



Declaration of Electric Storage Operation Limited to and in Compliance with Non-Exporting Configurations 1B and 1C as Outlined in Energy Storage Guidance Document

Purpose of Declaration

Historically, Distributed Energy Resources (DERs) 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 correct documentation and ratings are used for the “first use of a design” review, if needed, and to confirm subsequent applications for an approved package match the previously 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* as stated in the Interconnection Agreement, Section VI.E. This applies to all sources, whether generators or energy storage.

Under Xcel Energy’s Guidance Document¹, Configurations 1B and 1C require an interconnection review.

¹ “Xcel Energy Guidelines for Interconnection of Electric Energy Storage with the Electric Power Distribution System”, current revision.



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.

“Energy Storage Guidance Document” – Guidance document for the interconnection of electric storage with Xcel Energy’s electric distribution system.

“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.



Configurations Covered

Energy Storage Guidance, Configurations 1B and 1C

- 1B Non-Exporting Parallel Energy Storage System without Generation
- 1C Non-Exporting Parallel Energy Storage System and Non-Exporting Non-Renewable Generation

Key Requirements and Functionality

1. Energy storage operates in parallel² with the grid.
2. Generation, if present is non-renewable.
3. Metering is standard (non-net-metered).
4. Energy storage and generation, if present, are not allowed to export energy to the grid³.

The method of achieving #4 must be fully illustrated in the oneline diagram or described below. Any aspect that is imbedded in equipment and governed by firmware must be described, any additional equipment must be specified, and **specific settings needed to achieve #4 must be listed**.

System software and programming that is required to meet the 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 declaration⁴.

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 with the applicable Energy Storage Guidance Document provisions are present.

² See Definition section.

³ Subject to the Inadvertent Export requirements as stated in the Guidance.

⁴ If the Operating Mode cannot be secured to ensure continued operation in a 1B or 1C compliant manner, as applicable, the facility will require full interconnection review that includes all operating modes that are readily selectable and establish operating restrictions and mitigations to cover all selectable modes.



1. Electric Storage System (ESS) Details

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

Customer Information:

Name _____

Address _____

City _____ State _____ ZIP _____

Phone _____ Fax _____

Email (Optional)* _____

*A customer/developer email is needed to facilitate application related correspondence through our automated online application portal.

Energy Storage Facility Information:

Facility Name _____

Address _____

City _____ State _____ ZIP _____

Location _____ Premise _____

Customer ID _____

Application OID _____



2. ESS Equipment Details

ESS Battery (B) Rating & ESS Inverter (I) Information

(I) Manufacturer	
(I) Model Number(s)	
(I) UL Listings	
(B) Energy Capacity (kWh)	
(I) Maximum Current at AC Terminals	
(I) Frequency at AC Terminals (Nominal)	
(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) Power Factor Output Range (+/- range)	+/-
(I) Power Factor Capability at full rated real power (+/- range)	+/-
(I) Charging: using rectifier or inverter	
(B) Charge Rate kW (Maximum continuous)	
(B) Charge Rate kW (Recovery charge rate)	
(I) Firmware version	
(I) Operating Modes available	
(I) Operating Modes enabled	



3. Additional ESS Hardware: Description, Model and Part Number and General Specifications

(Examples: charge controller, external auto transfer switch, etc.)

Model Number(s)	
Model Name(s)	
UL Listing(s)	
Firmware Version	



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
declaration are true and correct.

Installer/Developer Signature _____

Date _____