Fischer, Laura

From: EPRI Energy Systems and Climate Analysis Group <eea@epri.com>
Sent: Wednesday, February 24, 2021 12:01 PM
To: Fischer, Laura
Subject: ESCA Newsletter and Research Highlights – February 2021

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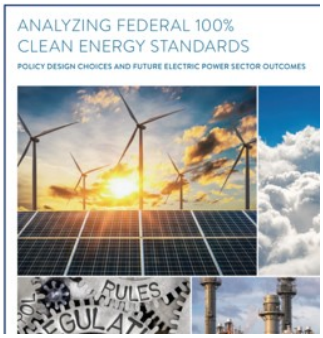
Laura,

Greetings in the new year! We hope you and your family are safe and healthy. We are pleased to offer the newest installment of the Energy Systems and Climate Analysis (ESCA) newsletter. Our website can be found at http://esca.epri.com.

All announcements included in this email as well as past announcements can be found on the ESCA website.

ESCA Research Highlights

Tech Brief – Modeling Clean Energy Standards for the Electric Sector



Meeting a federal 100% Clean Energy Standard (CES) will require and drive transformative change in the electric power sector, even as other decarbonization efforts are underway across the country at regional and state levels and in other sectors. However, the extent to which this change may occur can depend on the specific provisions included (or excluded) in a CES, and ultimately implemented. Using EPRI's in-house energy system modeling framework, the U.S. Regional Economy, Greenhouse Gas, and Energy Model (US-REGEN), this study quantifies differences between approaches to implementing a federal 100% CES by examining changes in modeled generation portfolio choices; other policy compliance choices such as electricity and credit trade and alternative compliance payments; CO2 emissions; and electricity prices across a range of policy design scenarios.

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White Paper – Exploring the Impacts of Extreme Events, Natural Gas Fuel and Other Contingencies on Resource Adequacy

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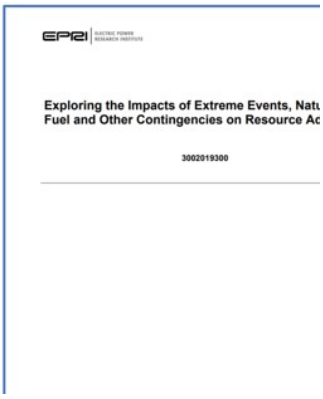

The electric power industry is shifting its generating portfolio towards variable energy resources and natural gas. As these changes are occurring, the industry needs to plan for resource adequacy that will make electric service more resilient to significant disruptions of supply whether they are the result of weather, cyber / physically attacks, fuel constraints or multi-factor events. Across each of these topics the power industry today employs planning methods that tend to understate the probability

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of supply disruptions affecting multiple units and their impact on consumers and the system itself.

This white paper focuses on planning for resource adequacy given a world in which supply disruptions are correlated and no longer limited to the outage of independent units and may be due to widespread or long-duration events with significant economic impacts on consumers.

Tech Brief – EPRI responds to Biden Administration and NY State Department of Environmental Conservation (DEC) proposals to re-evaluate the social cost of greenhouse gases

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ESCA has published a new technical brief — *Repairing the Social Cost of Carbon Framework: Immediate and One Year Steps for Scientifically Reliable Estimates and Use*.

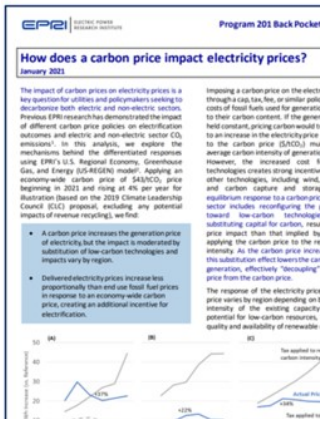
President Biden recently issued an Executive Order requesting interim social cost of greenhouse gas (SC-GHG) estimates for carbon dioxide (SCC), methane (SCM), and nitrous oxide (SCN) in 30 days, final estimates in a year, and recommendations on appropriate use of estimates in regulations and federal decisions.

SC-GHG estimates are important, but complex to calculate and apply. Detailed analyses over the past few years reveals fundamental technical estimation and use issues that need to be addressed for scientifically reliable SC-GHG estimates, as well as policy analysis climate benefits and net benefits estimates from reducing GHG emissions. EPRI's new technical brief is designed to inform and assist the new Administration in their efforts to "capture the full costs of greenhouse gas emissions as accurately as possible."

EPRI also submitted similar comments on the New York State Department of Conservation guidance for estimating the value of reducing carbon and other greenhouse gas emissions in decision-making. This guidance establishes a monetary value for the avoided costs of carbon dioxide, methane, and nitrous oxide; provides an up-to-date review of approaches used by other governments to place a value on emissions; and identifies future areas of work.

Back Pocket Insight – How does a carbon price impact electricity prices?

In 2020, ESCA published the Back Pocket Insight, *"Trade-offs in Emissions Reductions with a CO2 Policy"*, which demonstrated the impact of different carbon price policies on electrification outcomes and electric and non-electric sector emissions. A new, companion Back Pocket Insight, *"How does a carbon price impact electricity prices?"* further explores the impact of carbon prices on fuel prices, including electricity prices, and the mechanisms behind their differentiated responses. Key takeaways from this analysis include:



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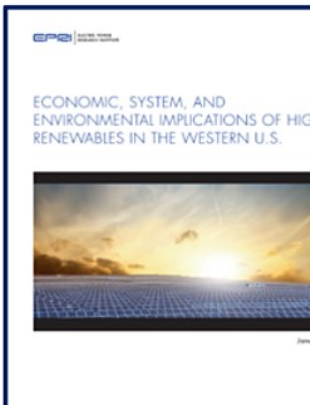
- When a carbon price is applied economy-wide, the delivered price of electricity increases, but proportionally less than the delivered price of end-use fossil fuels, creating an incentive for additional electrification.
- Higher electricity costs from electric sector-only carbon pricing limit additional electrification and CO2 reduction in non-electric sectors.

For more information, please contact Geoff Blanford at gblanford@epri.com.

Report – Economic, System, and Environmental Implications of High Renewables in the Western U.S.

This report examines the impacts of higher renewable portfolio standards (RPS) on electric sector planning in Arizona and the Western United States. The analysis explores the role of renewables in achieving CO2 reductions and the economic, environmental, and power sector investment implications of renewable standards vis-à-vis alternate approaches to reaching equivalent CO2 goals. Using the U.S. Regional Economy, Greenhouse Gas, and Energy (REGEN) model, results compare differences in generation mixes, system costs, and emissions between scenarios with renewable targets from 30–70% by 2030, increasing to 50–90% by 2050.



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For more information, please contact John Bistline at jbistline@epri.com.

Upcoming Events

Workshop on Net-Zero Greenhouse Gas Analysis

When: March 1, 2021; 2 pm (Eastern)

Where: WebEx (virtual event)

24th Energy & Climate Research Seminar

When: May 12-13, 2021

Where: WebEx (virtual event)

How to attend: Please use the link below to register for this event.

Register Now

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Register Now

Member Center

The ESCA Group conducts its research as part of EPRI Programs 178 (*Resource Planning for Electric Power Systems*) and 201 (*Energy, Environmental, and Climate Policy Analysis*). Examples of recent program-specific research includes:

- Cost-Effective Strategies for Net-Zero Electric Sector Decarbonization Targets (3002020254) – Project Set 201-D
- Endogenous Learning for Projecting Future Capital Costs – Evaluation and Implications for Electric Power Generation Technologies (3002019786) – Project Set 178-A and Technology Innovation
- Applications of Statistical Metrics in Setting CO2 Emission Rate Standards of Performance under the Affordable Clean Energy Rule (3002020111) – Project Set 201-B
- Using an Hourly Simulation Model to Compare the Value of System Flexibility Investments in High-Renewable Power Systems (3002018587) – Project Set 178-B
- 2020 REGEN Scenarios Analysis: Understanding Key Factors that May Impact Future Electricity Generation (3002018503) – Project Set 178-B

For more information about these programs, please contact David Young (P201) or Adam Diamant (P178).

Thank you for your continued interest in our work. If you have any questions please email eea@epri.com.

Best,

EPRI Energy Systems and Climate Analysis Group