APPLICATION CHECKLIST FOR EXPEDITED PROCESSING OF PERMITS FOR ADVANCED ENERGY STORAGE SYSTEMS

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INTRODUCTION. To be eligible for expedited permit processing, applicants for advanced energy storage systems must follow this Application Checklist ("Checklist"). An application that provides all of the information required by this Checklist, as determined by the City, shall be deemed complete and shall be processed as expeditiously as practicable. For additional information, please contact the City's Planning & Environmental Services Department during regular business hours: Monday through Friday, from 8:00 a.m. to 5:00 p.m. (closed holidays). Please note that the Building Division's regular permit counter hours are Monday through Friday, from 7:30 a.m. to 2:30 p.m. (closed 12 to 1 p.m. and holidays).

Please be advised that the information provided in this document is general and intended to be used as a guide only. Each project is unique, and the City may enforce additional requirements, as necessary.

ELECTRONIC SUBMITTAL. Applicants may choose to submit application materials electronically, via email. Application materials submitted electronically will not be processed until the payment of the permit application fee is received (see **Section III.2** for fees and payment information). For assistance, please contact the Planning & Environmental Services Department.

I. General Requirements

The term "advanced energy storage" is defined in California Public Utilities Code Section 2835, as amended from time to time or replaced by a successor statute. Advanced Energy Storage Systems (or, "Energy Storage Systems" (ESS)) must be in compliance with the current California Building Standards Code, including the City's local amendments. Plans must be clear and legible. Additional submittal requirements and/or information may be necessary based on the actual system design.

To qualify for permit approval, the following requirements must be met:

A. Building Division plan review and inspection approval is required for ESS installations.

B. Planning Division plan review approval is not required for ESS installations unless the location is visible from a public street and/or the ESS does not comply with applicable setback requirements (Laguna Woods Municipal Code Section 13.16.200(d)).

C. Orange County Fire Authority plan review and inspection approval is required for ESS installations where the stationary storage battery system (i.e., ESS) has a capacity exceeding the values shown in California Fire Code (CFC) Table 1206.2. Those systems shall comply with CFC sections 1206.2.1 through 1206.12.6. For example, installing two Tesla Powerwalls would trigger a review for

compliance with the applicable code sections since they are lithium-ion and are rated at 13.5 kilowatt-hours (kWh) each.

Table 1206.2
Battery Storage System Threshold Quantities
(2019 California Fire Code)

Battery Technology	Capacity[a]
Flow batteries[b]	20 kWh
Lead acid, all types	70 kWh
Lithium, all types	20 kWh
Nickel cadmium (Ni-Cd)	70 kWh
Sodium, all types	20 kWh[c]
Other battery technologies	10 kWh

For SI: 1 kilowatt hour = 3.6 megajoules.
a. For batteries rated in amp-hours, kWh shall equal rated voltage times amp-hour rating divided by 1000.
b. Shall include vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte-type technologies.
c. 70 kWh for sodium-ion technologies.

II. PERMITTING CHECKLIST

This Checklist contains the minimum submittal requirements for electrical and structural plan review of new ESSs for one- and two-family dwellings with or without a solar photovoltaic (PV) system. This list is not intended for integration with bipolar or hybrid PV systems.

Use the following checklist items for preparation and submittal of your plans. The level of detail and the specific plan requirements will depend upon the extent, nature, and complexity of the work to be done. All applicable checklist items must be noted or specified on the plans. Indicate the plan sheet number where the applicable requirement is shown or specified.

TYPE OF ADVANCED ENERGY STORAGE SYSTEMS (PLEASE COMPLETE OR CHECK ALL THAT APPLY)

BATTERY TECHNOLOGY:	☐ Flow batteries ☐ Lead acid, all types ☐ Lithium, all types	☐ Nickel cadmium (Ni-Cd) ☐ Sodium, all types ☐ Other battery technologies: _____
STANDBY TYPE:	☐ Optional standby system; or ☐ Legally required standby	
ESS CLASSIFICATION:	☐ ESS, Self-contained ☐ ESS, Pre-engineered ☐ ESS, Other: _____	
SPECIFY THE QUANTITY OF ESS BATTERIES:		

SPECIFY TOTAL (CUMULATIVE) CAPACITY[1]:	
IS ESS CONNECTED TO SOLAR PV?	☐ Yes ☐ No

SUBMITTAL REQUIREMENTS CHECKLIST FOR ENERGY STORAGE SYSTEMS

PERMIT APPLICATION REQUIREMENTS	
Yes ☐ No ☐	The permit application is complete with the following information: ✓ Project address and parcel number ✓ Owner name, address and phone number ✓ Contractor name, address, phone number and contractor's license number ✓ Other information requested on the permit application form
PLAN SUBMITTAL REQUIREMENTS	
Yes ☐ No ☐	The drawings are: ✓ Drawn to scale ✓ On a paper size not less than 17" wide by 11" high (36" x 24" preferred) ✓ Oriented in landscape orientation ✓ Are printed with text with not less than 9-point Arial font size or equal or 1/8" minimum neatly hand printed lettering ✓ Provided with symbol legend and/or key for the site and floor plans
Yes ☐ No ☐	The plans include a Title Page with property information including, but not limited to: ✓ Address of property ✓ Name, address, phone number of the property owner ✓ Name, address, phone number and license number of the person responsible for the ESS system design ✓ The codes applicable to the project ✓ A narrative of the complete scope of work ✓ Occupancy and use of the facilities ✓ Identify if the ESS is to be used as a partial home backup or a whole home backup
Yes ☐ No ☐ N/A ☐[2]	A Site Plan (not a satellite image) is included with the permit application and includes the following information *[Not required if ESS equipment is installed entirely within an existing one- or two-family residential structure (i.e. garage or carport)]*: ✓ A legend or symbol key ✓ Location and name of structures on the site ✓ Property lines if applicable or assumed, streets, lot dimensions if applicable or assumed, north arrow, the distance from property lines or assumed if applicable to structures and the proposed ESS equipment ✓ Location and working clearances for ESS equipment, main electric service panel, disconnects, overcurrent protection, and control units ✓ Show conduit/cable routing of the ESS, PV, and related circuits. Show trench or overhead runs, as applicable, and denote whether conductors are routed indoors or outdoors

[1] For batteries rated in amp-hour, kWh shall equal rated voltage times amp-hour rating divided by 1000.

[2] N/A means Not Applicable to this project.

	✓ Detail and specify requirements for the proposed work *[See General 2019 California Code Requirements section and Signage section below]*
Yes ☐ No ☐ N/A ☐	An Electrical Floor Plan is included with the permit application and includes the following information *[Not required for exterior only installations]*: ✓ A floor plan view of the location of the proposed ESS equipment is provided. Label the use of the space or area where the ESS will be installed. Show all required clearances in front of the batteries and equipment. Specify mounting heights ✓ All applicable electrical plan related requirements of California Electrical Code Article 706 and California Fire Code Section 1206 are shown or specified on the plan ✓ Detail and specify requirements for the proposed work *[See General 2019 California Code Requirements section and Signage section below]* ✓ If installed in a garage, show how batteries and equipment are protected from physical damage (California Residential Code (CRC) R327.6) ✓ If installed in a garage, show that the required 10-foot x 20-foot clear parking space will be maintained ✓ Show method and location of required ventilation equipment (if required for indoor installations per California Electric Code (CEC) 110.13(B) and 706.10(A)) ✓ Show how working space illumination around the ESS equipment and components is provided (CEC 706.10(E))
Yes ☐ No ☐	A Three-Line Electrical Diagram is included with the permit application and includes the following information: ✓ Show grounding and bonding for the ESS and PV (if installed), including the ground return path ✓ Show method of interconnection ✓ Show overcurrent protection method and rating when required ✓ Include detailed wiring information for all new circuits, including: • Conductor size/type • Number of conductors • Conduit size • Conduit type • Show all disconnecting means. • Show ratings (voltage, ampacity, environmental, etc.) for new and existing service equipment ✓ Show and label all ESS equipment on the diagram ✓ Conductor and conduit size, type and location ✓ The size and location of the main electric panel, distribution panels (sub panels), overcurrent protection, disconnects, additional meters, and ESS equipment ✓ Denote whether the ESS is ac-coupled or dc-coupled • If system is dc-coupled, show that the rapid shutdown functionality for controlled conductors of a roof-mounted PV system remains unaffected by dc-coupled energy storage battery circuit(s)
Yes ☐ No ☐	An Elevation drawing of the system equipment and components is provided. ✓ Show signage for ESS disconnecting means are proved per CEC 706.7(D). ✓ Identify if the ESS will be wall- or floor-mounted ✓ If the ESS is wall-mounted and its weight is 200 pounds (or more), provide structural details in the drawings and calculations as a separate document (California Building Code (CBC) 1603.1.8)

	✓ If multiple ESSs are installed and the combined weight is 400 pounds (or more), provide structural details in the drawings and calculations as a separate document (CBC 1616.10.15) ✓ Provide a permanent plaque or directory denoting all electric power sources operating in parallel with a primary power source on or in the premises, which shall be installed at the main service panel and at all locations of all electric power production sources capable of being interconnected (CEC 705.10)
Yes ☐ No ☐	Provide two (2) copies of Electrical Calculations for: ✓ Sizing of new conductor ✓ Overcurrent protection ratings ✓ Open circuit voltage calculations ✓ Short circuit current calculations ✓ Point of connection to service ✓ New panelboards with loads per CEC Article 220
Yes ☐ No ☐	Provide two (2) sets of ESS Specifications and Manufacturer Installation Instructions. ✓ Provide specification sheets and installation instructions for the ESS equipment and components including the following as applicable: • Inverter • Transformer or autotransformer • Transfer switch(es) • ESS • ESS support or racking • Converters • Combiner • Interconnecting cables and connectors • Recombiner • Charge controller
Yes ☐ No ☐	✓ The project site is located outside of a 100-year flood hazard zone. *[NOTE: If the charging equipment is located within a 100-year flood hazard zone, the ESS equipment shall be elevated above the base flood elevation. The base flood elevation must be determined, and an elevation certificate submitted by a registered land surveyor (Laguna Woods Municipal Code 10.04.110)]*
GENERAL 2019 CALIFORNIA CODE REQUIREMENTS (TO BE NOTED ON PLANS AS APPLICABLE)	
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ Show location and/or method of rapid shutdown initiation of the ESS, when integrated with a PV system (CEC 690.12), and the point of interconnection between the ESS and other power production sources.
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ Indicate that the ESS shall be listed and labeled for residential use in accordance with UL 9540. For exceptions, see CRC R327.2.
Yes ☐ No ☐ N/A ☐	✓ Systems connected to the utility grid shall use inverters listed for utility interaction (i.e., UL 1741, or provided as part of the UL 9540 listing). (CRC R327.4)
Yes ☐ No ☐	✓ The ESS shall be installed in accordance with the manufacturer's installation instructions and their listings, if applicable, and shall not be installed within a habitable space of a dwelling. (CRC R327.3)
Yes ☐ No ☐	✓ All ESS equipment shall be listed by a Nationally Recognized Testing Laboratory (NRTL) either individually or as a complete, self-contained system according to a recognized standard. Provide supporting documentation that verifies certification of the equipment. (CEC 110.2)

Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ For the ESS, include a note, on the plans, that a plug-in type back-fed circuit breakers connected to an interconnected supply shall be secured in in accordance with CEC 408.36(D).
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ Provide a permanent plaque or directory denoting all electric power sources operating in parallel with a primary power source on or in the premises, which shall be installed at the main service panel and at all locations of all electric power production sources capable of being interconnected. (CEC 705.10)
Yes ☐ No ☐ N/A ☐ Sheet#_____	Where battery energy storage system input and output terminals are more than five feet from the connected equipment, or where these terminals pass through a wall or partition, must comply with all of National Electrical Code (NEC) 706.7(E)). ✓ A disconnecting means shall be provided at the energy storage system end of the circuit. Fused disconnecting means or circuit breakers shall be permitted to be used. ✓ A second disconnecting means located at the connected equipment shall be installed where the disconnecting means required by NEC 706.7(E)(1) is not within sight of the connected equipment. ✓ Where fused disconnecting means are used, the line terminals of the disconnecting means shall be connected toward the energy storage system terminals. ✓ Disconnecting means shall be permitted to be installed in energy storage system enclosures where explosive atmospheres can exist if listed for hazardous locations. ✓ Where the disconnecting means in (1) is not within sight of the disconnecting means in (2), placards or directories shall be installed at the locations of all disconnecting means indicating the location of all other disconnecting means. (NEC 706.7(E))
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ Where a disconnecting means, located in accordance with NEC 480.7(A) (out of sight of the battery storage system), is provided with remote controls to activate the disconnecting means and the controls for the disconnecting means are not located within sight of the stationary battery system, the disconnecting means shall be capable of being locked in the open position. (NEC 480.7(B))
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ If trenching is required, a trenching detail will need to be provided on the plans showing compliance with the minimum cover requirements pursuant to CEC 300.5. *[NOTE: trenching for electrical feeders from structure to structure must comply with CEC 225]*
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ Physical protection such as a bollard is shown and detailed on the plans when vehicle impact protection for ESS equipment is required. (CEC 110.27 (B)) *[NOTE: Physical protection from damage is often a 4" diameter steel pipe filled with concrete, a minimum of 40" above the finished floor/grade, installed in a footing measuring 12" in diameter and 3' deep]*
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ If the ESS is installed within in a building containing an R (residential) occupancy, the plans show and specify the location for all required smoke and carbon monoxide alarms within the dwelling(s). (CBC 907.2.10.2, CBC 915, CRC R314 and CRC R315) *[NOTE: In lieu of showing and specifying the location for all required smoke and carbon monoxide alarms within the dwelling(s), a Smoke and Carbon Monoxide Alarm Retrofit Verification Form may be completed, signed, and submitted with the application.]*
SIGNAGE (TO BE NOTED ON PLANS AS APPLICABLE)	
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ The plans should indicate all required signage, and the signage shall be in compliance with American National Standards Institute (ANSI) Z535 and should include the following information: • Labeled "Energy Storage Systems" with symbol of lightning bolt in a triangle • Type of technology associated with the ESS • Special hazards associated with the EES (if applicable) • Type of suppression system installed in the area of the ESS (if applicable)

	• Emergency contact information (if applicable)
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ The plans should indicate that a permanent plaque or directory denoting all electric power sources operating in parallel with a primary power source on or in the premises, which shall be installed at the main service panel and at all locations of all electric power production sources capable of being interconnected. (CEC 705.10)
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ The plans should indicate that a permanent plaque or directory denoting the location of all electric power source disconnecting means on or in the premises shall be installed at each service equipment location and at the location(s) of the system disconnect(s) for all electric power production sources capable of being interconnected. The marking shall comply with CEC 110.21(B) (CEC 706.11).
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ The plans should indicate that equipment containing overcurrent devices in circuits supplying power to a busbar or conductors supplied from multiple sources shall be marked to indicate the presence of all sources. (CEC 705.12(B)(3))
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ The plans should indicate that PV system output circuit conductors shall be marked to indicate the polarity where connected to battery energy storage systems. (CEC 690.55)
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ The plans should indicate that dc system conductors of 4 AWG or larger shall be identified using colored marking tape. (CEC 210.5(C)(2))
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ The plans should indicate that where controls to activate the disconnecting means of a battery are not located within sight of a stationary battery system, the location of the controls shall be field marked on the disconnecting means. (CEC 480.7(B))
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ The plans should indicate that where controls to activate the disconnecting means of an ESS are not located within sight of the system, the disconnecting means shall be capable of being locked in the open position, in accordance with CEC 110.25, and the location of the controls shall be field marked on the disconnecting means. (CEC 706.7(B))
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ The sum of the ampere ratings of all overcurrent devices on panelboards, both load and supply devices, excluding the rating of the overcurrent device protecting the busbar, shall not exceed the ampacity of the busbar. The rating of the overcurrent device protecting the busbar shall not exceed the rating of the busbar. Permanent warning labels shall be applied to distribution equipment displaying the following or equivalent wording: (CEC 705.12(B)(2)(3)(c)): **WARNING: THIS EQUIPMENT FED BY MULTIPLE SOURCES.** **TOTAL RATING OF ALL OVERCURRENT DEVICES, EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE, SHALL NOT EXCEED AMPACITY OF BUSBAR**
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ Where two sources, one a primary power source and the other another power source, are located at opposite ends of a busbar that contains loads, the sum of 125 percent of the power source(s) output circuit current and the rating of the overcurrent device protecting the busbar shall not exceed 120 percent of the ampacity of the busbar. The busbar shall be sized for the loads connected in accordance with CEC Article 220. A permanent warning label shall be applied to the distribution equipment adjacent to the back-fed breaker from the power source that displays the following or equivalent wording: (CEC 705.12(B)(2)(3)(b)): **WARNING: INVERTER OUTPUT CONNECTION;** **DO NOT RELOCATE THIS OVERCURRENT DEVICE**
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ If a battery dc disconnecting means is not provided at the batteries, the disconnecting means shall be legibly marked in the field. The marking shall be of sufficient durability to withstand the environment involved and shall include the following (CEC 480.7(D)): • Nominal battery voltage • Maximum available short-circuit current derived from the stationary battery system

	• Date the calculation was performed for the value above ✓ The battery disconnecting means shall be marked in accordance with CEC 110.16
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ Doors for designated stationary storage battery system rooms shall be provided with signage in accordance with CFC 1206.2.8.6.
Yes ☐ No ☐ N/A ☐ Sheet#_____	✓ Battery storage cabinets installed in occupied work centers shall be provided with signage pursuant to CFC 1206.2.8.6.2.

III. SUBMITTAL REQUIREMENTS

1. This Checklist and the forms described herein are available at or from Laguna Woods City Hall, or on the City's website (**https://www.cityoflagunawoods.org/our-services/building-permits/**).

2. To expedite plan review, one copy of this Checklist must be completed and submitted to the Building Division, along with the Building Permit Worksheet, plans, and supporting documentation. **Please provide an explanation for any Checklist item not completed or met, including all items marked "N/A". Please indicate the battery technology and cumulative battery capacity in the Description of Work on the building permit worksheet.** The Checklist, Building Permit Worksheet, plans, and supporting documentation may be submitted electronically; however, electronic submittals will be held for processing until payment of the permit application fee is received.

   Fees must be paid in person at the Building Division's permit counter at Laguna Woods City Hall, 24264 El Toro Road, Laguna Woods, CA 92637. To obtain current fees, please contact the Building Division's permit counter.

3. Provide three (3) sets of plans for the proposed ESS (36" x 24" preferred plan size, 11"x 17" minimum plan size; 1/8" = 1'- 0" minimum scale, 9 pt. Arial or equal font size or 1/8" minimum neatly hand printed lettering). Plan submittals shall be clear and easily readable in landscape orientation and must include, but not be limited to:

   a) A Title Page

   b) A Site Plan *[Not required if all equipment is installed within an existing one- or two-family garage or carport]*

   c) An Electrical Floor Plan *[Not required for exterior only ESS equipment installations]*

   d) A Three-Line Electrical Diagram

   e) An Elevation Drawing

   f) Electrical Calculations

   g) ESS Specifications and Manufacturer Installation Instructions

4. If a PV system permit is being applied for at the same time, please contact the Building Division's permit counter for additional submittal requirements. Information regarding expedited processing of permits for small residential rooftop solar energy systems is available on the City's website (**https://www.cityoflagunawoods.org/our-services/building-permits/**).

5. In-person submittals can be made to the Building Division's permit counter at Laguna Woods City Hall, 24264 El Toro Road, Laguna Woods, CA 92637.

   Submittals for this expedited permitting process will receive a high priority and be reviewed as early as practical with a processing goal of one to three business days following receipt of the submittal.

6. Once all permits to construct the ESS have been issued and the system has been installed, it must be inspected before final approval is granted for the ESS.
   a) On-site electrical inspections can be scheduled by contacting the Building Division by telephone at (949) 639-0500. Inspection requests received in the morning during City Hall's regular business hours can usually be scheduled for the next business day (subject to availability).
   b) When required, fire department inspection may be scheduled by calling the Orange County Fire Authority at (714) 573-6000.

   Building permit holders must provide the inspector(s) with the Building Division Approved Job Plans, the Building Permit Inspection Record Card, and access to the location of the work. Building permit holders must be prepared to show conformance with all technical requirements in the field at the time of inspection. The inspector(s) will verify that the installation is in conformance with applicable code requirements and the approved plans.

7. For additional information regarding this expedited permit process, please contact the Planning & Environmental Services Department.