PEER Assessment Overview for Campus Projects

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PEER.GBCI.ORG

INTRODUCTION

PEER is designed to help industry stakeholders dramatically improve power system performance by providing operators with a framework for continuous improvement and performance assessment. Modeled after the U.S. Green Building Council's LEED program for buildings, PEER provides energy professionals with a comprehensive understanding of how to define, specify, and assess sustainable power to buildings. It is the nation's first comprehensive, consumer-centric, outcome-driven system for evaluating power system performance.

PEER helps electricity leaders, professionals, and operators:

- Reduce energy costs and cut economic losses caused by supply contract inefficiencies, poor energy reliability, poor power quality, and energy inefficiency
- Define key performance metrics, benchmark to industry standards, and verify measureable outcomes
- Quantify the value produced to date, identify sources of customer value, and make the case for investment by revealing waste and performance gaps
- Rigorously assess projects based on a comprehensive, balanced scorecard of sustainable performance criteria
- Build a comprehensive continuous improvement process based on industry best practices to maximize returns and minimize risks
- Build trust, credibility, and customer satisfaction
- Establish a common language for stakeholders by facilitating education and collaboration

HISTORY OF PEER

Former Motorola CEO Bob Galvin, sparked by the 2003 blackout in New York City, started the Galvin Electricity Initiative over concerns about the reliability of the nation's power system. He teamed with Kurt Yeager, former President and CEO of Electric Power Research Institute (EPRI) Built on a decade of research and development collaboration, Performance Excellence in Electricity Renewal (PEER) was born.

After years of refinement, PEER went looking for an organization that could bring it to the forefront of public interest. Because of the reliability and sustainability aspects to the rating system, the Green Business Certification Inc. (GBCI) was the right partner. In addition to certifying PEER projects, GBCI also oversees the certification of LEED, SITES, EDGE, WELL, GRESB, and Parksmart. In 2014, GBCI officially acquired the management of the PEER rating system. See GBCI.org for more details.

ABOUT PEER

Developing criteria that address such a wide range of customer concerns, design requirements, and performance outcomes is inherently complex. To make this comprehensive program easier to navigate, the PEER credits are grouped into four categories: **Reliability and Resiliency**, **Energy Efficiency and Environment**, **Operational Effectiveness**, and **Customer Contribution**.

Each category includes a set of prerequisites – requirements that must be fulfilled in order to qualify for certification -- and credits with which project teams earn points. Projects that meet all prerequisites and achieve the required number of points are awarded PEER certification in recognition of outstanding performance. The PEER criteria are designed to reward implementation of industry best practices and encourage the adoption of new, innovative strategies.

The rating system uses five different criteria types to measure the performance of a project. These designations inform how the project measures and demonstrates compliance with the credit intent and requirements:

- **Performance Outcome:** Quantifiable performance that can be compared to an industry benchmark or goal in order to promote continuous improvement
- **Demonstrated Capability:** A measureable capability that supports key customer outcomes as well as efficient, safe, and reliable grid operation
- **Performance Transparency:** The measurement and aggregation of data for reporting, benchmarking, and trending
- **Standard Process:** An established process that produces specific efficiency, reliability, and safety outcomes
- **Design Consideration:** A proven strategy or technology that sets the project on a path towards more efficient, safe, and reliable grid operation

PEER provides a valuable framework that can be used to assess new designs and developments, long-term improvement plans, and existing project performance. In this version of PEER, the projects may be categorized as one of three project types:

- **City:** Typically, these are public projects with a large variety of customers. Examples include municipal utilities, special districts within a city, or city-wide projects within an investor owned utility territory.
- **Campus:** Typically, these are privately owned or operated projects that have few customers but include distribution to multiple buildings and loads. Examples include college campuses, industrial parks and facilities, military bases, and large buildings.
- **Supply:** Typically, these are privately-owned or operated projects that supply locally generated power to downstream customers or loads. These projects usually have few customers or customer connection points and do not have control over the distribution system or the customer. Examples include combined heat and power plants for industrial facilities and third-party suppliers for city and campus projects.

A summary of the PEER credits, organized by category, is shown at the end of this document. The criteria type and applicable project types are also included.

ABOUT PEER ASSESSMENT

As a first step toward certification, PEER Assessment enables projects to complete an independent assessment of overall project sustainability while building the case for investment. PEER Assessment leverages the rating system as a tool for driving action, innovation, and investment. It uses the PEER framework to inform and build upon the existing sustainable energy plans, quantify the value produced to date, identify new opportunities for improvement, and create a plan for PEER certification. Depending on a project's goals and ability to share available data, the assessment can be customized. Ultimately, PEER Assessment provides projects with a roadmap and business framework for improving project sustainability and assessing readiness for PEER certification.

While the full Microgrid 8760 Analysis is an essential part of PEER Assessment, it can also be delivered on its own as a modeling tool used to make the business case for a microgrid that can help achieve PEER credits.

Based on assessment results, a project's next step would be to enter into PEER Participation with GBCI, and build a plan toward PEER certification. Full details on PEER Participation can be found at www.peer.gbci.org/certification.

PEER ASSESSMENT SEQUENCE AND DELIVERABLES

PEER Assessment begins with an initial meeting to engage the project team. This meeting is to educate the project team on PEER, the value of PEER Assessment, and the types of inputs that may be required. The PEER Assessment facilitator works with the project team to define the project boundary, gather basic project details, discuss inputs, and determine the Assessment process based on project needs.

Typically, the process requires the project team to provide the project's historical generation, project load, and price data to complete the PEER Assessment Tool. It's critical to provide complete and accurate data as that drives the accuracy of the PEER Assessment results.

After the data has been gathered, the PEER Assessment facilitator will perform an Energy Analysis. The process is based on the premise that a key objective is for a project to be reliable and resilient while optimizing energy efficiency and capital investment. This analysis helps sites quickly evaluate improvement options and determine potential savings using real time pricing or other rate structures as an upper limit. It also enables project teams to explore islanding potential, assess local distributed resources, and identify benefits to all stakeholders from price response, grid services, resiliency, and improved environmental performance. The Energy Analysis includes:

- Preliminary energy performance, savings, and cost modeling
- List of microgrid assets and simple payback to provide an indication of the business case for the microgrid

Following the Energy Analysis, the PEER Assessment facilitator performs a customizable sustainability assessment of the project based on the PEER framework using the PEER Assessment Tool. Based on the inputs provided and desired scope, the PEER Assessment may include the following:

- Value/gap assessment documenting the current value generated by the project as compared to a baseline and quantifying the additional value that can be created by achieving an upper limit of performance
- Reliability, energy efficiency, and environmental performance compared to local, state, and national benchmarks
- List of potential improvement pathways to generate savings, improve sustainability, and eliminate waste
- Summary of PEER Participation next steps and certification readiness assessment
- Summary of major energy assets, project loads, demand response capabilities, metering capabilities, communications, planned improvements, processes, resiliency capabilities, islanding capabilities, and cyber security capabilities
- Sustainable energy assessment including identification of areas of exceptional performance

PEER Assessment deliverables include the Energy Analysis report and a PEER Assessment report including a value/gap assessment, benchmarking, an evaluation of the project's readiness across all PEER performance criteria, and recommended areas for improvement. The PEER Assessment evaluates the project based on the PEER Rating System. Please refer to the final page of this document for a complete list of PEER credits.

COST OF PEER ASSESSMENT (INTRODUCTORY PRICING)

PEER Assessment is $4,000. The project team receives both the Energy Analysis report and the PEER Assessment report, and a meeting to go over the results and next steps.

If the project team would like only the Energy Analysis, the PEER Assessment facilitator will perform the analysis based on the project's historical generation, project load, and price data for $1,500, and deliver the Energy Analysis report.

If the project team prefers, the PEER Assessment facilitator can hold in-person meetings for the data gathering, and for delivering the report, findings and improvement pathways. Additional fees would apply.

*Note that while PEER Assessment is an optional first step to PEER Participation, GBCI encourages projects to register for PEER Participation, where the PEER Assessment is included along with all subsequent materials any project might need to develop an improvement plan and/or pursue PEER certification. Visit the PEER Guide to Participation.

ASSESSMENT INPUTS

The PEER Assessment Tool is provided to the project team and poses 10-15 high level questions for each of the PEER credit categories: Reliability and Resiliency, Energy Efficiency and Environment, Operational Effectiveness, and Customer Contribution. Information is input into the PEER Assessment Tool directly.

Assessment inputs cover topics including:

- General information, including project name, location, characteristics, energy use, peak demand, peak capacity
- Procured energy mix, local generation mix, and local utility information, including environmental performance
- Site major energy assets, asset utilization, support for essential and critical loads (chillers, boilers, CHP, chilled water storage, etc.)
- Site general arrangement drawing with electrical and thermal layout and electrical high level single line drawings
- Distribution system redundancy, protection, undergrounding and other circuit information
- Metering and communications infrastructure, including meter manufacturer and model number and capabilities for power quality measurement
- Islanding, demand response and ancillary service capabilities
- Reliability from manual or automated interruption logs
- O&M and capital budgets and cost/savings analysis
- Data privacy, cyber security, and other customer engagement and consumer education policies
- Processes for improvement planning, safety review, risk mitigation, preventative/predictive maintenance
- Customer capabilities such as building energy management systems and demand response

The completed PEER Assessment Tool is returned to GBCI. If additional information is required or the project team has questions about the data inputs, GBCI will conduct follow up interviews and discussions with the project team.

ENERGY ANALYSIS INPUTS

As with the Assessment Tool, the amount and quality of the information provided by the project will determine the completeness and accuracy of the Energy Analysis results. The team can omit inputs as appropriate or apply engineering judgment, as necessary. Below are some basic inputs for the Energy Analysis Tool:

- General information including owner organization, project name, location, local utility, and bulk electricity supplier (if applicable), peak demand (kW), annual electricity usage (kWh), and annual thermal usage (MMBtu)
- 15-minute or hourly usage for prior year's *procured* electricity and thermal energy
- 15-minute or hourly usage for prior year's *customer* electricity and thermal demand/load. If not available, 15-min or hourly output for site generators.
- Current electricity and natural gas costs, including energy or supply, distribution, capacity, demand, standby charges, fixed charges, and any other costs. This includes samples of electricity bills, utility rate tariffs, and third-party supplier contracts or bills.
- List and size in kW of distributed generation or load automation assets
- Physical limitations impacting feasibility of local resources such as CHP, solar PV, and district energy systems.

PEER Credit Summary

PEER Credits	Type	Campus	City	Supply
Reliability and Resiliency				
Prerequisites				
Advanced Meters for Reliability and PQ	Design	X	X	X
Communications Backbone	Design	X	X	
SCADA	Design	X	X	X
Emergency Response Plan	Process	X	X	X
Safety Review of Design Changes	Process	X	X	X
Credits				
SAIDI (Sustained Interruption Duration)	Outcome	X	X	
SAIFI (Sustained Interruption Frequency)	Outcome	X	X	
CELID-5	Outcome		X	
ASAI (Availability)	Outcome	X		X
MAIFI (Momentary Interruptions)	Transparency	X	X	
CEMMI-5 (Multiple Momentary Interruptions)	Transparency	X	X	
AIFI (Interruption Frequency)	Transparency	X	X	X
Damage and Exposure Prevention	Design	X	X	X
Alternative Sources of Project Electricity Supply	Capability	X	X	X
Distribution Redundancy and Auto Restoration	Capability	X	X	
Islanding Capability	Capability	X	X	X
Power Surety for Critical Loads	Capability	X	X	
Power Resiliency through Recovery	Capability	X	X	
Power Quality Measurement	Transparency	X	X	X
Capabilities for Power Quality	Design	X	X	X
Mitigation of Common Risks and Threats	Design	X	X	X
Identification of Infrequent Risks and Threats	Process	X	X	X
Innovations		X	X	X
Energy Efficiency and Environment				
Prerequisites				
Renewable Portfolio Standard	Process	X	X	
Local Air Permits	Process	X	X	X
Credits				
Source Energy Intensity	Outcome	X	X	X
CO2 Emissions Intensity	Outcome	X	X	X
NOx Emissions Intensity	Outcome	X	X	X
SO2 Emissions Intensity	Outcome	X	X	X
Water Consumption Intensity	Outcome	X	X	X
Solid Waste Recycled	Outcome	X	X	X
Renewable Energy Certificates	Process	X	X	X
District Energy	Capability	X	X	X
Local Cogeneration or CHP	Capability	X	X	X
Local Renewable Generation	Capability	X	X	X
Environmental Impacts	Design	X	X	X
Innovations		X	X	X

PEER Credits	Type	Campus	City	Supply
Operational Effectiveness				
Prerequisites				
Improvement Plan	Process	X	X	X
Credits				
Load Duration Curve	Outcome	X	X	X
System Energy Efficiency	Outcome	X		X
Waste Identification and Elimination	Process	X	X	X
Failure Identification and Elimination	Process	X	X	X
Demand Response Capability	Capability	X	X	X
Electricity Cost Savings	Transparency	X	X	X
Electricity Energy Efficiency Savings	Transparency	X	X	X
Operations and Maintenance Efficiency Value	Transparency	X	X	X
Reliability and Power Quality Value	Transparency	X	X	X
Demand Charge Reduction Savings	Transparency	X	X	X
Ancillary Service Revenue	Transparency	X		X
Electricity Price Opportunity Cost	Transparency	X	X	X
Electricity Energy Efficiency Opportunity Cost	Transparency	X	X	X
Operations and Maintenance Opportunity Cost	Transparency	X	X	X
Reliability and Power Quality Opportunity Cost	Transparency	X	X	X
Demand Charge Opportunity Cost	Transparency	X	X	X
Ancillary Service Opportunity Cost	Transparency	X	X	X
Innovations		X	X	X
Customer Contribution				
Prerequisites				
Advanced Metering Infrastructure	Design	X	X	
Data Privacy	Process	X	X	
Cyber Security	Process	X	X	
Consumer Engagement Programs	Process	X	X	
Credits				
Access to Real-Time Data	Process	X	X	
Access to Dynamic Pricing	Process	X	X	
HEMS/EMS Choice	Process	X	X	
Interconnection Standards	Process		X	
Net Metering	Process		X	
Electricity Supply Choice	Process	X	X	
Financial Incentive Programs	Process	X	X	
Aggregation	Process	X	X	
Local Renewable Generation Capability	Capability	X	X	
Local Cleaner Power Capability	Capability	X	X	
Local Demand Response Capability	Capability	X	X	
Innovations		X	X	