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Witness: Scott J. Wibbenmeyer
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MISSOURI PUBLIC SERVICE COMMISSION

FILE NO. EA-2025-0238

SURREBUTTAL TESTIMONY

OF

SCOTT J. WIBBENMEYER

ON

BEHALF OF

UNION ELECTRIC COMPANY

D/B/A AMEREN MISSOURI

St. Louis, Missouri
January, 2026

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OF

SCOTT J. WIBBENMEYER

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I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q. Please state your name and business address.

A. My name is Scott J. Wibbenmeyer. My business address is One Ameren Plaza, 1901 Chouteau Ave., St. Louis, Missouri.

Q. By whom and in what capacity are you employed?

A. I am employed by Union Electric Company d/b/a Ameren Missouri ("Ameren Missouri", or "Company") as Senior Director, Renewable Business Development and Acquisitions.

Q. Are you the same Scott J. Wibbenmeyer that submitted direct testimony in this case?

A. Yes, I am.

Q. To what testimony or issues are you responding?

A. I am responding to the Staff Rebuttal Report's discussion of the in-service criteria for the battery energy storage system ("BESS") project to be installed at the Big Hollow site. I will also respond to other engineering and auditing conditions proposed by Staff as well as inaccurate statements made in the rebuttal testimony of Office of Public Counsel ("OPC") witness Jordan Seaver.

II. RESPONSE TO STAFF REBUTTAL REPORT

Q. Staff recommends that the Commission condition the CCN approval on Staff and the Company jointly filing a set of in-service criteria prior to the start of construction. Does the Company object to this recommendation?

A. Yes. The Company respectfully objects to making the establishment of in-service criteria a condition for CCN approval. Section 393.135 RSMo requires that a project be "fully operational and used for service," but does not require that there be agreed upon in-service criteria nor does it confer authority upon Staff to insist that Staff's viewpoint of what that means controls. While developing in-service criteria that Staff and the Company agree upon may serve to clarify operational expectations for stakeholders and eliminate any disagreements about whether a facility is "fully operational or used for service," agreed upon criteria are not required. Even where they exist, they are only pertinent when a project is incorporated into rates and are unrelated to the necessity of the facility or the *Tartan* Factors considered in the CCN determination. Despite this objection, as noted, the Company acknowledges that there are benefits of reaching agreement on in-service criteria prior to the project's inclusion in rates and it does anticipate that agreement will be reached. But if it isn't, the CCN should nevertheless be approved.

Q. Staff recommended a set of in-service criteria, does the Company agree with the criteria?

A. No. As noted by Staff witness Brodrick Niemier, the BESS Project proposed in this CCN case is the first large-scale utility battery by an investor-owned utility in the state, and no in-service criteria have been agreed upon by Staff with any utility. The Company appreciates Staff's proposed criteria and agrees with many points; however, some criteria

go beyond what is needed for the project to be both fully operational and used to serve customers, as well as going beyond the base design and contractual obligations with suppliers. Ameren Missouri has engaged with Staff, the Company's independent engineer, and the battery manufacturer to propose in-service criteria (see Schedule SW-S1) that incorporate much of Staff's input, while aligning with standards established for other inverter-based systems such as solar. The proposed criteria also clarify testing procedures and performance calculations to ensure transparency and accuracy in reporting.

Q. What are some of the key differences or similarities between Ameren Missouri's in-service criteria and that of what Staff proposed?

A. The main points are as follows:

- Items 1 and 2 are identical in both Staff's and the Company's criteria.
- Item 3 shares similar intent, but the Company's version reflects language previously agreed upon for inverter-based projects (i.e. solar), specifying which contract guarantees must be completed. Staff's language is broader, implying all "operational guarantees" (a term that is undefined) must be met, which could unintentionally include all contract guarantees, including those traditionally beyond when a facility is operational. For example, final vegetation, road grading, landscaping or other construction punch list items that indirectly touch "operations" but have no meaningful impact as to whether a facility is in-service or used for service. The in-service criteria should be limited to items that must be met for the facility to operate and to be used for service.
- Items 4 through 7 in Staff's proposal require the facility to demonstrate charging and discharging start and stop abilities. These items are redundant,

because by its nature, the full capacity test required by Staff's items 8-10 or Company's Item 5, as discussed below, will demonstrate both charging and discharging start and stop ability. The Company does not oppose identifying these tests separately from the full-capacity test: however, it recommends consolidating Staff's items 4 through 7 into a single item 4 requirement to improve clarity and streamline test reporting.

- Items 8 through 10 in Staff's criteria are consolidated in the Company's item 5, consistent with prior agreements for solar facilities. The Company opposes a strict 100% performance guarantee, as minor variances are reasonable and do not undermine the facility's usefulness. The Company is proposing a 95% performance guarantee to allow for minor variances in operation and remain consistent with previously agreed upon in service criteria, such as that used previously for determining the in-service of Maryland Heights Renewable Energy Center, Huck Finn Solar Energy Center, all other solar facilities installed by the company over the last 10 years, as well as agreed upon criteria to be used for capacity requirements of Castle Bluff's combustion turbine generator ("CTG") and Big Hollow CTG projects. In addition, as included in SW-S1, the Company proposes a Capacity Test Attachment to clarify testing procedures and performance calculations, modeled after previous criteria but updated for BESS projects.
- Item 11 in Staff's criteria, which requires the unit to discharge at 50% rate for eight hours, should be removed. This imposes guarantees beyond the project's design and contractual obligations. While lower discharge rates may extend

operational time, the facility is not designed for a linear relationship between output and duration, which is what Item 11 incorrectly implies.

- Items 12 and 13, concerning transmission facilities, are combined in the Company's proposal using language previously agreed to for solar projects, streamlining verification and reducing confusion.

In summary, while the Company and Staff are generally aligned, the Company recommends edits to ensure the criteria are consistent with established standards for inverter-based systems and contractual obligations, to provide clear guidance for performance testing and reporting, and to limit criteria to those items that are needed for the facility to be operational and used for service.

Q. Staff has requested that the Company retain and provide all supporting documentation relied upon by Ameren Missouri for eligibility of the investment tax credits ("ITC") for the project, including, but not limited to, Foreign Entity of Concern ("FEOC") restriction requirements, and any third-party consultant documentation related to the tracking, monitoring and ensuring that wage and domestic content requirements are met. Can you describe the Company's efforts to secure domestic content?

A. Yes. The Company has negotiated contractual terms with Tesla, the battery supplier, requiring reasonable cooperation to support the Company's efforts to obtain the domestic content bonus. These provisions include manufacturing and delivering domestic cell megapacks, maintaining and retaining relevant records, and providing information as reasonably requested regarding domestic content and FEOC requirements. For further detail, please refer to Schedule SW-S2, Exhibit EE – Domestic Content – Safe Harbor

Method, and Schedule SW-S3, Exhibit HH – Special Provisions Applicable to FEOC, which outline the specific requirements contained in the supply contract.

Q. Despite the efforts outlined above, can the Company agree to this condition without modification?

A. No. While the Company is pursuing domestic content, there is no guarantee that the requirements will be met as the rules could be modified as we have seen in the past, nor does the Company have full control over all obligations. Therefore, the Company cannot agree to providing documentation that "*ensures"* such requirements are met. That said, the Company is agreeable to providing the documentation related to the *tracking* and *monitoring* of the domestic content requirements. It should be noted that while the Company is absolutely pursuing the domestic content ITC bonus, the economics it presented when it filed this case did not assume that the domestic content bonus would be obtained since the Company cannot control all aspects related to it and there is more uncertainty about it than there is, for example, about whether the project qualifies for the energy community bonus or will meet wage requirements to meet the ITC base requirements.

Q. Staff has requested that the Company file quarterly progress reports of the construction of the Big Hollow projects (CTG, BESS). Are you agreeable to this condition?

A. Yes, with clarification from Staff on the expectations regarding impacts from legislative or executive actions, including tariffs, tax credits and Foreign Entities of Concern are only to be included such impacts that are known to impact the projects as theoretical implications can quickly become overly broad or burdensome. I'd also like to

recommend that this condition (i.e., quarterly progress report clarified as I just discussed) be combined with the Engineering Conditions #1 and #2, which also seek updates related to project milestones and construction. Combining the conditions would be consistent with past quarterly reports agreed upon between the Company and Staff in prior CCN cases.

Q. Staff has requested that the Company notify the Commission shall the project costs change by more than 15% of either the base amount or risk-adjusted project costs. Do you agree with this condition?

A. Yes, with clarification or the understanding that 15% applies to each individual project (i.e., 15% increase in the base case cost for the Big Hollow BESS).

Q. Staff has requested that the Company take into consideration the costs and time required to build or upgrade transmission lines and substations at existing sites for the required charge/discharge capability as part of the selection process. Do you agree with this condition?

A. Yes. In fact, the Company already takes this information into account when evaluating the economics and viability of any project. This approach directly influenced the selection of the former Rush Island site for the BESS installation, as it offered a streamlined path to interconnection through the Midcontinent Independent System Operator ("MISO") replacement generation process and required minimum system upgrades.

Q. Does the Company agree to the recommendation made by Staff regarding the variance request for restoration and operation plans?

A. Yes.

III. RESPONSE TO OPC

Q. What concerns do you have with the rebuttal testimony of OPC Witness Jordan Seaver?

A. OPC Witness Jordan Seaver suggests postponing the BESS project based on expectations of declining prices and a flawed assumption that the interconnection process is straightforward. This approach overlooks significant risks and is not a prudent strategy for ensuring reliable energy service. Relying solely on price forecasts to justify project delays is fundamentally flawed; and market predictions have historically proven inaccurate due to factors such as global politics, tariffs, and supply chain disruptions.

While long-term price forecasts are valuable for strategic planning, they are less effective for decisions regarding individual projects like Big Hollow BESS. The project is essential to meet capacity needs resulting from the retirement of aging facilities and increasing regional demand. Its capacity complements that of the Big Hollow CTG project, ensuring simultaneous energy supply during peak needs.

Similarly, a "wait and see" approach is risky and based on incorrect assumptions:

- Price reductions are not guaranteed; delays may lead to increased labor and material costs due to inflation.
- The Company has secured a competitive battery supply agreement with domestic options, but future availability is uncertain as global demand for battery equipment rises.
- Delays could result in customers facing up to 50% higher costs if federal tax credit deadlines are missed or rules change.

- Postponement may require abandoning existing interconnection rights, leading to substantial additional costs and lengthy delays in securing new rights through MISO. Mr. Seaver's claim that obtaining necessary interconnection rights is a straightforward process is just plain wrong in my experience. Instead, navigating the MISO queue in a timely manner is difficult, and a delay will expose the project to a very real possibility of having to pay high network upgrade costs that are totally avoided by proceeding with the project now.[1]

In summary, postponing the BESS project exposes customers to higher costs and reliability risks, and is not supported by current market or operational realities.

Q. OPC Witness Jordan Seaver claims that data centers have extreme ramping characteristics that cannot be met by BESS. Is that accurate?

A. No. I am unaware upon what information Mr. Seaver bases his claim, but his claim is simply wrong from an engineering perspective. Instead, BESS is specifically designed to provide rapid response and flexibility, making it well-suited to handle the ramping needs of large data centers. Its ability to quickly inject or absorb power fundamentally provides a tool to support grid stability during sudden load changes, which is essential for AI-driven workloads. In fact, BESS has been studied and proven to be a mitigating response to promote grid stability and prevent potential reliability risks posed by the integration of large digital loads (i.e., AI data centers).[2] Therefore, energy storage

[1] Contrary to Mr. Seaver's claim that the generator interconnection study takes only 355 days, recent MISO data shows much longer timelines due to increased congestion and transmission constraints. For example, recent DPP cycles have taken between 1,272 and 1,663 days to complete. MISO Definitive Planning Phase Schedule published on December 1, 2025. Regardless, as noted, even if the process were 355 days, we would be exposed to the possibility of high network upgrade costs.

[2] Kundu, Soumya, et al. "Managing Risks from Large Digital Loads Using Coordinated Grid-Forming Storage Network." *arXiv*, 14 Aug. 2025, arXiv:2508.11080.

will likely be a critical asset in addressing concerns with large data center loads due to their favorable characteristics.

Q. OPC witness Seaver claims that BESS causes blackouts, heavy reliance on BESS has not yet occurred, and systemic problems exist similar to PV Solar. How do you respond?

A. Heavy reliance on BESS is already a reality in regions like California. California Independent System Operator ("CAISO's") battery fleet grew to 13 GW (47 GWh) by December 2024 and provided 84% of regulation services and 8.6% of peak-hour energy. Batteries also represented 14.7% of load during solar peak hours, reducing curtailment and supporting reliability. The Western Energy Imbalance Market added 5 GW of battery capacity in 2024, and over 27 GW of new battery capacity is planned across the West by 2028.[3]

Regarding reliability, CAISO operates these resources daily without systemic reliability failures. While North American Electric Reliability Corporation ("NERC") identified issues in two 2022 events, those were tied to non-compliance with interconnection requirements, not inherent flaws in BESS technology. Corrective actions – including inverter software upgrades and improved logging –were implemented, and subsequent events showed improved performance.[4] Therefore, it is unreasonable to conclude that all installed BESS would exhibit these issues. When BESS facilities are designed, tested, and operated in compliance with interconnection standards – such as

[3] CAISO Special Report on Battery Storage, May 29, 2025, https://www.caiso.com/documents/2024-special-report-on-battery-storage-may-29-2025.pdf

[4] Joint NERC and WECC Staff Report, 2022 California Battery Energy Storage System Disturbances, September 2023, p. iv, https://www.nerc.com/globalassets/who-we-are/standing-committees/rstc/nerc_bess_disturbance_report_2023.pdf

Institute of Electrical and Electronics Engineers ("IEEE") 2800-2022 and MISO's generator interconnection requirements – they provide reliable performance and enhance grid stability. Ameren Missouri fully expects its BESS units to comply with the established requirements, ensuring robust ride-through capability and reliable operation.

Q. Is Ameren Missouri planning an overreliance on BESS in its resource portfolio?

A. No. Ameren Missouri continues to pursue a balanced portfolio as outlined in its 2025 Preferred Resource Plan with BESS making up a small minority of the overall planned capacity needed to meet our customers' reliability needs. In addition, MISO clearly does not currently have an overabundance of energy storage and views storage as a potential asset to assure the systems maintains safe capacity limits, which is why storage is given capacity value in the MISO markets.

Q. Does this conclude your surrebuttal testimony?

A. Yes, it does.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Union Electric Company d/b/a Ameren Missouri for Permission and Approval and Certificate of Public Convenience and Necessity Authorizing it to Construct a New Generation Facility and Battery Energy Storage System	)))))	File No.: EA-2025-0238

AFFIDAVIT OF SCOTT J. WIBBENMEYER

STATE OF MISSOURI)
) ss
CITY OF ST. LOUIS)

Scott J. Wibbenmeyer, being first duly sworn on his oath, states:

My name is Scott J. Wibbenmeyer, and hereby declare on oath that I am of sound mind and lawful age; that I have prepared the foregoing *Surrebuttal Testimony*; and further, under the penalty of perjury, that the same is true and correct to the best of my knowledge and belief.

Scott J. Wibbenmeyer

Sworn to me this 16th day of January 2026.

Lithium-Ion Battery Energy Storage System (BESS)

Proposed In-Service Criteria

1. All major construction work is complete.
2. All preoperational tests have been successfully completed.
3. Facility successfully meets contract operational guarantees that are necessary for satisfactory completion of all other items in this list.
4. The facility demonstrated the ability to stop and start both charging and discharging when commanded to do so at a location from which it is normally operated.
5. Facility shall meet 95% of the Guaranteed Power Capacity (400MW) and Guaranteed Energy Capacity (1,600MWh) based on the Capacity Test in Attachment 1. The Capacity Test shall determine the facility's Corrected Capacity at the Design Point Conditions.
6. Sufficient transmission/distribution interconnection facilities shall exist for the total plant design net electrical capacity at the time the facility is declared fully operational and used for service.

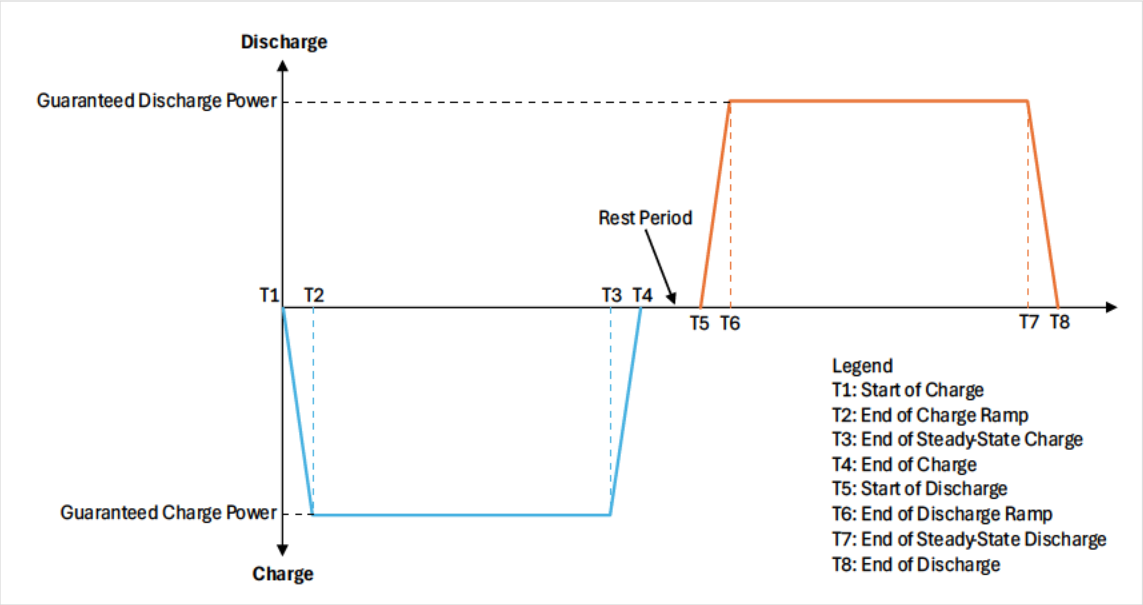
Capacity Test Summary

Purpose

Demonstrate that the Actual Charge Power Capacity, Actual Discharge Power Capacity, and Actual Energy Capacity of the System equals or exceeds the Guaranteed Power Capacity and Guaranteed Energy Capacity, respectively.

Procedure

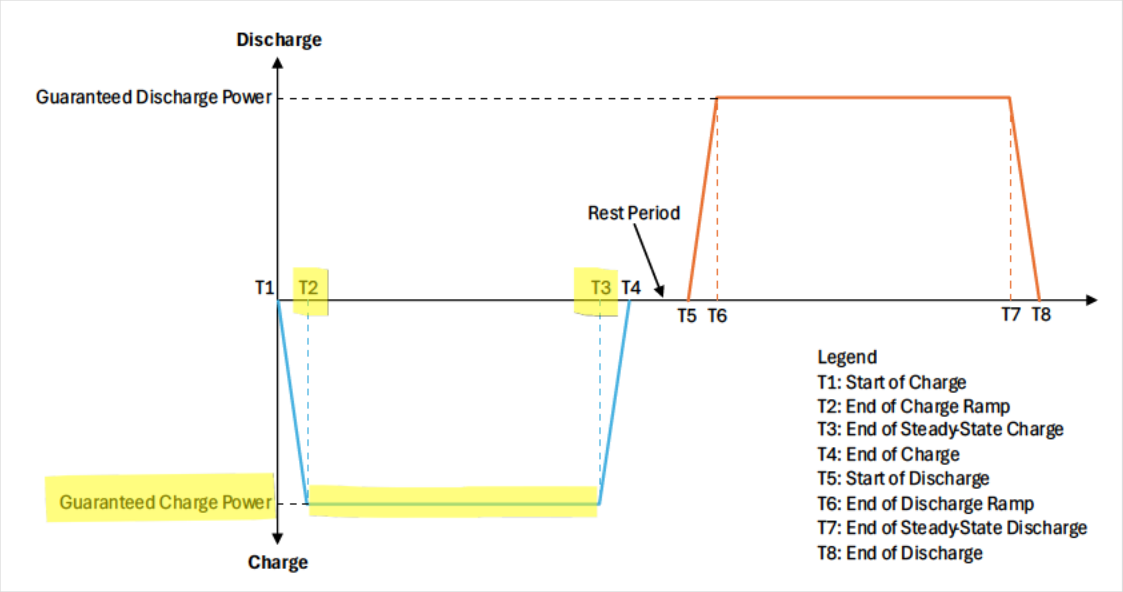
1. Fully discharge battery prior to start of test
2. Fully charge battery at full power
3. Fully discharge battery at full power



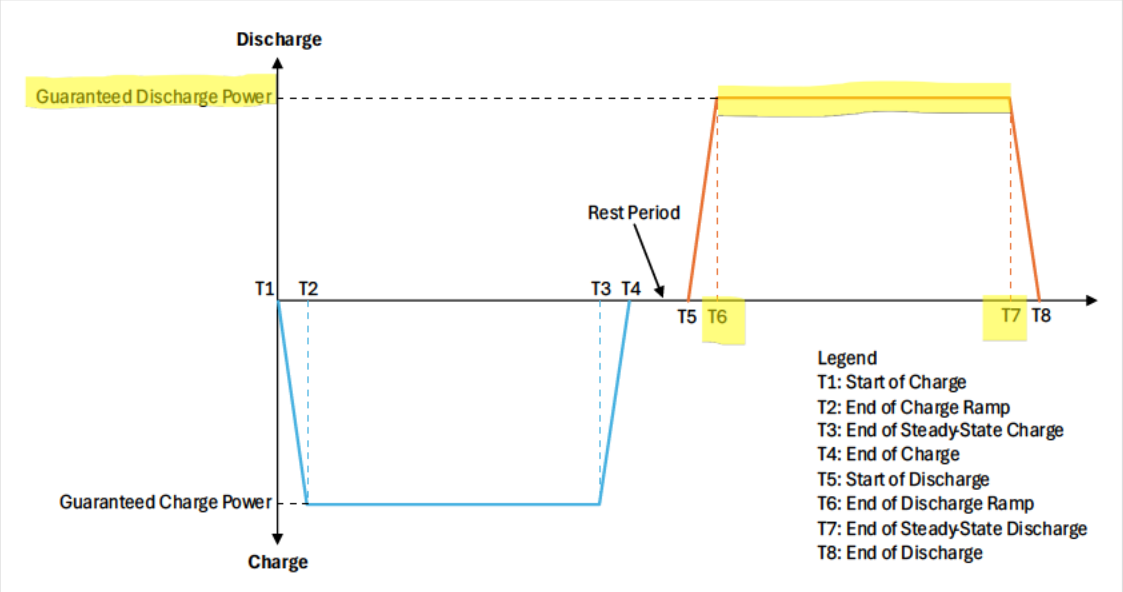
Acceptance Criteria for Big Hollow BESS

1. Guaranteed Power Capacity = 400MW

Charging: Average Real Power between T2 and T3 ≥ Guaranteed Power Capacity (400MW)



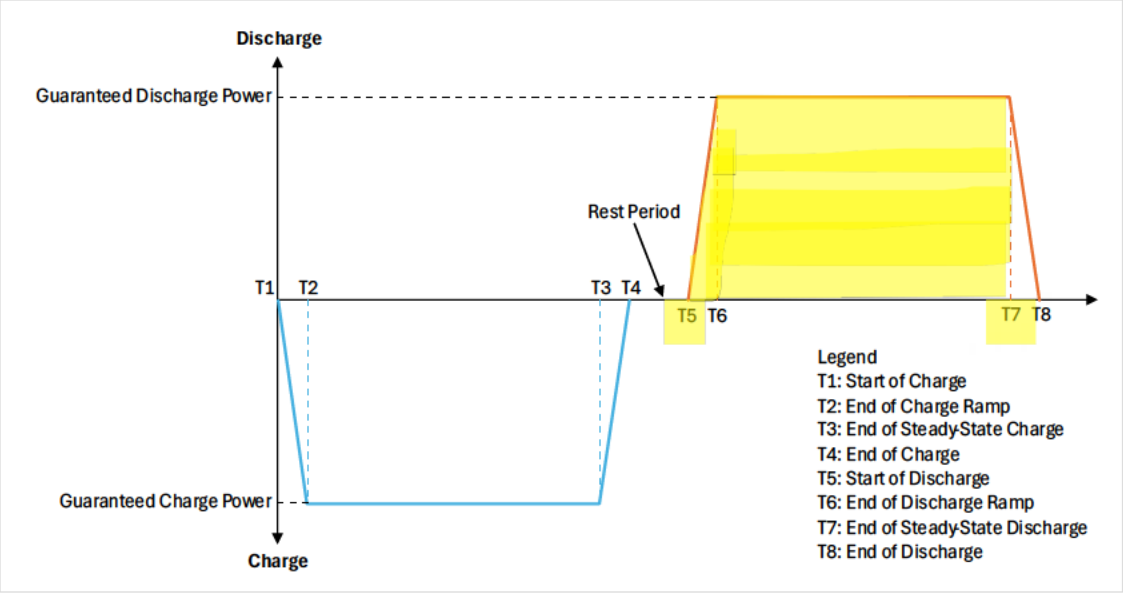
Discharging: Average Real Power between T6 and T7 ≥ Guaranteed Power Capacity (400MW)



2. **Guaranteed Energy Capacity = 1,600MWh**

Discharging: Total energy exported between T5 and T7 ≥ Guaranteed Energy Capacity (1,600MWh)

NOTE: This includes the energy during the ramp up in power because this can be programmed differently for different projects and is dependent on grid needs at the POI. However, the ramp down at the end is not included as this is caused by the need to protect batteries as they reach 0%.



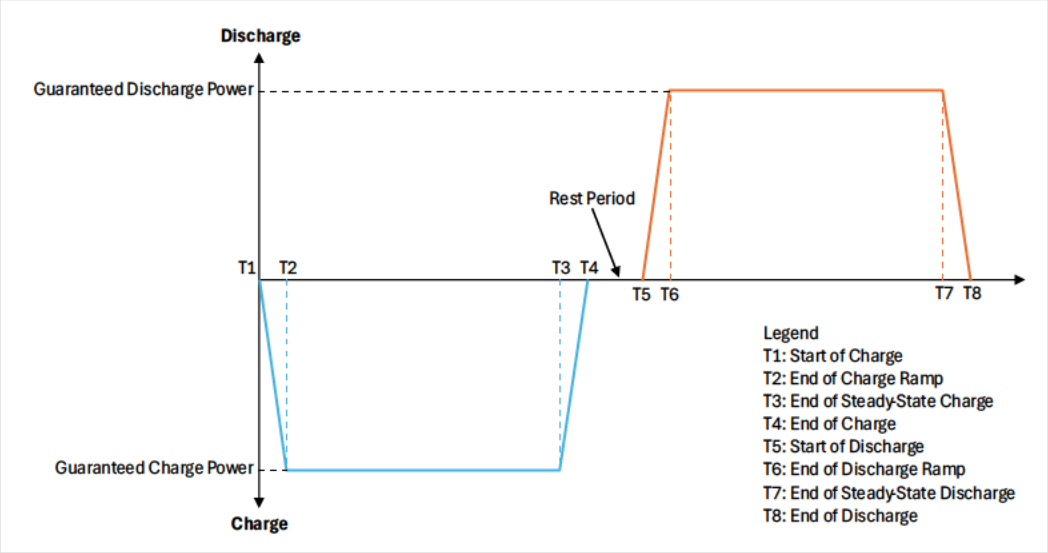
Example Attachment 1 - Capacity Test

Definitions

- Corrected Capacity: The most recent actual tested Power Capacity (in MW AC) and Energy Capacity (in MWh AC) corrected to Design Point Conditions (DPC).
- CT Error: The error of the current transformer during the Capacity Test according to its accuracy class or based on manufacturer's unit test data.
- Design Point Conditions (DPC): A set of ambient reference conditions, which include a relative humidity of {seventy percent (70%)}* and a maximum ambient temperature {forty-five degrees (45º)}* Celsius.
- Line and Transformational Losses: Real and reactive power losses for the balance of plant system up to the Point of Measurement.
- Maximum Hourly Average Ambient Temperature: The maximum of hourly average ambient temperature recorded during the Capacity Test.
- Meter Energy Exported: The System's export energy as measured at the Point of Measurement by the System Meter.
- Meter Energy Imported: The System's import energy as measured at the Point of Measurement by the System Meter.
- Meter Error: The error of the System Meter during the Capacity Test according to its accuracy class or based on manufacturer's unit test data.
- Meter Real Power: The System's instantaneous total 3 phase real power as measured by the System Meter at the Point of Measurement.
- Metering System Error: The error of all meters used during the Capacity Test is calculated as follows: $\text{Metering System Error} = \sqrt{(Meter\ Error^2 + CT\ Error^2 + PT\ Error^2)}$
- Point of Measurement (POM): The metering location at the Point of Interconnection (POI) as defined in the Generator Interconnection Agreement (GIA).
- PT Error: The error of the potential transformer during the Capacity Test according to its accuracy class or based on manufacturer's unit test data.
- State of Energy: The amount of energy remaining in the BESS system as reported by the Power Plant Controller.

The Capacity Test shall determine the Corrected Capacity at the Design Point Conditions, and shall be based on the relevant environmental conditions in the field at the time of such test, including relative humidity and temperature. The measured Capacity shall then be "corrected" to the Design Point Conditions and the resulting Corrected Capacity shall be compared to the Guaranteed Capacity as set forth herein.

The In-Service Capacity Test shall consist of discharging until the system's SOE reaches 0%, charging the system at the Guaranteed Power Capacity rate until the system's SOE reaches 100%, then discharging the system at the Guaranteed Power Capacity rate until the system's SOE reaches 0%.



Calculations

Guaranteed Power Capacity:

|Actual Charge Power Capacity| ≥ Guaranteed Power Capacity * (1 - Metering System Error)

Where:

- Actual Charge Power Capacity is the average of the Meter Real Power between times T2 and T3.
- Actual Discharge Power Capacity is the average of the Meter Real Power between times T6 and T7
- Guaranteed Power Capacity is 400MW

Guaranteed Energy Capacity:

Actual Energy Capacity ≥ Guaranteed Energy Capacity*(1-Metering System Error)

Where:

- Actual Energy Capacity = Meter Energy Export (T7) - Meter Energy Export (T5)
- Guaranteed Energy Capacity shall be corrected for the Maximum Hourly Ambient Average Ambient Temperature experienced during the Capacity Test by applying an

adjustment factor. {adjustment factors listed here}* Example: If greater than 40C then adjust the Guaranteed Energy Capacity to 97% of the nameplate value.

- Guaranteed Energy Capacity is 1,600MWh

*Note: Formula {constants} to be adjusted pursuant the final equipment selection and design.

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Schedule SW-S2

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Schedule SW-S3

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