CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 Introduction

In this action, the Environmental Protection Agency (EPA) is proposing three distinct actions. First, for the reasons explained in the proposed repeal of the Clean Power Plan (CPP), the Agency is proposing to determine the best system of emission reduction (BSER) for existing electric utility generating units (EGUs) based solely on heat rate improvements (HRIs).[1] "Building block" two and three of the CPP are not incorporated in this proposal because they exceed the Agency's authority. Second, EPA is proposing new regulations that provide direction to both EPA and the states on the implementation of emission guidelines. The new proposed implementing regulations would apply to this action and any future emission guideline issued under section 111(d) of the Clean Air Act (CAA). Third, the Agency is proposing revisions to the New Source Review (NSR) program that will prevent NSR from being a barrier to the implementation of efficiency projects at EGUs.

This report presents the expected costs, benefits and economic impacts of illustrative scenarios representing approaches that states may implement to comply with this proposed rule. This chapter contains background information on this rule, an overview of the regulatory impact analysis conducted and scenarios analyzed, as well as an outline of the chapters in this report.

1.2 Legal, Scientific, and Economic Basis for this Rulemaking

1.2.1 Statutory Requirement

Clean Air Act section 111, which Congress enacted as part of the 1970 Clean Air Act Amendments, establishes mechanisms for controlling emissions of air pollutants from stationary sources. This provision requires EPA to promulgate a list of categories of stationary sources that the Administrator, in his or her judgment, finds "causes, or contributes significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare."[2] EPA has

[1] In October 2017, the U.S. Environmental Protection Agency proposed to repeal the Clean Power Plan (CPP). This proposed rule, Repeal of Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, is found at 40 CFR Part 60 [EPA–HQ–OAR–2017–0355; FRL–9969–75–OAR].

[2] CAA §111(b)(1)(A).

listed more than 60 stationary source categories under this provision.[3] Once EPA lists a source category, EPA must, under CAA section 111(b)(1)(B), establish "standards of performance" for emissions of air pollutants from new sources in the source categories.[4] These standards are known as new source performance standards (NSPS), and they are national requirements that apply directly to the sources subject to them.

When EPA establishes NSPS for sources in a source category under CAA section 111(b), EPA is also required, under CAA section 111(d)(1), to prescribe regulations for states to submit plans regulating existing sources in that source category for any air pollutant that, in general, is not regulated under the CAA section 109 requirements for the NAAQS or regulated under the CAA section 112 requirements for hazardous air pollutants (HAP). CAA section 111(d)'s mechanism for regulating existing sources differs from the one that CAA section 111(b) provides for new sources because CAA section 111(d) contemplates states submitting plans that establish "standards of performance" for the affected sources and that contain other measures to implement and enforce those standards.

"Standards of performance" are defined under CAA section 111(a)(1) as standards for emissions that reflect the emission limitation achievable from the "best system of emission reduction," considering costs and other factors, that "the Administrator determines has been adequately demonstrated." CAA section 111(d)(1) grants states the authority, in applying a standard of performance, to take into account the source's remaining useful life and other factors.

Under CAA section 111(d), a state must submit its plan to EPA for approval, and EPA must approve the state plan if it is "satisfactory."[5] If a state does not submit a plan, or if EPA does not approve a state's plan, then EPA must establish a plan for that state.[6] Once a state receives EPA's approval of its plan, the provisions in the plan become federally enforceable against the entity responsible for noncompliance, in the same manner as the provisions of an approved State Implementation Plan (SIP) under the Act.

[3] See 40 CFR 60 subparts Cb – OOOO.

[4] CAA §111(b)(1)(B), 111(a)(1).

[5] CAA section 111(d)(2)(A).

[6] CAA section 111(d)(2)(A).

1.2.2 Health and Welfare Impacts from Climate Change

According to the National Research Council, "Emissions of CO_2 from the burning of fossil fuels have ushered in a new epoch where human activities will largely determine the evolution of Earth's climate. Because CO_2 in the atmosphere is long lived, it can effectively lock Earth and future generations into a range of impacts, some of which could become very severe. Therefore, emission reduction choices made today matter in determining impacts experienced not just over the next few decades, but in the coming centuries and millennia."[7]

In 2009, EPA Administrator issued the Endangerment Finding under CAA section 202(a)(1).[8] In the Endangerment Finding, the Administrator found that the current, elevated concentrations of GHGs in the atmosphere may reasonably be anticipated to endanger public health and welfare of current and future generations in the United States.

Since the administrative record concerning the Endangerment Finding closed following EPA's 2010 Reconsideration Denial, the climate has continued to change, with new records being set for a number of climate indicators such as global average surface temperatures, Arctic sea ice retreat, CO_2 concentrations, and sea level rise. Additionally, a number of major scientific assessments have been released that improve understanding of the climate system and strengthen the case that GHGs endanger public health and welfare both for current and future generations. These assessments are from the Intergovernmental Panel on Climate Change (IPCC), the U.S. Global Change Research Program (USGCRP), and the National Research Council (NRC).

1.3 Market Failure

Many regulations are promulgated to correct market failures, which otherwise lead to a suboptimal allocation of resources within the free market. Air quality and pollution control regulations address "negative externalities" whereby the market does not internalize the full opportunity cost of production borne by society as public goods such as air quality are unpriced.

[7] National Research Council, Climate Stabilization Targets, p.3.

[8] "Endangerment and Cause or Contribute Findings for Greenhouse Gases Under Section 202(a) of the Clean Air Act," 74 Fed. Reg. 66,496 (Dec. 15, 2009) ("Endangerment Finding").

GHG emissions impose costs on society, such as negative health and welfare impacts, that are not reflected in the market price of the goods produced through the polluting process. For this regulatory action the good produced is electricity. If a fossil fuel-fired electricity producer pollutes the atmosphere when it generates electricity, this cost will be borne not by the polluting firm but by society as a whole, thus imposing a negative externality. The equilibrium market price of electricity may fail to incorporate the full opportunity cost to society of generating electricity. All else equal, given this externality, the composition of EGUs used to generate electricity in a free market will not be socially optimal, and the quantity of electricity generated may not be at the socially optimal level. Fossil fuel-fired EGUs may produce more electricity than would occur if they had to account for the cost associated with this negative externality. Consequently, absent a regulation on emissions, the composition of the fleet of EGUs used to generate electricity may not be socially optimal, and the marginal social cost of the last unit of electricity produced may exceed its marginal social benefit. This regulation will regulation will work towards addressing this market failure by causing affected EGUs to begin to internalize the negative externality associated with CO_2 emissions.

1.4 Background

1.4.1 Emission Guidelines and Revisions to New Source Review

This analysis is intended to be an illustrative representation and analysis of the proposed rule to replace the Clean Power Plan.[9] The proposed rule presents a framework for states to develop state plans that will establish standards of performance for existing affected sources of GHG emissions. The proposed rule does not itself specify any standard of performance, but rather establishes the "best system of emission reduction"[10] (BSER), i.e. technology options for heat rate improvements (HRI), that States may choose to rely upon as they develop standards of performance and State plans. The specific technology options that might be used to establish a standard of performance for individual affected sources are unknown. Affected sources may not be able to apply the technology options because they have already adopted these technologies, they are not applicable to the source, or for other reasons. The rule also re-proposes reforms to

[9] For more details on legal authority and justification of this action, see rule preamble.

[10] The best system of emission reduction (BSER) is outlined in the CAA 111(d), see preamble for further discussion.