September 2021 Newsletter and Research Highlights

The ESCA group recently sent out the third installment of its 2021 newsletter. Download the PDF version of the September 2021 newsletter. If you would like to sign up for the ESCA public mailing list, please email eea@epri.com.

EPRI Analysis Identifies Economy-Wide Decarbonization Pathways for Canada Through Electrification by 2050

EPRI released findings from its assessment into Canadian electrification efforts and implementations, including potential pathways, consumer impacts, infrastructure needs, and implications for power sector planning. The study investigates paths to achieving deep reductions in greenhouse gas emissions to accelerate more sustainable energy systems and achieve net-zero emissions by 2050.

Key findings from the study include:

- Electrification is a central pillar of decarbonization goals in Canada driven by technological changes and consumer choice. Electrification can be further bolstered by decarbonization policy.
- Electrification and efficiency can reduce consumers' total energy costs relative to continuing to use today's technologies, allowing energy costs to stay relatively flat, or even decline, as services and economic activity grow. When paired with other cost-effective decarbonization strategies, these pathways can lower emissions and energy while increasing economic growth, prosperity, and well-being.
- Transportation leads electricity demand growth with additional opportunities in industry and buildings. Passenger vehicle electrification offers the greatest potential to cost-effectively reduce CO2 emissions while lowering local pollution and providing vehicle load flexibility.

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

New EPRI resources for greenhouse gas emissions accounting for electric companies

Greenhouse Gas Emissions Accounting for Electric Companies: A Compendium of Technical Briefing Papers and Frequently Asked Questions

This report is a compendium of briefing papers and Frequently Asked Questions (FAQ) designed to improve understanding of voluntary corporate GHG emissions accounting as it applies to electric companies and combined utilities, and to expand electric companies' knowledge about key technical issues related to accounting for "scope 2" and "scope 3" indirect emissions.

This compendium explores a variety of key technical issues and nuances related to GHG emissions reporting and important technical considerations electric companies may want to address when developing their own GHG emissions inventories.

Greenhouse Gas Emissions Accounting for Battery Energy Storage Systems (BESS)

The topic of greenhouse gas (GHG) emissions accounting for battery energy storage systems (BESS) is relatively new and so has not yet been thoroughly addressed by existing organization-level GHG emissions reporting guidance. This EPRI Technical Brief provides an overview of beneficial applications for integrating BESS into the electric power grid, the life cycle GHG emissions of BESS, and how these emissions may be accounted for in electric company GHG emissions inventories.

For more information about either of these resources, please contact Adam Diamant at adiamant@epri.com or Laura Fischer at lfischer@epri.com.

Technical Report – Incorporating Energy Storage Resources into Long-Term Capacity Planning Models: An Assessment of the Inclusion of Specific Features on Battery Deployment in the Southeastern US

Expectations for the future role of energy storage resources in the electric sector have increased in recent years, as technological developments have been accompanied by policy support. However, energy storage technologies have complex cost, value, and performance characteristics that make them challenging to model.

This analysis aims to determine which features that are not commonly represented in existing long-term capacity planning models may, if included, materially alter key decisions related to how much energy storage is expected to be cost-effective. Using an integrated model of capacity planning and operations, the analysis varies the inclusion of five features to understand how model complexity can impact planning insights: degradation, grid (network) modeling, ancillary services, subhourly temporal resolution, and uncertainty.

Back Pocket Insight – The Value of Modeling Operational Constraints

This Back Pocket Insight (BPI) summarizes key insights from EPRI's 2020 Flexible Investment Project that explored how including operational constraints explicitly when modeling power systems can change future system costs, power prices, and system dispatch. Key insights include:

- Modeling power system operational constraints is vital for understanding the potential value of additional flexible generation resources.
- Models that exclude operational constraints overestimate the value and dispatch of baseload generation such as coal, hydro, and NGCC.

For additional information, please contact John Taber (jtaber@epri.com).