

Fact Sheet

NERA's Economic Impact Modeling of the Clean Power Plan

Energy and Consumer Impacts of EPA's Clean Power Plan

In November 2015, NERA prepared a report, [Energy and Consumer Impacts of EPA's Clean Power Plan \(CPP\)](#). The report estimated the economic impacts of various implementations of the final CPP (published in the Federal Register in October 2015). This fact sheet describes several factors that are important to evaluating the quality and integrity of the NERA analysis.

NERA has extensive experience and technical expertise in the use of economic models to estimate the economic impacts of major public policies. Evaluations of the quality and technical credibility of a modeling analysis should be based on the consideration of three key sets of attributes:

1. **Model methodology.** The model's solution logic (its "methodology") should be widely accepted within the community of modeling professionals for the type of regulation or policy change being evaluated.
2. **Model assumptions.** The model's assumptions should come from reliable sources and, as a set, be mutually consistent with each other.
3. **Model reported results.** The measures of economic impact that are reported should represent the full impact to each affected group, rather than provide a partial estimate that could be misleading.

NERA's November 2015 analysis of the final CPP met each of these three criteria.

NERA's model ($N_{ew}ERA$) is a state-of-the-art methodology for CO₂ policy analysis.

- $N_{ew}ERA$ is a computable general equilibrium (CGE) macroeconomic model integrated with a detailed, unit-level electricity sector model that estimates electricity sector operational and investment decisions simultaneously and consistent with macroeconomic conditions.
- An integrated model such as $N_{ew}ERA$ is appropriate for analysis of the CPP because it captures two important elements of that policy: (1) the detailed effects that the policy can have on the electric sector and (2) the ways that electricity sector costs ripple through the rest of the economy.
- Recognizing the importance of such an integrated modeling framework, researchers at MIT and Electric Power Research Institute have now implemented similar methodology in their own preferred models for CO₂ policy analyses.
- $N_{ew}ERA$ is publicly documented, has been the topic of papers in peer-reviewed journals, and

has been subjected to multiple reviews through ongoing participation in Stanford University's Energy Modeling Forum.

NERA used a “gold standard” source for the baseline modeling assumptions in the CPP Report.

- NERA sourced the vast majority of the assumptions within N_{ew}ERA from annual projections provided by the US Energy Information Administration (EIA).
 - » The EIA was established in the 1970s as the single federal government authority for energy information. By law, [EIA is independent from the rest of the federal government with respect to the contents of its studies and analyses.](#)
- Each year, the EIA produces the [Annual Energy Outlook \(AEO\)](#), which provides “[internally consistent assumptions about key sources of uncertainty](#)” that serve as a reliable and mutually consistent independent source of input assumptions for energy economic models.
 - » Assumptions drawn from the AEO results are preferred because they are based on consistent economic and policy conditions (as opposed to studies that draw assumptions from different sources with different underlying conditions).
- Because the EIA had not provided assumptions about additional amounts of energy efficiency potential beyond the amount already built into its baseline forecast, our CPP analysis used EPA's estimates for first-year cost and quantity of energy efficiency. We did not adopt EPA's assumption that these costs decrease as more of the efficiency potential is adopted—instead, we assume the costs are constant—because of the uncertainty cited by EPA in its own review of the evidence (see [EPA's Demand-Side Energy Efficiency Technical Support Document](#)) and because of the inconsistency of EPA's assumption with standard economic logic regarding increasing marginal costs.
- Additional information on the assumptions underlying NERA's November 2015 analysis of the final CPP can be found in [Testimony of Anne E. Smith, Ph.D. to the Committee on Science, Space, and Technology, United States House of Representatives, 18 November 2015.](#)

NERA's report provides impact estimates that are comprehensive for key affected groups.

- NERA's study reports multiple policy-relevant results, including impacts on US consumption, energy sector expenditure, retail electricity rates, natural gas prices, electricity capacity and generation, and power sector CO₂ emissions.
- US consumption captures all costs borne by households, including effects on electricity bills and energy efficiency investments paid for directly by consumers. It is thus a more complete measure of consumer impacts than just electricity bills.
- Incremental energy sector expenditure captures all costs borne by the electricity sector and is thus the most complete measure of impact to the sector directly affected by the CPP.
- The other market impacts provide useful information explaining the comprehensive impacts. Power sector CO₂ emissions indicate the CPP's effectiveness.

NERA's study of the energy and consumer impacts of EPA's CPP meets all three important criteria for a sound empirical study: (1) N_{ew}ERA is a technically-appropriate model for investigating the CPP's economic impacts; (2) the assumptions underlying NERA's CPP analysis reflect the best-available integrated set of assumptions, sourced from an independent US government agency that develops authoritative energy information; and (3) NERA presented impact measures accounting for full costs to key affected groups, including the energy sector and US consumers.

About NERA

NERA Economic Consulting (www.nera.com) is a global firm of experts dedicated to applying economic, finance, and quantitative principles to complex business and legal challenges. For over half a century, NERA's economists have been creating strategies, studies, reports, expert testimony, and policy recommendations for government authorities and the world's leading law firms and corporations. With its main office in New York City, NERA serves clients from more than 25 offices across North America, Europe, and Asia Pacific.