

**DOCKETED**

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<b>Document Title:</b>	Appendix 4-7A_Battery Information
<b>Description:</b>	General information on the battery containers used to estimate operational noise of the Project.
<b>Filer:</b>	Erin Phillips
<b>Organization:</b>	Dudek
<b>Submitter Role:</b>	Applicant Consultant
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# **Appendix 4.7A**

## Battery Information



# MEGAPACK

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Megapack is an all-in-one utility-scale energy storage system that is scalable to the space, power, and energy requirements of any site from 1 MWh to over 1 GWh. Megapack is optimized for cost, performance, and ease of installation, and includes a standard system warranty of up to 15 years.

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## FULLY INTEGRATED SYSTEM

Megapack ships with battery modules, bi-directional inverter, thermal management system, and AC main breaker all pre-installed and pre-tested within a single enclosure. This turnkey system is designed to have the industry's fastest, lowest cost installation without sacrificing performance or reliability.

## OPTIMIZATION SOFTWARE

Proprietary optimization software, developed in parallel with the Megapack hardware, learns and predicts local energy patterns, offering autonomous charge and discharge and seamless SCADA integration. Fast-response controls can integrate co-located renewables and enable market participation.

## ENHANCED SYSTEM SAFETY

Parallel DC/DC converters, integrated heating and cooling at the cell level, and dedicated hazard venting are just a few of the safety and hazard mitigation features built into Megapack. Designed to meet international safety standards, Megapack helps ensure ease-of-permitting wherever it's installed.

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## INDUSTRY-LEADING RELIABILITY

A vertically integrated product from hardware design and sourcing to software development, Megapack offers significant reliability advantages over the competition. These design advantages are exemplified by a cooling system optimized specifically for Megapack that provides superior heating and cooling while factoring its HVAC energy consumption into its performance, and module-level DC/DC converters that can keep the system running uninterrupted in case of a partial failure.

## LOWEST ENGINEERING, PROCUREMENT, AND CONSTRUCTION (EPC) COSTS

Megapack is shipped onsite fully assembled and pre-tested, offering customers the world's fastest utility-scale energy storage installation. Once on site, Megapack only requires seismic anchoring and connection of AC conductors and a communication cable. The EPC benefit is clear: no other current utility-scale solution offers such a simplified process.

## GLOBAL SERVICE FOOTPRINT

As a vertically integrated manufacturer and supplier, Tesla provides a streamlined service offering on all components of Megapack. With Tesla, customers enjoy a single point of contact through all stages of product life. Our operational fleet of 2+ GWh provides valuable data that informs our maintenance models and our performance guarantees, and the entire Megapack system is covered by a standard warranty of up to 15 years, with the option of a 20-year Capacity Maintenance Agreement (CMA) in certain cases.

## MEGAPACK SPECIFICATIONS

Specifications are subject to change.

- Flexible offering designed for utility-scale projects
- Modular inverter Powerstages allow greater configuration flexibility
  - Supports Capacity Maintenance Agreements (CMA)

Proven inverter and battery technology drives design efficiency

- One Megapack includes up to 17 independent battery modules
- Configurable for 2 to 6+ hour continuous charge/discharge
- Best-in-class round-trip efficiency and thermal system performance

Turnkey solution enables rapid and cost-effective deployment

- Up to 40% expected reduction in EPC costs compared to Powerpack
- Pre-assembled and pre-tested at Tesla's Gigafactory
- No DC connections required onsite



## STANDARD SYSTEM SPECIFICATIONS

Megapack is a customizable energy system capable of being sized according to customer needs.

AC Power / Energy Available per Megapack <sup>1</sup>	2-hour: Up to 1264.5 kW / 2529 kWh (Scalable in increments of 84.3 kW / 168.6 kWh)
	4-hour: Up to 741.2 kW / 2964.8 kWh (Scalable in increments of 43.6 kW / 174.4 kWh)

Below are specifications for selected system sizes. A light Megapack is optimized for global payload limits. A standard Megapack has the maximum number of energy modules.

	AC Power / Energy Available per Megapack <sup>1</sup>	Round-Trip System Efficiency <sup>1</sup>
2-Hour Standard	1264.5 kW / 2529 kWh	87%
2-Hour Light	1011.6 kW / 2023.2 kWh	
4-Hour Standard	741.2 kW / 2964.8 kWh	90%
4-Hour Light	523.2 kW / 2092.8 kWh	

<sup>1</sup>Nominal energy and RTE at 25°C (77°F) including thermal management loads, Day 1

## ELECTRICAL

Inverter Size (at 480 V AC)	2-hour: Up to 1573 kVA 4-hour: Up to 929.5 kVA (Scalable in increments of 71.5 kVA)
AC Voltage	380–505 V AC 3-phase
Nominal Frequency	50 or 60 Hz

## MECHANICAL AND MOUNTING

Ingress Ratings	IP66/NEMA 3R (Main enclosure) IP20 (Thermal system)
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Enclosure Dimensions	W: 7168 mm (282 1/4 in) D: 1659 mm (65 1/4 in) H: 2522 mm (99 1/4 in)
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Maximum Shipping Weight	Standard: 25,400 kg (56,000 lb) Light: 18,600 kg (41,000 lb)
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Operating Ambient Temperature	-30°C to 50°C (-22°F to 122°F)
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## REGULATORY (Expected Listings)

Lithium-Ion Cells NRTL listed to UL 1642

System	NRTL listed to UL 1973, UL 9540, UL 9540A, UL 1741 SA, IEC 62619, IEC 62477-1 IEEE 1547 Compliant to grid codes and safety standards of all major markets
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## COMMUNICATIONS

Protocol	Modbus TCP / DNP3 / Rest API
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## PART NUMBER

Megapack (all variants)	1462965-XX-Y (Where X is a number between 0-9 and Y is a letter. Changes to these do not affect product ratings.)
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