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February 2, 2016

VIA: ELECTRONIC FILING

Ms. Carlotta S. Stauffer
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: Petition of Tampa Electric Company for approval of a new environmental program for cost recovery through the Environmental Cost Recovery Clause

Dear Ms. Stauffer:

Attached for filing in the above-styled matter is a Petition of Tampa Electric Company for Approval of a New Environmental Program for Cost Recovery through the Environmental Cost Recovery Clause.

Thank you for your assistance in connection with this matter.

Sincerely,

James D. Beasley

JDB/pp
Attachment

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Petition of Tampa Electric Company for approval of a new environmental program for cost recovery through the Environmental Cost Recovery Clause.	)))))	DOCKET NO. _____ FILED: February 2, 2016

PETITION OF TAMPA ELECTRIC COMPANY FOR APPROVAL OF A NEW ENVIRONMENTAL PROGRAM FOR COST RECOVERY THROUGH THE ENVIRONMENTAL COST RECOVERY CLAUSE

Tampa Electric Company ("Tampa Electric" or "the company"), by and through its undersigned counsel, and pursuant to Section 366.8255, Florida Statutes, and Florida Public Service Commission ("Commission") Order Nos. PSC-94-0044-FOF-EI and PSC-94-1207-FOF-EI, hereby petitions the Commission for approval of the company's proposed environmental compliance program – Big Bend Station Effluent Limitations Guidelines Compliance Study Program ("Big Bend ELG Study Program") – for cost recovery through the Environmental Cost Recovery Clause. In support of its Petition, the company states:

1. Tampa Electric is an investor-owned electric utility subject to the Commission's jurisdiction pursuant to Chapter 366, Florida Statutes. Tampa Electric serves retail customers in Hillsborough and portions of Polk, Pinellas and Pasco Counties in Florida. The company's principal offices are located at 702 North Franklin Street, Tampa, Florida 33602.

2. The persons to whom all notices and other documents should be sent in connection with this docket are:

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3. On November 3, 2015 the Environmental Protection Agency ("EPA") published the final Steam Electric Power Generating Effluent Limitations Guidelines ("ELG") in the Federal Register. The effective date of the rule is January 4, 2016. The ELG establish limits for wastewater discharges from flue gas desulfurization ("FGD") processes, fly ash and bottom ash transport water, leachate from ponds and landfills containing coal combustion residuals ("CCR"), gasification processes, and flue gas mercury controls. The final rule requires compliance as soon as possible after November 1, 2018, and no later than December 31, 2023. Since these limitations will be incorporated in the National Pollutant Discharge Elimination System ("NPDES") permits, the exact compliance date will be determined through discussions with the Florida Department of Environmental Protection ("FDEP"), whom EPA has delegated to administer these permits. Attached hereto as Exhibit "A" is the Summary and Executive Summary from 40 CFR Parts 423 of the *Federal Register* publication of the EPA's final Steam Electric Power Generating ELG.

Affected Tampa Electric Facilities

4. Tampa Electric facilities located at the company's Big Bend Station are affected by the ELG. Big Bend Station operates four coal-fired steam electric power generating units equipped with electrostatic precipitators, Selective Catalytic Reduction ("SCR") and wet

Limestone Forced Oxidized ("LSFO") Flue Gas Desulfurization ("FGD") systems. The FGD system is designed to operate at a chloride concentration of no more than 30,000 ppm chlorides. Chloride control is obtained by blowing down the FGD system at approximately 200 gpm. This blow-down stream is sent to a physical chemical treatment system to remove solids, some metals, ammonia and adjust pH prior to discharge to Tampa Bay via the once-through condenser cooling system water. This treatment system will need to be modified or replaced in order to achieve compliance with the new EPA regulations.

5. Other ELG waste stream categories present at Big Bend Station are bottom and fly ash transport water, which will be used for FGD scrubber make-up water, as allowed by the ELG. There are no other facilities at Big Bend Station affected by the ELG. The company is proposing the Big Bend ELG Study Program to determine the most appropriate ELG compliance measures for that station.

6. Tampa Electric facilities located at the company's Polk Station may be affected by the ELG. Tampa Electric is evaluating the ability of the station's existing treatment systems to meet the ELG's new limits for gasification wastewater and CCR leachate. Depending on the results of this evaluation, Tampa Electric may need to hire an engineering consultant to complete a Polk Station ELG Compliance Study at a later time. The company will file a separate petition requesting approval for a Polk Station ELG Compliance Study and associated cost recovery through the environmental cost recovery clause ("ECRC"), if it is needed.

Scope of Big Bend ELG Study Program

7. In order to optimize the efficiency of Tampa Electric's ELG compliance efforts in the most cost-effective manner, the company will hire an experienced engineering consulting firm to perform a Big Bend ELG Compliance Study, to be conducted during 2016 and 2017,

concluding with a determination of the most appropriate ELG compliance measures identified through the study. This petition seeks approval of the company's proposed Big Bend ELG Study Program and associated cost recovery through the ECRC. The measures selected in order to achieve ELG compliance at Big Bend Station will be the subject of a follow-up petition after completion of the Big Bend ELG Study Program and selection of the various compliance measures.

8. Tampa Electric intends to contract for a two-phase study to be performed to determine the most cost-effective compliance option for the treatment of Big Bend Station effluent. Phase I of the study will concentrate on effluent data analysis, identification of all potential options and screening of said options. Phase II will encompass Front End Engineering and Design ("FEED") of the preferred option.

9. This study will identify all of the technically and commercially available technologies which could be viable candidates to treat the Tampa Electric Big Bend Station combined effluent streams in order to bring the streams into compliance.

10. The study will examine all of the included chemical analysis of each stream and its flow characteristics to prepare representative design conditions for input to the treatment systems. These input design conditions will be reviewed and approved by Tampa Electric. They will be used for the contractor's screening of the various treatment technologies identified as potential options. The treatment technologies to be considered shall include at a minimum, on site deep well injection, evaporation processes, biological treatment processes and hybrid Zero Valance Iron ("ZVI") processes.

11. The study will include a detailed process description, including space and utility requirements, for each of the treatment technologies identified. The technology description shall

also include details about its present state of development or deployment in the same or similar applications, its success in achieving the desired pollutant concentrations and its commercial guarantees. A budgetary capital and operations and maintenance ("O&M") cost estimate shall be developed for each identified technology.

12. The proposed scope of work for evaluating and selecting the optimum treatment approach for Big Bend Station will include the following six major tasks:

a. Data Review / Data Gaps Analysis

b. Site Visits

c. Basis of Design Development

d. Technology Evaluation / Study Presentation

e. Conceptual Design of Selected Alternatives

f. Final Report

13. Upon completion of the study a preferred compliance technology will be selected. The potential compliance technologies possess a wide range of capital and O&M costs. Therefore, the company will submit another petition seeking recovery for Big Bend Station ELG compliance project construction costs once a compliance technology is selected.

Estimated Big Bend ELG Study Program Costs

14. Set forth below is a chart detailing the proposed components of the Big Bend ELG Study Program, the timing of those components and their estimated costs:

Tampa Electric
Big Bend ELG Study Program
Estimated Time Periods and Expenses

	Time Period	Duration	O&M Expense
Phase I	Q1 2016 - Q3 2016	6 months	$ 100,000
Phase II	Q4 2016 - Q3 2017	9 - 12 months	300,000
Total			$ 400,000

None of these estimated costs were included in the company's 2016 ECRC Projection filing.

15. The Commission's policy for initial cost recovery approval of an ECRC eligible project is set forth in Order No. PSC-94-0044-FOF-EI issued January 12, 1994 in Docket No. 930613-EI, In re: Gulf Power Company, ("the Gulf Order") as follows:

> Upon petition, we shall allow the recovery of costs associated with an environmental compliance activity through the environmental cost recovery factor if:
>
> 1. such costs were prudently incurred after April 13, 1993:
>
> 2. the activity is legally required to comply with a governmentally imposed environmental regulation enacted, became effective, or whose effect was triggered after the company's last test year upon which rates are based; and,
>
> 3. such costs are not recovered through some other cost recovery mechanism or through base rates.

16. Tampa Electric's proposed Big Bend ELG Study Program qualifies for ECRC cost recovery under the Gulf Order. The costs of the program will be prudently incurred after April 13, 1993. The company's planned activities under the Big Bend ELG Study Program are essential components of the company's ability to comply with the EPA's legally required ELG guidelines which were adopted and became effective after the company's last test year upon which rates are based. None of the costs proposed under the Big Bend ELG Study Program are recovered through some other cost recovery mechanism or through base rates.

17. As stated earlier, this is Tampa Electric's initial petition relative to ELG compliance efforts, and focuses on gaining the Commission's approval of the company's proposed Big Bend ELG Study Program in order to facilitate the development of an optimum and cost-effective ELG compliance plan. Once that plan is developed, the company will petition

the Commission for its approval, and supply details of the plan's components, timing and estimated costs.

18. This program is a compliance activity associated with limitations on wastewater discharge. As such, expenditures to implement the Big Bend ELG Study Program should be allocated to rate classes on an energy basis.

19. Tampa Electric is not aware of any disputed issues of material fact relative to the matters set forth in this Petition or any relief requested.

WHEREFORE, Tampa Electric Company respectfully requests the Commission to approve the company's proposed Big Bend Station Effluent Limitations Guidelines Compliance Study Program and the company's recovery of the O&M expenses of the program through the ECRC in the manner described herein.

DATED this 2nd day of February, 2016.

Respectfully submitted,

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ATTORNEYS FOR TAMPA ELECTRIC COMPANY

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Part II

Environmental Protection Agency

40 CFR Part 423
Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 423

[EPA–HQ–OW–2009–0819; FRL–9930–48–OW]

RIN 2040–AF14

Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category

AGENCY: Environmental Protection Agency.

ACTION: Final rule.

SUMMARY: This final rule, promulgated under the Clean Water Act (CWA), protects public health and the environment from toxic metals and other harmful pollutants, including nutrients, by strengthening the technology-based effluent limitations guidelines and standards (ELGs) for the steam electric power generating industry. Steam electric power plants contribute the greatest amount of all toxic pollutants discharged to surface waters by industrial categories regulated under the CWA. The pollutants discharged by this industry can cause severe health and environmental problems in the form of cancer and non-cancer risks in humans, lowered IQ among children, and deformities and reproductive harm in fish and wildlife. Many of these pollutants, once in the environment, remain there for years. Due to their close proximity to these discharges and relatively high consumption of fish, some minority and low-income communities have greater exposure to, and are therefore at greater risk from, pollutants in steam electric power plant discharges. The final rule establishes the first nationally applicable limits on the amount of toxic metals and other harmful pollutants that steam electric power plants are allowed to discharge in several of their largest sources of wastewater. On an annual basis, the rule reduces the amount of toxic metals, nutrients, and other pollutants that steam electric power plants are allowed to discharge by 1.4 billion pounds; it reduces water withdrawal by 57 billion gallons; and, it has social costs of $480 million and monetized benefits of $451 to $566 million.

DATES: The final rule is effective on January 4, 2016. In accordance with 40 CFR part 23, this regulation shall be considered issued for purposes of judicial review at 1 p.m. Eastern time on November 17, 2015. Under section 509(b)(1) of the CWA, judicial review of this regulation can be had only by filing a petition for review in the U.S. Court of Appeals within 120 days after the regulation is considered issued for purposes of judicial review. Under section 509(b)(2), the requirements in this regulation may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

ADDRESSES: *Docket:* All documents in the docket are listed in the *http://www.regulations.gov* index. A detailed record index, organized by subject, is available on EPA's Web site at *http://www2.epa.gov/eg/steam-electric-power-generating-effluent-guidelines-2015-final-rule.* Although listed in the index, some information is not publicly available, *e.g.,* Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy. Publicly available docket materials are available either electronically in *http://www.regulations.gov* or in hard copy at the Water Docket in the EPA Docket Center, EPA/DC, EPA West, Room 3334, 1301 Constitution Ave. NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is 202–566–1744, and the telephone number for the Water Docket is 202–566–2426.

FOR FURTHER INFORMATION CONTACT: For technical information, contact Ronald Jordan, Engineering and Analysis Division, Telephone: 202–566–1003; Email: *jordan.ronald@epa.gov.* For economic information, contact James Covington, Engineering and Analysis Division, Telephone: 202–566–1034; Email: *covington.james@epa.gov.*

SUPPLEMENTARY INFORMATION:

Organization of This Preamble

Table of Contents

I. Regulated Entities and Supporting Documentation

A. Regulated Entities

Entities potentially regulated by this action include:

Category	Example of regulated entity	North American Industry Classification System (NAICS) Code
Industry	Electric Power Generation Facilities—Electric Power Generation	22111
	Electric Power Generation Facilities—Fossil Fuel Electric Power Generation	221112
	Electric Power Generation Facilities—Nuclear Electric Power Generation	221113

This section is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely regulated by this action. Other types of entities that do not meet the above criteria could also be regulated. To determine whether your facility is regulated by this action, you should carefully examine the applicability criteria listed in 40 CFR 423.10 and the definitions in 40 CFR 423.11 of the rule. If you still have questions regarding the applicability of this action to a particular entity, consult the person listed for technical information in the preceding **FOR FURTHER INFORMATION CONTACT** section.

B. Supporting Documentation

This rule is supported, in part, by the following documents:

- Technical Development Document for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (TDD), Document No. EPA–821–R–15–007.
- Environmental Assessment for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (EA), Document No. EPA–821–R–15–006.
- Benefits and Cost Analysis for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (BCA), Document No. EPA–821–R–15–005.
- Regulatory Impact Analysis for the Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category (RIA), Document No. EPA–821–R–15–004.

These documents are available in the public record for this rule and on EPA's Web site at *http://www2.epa.gov/eg/steam-electric-power-generating-effluent-guidelines-2015-final-rule.*

II. Legal Authority for This Action

EPA promulgates this rule under the authority of sections 301, 304, 306, 307, 308, 402, and 501 of the CWA, 33 U.S.C. 1311, 1314, 1316, 1317, 1318, 1342, and 1361.

III. Executive Summary

A. Purpose of the Rule

Steam electric power plants [1] discharge large wastewater volumes, containing vast quantities of pollutants, into waters of the United States. The pollutants include both toxic and bioaccumulative pollutants such as arsenic, mercury, selenium, chromium, and cadmium. Today, these discharges account for about 30 percent of all toxic pollutants discharged into surface

[1] The steam electric power plants covered by the ELGs use nuclear or fossil fuels, such as coal, oil, or natural gas, to heat water in boilers, which generate steam. This rule does not apply to plants that use non-fossil fuel or non-nuclear fuel or other energy sources, such as biomass or solar thermal energy. The steam is used to drive turbines connected to electric generators. The plants generate wastewater composed of chemical pollutants and thermal pollution (heated water) from their wastewater treatment, power cycle, ash handling and air pollution control systems, as well as from coal piles, yard and floor drainage, and other plant processes.

waters by all industrial categories regulated under the CWA.[2] The electric power industry has made great strides to reduce air pollutant emissions under Clean Air Act programs. Yet many of these pollutants are transferred to the wastewater as plants employ technologies to reduce air pollution. The pollutants in steam electric power plant wastewater discharges present a serious public health concern and cause severe ecological damage, as demonstrated by numerous documented impacts, scientific modeling, and other studies. When toxic metals such as mercury, arsenic, lead, and selenium accumulate in fish or contaminate drinking water, they can cause adverse effects in people who consume the fish or water. These effects can include cancer, cardiovascular disease, neurological disorders, kidney and liver damage, and lowered IQs in children.

There are, however, affordable technologies that are widely available, and already in place at some plants, which are capable of reducing or eliminating steam electric power plant discharges. In the several decades since the steam electric ELGs were last revised, such technologies have increasingly been used at plants. This final rule is the first to ensure that plants in the steam electric industry employ technologies designed to reduce discharges of toxic metals and other harmful pollutants discharged in the plants' largest sources of wastewater.

Steam electric power plant discharges occur in proximity to nearly 100 public drinking water intakes and more than 1,500 public wells across the nation, and recent studies indicate that steam electric power plant discharges can adversely affect surface waters used as drinking water supplies. One study found that arsenic in ash and flue gas desulfurization (FGD) wastewater discharges from four steam electric power plants exceeded Safe Drinking Water Act (SDWA) Maximum Contaminant Levels (MCLS) in the waterbodies into which they discharged, indicating that these contaminants are present in surface waters, and at levels above standards used to protect drinking water. See DCN SE01984. A second, more recent study found increased levels of bromide in rivers used as drinking water after FGD systems were installed at upstream steam electric power plants. The study showed an increase in bromides at four drinking water utilities' intakes after wastewater from these FGD systems began to be discharged to the rivers, whereas prior to the FGD wastewater discharges, bromides were not a problem in the intake waters of the utilities. With bromides present in their drinking water source waters at increased levels, carcinogenic disinfection by-products (brominated DBPs, in particular trihalomethanes (THMs)) began forming, and at one drinking water utility, violations of the THM MCL began occurring. See DCN SE04503.

Nitrogen discharged by steam electric power plants can also impact drinking water sources by contributing to harmful algal blooms in reservoirs and lakes that are used as drinking water sources. Ground water contamination from surface impoundments (ash ponds) containing steam electric power plant wastewater also threatens drinking water, as evidenced by more than 30 documented cases. See EA Section 3.3.

Steam electric power plant discharges also adversely affect the quality of fish that people eat. Water quality modeling shows that about half of waterbodies that receive steam electric power plant discharges exhibit health risks to people consuming fish from those waters (primarily from mercury). Nearly half of waterbodies that receive steam electric power plant discharges exhibit pollutant levels for one or more steam electric power plant pollutants in excess of human health water quality criteria (WQC).[3] See EA Section 4. People who eat large amounts of fish from lakes and rivers contaminated by mercury, lead, and arsenic are particularly at risk, and consumption of such fish poses additional risk to the fetuses of pregnant women. Compared to the general public, minority and low-income communities have greater exposure to, and are therefore at greater risk from, pollutants in steam electric power plant discharges, due to their closer proximity to the discharges and greater consumption of fish from contaminated waters. See Section XVII.J.

Steam electric power plant discharges adversely affect our nation's waters and their ecology. Pollutants in such discharges, particularly mercury and selenium, bioaccumulate in fish and wildlife, and they accumulate in the sediments of lakes and reservoirs, remaining there for decades. Documented adverse impacts include the near eradication of an entire fish population in the late 1970s in Belews Lake, North Carolina, due to selenium discharges from a steam electric power plant (DCN SE01842); a series of fish kills in the 1970s in Martin Lake, Texas, also due to selenium discharges from a steam electric power plant (elevated selenium levels and deformities persisted for at least eight years after the plant ceased discharging) (DCN SE01861); reproductive impairment and deformities in fish and birds from selenium discharges (DCN SE04519); and other forms of impacts to surface waters, as documented by numerous other damage cases associated with discharges from surface impoundments containing steam electric power plant wastewater. See EA Section 3.3.

Waterbodies receiving steam electric power plant discharges have routinely exhibited pollutant levels routinely in excess of state WQC for pollutants found in the plant discharges. This includes pollutants such as selenium, arsenic, and cadmium. Nutrients in steam electric power plant discharges can cause over-enrichment of receiving waters, resulting in water quality problems, such as low oxygen levels and loss of critical submerged aquatic vegetation, further impairing beneficial uses such as fishing. EPA's modeling corroborates such documented impacts, revealing that nearly one fifth of waterbodies receiving steam electric power plant discharges exceed WQC for protection of aquatic life and nearly one third of such receiving waters pose potential reproductive risks to birds that prey on fish.

The steam electric ELGs that EPA promulgated and revised in 1974, 1977, and 1982 are out of date. They do not adequately control the pollutants (toxic metals and other) discharged by this industry, nor do they reflect relevant process and technology advances that have occurred in the last 30-plus years. The rise of new processes for generating electric power (*e.g.* coal gasification) and the widespread implementation of air pollution controls (*e.g.,* FGD and flue gas mercury control (FGMC)) have altered existing wastestreams and created new types of wastewater at many steam electric power plants, particularly coal-fired plants. The processes employed and pollutants discharged by the industry look very different today than they did in 1982. Many plants, nonetheless, still treat their wastewater using only surface impoundments, which are largely ineffective at controlling discharges of toxic pollutants and nutrients. This final rule addresses an outstanding public health and environmental problem by

[2] Although the way electricity is generated in this country is changing, EPA projects that, without this final rule, steam electric power plant discharges would likely continue to account, over the foreseeable future, for about thirty percent of all toxic pollutants discharged into surface waters by all industrial categories regulated under the CWA.

[3] WQCs are established by states to protect beneficial uses of waterbodies, such as the support of aquatic life and provision of fishing and swimming.

revising the steam electric ELGs, as they apply to a subset of power plants that discharge wastestreams containing toxic and other pollutants. As the CWA requires, this rule is economically achievable (affordable for the industry as a whole) and is based on available technologies. On an annual basis, the rule is projected to reduce the amount of toxic metals, nutrients, and other pollutants that steam electric power plants are allowed to discharge by 1.4 billion pounds; reduce water withdrawal by 57 billion gallons; and, it has estimated social costs of $480 million. Finally, of the benefits that were able to be monetized, EPA projects $451 to $566 million in benefits associated with this rule.

B. Summary of Final Rule

To further its ultimate objective to ''restore and maintain the chemical, physical, and biological integrity of the Nation's waters,'' the CWA authorizes EPA to establish national technology-based effluent limitations guidelines and new source performance standards for discharges from categories of point sources that occur directly into waters of the U.S. The CWA also authorizes EPA to promulgate nationally applicable pretreatment standards that control pollutant discharges from existing and new sources that discharge wastewater indirectly to waters of the U.S. through sewers flowing to publicly owned treatment works (POTWs). EPA establishes ELGs based on the performance of well-designed and well-operated control and treatment technologies.

EPA completed a study of the steam electric category in 2009 and proposed the ELG rule in June 2013. The public comment period extended for more than three months. This final rule reflects the statutory factors outlined in the CWA, as well as EPA's full consideration of the comments received and updated analytical results.

Existing Sources—Direct Discharges. For existing sources that discharge directly to surface water, with the exception of oil-fired generating units and small generating units (those with a nameplate capacity of 50 megawatts (MW) or less), the final rule establishes effluent limitations based on Best Available Technology Economically Achievable (BAT). BAT is based on technological availability, economic achievability, and other statutory factors and is intended to reflect the highest performance in the industry (see Section IV.B.3). The final rule establishes BAT limitations as follows: [4]

- For fly ash transport water, bottom ash transport water, and FGMC wastewater, there are two sets of BAT limitations. The first set of BAT limitations is a numeric effluent limitation on Total Suspended Solids (TSS) in the discharge of these wastewaters (these limitations are equal to the TSS limitations in the previously established Best Practicable Control Technology Currently Available (BPT) regulations). The second set of BAT limitations is a zero discharge limitation for all pollutants in these wastewaters.[5]
- For FGD wastewater, there are two sets of BAT limitations. The first set of limitations is a numeric effluent limitation on TSS in the discharge of FGD wastewater (these limitations are equal to the TSS limitations in the previously established BPT regulations). The second set of BAT limitations is numeric effluent limitations on mercury, arsenic, selenium, and nitrate/nitrite as N in the discharge of FGD wastewater.[6]
- For gasification wastewater, there are two sets of BAT limitations. The first set of limitations is a numeric effluent limitation on TSS in the discharge of gasification wastewater (this limitation is equal to the TSS limitation in the previously established BPT regulations). The second set of BAT limitations is numeric effluent limitations on mercury, arsenic, selenium, and total dissolved solids (TDS) in the discharge of gasification wastewater.
- A numeric effluent limitation on TSS in the discharge of combustion residual leachate from landfills and surface impoundments. This limitation is equal to the TSS limitation in the previously established BPT regulations.

For oil-fired generating units and small generating units (50 MW or smaller), the final rule establishes BAT limitations on TSS in the discharge of fly ash transport water, bottom ash transport water, FGMC wastewater, FGD wastewater, and gasification wastewater. These limitations are equal to the TSS limitations in the existing BPT regulations.

New Sources—Direct Discharges. The CWA mandates that new source performance standards (NSPS) reflect the greatest degree of effluent reduction that is achievable, including, where practicable, a standard permitting no discharge of pollutants (see Section IV.B.4). NSPS represent the most stringent controls attainable, taking into consideration the cost of achieving the effluent reduction and any non-water quality environmental impacts and energy requirements. For direct discharges to surface waters from new sources, including discharges from oil-fired generating units and small generating units, the final rule establishes NSPS as follows:

- A zero discharge standard for all pollutants in fly ash transport water, bottom ash transport water, and FGMC wastewater.
- Numeric standards on mercury, arsenic, selenium, and TDS in the discharge of FGD wastewater.
- Numeric standards on mercury and arsenic in the discharge of combustion residual leachate.

Existing Sources—Discharges to POTWs. Pretreatment Standards for Existing Sources (PSES) are designed to prevent the discharge of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of POTWs. PSES are analogous to BAT effluent limitations for direct dischargers and are generally based on the same factors (see Section IV.B.5). The final rule establishes PSES as follows: [7]

- A zero discharge standard for all pollutants in fly ash transport water, bottom ash transport water, and FGMC wastewater.[8]
- Numeric standards on mercury, arsenic, selenium, and nitrate/nitrite as N in the discharge of FGD wastewater.
- Numeric standards on mercury, arsenic, selenium and TDS in the discharge of gasification wastewater.

New Sources—Discharges to POTWs. Pretreatment standards for new sources (PSNS) are also designed to prevent the discharge of any pollutant into a POTW that interferes with, passes through, or is otherwise incompatible with the POTW. PSNS are analogous to NSPS for direct dischargers, and EPA generally considers the same factors for both sets of standards (see Section IV.B.6). The final rule establishes PSNS that are the same as the rule's NSPS.

[4] For details on when the following BAT limitations apply, see Section VIII.C.

[5] When fly ash transport water or bottom ash transport water is used in the FGD scrubber, the applicable limitations are those established for FGD wastewater on mercury, arsenic, selenium and nitrate/nitrite as N.

[6] For plants that opt into the voluntary incentives program, the second set of BAT limitations is numeric effluent limitations on mercury, arsenic, selenium, and TDS in the discharge of FGD wastewater.

[7] For details on when PSES apply, see Section VIII.E.

[8] When fly ash transport water or bottom ash transport water is used in the FGD scrubber, the applicable standards are those established for FGD wastewater on mercury, arsenic, selenium and nitrate/nitrite as N.

C. Summary of Costs and Benefits

Table III–1 summarizes the benefits and social costs for the final rule, at three percent and seven percent discount rates. EPA's analysis reflects the Agency's understanding of the actions steam electric power plants will take to meet the limitations and standards in the final rule. EPA based its analysis on a baseline that reflects the expected impacts of other environmental regulations affecting steam electric power plants, such as the Clean Power Plan (CPP) rule that the Agency finalized in July 2015 (as well as other relevant rules such as the Coal Combustion Residuals (CCR) rule that the Agency promulgated in April 2015). EPA understands that these modeled results have uncertainty due to the possibility of unexpected implementation approaches and thus that the actual costs could be somewhat higher or lower than estimated. The current estimate reflects the best data and analysis available at this time. In this preamble, EPA presents costs and monetized benefits accounting for these other rules.[9] Under this final rule, EPA estimates that about 12 percent of steam electric power plants and 28 percent of coal-fired or petroleum coke-fired power plants will incur some costs.[10] For additional information, see Sections V and IX.

TABLE III–1—TOTAL MONETIZED ANNUALIZED BENEFITS AND COSTS OF THE FINAL RULE

[Millions; 2013$]

Discount rate	Total monetized social benefits		Total social costs	
	3%	7%	3%	7%
Final Rule	$451 to $566	$387 to $478	$480	$471

The remainder of this preamble is structured as follows. Section IV provides additional background on the CWA and the ELG program. Section V outlines key updates since the proposal, including updates to the industry profile, estimated costs and economic impacts, and pollutant data. Section VI gives an overview of the industry, and Section VII reviews the identification and selection of the regulated pollutants. Section VIII describes the final rule requirements, along with the bases for EPA's decisions. Section IX presents the costs and economic impacts, while Section X shows the accompanying pollutant reductions. Section XI presents the numeric limitations and standards for existing and new sources that are established in this final rule. Sections XII through XIV explain the non-water quality environmental impacts (including energy requirements), the environmental assessment, and the resulting benefits analysis. Section XV presents results of the cost-effectiveness analysis, and Section XVI provides information regarding implementation of the rule.

IV. Background

A. Clean Water Act

Congress passed the CWA to ''restore and maintain the chemical, physical, and biological integrity of the Nation's waters.'' 33 U.S.C. 1251(a). In order to achieve this objective, the Act has, as a national goal, the elimination of the discharge of all pollutants into the nation's waters. 33 U.S.C. 1251(a)(1). The CWA establishes a comprehensive program for protecting our nation's waters. Among its core provisions, the CWA prohibits the discharge of pollutants from a point source to waters of the U.S., except as authorized under the CWA. Under section 402 of the CWA, 33 U.S.C. 1342, discharges may be authorized through a National Pollutant Discharge Elimination System (NPDES) permit. The CWA establishes a dual approach for these permits, technology-based controls that establish a floor of performance for all dischargers, and water quality-based effluent limitations, where the technology-based effluent limitations are insufficient to meet applicable WQS. To serve as the basis for the technology-based controls, the CWA authorizes EPA to establish national technology-based effluent limitations guidelines and new source performance standards for discharges from categories of point sources (such as industrial, commercial, and public sources) that occur directly into waters of the U.S.

The CWA also authorizes EPA to promulgate nationally applicable pretreatment standards that control pollutant discharges from sources that discharge wastewater indirectly to waters of the U.S., through sewers flowing to POTWs, as outlined in sections 307(b) and (c) of the CWA, 33 U.S.C. 1317(b) and (c). EPA establishes national pretreatment standards for those pollutants in wastewater from indirect dischargers that pass through, interfere with, or are otherwise incompatible with POTW operations. Generally, pretreatment standards are designed to ensure that wastewaters from direct and indirect industrial dischargers are subject to similar levels of treatment. See CWA section 301(b), 33 U.S.C. 1311(b). In addition, POTWs are required to implement local treatment limits applicable to their industrial indirect dischargers to satisfy any local requirements. See 40 CFR 403.5.

Direct dischargers (those discharging directly to surface waters) must comply with effluent limitations in NPDES permits. Indirect dischargers, who discharge through POTWs, must comply with pretreatment standards. Technology-based effluent limitations and standards in NPDES permits are derived from effluent limitations guidelines (CWA sections 301 and 304, 33 U.S.C. 1311 and 1314) and new source performance standards (CWA section 306, 33 U.S.C. 1316) promulgated by EPA, or based on best professional judgment (BPJ) where EPA has not promulgated an applicable effluent limitation guideline or new source performance standard (CWA section 402(a)(1)(B), 33 U.S.C. 1342(a)(1)(B)). Additional limitations are also required in the permit where necessary to meet WQS. CWA section 301(b)(1)(C), 33 U.S.C. 1311(b)(1)(C). The ELGs are established by EPA regulation for categories of industrial dischargers and are based on the degree of control that can be achieved using various levels of pollution control technology, as specified in the Act (*e.g.,* BPT, BCT, BAT; see below).

EPA promulgates national ELGs for major industrial categories for three classes of pollutants: (1) Conventional pollutants (TSS, oil and grease, biochemical oxygen demand (BOD_5), fecal coliform, and pH), as outlined in

[10] EPA estimates that the population of steam electric power plants is about 1080.