

BESS_Energy Storage System

DRAFT

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1 Description

4 x units of Large Battery Storage System (BESS), each with a nominal power output of 250 kW DC and a storage capacity of 500 kWh. Each unit is housed in 20'' standard 'shipping containers' and is supplied with a specific SW management tool for operations and control, and integration with the main Micro Grid control System.

The Large Battery Storage System can be used for the following:

1. Reduce peaks of generation.
2. 'UPS' style backup. Up to 250 kW for each unit standalone supply or additional back up to alternative power supply if required.
3. Supply the necessary energy for the load/s.

The System consists of the following elements:

1. Container & accessories:
 - a. *Containers: 20' Refrigerated Shipping Container and Proper elements for the storage, positioning and anchoring of the materials that compose the system.*
 - b. *Novec 1230 Dry Chemical Fire Control system*
 - c. *3200 Amp AC Interconnection panel*
 - d. *1 Grid Interface panel. / 3 Sub-metering panels*
 - e. *DEN.OS Control platform (HW)*
 - f. *Interconnection wiring and connectors*
2. LG Battery

The battery system provided is composed of 6 x LG Chem R800 Racks- 91 kWh DC.

Nominal Characteristics	R800
Voltage	588-823.2 V
Energy	91.2 kWh
Physical Characteristics	
Width	520 mm
Depth	670 mm
Height	1800 mm
Weight	~740 kg
Electrical Characteristics	
Maximum C Rate	1
Cell Series/Parallel Configuration	140S2P
Operating Conditions	
Battery Management System (BMS)	Rack BMS & Bank BMS
DC Protection	Fuse, relay, Pre-charge resistance, Current sensor
Cooling Strategy	Natural convection
Certification (UL)	
	UL 1973 [RU]
Product Availability	
Date	July 2016

Table 1. LG Battery Technical Characteristics.

3. Princeton Inverter

Princeton Power's GTIB (125 kW) Grid Forming Energy Storage is the system inverters.

Example: Hardware Configuration for the Storage System module 500 kW/1000 kWh is:

- Total System Power (kW): 500 kW (Four 125 GTIB kW Princeton Inverters)
- Total System Energy(kWh): 1000 kWh DC Beginning of Life (BoL)
- AC Main Feed Voltage (VAC): 400 VAC / 50 Hz
- System Data Connection: Ethernet/IP (CAT5)

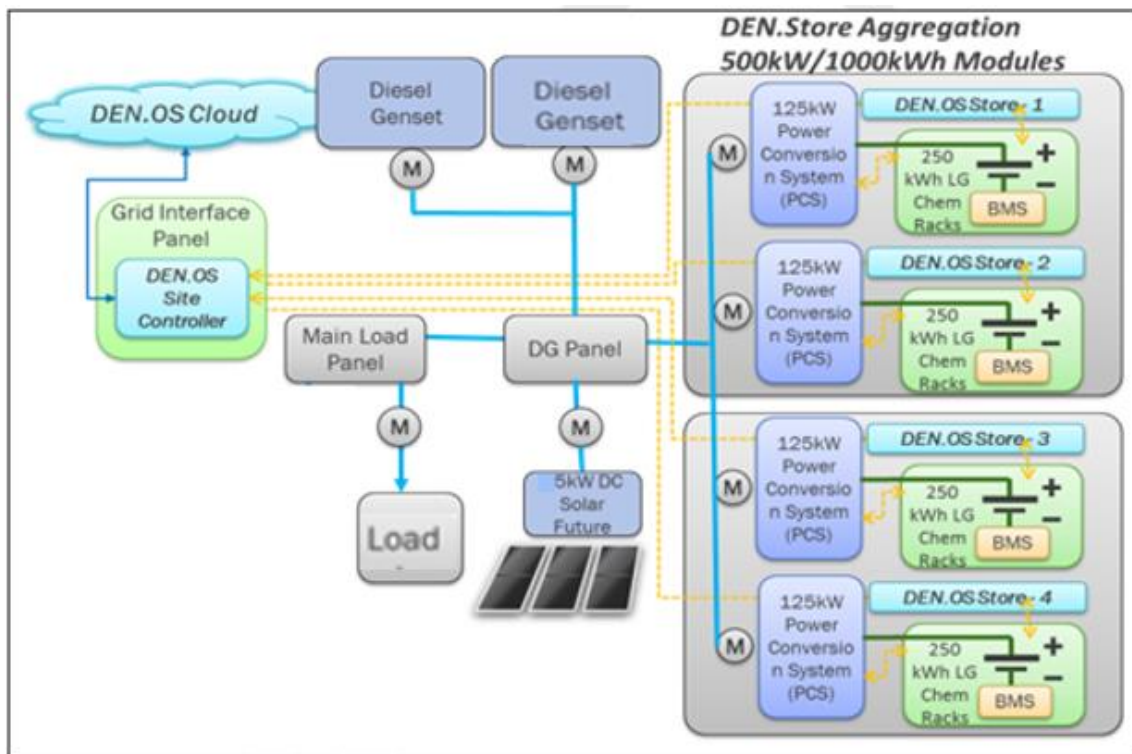


Figure 1. MicroGrid Configuration

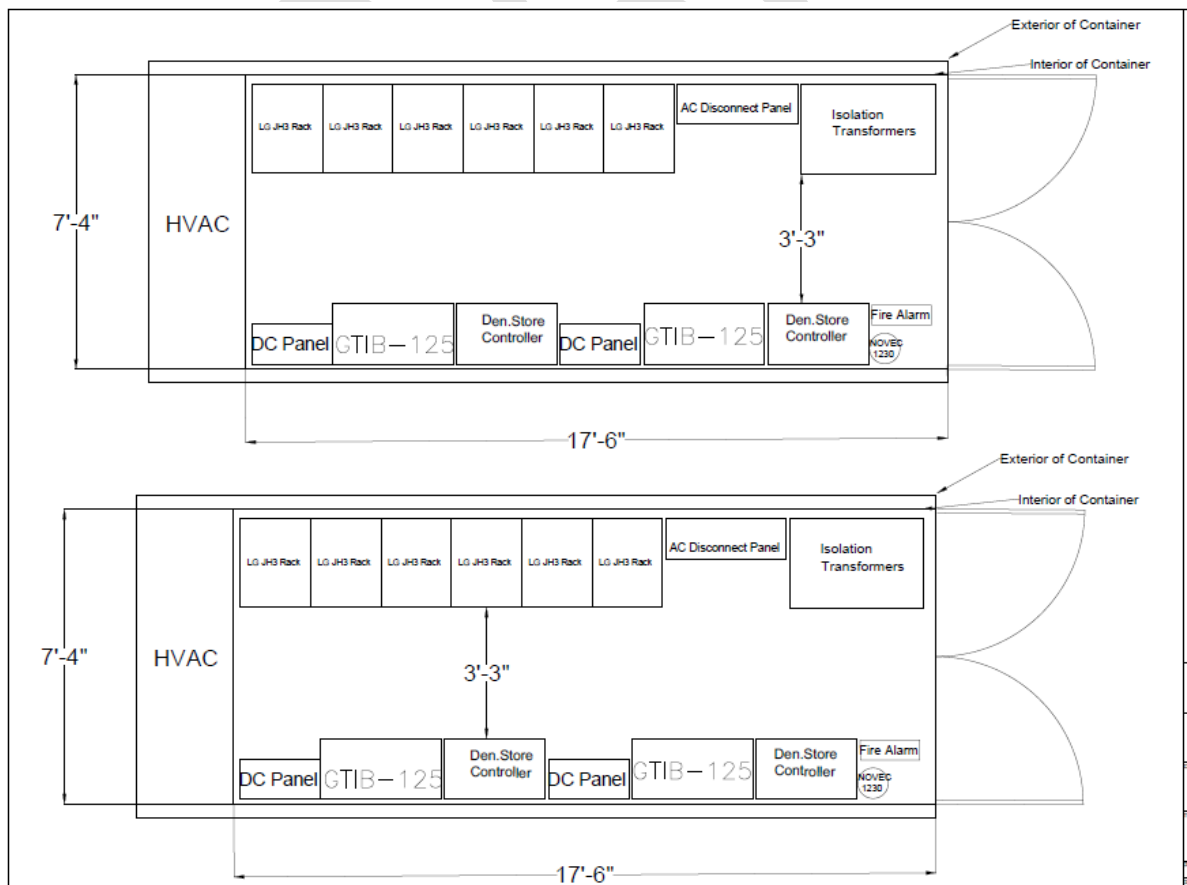


Figure 2. Elements distribution - system

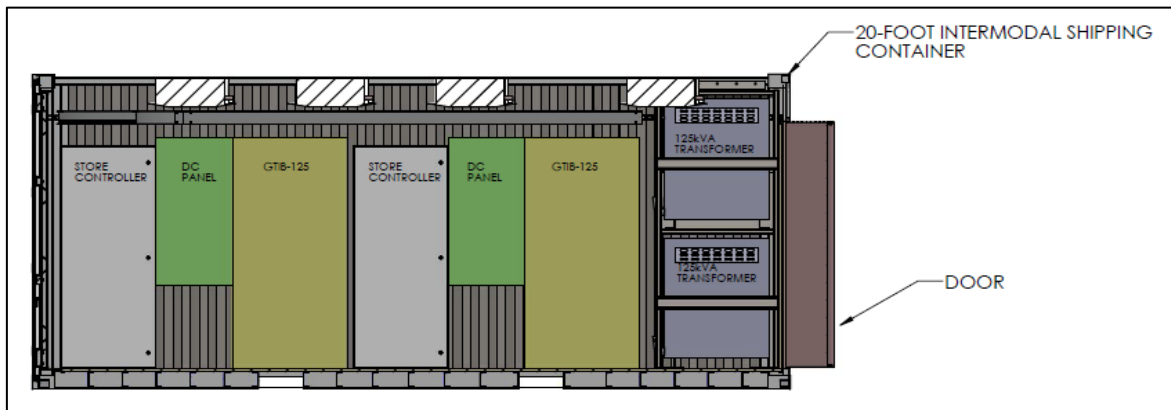


Figure 3. Elevation – system

4. SW System

The System is supplied with a flexible control SW that provides a highly scalable solution to intelligently manage and aggregate any kind of distributed power asset, whether generation, distribution, storage or any combination thereof. The SW platform - DEN.OS™, has developed through 15 years of Micro grid integration experience peruses the following design goals:

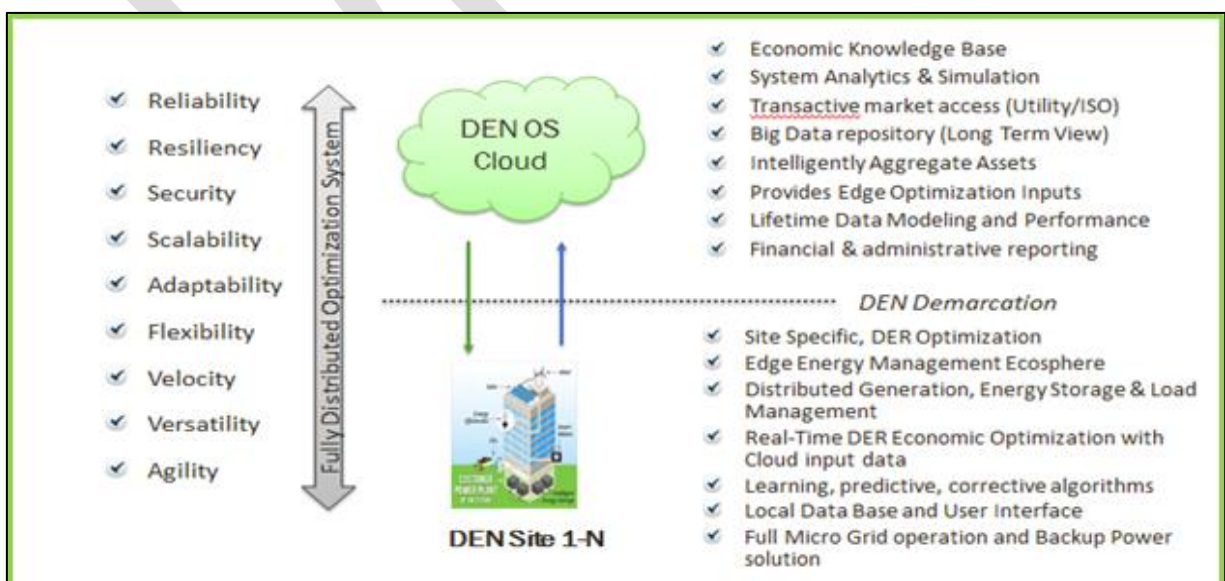


Figure 4. SW System functionalities.

DEN.OS will allow optimization of O&M KPI's at events throughout the world. The HW/SW architecture includes a grid forming inverter enabling automatic operation of the Micro-Grid, within the technical and operational parameters of the Storage System, if the generators should shut down and the systems goes into islanded mode. The *DEN.OS* Site Controller Architecture can provide optimized control for distributed generation assets, including optimum operations of the legacy diesel generators in conjunction with other Micro-Grid equipment. The architecture allows "future proofing" of the proposed system and facilitates easy expansion over time. The following diagram provides an overview of the *DEN.OS* architecture.



Figure 5. SW System structure.

The *DEN.OS* system provides the intelligence, analytics and network architecture needed to maximize the benefits of renewable Micro-Grid (energy storage, solar PV and generation system). The foundation of the *DEN.OS* is the *DEN.OS Site Controller*, which centralizes, tightly integrates, secures and controls all the battery management systems and power conversion equipment – as represented by the *DEN Store™*, and any Distributed Energy Resources (DER's) like solar PV. The *DEN.OS Site Controller*

provides the software and hardware needed to operate a safe, rapid response-time and communication-friendly Energy Storage System (ESS) capable of operating across a wide range of environments.

This platform is also inherently flexible, simple-to-use, and scalable across both power and energy levels anywhere in the world. It is designed to be easily controlled and operated both locally and remotely using its *DEN.OS Cloud* software-as-a-service (SaaS) encrypted platform. The benefits of the *DEN.OS Cloud* SaaS platform include providing with the ability to monitor in real-time (and historically) the site load, balance real-time Micro-Grid operations, while at the same time deriving economically optimal operations. Additionally, the DEN Network Operation's service provides the peace-of-mind that highly-trained and qualified power engineering staff is ensuring that the system up-time is maximized and operating safely.

2 Warranty and Guarantees

The **overall Guarantee** for the Storage System is delivered through the application of series a series of individual Suppliers' and Manufacturers Guarantees and Warranty's as described in Table 4.

Deliverable	Element	Start Warranty	Duration (years)	Covered (for detail see document)	NOT Covered (for detail see document)	Response time (days)	Garantor	Contact	Active Garantor	Contact
Large Battery Storage System (BESS) 500kW/1000kWh, 2 x 20' container + SW control	Container and Accessories	12/07/2017	5	•Replacement / substitution of elements, components or similar in case of breakage or malfunction during normal equipment use.	•Replacement / substitution of elements due to improper installation, use or handling • Labour	30	Enel SPA	C Regan / J. Duarte	DEN	Doug Staker
	LG Chem Lithium-ion Battery	12/07/2017	10	•Replacement / substitution of elements, components or similar in case of breakage or malfunction during normal equipment use.	•Replacement / substitution of elements due to improper installation, use or handling • Labour	30	Enel SPA	C Regan / J. Duarte	LG	Doug Staker
	Princeton Power Inverter	12/07/2017	10	•Replacement / substitution of elements, components or similar in case of breakage or malfunction during normal equipment use.	•Replacement / substitution of elements due to improper installation, use or handling • Labour	30	Enel SPA	C Regan / J. Duarte	Princeton	Doug Staker
	SW	12/07/2017	10	Updates	Damage through SW viruses	30	Enel SPA	C Regan / J. Duarte	DEN	Doug Staker

Table 2. Warranty and Guarantees

The Large Battery system is guaranteed against malfunctions and/or failures which may occur during the guarantee period, when the equipment is subject to what is considered as 'normal use conditions' such as those described in this document.

The Large battery System is covered by the following specific warranties.

2.1.1 Container and Accessories

This Limited Warranty is provided by Demand Energy Networks, Inc. ("DEN") to the end user ("Customer") that the Product, inclusive of parts and components, will be free from defects in workmanship and materials, under normal/designed use and service, for five (5) years from the date of purchase at the point of sale to the original customer. This Limited Warranty is non-transferable to subsequent owners of the Product(s).

DEN's sole obligation under this express warranty shall be, at DEN's option and expense to repair or replace the defective product free of charge, provided that the Customer notify DEN of the product defect within the Warranty Period, and provided that DEN through inspection establishes the existence of such a defect and that it is covered by this Limited Warranty. DEN will, at its option, use new and/or reconditioned parts in performing warranty repair and building replacement products. DEN reserves the right to use parts or products of original or improved design in the repair or replacement. If DEN repairs or replaces a product, its warranty continues for the remaining portion of the original Warranty Period or 90 days from the date of the return shipment to the customer (whichever is greater).

All replaced products and all parts removed from repaired products become the property of DEN. DEN covers both parts and labor necessary to repair the product, and return shipment to the customer via a DEN-selected non-expedited surface freight within the contiguous United States and Canada. Alaska and Hawaii are excluded.

Exclusions

This Limited Warranty does not cover normal wear and tear of the product or costs related to the removal, installation, or troubleshooting of the customer's electrical systems. This warranty does not apply to and DEN will not be responsible for any defect in or damage to:

- a) The product if it has been misused, neglected, improperly installed, physically damaged or altered, either internally or externally, or damaged from improper use or use in an unsuitable environment;
- b) The product if it has been subjected to fire, water, generalized corrosion, or input voltage that creates operating conditions beyond the maximum or minimum limits listed in the DEN product specifications including high input voltage from generators and lightning strikes;
- c) The product if repairs have been done to it other than by DEN or its authorized service centers

- d) The product if it is used as a component part of a product expressly warranted by another manufacturer;
- e) The product if its original identification (trade-mark, serial number) markings have been defaced, altered, or removed
- f) The Product from acts of third parties, acts of God, accident, fire, lighting, power surges or outages, or other hazards.
- g) This Limited Warranty does not cover any Battery procured for the DEN Store. (See LG Chem Battery Limited Warranty)

Returns

If Customer product requires troubleshooting or warranty service, contact Reseller. If Customer is unable to contact Reseller, or the Reseller is unable to provide service, contact DEN directly.

Products directly returned to DEN must be pre-approved with a Return Materials Authorization (RMA) and sent prepaid and packaged appropriately for safe shipment and it is recommended that they be insured or sent by a method that provides for tracking of the package. Responsibility for loss or damage does not transfer to DEN until the returned item is received by DEN. The repaired or replaced item will be shipped to Customer, at DEN's expense, not later than thirty (30) days after DEN receives the defective product, and DEN will retain risk of loss or damage until the item is delivered to Customer.

Proof of Purchase

In any warranty claim, dated proof of purchase must accompany the product and the product must not have been disassembled or modified without prior written authorization by DEN. Proof of purchase may be in any one of the following forms:

- The dated purchase receipt from the original purchase of the product at point of sale to the end user, OR
- The dated Reseller invoice or purchase receipt showing original equipment manufacturer (OEM) status, OR
- The dated invoice or purchase receipt showing the product exchanged under warranty, OR
- Customer's Product Registration Card

Intended Use

DEN's products are intended, designed, and manufactured SOLELY for operation with battery systems to facilitate bi-directional grid power flow control. Purchaser shall use

DEN's products only for the "intended purpose". Utilization for any other purpose, or in any other manner, shall be deemed "not in accordance with the intended purpose". DEN shall not be liable for any damage resulting from such improper use.

Support and Service Agreements

If Customer purchased a product from a DEN Authorized Reseller, contact the Authorized Reseller for information about support and service agreements applicable to product. For information on DEN service, go to the DEN web site www.Demand-Energy.com, products and services menu.

THIS LIMITED WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY PROVIDED BY DEN IN CONNECTION WITH YOUR DEN PRODUCT AND IS, WHERE PERMITTED BY LAW, IN LIEU OF ALL OTHER WARRANTIES, CONDITIONS, GUARANTEES, REPRESENTATIONS, OBLIGATIONS AND LIABILITIES, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE IN CONNECTION WITH THE PRODUCT, HOWEVER ARISING (WHETHER BY CONTRACT, TORT, NEGLIGENCE, PRINCIPLES OF MANUFACTURER'S LIABILITY, OPERATION OF LAW, CONDUCT, STATEMENT OR OTHERWISE), INCLUDING WITHOUT RESTRICTION ANY IMPLIED WARRANTY OR CONDITION OF QUALITY, RESELLERABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY IMPLIED WARRANTY OF RESELLERABILITY OR FITNESS FOR A PARTICULAR PURPOSE TO THE EXTENT REQUIRED UNDER APPLICABLE LAW TO APPLY TO THE PRODUCT SHALL BE LIMITED IN DURATION TO THE PERIOD STIPULATED UNDER THIS LIMITED WARRANTY. IN NO EVENT WILL DEN BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, COSTS OR EXPENSES HOWEVER ARISING WHETHER IN CONTRACT OR TORT INCLUDING WITHOUT RESTRICTION ANY ECONOMIC LOSSES OF ANY KIND, ANY LOSS OR DAMAGE TO PROPERTY, ANY PERSONAL INJURY, ANY DAMAGE OR INJURY ARISING FROM OR AS A RESULT OF MISUSE OR ABUSE.

Limitation of Liability

TO THE FULL EXTENT ALLOWED BY LAW, DEN EXCLUDES FOR ITSELF AND ITS SUPPLIERS ANY LIABILITY, WHETHER BASED IN CONTRACT OR TORT (INCLUDING NEGLIGENCE), FOR INCIDENTAL, CONSEQUENTIAL, INDIRECT, SPECIAL, OR PUNITIVE DAMAGES OF ANY KIND, OR FOR LOSS OF REVENUE OR PROFITS, LOSS OF BUSINESS, LOSS OF INFORMATION OR DATA, OR OTHER FINANCIAL LOSS ARISING OUT OF OR IN CONNECTION WITH THE SALE, INSTALLATION, MAINTENANCE, USE, PERFORMANCE, FAILURE, OR INTERRUPTION OF ITS PRODUCTS, EVEN IF DEN OR ITS AUTHORIZED RESELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND LIMITS ITS LIABILITY TO REPAIR, REPLACEMENT, OR REFUND OF THE PURCHASE PRICE PAID, AT DEN'S OPTION. THIS DISCLAIMER OF LIABILITY FOR DAMAGES WILL NOT BE AFFECTED IF ANY REMEDY PROVIDED HEREIN SHALL FAIL OF ITS ESSENTIAL PURPOSE.

Disclaimer

Some states do not allow the exclusion or limitation of implied warranties or the limitation of incidental or consequential damages for certain products supplied to consumers or the limitation of liability for personal injury, so the above limitations and exclusions may be limited in their application to the buyer. When the implied warranties are not allowed to be excluded in their entirety, they will be limited to the duration of the applicable written warranty. This warranty gives you specific legal rights which may vary depending on local law.

2.1.2 LG Battery

The limited warranty specified below (hereinafter “Limited Warranty”) applies to LG Chem Lithium-ion batteries and other parts such as Battery Pack and Cables (hereinafter “Product”) supplied by LG Chem Ltd. (hereinafter “LG”) to Customer (hereinafter “Customer”) and installed by a certified installer approved by LG under applicable federal, state and local laws.

Product Warranty detail

LG guarantees that its Product will be free of defects or hidden defects that might surge for the whole warranty period. The warranty period will last ten (10) years, commencing from 3 months the product arrives to the Customer’s designated location, or starting from the day of the successful completion of the commissioning, whichever comes earlier.

LG warrants that all goods and services provided pursuant to this Agreement will be:

- a) new and of merchantable quality, not used, rebuilt or made of refurbished material unless approved in writing by the Customer.
- b) free from all defects in design, workmanship and material.
- c) fit for the particular purpose for which they are intended.
- d) provided in accordance with all specifications, samples, drawings, designs, descriptions or other requirements approved or adopted by the Customer.

If a product is determined to be defective in material or workmanship during the agreed warranty period LG will, at its sole discretion, provide an equivalent product for replacement. The cost of shipment to a warehouse or customer’s site is included in the warranty. All other costs such as, but not limited to, labor, travel and accommodation costs of a contractor’s personnel for replacement of the product is not included in the warranty.

Warranty Conditions

The use of Product must be monitored by Customer’s Energy Management System at all times. The customer must send a written notification to LG within 24 hours in case of warning or fault sign appears in the monitoring system during the operation of the Product(s).

Exclusion of Warranty

Damage resulting from the following activities are NOT covered by the warranty:

- Improper installation, wiring or handling

- Modification, alteration, repair or replace by an uncertified personnel
- Damage or failure caused by non-compliance with national, state or local electric or electric safety code such as National Electric code (NEC), Occupational Safety and Health Administration (OSHA).
- Noncompliance with LG's installation or maintenance manual
- Incorrect use or inappropriate operation
- Insufficient ventilation of the product
- Exposing the batteries to ambient temperature above 28 °C or below 18 °C
- Use of Product more than agreed Depth of Discharge (DoD) rate

Limitation of Warranty Scope

UNDER NO CIRCUMSTANCES SHALL LG BE LIABLE FOR ANY INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES INCLUDING, WITHOUT LIMITATION, LOST GOODWILL, LOST REVENUES OR PROFITS, WORK STOPPAGE, IMPAIRMENT OF OTHER GOODS, COSTS OF REMOVAL AND REINSTALLATION OF THE PRODUCTS, LOSS OF USE, INJURY TO PERSONS OR PROPERTY ARISING OUT OR RELATED TO THE PRODUCTS. LG'S TOTAL LIABILITY, IF ANY, DAMAGES OR OTHERWISE, SHALL NOT EXCEED THE INVOICE VALUE PAID BY THE CUSTOMER FOR THE PRODUCTS OR SERVICE(S) FURNISHED, WHICH IS THE SUBJECT OF A CLAIM OR DISPUTE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THIS LIMITED WARRANTY GIVES THE CUSTOMER SPECIFIC LEGAL RIGHTS; CUSTOMERS MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.

Force Majeure

LG shall not be responsible or liable to Customer or any third party for any non-performance or delay in performance of any terms and conditions of sale, including this Limited Warranty, due to natural disasters, war, strikes, riots, unavailability of suitable and sufficient labor, material, capacity, technical, yield failures or any other unforeseen event beyond LG's control, including, without limitations, any technological, physical event or condition which is not reasonably known or understood

2.1.3 Princeton Inverters

This Limited Warranty is provided by Princeton Power Systems Inc. ("PPS") and covers defects in workmanship and materials related to the PPS GTIB 125 and Energy Storage System (please refer to Exclusions). This warranty period lasts for ten years from the date of purchase at the point of sale to you, the original end user customer. Proof of purchase is required to make warranty claims. This Limited Warranty is transferable

to subsequent owners but only for the unexpired portion of the Warranty Period. Subsequent owners also require proof of purchase.

What will PPS do?

PPS will, at its option, repair or replace the defective product free of charge, provided that they are notified of the product defect within the Warranty Period, and provided that PPS through inspection establishes the existence of such a defect and that it is covered by this Limited Warranty. PPS will, at its option, use new and/or reconditioned parts in performing warranty repair and building replacement products. PPS reserves the right to use parts or products of original or improved design in the repair or replacement. If PPS repairs or replaces a product, its warranty continues for the remaining portion of the original Warranty Period or 90 days from the date of the return shipment to the customer, whichever is greater. All replaced products and all parts removed from repaired products become the property of PPS. PPS covers both parts and labor necessary to repair the product, and return shipment to the customer via a PPS-selected non-expedited surface freight within the contiguous United States and Canada. Alaska and Hawaii are excluded. Contact PPS Customer Service for details on freight policy for return shipments outside of the contiguous United States and Canada.

Provision of service

If the product requires troubleshooting or warranty service, the sales entity or merchant used must be contacted. If you are unable to contact your sales entity or merchant, or the merchant is unable to provide the service, contact PPS directly at:

(609) 955-5390. Direct returns may be performed according to the PPS Return Material Authorization Policy described in the product manual.

What proof of purchase is required?

In any warranty claim, dated proof of purchase must accompany the product and the product must not have been disassembled or modified without prior written authorization by PPS. Proof of purchase may be in any one of the following forms:

- The dated purchase receipt from the original purchase of the product at point of sale to the end user,

or

- The dated dealer invoice or purchase receipt showing original equipment manufacturer (OEM) status,

or

- The dated invoice or purchase receipt showing the product exchanged under warranty

Warranty exclusion

This Limited Warranty does not cover normal wear and tear of the product or costs related to the removal, installation, or troubleshooting of the customer's electrical systems. This warranty does not apply to and PPS will not be responsible for any defect in or damage to:

a) the product if it has been misused, neglected, improperly installed, physically damaged or altered, either internally or externally, or damaged from improper use or use in an unsuitable environment;

b) the product if it has been subjected to fire, water, generalized corrosion, biological infestations, or input voltage that creates operating conditions beyond the maximum or minimum limits listed in the

PPS product specifications including high input voltage from generators and lightning strikes;

c) The product if repairs have been done to it other than by PPS or its authorized service centers

(Hereafter "ASCs");

d) The product if it is used as a component part of a product expressly warranted by another manufacturer;

e) The product if its original identification (trade-mark, serial number) markings have been defaced, altered, or removed.

PPS' LIMITED WARRANTY DOES NOT COVER INTEGRATED DC SOURCES, SUCH AS BATTERIES, IN TURNKEY ENERGY STORAGE SYSTEMS. THE BATTERY WARRANTY AS PROVIDED BY THE BATTERY SUPPLIER WILL BE REMITTED TO THE CUSTOMER AS PART OF A SEPARATE WARRANTY EXCLUSIVE OF PPS' LIMITED 10 YEAR WARRANTY.

Disclaimer

Product

THIS LIMITED WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY PROVIDED BY PPS IN CONNECTION WITH YOUR PPS PRODUCT AND IS, WHERE PERMITTED BY LAW, IN LIEU OF ALL OTHER WARRANTIES, CONDITIONS, GUARANTEES, REPRESENTATIONS, OBLIGATIONS AND LIABILITIES, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE IN CONNECTION WITH THE PRODUCT, HOWEVER ARISING (WHETHER BY CONTRACT, TORT, NEGLIGENCE, PRINCIPLES OF MANUFACTURER'S LIABILITY, OPERATION OF LAW, CONDUCT, STATEMENT OR OTHERWISE), INCLUDING WITHOUT RESTRICTION ANY IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY IMPLIED

WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE TO THE EXTENT REQUIRED UNDER APPLICABLE LAW TO APPLY TO THE PRODUCT SHALL BE LIMITED IN DURATION TO THE PERIOD STIPULATED UNDER THIS LIMITED WARRANTY. IN NO EVENT WILL PPS BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, COSTS OR EXPENSES HOWEVER ARISING WHETHER IN CONTRACT OR TORT INCLUDING WITHOUT RESTRICTION ANY ECONOMIC LOSSES OF ANY KIND, ANY LOSS OR DAMAGE TO PROPERTY, ANY PERSONAL INJURY, ANY DAMAGE OR INJURY ARISING FROM OR AS A RESULT OF MISUSE OR ABUSE, OR THE INCORRECT INSTALLATION, INTEGRATION OR OPERATION OF THE PRODUCT.

Exclusions

If this product is a consumer product, federal law does not allow an exclusion of implied warranties. To the extent you are entitled to implied warranties under federal law, to the extent permitted by applicable law they are limited to the duration of this Limited Warranty. Some states and provinces do not allow limitations or exclusions on implied warranties or on the duration of an implied warranty or on the limitation or exclusion of incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to you. This Limited Warranty gives you specific legal rights. You may have other rights which may vary from state to state or province to province.

Warning: Limitations on Use

Please refer to your product manual for limitations on uses of the product.

SPECIFICALLY, PLEASE NOTE THAT THE PPS DRI-100 OR ENERGY STORAGE SYSTEMS SHOULD NOT BE USED IN CONNECTION WITH LIFE SUPPORT SYSTEMS OR OTHER MEDICAL EQUIPMENT OR DEVICES. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, PPS MAKES NO REPRESENTATIONS OR WARRANTIES REGARDING THE USE OF THE PPS DRI-100 IN CONNECTION WITH LIFE SUPPORT SYSTEMS OR OTHER MEDICAL EQUIPMENT OR DEVICES.

3 Site Specific Safety Plan

The Storage System is designed and built to meet and exceed applicable codes and standards to provide the utmost safety to personnel and surroundings.

Enel will provide training and support when required to any number of maintenance personnel and/or management, to guide them in all safety aspects related to the Operational aspects of the System.

The System doors are required to be locked at all times from unauthorized personnel. At the very minimum an electrical engineer or journey level electrician that has been trained by Enel directly, or through an Enel Group Company such as Demand Energy, will only have authorization to the system. Lock out / tag out procedures and the proper personal protective equipment (PPE) must be adhered to at all times.

The system has many interconnecting points and different levels of power supply that must be thoroughly understood and managed before interacting. Power down / disconnect, power up / reconnect procedures will be developed only when all the onsite requirements are understood. Signage and drawings will be provided, notifying personnel of the disconnects location, purpose and operating sequence. ENEL will facilitate in developing a site specific safety and service plan that will meet OSHA and NFPA 70E “Electrical Safety in the Workplace” requirements.

It is highly recommended that the owner has in place an internal work permit process that is approved by management before service and maintenance is performed on the system. The work permit process should be followed per NFPA 70E guidelines. These plans will insure that duly authorized and trained service personnel will be able to safely coordinate the proper sequence of operation, select the proper PPE gear and safely be able to work on, service and maintain the system.

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