



NEWSLETTER AND RESEARCH HIGHLIGHTS

We are pleased to share this edition of the [Energy Systems and Climate Analysis](#) (ESCA) newsletter highlighting our team's recent research. Projects presented here address:

- [Affordability alongside load growth](#);
- [Integrated planning model comparisons](#);
- [How an electric company can take credit for emissions reductions](#);
- [Could an integrated grid be key to powering data centers](#); and
- [Energy system impacts of e-gas exports from the U.S. to Asia](#).

Continue reading for short summaries of each of these publications and links to more information.

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.

Win-Win Watts

When New Loads Lower Electricity Prices



When Can Data Centers, Efficient Electrification, and New Loads Lower Electricity Prices?

Utilities across the country are getting unprecedented requests for new load, especially from AI data centers. EPRI's new white paper, [Win-Win Watts](#), addresses the question: Can new electricity demand from data centers, electrification, and other sources actually *lower* average retail electricity prices? More specifically, researchers investigate

when the long-run incremental cost of serving new load is lower than the system's average cost, which could mean lower prices. The paper frames three levers that largely determine whether you get “win-win” outcomes in practice: proactive planning, rate design & cost allocation, and demand flexibility.

READ REPORT

Comparing Open-Source Integrated Planning Models in 2025

Integrated planning for low-carbon energy systems may require models that can coordinate long-term investments and short-term operations across electricity, hydrogen, heat, fuels and storage. This report provides a structured comparison of 14 open-source frameworks to help researchers and practitioners understand the features of various open-source integrated planning models. The report evaluates each tool along five dimensions: 1) scope, 2) modeling language and formulation, 3) data management, 4) treatment of uncertainty, and 5) usability and ecosystem. The comparison shows the different modeling choices available to the practitioner that can shape the analysis in a resource planning study.



READ REPORT

Contact [Dheepak Krishnamurthy](#) for more information.

Measuring Impact and Taking Credit for Electric Company Actions that Reduce GHG Emissions



The current fractured regulatory landscape of voluntary and regulatory carbon markets and the ongoing, rapid evolution of existing greenhouse gas (GHG) emissions accounting and disclosure rules have produced an environment where it is not clear how electric companies can report, track and “take credit” for actions they may take that reduce their GHG emissions. This EPRI report explores three interrelated research questions: (i) What types of actions can electric companies and combined electric and natural gas utilities take to reduce their scope 1, 2 and 3 greenhouse gas emissions? (ii) How can electric companies and combined utilities measure the impact of actions and activities they may take to reduce their greenhouse gas emissions? (iii) How can electric companies and combined utilities report and “take credit” for GHG emissions reductions they may have achieved?

READ REPORT

Contact [Adam Diamant](#) for more information.



Strategies for Powering Data Centers in the AI Era

Rapid growth in data center demand—driven in part by AI processors with power densities up to 10 times higher per square foot than traditional storage-focused facilities—has exposed mismatches between grid expansion and data center development timelines. As a result, speed to power has become a critical factor in site selection. This paper evaluates four broad strategies for powering new data centers globally. Currently, the dominant approach is Grid-Connected Inflexible where grid power is available on the

required timeline. However, where there are significant grid constraints, three alternative strategies are emerging: Grid-Connected Flexible, Bridge-to-Grid, and Islanded. Read EPRI's new white paper, [Reconciling the Value of Grid Interconnection and Speed to Power](#), to learn how leveraging the integrated grid will be key to balancing speed, cost, environmental performance, and long-term operational excellence.

READ REPORT

Contact [Tom Wilson](#) for more information.

Examining Scenarios of e-gas Exports from the United States: Evaluating Energy System Impacts with US-REGEN

A new EPRI study explores the energy system impacts of large-scale synthetic methane (e-gas) exports from the United States to Asia, using the US-REGEN energy-economy model. The analysis evaluates how varying levels of export demand, centered on Japan and Southeast Asia, could interact with U.S. decarbonization pathways, infrastructure constraints, and technology deployment. Scenarios span a range of demand levels and policy environments, including a Reference case and a Net-Zero-by-2050 target.

READ REPORT

Contact [Aranya Venkatesh](#) for more information.

Back Pocket Insights

P178 RESOURCE PLANNING FOR ELECTRIC POWER SYSTEMS



KEY INSIGHTS

- Generic cost estimates may not sufficiently account for site-specific considerations, biasing generic costs lower than detailed studies for specific projects.
- Cost estimates using constant dollar analysis do not include the effect of inflation on capital-carrying charges, causing estimates to appear lower than those using current dollar analysis.
- During times of rapidly changing costs, estimates can quickly become out of date.
- Estimates can report costs at different levels of inclusiveness, for example, total plant cost versus total capital required.

Why are site-specific estimates often higher than generic cost estimates?

by Romey James

Site Specificity

Many factors can drive discrepancies between cost estimates available in reference material and those of real-world projects. Some of the most significant drivers relate to the inherent differences between generic estimates and site-specific studies, which typically result in higher site-specific cost estimates.

- **Project estimates for site-specific projects are more detailed** and include the costs of addressing unanticipated site conditions.
- Individual companies' **design bases vary**, for example, in the amount of equipment redundancy included for reliability. **Procurement strategy** can also affect costs.
- **Site-specific requirements** such as fuel delivery, transmission tie-in, and raw water requirements impact costs. More extensive civil works may be needed for an atypical site.
- **Labor market conditions** (availability, local wages, union agreements, etc.) vary by location.
- **Transmission system improvements** required to support large capacity additions or remote generation can often be significant.
- **Interest during construction** for specific projects is frequently greater due to the abovementioned factors increasing plant cost estimates.
- Discrepancies can emerge from differences in **analysis type** and **level of cost reported**, which are discussed on the following page.

Contact [Romey James](#) for more information.

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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