REPLACES: The Retirement Plan Act for Coal-Fueled Electricity Sources

Version 2.0

Overview of a Multimedia Compliance Program for Coal-Fueled Electricity Sources

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The REPLACES program promotes the reduction of traditional pollutants and greenhouse gas emissions by requiring the retirement, control, or retrofit of all existing coal-fueled electric generating units[1], as well as the adoption of a new coal unit performance standard that applies on or after January 1, 2015. It will provide certainty regarding regulatory requirements for existing coal-fueled electric generating units, incentivize earlier retirements and retrofits of existing coal-fueled electric generating units, allow for continued development and ultimate implementation of new clean coal technologies and nuclear power, and continue tax credits to support additional renewable energy development.

The REPLACES program requires the retirement, control, or retrofit of all existing coal-fueled electric generating units over a phased-in period, concluding in 2055. It also seeks near-term regulatory relief for coal-fueled units that cease operation permanently prior by December 31, 2020, as well as harmonization of the U.S. Environmental Protection Agency's regulatory authority for various rules including, but not limited to, new source performance standards, national emissions standards for hazardous air pollutants, national ambient air quality standards, and new source review programs for coal-fueled units that will continue to operate after December 31, 2020.

Applicability

For purposes of the REPLACES program;

i. A "covered electric utility" is defined as an electric utility that is an investor-owned utility, municipal utility, electric cooperative or public utility district; is subject to federal greenhouse gas and traditional emissions restrictions and prohibitions; and is subject to oversight by a state regulatory authority, governing board, or supervising state or political subdivision. The REPLACES program would be implemented by the utility under the supervision of the utility's state regulatory authority, governing board, or supervising state or political subdivision in concert with the U.S. Environmental Protection Agency.

ii. A "merchant coal unit" is defined as a coal-fueled electric generating unit that 1) is not owned by a Federal, State, or regional agency or power authority; and 2) generates

[1] A "coal-fueled" electric generating unit is defined as a unit that derives at least 85% of its heat input from coal, petroleum coke, fuel oil, or any combination of those three fuels.

electricity solely for sale to others, provided that all or a portion of such sales are made by a separate legal entity that has full or partial ownership or leasehold interest in the unit; and is not subject to retail rate regulation or setting of retail rates by a State regulatory authority (or a State or political subdivision thereof), an electric cooperative, or an Indian tribe pursuant to tribal law. The REPLACES program would be implemented by the merchant coal unit owner/operator under the supervision of the U.S. Environmental Protection Agency.

Certification

A covered electric utility must certify that the state regulatory authority, governing board, or supervising state or political subdivision that oversees the utility has the authority to: (1) consider the interests of retail electric consumers served by the utility, and (2) require the utility to meet the program's retirement/retrofit schedule. The owner/operator of a merchant coal unit must certify that it is subject to the oversight of an appropriate Regional Transmission Organization or Independent System Operator with the responsibility to ensure the reliability of electric service in its territory and to protect the interests of electric markets served by such merchant coal unit.

- Filing of a Compliance Plan. Each certifying covered electric utility and merchant coal unit owner/operator shall file with the EPA a compliance plan within 24 months of the effective date of the legislation. Each certifying covered electric utility shall, at the same time, file a copy of the plan with its state regulatory authority, governing board, or supervising state or political subdivision. The plan must identify each coal-fueled electric generating unit that is subject to these restrictions and prohibitions; the state in which the unit is located; the date upon which the unit was placed in service; the greenhouse gas emissions from the unit in the most recent 12-month period for which data is available; the date for retirement or retrofit for the unit under the REPLACES schedule; if a unit is to be retrofitted or controlled, the nature of the retrofit and control equipment and the expected amount of reduction in emissions; and, for covered utilities, the states in which any portion of the investment in the unit is included in retail electric rates, and the plan for providing electric service after the retirement, control, or retrofit.

- Compliance Plan Updates. Compliance plans must be updated at least every four years. States and the U.S. Environmental Protection Agency will develop other procedures as necessary to ensure compliance with REPLACES.

Specifics

1. Greenhouse Gas Emissions. Section 111 of the Clean Air Act would be amended to use the following REPLACES retirement/retrofit schedule as the basis for greenhouse gas new performance standards for existing coal-fueled electric generating units. To achieve the greenhouse gas (GHG) emission reductions on a timely basis, any covered electric utility or merchant coal unit owner/operator subject to REPLACES must make a legally binding commitment in writing to EPA (and, if a covered electric utility, also to its state regulatory authority, governing board, or supervising state or political subdivision) to retire or retrofit all of its existing coal-fueled electric generating units based on the following schedule:

i. A coal-fueled electric generating unit that began commercial operation on or prior to December 31, 1959, must be retrofitted or retired by December 31, 2020.

ii. A coal-fueled electric generating unit that began commercial operation after December 31, 1959, but on or prior to December 31, 1974, must be retrofitted or retired by December 31, 2035.

iii. A coal-fueled electric generating unit that began commercial operation after December 31, 1974, but on or prior to December 31, 1999, must be retrofitted or retired by December 31, 2045.

iv. A coal-fueled electric generating unit that began commercial operation after December 31, 1999, or was initially permitted prior to January 1, 2015, without at least 50% carbon (CO_2) capture as measured on an annual basis, must be retrofitted or retired by December 31, 2055.

The dates listed above would be binding with the following exception.

a. For a coal-fueled electric generating unit scheduled for retirement or retrofit in schedule periods i., ii. or iii. above, a covered electric utility or merchant coal unit owner/operator may choose to substitute the retirement or retrofit of a coal-fueled electric generating unit in a later schedule period, as long as the resultant amount of greenhouse gas reductions is equal to or greater than the amount of greenhouse gas reductions that would have been achieved by retirement or retrofit of the scheduled unit.

The following items would qualify to meet the definition of "retrofit" under this provision:

a. Conversion of an existing boiler to eliminate the use of coal with the substitution of natural gas as the primary fuel source.

b. Repowering an existing unit with a combined cycle combustion turbine natural gas-fueled unit.

c. Replacing a percentage of the coal fuel supply with renewable biomass to meet a minimum generation performance standard of 1,100 pounds of carbon dioxide (CO_2) per gross megawatt-hour, when measured on an annualized basis[2]. For clarity, the CO_2 emissions associated with the combustion of renewable biomass would be excluded for purposes of demonstrating compliance with this generation performance standard.

    i. Renewable biomass is defined as legally harvested trees, wood, brush, thinnings, chips, and slash; renewable plant material such as feed grains, other

[2] The performance standard of 1,100 pounds of CO_2 per gross megawatt-hour is equivalent to approximately a 50% reduction from the CO_2 emissions from an average performing coal-fueled unit. This figure is also consistent with California's greenhouse gas emission performance standard under Assembly Bill 32.

agricultural commodities, plants, and algae; waste material including crop residue, vegetative waste material, animal waste and byproducts, construction waste, food and yard waste, and non-biogenic municipal solid waste and construction, demolition, and disaster debris; and residues and byproducts from wood, pulp, or paper products facilities.

d. Installing carbon capture and storage technology to mitigate a minimum of 50% of the baseline CO_2 emissions emitted by the existing unit, when measured on an annualized basis.

e. Integrating other non-emitting generation technologies (e.g., solar, nuclear, etc.) into the existing coal unit steam cycle to meet a minimum generation performance standard of 1,100 pounds of CO_2 per gross megawatt-hour, when measured on an annualized basis.

2. Preemption of GHG Regulation. For regulation of GHGs at covered coal units, preemption of:

i. The Clean Air Act. Specifically EPA would be preempted from establishing standards of performance for GHGs for existing coal units for other than climate change, such as ocean acidification; GHGs as a trigger for New Source Review for major sources; GHGs as an independent basis for requiring a Title V permit if the GHG in question is only regulated due to its impact on climate change; and incorporating GHGs into Title V permits for impacts other than climate change, including ocean acidification.

ii. Preemption of Other Federal Laws. Specifically EPA would be preempted from establishing regulations under other federal environmental laws, such as the Clean Water Act, the National Environmental Policy Act and the Endangered Species Act.

iii. State Preemption. At a minimum, where inconsistencies exist among state, regional and federal GHG programs, federal law should prevail. States should be free to pursue the policies they wish, but those policies should not regulate sources already subject to REPLACES. States would be preempted from taking any additional actions requiring GHG reductions from covered coal-fueled units, including, but not limited to, cap-and-trade requirements, taxes, fees, or limits imposed on these existing coal-fueled units for greenhouse gas emissions.

iv. State and federal common law torts.

3. Effect on Other EPA and State Regulations. The following provisions would apply to covered electric utilities and merchant coal unit owners/operators that participate in the REPLACES program:

i. Pre-2021 (Near-Term) Regulatory Relief. Each coal-fueled electric generating unit must continue to meet all the conditions of its federal, state and locally enforceable permits in existence at the time the utility enters into the REPLACES

program. Notwithstanding any provision of the Clean Air Act, any coal-fueled electric generating unit subject to REPLACES that commits to ceasing operation permanently on or before December 31, 2020, shall be exempt from the following:

a. New source review requirements under the Clean Air Act (42 U.S.C. § 7475) or state emission reduction requirements under a state implementation plan addressing new source review requirements.

b. Regulation of hazardous air pollutants under section 112 of the Clean Air Act (42 U.S.C. § 7412), including standards promulgated pursuant to subparagraph (a)(11) (D).

c. The final rule entitled ‘‘Regional Haze Regulations and Guidelines for Best Available Retrofit Technology (BART) Determinations’’ (70 *Fed. Reg*. 39104 (July 6, 2005)).

d. New source performance standards for greenhouse gas emissions under section 111 of the Clean Air Act (42 U.S.C. § 7411).

e. Regulation of coal combustion waste water discharges from thermal generating units under title III of the Federal Water Pollution Control Act (17 U.S.C. § 1311 *et seq*.).

f. Regulation of cooling water intake structures under section 316(b) of the Federal Water Pollution Control Act (33 U.S.C. §1326(b)), and

g. Effluent guidelines and thermal discharge requirements promulgated under the Clean Water Act.

ii. Regulatory Coordination for Coal Units Operating Post-2020. Coal-fueled units which continue to operate post-2020 shall be required to meet the criteria as outlined below.

a. Clean Air Transport Rule. Emission controls, fuel switching, or other mechanisms shall be employed by January 1, 2021 to meet the following requirements:

1) Program shall be expanded to affect all 48 continental U.S. states and the District of Columbia; versus 31 states and the District of Columbia currently affected.

2) Program shall not seek additional SO_2 reductions, since the Utility HAPs MACT requirements are more restrictive.

3) Utilities shall achieve annual and ozone season NOx emission rates of 0.17 lb/mmBtu, when measured over the year or ozone season.

i. A December 31, 2015 compliance date shall be enforced for the 31 currently affected eastern states, plus the District of Columbia.
ii. A December 31, 2020 compliance date shall be enforced for the remaining 17 western continental U.S. states.
iii. Reductions shall be completed under a cap-and-trade program.
iv. Allowances shall be fully allocated based on an average heat input from 2008-2010.
v. Each state's actual emissions must be within 110% of its annual emission allocation.
vi. An additional allowance reserve of 3% shall be set aside for new units.

4) There shall be no additional Regional Haze / Best Available Retrofit Technology (BART) reductions required for existing coal-fueled units.

5) The combination of emission controls from the Clean Air Transport Rule and Utility HAPs MACT rule shall be considered better than BART and also satisfy all reasonable progress goals established under the visibility rule.

b. Utility HAPs MACT Rule. Emission controls, fuel switching, or other mechanisms shall be employed by January 1, 2021 to meet the following requirements.

1) 90% reduction in SO_2 emissions, but not less than 0.15 lb/mmBtu.
i. No specific reductions for acid gases due to strong correlation with SO_2 emissions.

2) 80% reduction in mercury emissions, but not less than 1.7 lb/TBtu.
i. No specific reductions for non-mercury metallic HAP emissions due to strong correlation with mercury emissions.

c. Coal Ash Management.

1) All coal ash shall continue to be managed as solid waste (subtitle D), and not hazardous waste (subtitle C).

2) Existing beneficial uses for coal ash shall continue to be eligible.

3) No coal ash shall be deposited into unlined mines, quarries, and sand/gravel pits.

4) New coal ash landfills or landfill expansions shall install liners and leachate collection systems and be Subtitle D compliant.

5) Wet surface impoundments may continue to operate in their current form until January 1, 2025.

6) No later than January 1, 2025, surface impoundments shall be phased out (traditional cap and close without excavation) and all coal ash shall be managed dry and disposed in ash monofills.

7) Individual coal ash damage cases and impoundment structural integrity issues shall be addressed on a case-by-case basis.

8) New coal-fueled units shall be designed to manage coal ash dry.

d. Water.

1) No existing coal-fueled units with once-through cooling shall be required to install closed-loop cooling systems.

2) Each once-through cooled unit which continues to operate post 2020 shall conduct a fish impingement/entrainment evaluation and implement reasonable measures to reduce mortality of aquatic life.

i. The evaluations shall be completed by December 31, 2015, and the most beneficial measures, as determined by the appropriate state regulatory authority, shall be implemented by December 31, 2020.
ii. In no event shall an individual unit be required to expend more than $1 million per 100 MW of accredited capacity.

3) No existing coal-fueled unit shall be subject to more restrictive thermal discharge or effluent limits than exist in current permits.

iii. Preemption of State Regulation of HAPs. Current and future state regulations of hazardous air pollutants, including emissions of mercury, are preempted by the EPA's Utility HAPs MACT rule.

iv. Clarification of New Source Review Applicability. Efficiency and operational improvements undertaken at a coal-fueled electric generating unit by a covered electric utility or merchant coal unit owner/operator, regardless of their date, would not be subject to New Source Review regulations specified within the federal Clean Air Act.

v. "Safe Harbor" Provision. Each coal-fueled electric generating unit must continue to meet all the conditions of its existing federal, state and locally enforceable permits in existence at the time the units enters into the REPLACES program. However, except as explicitly outlined above, the existing coal units would not be subject to any future rules or changes to regulations under the existing Clean Air Act, National Ambient Air Quality Standards, Clean Water Act, Safe Drinking Water Act, Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act, and any new state or local air, water, or other environmental regulations that are more stringent than currently existing federal, state and local requirements. Compliance with any additional requirements will ultimately be achieved by retiring, controlling, or

retrofitting these coal-fueled electric generating units on a legally binding schedule.

vi. Cost Recovery. A covered electric utility shall be authorized to recover in rates (a) the prudently incurred costs of replacing any coal-fueled electric generating unit retired pursuant to the REPLACES compliance plan; and (b) all other reasonable costs, including but not limited to retrofit costs and accelerated depreciation expense, associated with the compliance plan.

vii. Joint Ownership. For a coal-fueled electric generating unit that is owned by more than one entity, the election to subject the unit to the REPLACES program shall be made by the operator unless otherwise provided by contract.

viii. Non-Compliance.

a. Retrofits: A covered electric utility or merchant coal unit owner/operator which fails to meet its commitment to retrofit one or more of its existing coal-fueled electric generating units based on the REPLACES schedule and its approved compliance plan will be subject to an excess emission fee. Such excess emission fee will be based on the actual monthly CO_2 emission tons from the subject unit(s) multiplied by $50 per ton (in 2010$ escalated with inflation). Any such excess emission fees shall be paid to the U.S. Environmental Protection Agency on a monthly basis, no later than 30 days following the month in which the excess emissions occurred.

b. Retirements: A covered electric utility or merchant coal unit owner/operator which fails to meet its legally binding commitment to retire one or more of its existing coal-fueled electric generating units based on the REPLACES schedule and its approved compliance plan will be subject to the same enforcement actions as a unit which operates without a valid operating permit, or is otherwise in violation of such permit, in accordance with the provisions of the Clean Air Act. This shall include, but not be limited to, Section 113 civil and criminal actions, Section 303 emergency powers, and Section 304 citizen suits.

4. New Coal-Fueled Electric Generating Units. The Clean Air Act (42 U.S.C. 7401 et seq.) would be amended to establish performance standards for new coal-fueled power plants. A "covered coal unit" is defined as a unit required to have a Title V permit under CAA section 503(a) and is authorized under Federal or State law to derive at least 30 percent of the annual heat input of the unit from (i) coal; (ii) petroleum coke; or (iii) any combination of those fuels. The standard applies on or after January 1, 2015 when the owner or operator of a covered coal unit has received a preconstruction approval or permit as a new (but not modified) source. A covered coal unit must achieve the following emissions limits:

i. 0.07 lb/mmBtu annual and ozone season NOx emission rate, when measured on a 30-day rolling average.
ii. 0.10 lb/mmBtu SO_2 emissions rate, when measured on a 30-day rolling average.

iii. 1.5 lb/TBtu mercury emissions rate, when measured on a 30-day rolling average.
iv. 1,100 pounds of CO_2 per gross megawatt-hour emissions rate, when measured on an annualized basis.

5. Income Tax Incentives. The following tax-related provisions would apply to covered electric utilities and merchant coal unit owners/operators that are participating in the REPLACES program:

i. Accelerated Retirement or Retrofit Credit (ARRC). Under new Internal Revenue Code Section 45R, if a coal-fueled electric generating unit subject to REPLACES is retired or retrofitted at an earlier date than required under the REPLACES schedule (i.e., prior to the respective dates prescribed in Item 2), the covered electric utility or merchant coal unit owner/operator shall be eligible to receive ARRC at a rate equal to one-half of the renewable electricity production tax credit rate set forth in Internal Revenue Code Section 45(a). For a covered electric utility, the amount of credits so generated shall be utilized to benefit retail customers by reducing the cost of the energy and/or capacity of the supply or demand resource that replaces the retired or retrofitted coal-fueled electric generating unit, in the manner determined by the state regulatory authority, governing board, or supervising state or political subdivision. The ARRC shall be calculated by multiplying the average monthly megawatt-hours generated by the unit being retired or retrofitted during the 12 calendar months immediately preceding the retirement/retrofit date by the number of full calendar months the date of retirement or retrofit precedes the respective scheduled dates prescribed in Item 2. The ARRC may be claimed regardless of whether or not the taxpayer elects tax incentives under paragraphs 4.iii. and 4.iv., below.

ii. Renewable Electricity Production Tax Credit. The existing renewable electricity production tax credit program will be extended in its current form through 2055.

iii. Election to Expense. Under new Internal Revenue Code Section 179F, a participant in the REPLACES program, like other taxpayers, may elect to expense 100% of the cost of any qualified emission reduction project to meet these requirements and reduced CO_2 property. A qualified reduced CO_2 property means any property installed as a retrofit of an existing coal-fueled electric generating unit or constructed as a new electric generating unit, which meets a minimum generation performance standard of 1,100 pounds of CO_2 per gross megawatt-hour placed into service after enactment of Section 179F. The election to deduct costs under this section shall also apply to qualified progress expenditures incurred during the construction of the qualified equipment/property, in a manner similar to the rules of Subsection 48(b).

iv. Dual Alternatives to the Election to Expense. In lieu of enacting a Section 179F election to expense, mutually exclusive alternatives to elect either a 30% tax credit or a 30% U.S. Treasury grant would be available to participants in the REPLACES program. The grant side of this dual approach would permit utilities without current federal income tax appetites to timely receive a cash grant equal in amount to a corresponding energy investment tax credit. These provisions are

patterned after similar provisions enacted as part of the American Recovery and Reinvestment Act of 2009.

a. Investment Tax Credit. Under the REPLACES program, a new Internal Revenue Code Section 48D would be added to permit a taxpayer to claim a tax credit equal to 30% of the cost of any qualified emission reduction project to meet these requirements and reduced CO_2 property. A qualified reduced CO_2 property means any property installed as a retrofit of an existing coal-fueled electric generating unit or constructed as a new electric generating unit that meets a minimum generation performance standard of 1,100 pounds of CO_2 per gross megawatt-hour placed into service after enactment of Internal Revenue Code Section 48D. The credit under this section shall also apply to qualified progress expenditures incurred during the construction of the qualified emission reduction project and reduced CO_2 property, in a manner similar to the rules of Subsection 48(b). This credit would be claimed in lieu of a grant available under new Internal Revenue Code Section 48E, described below. The depreciable basis of the property shall be reduced by the amount of the credit.

b. Investment Grant. Under new Internal Revenue Code Section 48E, a taxpayer may apply to the U.S. Treasury for a cash grant equal to 30% of the cost of any qualified emission reduction project to meet these requirements and reduced CO_2 property. A qualified reduced CO_2 property means any property installed as a retrofit of an existing coal-fueled electric generating unit or constructed as a new electric generating unit that meets a minimum generation performance standard of 1,100 pounds of CO_2 per gross megawatt-hour placed into service after enactment of Internal Revenue Code Section 48E. The grant under this section shall be made available to qualified progress expenditures incurred during the construction of the qualified emission reduction project to meet these requirements and reduced CO_2 property, in a manner similar to the rules of Subsection 48(b). This grant would be claimed in lieu of a tax credit available under new Internal Revenue Code Section 48D, described previously, and is payable to the utility within 60 days after the later of the expenditure or the date of application. The depreciable basis of the property shall be reduced by the amount of the grant.

6. Nuclear Power Development Support. An $8 billion loan guarantee program will be provided to states for distribution to covered electric utilities participating in the REPLACES program to develop, own and operate new nuclear power plants. In addition, covered electric utilities that develop, own and operate new nuclear power plants will be eligible for the tax programs specified above in 4.iii and 4.iv.

7. Emission Reduction Benefits. Retiring, retrofitting, and controlling all of the existing coal-fueled electric generating units on the predetermined schedule outlined above will result in significant emission reduction direct benefits and co-benefits and is estimated to

result in reductions of sulfur dioxide (SO_2), nitrogen oxides (NO_X) and mercury (Hg) emissions, in addition to CO_2, as compared to baseline emissions in 2008[3].

i. Retiring all the existing U.S. coal-fueled electric generating units on the predetermined schedule outlined above and replacing them with non-carbon emitting generating units, and controlling the post-2020 coal-fueled fleet to meet the emission standards outlined above, is estimated to result in the following emission reductions

	Cumulative Reductions from Controls and Retirements							
	CO_2		**SO_2**		**NO_X**		**Hg[4]**	
	M Tons	%	M Tons	%	M Tons	%	Tons	%
2020	223.3	10.7	6.08	82.1	1.34	47.3	30.08	66.8
2035	958.7	46.1	6.62	89.3	1.94	68.6	36.11	80.3
2045	2,049.3	98.6	7.39	99.8	2.82	99.5	44.89	99.8
2055	2,078.0	100.0	7.41	100.0	2.84	100.0	45.00	100.0

ii. Retrofitting all the existing U.S. coal-fueled electric generating units on the predetermined schedule outlined above to meet the 1,100 pound of CO_2 per gross megawatt-hour standard, and controlling the post-2020 operated coal-fueled fleet to meet the emission standards outlined above, is estimated to result in the following emission reductions[5].

	Cumulative Reductions from Controls and Retrofits							
	CO_2		**SO_2**		**NO_X**		**Hg**	
	M Tons	%	M Tons	%	M Tons	%	Tons	%
2020	100.5	4.8	5.93	80.1	1.17	41.4	28.39	63.1
2035	431.4	20.8	5.93	80.1	1.17	41.4	28.39	63.1
2045	922.2	44.4	5.93	80.1	1.17	41.4	28.39	63.1
2055	935.1	45.0	5.93	80.1	1.17	41.4	28.39	63.1

[3] The total tonnage reductions would be even greater as compared to baseline emissions in 2005. Between 2005 and 2008, emissions from Acid Rain Program units have declined as follows: SO_2 down by 2.6 million tons, NO_x down by 0.6 million tons, Hg down by 2 tons, and CO_2 down by 22.7 million tons.

[4] Mercury emission data were not available on a unit-by-unit basis. Therefore, baseline mercury emissions were estimated to correlate closely with SO_2 emissions, since scrubber equipment generally has a mercury co-benefit.

[5] Since the 1,100 pound CO_2 per gross megawatt-hour emission standard (from a baseline of 2,000 pounds) could be achieved via a number of alternatives, including CCS, the addition of biomass, or integration of other non-emitting generation technologies into the steam cycle, it was assumed that CCS would be employed and not affect emissions of SO_2, NOx, and Hg above and beyond the direct emission control benefits.

iii. Converting all the existing U.S. coal-fueled electric generating units to 100% natural gas on the predetermined schedule outlined above is estimated to result in the following emission reductions[6].

	Cumulative Reductions from Controls and Natural Gas Conversions							
	CO_2		**SO_2**		**NO_X**		**Hg**	
	M Tons	%	M Tons	%	M Tons	%	Tons	%
2020	103.5	5.0	6.08	82.1	1.22	43.1	30.08	66.8
2035	444.3	21.4	6.62	89.3	1.40	49.4	36.11	80.3
2045	949.7	45.7	7.39	99.8	1.66	58.5	44.89	99.8
2055	963.0	46.3	7.41	100.0	1.66	58.5	45.00	100.0

[6] The complete conversion to natural gas of the coal-fueled electric generating units could occur either as a fuel switch or a combined cycle repowering. The table conservatively assumes all units undergo fuel switching, and NOx is reduced from the controlled average of 0.17 lb/mmBtu to 0.12 lb/mmBtu. If some of the units were repowered, additional CO_2 and NOx reductions would be expected due to the heat rate improvement.