We are pleased to share new research from and opportunities to engage with the Energy Systems and Climate Analysis (ESCA) team. ESCA has released draft SMARTargets methodology for public comment, scheduled portfolio rollout meetings to introduce 2026 research, and has two public educational series underway. ESCA researchers have published work analyzing the economic impact of changes in federal policies, evaluating how state-led and federal decarbonization approaches can yield differing energy portfolios to achieve similar emissions reductions, developing an approach for characterizing third-party physical climate risk assessment frameworks, providing a landscape assessment of current GHG accounting and reporting frameworks, and more.

For more of our research head to ESCA's website.

Visit our interactive webpage to learn more about ESCA's history of cutting-edge climate change and decarbonization research.

Draft SMARTargets™ Methodology Available, Public Comment Period Open July 8th

The SMARTargets Methodology is designed to help companies contribute to the global pursuit of international climate aspirations while identifying actionable strategies. The methodology is unique in its consideration of uncertainty, differences in decarbonization opportunities and risks, and multiple societal priorities. The methodology is a systematic, comparable approach for companies to evaluate their transition opportunities and risks

and develop credible greenhouse gas targets and strategies. SMARTargets, by design, are targets and strategies that are aligned with science and the Paris Agreement.

We invite all stakeholders interested in corporate climate targets and strategies to review and provide feedback on the draft methodology and scientific foundations. A **public webcast** introducing the draft methodology and comment process will be held on **July 8th**—registration and details are available on our public comment webpage. The public comment process will be open for 45 days, from July 8th to August 22nd.

REGISTER FOR WEBCAST

For more information, contact Steven Rose or Claudia Octaviano-Villasana.

ESCA Program Portfolio Rollout Webcasts

These public webcasts will provide an overview of the 2026 research portfolios for ESCA's core research areas. Click the date and time of the rollout webcasts you wish to attend to add the meetings to your calendar. For more information, reach out to the program manager listed below each program title.

P178: Resource Planning for Electric Power Systems

Robin Bedilion

1:00-2:00pm ET July 22

P201: Energy, Environmental, and Climate Policy Analysis

John Bistline

1:00-2:00pm ET July 24

P261: GHG Emissions Accounting & Strategic Applications

Arin Kaye

12:00-1:00pm ET July 17

P262: Climate Risk and Resilience

Laura Fischer

1:00-2:00pm ET July 17

Public Educational Series

The Stanford-EPRI Public Educational Webcast Series

The Stanford-EPRI public educational webcast series explores options for modeling the global economic impacts of climate change and the social cost of carbon module-by-module, as well as overall. Previous webcasts have covered:

- Projecting economies and emissions for estimating the global economic impacts of climate change
- Options for estimating the global economic impacts response to a future climate
- Modeling global climate change and earth system responses to greenhouse gas emissions
- Discounting the economic impacts of climate change

All materials (slides, recordings, and bios) from previous sessions are publicly available on the series webpage.

ACCESS MATERIALS

For more information reach out to Steven Rose.

LCRI LOW-CARBON RESOURCES INITIATIVE

CO2e P261 Greenhouse Gas Emissions Accounting and Strategic Applications

Navigating Carbon Markets and Standards

P261: Greenhouse Gas Emissions Accounting and Strategic Applications and the Low-Carbon Resources Initiative (LCRI) are partnering on a new project called "**Navigating Carbon Markets and Standards: Life Cycle Emissions, Energy Certificates, and**

Carbon Credits." Beginning with a series of twelve, publicly available educational webinars, this project will explore:

1. How to strategically approach carbon accounting, life cycle assessment, and product certification requirements for hydrogen and other low-carbon resources.
2. How to implement the "three pillars" of electricity sourcing that underpin energy attribute certificates (EACs) requirements, an essential component of power-to-X and e-Fuel projects.
3. How to verify and trade carbon offset credits in voluntary and mandatory carbon markets, highlighting traditional and emerging mechanisms to support international trade and carbon removal technologies.

All materials will be made public after the webinars.

REGISTER

For more information reach out to Arin Kaye.

Research Highlights

ESCA's John Bistline contributed a chapter on changes in federal climate policy to a new CEPR book analyzing the economic implications of the second Trump administration. The 40 chapter book is free to download.

ACCESS BOOK

For more information reach out to John Bistline.

State-led climate action can cut emissions at near-federal costs but favors different technologies

In the absence of a comprehensive federal climate strategy in the United States, state-led efforts may be key. ESCA's Aranya Venkatesh contributed to a new *Nature Communications* study which shows that coordinated action by 23 climate-focused states can achieve CO2 reductions at slightly higher costs than a federal carbon cap, though it would likely involve different decarbonization pathways. Using a detailed energy system optimization model and data that considers all energy sectors, the study compares these state and federal approaches. Read the article to explore how different energy portfolios can reach comparable emissions targets.

READ ARTICLE

For more information reach out to Aranya Venkatesh.

Landscape Assessment of GHG Accounting and Reporting Frameworks

Corporate greenhouse gas (GHG) emissions accounting is a complex and inexact undertaking. Electric companies and combined electric and natural gas utilities typically rely on guidance provided in protocols developed by non-profit organizations to account and report their corporate GHG emissions voluntarily and as required by federal and state regulations. This report explores the current landscape of GHG emissions reporting guidance, standards, and requirements, including a discussion of commonly used voluntary standards and key requirements of mandatory reporting frameworks.

READ REPORT

For more information reach out to Bailie Neary.

An Initial Approach for Characterizing Third-Party Physical Climate Risk Assessment Frameworks for Utility Applications

The increase in climate risk disclosure requirements has led to a proliferation of third-party physical climate risk assessment frameworks. It is difficult, however, to readily comprehend their strengths and weaknesses. Researchers in EPRI's Global Change, Climate Risk and Target Setting research group proposed an initial characterization template to describe and summarize framework capabilities for electricity, gas, and transmission and distribution utility applications. The goals of the characterization template are to provide utilities with a standardized approach to facilitate (i) understanding and comparing framework capabilities; (ii) assessing framework capability for supporting utility applications; and (iii) informing utility framework conversations with providers and stakeholders. The accompanying characterization template spreadsheet also provides an example set of responses for the First Street Foundation's framework, which includes their Flood Model, Fire Model, Wind Model and Correlated Risk Model.

VIEW CHARACTERIZATION TEMPLATE

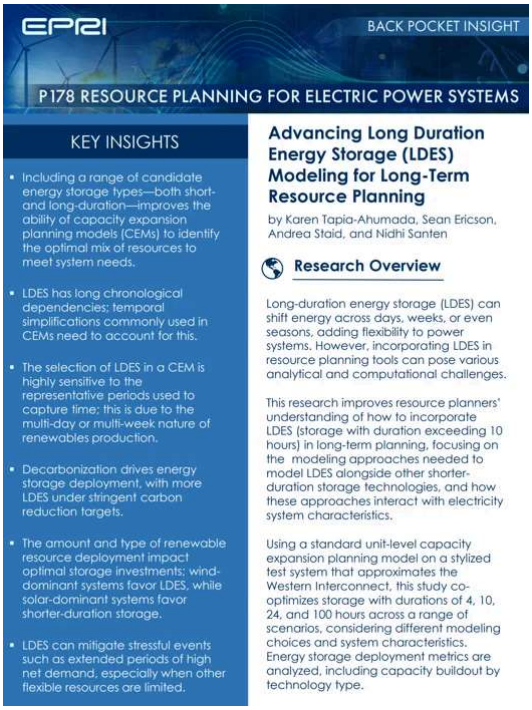
For more information reach out to Bailie Neary.

Research Briefs

2-3 page summaries for quick insights

Incorporating Realistic Constraints in Planning Models

Advancing Long Duration Energy Storage (LDES) Modeling for Long-Term Resource Planning



EPRI

BACK POCKET INSIGHT

P178 RESOURCE PLANNING FOR ELECTRIC POWER SYSTEMS

KEY INSIGHTS

- Including a range of candidate energy storage types—both short- and long-duration—improves the ability of capacity expansion planning models (CEMs) to identify the optimal mix of resources to meet system needs.
- LDES has long chronological dependencies; temporal simplifications commonly used in CEMs need to account for this.
- The selection of LDES in a CEM is highly sensitive to the representative periods used to capture time; this is due to the multi-day or multi-week nature of renewables production.
- Decarbonization drives energy storage deployment, with more LDES under stringent carbon reduction targets.
- The amount and type of renewable resource deployment impact optimal storage investments; wind-dominant systems favor LDES, while solar-dominant systems favor shorter-duration storage.
- LDES can mitigate stressful events such as extended periods of high net demand, especially when other flexible resources are limited.

Advancing Long Duration Energy Storage (LDES) Modeling for Long-Term Resource Planning

by Karen Tapia-Ahumada, Sean Ericson, Andrea Staid, and Nidhi Santen

Research Overview

Long-duration energy storage (LDES) can shift energy across days, weeks, or even seasons, adding flexibility to power systems. However, incorporating LDES in resource planning tools can pose various analytical and computational challenges.

This research improves resource planners' understanding of how to incorporate LDES (storage with duration exceeding 10 hours) in long-term planning, focusing on the modeling approaches needed to model LDES alongside other shorter-duration storage technologies, and how these approaches interact with electricity system characteristics.

Using a standard unit-level capacity expansion planning model on a stylized test system that approximates the Western Interconnect, this study co-optimizes storage with durations of 4, 10, 24, and 100 hours across a range of scenarios, considering different modeling choices and system characteristics. Energy storage deployment metrics are analyzed, including capacity buildout by technology type.

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

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