



Independent Statistics & Analysis
U.S. Energy Information
Administration

Alternative Policies – No Affordable Clean Energy Rule

March 2020



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No Affordable Clean Energy (ACE) Rule

The AEO2020 Reference case includes the ACE rule, which was issued by the U.S. Environmental Protection Agency (EPA) in June 2019 to establish guidelines for states developing plans to limit carbon dioxide (CO₂) emissions at existing coal-fired power plants.¹ The rule defines the “best system of emission reduction” for existing plants as onsite projects that lead to heat rate efficiency improvements. AEO2020 reflects this program in its projections by requiring all coal-fired plants with the potential to improve plant heat rates to undertake these projects or retire by 2025, using data from a 2015 analysis conducted for EIA of potential plant heat rate improvement options.² The year 2025 follows the approach adopted in EPA’s ACE rule Regulatory Effect Analysis that estimates the schedule for when the standards of performance under the final rule might be implemented. The rule gives states some flexibility in the timing of plan submission, which will be followed by an EPA review process, leading to uncertainty surrounding the final date when all states are in compliance.

Some examples of the uncertainty surrounding the implementation of EPA rules include the Clean Power Plan, which was issued in 2015 but was challenged in court. Its implementation was stayed by the U.S. Supreme Court in 2016 and was eventually repealed by executive order in 2017. As a result, to address potential uncertainty in our AEO2020 modeling, EIA chose to consider a case where the ACE rule is not implemented.

Methodology

The No ACE Rule case assumes that the existing ACE rule is not implemented and that all coal-fired power plants continue to operate at their current efficiency levels throughout the projection period. This case illustrates the effect the ACE rule has in the AEO2020 Reference case.

Results

In the No ACE Rule case, 9 GW less coal-fired capacity is retired in 2025 than in the Reference case, and 6 GW less is retired by 2050 (Figure 1). This result has a larger effect in 2025–39, with 2%–3% more coal-fired generation in the No ACE Rule case compared with the Reference case. During 2040–50, less-efficient coal-fired capacity is either dispatched less or remains in service to satisfy reserve requirements rather than to meet energy needs during that period, and the No ACE Rule case and Reference case have similar coal-fired generation.

However, coal consumption averages 5% more than in the Reference case from 2040 to 2050 because, without the ACE-required heat rate improvements, generating coal-fired plants have lower average efficiencies in the No ACE Rule case. More coal consumption in the No ACE Rule case also affects CO₂

¹ [Repeal of the Clean Power Plan; Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guidelines Implementing Regulations](#), Environmental Protection Agency, Federal Register, Vol. 84, No. 130 (July 8, 2019).

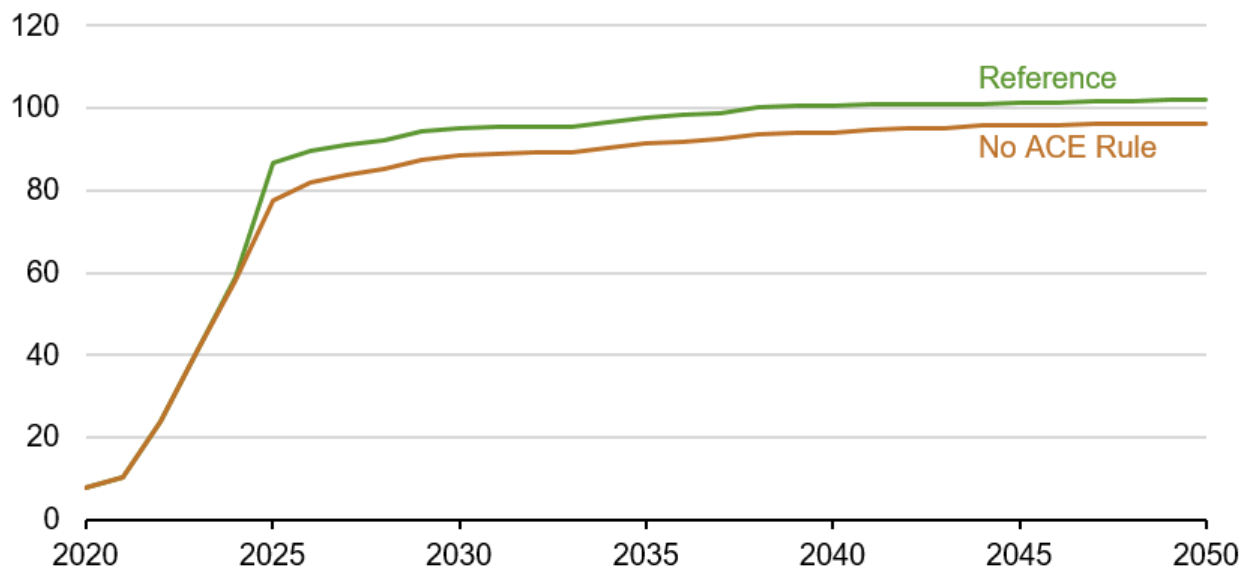
² [Analysis of Heat Rate Improvement Potential at Coal-Fired Power Plants](#), May 2015, Leidos, Inc.

emissions from the power sector, which are 5% more than the Reference case levels in 2025 and remain 2% more than in the Reference case in 2050.

The slightly higher level of coal-fired electricity generation in the middle years of the projection period in the No ACE Rule case is offset primarily by lower renewables electricity generation, but the overall generation mix is largely unchanged over the long run as a similar amount of renewable capacity comes online by 2050 in both cases. With additional coal-fired capacity remaining online in the No ACE Rule case, 9 GW fewer new natural gas-fired capacity additions are projected through 2050 to meet reserves. Because the increase in fuel costs from slightly higher levels of coal consumption is offset by lower levels of capital investment, electricity prices are unchanged. Fewer coal plant retrofits are required, and less new natural gas-fired capacity is needed.

Figure 1. Cumulative coal-fired capacity retirements in two cases

Cumulative coal-fired capacity retirements
gigawatts



eia Source: U.S. Energy Information Administration, *Annual Energy Outlook 2020*