2025 PEAK Conference | Call for Proposals Session Topics

Wind

Wakes & Blockage

Proposals related to novel approaches on how wakes and blockage are being modeled and/or validated.

Operational Assessment

Proposals regarding operational assessments for wind projects, their challenges, and possible solutions with an emphasis on focusing the industry's attention on successful operations of renewable assets and novel approaches to understanding future behavior of production and performance of wind plants.

Wind Site Suitability, Extended Life, and Latest Tech Advancements

Proposals regarding the suitability of a turbine either in the pre-construction phase, repowering phase, or in regard to a life extension. Additional topics relating to newer technologies, e.g. ice shedding or aerodynamic improvements, and OEM suitability assessment methodologies that reflect how we're seeing less margin in suitability and the impact of that are also encouraged.

Wind Industry Updates

Proposals include ERA6 Reanalysis, bat curtailment strategies, uncertainty, IEC standards, and improving interconnection.

Wind Repowering

Proposals regarding improving the approaches to energy modeling for a wind plant repower. Specific aspects include model validation, loads calculations for partial repowers, economic considerations, and blending OEMs' components when repowering.

Wind Power Performance Testing

Proposals regarding novel approaches to power performance testing. Examples include numerical site calibration, IEC standards updates, nacelle-based lidar and the usage of lidars in complex terrain.

Lidar TI Validation / Remote Sensing

Proposals regarding the deployment of remote sensing. Topics about how remote sensing are being utilized to complement traditional in situ turbulent intensity (TI) readings and generally how usage in the absence of met masts are particularly encouraged. Other topic examples include validation and economic considerations.

Solar

Solar Availability

Proposals related to quantifying or improving availability for solar plants. Proposals could include inverter and tracker availability and technology, observed availability values, standardized reporting on availability, reduced inverter derating, time-based vs. energy-based availability, and more.

Technology Review / Tech Due Diligence: Lookback and Look Forward

Proposals related to Technology Due Diligence reviews. What can the industry do better to review new technology (modules, inverters, racking, other components) and how can the modeling world incorporate risk realistically? This session is about looking back at the impacts or misses of technology reviews and how to improve moving forward. Discuss new technologies such as TOPCon and actual performance relative to expectations.

Climate & Extreme Weather in Solar Projects

Proposals related specifically to solar plant risk from extreme weather. Case studies on successful risk analysis, validated risk mitigation, and site failures desired. Examples are weather monitoring, technology mitigations and reliability, or cost implications.

Solar Performance Assurance

Proposals related to capacity/performance testing, as well as any novel strategies for performance prediction. Best practice for bifacial capacity testing. Validations of performance testing to actual operation.

PV System Design of the Future

Proposals related to any future looking site design and optimization. Topic ideas include higher voltage systems, drones, next gen technology, design software, and optimized design.

Novel Modeling Updates

Proposals related to novel industry modeling updates. New modeling ideas for soiling, snow loss, degradation, terrain, etc. will fit under this category. O&M and financial perspectives on modeling would fit well also.

Uncertainty Modeling

Proposals related to modeling uncertainty and the impact of uncertainty accuracy. Topics may include best practices, reducing uncertainty through design, and financial implications.

Solar DC Health

Proposals related to the hot topic of DC Health. This would ideally cover a range of monitoring, modeling, and improving DC health topics from feedback loop to operations to modeling.

Storage

Battery Energy Storage Performance Management & Modeling

Proposals related to modeling BESS performance and degradation. Topics might include best practices, how to incorporate BESS into your energy modeling, revenue stream options, SoC modeling for different market constructs, understanding the value still being left on the table, degradation mechanisms, case studies on actual vs. modeled and warranted degradation, and augmentation strategies. Additional topics include availability and RTE trends.

Energy Storage Origination & Revenue Forecasting

What does modeling mean for BESS? What are the factors that weigh on whether a project is financeable or not in various markets? Proposals that support the understanding that modeling for BESS is not resource based (like wind or solar), but rather dependent on a variety of complex factors could broadly include price volatility/congestion, project siting, market conditions, state procurement trends, and modeling considerations/distinctions between short-, long- and multi-day-duration storage facilities.

Evaluating Energy Storage Procurement Contracts and Incentives

Modeling the missing money and how various state policy proposals attempt to compensate energy storage for its unique grid services and benefits. This session will explore various pending and proposed procurement structures, including full and partial tolls, index credits, upfront and performance incentives, and clean peak credits.

Advancements in Battery Management Systems (BMS) or Energy Management Systems (EMS)

BMS is the control system that monitors and manages the performance, safety, and lifespan of individual battery cells by regulating charging, discharging, temperature, and state of health. It ensures operational efficiency and prevents issues like thermal runaway, overcharging, or deep discharging. EMS is the software platform that optimizes the operation of the entire storage system by managing power flows, integrating with the grid, forecasting demand and revenue opportunities, and coordinating with renewable generation. It enables economic dispatch, peak shaving, and grid services participation to maximize value and efficiency. The planning committee welcome proposals on EMS or BMS topics, including AI-driven predictive analytics, cybersecurity, performance data and SCADA, interoperability between systems, evolving regulatory requirements, or other innovations or evolutions in industry technologies or practices.

Multi-Tech

Model Validation

Proposals regarding how the wind, solar and storage energy modeling compares to operational performance data, including at a portfolio level. Comparisons of modeled vs. actual net energy P50 production, specific energy losses or the weather resource, e.g. irradiance, wind speed, etc. are specifically encouraged.

ML & Digitalization Applications in Resource Assessment & Operational Plants

Proposals regarding the novel use of machine learning, artificial intelligence, and digitalization approaches on wind, solar and storage plants. All are welcome, whether the approach is for pre-construction modeling, operational performance or other use cases. Specific use cases can include speeding up an analysis or deriving an insight not previously attainable are particularly encouraged.

Climate & Weather Risk Technology & Mitigation Strategies

Proposals regarding impact of climate change and weather risk for solar, wind and storage projects. Submissions should provide insight on modeling climate change relative to historical baselines, the impact of these in long-term estimates, and mitigation/insurance strategies.

Modeling Hybrid Projects

This panel explores modeling combinations of solar, wind, storage, data centers and their complexities within regional wholesale electricity markets and best practices for modeling the performance and revenues of hybrid projects versus co-located and standalone projects. It will examine how these systems can enhance grid reliability, improve renewable integration, and create new revenue opportunities through optimized market participation. Case studies are specifically encouraged.

GIS: Advancements in Spatial Modeling

Proposals related to green field prospecting, GIS, and siting improvements that interplay with energy assessment and revenue optimization.

Timeseries & Revenue Modeling

Proposals on approaches to timeseries for improvement of energy modeling or energy modeling impacts on financial models. Topics might include if forecasts are meeting actuals, conservatism in financial models, impact of energy on models or financing structures, or impact of uncertainty. Quantifying risks in PPA structures, merchant pricing, revenue modeling are particularly encouraged.