024 rule.

COMMENTS ON THE PROPOSED RULE

The first part of our comments explains why EPA should repeal the 2024 ELG rule. The second part comments on EPA's proposal to extend the compliance deadlines and provide site-specific flexibility for meeting the ELG requirements.

EPA should repeal the 2024 rule. Compelling legal, policy, and technical reasons justify, if not require, that EPA repeal the ZLD requirements mandated by the 2024 ELG rule for FGD wastewater, BA transport water, and CRL. Furthermore, a repeal does not require the agency to gather additional information on the technical and economic feasibility of achieving zero discharges as EPA has proposed to do so under the current proposal. The reasons supporting an immediate EPA repeal based on the current rulemaking record are described below. The current rulemaking record provides EPA with a strong legal and technical basis to repeal the ZLD limitations in the 2024 ELG rule.

The ZLD mandate violates the statutory requirement that the ELG limits must be based on "available" and "economically achievable" technologies.[2] Courts have interpreted this statutory mandate to mean that EPA "must set discharge limits that reflect the amount of pollutant that would be discharged by a point source employing the best available technology that the EPA determines to be economically feasible *across the category or subcategory as a whole*" (which, here, is consists of all coal-fired EGUs nationwide).[3] This mandate is further underscored by the CWA provision that prohibits the adoption of ZLD limitations unless EPA finds that "such elimination is technologically *and* economically achievable *for a category or class of point sources*."[4]

No existing technologies are "available" to eliminate large volumes of discharges at coal-fired EGUs across the EGU source category. EPA has failed to meet this statutory mandate for demonstrating that effective ZLD technologies are available for deployment at all coal-fired EGUs nationwide. For example, the preamble to the 2024 ELG rule refers to 40 coal-fired EGUs that have achieved zero discharge of their FGD wastewater.[5] The vast majority of those coal-fired EGUs (35 plants) are not operating any of the three technologies—membrane systems, thermal evaporators, or spray-dry evaporators—which the agency used as the basis for the ZLD limitations in the 2024 ELG rule. Rather, these plants employ other control

measures or techniques (complete recycling, evaporation ponds, dry fly ash conditioning, or underground injection) for achieving zero discharge that are unique to those particular plants and therefore cannot be applied at most units across the entire EGU source category.

The table below provides a brief summary of those other ZLD measures and techniques, which EPA has identified in a technical development document (TDD) that is part of the current ELG rulemaking record.[6] The TDD confirms that the ability to eliminate discharges of FGD wastewater was limited to only a few plants (and many times for limited durations) based on their unique circumstances.

Site-Specific Measures or Techniques for Eliminating FGD Wastewater

ZLD Measure	Limitations	Plants
Complete Recycling, where plants use all their treated FGD wastewater within the plant system without purging any portion of the wastewater into surface waters	Most coal-fired EGUs are unable to recycle all their treated FGD wastewater because of high levels of chloride that would foul their plant systems. Of the 139 plants with wet FGD systems surveyed by EPA, only 18 plants burned coals containing usually low amounts of chloride and, consequently, are able to operate recycling systems that reuse all of the treated FGD wastewater within the plant.	**18**
Evaporation Ponds, where plants use ponds or other impoundments to eliminate FGD wastewater without discharging into surface waters	Evaporation ponds are available as a ZLD measure or technique only in those regions of the country with warm, dry climates where the evaporation rates from the impoundment are greater than or equal to the flow rate of the FGD wastewater and the amount of direct precipitation. EPA only identified only nine plants in the southwestern United States where evaporation ponds are a viable ZLD control option.	**9**
Dry Fly Ash Conditioning, where plants apply or mix the dry fly ash with the FGD wastewater and then dispose of the fly ash mixture in landfills	Dry fly ash conditioning is only available at those plants that have sufficient fly ash to mix with all the FGD wastewater and then have sufficient landfill capacity to dispose of that fly ash mixture. EPA identified only six plants with this capacity and has provided no analysis on how this measure could be used across the entire EGU source category.	**6**
Underground Injection, where plants inject the FGD wastewater into underground wells	Only two plants have attempted to use underground injection to dispose of their FGD wastewater. In one case, the continuous injection of the wastewater proved not to be technically possible due to unexpected pressure issues and limitations in the geologic formation.	**2**
	Total Number of Plants	**35**

EPA identified only five coal-fired power plants out of approximately 180 plants nationwide that have actually adopted some form of the technologies upon which the agency relied to establish the effluent limitations in the 2024 ELG rule. Two of the plants have installed thermal treatment technologies (specifically, brine concentrator systems) that use heat to evaporate FGD wastewater and concentrate solids as well as other contaminants.[7] The other three plants identified by EPA have used spray evaporation technologies that spray fine misted FGD wastewater into the hot flue gases from the plant.[8] Neither of these evaporative technologies provide an adequate basis for ZLD limitations.

Evaporative Technologies. Extensive documentation already submitted into the ELG rulemaking record clearly demonstrates major technical problems that have prevented the effective and continuous operation of these thermal treatment technologies. The table below provides a brief summary of major technical problems documented by America's Power and various other groups, including the Electric Power Research Institute (EPRI) and the Utility Water Act Group (UWAG). This technical information—that is already in the rulemaking record—demonstrates that neither the thermal treatment nor spray evaporation technologies can reliably achieve zero discharge even within this small subset of five plants that have attempted to do so.

Major Technical Problems for Evaporative Technologies

Plant	Evaporative Technology	Technical Challenges
Iatan Generating Station	Kansas City Power & Light (KCP&L) installed in March 2009 a thermal evaporative system that had a design flow rate of 60 gallons per minute. A distillate water stream was recycled to the plant's water system, and the brine concentrate was mixed with the fly ash for final disposal in an onsite landfill.[9]	The system encountered major technical challenges, including scaling and line plugging, flow obstructions, high amounts of salts in the feedwater system, and equipment not meeting design characteristics. Due to these problems, KCP&L stopped using the system in 2017.[10]
Petersburg Generation Station	Indianapolis Power & Light (IP&L) installed in 2018 a brine concentration system for evaporating and treating FGD wastewater.[11]	The thermal system installed on the plant could "only handle a portion" of the total volume of FGD wastewater produced by the plant. In addition, many key assumptions for how the system would perform at various levels were incorrect, including the assumption that pretreatment systems must be two or three times larger than assumed.[12]
Merrimack Station	Granite Shore Power (GSP) installed in 2011 an evaporative system that included one brine concentrator and a two-stage multi-effect crystallizer to treat the FGD wastewater from the plant. The evaporator and crystallizer distillate are reused in plant operations. The remaining concentrate is mixed with fly ash for disposal in a landfill.[13]	The system, to this day, cannot operate without a small purge to keep its crystallizer chemistry in balance. The crystallizer also reportedly does not operate most of the time due to continuous operational problems.
Mayo Electric Generating Plant	Duke Energy installed and began operating in 2015 a thermal evaporator system to treat the entire FGD wastewater. The evaporator system produces two wastewater streams that are both used for plant processes. The concentrated wastewater is used for moisture conditioning of fly ash prior to being sent to the landfill. The second stream is a clean distillate that is	Major operational challenges complicate the effectiveness and reliability of the thermal evaporator system. These challenges include the following: (1) the plant not producing enough fly ash to use up all the brine generated by the thermal system; (2) the excessive amount of scaling building up on the heat exchanger, which requires skilled labor to frequently replace those deteriorated

Plant	Evaporative Technology	Technical Challenges
	utilized to partially replace water withdrawal from Mayo Reservoir.[14]	components with new components with exotic metallurgy; and (3) extremely high energy demands and parasitic loads.[15]
Spurlock Generating Station	East Kentucky Power Cooperative (EKPC) installed a thermal evaporation system followed by crystallization to achieve zero discharge.	Spurlock has a unique configuration that consists of two circulating fluidized bed (CFB) boilers with Novel Integrated Desulfurization Systems (NIDS). NIDS are semi-dry scrubbers that produce significantly less FGD wastewater, as compared to the typical wet FGD systems installed most coal-fired EGUs. This substantial reduction in FGD wastewater enabled EKPC to treat and recycle its wastewater. By contrast, it is not feasible for typical coal plants with wet FGD systems to use NIDS or other such evaporative systems to eliminate their FGD wastewater. [16]

These technical problems and other limitations above underscore the conclusion that thermal technologies (both brine concentrator evaporator systems and spray-dryer systems) are not available as ZLD technologies for the EGU source category. As illustrated in the table above, these systems cannot treat wastewater flows at typical baseload coal-fired EGUs except in unique circumstances and have encountered numerous technical problems that bar EPA from making the determination that these systems are available nationwide to achieve zero discharge.

Membrane Systems. Membrane technologies use a semi-permeable filter to trap and remove a broad range of particulate and dissolved pollutants.[17] Although used in various applications in other industrial sectors, membrane technologies are not well suited to treat large volumes of wastewater that are typical of coal-fired EGUs. Membrane systems are slow at removing pollutants in most circumstances. This design limitation therefore requires the installation of exceptionally large amounts of membrane equipment to keep up with the high volume and high flow wastestreams at coal-fired EGUs. Installing such extensive amounts of membrane equipment is both impractical and technically challenging. Furthermore, membrane systems are prone to rapid fouling and scaling that can impair the performance of the membrane technology and require increased maintenance as well as extensive pretreatment of the wastewater.

Due to the unsuitability of membrane systems, no coal-fired EGU in the United States has installed a membrane system at full operational scale to treat FGD or other wastewater stream. EPA recognized this fact when the agency found that membrane technologies are not available for deployment by coal-fired EGUs in the 2020 ELG rulemaking.[18] And EPA even acknowledged in the 2024 ELG rule that there have still been no commercial-scale deployments of membrane systems when the agency went on to claim the availability of the technologies.[19]

EPA also has strong technical grounds to dismiss as insufficient reports of a few foreign power plants using membrane technologies and pilot projects to demonstrate the capabilities for membrane systems achieving zero discharge of wastewater. As industry has demonstrated and EPA previously concluded in the 2020 ELG rule, significant gaps remain in the performance of the membrane systems installed at these foreign plants. Notable examples of these gaps

include the lack of information on "how these systems are configured or operated," "what levels of reductions they achieve," "whether there are any particular performance difficulties that result from continuous operation," or "how applicable these operations would be to plants across the United States."[20] Without satisfactory answers to these highly relevant performance matters, the current rulemaking record supports the determination that unsubstantiated claims about the use of membrane systems at a few foreign power plants do not demonstrate the availability of membrane technologies.

EPA similarly cannot rely on a few pilot projects to conclude that membrane systems are available and therefore provide a technical basis for setting ZLD limitations for the EGU source category. Pilot projects are technical studies that by definition are not intended to demonstrate applicability to large coal-fired EGUs. Nor can the pilot projects demonstrate the ability of membrane systems to achieve zero discharges at full scale under a wide range of foreseeable operating conditions. For example, one pilot project cited by EPA in the 2024 ELG rule sought to test the performance of a membrane system that operated at very small volumes of wastewater (264 to 793 gallons per day) that are far smaller than volumes that are typical at large coal-fired power plants (ranging well over 1 million gallons per day). In addition, the pilot projects only tested the performance of membrane systems under narrowly defined conditions that do not reflect the typical parameters and normal operating conditions at large coal-fired EGUs. A few successful pilot projects have no bearing on the overwhelming weight of evidence that membrane systems are not available to treat large volumes of wastewater at coal-fired EGUs.

ZLD technologies are cost-prohibitive and therefore not "economically achievable." As noted above, the cost of installing and operating any wastewater control technology is another key criterion that the agency must consider when setting effluent discharge limitations. The CWA directs EPA to select only those technologies that are "economically achievable," while also instructing EPA to consider "the cost of achieving such effluent reduction" and prohibiting EPA from establishing zero discharge limitations unless EPA finds such elimination "economically achievable" for the entire EGU source category.

Furthermore, the Supreme Court in *Michigan v. EPA* underscored that meaningful and accurate consideration of costs is essential to federal agencies making reasoned rulemaking decisions and that, as a result, EPA must give careful attention to cost impacts when establishing regulatory requirements under the CWA. [21] The agency's failure to conduct a full and fair consideration of costs in the 2024 ELG rule therefore runs afoul of the Supreme Court's ruling in *Michigan* and renders the ZLD limitations an unlawful arbitrary and capricious agency action that should be repealed by EPA.

The ELG rulemaking record provides many examples of EPA's failure to meaningfully and accurately consider costs when it adopted the ZLD limitations. The table below summarizes just a few of the many examples when EPA failed to consider costs in the 2024 ELG rulemaking. These examples establish a pattern by the agency of ignoring detailed information submitted during the rulemaking on the excessive costs that coal-fired EGUs would incur to meet the ZLD mandate under the 2024 ELG rule. As reflected in the table below, these examples are already well documented in the current rulemaking record and therefore provide EPA with justification and technical grounds for the agency to immediately repeal the ZLD limitations.

Examples of EPA's Failures to Consider Costs

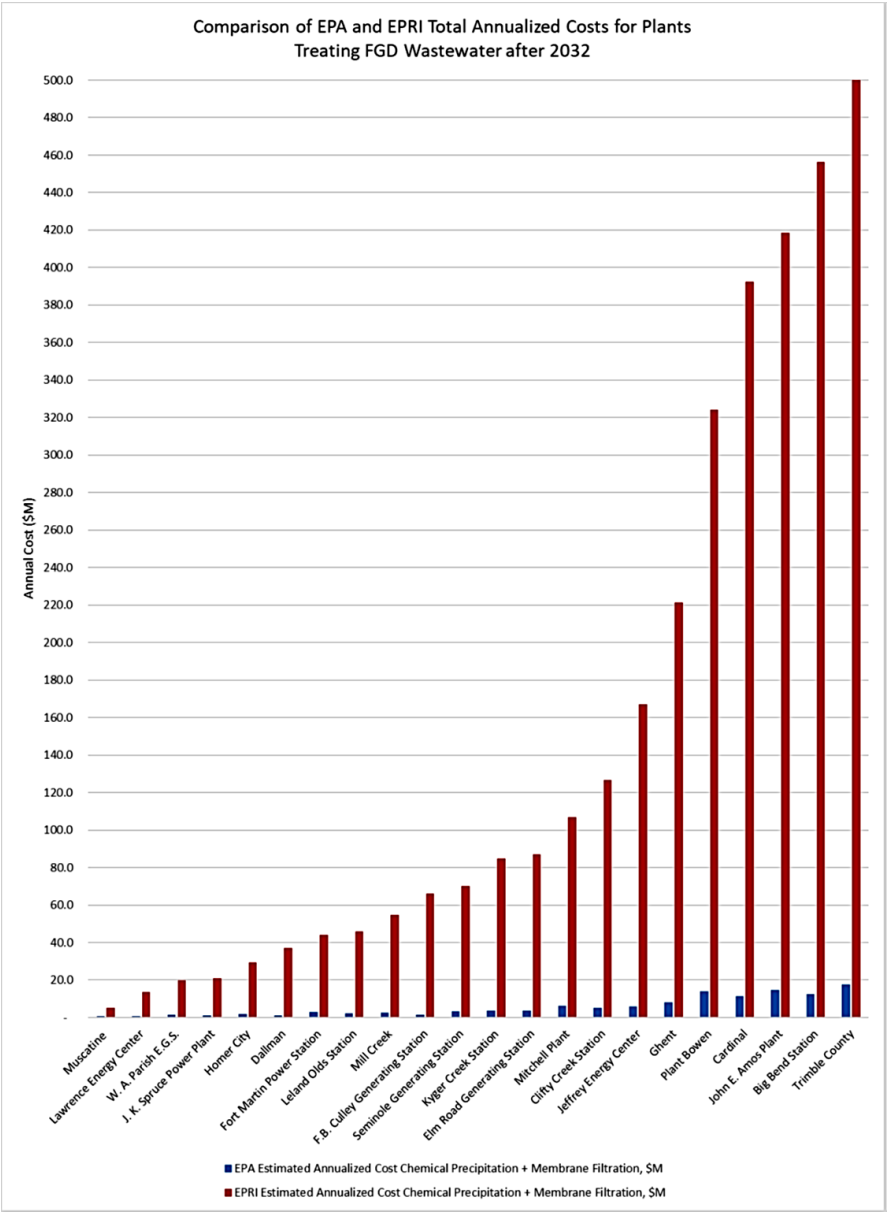
EPA Failure	Description
Reliance on a flawed cost model that dramatically and systematically underestimated the costs of installing	The 2024 ELG is based on the same flawed cost model that the agency used for the 2020 ELG rule, ignoring detailed information and analyses that were submitted

EPA Failure	Description
and operating new treatment technologies based on actual contractor bids informed by months of on-the-ground engineering and design work at individual coal-fired plants	to EPA in both the 2024 and 2020 ELG rulemakings. Notable examples include: • EPA used the wrong flow figure for sizing equipment, using "average" flow instead of "peak" flow. Sizing and designing ZLD technologies for peak flow are essential to ensure compliance at all times, not just during average flow conditions. • EPA's cost analyses systematically failed to assess the balance of plant costs associated with the installation of the ZLD equipment. These costs are substantial and include those for site preparation, bonding and insurance, and tie-ins of the new vendor equipment to existing facilities.
Failure to account for the difficulty of achieving zero discharge through membrane and evaporator technology systems	The design of a treatment system to reliably achieve zero discharge on a continuous basis will be inherently complex and uncertain for baseload coal plant at typical flow volumes and flow rates. As a result, vendors have generally been unwilling to provide comprehensive performance guarantees without significant equipment overdesign that greatly increases capital costs.
Failure to account for the lack "off the shelf" proven technologies with ample data about their proven performance and reliability	The lack of proven technologies with extensive performance data requires additional and extensive engineering and design work at the front end in selecting and designing the membrane system. In addition, the performance testing is frequently necessary through pilot studies due to the relatively novel application of membrane systems on large coal-fired power plants.
Failure to account for costs of plant redundancies required for ensuring compliance	Based on the risk of membranes and evaporators to foul and be forced offline, as a general matter a plant will require a minimum of 50 percent additional (redundant) equipment for use as backup to ensure compliance and the plant's ability to provide continuous, reliable production of electricity.[22]
Failure to account for "worst case" treatment conditions	Attempting to achieve zero discharge of wastewater requires significant additional engineering, piping, pumps, and other equipment or measures during "worst case" treatment conditions.
Failure to account for the costs incurred for increased production of waste products	Membranes and evaporators produce brine or waste byproducts that must be handled and treated at a site, such as by combining fly ash with those byproducts to allow landfill disposal, further adding to total system complexity. UWAG Comments at 67. Many facilities do not produce sufficient amounts of fly ash to allow landfill disposal of brine or waste byproducts produced by these systems, further limiting potential use of these systems. UWAG Comments at 72-77.

EPA Failure	Description
Failure to account for the increased use of fly ash by the treatment facility	Many coal plants produce fly ash that can be sold as a useful byproduct for the manufacture of concrete or other such purposes. The use of the fly ash for disposal of the brine and waste products can reduce or even eliminate the annual revenue generated by the sale of the fly ash. For Plant Miller operated by Alabama Power Company, the lost revenues from fly ash sales would be approximately $8.5 million per year.

The EPA's failure to fully and accurately consider costs has resulted in a significant underestimation of the costs for installing and operating ZLD technologies under the 2024 ELG rule. EPRI documented this significant cost underestimation by comparing the costs for 22 coal-fired power plants based on EPA's flawed cost estimate methodology to the more realistic cost estimates that EPRI prepared for those same 22 plants based on real-world assumptions informed by best available vendor information. In the case of FGD wastewater, EPRI's capital cost estimate is nine times higher than EPA's capital cost estimate for these 22 plants. EPA's cost estimates for operation and maintenance (O&M) are even further off the mark. EPRI's O&M cost estimates are 43 times greater than EPA's O&M cost estimates. When these two cost estimates are combined into a total annualized cost, EPRI estimated that these 22 plants will incur total annual costs 27 times higher than EPA's cost estimates.

A detailed plant-specific analysis for each of the 22 coal-fired power plants was included in the comments that EPRI submitted into the rulemaking record for the 2024 ELG rule.[23] The chart below (excerpted from EPRI's comments) illustrates the extent to which EPA failed to accurately estimate the costs that coal-fired plants would incur to eliminate FGD wastewater at each of the 22 power plants. The same EPRI comments provide similar analysis of the technical challenges and costs for eliminating BA transport water and CRL.



Major discrepancies in EPA's cost estimates are also reflected in the real-world cost estimates that many utilities have prepared for installing and operating zero-discharge technologies at specific coal-fired power plants. Those plant-specific cost estimates are based on detailed engineering and design analyses that are based particular technical challenges at each plant and that are informed by actual vendor cost information. The table below provides a few of the many site-specific examples already in the rulemaking record that further demonstrate the excessive costs to achieve the ZLD limitations under the 2024 ELG rule.

Cost Estimates for Site-Specific Projects

Zero-Discharge Project	Cost Estimate
Cardinal Power Plant (Buckeye Power) Membrane Filtration with a Spray Dry Evaporator	EPA's cost model found that membrane filtration with a spray dry evaporator was the least-cost compliance option for Cardinal, with capital costs estimated at approximately $63 million.[24] Using operational data, Buckeye Power received a preliminary estimate from a vendor of $100-130 million for a similar technology installation. In addition to the higher capital cost, Cardinal's coal contains higher chlorides and dissolved solids. The wastewater stream therefore would be more corrosive and cause rapid deterioration of downstream equipment, greatly increasing the costs of maintaining the operational reliability of the spray dry evaporator.
Plant Miller (Alabama Power Company) Membrane Filtration with Pretreatment	EPA's model predicts Alabama Power Company's Plant Miller would spend $25.2 million in capital costs to meet the new zero-discharge limits. But a third-party engineering firm concluded those costs would be approximately $279 million—an order of magnitude greater. In addition, the annual O&M costs were estimated to be another $10.3 million.
Plant Bowen (Georgia Power) Membrane Filtration with Pretreatment	The site-specific evaluation for Plant Bowen produced an estimated capital cost to install membrane filtration plus pretreatment of approximately $580 million. This does not include costs for a complete zero discharge system, which would likely include additional storage tanks, pumps, and piping to reuse the permeate/distillate as make-up water to the boiler or FGD scrubber.
Amos, Mitchell, and Mountaineer Plants (Appalachian Power Company) Membrane Filtration with Bioreactor and Ultrafiltration	Compliance with the ZLD limitations is estimated to cost in excess of $900 million during the first ten years of operating the new treatment technology (2029-2039) at all three plants. This $900 million estimate includes both the capital cost to construct new control technologies and the cost to operate these systems over that period.

In addition to costs that are prohibitive and therefore not "economically achievable" in clear violation of the CWA, the 2024 ELG rule requires utilities to incur these costs to install unproven technologies that cannot keep up with the large volumes of wastewater produced by coal-fired EGUs. The ZLD limitations of the 2024 ELG rule are therefore forcing utilities to make a choice between two equally bad options. Either they must incur huge capital costs (typically in the hundreds of millions of dollars) to install impracticable or infeasible technologies that may never be able to achieve zero discharge or forced to retire coal plants prematurely, at a time of unprecedented load growth.

COMPLIANCE EXTENSIONS AND SITE-SPECIFIC FLEXIBILITY

This section of the comments provides America's Power's response to EPA's current proposal to revise the 2024 ELG rule, despite the fact that the agency should repeal the rule for the reasons mentioned earlier.

The comments begin with a review of the reasons why it is critically important for EPA to extend several key compliance deadlines established under the 2024 ELG rule. One of the proposed extensions provides each coal-fired EGU with additional time for submitting its Notice of Planned Participation (NOPP) indicating whether the unit will cease the combustion of coal by 2034, instead of meeting the ZLD limitations by 2029. The other extension would provide coal-fired EGUs with additional time to meet the ZLD limitations for the three wastewater streams. This discussion is followed by a technical assessment of EPA's proposed site-specific flexibility mechanism for extending deadlines to make NOPP elections and meet the compliance obligations on a plant-by-plant basis. This assessment underscores the important role that the site-specific mechanism would play in ensuring grid reliability and providing regulatory relief when utilities encounter avoidable or unexpected challenges that are beyond their control. For these reasons, America's Power supports the prompt adoption of these site-specific flexibility mechanisms with the clarifications and refinements discussed below.

EPA should adopt the proposed extension of the NOPP deadline.[25] The proposed rule provides an additional six years (from December 31, 2025, to December 31, 2031) for each coal-fired EGU to make its NOPP election if it plans to retire or permanently cease coal combustion by December 31, 2034. The agency's rationale the NOPP election at the time the 2024 ELG was adopted was based on the finding that "around 50 EGUs" had announced plans to retire by 2034.[26] The NOPP election essentially provided electric utilities with two regulatory alternatives. One alternative was to comply with the ZLD limitations by 2029. The other alternative was to make a federally enforceable commitment to retire the EGU by 2034 instead of installing by 2029 the costly ZLD technologies. One important reason for establishing this ELG regulatory "offramp" was that the electricity generators would have less than five years to amortize the costs of installing expensive zero-discharge technologies on coal-fired EGUs prior to their planned retirement date (which would occur sometime between 2030 and 2034).

The current EPA proposal provides a six-year extension of the NOPP election. This extension is necessary to provide utilities with additional time to make critical planning decisions so EGUs can evaluate whether to retire or continue operating to meet increases in electricity demand.

The length of the NOPP extension is aligned with the time frame for making resource planning decisions for utilities. Most importantly, the proposed NOPP submission date of December 31, 2031, is three years prior to the 2034 deadline for either compliance with the ZLD limitations or the unit's retirement. As a result, this extended NOPP timeframe enables utilities to make their resource planning decisions based on the most current information, including the "three-year capacity auctions in deregulated regions (*e.g.*, PJM) or the typical two- to three-year IRP cycle" that will conclude prior to a plant electing to make a retirement decision.[27]

Another related justification in support of EPA adopting the proposed extension is the fact that EPA may initiate a future rulemaking to reconsider the ZLD limitations adopted by the 2024 ELG rule. As a result, utilities need to know whether and how EPA might revise the current ZLD limitations before they can make an informed assessment on whether to comply with those discharge limitations or cease coal combustion. EPA has announced its intention to decide on whether to initiate such a rulemaking sometime next year to reconsider the ZLD limitations and, if initiated, this rulemaking would most likely not be completed until several years after the current NOPP election deadline of December 31, 2025. Due to major uncertainties on the availability, design, and cost of the ZLD technologies, it is reasonable for the agency to provide additional time for utilities to understand the extent to which those ZLD limitations might be revised by this future ELG rulemaking before making a NOPP election.

EPA should extend the ZLD compliance deadline to mitigate reliability risks.[28] The proposed rule provides an additional five years (from December 31, 2029, to December 31, 2034) for EGUs that elect not to cease coal combustion and instead comply with the ZLD limitations under the

2024 ELG rule. America's Power supports the five-year extension of the ZLD compliance deadline as a stopgap measure until EPA can complete a subsequent rulemaking to repeal the ZLD limitations.

EPA has strong legal and technical grounds for providing at least a five-year compliance extension. The most compelling reason is that the compliance extension will allow many coal-fired EGUs to continue operating for at least another five years until the end of 2034, instead of being forced to retire by 2029. As EPA correctly notes in the proposed rule, the extension "better effectuates the ability of facilities to transfer out of the permanent cessation of coal combustion by 2034 pathway and continue to generate electricity using coal resources …"[29]

Unprecedented increases in electricity demand in many regions of the country are forcing utilities to rethink their plans to retire existing coal-fired generation. The proposed five-year extension will provide utilities with extra time that allows these reliable and dispatchable energy resources to remain online. While America's Power believes EPA has a strong legal and technical basis for the immediate repeal of the 2024 ELG rule based on the current rulemaking record, the extension will provide additional time for attempting to achieve the ZLD limitations if EPA ultimately decides not to repeal the effluent limitations.

Furthermore, EPA has ample legal authority to extend the compliance deadline to address grid reliability risks. EPA's legal authority is based on language in the CWA. This language expressly identifies non-water quality impacts that EPA may consider when setting effluent discharge limitations for affected point sources such as coal-fired EGUs under CWA section 304(b). One such non-water quality impact identified in the statute pertains to "energy requirements."[30] The term "energy requirements" includes a broad range of direct and indirect energy impacts and provides the agency with ample authority to consider potential risks to electric grid reliability and resource adequacy that could result from zero-discharge limitations.

The five-year compliance extension is needed because of potential supply chain disruptions. The ZLD limitations may not be achievable for all facilities nationwide due to the unavailability of ZLD technologies or their components due to problems with global supply chains. As EPA has correctly recognized in the proposed rule, many utilities have been unable to move beyond the initial engineering work and pilot testing as a result of disruptions in global supply chains. These disruptions are making it difficult for utilities "to procure relevant technologies on the timelines" necessary for meeting the 2029 compliance deadline under the 2024 ELG rule.[31] The agency's consideration of these real world procurement, engineering, and supply chain challenges is supported by the "other factors" clause in CWA section 304(b). This clause gives EPA broad authority to consider "such other factors as the Administrator deems appropriate" when setting effluent limitations for coal-fired EGUs. By invoking the "other factors" clause, EPA has exercised lawful discretion to extend the compliance deadlines for the EGU source category because of supply chain disruptions and other procurement or construction challenges.

The very short amortization period justifies an extension of the compliance deadlines beyond the proposed five years. Utilities can incur capital costs exceeding several hundred million dollars to meet the stringent effluent discharge limitations under the 2020 ELG rule. As a general matter, EPA has projected that the useful service life of newly installed control equipment is 20 years and consequently concluded that 20 years is "an appropriate basis for cost and economic impact analyses" to amortize the capital costs of the control equipment.[32] A 20-year amortization period is also consistent with the utility industry's typical practice to issue bonds to finance capital investments for pollution control projects. The issuance of bonds enables utilities to spread large capital expenses over several decades, thereby lowering the monthly electricity rates that consumers pay.[33] Shortening the amortization period for financing a major capital investment will necessarily increase the annualized capital costs. The

ELG administrative record indicates the annualized capital costs will approximately double when the amortization period is shortened from the typical 20-year period to eight years.[34]

In the case of the capital costs for meeting the effluent discharge limitations set by the 2020 ELG rule, EGUs could have as little as five years to amortize the capital costs for meeting the 2025 compliance deadline. As a result, the proposed five-year extension of the compliance deadline for the 2024 rule will provide a longer period to amortize the capital costs for meeting the 2020 ELG rule, thereby significantly reducing the annualized costs. Given that EPA has adopted a 20-year amortization period, EPA has strong grounds for extending the ZLD compliance deadline.

However, the proposed nine-year amortization period is still too short and should be further extended by setting a ZLD compliance deadline that is aligned with a 20-year amortization period.

EPA should also extend the 2034 deadline to retire or cease coal combustion for EGUs making the NOPP election so that they can fully amortize capital investments. The proposed rule provides coal-fired EGUs with the option of making a federally enforceable commitment to retire or cease coal combustion by 2034 instead of making capital investments to comply with the ZLD limitations established by the 2024 ELG rule. As discussed above, one important reason for extending the ZLD compliance deadline is to increase the time for amortizing the capital costs for zero discharge technologies. Under the 2024 ELG rule, the amortization period could be as short as four years for plants now installing control technologies to meet a 2025 compliance deadline under the 2020 ELG rule. A shortening of the amortization period dramatically increases the annualized costs of the equipment.

However, EPA's proposal to extend the NOPP retirement deadline from 2029 to 2034 only increases the amortization period from five to ten years for many EGUs. An extension of the NOPP deadline by ten years is still too short a time for utilities to amortize major capital investments for complying with the 2020 ELG rule. Given that EPA itself has set an amortization period of 20 years, the agency has a responsibility to establish a NOPP deadline that is consistent with a 20-year useful life. Adopting an approach consistent with the 20-year amortization period provides strong technical grounds for EPA to extend the deadline well beyond the current 2034 deadline.

Providing site-specific flexibility is essential. EPA is proposing to adopt a site-specific flexibility mechanism that would authorize permitting authorities to extend the deadlines for making NOPP elections and meeting the compliance deadlines. America's Power strongly supports the adoption of this mechanism in both cases for the reasons discussed below.

NOPP elections. The EPA proposal will add a new "transfer flexibility" provision that allows electric utilities to make changes in their NOPP elections up until the 2034 deadline regarding whether they intend to permanently retire or comply with the ZLD limitations under the 2024 ELG rule. This increased timing flexibility under the new transfer provision will allow electric utilities time to switch from the 2034 retirement option to the 2034 ZLD compliance option. Increased timing flexibility will prevent electric utilities from being locked into their initial NOPP elections and allow them to change their compliance strategies at any time prior to the 2034 compliance date due to increased load demand or other circumstances.

The proposed rule also authorizes permitting authorities to extend the deadlines for electric utilities making other NOPP elections under both the 2020 and 2024 rule based on "site-specific factors." The circumstances in which NOPP extensions are allowed are enumerated in the proposed rule and generally involve situations in which electric utilities encounter unavoidable or unexpected challenges that are beyond the control of the electric utilities. Examples enumerated in the proposed rule include situations in which an electric utility has committed

to retire a coal-fired EGU by December 31, 2028, but now needs to operate that unit beyond the federally enforceable 2028 retirement date due to various electric grid reliability concerns. One example involves situations in which the projected local electricity demand "materially exceeds projections made in the recent iterations of integrated source plans or other planning documents."

Such increased flexibility in the NOPP elections will help to ensure that facilities facing unexpected changes in operations are not unfairly penalized due to unavoidable or unexpected events or developments that are beyond their control. This flexibility is especially important for the roughly 30 coal-fired power plants that had previously made NOPP elections to retire or cease coal combustion by 2028. Without being allowed to withdraw their NOPP elections, many of these coal-fired power plants would be subject to a federally enforceable requirement mandating their retirement even though their continued operation is important for ensuring electric grid reliability and meeting resource adequacy obligations.

Compliance deadlines. The proposed rule also would allow permitting authorities to extend the deadlines for meeting the effluent discharge limitations under both the 2020 and 2024 ELG rules. Authorizing such plant-specific compliance extensions will provide another effective regulatory tool for ensuring the continued operation of existing coal-fired generation. For example, permitting authorities could extend the 2025 compliance deadline for meeting the "generally applicable" standards for FGD wastewater and BA transport water under the 2020 rule and the 2028 deadline for meeting the standards under the Voluntary Incentive Program for FGD wastewater due to extenuating circumstances. Similarly, the mechanism would allow for the extension of the ZLD limitations established under the 2024 rule on a unit-specific basis. EGUs can obtain a compliance extension if they encounter unavoidable or unexpected challenges that are beyond their control. Examples of such extenuating circumstances qualifying for compliance extensions include unexpected increases in local electricity demand, changes in regional capacity market prices, unavoidable supply chain delays, and any other situation in which the delay "is wholly outside both the facility's control and the facility's ability to plan for."

EPA needs to apply the flexibility mechanism retroactively. To ensure effectiveness and workability of the flexibility mechanism, EPA should provide clarification on timing of the relief being provided to coal-fired EGUs that intend to withdraw their NOPP elections to retire or cease coal combustion by December 31, 2028.

One major concern pertains to the timing of the relief that the proposed rule provides to EGUs that are no longer ceasing coal combustion by December 31, 2028. Timing is a major concern because the proposed site-specific flexibility mechanism will not be adopted until sometime in 2026 and then will require the permitting authority to take action to extend the deadlines for the generally applicable requirements that begin to apply under the 2020 ELG rule at the end of this year. To address this implementation problem, EPA should make explicit that any change to the NOPP and compliance deadlines can apply retroactively. The retroactive application of these extensions will allow the EGU to continue under its current status as a unit that can operate up to December 31, 2028. Once EPA adopts a final rule and the permitting authority grants the site-specific extensions in accordance with the final rule (which will likely occur by mid-2026), the compliance extension for the generally applicable requirements under the 2020 ELG rule will take effect.

Conclusion. As we have explained in our comments, the agency has strong justification to repeal the 2024 ELG rule based on data, information, and analysis already contained in the rulemaking record. Our comments highlight only some of this information. In the meantime, EPA's proposed changes to the 2024 ELG rule, along with our recommendations for additional changes, will mitigate some of the impacts of an otherwise bad rule that is based on

technologies that are neither "available" for the entire EGU source category nor "economically achievable."

We appreciate the opportunity to submit these comments and look forward to working with the agency to resolve our concerns. If the agency has any questions, please contact me at MBloodworth@AmericasPower.org or Paul Bailey at PBailey@AmericasPower.org.

Sincerely,

Michelle Bloodworth
President and CEO

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[1] *Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category—Deadline Extensions*, 90 Fed. Reg. 47,693 (Oct. 2, 2025).
[2] *See* Sections 301(b)(2)(A), 304(b)(2) of CWA.
[3] *Texas Oil & Gas Ass'n v. EPA*, 161 F.3d 923. 928 (5th Cir. 1998) (emphasis added)
[4] Section 301(b)(2)(A) of CWA (emphases added).
[5] 40 Fed. Reg. at 40,216 (noting that 40 coal-fired EGUs operating in the U.S. are achieving zero-discharge of their FGD wastewater).
[6] Technical Development Document for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, 7-18 thru 7-10 (Sept. 2015) (discussing the design and operating practices achieving zero discharges of FGD wastewater at coal-fired EGUs) (2015 TDD).
[7] 2024 TDD at 28.
[8] 2024 TDD at 27-28.
[9] EPA 2024 Memo, Appendix A at 3.
[10] 2023 EPRI, Section1 on FGD Wastewater Treatment Technical Feasibility at 28-29.
[11] EPA Memorandum, Appendix P at 1-2.
[12] UWAG at 3 (citing to Memorandum from Danielle Stewart, ERG et al. to Steam Electric Rulemaking Record, Notes from Call with Indianapolis Power & Light – Petersburg Generating Station at 3–4 (Aug. 14, 2020), EPA-HQ-OW-2009-0819-8891).
[13] EPA 2024 Memo, Appendix A at 5.
[14] North Carolina Department of Environmental Quality, *Fact Sheet for Mayo Steam Electric Generating Plant, Modification for NPDES No. NC0038377* at 2, available here.
[15] UWAG at 4-5.
[16] UWAG at 5.
[17] EPA, EPA-821-R-24-004, Technical Development Document for Final Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category at 25-26 (Apr. 2024), EPA-HQ-OAR-2009-0819-10337 (2024 TDD).
[18] 85 Fed. Reg. at 64,663.
[19] 89 Fed. Reg. at 40,216 ("In the 2020 rule, the EPA rejected membrane filtration as a standalone BAT technology basis due in part to the lack of a single full-scale domestic installation, which is still the case today.") (emphasis added).
[20] EPA, Response to Public Comments for Revisions to the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category at 2-108 (Aug. 2020), EPA-HQ-OW-2009 0819-9015.
[21] *Michigan v. EPA*, 576 U.S. 743, 750-54 (2015).

[22] *See* Electric Power Research Institute (EPRI) Comments on EPA's Proposed Rule for the Supplemental Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category at 39 (May 26, 2023) ("EPRI Comments")
[23] EPRI, *Comments on the Proposed Effluent Limitations Guidelines Rule* at 32-60 (May 26, 2023) (providing an analysis of the FGD wastewater treatment costs) (EPRI 2023 Comments).
[24] Supporting File for Generating Unit-level Costs and Loadings Estimates by Regulatory Option for the 2024 Final Rule, EPA-HQ-OW-2009-0819-10336A1.
[25] This six-year extension will become necessary if EPA elects not to repeal the ZLD limitations imposed by the 2024 ELG rule—which America's Power strongly supports.
[26] 90 Fed. Reg. at 47,703.
[27] *Id*.
[28] This five-year extension will become necessary if EPA elects not to repeal the ZLD limitations imposed by the 2024 ELG rule.
[29] 90 Fed. Reg. at 47,704.
[30] *See* Sections 301(b)(2)(A) and 304(b)(2)(B) of the CWA.
[31] 90 Fed. Reg. at 47,704.
[32] Supplemental Technical Development Document for Revisions to the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category, 5-14 (Aug. 2020) (discussing the estimated incremental compliance costs for estimating costs of achieving zero discharge limitations at coal-fired EGUs) (2020 STDD).
[33] One recent report is the approval of bonds for Appalachian Power to cover ELG compliance costs. In this case, the Public Service Commission approved a plan for Appalachian Power to issue $2.4 billion in expense-recovery bonds. According to the new report, the issuance of these bonds will result in an average residential surcharge of only about $7 per month. This is a much smaller increase than the $24 per month that would have occurred without bond financing over an extended 20-year period. *See* WV Public Broadcasting System, *PSC Says Appalachian Power Can Issue Bonds to Cover Expenses* (Sept. 2, 2025), available here.
[34] *See* 84 Fed. Reg. at 64,640; 90 Fed. Reg. at 47,704.