

# PERMITTING ESS IN NYC

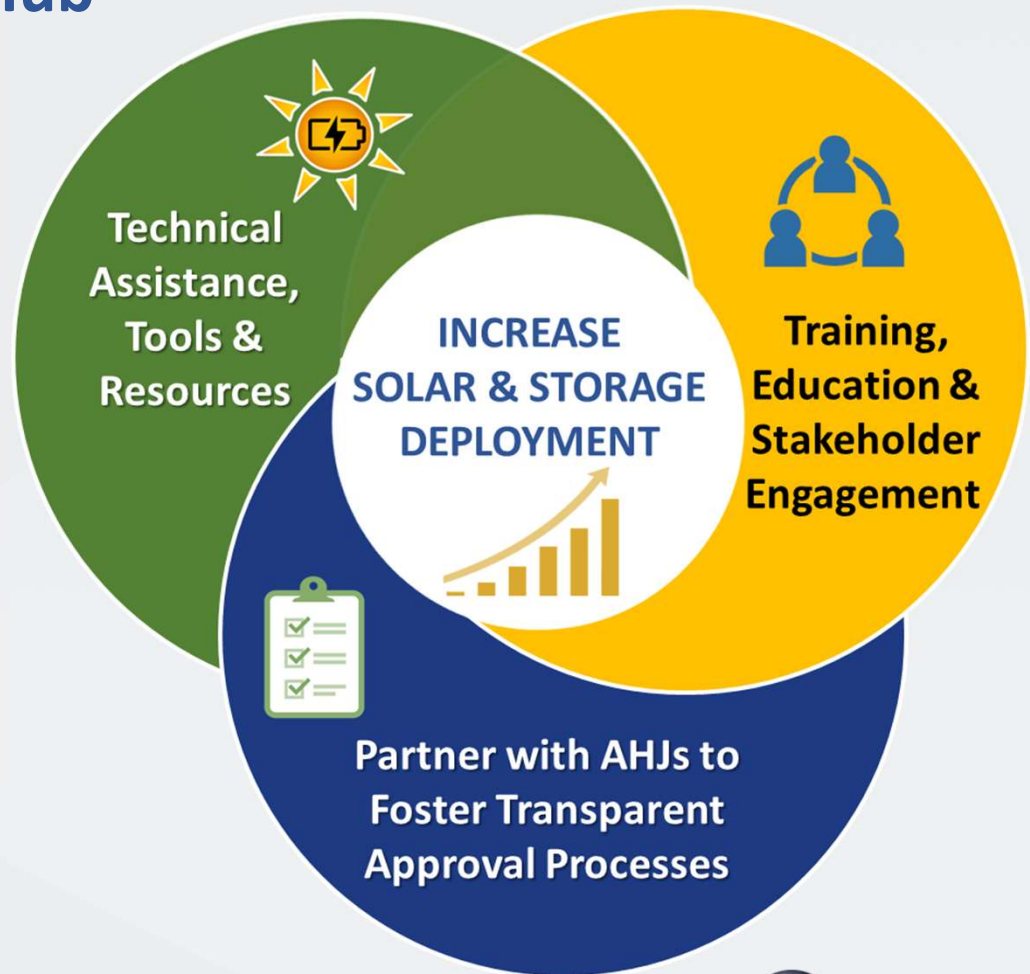
## Overview of Code & Zoning Requirements

Daniella Leifer, Distributed Generation Ombudsman  
Sustainable CUNY Smart DG Hub

*May 24, 2022*

## Sustainable CUNY - Smart DG Hub

- Lead the integration of Distributed Generation pathways in partnership with NYC
- Partner with Industry, Government, Utilities and Stakeholders to drive the market through grants, research and projects
- Develop Tools, Resources and provide Technical Assistance



[www.smartdghub.com](http://www.smartdghub.com)

# Timeline: ESS Permitting in NYC and National Standards

## 2017-2018

### NYC

- **2017** NYC Outdoor permitting initiative
- **2018** NYC outdoor permitting guide 1<sup>st</sup> Ed.
- **2018** Bulletin 2018-012

### National Standards

- **2017** IFC 2018 published
- **2017** NFPA 855 1st draft
- **2017** UL 9540A 1st edition
- **2018** UL 9540A 2nd edition
- **2018** UL 9540A 3rd edition
- **2018** NFPA 855 2nd draft

## 2019-2020

### NYC

- **2019** Bulletin 2019-002
- **2019** Bulletin 2019-007
- **2019** 3RCNY Rule 608-01 Outdoor ESS
- **2020** NYC Outdoor Permitting Guide 2<sup>nd</sup> Ed.
- **2020** NYC UL 9540A Data Utilization Guide & Flow Charts
- **2020** DOB NFPA 855 Working Group launch
- **2020** FDNY Fire Code revision launch
- **2020** Bulletin 2020-023

### National Standards

- **2020** UL 9540 2<sup>nd</sup> Ed.
- **2019** NFPA 855 1<sup>st</sup> Ed.
- **2019** UL 9540A 4<sup>th</sup> Ed.

## 2021

### NYC

- NYC Zoning for Coastal Flood Resilience Amendment
- FDNY Fire Code revision conclusion

### National Standards

- NFPA 855 2<sup>nd</sup> Ed. draft released for public comment

## 2022

### NYC

- **2022** FC update – Ch. 608
- NYC 2022 Building Code adoption
- DOB NFPA 855 Working Group conclusion
- *DOB Rule adopting NFPA 855 with NYC Modifications (anticipated)*
- *DG Hub NYC Outdoor Permitting Guide 3<sup>rd</sup> Ed. (pending)*

### National Standards

- UL 1973 3<sup>rd</sup> Ed.

# NYC ESS Codes & Regulations

## Fire

- 3RCNY 608-01
- 2022 FC Ch. 608

## DOB/Construction

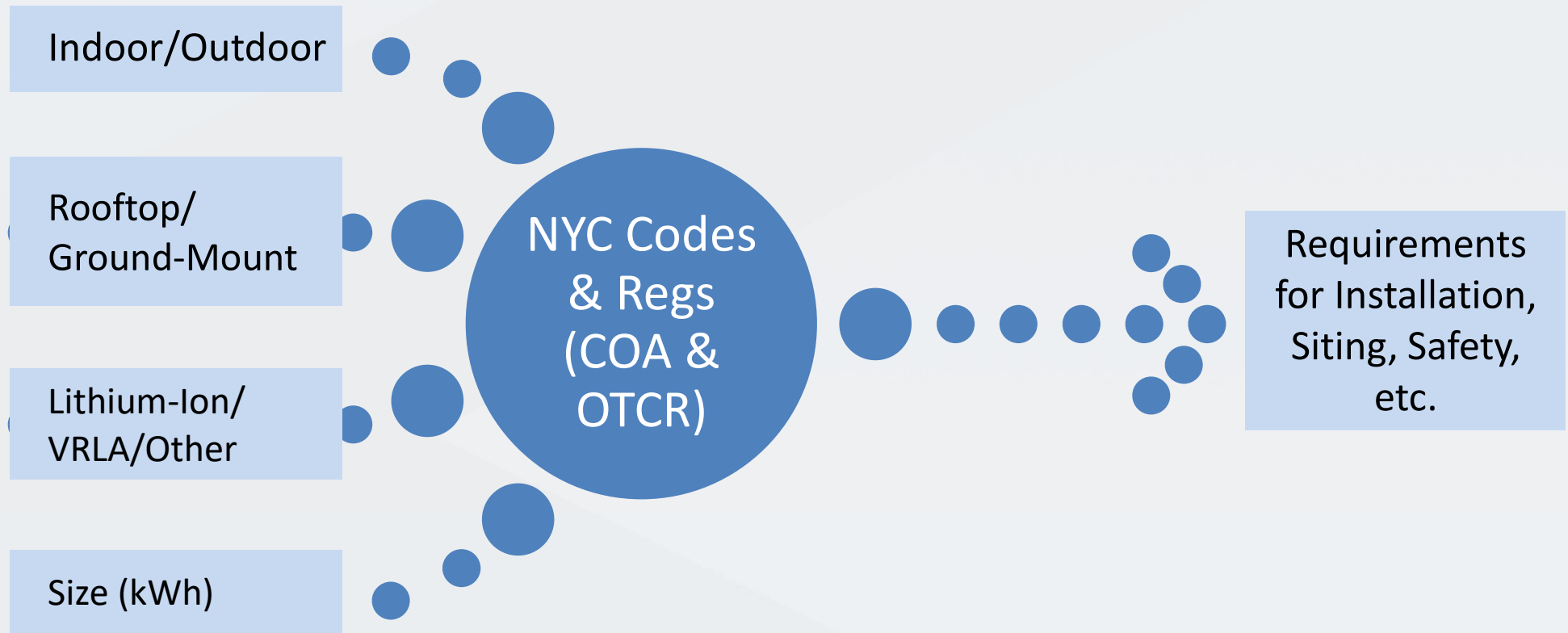
- Buildings Bulletin 2019-002
- OTCR Battery Application Checklist
- (Anticipated) NFPA 855 with NYC Modifications

## Zoning

- Buildings Bulletin 2019-007
- Buildings Bulletin 2020-023
- Zoning for Coastal Flood Resilience



# NYC ESS Codes & Regulations




# FDNY Requirements: Certificate of Approval (COA)

- “TM-2” Application + \$625 examination fee
- **UL 9540A testing results and hazard mitigation analysis (HMA) or a failure modes and effects analysis done by New York licensed fire protection engineer.**
- **UL listing and certification (Listing to UL 9540, UL 1973, UL 1741 and other pertinent UL certifications)**
- Narrative that describes the BESS, modes of operation, any incorporated safety system and activation sequence
- Data sheet & cutsheets of system components
- MSDS for the chemical components within the BESS
- Installation and operational manuals
- Emergency response plan (optional)
- **Establishes terms & conditions for...**  
Locations • Fire Protections/Mitigations • Deflagration Protection • Spacing/Clearances • Etc.

<https://www1.nyc.gov/site/fdny/business/all-certifications/certificates-of-approval.page>

**NYC**



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## Certificate of Approval

The Fire Code requires that the manufacturer of any article, equipment or device installed in any facility or used in connection with any material or operation needs a Certificate of Approval for the design, installation, operation and or maintenance of the article, equipment or device.

To learn more about Certificates of Approval you can read Section **FC 112** (PDF) of the Fire Code.

To obtain a Certificate of Approval an application will need to be filed online with **FDNY Business**.

An application will need to be filled out to obtain a Certificate of Approval

- **Get Application for Certificate of Approval** (PDF)

### Certificate of Approval Cost

Application	Cost
Original Application	\$625.00
Amended Application	\$625.00
Change of Ownership	\$625.00
Change in Manufacturing Process, Chemical Composition or Design	\$625.00
Renewal Application	\$50.00
Change of Identification	\$210.00


### Approved Certifications

For reference, the Fire Department publishes lists of products produced by manufacturers who have obtained a Certificate of Approval as required by Fire Code.

- **Get List of Approved Fire Alarm Control Panels** (PDF) (Published February 2020)
- **Get List of Approved Fire Escape Window Gates** (PDF) (Published November 2021)
- **Get List of Approved Pre-manufactured Spray Rooms and Pre-manufactured Spray Booths** (PDF) (Published December 2021)
- **Get List of Approved Flame-resistant Chemicals** (PDF) (Published December 2021)

# DOB Requirements: OTCR Battery Application Checklist

1. Project Information
2. ESS Properties & Characteristics
3. Specific Risks/Concerns
4. Construction Documents
  - Conditional Letter of Acceptance requires DOB c/e job #
5. Proposed Design Features
  - Fire Protection; Fire Suppression NFPA 13 or NFPA 15
6. Certifications & Testing
  - **UL 9540 cert and UL 9540A test report for all submissions**
7. System Monitoring
8. Operating Manuals
9. Additional Requirements
  - Zoning Analysis, Code Analysis, Risk Analysis

**NYC**  
Buildings

**OTCR Battery Application Checklist:  
Required Submittal Information**

The following information is required for all Battery Energy Storage Systems (BESS) submitted to the Department of Buildings for evaluation. Please contact the Office of Technical Certification and Research (OTCR) at [OTCR@buildings.nyc.gov](mailto:OTCR@buildings.nyc.gov) prior to submitting the required information.

- 1. Project Information**
  - ☐ Location/Address
  - ☐ Contact Information (Name, address, telephone# and email)
    - Registered Design Professional
    - Integrator or Manufacturer
    - Building Owner
  - ☐ Incentive program. Provide program name and number (if applicable)
  - ☐ Construction Application for Permit. Provide NYC Department of Buildings Job# (required prior to issuance of OTCR Conditional Acceptance Letter)
  - ☐ Electrical Permit - Provide NYC Department of Buildings Permit# (required prior to issuance of OTCR Conditional Acceptance Letter)
  - ☐ Installation conditions
    - Location/Indoor, outdoor, rooftop
    - Application/Solar PV Storage, Load shedding;
    - Energy Source/Solar array, utility supplied, etc.)
  - ☐ Building Information
    - Construction classification and description of materials (steel frame, corrugated steel and concrete, etc.)
    - Occupancy Classification
    - Special flood hazard area
    - Fire district
- 2. ESS Properties and Characteristics**
  - ☐ Narratives
    - Equipment Description
    - System Description
  - ☐ Battery Information
    - General Information (Make/model#; Product literature; Cabinet, rack or container)
    - Chemistry (Lithium-Ion, VRLA, etc.)
    - Physical Properties (length, height, width and weight for cells, modules, and cabinets/racks)
    - Electrical (electrical capacity in kWh)

[https://www1.nyc.gov/assets/buildings/pdf/OTCR\\_battery\\_app\\_checklist](https://www1.nyc.gov/assets/buildings/pdf/OTCR_battery_app_checklist)

# FDNY Requirements – Outdoor Systems: Rule 3RCNY 608-01

- **Scope:** requirements and procedures for design & installation for FDNY approval; outdoor systems only (no UPS, emergency/backup systems)
- **Applicability:** requirements vary depending on
  - System size (kWh) – S/M/L categories
  - Battery chemistry
- Requirements outlined under:
  - (c) General Provisions: permit, supervision, obligations, listing/testing standards
  - (d) Installation approval (for “large” systems)
  - (e) Equipment approval (COA)
  - (f) Commissioning and decommissioning
  - (g) General design & installation requirements
  - (h) Enclosure design & installation requirements
  - (i) O&M requirements
  - (j) Recordkeeping requirements

**Table 1**  
**Stationary Storage Battery System Size Thresholds**

Battery Technology	Aggregate Rated Energy Capacity		
	Small	Medium	Large
<u>Lead Acid Battery</u>	<70 kWh	>70 kWh and < 500 kWh	> 500 kWh
<u>Ni-Cd Battery</u>	≤70 kWh	>70 kWh and ≤ 500 kWh	> 500 kWh
<u>NiMH Battery</u>	≤70 kWh	>70 kWh and ≤ 500 kWh	> 500 kWh
<u>Li-ion Battery</u>	≤20 kWh	>20 kWh and ≤ 250 kWh	> 250 kWh

**Table 2**  
**Stationary Storage Battery System Compliance Requirements**

Section	Compliance Requirement	Small	Medium	Large
(c)	<u>General Provisions</u>			
(c)(4)	Permit	No	Yes	Yes
(c)(5)	Supervision (Certificate of Fitness)	Yes	Yes	Yes
(c)(6)	Obligations of Owner and Operator	Yes	Yes	Yes
(c)(7)	<u>Listing and Full-Scale Testing Standards</u>			
(c)(7)(A)	• <u>Listing</u>			
	◦ <u>Lead Acid Battery</u>	Yes	Yes	Yes
	◦ <u>Ni-Cd or NiMH Battery</u>	Yes	Yes	Yes
	◦ <u>Li-Ion Battery</u>	Yes	Yes	Yes
	◦ <u>Flow Battery</u>	Yes	Yes	Yes
(c)(7)(B)	• <u>Full-Scale Testing</u>			
	◦ <u>Lead Acid Battery</u>	No	No	No <sup>g</sup>
	◦ <u>Ni-Cd Battery</u>	No	No	No <sup>g</sup>



# FDNY Requirements – Indoor Systems: 2022 NYC Fire Code Chapter 608

- Revised Chapter 608 - primarily **indoor** systems, including UPS, emergency/backup power.
- Applicability of requirements varies depending on **system size**, **battery chemistry** type **and use**. Not the same S/M/L categories as Rule.
- Many requirements established via COA. Permits required for all systems. Site-specific installation review required for projects outside of COA parameters
- Specific section on 1-2 family (Group R-3) buildings (608.15).

**NYC**



[NYC Fire Code](#)

[Fire Code Rules](#)

[Help/Reference](#)

[Code Feedback](#)

## Enactment of the 2022 NYC Fire Code ›

On December 15, 2021, the New York City Council passed Intro 2430-A amending and updating the New York City Fire Code. The bill thereafter became law as Local Law No. 47 of 2022. The newly-revised code will be known as the 2022 New York City Fire Code. The 2022 Fire Code will take effect on April 15, 2022.

The Fire Code local law, Local Law No. 47 of 2022, can be viewed here:

- [New York City Fire Code Local Law](#) (PDF)

Deletions from the existing (2014) New York City Fire Code are shown by [brackets]. New text is underlined.

The 2022 New York Fire Code will be published in a convenient paperbound publication version (without brackets and underlines) by the International Code Council (ICC) and will be available for purchase on the Citystore and ICC websites. The 2022 Fire Code will also posted on this website in chapter format.

<https://www1.nyc.gov/site/fdny/codes/fire-code/proposed-fire-code.page>

# DOB Permitting: Buildings Bulletin 2019-002

- Outlines filing and submittal requirements, approval process for DOB standard permits and OTCR special approval.
- References ***OTCR Battery Application Checklist***, Required Submittal Information for OTCR approval.
- Applies to specified battery chemistry types: lithium-ion, flow batteries, lead acid, and VRLA; indoor and outdoor.



NYC Buildings Department  
280 Broadway, New York, NY 10007

Rick D. Chandler, P.E., Commissioner



## BUILDINGS BULLETIN 2019-002 OTCR

**Supersedes:** 2018-012

**Issuer:** Alan Price, P.E.   
Director, Office of Technical Certification and Research

**Issuance Date:** January 30, 2019

**Effective Date:** Immediately to applications submitted after issuance date

**Purpose:** This document establishes filing and submittal requirements, and outlines the approval process for lithium-ion, flow batteries, lead acid, and valve regulated lead-acid battery energy storage systems listed to UL 9540.

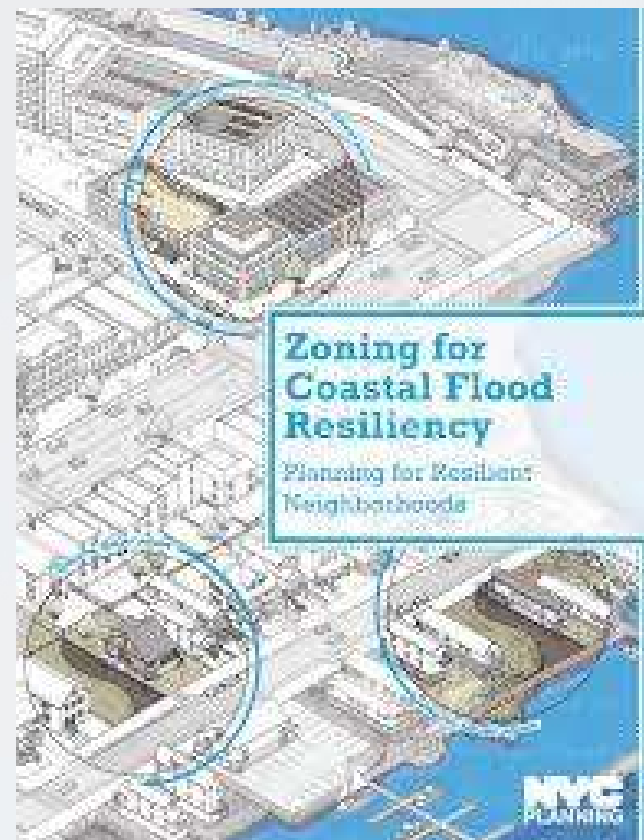
<b>Related</b>	MC	502	NYC EC	Article 408
<b>Code/Zoning</b>	BC	509	NYC EC	Article 685
<b>Section(s):</b>	FC	608	NYC EC	Article 705

[https://www1.nyc.gov/assets/buildings/bldgs\\_bulletins/bb\\_2019-002.pdf](https://www1.nyc.gov/assets/buildings/bldgs_bulletins/bb_2019-002.pdf)

## NYC Zoning

### 3 separate releases/adoptions:

- [Buildings Bulletin 2019-007](#): non-accessory ESS
- [Buildings Bulletin 2020-023](#): accessory ESS - definition of & siting allowances
- [Zoning for Coastal Flood Resilience Amendment](#): incorporation of ESS into zoning text & expansion of siting allowances



# Navigating the NYC Code/Regulatory/Permitting Landscape for ESS...

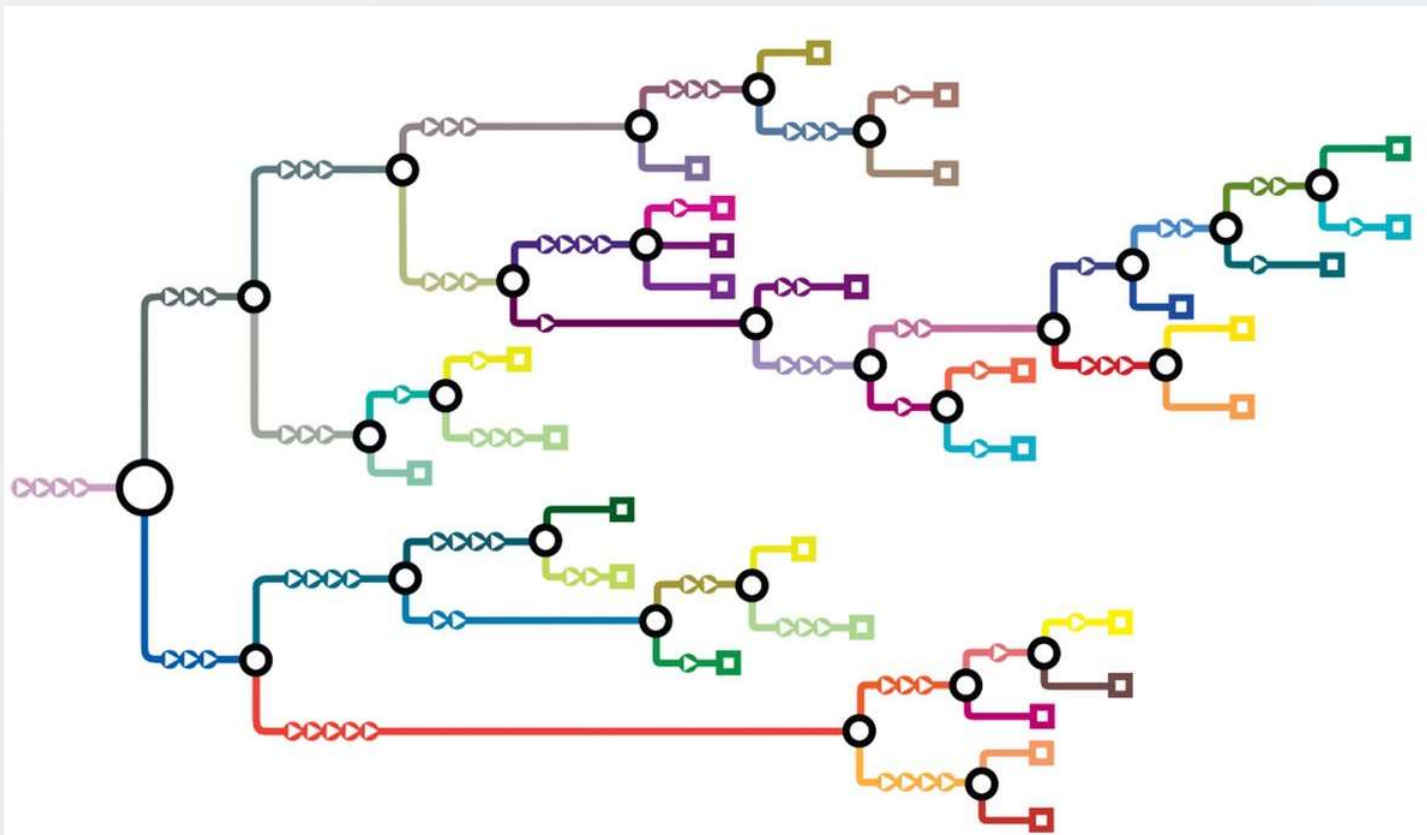


Image courtesy of ChooseCo LLC



# NYC Outdoor Lithium Ion Permitting Guide

## Energy Storage System Permitting and Interconnection Process Guide For New York City Lithium-Ion Outdoor Systems

February 2020

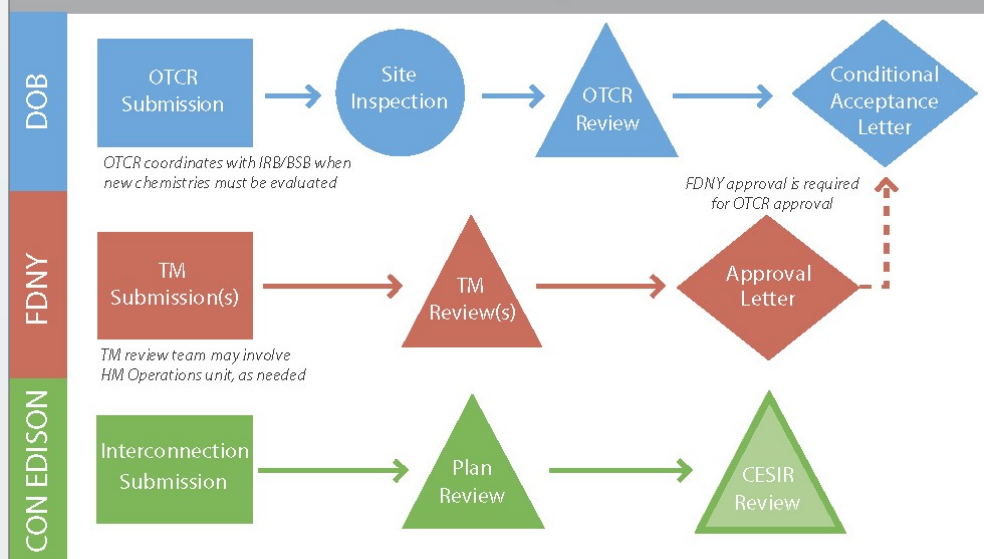
With Technical Assistance Provided by DNV GL

CONSTRUCTION PERMIT FOR BATTERY STORAGE TECHNOLOGIES					
Construction Permit	Construction p Administrative issued until the	ELECTRICAL PERMIT FOR BATTERY STORAGE TECHNOLOGIES			
Required Submission Documents	Initial forms to Important: <ul style="list-style-type: none"> <li><a href="#">PW1 – Pla</a></li> <li>(1) Must li</li> <li>(2) Must b</li> <li>(3) Under</li> <li>Storage</li> <li><a href="#">TR1 – Tec</a></li> <li><a href="#">TR8 – Tec</a></li> <li><a href="#">ACPS or A</a></li> <li>contamin</li> <li>Architectu</li> <li>Hub's Guir</li> <li>690.1).</li> </ul> Forms to subm <ul style="list-style-type: none"> <li><a href="#">PW2 – Wg</a></li> <li><a href="#">PW3 – Co</a></li> <li><a href="#">C408 – Sys</a></li> </ul> Sign-off forms <ul style="list-style-type: none"> <li><a href="#">PW7 – Let</a></li> <li><a href="#">Final PW3</a></li> <li><a href="#">Final TR1</a></li> <li><a href="#">Final TR8</a></li> <li><a href="#">C408 – Sys</a></li> </ul> Notes: (1) Paperwork mu special inspection (2) System Commi	Electrical Permit	Electrical per and the Elec	DOB OTCR PROCESS FOR MATERIAL ACCEPTANCE OF BATTERY STORAGE TECHNOLOGIES	
		Required Submission Documents	<ul style="list-style-type: none"> <li>Form <a href="#">EC</a></li> <li>Equipm</li> <li>A single</li> <li>inspecti</li> </ul> Note: Paperw Professional E <a href="#">instructions</a> o	OTCR Approval	Site-specific m installations. A Relevant codes <a href="#">113</a> .
How to Submit	Fees	Timeline	May be subm	Required Submission Documents	<ul style="list-style-type: none"> <li>Site-specif</li> <li>Note: The ap</li> <li>PE/RA, and n</li> <li>All applica</li> <li><a href="#">Application</a></li> <li>Note: The DO</li> <li>OTCR Batten</li> </ul>
				How to Submit	<ul style="list-style-type: none"> <li><b>In-person</b> Office of T</li> <li>280 Broad</li> </ul>
Summary of key steps	Timeline	Issued imme	Electrical Per	Fee	\$600 per OTCR
				Timeline	The timeline va requested.
Contact	Electrical per	Summary of key steps	1. Apply fo	1. Applicant along with	2. For batter with the a
Fee	Timeline	Applications are typically reviewed within 40 business days. This timeline may increase if additional site visits or other information is required, or if the FDNY is unfamiliar with the battery technology being considered.	1. Applicant submits all applicable paperwork (Applicant should notify FDNY	1. All	16
Steps	1. Applicant submits all applicable paperwork (Applicant should notify FDNY	1. All	16	16	16

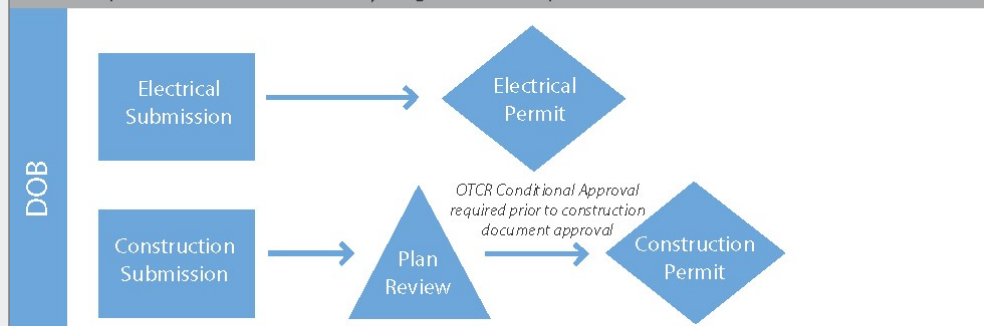
[https://nysolarmap.com/media/2038/li-ion-permitting-guide-updates\\_feb-2020final.pdf](https://nysolarmap.com/media/2038/li-ion-permitting-guide-updates_feb-2020final.pdf)

# Permitting Process Flowchart: Large/medium systems

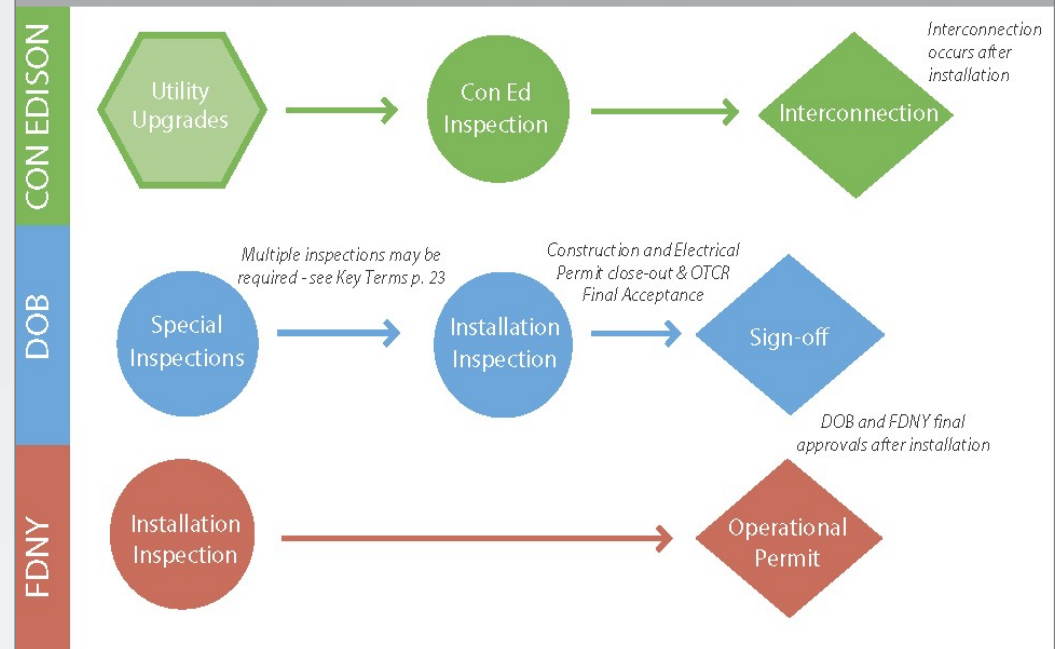
**STEP 1:** These submissions initiate the permitting process.



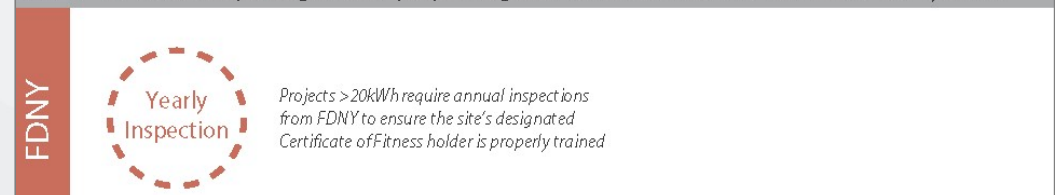
**STEP 2:** These submissions occur after OTCR conditional approval. Submissions may be made in parallel. Construction may begin after the permits below are obtained.



**STEP 3:** These steps occur during ESS installation. Inspections may occur in parallel.



**STEP 4:** These steps begin after project sign-off and continue for the life of the system.



## Smart DG Hub NYC Permitting Resources: Recent Releases

### [NYC ESS Zoning Guide](#)

- Comprehensive summary of all ESS zoning releases
- Zoning treatment of both Accessory & Non-Accessory ESS
- Provisions applicable to rooftop and yard/open space sitings

### [Site Plan Checklist](#)

- Pertinent to the FDNY *Installation Approval* for Large ESS
- Detailed guidance on content needed for Site Plans and associated visual aids for installation approval

### [Developer Guidance Document: Emergency Management Plan](#)

- Outlined summary of information and details to include in the Emergency Management Plan, a required component of the permitting package for outdoor Large and Medium ESS projects

### [Developer Guidance Document: Conceptual Design Meeting Prep Checklist](#)

- Provides a checklist of information suggested to prepare for initial meetings with AHJs

# NYSOLARMAP.COM Solar+Storage Resource Library

NY SOLAR MAP

Going Solar

Installing Solar

Financing Solar

Solar+Storage

Resources

Shared Solar NYC Gateway

NYC Solar

Resources

Storage Resources


FAQ's

Reports and Guides


News

Webinars and Podcasts


STORAGE RESOURCES




STORAGE PERMITTING




ROADMAP | SURVEYS




CASE STUDIES | FACT SHEETS | GUIDANCE



STORAGE MAPPING TOOLS



STORAGE WEBINARS



ADDITIONAL RESOURCES

<https://nysolarmap.com/resources/reports-and-guides/solarplusstorage/>



# Thank you!

Questions? Comments?

Contact us at [SmartDGhub@cuny.edu](mailto:SmartDGhub@cuny.edu)  
[www.smartdghub.org](http://www.smartdghub.org)

We welcome your feedback