

*The Commonwealth of Massachusetts*  
*Executive Office of Public Safety and Security*  
*Fire Prevention Regulations Appeals Board*  
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**Docket # 2021-02**  
**560 Faunce Corner Road**  
**Dartmouth, Massachusetts**

**FIRE PREVENTION REGULATIONS APPEALS BOARD**

**A) Statutory and Regulatory Framework**

This matter is an administrative appeal filed in accordance with Massachusetts General Laws Chapter 22D, section 5. The Appellant is seeking the Board of Fire Prevention Regulation's review of a decision of Dartmouth Fire District No. 3 to deny the Appellant's application for a permit to install and operate an energy storage system in accordance with 527 C.M.R. § 1.12.8.32 Energy Storage Systems (Chapter 52) at a property located at 560 Faunce Corner Road, Dartmouth Massachusetts. The Appellant is Borrego Solar Systems, Inc. (hereinafter referred to as the Appellant).

**B) Procedural History**

By notice dated January 26, 2021 and received by the Appellant on or about that date, Chief Richard K. Arruda of Dartmouth Fire District No. 3 provided a written determination regarding Appellant's proposal to install and operate an energy storage system to be co-installed at the site of a proposed ground-mounted solar system at 560 Faunce Corner Road, Dartmouth, Massachusetts. The letter notified the Appellant of the "denial of permit application #2563 to install and operate an energy storage system in accordance with 527 C.M.R. § 1.12.8.32 Energy Storage Systems (Chapter 52)."

On March 12, 2021, the Appellant filed a timely appeal of the determination of Dartmouth Fire District No. 3 with the Fire Prevention Regulations Appeals Board. Per Governor Charles D. Baker's Emergency Executive Order Suspending Certain Provisions of the Open Meeting Law, G.L. c. 30A, s. 20 signed and dated March 12, 2020 and in effect at the time, the Board held a video conference hearing on this matter on April 29, 2021.

Appearing on behalf of the Appellant was: Tad Heuer, Esq., Partner, Foley Hoag; Nick Warner, Principal, Energy Safety Response Group; and the following employees of Borrego Solar Systems, LLC: Kyle Cerniglia, Director of Engineering, Energy Storage; Lauren Raheja, Senior Project Manager; Eleni Kanatsouli, Product Operations Manager; Jean Shih, Project Manager; and Samantha Walter, Project Development. Appearing on behalf of the Dartmouth Fire District No. 3 was Chief Richard K. Arruda.

Present for the Board were: John Cox, Presiding Panel Member; Jeffrey Cox; Dr. Paul Scheiner; and Robert MacKendrick, Alternate. Glenn M. Rooney, Esq., was the Attorney for the Board.

**C) Issue(s) to be Decided**

(a) Whether the Board should reverse, affirm or modify the determination of Dartmouth Fire District No. 3's denial of Appellant's application for a permit to install and operate an energy storage system in accordance with 527 C.M.R. 1.00: 12.8.32 Energy Storage Systems (Chapter 52); and

(b) In the alternative, whether the Board should exercise its authority pursuant to G.L. c. 22D, § 5 to grant a variance authorizing certification of the energy storage system at issue by the duly accredited testing laboratories QPS and CSA Group.

**D) Evidence Received**

1. Application for Appeal by Appellant
2. Additional Statement of Request for Relief from Appellant, Borrego Solar Systems, Inc. with Exhibits in Support
- 2A. Decision (Order of Notice) of Dartmouth Fire District No. 3 (dated 1/26/2021)
- 2B. Correspondence between OSHA and Borrego Solar Systems (dated 2/22/2021)
- 2C. Affidavit of Nick Warner, Principal/Co-Founder, Energy Safety Response Group, LLC (dated 3/11/2021)
- 2D. Letter from Borrego Solar Systems for Fire Permit Application and Attachments (dated 10/14/2020)
- 2D-1. IHI Terrasun ESS Cabinet Code Compliance
- 2D-2. IHI 560 Faunce – Cabinet Design
- 2D-3. Fire Department Training Slides
- 2E. Borrego Solar Systems letter to Dartmouth Fire District No. 3 and Attachments (dated 1/5/2021)
- 2E-1. A2LA Scope of Accreditation for QPS Evaluation Services, Inc.
- 2E-2. IAS Scope of Accreditation for QPS Evaluation Services, Inc.
- 2E-3. IAS Scope of Accreditation for CSA America Testing and Certification, LLC
- 2E-4. IAS Presentation on U.S. Recognition
- 2E-5. OSHA Directive CPL 01-00-004
- 2F. Borrego Solar Systems Correspondence with Dartmouth Fire District No. 3 (Multiple Dates)
- 2G-1. IHI System Documentation – Terrasun ESS Cabinet System Manual (CATL)\_Rev 0
- 2G-2. IHI System Documentation – Terrasun ESS Cabinet Code Compliance\_9022001-R-001, R0
- 2G-3. IHI CATL Thermal Off-Gas Response
- 2G-4. IHI System Documentation – Novec 1230 Flow Cal 53Ft FIKE Calculation Report
- 2G-5. IHI System Documentation - Forane R410A MSDS
- 2G-6. IHI System Documentation – Novec 1230 SDS
- 2H. CATL Group Documentation (UL 1973 Certificate)
- 2H-1. Attestation Letter UL9540-A-Rack-280Ah-1P20S
- 2H-2. Attestation Letter UL9540A module 280Ah-air cooling

- 2H-3. CATL MSDS-M20280-E-A
- 2H-4. CATL MSDS-M20280-E-B
- 3. Notice of Hearing to Appellant (dated 3/25/2021)
- 4. Notice of Hearing to Dartmouth Fire District No. 3 (dated 3/25/2021)
- 5. Memorandum regarding Remote Hearing Procedures (dated 5/7/2020)
- 6. Copy of Guidance Document that accompanies Hearing Notices (dated 5/1/2020)

**E) Findings of Fact**

1. The Appellant sought this Board’s review of the decision of Chief Arruda of Dartmouth Fire District No. 3 pursuant to the provisions of M.G.L. c. 22D, s. 5. Chief Arruda’s letter, dated January 26, 2021 and received by Appellant on or about that date, provided a written determination regarding Appellant’s proposal to install and operate an energy storage system to be co-installed at the site of a proposed ground-mounted solar system at 560 Faunce Corner Road in Dartmouth.
2. That letter notified Appellant of the “denial of permit application #2563 to install and operate an energy storage system in accordance with 527 C.M.R. 1, the Massachusetts State Fire Code (“the Code” or “Fire Code”), Section 1.12.8.32 Energy Storage Systems (Chapter 52).” Pursuant to 527 C.M.R. 1.00: 12.2.2, “If an application for a permit is rejected by the AHJ, a written notification shall be sent to the applicant as to the reasons for such rejection.” The sole reason for rejection provided by the Fire District was “Failure to provide documentation from an OSHA [Occupational Safety and Health Administration] approved NRTL [Nationally Recognized Testing Laboratory] for UL 9540A and UL 9540.”
3. Counsel for the Appellant argued that Dartmouth Fire District No. 3 denied the permit on the sole basis that Appellant “fail[ed] to provide documentation from an OSHA approved NRTL for UL 9540A and UL 9540.” Further, Counsel stated that nothing in the Fire Code establishes that only an *OSHA-approved NRTL* may evaluate, test, and/or certify an energy storage system under either UL 9540 or UL 9540A; and to the contrary, Section 52.3.2.5 of the Fire Code provides simply that “[p]repackaged and pre-engineered stationary storage battery systems shall be listed in accordance with UL 9540, Outline of Investigation for Energy Storage Systems and Equipment.”
4. Counsel further stated that the issue on appeal is not whether the energy storage system here adheres to the Fire Code required standards by a recognized accredited entity, which Counsel represented that it does, but instead, the issue is whether a permit can be denied on the grounds that *only* listing by one *specific* recognized accredited entity — an OSHA-approved NRTL — is satisfactory.
5. Counsel argued that in regards to UL 9540A, OSHA specifically opined to the Appellant that UL 9540A is outside the scope of its NRTL program entirely and submitted evidence to the Board in support of that position. Mr. Cerniglia testified that it is “literally impossible for Borrego or anyone else to meet the standard the District has set in its denial letter.”
6. Counsel indicated that the energy storage system proposed to be installed at 560 Faunce Corner Road, a TerraSun Battery Energy Storage System (BESS) manufactured by IHI, Inc., is a pre-engineered battery and meets the requirements of UL 9540 and is tested to UL 9540A. The affidavit from the independent third party Energy Safety Response Group (ESRG)

confirms that this system possesses all required testing and approvals required under the Fire Code. The system will be field evaluated by QPS to UL 9540. UL 9540A testing was performed on the product by CSA Group, which is accredited to ISO 17025, Quality Management Requirements for Testing and Calibration Laboratories for that test method.

7. Counsel also indicated that, as explained in Appellant's January 5, 2021 correspondence with the Fire District, Appellant's chosen testing entity for UL 9540, QPS, *is* accredited to evaluate and list to the UL 9540 standard for field listing/evaluation through the American Association for Laboratory Accreditation (A2LA). The A2LA certification to QPS is valid under Certificate Number 3351.01 and was issued on November 24, 2020. Similarly, Appellant's chosen testing entity for UL 9540A, CSA Group, *is* approved to test and report on the UL 9540A Test Method through the International Code Council's (ICC) International Accreditation Service (IAS). The IAS certification to CSA for this testing certification is valid through Testing Laboratory TL-266 and has an effective date of October 23, 2020.
8. Counsel and witnesses for Borrego Solar Systems, argued that similar energy storage system batteries have been installed across the Commonwealth and that this is the first time that such a system has faced denial by the local fire department.
9. Counsel, on behalf of the Appellant, requested that the Board grant the appeal/variance and that the decision of Dartmouth Fire District No. 3 be reversed and the permit issued to Borrego.
10. In support Dartmouth Fire District No. 3, Chief Arruda testified that his denial of the permit was due to several issues, including that CSA, which had conducted a review of the system, was not a Nationally Recognized Testing Laboratory (NRTL), in addition to the overall size of the battery storage system (approximately 40 feet in size, similar to that of a shipping container), with 14 racks of battery modules (999kw lithium ion phosphate batteries) with 10 mm space between them.
11. Chief Arruda also testified that he was concerned about the installation of such a large system and had requested that Borrego provide a dry pipe sprinkler protection for fire mitigation. Borrego responded that no such system would be needed for such a system, based upon a codes/standards review, showing that fire did not start or propagate from thermal runaway.
12. Chief Arruda testified that he believed that his denial was a discretionary function of the authority having jurisdiction since the Code does not explicitly define "approved testing laboratory" in Chapter 52. Furthermore, he believed the NRTL that had conducted the review of the energy storage systems had not been properly recognized; that the installation did not comply with UL9540 or UL9540A; and there was a lack of fire protection documentation provided to his department.
13. Chief Arruda testified that the fire service, generally, is extremely worried that any type of thermal runaway or fire at one of these installations would be a long term event that would drastically prevent the fire service from being able to attend to their community given the continued monitoring of these installations that may be necessary following an incident.
14. Counsel for the Appellant contested Chief Arruda's reasons for the denial of the permit, as flawed as OSHA has provided in writing that it cannot approve NRTL's for purposes of UL9540 and UL9540A. Furthermore, Counsel believe that Chief Arruda had discretion in this

matter, to approve this energy storage installation pursuant to 527 C.M.R. 1.00: 52.3.2.3.5, which states “the AHJ shall be permitted to approve listed pre-engineered and prepackaged battery arrays if large scale fire and fault condition testing conducted or witnessed and reported by an approved testing laboratory is provided.”

**F) Ultimate Findings of Fact and Conclusions of Law**

1. The applicable sections of 527 CMR 1.00, to the subject property are as follows:

**1.12.8.32 Energy Storage Systems (Chapter 52).**

**52.3.2.5** - Prepackaged and pre-engineered stationary storage battery systems shall be listed in accordance with UL 9540, Outline of Investigation for Energy Storage Systems and Equipment.

**52.3.2.5.1** - Prepackaged and Pre-engineered Systems. Prepackaged and pre-engineered stationary storage battery systems shall be installed in accordance with their listing and the manufacturer's instructions.

**52.3.2.3.5** - The AHJ shall be permitted to approve listed pre- engineered and prepackaged battery arrays with larger capacities or smaller battery array spacing if large-scale fire and fault condition testing conducted or witnessed and reported by an approved testing laboratory is provided showing that a fire involving one array will not propagate to an adjacent array, and be contained within the room for a duration equal to the fire resistance rating of the room separation required by 52.3.2.1.3.

2. The Board finds that 527 CMR 1.00, 52.3.2.3.5, requires only that large scale fire and fault condition testing be conducted or witnessed and reported by an approved testing laboratory for listed pre-engineered and prepackaged battery arrays with larger capacities. The Board finds that Section 52.3.2.3.5 does not (and cannot) require that said approved testing laboratory must also be OSHA approved, since UL 9540A, an applicable listing to prepackaged and pre-engineered stationary storage battery systems, is not considered an appropriate test standard for OSHA’s NRTL Program and is therefore an administrative impossibility.

**G) Decision and Order**

Based upon the evidence received and testimony presented to the Board and for the reasons stated herein, the Board hereby **reverses** the Order of the decision of Dartmouth Fire District No. 3 to deny the permit for the installation of an energy storage system to be located at 560 Faunce Corner Road, Dartmouth, Massachusetts in accordance with 527 C.M.R. 1.00: 12.8.32 Energy Storage Systems (Chapter 52).

H) **Vote of the Board**

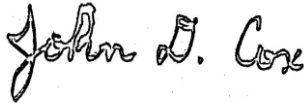
John Cox, Presiding Panel Member  
Jeffrey Cox  
Dr. Paul Scheiner

In Favor  
In Favor  
In Favor

I) **Right of Appeal**

You are hereby advised you have the right, pursuant to section 14 of chapter 30A of the General Laws, to appeal this decision, in whole or in part, within thirty (30) days from the date of receipt of this order.

SO ORDERED,



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John D. Cox, Presiding Panel Member  
Fire Prevention Regulations Appeals Board

Dated: May 11, 2021

**A COPY OF THIS DECISION AND ORDER WAS FORWARDED BY E-MAIL AND CERTIFIED MAIL, RETURN RECEIPT REQUESTED TO:**

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