

DOCKETED

Docket Number:	19-ERDD-01
Project Title:	Research Idea Exchange
TN #:	242476
Document Title:	Notice of Workshop on Advancing Non-Lithium-Ion Long Duration Energy Storage Technologies
Description:	April 5, 2022 10:00 a.m. to 2:30 p.m.; CalEPA Headquarters Building - Byron Sher Auditorium, 1001 I Street, Sacramento, CA 95814
Filer:	Doris Yamamoto
Organization:	California Energy Commission
Submitter Role:	Commission Staff
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CALIFORNIA ENERGY COMMISSION

715 P Street
Sacramento, California 95814

energy.ca.gov

CEC-70 (Revised 11/2021)

**IN THE MATTER OF:**

Solicit Public Comments on Methods to Advance the Commercialization of Non-Lithium-Ion Long Duration Energy Storage Technologies

Docket No. 19-ERDD-01

NOTICE OF REMOTE-ACCESS WORKSHOP

RE: Discuss Non-Lithium-Ion Long Duration Energy Storage Technologies

Notice of Workshop on Advancing Non-Lithium-Ion Long Duration Energy Storage Technologies

April 5, 2022

**CalEPA Headquarters Building
Byron Sher Auditorium
1001 I Street
Sacramento, CA 95814
10:00 a.m. – 2:30 p.m.
(Wheelchair Accessible)**

Workshop will Support In-Person Attendance and Remote Access

The California Energy Commission (CEC) will host a workshop to examine opportunities to advance non-lithium-ion long-duration energy storage (LDES) technologies through the Electric Program Investment Charge (EPIC), proposed new funding in the Fiscal Year (FY) 2022/2023 budget, and recently announced federal infrastructure funding.

A quorum of commissioners may participate, but no votes will be taken.

The workshop will support both in-person and remote attendance. The public can participate in the workshop consistent with the direction provided below. Please note that the CEC aims to begin promptly at the start time posted and the end time is an estimate based on the agenda proposed. The workshop may end sooner or later than the posted end time depending on various factors.

Agenda

CEC staff is seeking input from industry representatives, researchers, government agencies, and other interested parties to inform the direction and scope of future research efforts under EPIC, implementation of the proposed new funding in the FY 2022/2023 Budget for LDES technologies, and the use of these funding resources to attract additional federal funding authorized under the Infrastructure Investment & Jobs Act of 2021.

Workshop speakers will review the state of the LDES market with a focus on California and identify opportunities for further development and scale-up of LDES technologies to meet the future requirements of California's electric grid and support the implementation of Senate Bill (SB) 100 (Chapter 312, Statutes of 2018). Public comment will be enabled during the workshop.

Workshop presentations and panels will include:

- 1) Review of EPIC-funded energy storage research and an overview of the latest EPIC grants supporting LDES.
- 2) Discussions by the California Public Utilities Commission (CPUC) and California Independent System Operator (California ISO) on the latest projections for the need for energy storage to meet the needs of California's grid and the implementation of SB 100.
- 3) Discussion led by a representative from the U.S. Department of Energy on its LDES plans and opportunities for LDES under the Infrastructure, Investment & Jobs Act of 2021.
- 4) Discussions by LDES industry association representatives and LDES technology providers on the value and ability of non-lithium-ion LDES technologies to meet California's projected needs and how the state can help accelerate the commercialization status of these technology solutions.
- 5) Open discussion with members on the dais and attendees to the workshop.
- 6) Public Comment.

A detailed meeting agenda will be posted before the workshop at <https://www.energy.ca.gov/event-calendar>.

Background

California's passage of SB 100 continues to change the energy landscape in the state by increasing the need for clean energy resources and energy storage to ensure that the grid of the future will continue to provide safe and reliable energy to the residents of California. Former Governor Brown signed Executive Order B-55-18 to achieve carbon neutrality in California by 2045. Effectively integrating 100 percent renewable and zero-carbon electricity and achieving carbon neutrality in the state by 2045 will require rigorous analysis of implementation considerations. Energy storage is one of the key technologies needed for California to expand the clean energy generation supporting California to ensure that the grid can operate efficiently, safely and cost-effectively with renewable and zero-carbon resources.

As part of the planning process, the CPUC developed and manages the Integrated Resource Plan and Long-Term Procurement Plan (IRP-LTPP) that projects the state's future energy storage

procurement needs. The IRP-LTPP projects future needs of 14,741 MW of battery energy storage and another 1000 MW of pumped (long duration) hydro energy storage by 2032 (CPUC R.20-05-003, Decision Adopting 2021 Preferred System Plan, February 10, 2022). In March 2021, California released the SB 100 Joint Agency Report that projected what California would need to meet the requirements of SB 100 by 2045. The report identified a need to triple the amount of renewable energy and increase by eight times the amount of energy storage available to support California's grid. These projections clearly identify the need for a rapidly growing energy storage portfolio in California, and the full role of LDES in this portfolio is still being determined.

As of March 2022, an estimated 3,000 MW of battery energy storage systems have been installed in California, and a rapid increase in installed systems is planned over the next decade. One of the challenges is that most of these battery systems use one technology—lithium-ion. While lithium-ion has demonstrated a strong capability to support short-term energy storage durations (normally defined as 4 hours or less), this technology is not considered ideal for longer durations of 8 hours or more. With the supply chain issues the nation and the world are currently experiencing, it is unclear whether the lithium-ion industry can continue to meet the rapidly growing needs of California on the timeline needed. Numerous states and countries are also developing zero-carbon goals and creating a rapidly growing international demand for battery energy storage. At the same time, many non-lithium-ion technologies are advancing from being emerging technologies to becoming commercially viable technologies that can provide California new options to meet critical grid needs while providing lower costs, higher reliability, increased duty cycles, longer system life, and a more diverse supply chain than lithium-ion batteries.

California is leading the nation in researching new and emerging energy storage technologies to support increased grid reliability, resiliency, and flexibility. For over a decade, the EPIC program has researched the full range of new and emerging energy storage technologies. These technologies offer the state potentially lower costs, higher reliability, improved safety, and a longer operational life. In 2020, the EPIC program awarded 25 new grants for emerging energy storage technologies, and 11 of those grants were for various emerging non-lithium-ion LDES technology evaluations and demonstrations. The current proposed new FY 2022/2023 budget includes \$380 million that is under consideration by the Legislature that would be administered by the CEC to advance the commercial state of non-lithium-ion LDES technologies to allow California to have more energy storage technology options in the future. As the state considers future grid solution options, this workshop will provide an opportunity to discuss how best to use these proposed one-time state funds to advance technologies and potentially attract additional federal funding authorized under the Infrastructure Investment & Jobs Act of 2021 into California.

Remote Attendance Instructions

The workshop may be accessed by clicking the Zoom link below or visiting [Zoom](https://join.zoom.us) at <https://join.zoom.us> and entering the ID and password for the workshop listed below. If you experience difficulties joining, contact Zoom at (888) 799-9666 ext. 2, or the Public Advisor at publicadvisor@energy.ca.gov or at (916) 957-7910.

Link to Workshop:

<https://energy.zoom.us/j/94623702549?pwd=OEhvYkJYMEExEV3BLcW54UHZDSjdTQT09>

ID: 946 2370 2549

Password: CEC2022

Use the "raise hand" feature to indicate you want to speak and the event facilitator will indicate when your line is open and ready for you to make comment.

To Participate by Telephone, dial (786) 635-1003 or (888) 475-4499 (Toll Free). When prompted, enter the **ID: 946 2370 2549**. To comment, dial *9 to "raise your hand" and *6 to mute/unmute your phone line.

Zoom's closed captioning service will be enabled for the meeting. Attendees can use the service by clicking on the "live transcript" icon and then choosing either "show subtitle" or "view full transcript". The closed captioning service can be stopped by exiting out of the "live transcript" or selecting the "hide subtitle" icon. Closed captioning cannot be exited by phone.

Public Comment

Oral comments will be accepted at the end of the workshop. Comments may be limited to three minutes or less per speaker and one person per organization. If participating via Zoom's online platform, use the "raise hand" feature so the administrator can announce your name and unmute you. If you are participating by telephone, press *9 to "raise your hand" and *6 to mute/unmute.

Written comments must be submitted to the Docket Unit by 5:00 p.m. on April 26, 2022.

Written and oral comments, attachments, and associated contact information (including address, phone number, and email address) will become part of the public record of this proceeding with access available via any internet search engine.

The CEC encourages use of its electronic commenting system. Visit the e-commenting page <https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=19-ERDD-01>

at <https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=19-ERDD-01>, which links to the comment page for this docket. Enter your contact information and a comment title describing the subject of your comment(s). Comments may be included in the "Comment Text" box or attached as a downloadable, searchable document in Microsoft® Word or Adobe® Acrobat®. The maximum file size allowed is 10 MB.

Written comments may be submitted by email. Include docket number 19-ERDD-01 and Workshop on Advancing Non-Lithium-Ion Long Duration Energy Storage Technologies in the subject line and email to docket@energy.ca.gov.

A paper copy may be sent to:

California Energy Commission
Docket Unit, MS-4
Docket No. 20-EPIC-01
715 P Street
Sacramento, California 95814

Public Advisor and Other CEC Contacts

The CEC's Public Advisor provides the public with assistance in participating in CEC proceedings. For information about how to participate in this workshop or to request interpreting services or other reasonable modification and accommodations, reach out by phone at (916) 957-7910 or via email at publicadvisor@energy.ca.gov. Requests for interpreting services, reasonable modifications, and accommodations should be made as soon as possible but at least five days in advance of the workshop. The CEC will work diligently to meet all requests based on the availability of the service or resource requested.

Direct media inquiries to mediaoffice@energy.ca.gov or (916) 654-4989.

Direct general or technical subject inquiries to Mike Gravely at mike.gravely@energy.ca.gov or at (916) 704-4339.

Availability of Documents

Documents and presentations for this meeting will be available at [Docket Unit 19-ERDD-01](https://efiling.energy.ca.gov/Lists/DocketLog.aspx?doctetnumber=19-ERDD-01), <https://efiling.energy.ca.gov/Lists/DocketLog.aspx?doctetnumber=19-ERDD-01> .

Dated: [March 25, 2022](#), at Sacramento, California

David Hochschild
Chair, California Energy Commission

List Servers: Electric Program Investment Charge (EPIC) Program; Energy RD&D programs; RFPs, solicitations, contracts, funding announcements; Disadvantaged Communities Advisory Group; Developing Regulations, Guidelines, and Policies for Implementing SB 350 and AB 802; Barriers Report SB 350