



## NEWSLETTER AND RESEARCH HIGHLIGHTS

Greetings,

This quarter, EPRI's Energy Systems and Climate Analysis group published:

- Updated analysis on [pathways to decarbonize the U.S. through 2030](#) accounting for the Inflation Reduction Act and cost increases (**released today**);
- Detailed technical [comments on EPA's new Social Cost of Greenhouse Gas estimates](#);
- New research on the [role of nuclear in decarbonizing the U.S. economy](#);
- A white paper on the opportunities and challenges of [developing carbon-free 24/7 electricity products](#).

And we are planning our [26<sup>th</sup> Annual Energy and Climate Seminar](#) in D.C. for May 10-11! Read on to learn more. All of ESCA's publicly available research can be found on the [ESCA website](#).

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## ESCA Research Highlights

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### **Impacts of Inflationary Drivers and Updated Policies on U.S. Decarbonization and Technology Transitions**

READ REPORT



We are pleased to share that the new EPRI report “**Impacts of Inflationary Drivers and Updated Policies on U.S. Decarbonization and Technology Transitions**” ([3002026229](https://www.epri.com/research/products/000000003002026229)) has been published and is free to download on [epri.com](https://www.epri.com): <https://www.epri.com/research/products/000000003002026229>. This ESCA-led research was conducted at the request of EPRI’s Board of Directors looking at economy-wide decarbonization pathways that reach the U.S. target of a 50% reduction in emissions by 2030 from 2005 levels. This report updates an [earlier EPRI analysis](#) and **accounts for new challenges and near-term uncertainties that have arisen since 2021, including the Inflation Reduction Act of 2022 (IRA)**.

Using [EPRI’s US-REGEN model](#), the analysis finds that:

- Relative to 2021, a rebound in emissions, increased inflation, and more constrained supply chains increase the challenge of halving emissions by 2030, but IRA could offset some of these impacts and accelerate the deployment of clean electricity, electric vehicles, and other low-carbon technologies.
- The rate of emissions reductions must increase beyond historical trends by several times to meet 2030 targets. Many low-emitting supply- and demand-side technologies must scale simultaneously to reach the 2030 goal, and similar rates of change would have to continue to reach the net-zero economy-wide emissions goal by 2050.
- Realizing rapid emissions reductions without compromising reliability, affordability, or security demands reexamining energy production, transmission, delivery, use, and oversight. Minimizing transition costs requires clarity on technology options, certainty on development processes and timing, and access to the materials and workforce needed to build and operate new resources.

For more information, please contact John Bistline [jbistline@epri.com](mailto:jbistline@epri.com).

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## Public Comments on EPA’s draft new social costs of greenhouse gases (SC-GHG) methodology



February 13, 2023

Subject: Public comments on U.S. EPA proposed oil and gas methane rule and draft new SC-GHG estimation methodology (Docket ID No. EPA-HQ-OAR-2021-0317)

Dear Administrator Regan,

Thank you for the opportunity to comment on the proposed oil and gas methane rule [Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review](#) and its use of social cost of greenhouse gas estimates (SC-GHG) and [EPA's draft new SC-GHG estimation methodology](#) that was first released to the public along with this proposed rule on November 11, 2022.

EPRI is a nonprofit, scientific research organization with a public benefit mission. EPRI strives to advance knowledge and facilitate informed public discussion and decision-making. In addition to extensive research and expertise related to the social cost of carbon and other greenhouse gases, EPRI has a long history of research community leadership and participation in the Intergovernmental Panel on Climate Change (IPCC), U.S. National Climate Assessment, EPA's Science Advisory Board, and National Academy of Science, Engineering, and Medicine (NASEM).

As an independent and objective science organization, EPRI appreciates the importance of facilitating the development of grounded SC-GHG estimates and applications and engaging the public through comment opportunities such as this to help do so. Our comments reflect our review of the draft new SC-GHG methodology and documentation and the application of SC-GHG estimates in the proposed rule in light of the NASEM Social Cost of Carbon Committee recommendations (NASEM, 2016, 2017), technical challenges EPRI had previously identified (EPRI, 2021a), and the overall body of scientific knowledge.

EPRI has been engaged in SC-GHG research for almost two decades and has over forty years of related research experience in the core sciences underlying SC-GHG calculations, including integrated assessment modeling, socioeconomic projections and decarbonization transitions, climate modeling and scenarios, impacts and damages modeling, economics, and climate policy. EPRI's SC-GHG research includes analyzing in detail the models and assumptions used for SC-GHG estimation, as well as detailed assessment of applications using SC-GHG estimates. See the appendices for examples of EPRI's SC-GHG related research, including EPRI's 2021 publication discussing key technical challenges that need to be addressed by any new SC-GHG estimation approach (EPRI, 2021a).

EPRI's expertise and research led to Dr. Steven Rose's participation on the NASEM Social Cost of Carbon Committee as a committee member. EPRI's assessment of the PWS SC-GHG estimation framework used by this and previous administrations (Rose et al. 2017, 2014) was a primary input into the NASEM SCC

Docket ID No. EPA-HQ-OAR-2021-0317  
September 2022



**Supplementary Material for the Regulatory Impact Analysis for the Supplemental Proposed Rulemaking, "Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for Existing Sources: Oil and Natural Gas Sector Climate Review"**

EPA External Review Draft of Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances

## READ EPRI's SC-GHG Public Comments

After thoroughly reviewing EPA's draft new methodology, we find that the methodology and estimates are not yet scientifically reliable and robust for policy use. The methodology contains multiple significant technical issues and does not satisfy the National Academies of Sciences, Engineering, and Medicine's (NASEM) recommendations. This should be addressed before the estimates are deployed to inform policy, for this rule and otherwise.

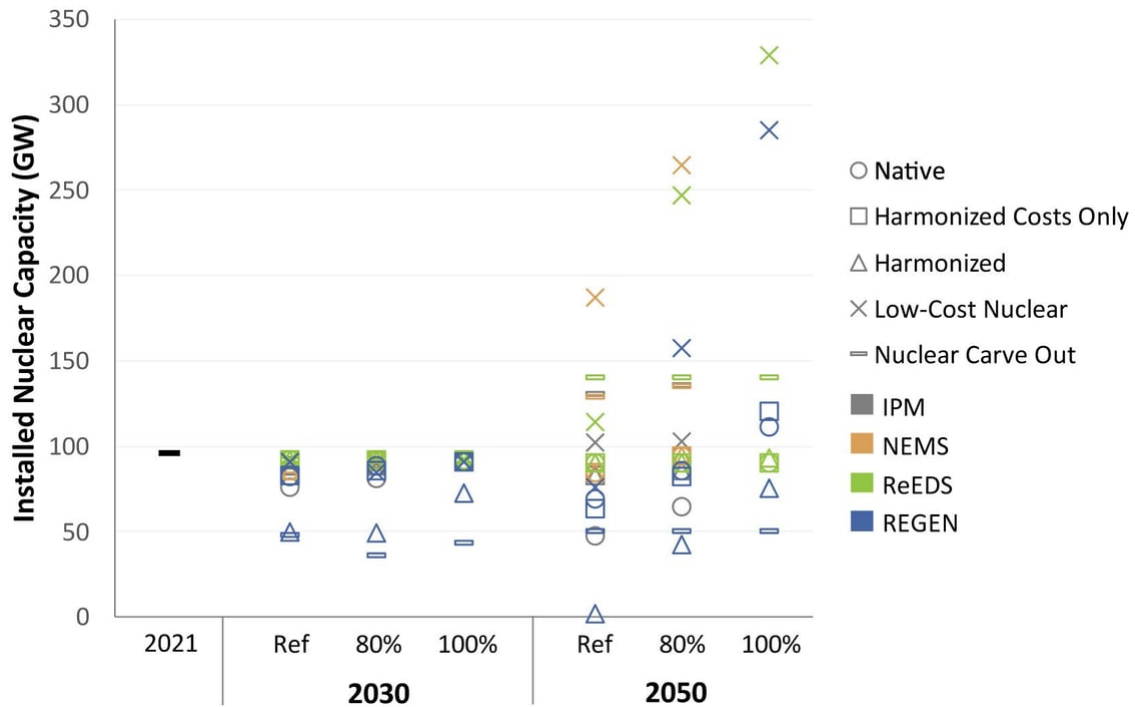
The following are key technical issues essential to address:

- Increase transparency, justification, scientific basis, and incorporation of uncertainty to allow full assessment,
- Revise to address inconsistencies within and across modules,
- Add missing elements, and further support existing elements, within modules,
- Revise to address implausible socioeconomic, emissions, and climate futures,
- Revise climate damage calculations to consider incomparability between methodologies and additional available estimates, and
- Revise discounting parameter calibrations to be consistent with the full set of relevant theoretical, observational, empirical, and consistency considerations.

For more information, please contact Steve Rose [rose@epri.com](mailto:rose@epri.com) and visit <https://www.epri.com/sc-ghg>

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## Modeling nuclear energy's future role in decarbonized energy systems



READ ARTICLE

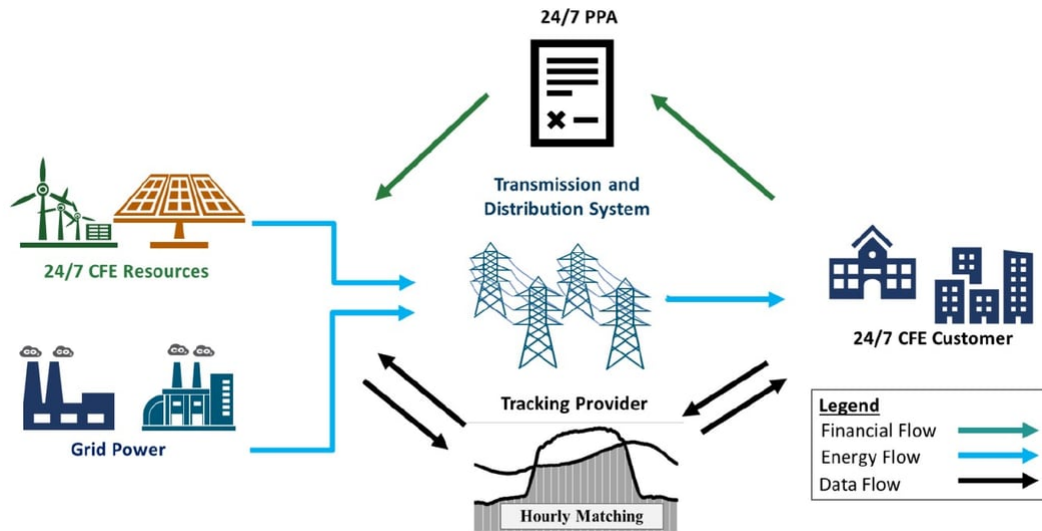
Increased attention has been focused on the potential role of nuclear energy in future electricity markets and energy systems. This paper examines models of electric sector planning and broader energy systems optimization to understand the prospective roles of nuclear energy and other technologies.

- Nuclear energy deployment is highest with combinations of stringent emissions policies, nuclear cost reductions, and constraints on the deployment of other technologies, which underscores model dimensions related to these areas.
- New modeling capabilities are needed to adequately address emerging issues, including representing characteristics and applications of nuclear energy in systems models, and to ensure the relevance of models for policy and planning as deeper decarbonization is explored.

For more information, please contact John Bistline [jbistline@epri.com](mailto:jbistline@epri.com)

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### 24/7 Carbon-free Energy: Matching Carbon-free Energy Procurement to Hourly Electric Load



READ WHITE PAPER

This EPRI white paper describes the evolution and growing interest of large electricity customers, electric companies, and others in procuring and supplying “carbon-free” energy 24 hours a day, seven days per week (24/7 CFE), and the opportunities and challenges facing electric companies considering developing products and services to meet this emerging need. Further, it explores the potential role of 24/7 CFE in future electric company and electric customer decarbonization activities, the current market status of 24/7 CFE products, services and suppliers, and provides information about existing commercial activities and recent 24/7 CFE agreements.

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

## Public Comments on IRA Clean Energy Incentives

EPRI

December 2, 2022  
 Internal Revenue Service  
 CC PA LFD PR (Notice 2022-57)  
 Room 5203  
 PO BOX 7004  
 Ben Franklin Station  
 Washington DC 20044

Subject: Internal Revenue Service 2022-57, Request for Comments on the Credit for Carbon  
 Oxide Sequestration

EPRI submits these comments in response to the U.S. Department of the Treasury's request for public comment on implementing the Inflation Reduction Act's Clean Energy Incentives. We file these comments under Notice 2022-57, Request for Comments on the Credit for Carbon Oxide Sequestration, while noting that the comments are broadly applicable to other Inflation Reduction Act energy generation incentives. These comments were also submitted by letter to the Vice President of Corporate Affairs for EPRI, as part of the October 20<sup>th</sup> U.S. Department of the Treasury Roundtable on Clean Power Generation and the Inflation Reduction Act with Secretary Janet Yellen.

EPRI is an independent, non-profit, global energy research, development, and deployment (RD&D) institute. EPRI's experts collaborate with more than 450 companies in 45 countries, driving innovation to ensure the public has clean, safe, reliable, affordable, and equitable access to electricity across the globe.

EPRI research shows that reliable and affordable electricity is a key part of reducing economy-wide greenhouse gas (GHG) emissions.<sup>1</sup> For example, EPRI-led research shows electricity is the largest contributor to meeting the U.S. target of 50-52% reductions by 2050 relative to 2005 levels (Figure 1). Preliminary analysis of the Inflation Reduction Act (IRA) using EPRI's REGEN model suggests that the IRA is likely to spur clean energy deployment and reduce emissions but is not likely to achieve 2050 targets by itself.<sup>2</sup> Uncertainties regarding policy implementation, inflationary drivers, technology readiness, and the ability to utilize tax credits could impact the effectiveness of emissions reductions under the IRA.

EPRI provides five recommendations that could reduce some of these uncertainties and potentially contribute to effective emissions reductions:

- Treasury should consider issuing early guidance which accounts for the value of technology credit credits in reaching carbon reduction targets. EPRI research demonstrates the value of

<sup>1</sup> EPRI (2022), "Enhancing Energy System Reliability and Resiliency in a Net-Zero Economy." EPRI Report 3002321847-0010.

<sup>2</sup> EPRI (2022), "U.S. 50-50 Decarbonization Pathway: EPRI 2022 Outlook" (forthcoming).

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READ Comments Here

EPRI submitted comments in response to the U.S. Department of the Treasury's request for public comment on Implementing the Inflation Reduction Act's Clean Energy Incentives.

The comments include five recommendations that could reduce some of these uncertainties and potentially contribute to effective emissions reductions.

- consider issuing **early guidance** which accounts for the value of technology neutral credits in reaching carbon reduction targets
- account for the potential **air quality benefits** of electrification and low-emitting electricity, particularly in low-income and justice communities
- consider the potential for **negative emissions technologies** to reduce costs and accelerate GHG reductions.
- consider the importance of **post-2030 utilization of credits**
- consider the importance of **scientific reporting and information sharing** to accelerate technology deployments more effectively.

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## 26th Annual Energy and Climate Research Seminar May 10-11, 2023



Please join us in person for the 26th **Energy and Climate Research Seminar - May 10-11, 2023**. This year's seminar will be held over a full day on Wednesday, May 10 with a reception, and a half day on Thursday, May 11, 2023. To encourage in-person discussion and networking, we are not pursuing alternative formats such as virtual, hybrid, or streaming.

This long-running event covers key energy and environmental topics of significant interest to the U.S. energy sector related to **climate science understanding, policy perspectives, decarbonization technologies and research priorities**. This seminar delivers and expands upon EPRI research and features presentations by EPRI staff and external experts from academia, government, industry, and non-profit organizations along with interactive discussions among the seminar participants. This event is supported by EPRI's Program 201 on Energy, Environmental, and Climate Policy Analysis

[Event Website and Registration](#)

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[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 Projection Factors for Resource Planning ([3002025394](#)) - Program 178
- 2022 Energy System Technology Cost and Performance Summary: Market Trends & Technology Insights ([3002024231](#)) - Program 178
- Understanding Distributional Impacts of Decarbonization: Modeling Effects of Household Income on Transport Electrification ([3002024043](#)) - Program 201
- Economic and Policy Conditions for the Deployment of Carbon Capture and Storage in the Power Sector ([3002024257](#)) - Program 201

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For more information about these programs, please contact [Nidhi Santen](#) (P178) or [David Young](#) (P201).

Thank you for your continued interest in our work. If you have any questions, please email [eea@epri.com](mailto:eea@epri.com).

Best,  
EPRI Energy Systems and Climate Analysis Group



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