FIRE HEADQUARTERS
ROUTE 139
LINCOLNDALE, NEW YORK

TEL (914) 248-7411
FAX (914) 248-6989

BOARD OF FIRE COMMISSIONERS
TOWN OF SOMERS
SOMERS FIRE DISTRICT

P.O. BOX 300
SOMERS, NEW YORK 10589

April 15, 2024

Via Mail and E-Mail to rtrombetta@ci.carmel.ny.us

Town of Carmel Planning Board Members
60 McAlpin Avenue
Mahopac, NY 10541

Re: Proposed Lithium Battery Storage Facility Located off Miller Road, Mahopac and adjoining the Town of Somers

Dear Chairman Paeper and Members of the Carmel Planning Board,

On behalf of the Somers Fire District Board of Fire Commissioners, I am writing to share our grave trepidations regarding the Lithium Battery Storage Facility proposal (hereinafter the "Project") which will come before your Board for deliberation. While the approval of the Project does not fall within the purview of the Town of Somers, our Fire District borders the Town of Carmel and, due to mutual aid agreements among our fire departments, we have numerous concerns regarding adequate training of firefighters, **who are unequipped and unprepared** with respect to fighting battery storage facility fires, the cost of adequate equipment and gear, and the amount of manpower that would be required in case of a battery storage emergency like those seen in Warwick, East Hampton and Lyme, New York, along with numerous other lithium battery fires around the country. As you might recall, residents within a one-mile radius of the Lyme fire were directed to shelter in place for several hours due to the amount of smoke in the air, and the Warwick fire caused heavy smoke and burning plastics, prompting the evacuation of the district office and all local schools.

Critically, days after the fires were out, officials said the area was too hot for anyone to enter to investigate the cause, and firefighters and public safety personnel were forced to remain on scene to observe the facilities in case of an outbreak of new fires. Therein lies just one of the critical issues of concern. As you know, both Carmel and Somers, along with numerous nearby fire departments are all volunteer agencies. Most of the volunteers have full time work, families and numerous additional obligations. Thus, there is, and should be, great concern regarding the availability of volunteers to stand by for days or weeks, ensuring that any new outbreak will be swiftly handled.

While East Point Energy has apparently stated that the Project will not be approved until the Fire Department has signed off on it, there needs to be clarification as to which Fire Department(s) they are referring. In our opinion, each and every Fire Department that is part of the mutual aid plan which would be expected to provide emergency assistance in case of a battery storage fire, **must be considered, heard and sign off on this Project before it is approved.**

Finally, we urge that the Planning Board take a different stance than that of the Town Board which vigorously and, quite frankly, **discourteously refused** to take comment from anyone with respect to the proposed Project, despite the Town of Carmel's absolute reliance on its own as well as neighboring fire departments to provide emergency assistance in case of a battery storage fire, and **allow and encourage** that **ALL** residents of **ALL** communities be permitted to speak and be heard during the Planning Board review process. After all, not only do many of these residents live within 200 feet of the proposed Project, but they are also the residents who the Town expects and relies upon to step up to help and/or be impacted by the proposed Project.

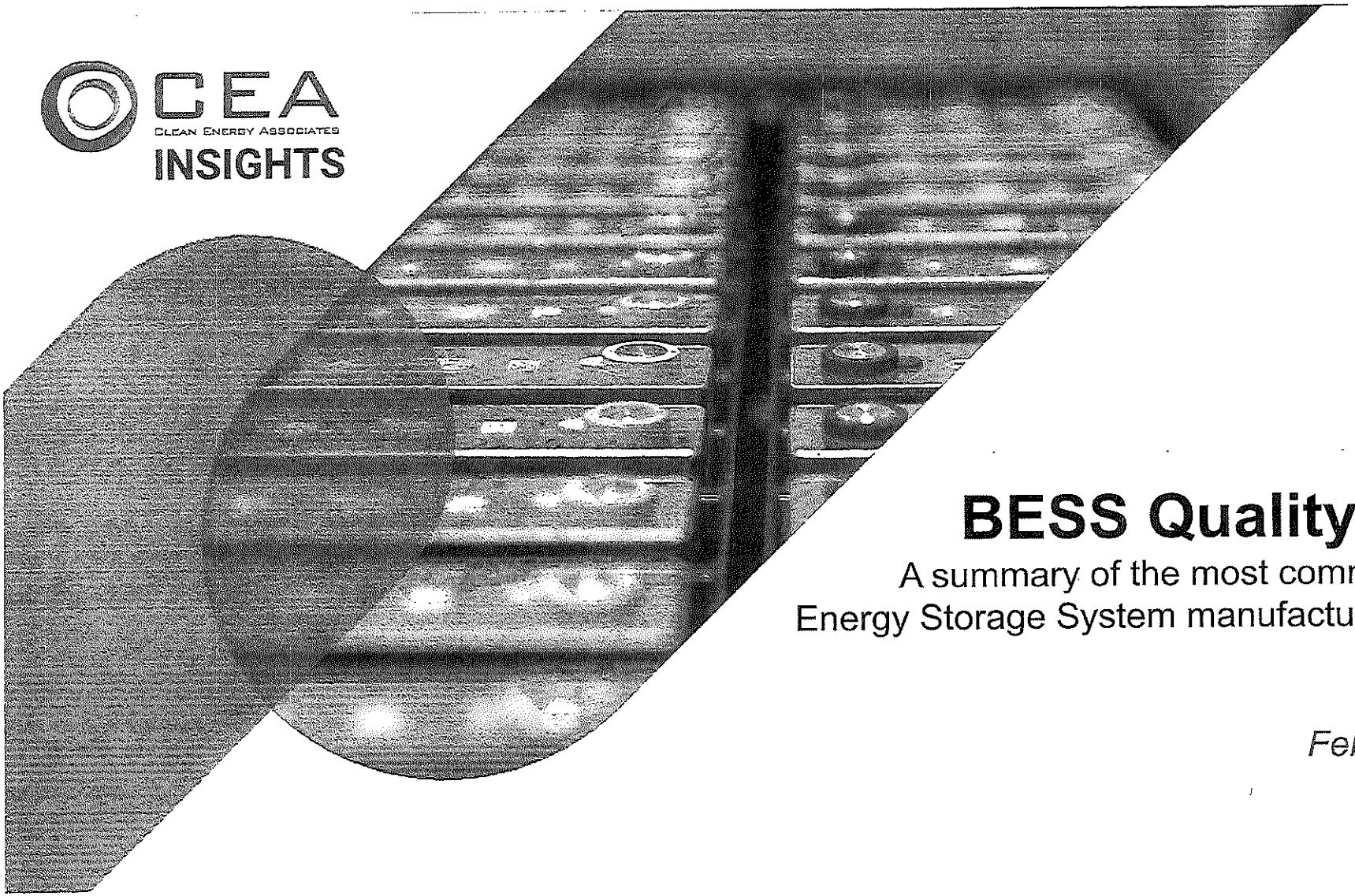
In sum, for the reasons stated above, the Somers Board of Fire Commissioners joins with the Somers Town Board in urging transparency, careful consideration and **Full public participation** during the review process. Until that time, the Somers Board of Fire Commissioners vehemently opposes the proposed Project.

Respectfully,

Ariye Zohar
Chairman, Somers FD BOFC

cc: Mike Lawler, NYS Congressman
Pete Harckham, NYS Senator
Matt Slater, NYS Assemblyman
George Latimer, Westchester County Executive
Kevin Byrne, Putnam County Executive
Vedat Gashi, Westchester County Legislator
Michael Cazzari, Carmel Town Supervisor
Robert Scorrano, Somers Town Supervisor
Somers Town Board
Somers Volunteer Fire Department
Mahopac Volunteer Fire Department
Mahopac Falls Volunteer Fire Department
Carmel Fire Department
Avangrid, Inc. & NYSEG, its subsidiary
The Somers Record (Halston Media News)

CEA
Clean Energy Associates
INSIGHTS



BESS Quality Risks

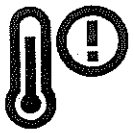
A summary of the most common Battery Energy Storage System manufacturing defects

February 2024

The Past Several Years Have Shown That Thermal Runaway Poses a Significant Risk to the Energy Storage Industry

Data collected from CEA's factory quality inspections of BESS systems has found that these risks still exist:

26% **of inspected energy storage systems had quality issues related to the fire detection and suppression system.**



18% **of inspected systems had quality issues related to the thermal management system.**

The following report highlights the safety issues above as well as a host of other quality concerns.

CEA Has Conducted Factory Quality Audits On Over 30 GWh of Lithium-Ion Energy Storage Projects

- 320+ inspections in 52+ Battery Energy Storage System (BESS) factories
- 64% of tier 1* BESS cell manufacturers audited worldwide
- 1300+ total manufacturing issues identified

Locations of CEA factory audits

Here are our key findings...

*Tier 1: definition is based on BMI (Benchmark Mineral Intelligence)

Our Audit Process: CEA Assigns a Severity to Each Finding Depending On the Risk Level of the Issue

A **finding** is an issue identified during inspection that indicates deviation from standard best practices, processes or product specifications.

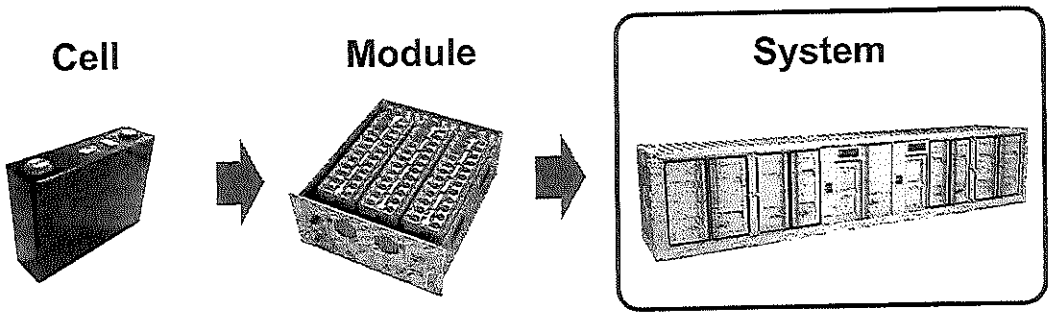
Finding Severity	Definition
Critical	Findings that may result in severe safety risks and hazardous conditions. Critical findings are likely to cause damage to other products or property, trigger non-compliance regulatory issues, and generally constitute a breach of mandatory regulations.
Major	Findings that may reduce the battery's functionality or impact safety in either short or long term.
Minor	Findings which do not pose a clear risk of production failure, but rather fall outside the quality requirements.

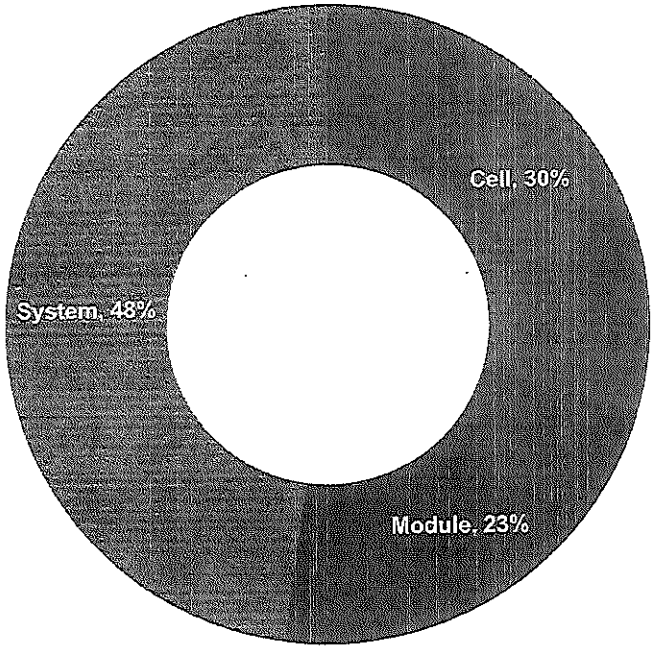
Distribution of Total Findings

With so much industry attention focused on cell selection, system integration should not be overlooked as a potential source of problems. **System-level defects accounted for nearly 50% of our QA findings.**

The large number of system-level issues is mainly caused by the following two contributors:

- The BESS integration process is highly manual and labor-intensive, with less stringent quality control procedures.
- Systems are very complex and are vulnerable to underlying problems originating from defects in upstream components that were not caught during earlier quality checks.

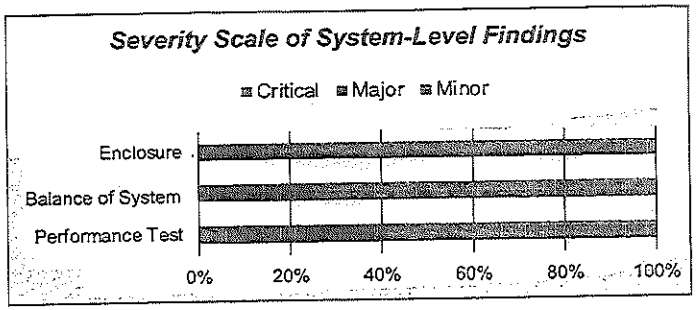


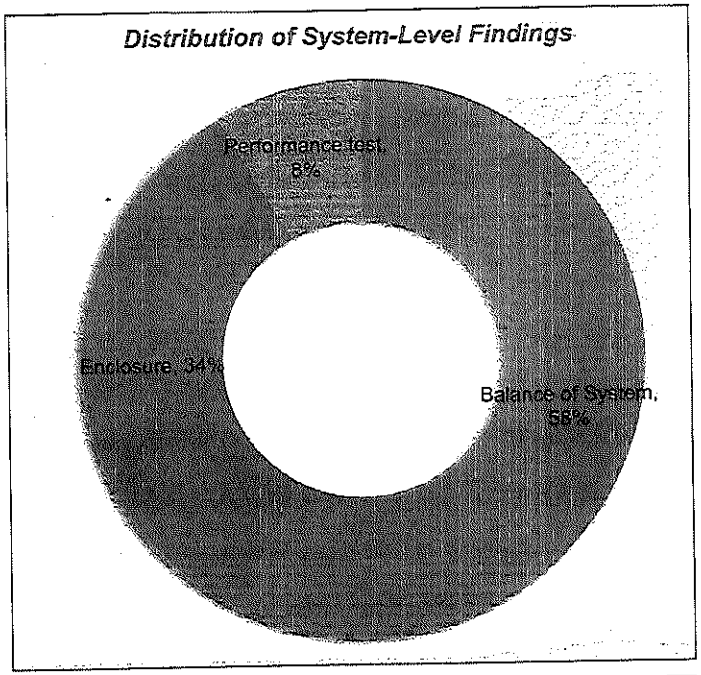


Distribution of all BESS Findings

Breakdown of System-level Findings

The majority of system-level findings occurred in the **Balance of System** and **enclosure. Performance test** findings usually indicate larger or more complex problems.





58% of system-level findings are Balance of System related

Why/How Does It Happen

Component defects and improper system integration procedures.

Example

- Liquid coolant leakage due to deformed flange plates, defective valves, loose pipe connections within the coolant circulation system
- Malfunctioning temperature, smoke, gas sensors, audible and visual alarms due to internal mis-wiring
- Live conductor exposed within the AC/DC distribution

34% of system-level findings are enclosure related

Why/How Does It Happen

Defects from enclosure manufacturing process and mishandling during transportation.

Example

- Poor strength and rigidity: lifting provision test, structural deformation, etc.
- Poor wiring and cabling arrangement
- Grounding mechanism defects
- Water ingress issue
- Appearance defects: painting specifications, markings, nameplate, openings, etc.

8% of system-level findings are performance test related

Why/How Does It Happen

A wide variety of manufacturing defects and/or improper system integration.

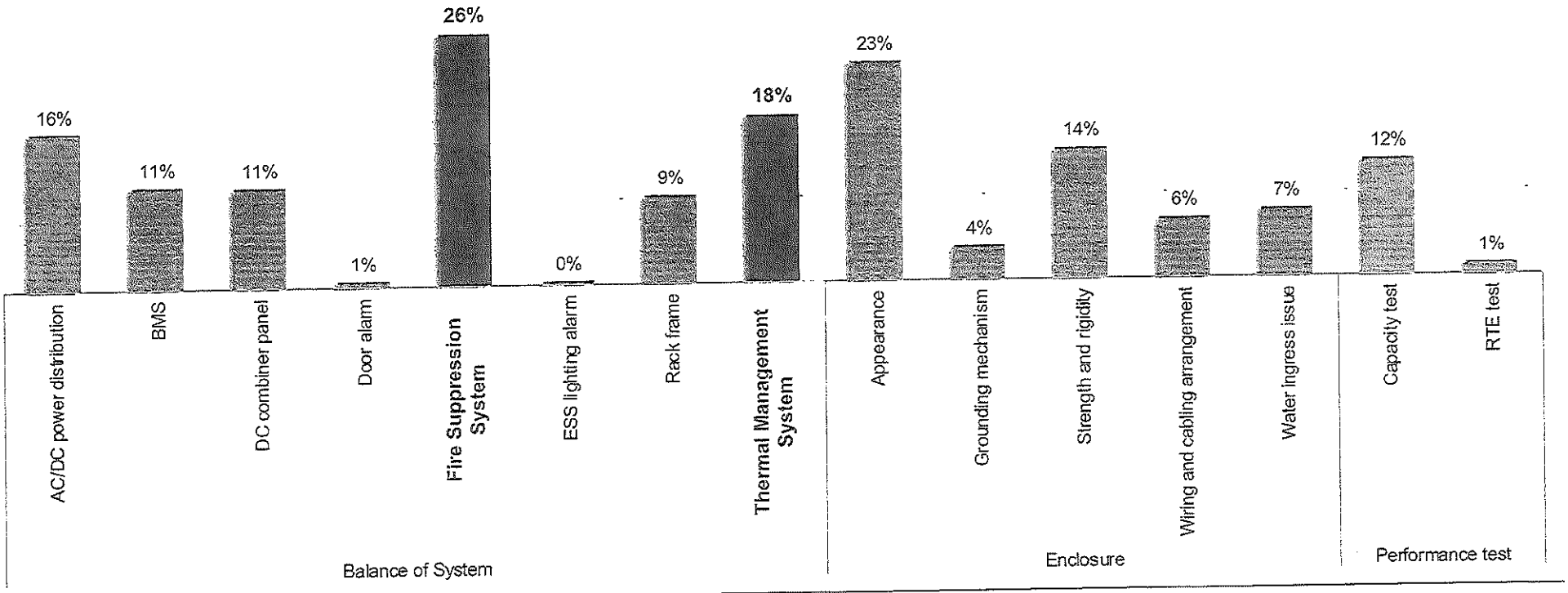
Example

- Underachieving capacity and Round Trip Efficiency results from abnormally large temperature and voltage variations among battery cells within a module, due to high impedance from poorly welded wiring connections
- Charging/discharging failure due to wiring issues in battery rack's high voltage boxes

26% of BESS units that CEA inspected had defects in the **Fire Suppression System**, while **18% of units** had **Thermal Management System** defects.

Fire suppression and thermal management systems are critical for functional safety, and defects in these systems can lead to ***increased risk of fire.***

Frequency of system-level BESS defects over total inspected units



Case Study – Common Fire Suppression System Findings

26% of inspected BESS units had fire suppression system defects

Non-responding release actuator for the fire extinguishing agent

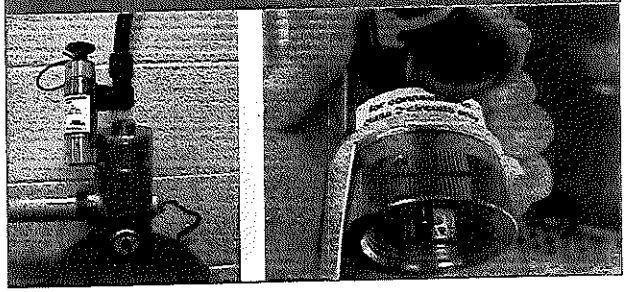
Why/How Does It Happen

A diode within the actuator was faulty.

Risk

A malfunctioning actuator will not respond to the command of releasing a fire extinguishing agent, potentially allowing the fire to further propagate.

Example



Fire alarm abort button was not functional

Why/How Does It Happen

The fire alarm abort button was not responding to the user commands due to incorrect wiring.

Risk

The abort button allows user to deactivate an improperly triggered fire alarm; failure to deactivate can lead to unwanted fire extinguishing agent or sprinkler system activation which can cause serious damage to equipment.

Example

Non-responding smoke & temperature sensors

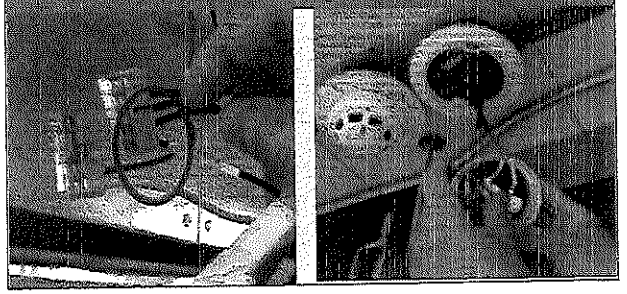
Why/How Does It Happen

The smoke sensor was incorrectly wired, and a temperature sensor was reversely connected to power source.

Risk

An incorrectly wired smoke sensor cannot detect the presence of smoke within the system. A reversely connected temperature sensor can have a false reading. Malfunctioning of these sensors can pose a high fire and explosion risk.

Example



Case Study – Common Thermal Management System Findings

18% of inspected BESS units had thermal management system defects

Circulation System Components Failure

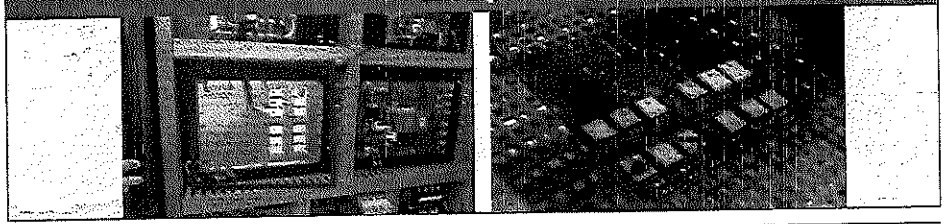
Why/How Does It Happen		
1. Flange plates are deformed from overtightening due to a loosely defined screw mounting Standard Operating Procedure (SOP).	2. Loose pipe connection: the fastener was not fastened from operator's mis-installation and not following SOP.	3. Defective incoming material: the valve comes with a loose stem.
Risk		
1. Internal short circuiting and thermal runaway initiation from continuous coolant leakage.	2. Severe short-circuiting events and thermal runaway initiation from potential massive coolant leakage.	3. Faster battery degradation from insufficient coolant flow control and internal short circuiting and thermal runaway initiation from continuous coolant leakage.

Example

Compressor mainboard short circuiting

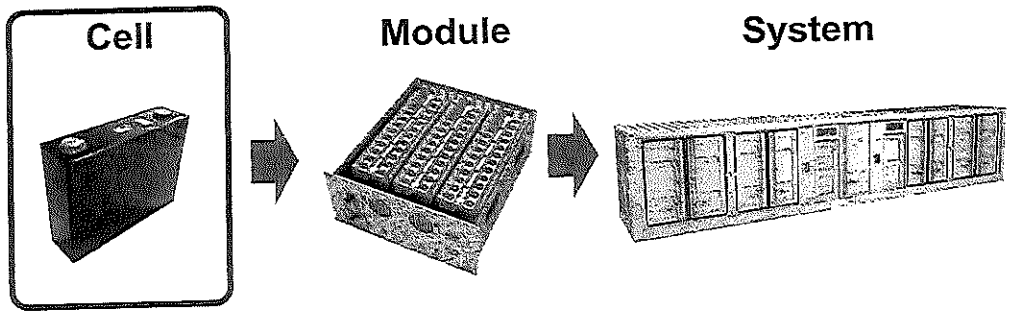
Why/How Does It Happen
Defective mainboard with a burned MOS (Metal Oxide Semiconductor) tube for compressor control.
Risk
1. Faster battery degradation from dysfunctional liquid cooling system. 2. Initiating thermal runaway or explosion with sparking from burned components.

Example

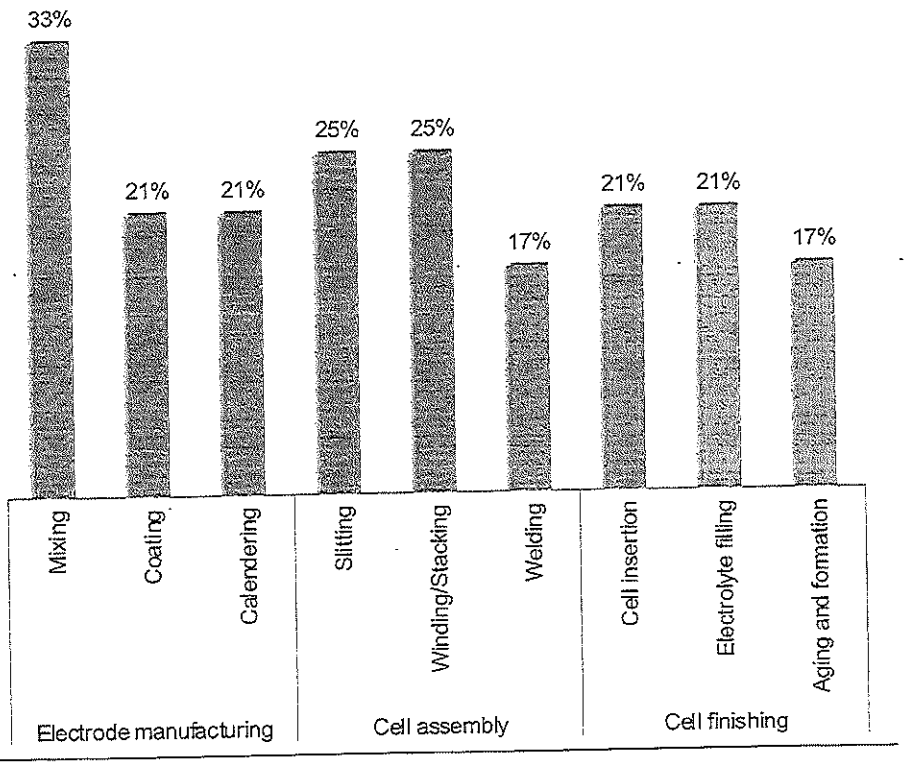


30% of the Total Findings Occurred During Battery Cell Manufacturing

- Although battery cell factories have the highest level of automation, they make up a larger number of findings (compared to battery modules) due to their lengthy production processes and higher precision requirements, leading to more room for error.
- Audit findings on cells typically have a higher severity rating as cells are the building blocks of the energy storage system, and defects can be detrimental to system performance and safety.

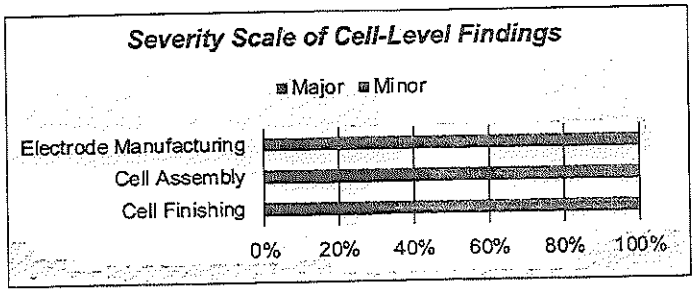


Frequency of issues found in total audited cell workshops



Breakdown of Battery Cell Findings

Findings are evenly distributed due to strict precision and safety requirements throughout the entire cell manufacturing process.



32% of cell findings occur during electrode manufacturing

Why/How Does It Happen

Improper measurement system analysis and process control

Example

- Mixing: out-of-calibration viscosity meter, lack of expiration control record over the mixed active material
- Coating: missing key coating quality measurements such as surface density, coating thickness, and moisture content.
- Calendaring: deformed electrode sheets due to roller misalignment

38% of cell findings occur during cell assembly

Why/How Does It Happen

Improper process and quality control execution

Example

- Slitting: lack of burr size control, lack of monitoring on the cutter status and remaining life
- Stacking/winding: lack of inline electrode alignment inspection
- Welding: uncalibrated welding strength test that are conducted manually without well-defined pass/fail criteria

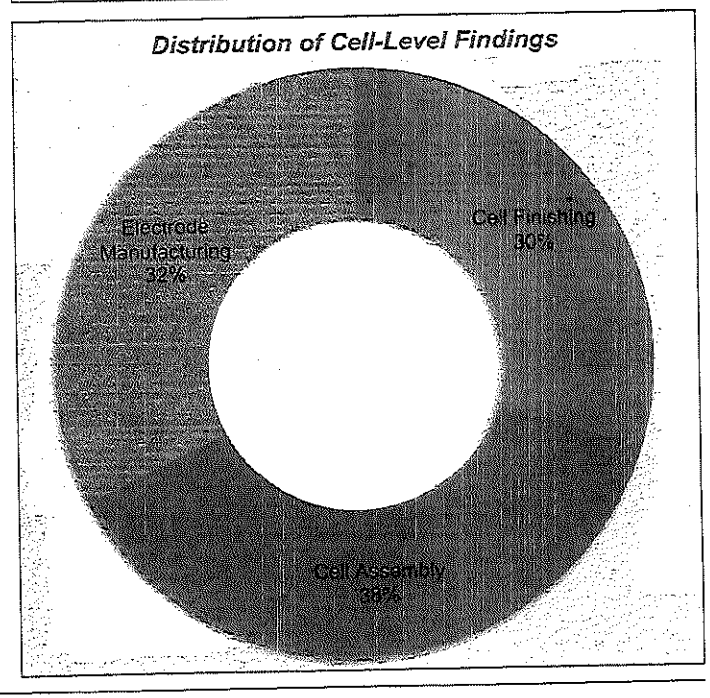
30% of cell findings occur during cell finishing

Why/How Does It Happen

Improper process and quality control execution

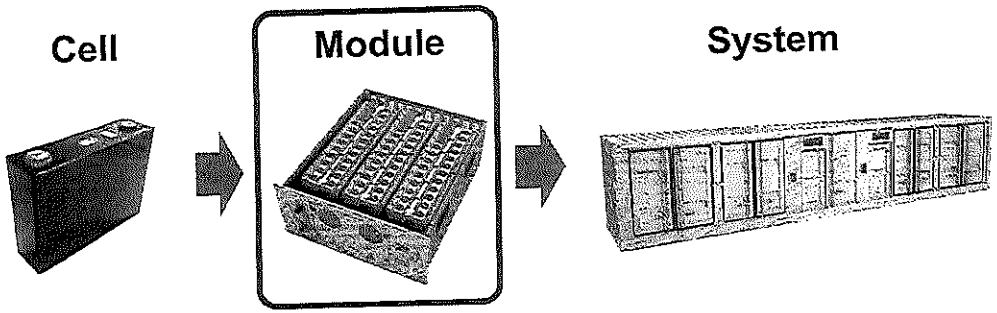
Example

- Cell (jelly-roll/stack) insertion: lack of laser welding parameter verification, lack of inline alignment and clearance inspection after the aluminum cap is welded on
- Electrolyte filling: Loose control of environmental conditions (temperature and humidity), lack of sealing quality inspection which can lead to electrolyte leakage

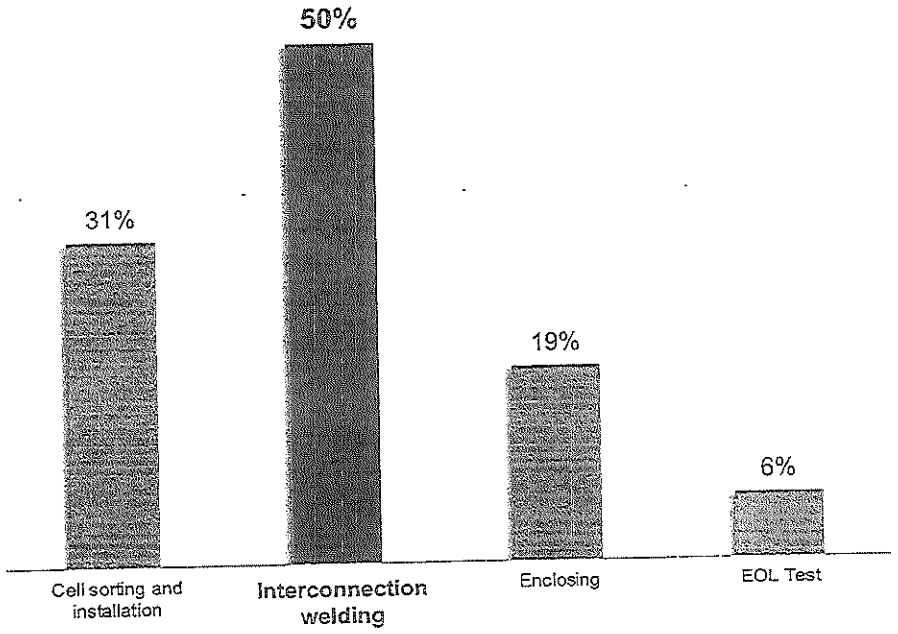


23% of the Findings Occurred During Module Manufacturing, Largely Due to More Manual Production Lines

Module manufacturing issues often occur because lines are less automated, which creates room for imprecision in material handling and inferior welding quality.



Frequency of issues found in total audited module workshops



Breakdown of Module-Level Findings

The automation level of module production varies among manufacturers. Welding quality issues and environmental control pitfalls can lead to end-of-line (EOL) test failures.

45% of module findings occur at cell sorting and installation

Why/How Does It Happen	Example
Manufacturing inconsistency due to manual operation and improper quality control protocols	• Lack of error-proofing measures to ensure cells are assembled with the right orientation • Inconsistent glue usage and position • Unqualified BOM (Bill of Materials) change on insulation layers within the module.

41% of module findings occur during interconnection welding

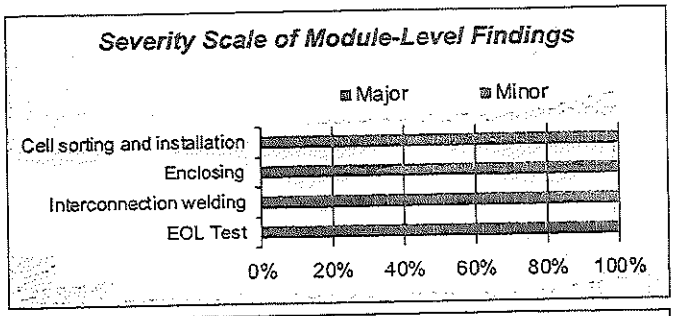
Why/How Does It Happen	Example
Lack of efficient quality control procedures and mis-operation risks due to a highly manual process	• Mislocated welding position • Non-calibrated welding strength test • Lack of procedure of cleaning up welding slags.

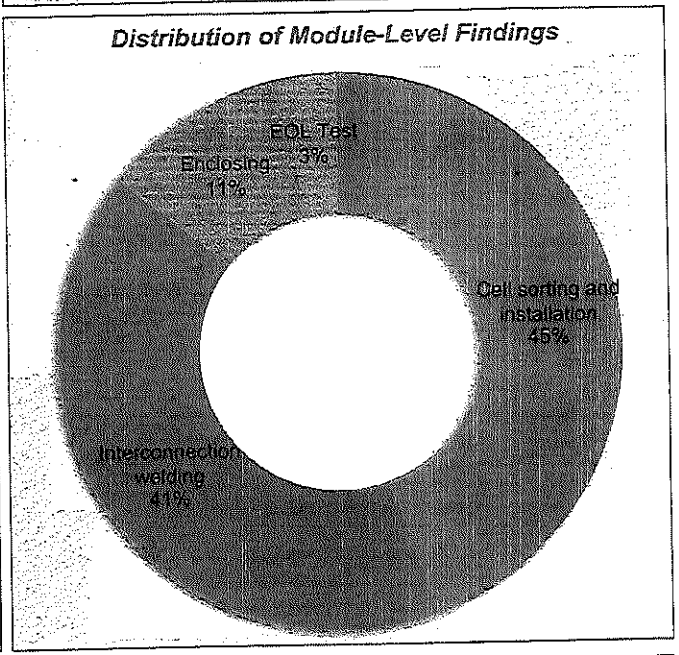
11% of module findings occur during enclosing

Why/How Does It Happen	Example
Lack of efficient quality control procedures and mis-operation risks due to a highly manual process	• Inconsistent cell group placement • Mechanical damages to fixtures and cooling plates.

3% of module findings occur during EOL testing

Why/How Does It Happen	Example
Cell manufacturing inconsistency and mis-wiring from highly manual processes	• Failed dielectric withstand voltage test due to poor internal wiring insulation and wiring arrangement • Abnormal cell voltage difference due to defective cells.





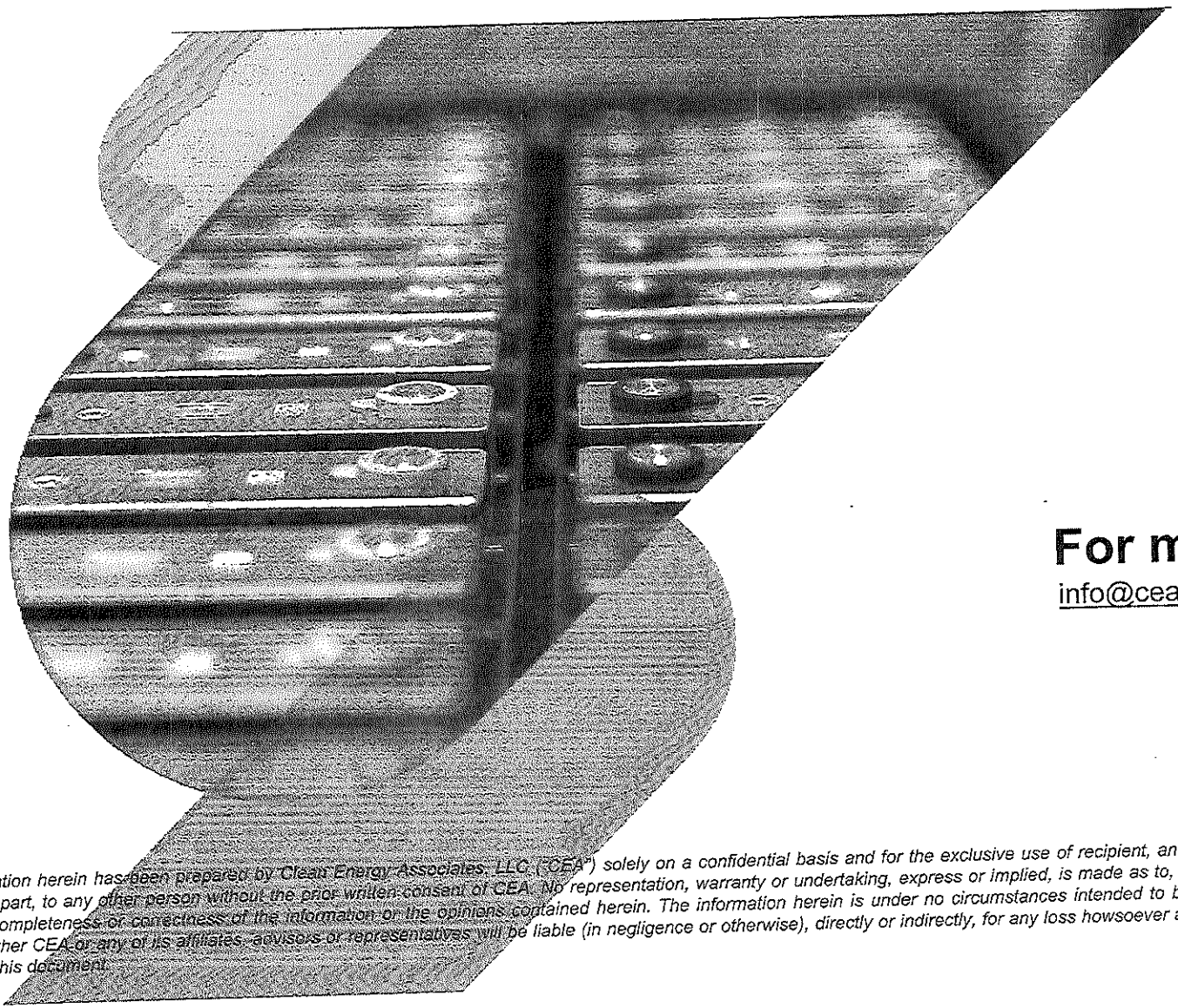
What Can You Do To Ensure the Long-term Financial Health of Your BESS Assets?

Golden FAT

- **Closing the Gaps**: We review your procurement contract, project requirements, and FAT checklist to ensure your energy system is safe and performs well, preventing any surprises.
- **Early Detection**: We identify risks in the supplier's checklists early to save costs and extend your system's operational life.
- **Expert Check-Up**: Our experts verify adherence to key safety and performance standards for a reliable energy system.
- **Negotiation Support**: We support you in negotiating and adjusting the FAT checklist deviations.

Factory QA

- **Factory Audit (FA)**: Engineers check factories with a 300+ point checklist, assess risks, and recommend fixes.
- **Inline Production Monitoring (IPM)**: Engineers monitor production in real-time, ensure quality, spot issues, and suggest corrections.
- **Pre-Shipment Inspection (PSI)**: Engineers inspect and test a random sample of finished products, record findings, and advise on improvements.
- **Factory Acceptance Test (FAT)**: Engineers inspect and test finished products for performance and suggest corrective actions.



CEA
CLEAN ENERGY ASSOCIATES
INSIGHTS

For more information

info@cea3.com / https://www.cea3.com

Battery Energy Storage Systems (BESS)

https://www.rechargenews.com/energy-transition/fire-safety-tech-manufacturing-defects-in-more-than-a-quarter-of-grid-battery-storage-systems-study/2-1-1607937

https://info.cea3.com/hubfs/CEA%20BESS%20Quality%20Risks%20Report.pdf

https://www.lilanduseandzoning.com/2023/08/13/fires-at-new-york-battery-energy-storage-system-facilities-ignite-state-response/

https://www.youtube.com/watch?v=xuTaZFQA18E

FARRELLFRITZ
ATTORNEYS

Long Island Land Use and Zoning

Fires at New York Battery Energy Storage System Facilities Ignite State Response

By Farrell Fritz P.C. on August 13, 2023

Max Kukurudziak, Unsplash

On July 28, 2023, in response to three separate fires at Battery Energy Storage System ("BESS") locations in New York, Governor Kathy Hochul announced the creation of an inter-agency fire safety working group. The Fire Safety Working Group, to be comprised of the Division of Homeland Security and Emergency Services Office of Fire Prevention and Control, New York State Energy Research and Development Authority (NYSERDA), New York State Department of Environmental Conservation, Department of Public Service, and the Department of State.

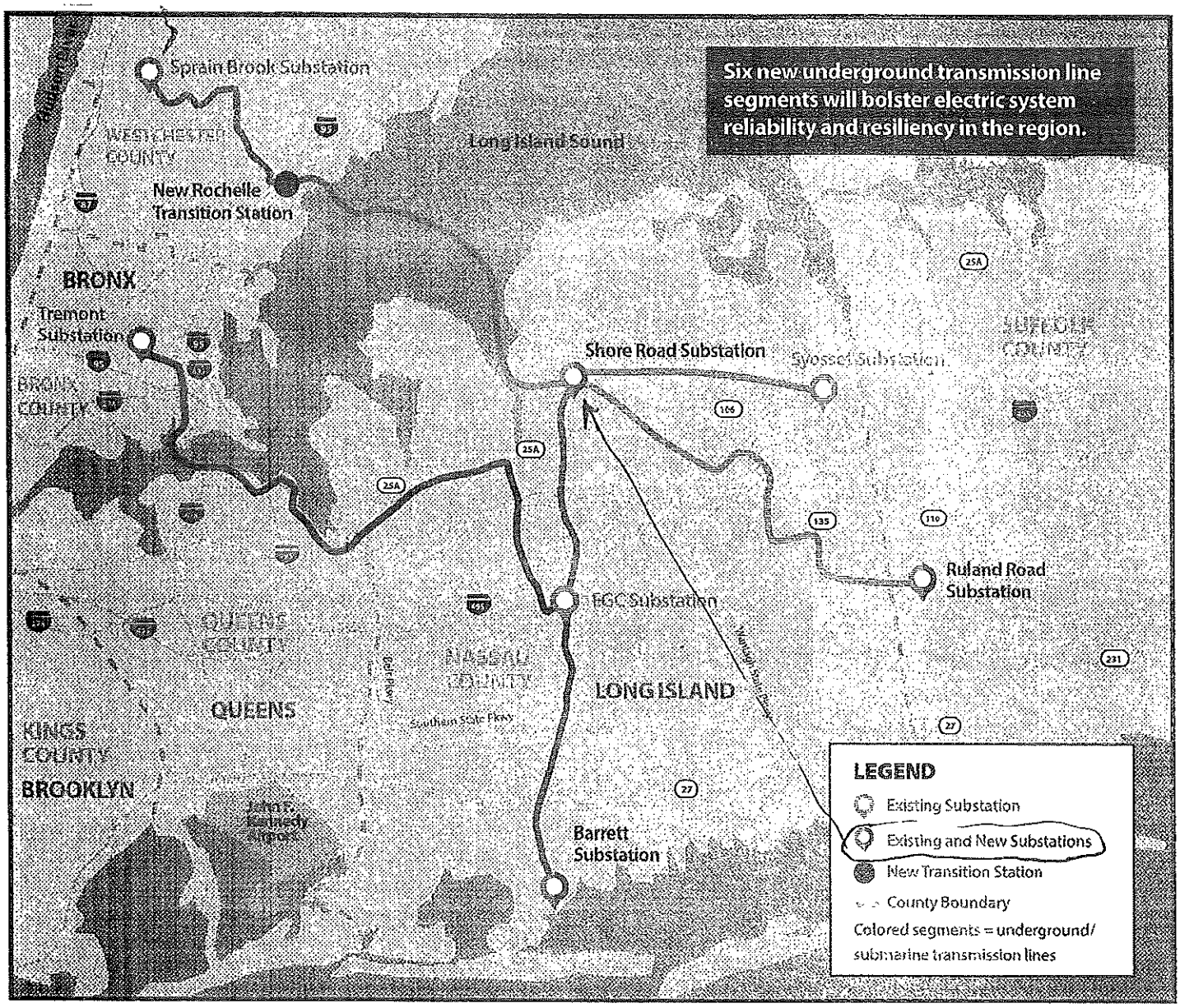
The Fire Safety Working Group will conduct a root cause and emergency response analysis to evaluate and identify the cause and effect of the battery storage fires. Beyond the cause of the fire, the focus will include evaluation of air monitoring results and other potential community impacts. In addition, on-site inspections of energy storage facilities will be organized to examine the condition of batteries and verify on-site fire suppression equipment and emergency-response plans at operational BESS facilities.

The recommendations developed by the Fire Safety Working Group will be shared with the New York City Fire Department, National Fire Protection Association, International Code Council, the New York State Fire Prevention and Building Code Council and Underwriters Laboratories.

The fires in question occurred between May 31st and July 27th in Suffolk, Orange and Jefferson counties and come at a time when battery storage siting and development is rapidly expanding on Long Island. Growth of these systems is attributable in part to energy storage being identified as a critical component in the 2019 Climate Leadership and Community Protection Act. The Act initially called for 3 GW of storage by 2030, a goal that ultimately increased to 6 GW of storage by 2030, enough to represent 20 percent of the peak electricity load of New York State. News of the fires triggered immediate scrutiny, including editorials calling for local boards to pause and revisit battery storage proposals and battery storage codes pending the results of the Fire Safety Working Group's investigation.

The model Battery Energy Storage System Law developed by NYSERDA, and adopted almost verbatim by several Towns, includes a number of fire-safety provisions, including development of fire safety compliance plans, emergency operations plans, compliance with fire-related building and electric codes, and specific access parameters for local fire departments. It will be interesting to follow the recommendations of the Fire Safety Working Group and how they impact local regulation of BESS facilities and the development of energy storage.

Propel NY Energy Line Map



Key Project Components (Preliminary Plan)

New Stations:

- Barrett
- Shore Road
- Ruland Road
- New Rochelle

New 138kV underground transmission line:

- Syosset to Shore Road – *Est. 11 miles*

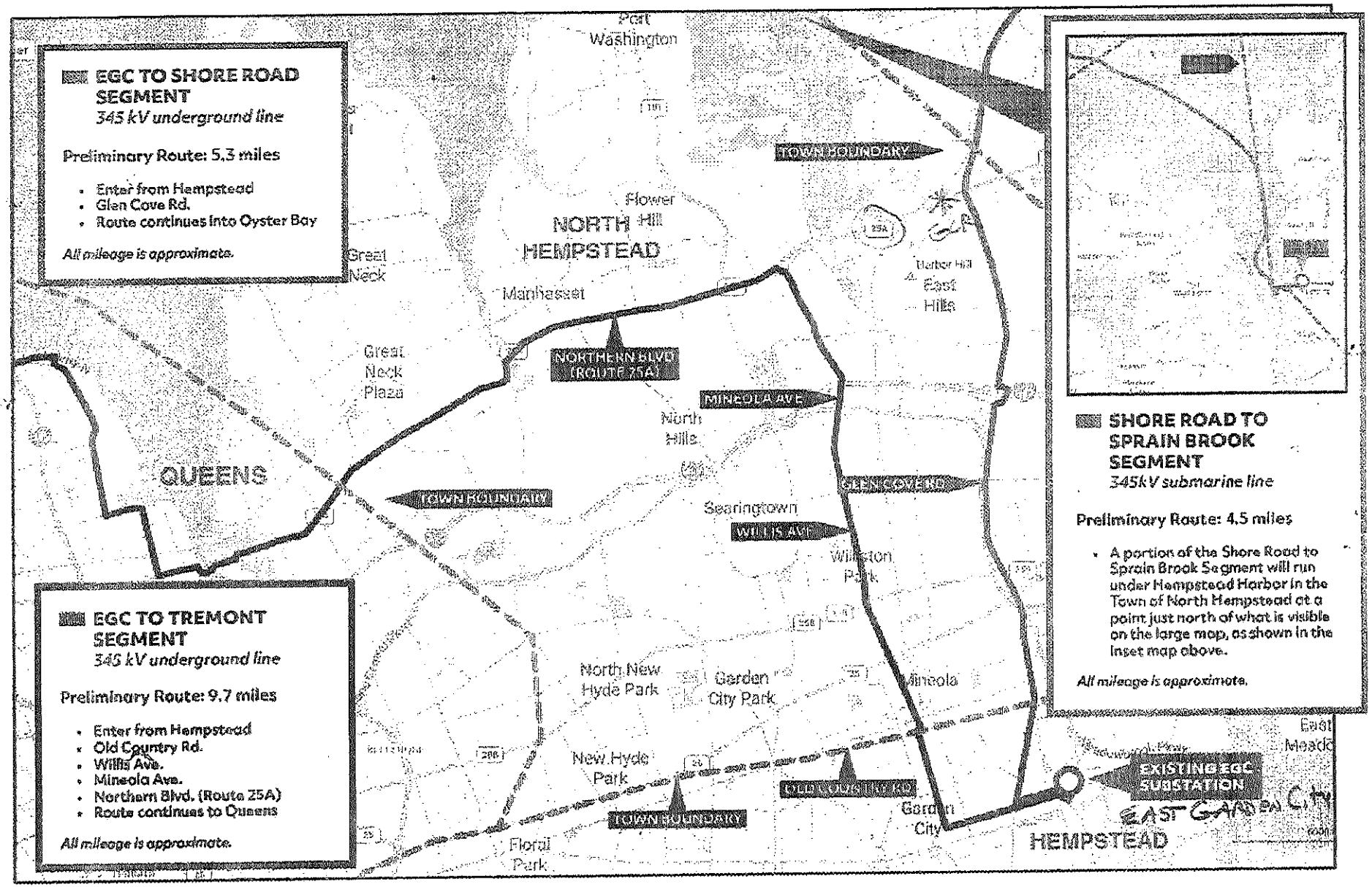
New 345kV underground transmission lines:

- Barrett to EGC –*Est. 9 miles*
- EGC to Tremont –*Est. 23 miles*
- EGC to Shore Road –*Est. 10 miles*
- Ruland Road to Shore Road – *Est. 18 miles*
- Shore Road to Sprain Brook – *Est. 19.5 miles*

PROPEL NY ENERGY

EGC TO SHORE ROAD SEGMENT EGC TO TREMONT SEGMENT
SHORE ROAD TO SPRAINBROOK SEGMENT

Town of North Hempstead



EGC TO SHORE ROAD SEGMENT
345 kV underground line

Preliminary Route: 5.3 miles

- Enter from Hempstead
- Glen Cove Rd.
- Route continues into Oyster Bay

All mileage is approximate.

EGC TO TREMONT SEGMENT
345 kV underground line

Preliminary Route: 9.7 miles

- Enter from Hempstead
- Old Country Rd.
- Willis Ave.
- Mineola Ave.
- Northern Blvd. (Route 25A)
- Route continues to Queens

All mileage is approximate.

SHORE ROAD TO SPRAIN BROOK SEGMENT
345kV submarine line

Preliminary Route: 4.5 miles

- A portion of the Shore Road to Sprain Brook Segment will run under Hempstead Harbor in the Town of North Hempstead at a point just north of what is visible on the large map, as shown in the inset map above.

All mileage is approximate.

ACTION PLAN FOR PROPEL NEW YORK ENERGY TRANSMISSION LINE PROJECT

If you are concerned about the Propel New York Energy high-voltage transmission line project (PropelNYEnergy.com). PSC reference: New York Transco LLC, New York Power Authority: case # 24 -T- 0446.

SEND A MESSAGE

Register your concern and/or opposition to the proposed route through your area of these high-voltage cables which will have a significant community disruptive effect and possible health and safety risks.

ADDRESS YOUR MESSAGE TO:

NEW YORK STATE GOV. KATHY HOCHUL, govenor.ny.gov , 518 474-8390

NEW YORK STATE ASSEMBLY SPEAKER CARL HEASTIE, speaker@newyorkassembly.gov, 518-455-3791

NEW YORK STATE SENATE LEADER ANDREA STEWART COUSINS, scousins@nysenate.gov, 518-455-2585

NEW YORK STATE ASSEMBLYMAN CHARLES LAVINE, lavinec@newyorkassembly.gov, 516-676-0050

NEW YORK STATE ASSEMBLYMAN DANIEL NORBER (RECENTLY ELECTED TO THE 16AD)

NEW YORK STATE ASSEMBLYMAN JAKE BLUMENCRANZ, blumencranzj@nyassembly.gov, 516-937-3571

NEW YORK STATE SENATOR JACK MARTINS, martinsj@nysenate.gov, 516-922-1811

NASSAU COUNTY LEGISLATOR, DELIA DERIGGI WHITTON, dderiggiwhitton@nassaucountyny.gov

NASSAU COUNTY LEGISLATOR, SAMANTHA GOETZ, sgoetz@nassaucountyny.gov, 516-571-6218

CONGRESSMAN TOM SUOZZI, https://suozzi.house.gov, 516-861-1070

NEW YORK STATE PUBLIC SERVICE COMMISSION, dps.ny.gov/file-complaint