

2027 PEAK Conference

Call for Proposals



PERFORMANCE, MODELING
& ASSESSMENT CONFERENCE

April 13–15, 2027 | New Orleans, LA

Submission Types

Speaker Proposal

Select this option to submit a proposal for a speaking role. Once speaker invitations have been sent, invited speakers will have 7 days to accept their speaking slot or forfeit. Speaking slots are limited and some proposals may be offered a poster instead. Not all proposals will be accepted.

Poster Proposal

Select this option to submit a proposal specifically for a poster. This option will NOT be considered for a speaking role. ACP will print and ship your poster to the conference if you have accepted your poster invitation and your poster file is received by the deadline.

Software / Tool Review

This is a ****sponsored**** presentation/demo opportunity. Express your interest by submitting a proposal, and we will follow up with more details when they are available. Seeking software updates, modeling tool tutorials, agent demos, or similar.

Topics

Solar

Solar Design

Design decisions and their performance and risk impacts. Tracker design and control strategies, including stow and hail response. Equipment selection for hail-prone and other extreme-weather regions (module glass, cell technology, mounting). How design choices affect insurability, premiums, and claims, and evidence of the benefits of certain design selections. [#solar](#)

PV Module / System-wide Performance and Degradation

Technology-specific degradation mechanisms (PID, LID/LeTID, encapsulant and backsheet failures, cell cracking). Voltage degradation and mismatch-induced losses at string, inverter, and array level. Field-observed degradation rates vs. warranty and model assumptions, and how to incorporate findings into performance modeling and backcasting. [#solar](#)

Solar Modeling Best Practices

Current practice across the full modeling workflow: layout and shading, weather dataset selection, transposition and bifacial modeling, loss factors, and performance calibration. Data sources and tools, workflow efficiency, and lessons learned. Open to any practical approach that improves accuracy or reproducibility. [#solar](#)

Solar Soiling

Measurement, modeling, and mitigation of soiling loss, including snow. Point-measurement methods and their representativeness. Effects and quantification of residue soiling and pollen. Cleaning and snow-loss mitigation strategies. Preconstruction estimates vs. actual soiling on operating assets, and whether current models capture all relevant aspects. Uncertainty in time-series satellite-based soiling products. Wildfire smoke and ash effects. The financial aspect of soiling - how lenders treat soiling and stress cases (extreme soiling, availability loss, high curtailment) and how they tie to performance and degradation backcasts. Soiling effects on capacity testing. [#solar](#)

Solar Capacity Testing

Issues with current test practices and procedures. New approaches and lessons learned. Standardized energy tests, especially IEC 61724, and how they're applied. Formulas and exhibit language for actual vs. expected/model-based capacity, including modeled vs. measured comparisons. Negotiating test terms with EPCs, test conditions and tolerances, and dispute avoidance. Case studies, especially from an EPC perspective, welcomed. [#solar](#)

Climate Impacts on Solar

Effects of a changing climate on energy production and design. Temperature effects on performance, including inverter heat derate. Forward-looking (<50 years) impacts and whether adjustments to typical meteorological year data are warranted. Emphasis on extremes over averages for heat, hail, wind, smoke, and fire. Design choices with climate stress in mind. Technology-specific considerations for solar and wind. [#solar](#) [#climate](#)

Wind

Wind Energy Modeling Best Practices

Current practice across the assessment workflow. Wake modeling approaches and assumptions, wind flow model selection, validation, and sensitivity. Lessons learned from comparing pre-construction estimates with operational results. [#wind](#)

Stand-alone Lidar, Remote Sensing

Lidar and other remote sensing in preconstruction and operational campaigns. Power performance testing (PPT) applications. New developments in turbulence intensity measurement. Use of remote sensing for repowering and its role in energy modeling. Validation and uncertainty of remote sensing data against tall-mast references. #wind

Turbine and Blade Technology and Associated Energy Losses

Turbine and blade technologies of the future. Performance of existing leading-edge protection (LEP) solutions and quantifying LEP-related energy-loss assumptions. Validation of benefits of anti-icing and de-icing systems and whether they justify implementation. Blade erosion and other technology-related losses. #wind

Component Aging and Equipment Failure Prediction

Energy and performance estimating for sites that will not be repowered. Failure modes (blade delamination, gearbox and pitch-bearing issues) and tools to predict failure rates and availability. Modeling energy loss from availability, how failure rates are determined, and estimating availability and its variation over remaining asset life. Asset lifespan extension certification efforts. #wind

IEC Standard Updates

Practical implementation of standards by practitioners in the field (e.g., IEC 61400-15-1), where guidance is ambiguous, and how interpretation varies across the industry. #wind

Layout Optimization

What's new in optimizing turbine and array layouts. Validation of shadow flicker and sound models. Wetlands and FAA permitting constraints alongside energy optimization. LCOE-driven design. Challenges in the interface between engineering, financial modeling, and energy modeling, particularly obtaining good inputs. #wind

FAA Permitting Outlook

Current state and outlook for FAA review of wind projects. Effects on layout, turbine height, performance testing, and energy production; timelines and mitigation strategies. #wind

Wind Repower

Testing Repowered Sites (Site Calibration and/or PPM Tests)

Power performance testing and site calibration for repower of existing sites. Numerical Site Calibration for repowered sites. Terrain assessment workflows. Site testing for repower and new projects, including validation and uncertainty. #wind #repower

Repower Operational Assessments for Energy Estimates

Using operational data to estimate post-repower energy. Engineering and structural considerations for partial repowers. Planning and modeling hybrid additions at repowered sites. Suitability screening and market conditions supporting repower. Site calibration/PPM testing, validation, and uncertainty: what's new and how are we doing. [#wind](#) [#repower](#)

Storage

Battery Degradation

Capacity fade and resistance growth in operating BESS. Effects of short, shallow cycling vs. deep arbitrage cycling; whether different operating modes produce distinct degradation patterns. Calendar vs. cycle aging, state-of-charge windows, C-rate, and temperature effects. Degradation differences across chemistries and technologies (LFP, NMC, emerging). Field data vs. lab and warranty curves, and how degradation assumptions feed augmentation planning and financial models. [#storage](#)

Battery Performance Metrics / Calculations

Which metrics matter most for evaluating BESS performance and how they're defined: round-trip efficiency, usable capacity, availability, state-of-health, auxiliary load, response time. Where definitions differ across OEMs, owners, and contracts, and where industry consensus exists or is still needed. Measurement points, calculation methods, and use in testing, warranties, and performance guarantees. [#storage](#)

Data Center Modeling & Pairing

Modeling generation and storage paired with data center load. Load profile characterization, 24/7 and firm-power matching, behind-the-meter and co-location configurations, and grid-interconnection constraints. Sizing generation, storage, and backup to meet high-reliability demand. Energy yield, reliability, and economic implications of serving large, flat, fast-growing loads. [#storage](#)

Multi-Tech or Hybrid

Uncertainty Modeling

Energy assessment uncertainty; acceptance-testing and measurement uncertainty. Methods for combining uncertainty components, including in hybrid installations, and for aggregating at portfolio level. Industry alignment on hybrid-project uncertainty. Communicating uncertainty to lenders and investors. Consensus definition of uncertainty. [#solar](#) [#wind](#) [#hybrid](#)

Artificial Intelligence

Where and how AI fits the work of this community, such as in forecasting, data QA, modeling workflows, anomaly and failure detection, design automation, and reporting. Real applications with results, limitations, validation, and pitfalls. Technology-specific and general submissions welcome. [#multi-tech](#)

GIS and Site Planning

GIS tools and data for siting and early-stage development. Constraints screening, land and terrain analysis, environmental and permitting layers. Connection to layout optimization and siting decisions. Data resolution and quality; workflow automation. [#multi-tech](#)

Complex Terrain and Land Cover Considerations

Innovative and recent approaches to challenging sites. Flow modeling in complex terrain, including for repowering. Land cover analysis (canopy height, roughness, forest and vegetation effects). Ground-cover and vegetation assumptions for bifacial solar (albedo). [#multi-tech](#)

Timeseries Data for Energy Modeling

Modeling in response to demand for higher-frequency data (sub-hourly, minute-level). Using operational time series to calibrate, validate, and prove models over time. Data quality, filtering, and gap handling. Applications for clipping, ramp, and storage-related analysis. [#multi-tech](#)

Co-located Wind and/or Solar and/or BESS Modeling

Energy modeling for hybrid sites. Interactions between resources such as shared interconnection, charging rules, clipping recapture, or dispatch priorities. Determining optimal capacities and sizing under transmission limits, including curtailment quantification. Testing considerations at hybrid sites (capacity, performance, availability). Validation and prediction-vs-actual comparisons for operating hybrids. [#storage](#) [#hybrid](#)

Climate Impacts on Energy Assessments (Operational and Pre-Construction)

How climate variability and change enter pre-construction and operational assessments. Interannual variability and phenomena (e.g. super El Niño) and their impacts on operating projects. Accounting for climate over long project lifetimes, including links to numerical weather prediction forecasting. [#multi-tech](#) [#climate](#)

Revenue Modeling & Markets

Revenue Modeling and Market Outlooks

Market and price outlooks and revenue modeling methods for renewable fleets. Policy and market-design drivers, forecast uncertainty, and implications for project valuation and operating strategy. [#industry](#) [#market](#)

Storage Revenue Modeling

Quantifying the economic value and uncertainty of standalone and co-located storage. Points where traditional dispatch and price-forecast modeling vs. realized revenue diverge. Non-obvious or emerging grid value streams (ancillary services, capacity, congestion, resource adequacy). Short-term forecasting for solar + storage dispatch and how to handle imperfect forecasts in operating strategy and revenue estimates. Methods for propagating forecast error, price volatility, and market-rule uncertainty into revenue ranges. [#storage](#) [#hybrid](#) [#market](#)