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ESIG Releases New Report, Wide-Area Resource Adequacy Assessments: Probabilistic RA Planning for Interconnected Grids

A wide-area resource adequacy assessment, spanning multiple regions and electricity system planning authorities, provides a shared, interregional view of reliability risk and can support more coordinated, data-driven planning and decision-making

Reston, VA. – The Energy Systems Integration Group (ESIG) has released a new report, <u>Wide-Area Resource Adequacy Assessments: Probabilistic Planning for Interconnected Grids</u>, describing the need for, and key elements of, interconnection-wide or continental resource adequacy assessments. These wide-area resource adequacy assessments can provide a clearer understanding of how regions may be able to assist one another during system stress, while supporting and validating local and regional assessments.

Regions' varied approaches to resource adequacy planning limit the ability to assess reliability risk across the broader electricity grid. While individual regions often plan conservatively to ensure local reliability, this approach overlooks the value of geographical diversity, the potential for external assistance, and the benefits of coordinated planning. Without a clear understanding of how regions may be able to assist one another during system stress, planners risk both overbuilding in some areas and underpreparing in others.

"North America's power grids are some of the most interconnected in the world, yet planning for resource adequacy remains fragmented across dozens of utilities, system operators, and planning coordinators," said Derek Stenclik, chair of ESIG's task force on resource adequacy. "It's time we establish a continent-wide approach to assess the reliability of the entire system."

A wide-area resource adequacy assessment spans multiple regions and planning authorities, and can assess both near-term risks and long-term needs under shared assumptions about load, weather, outages, and transmission. The report discusses several ways that wide-area assessments can improve planning, including by supporting scenario consistency in local and regional assessments, increasing neighboring system visibility, evaluating the availability of external assistance, improving extreme weather event evaluation, and aligning methods and metrics.

"A wide-area resource adequacy assessment gives planners a common view of system risk—grounded in consistent scenarios, weather data, and modeling assumptions," said James Okullo, ESIG's director of system planning. "It doesn't replace local planning, but

rather strengthens it by showing how regions interact, where support is realistic, and where gaps could emerge under stress."

A coordinated, probabilistic wide-area resource adequacy assessment is essential to ensure reliability, reduce unnecessary costs, help harmonize accreditation methods, and unlock the full value of coordinated reliability assistance and interregional transmission. By better aligning planning across regions, such an assessment provides a clearer picture of system-wide risks and supports smarter, more efficient investment and policy decisions.

For more information on ESIG, visit www.esig.energy.

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About Energy Systems Integration Group

ESIG began in 1989 as the Utility Wind Interest Group, an organization created to educate utilities about wind power. Within ten years, it developed into a significant technical educational organization and convener of peer-to-peer workshops to assist utilities, system operators, project developers and equipment manufacturers from around the world with the integration of wind power, and then by 2011, also with the integration of solar power. With renewables becoming the mainstream sources of new generation and reliability services, the organization expanded its mission, branding and international participation in 2018 through a merger with the International Institute of Energy Systems Integration (IIESI) to become the Energy Systems Integration Group (ESIG), taking on not just the planning and operations of electricity systems and power markets, but also the growing issues for other energy vectors, including the electrification of transportation, buildings and industry for decarbonizing the entire energy supply.

ESIG now serves as a resource for a broad cross-section of the global energy industry, including utilities, ISOs, independent power producers, project developers, manufacturers, forecasters, consultants, educational institutions, and government agencies, including regulatory bodies.

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