

Declaration of Electric Storage Operation in Compliance with NEC Section 702 and as Outlined in Energy Storage Guidance 1, Configuration 1A; and 2, Configuration 2A

Purpose of Declarations

Historically, Distributed Energy Resources (DER) were assembled from discrete components or functional assemblies where the logic and operational approaches could be seen and analyzed. Today, much of the functionality is handled by an on-board computer following firmware and software instructions in order to achieve the desired results. To verify these actions requires extensive detailed review of the operating manuals and often inquiries with the manufacturer.

Declarations are used to provide the information to ensure the correct documentation and ratings are used for the first-use of a design review, if needed, and to confirm subsequent applications for using an approved package matches the approved package in order to expedite approval. An update to the firmware which modifies or adds operation modes and changes the required functionality is considered a facility modification and may be subject to a partial or full interconnection review. This applies to all sources, whether generators or energy storage.

Under Guidance Document 1, Configuration 1A, the energy storage equipment is not capable of operating in parallel¹ with the grid. The attestation allows interconnection of the energy storage device without an interconnection review if this mode is secure from change. Under Guidance Document 2, Configuration 2A, the energy storage equipment is not capable of operating in parallel with the grid. The attestation allows interconnection of the energy storage portion without an interconnection review if the non-paralleling mode is secured from change.² The renewable energy source portion of the facility, if added under the same application, must be reviewed and is subject to an Interconnection Agreement.

Definitions

“Parallel Operation of Energy Storage”— a source operated in parallel with the grid when it is connected to the distribution grid and can supply energy to the customer simultaneously with the Company’s supply of energy.³

“Energy Storage Guidance Documents”— Guidance documents for the interconnection of electric storage based on agreed to terms from CO PUC Proceeding No. 16AL-0048E, available on Xcel Energy – Colorado web site.

¹ See Definition section

² Example: If the storage portion is added later to an existing PV facility and complies with 2A, no review of the storage portion, with an attestation, or an Interconnection agreement is required.

³ A 1A or 2A energy storage system may charge from the utility as long as it cannot discharge or contribute fault current to the utility.

“Operating Mode”— a combination of the functionality in the physical Configuration and the functionality in the software programming some of which is not shown in the Configuration diagram. Operating Mode is the combined function designed to achieve an Operating Objective that may vary with a change of settings. Operating Modes are established as a function, not by a diagram designation. Operating Modes include, but are not limited to, battery non-export, maximize self-consumption, maximize export, perform time shifting, and perform peak shaving. A change of Operating Mode may constitute a change of Operating Objective.

“Operating Objective”— the functional purpose of the DER operation achieved by the combination of the approved Configuration and Operating Mode. Any alterations to an Operating Mode may result in unacceptable changes to the Operating Objective as originally approved. Such changes may render the facility ineligible for use without additional mitigations.

Declarations⁴

I, (print name and title of Installer/Developer) _____
declare that the electric storage system identified below complies with National Electric Code (NEC) section 702 for optional standby power and complies with the applicable provisions of Xcel Energy Storage Guidance Documents for systems that are not capable of Parallel Operation of Energy Storage. (Applicable sections of the Energy Storage Guidance Documents are those addressing Guidance 1, Configuration 1A or Guidance Document 2, Configuration 2A.)

I further declare and/or agree that:

1. Applicable state or local safety inspections have been obtained, including specific inspection as to compliance to National Electric Code (NEC) Article 702 for optional standby power.
2. System software and programming that is required to meet NEC section 702⁵ and Energy Storage Guidance provisions are inaccessible and/or password protected, with access restricted to manufacturer/developer/installer. This may include locks or other physical security or other means of securing the settings; or as mutually agreed upon on a case-by-case basis and identified in this attestation.⁶
3. Xcel Energy has the right to conduct an inspection to verify compliance at a later date if problems arise or indications of possible non-compliance to NEC section 702 or the applicable Energy Storage Guidance Document provisions are present.

Applications that cannot parallel and cannot be readily changed to parallel operation may interconnect without review or Interconnection Agreement as stated in Guidance.

⁴Declaration must be agreed to and this form signed for eligibility for the non-parallel storage portion waiver of Interconnection Agreement as described in the Guidance documents.

⁵If specific settings are required to achieve the 702 mode, these must be listed in Section 3 below.

⁶If the Operating Mode cannot be secured to ensure continued operation in a NEC 702 Standby compliant manner, the electric storage system is not eligible for use of the attestation in lieu of full interconnection review. A full interconnection review will examine all operating modes that are readily selectable and establish operating restrictions and mitigations to cover all selectable modes.

Electric Storage System (ESS) Details:

This attestation covers the following electric storage system in whole or part as identified below:

Customer

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____

Fax or Email Address (optional) _____

Customer Account number _____

ESS Equipment Details:

2. ESS Battery (B) Rating & ESS Inverter (I) Information	
I Manufacturer	
I Model Numbers	
I UL Listings	
B Energy Capacity (kWh)	
I Maximum current at AC terminals (A)	
B Real Power, max continuous charge (kW)	
B Real Power, Recovery Charge Rate After Utility Outage (kW)	
B Real Power, max continuous discharge (kW)	
I Real Power, peak output (kW)	
I Peak output duration capability (Sec)	
I Apparent Power, max continuous for charging (kVA)	
I Apparent Power, peak during discharge (kVA)	
I Peak output duration capability (Sec)	
I Power Factor Output Range (+/- range)	
I Power Factor capability at full-rated real power (+/- range)	
I Charging Using Rectifier or Inverter	
I Firmware Version:	
I Available Modes Available	
I Operating Modes Enabled	

3. Additional ESS Hardware: description, model and part number and general specifications.

(Examples: Charge controller, separate control panel, external auto transfer switch, export gateway controller, aux. house meter, etc.)

Model Numbers	
Model Names	
UL Listings	
Firmware Version	

4. Summary of Energy Storage Programming and Operation

Include mode selection and specific settings required

When ESS is transitioning the loads between off-grid and on-grid, the following steps will occur

Prior to grid outage, describe system operation	
Detail steps taken to disconnect from the Grid to meet NEC 702	
Detail steps taken to reconnect to the grid to meet NEC 702	
Operating Mode(s) Available	
Operating Mode(s) Enabled	

I, (print name and title of Installer/Developer) _____
certify that I have personal knowledge of the facts stated in this Declaration and have the authority to make this Declaration on behalf of the Customer. I further certify that all of the statements and representations made in this Attestation are true and correct.

Installer/Developer Signature _____

Residential Customers:

I, (print name of Customer) _____
authorize the above identified Installer/Developer to represent the declarations on my behalf and will operate and maintain the system within the requirements set forth in this declaration for the life of the system in this authorized configuration.

Customer Signature _____

Date _____