

## February 2021 Newsletter and Research Highlights

The ESCA group recently sent out the first installment of its 2021 quarterly newsletter. Download the [PDF version](#) of the February 2021 newsletter. If you would like to sign up for the ESCA public mailing list, please email [eea@epri.com](mailto:eea@epri.com).

### *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; CO<sub>2</sub> emissions; and electricity prices across a range of policy design scenarios.

For more information, please contact Nidhi Santen at [nsanten@epri.com](mailto:nsanten@epri.com).

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

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 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.

For more information, please contact Adam Diamant at [adiamant@epri.com](mailto:adiamant@epri.com).

### *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*

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.

For more information, please contact Steve Rose at [srose@epri.com](mailto:srose@epri.com).

### ***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 nonelectric 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:

- 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](mailto: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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