

City Council Meeting

April 14, 2026
6:00 PM



<http://www.bonneylake.gov/>

AGENDA

Location: Bonney Lake Justice & Municipal Center, 9002 Main Street East, Bonney Lake, Washington.

The public is invited to attend Council Meetings and Workshops. Options for attending are provided below.

In-Person: Bonney Lake Justice & Municipal Center at 9002 Main Street East in Bonney Lake

By phone: 323-792-6234 (Meeting ID: 678 478 69#)

By internet: Chrome- [TEAMS Meeting Link](#) (Meeting ID: 265 362 442 662 58)

(All public online cameras and microphones will be disabled except during audience comments for anyone who clicks the raise hand icon or had let the Clerks know your phone number in advance. Only staff and presenters will be visible and unmuted during the entire meeting.)

The City Council may add and take action on other items not listed on this agenda.

I. Call to Order

A. Pledge of Allegiance

B. Roll Call

Mayor Terry Carter, Deputy Mayor Dan Swatman, Councilmember Angela Baldwin, Councilmember Aaron Davis, Councilmember Gwendolyn Fullerton, Councilmember Kerri Hubler, Councilmember J. Kelly McClimans, and Councilmember Brittany Rock.

C. Agenda Modifications

D. Announcements

1. Arbor Day Proclamation
2. Parks Appreciation Day Proclamation

II. Council Committee Reports

III. Consent Agenda

(The items listed below may be acted upon by a single motion and second of the City Council. By simple request to the Chair, any Councilmember may remove items from the Consent Agenda for separate consideration after the adoption of the remainder of the Consent Agenda items.)

A. **Approval of Minutes:** February 24, 2026, City Council Retreat And March 10, 2026, City Council Meeting

B. **Approval of Payroll:** March 16-31, 2026 For Checks #35424-35435 Including Direct Deposits and Electronic Transfers Totaling \$969,638.54. **Voids:** None.

IV. Full Council Issues

- A. **AB26-23** - An Ordinance Of The City Council Of The City Of Bonney Lake, Pierce County, Washington, Regarding Accessory Dwelling Units, Amending Section 18.22.090.C Of The Bonney Lake Municipal Code To Provide Standards And Procedures For The Legalization Of Unpermitted Accessory Dwelling Units; Providing For Severability And Corrections; And Establishing An Effective Date.
- B. **AB26-33** - An Ordinance Of The City Council Of The City Of Bonney Lake, Pierce County, Washington, Regarding Adoption Of A Temporary 6-Month Moratorium On The Acceptance, Processing, And/Or Approval Of Applications For Building, Land Use, Development, And Related Land Use Decisions For Battery Energy Storage System (Bess) Facilities To Be Located In Any Zoning District Within The City Of Bonney Lake; Scheduling A Public Hearing; Adopting Findings Of Fact; Providing For Severability And Corrections; Declaring An Emergency; And Establishing An Immediate Effective Date.

V. Audience Comments

Limited to 5 minutes for each speaker.

VI. Council Open Discussion

VII. Workshop Discussion Items

- A. **Review of Minutes:** April 7, 2026 City Council Minutes

VIII. Executive/Closed Session

Pursuant to RCW 42.30.110 and/or RCW 42.30.140, the City Council may hold an executive or closed session. The topic(s) and duration will be announced prior to the session.

IX. Adjournment

Anything submitted at the Meeting will be added to the end of the packet the next day.

The City of Bonney Lake does not discriminate on the basis of disability, race, color, or national origin in its programs, services, or activities. If you need language assistance, translation, or an auxiliary aid, service, or policy modification to fully participate, please [email the City Clerk's Office](#) or call at 253-862-8062 (TTY 711) at least 5 business days before the event; later requests will be honored when feasible.

**City of Bonney Lake, Washington
City Council Agenda Bill (AB)**

Agenda Bill Number:

Agenda Item Type: None

Presenter: Jason Sullivan, Public Services Director

City Strategic Goal Category: Parks Rec & Green Space Vision

Department/Division Submitting: Public Services Director

Impacted Departments That Received Notification: None

Full Title/Motion: Arbor Day Proclamation

Short Background Summary:

Proclamation for Arbor Day, which will be celebrated in conjunction with Parks Appreciation Day. This is one of the City's Tree City USA requirements.

Budget Explanation:

Committee, Board, Commission, & Hearing Examiner Review

Name Of Committee/Commission/Examiner Meeting:

Date of Committee/Commission/Examiner Meeting:

Date of Committee/Commission Public Hearing:

Committee/Commission/Examiner Meeting Decision:

Council Action

Date of Council Workshop

Date of Council Meeting

Date of Council Public Hearing

4/14/2026



Proclamation

WHEREAS, 2026 is the 153nd anniversary of Arbor Day which is observed throughout the nation and the world; and

WHEREAS, Saturday April 25th has been set aside as the official Arbor Day in the City of Bonney Lake; and

WHEREAS, trees can reduce the erosion of our precious topsoil by wind and water, cut heating and cooling costs, moderate the temperature, clean the air, produce life-giving oxygen, and provide habitat for wildlife; and

WHEREAS, trees are a renewable resource giving us paper, wood for homes, and beauty to our community; and

WHEREAS, trees, wherever they are planted, are a source of joy and renewal.

NOW, THEREFORE, I, Terry Carter, Mayor of the City of Bonney Lake, Washington, do hereby proclaim April 25, 2026, as:

Arbor Day in the City of Bonney Lake

And urge all citizens and property owners to celebrate Arbor Day; and to support efforts to protect our trees and woodlands; and to plant trees to gladden the heart and promote the well-being of this and future generations.

Dated this 14th day of April 2026

Mayor Terry Carter

**City of Bonney Lake, Washington
City Council Agenda Bill (AB)**

Agenda Bill Number:

Agenda Item Type: None

Presenter: Jason Sullivan, Public Services Director

City Strategic Goal Category: Parks Rec & Green Space Vision

Department/Division Submitting: Public Services Director

Impacted Departments That Received Notification: None

Full Title/Motion: Parks Appreciation Day Proclamation

Short Background Summary:

Proclamation for Parks Appreciation Day, which is on April 25, 2026.

Budget Explanation:

Committee, Board, Commission, & Hearing Examiner Review

Name Of Committee/Commission/Examiner Meeting:

Date of Committee/Commission/Examiner Meeting:

Date of Committee/Commission Public Hearing:

Committee/Commission/Examiner Meeting Decision:

Council Action

Date of Council Workshop

Date of Council Meeting

Date of Council Public Hearing

4/14/2026



Proclamation

WHEREAS, Parks, playgrounds, nature trails, open spaces, community and cultural centers, and historic sites make a community attractive and desirable place to live, work, play, and visit and contribute to our ongoing economic vitality; and

WHEREAS, Parks are a place where people can reflect, exercise, play, socialize, and have fun; and

WHEREAS, public parks and open spaces help build a sense of community and are places where everyone is welcome; and

WHEREAS, numerous jurisdictions, cities, and organizations, including Bonney Lake, have joined together to create an event that encourages citizens to celebrate the value and enhanced quality of life that parks bring to our communities; and

WHEREAS, many businesses, benefactors, organizations and donors have provided sponsorships and donations to support this event that will bring citizens together to support their local parks; and

WHEREAS, thousands of citizens throughout Pierce County will volunteer their time to clean-up and beautify parks and open spaces on Saturday, April 25, 2026

NOW, THEREFORE, I, Terry Carter, Mayor of the City of Bonney Lake, Pierce County, Washington, proclaim April 25, 2026, as:

Parks Appreciation Day!

And encourage all citizens to celebrate by participating in this event and assisting in cleaning up and beautifying Bonney Lake's parks, trails, and open spaces.

Dated this 14th day of April 2026

Mayor Terry Carter

City of Bonney Lake, Washington
City Council Agenda Bill (AB)

Agenda Bill Number:

Agenda Item Type: None

Presenter: Sadie Schaneman, City Clerk

City Strategic Goal Category: None

Department/Division Submitting: Admin

Impacted Departments That Received Notification: None

Full Title/Motion: Approval of Minutes: February 24, 2026, City Council Retreat And March 10, 2026, City Council Meeting

Short Background Summary:

minutes

Budget Explanation:

Committee, Board, Commission, & Hearing Examiner Review

Name Of Committee/Commission/Examiner Meeting:

Date of Committee/Commission/Examiner Meeting:

Date of Committee/Commission Public Hearing:

Committee/Commission/Examiner Meeting Decision:

Council Action

Date of Council Workshop

Date of Council Meeting

Date of Council Public Hearing

City Council Meeting

**February 24, 2026
4:00 PM**



<http://www.bonneylake.gov/>

Minutes

Location: Bonney Lake Public Services Center, 21719 96th St. E., Buckley, Washington, 98321. The public was also given the option to ask for accommodations to attend.

I. 4:00 pm Dinner (Not open to public)

II. 4:15 pm Call To Order And Roll Call

Deputy Mayor Swatman called the meeting to order at 4:15 p.m.

In addition to Mayor Carter, elected officials attending were Deputy Mayor Dan Swatman, Councilmember Angela Baldwin, Councilmember Aaron Davis, Councilmember Gwendolyn Fullerton, Councilmember Kerri Hubler, and Councilmember Brittany Rock. Councilmember J. Kelly McClimans was remote.

Staff members in attendance at the physical location were City Administrator John P. Vodopich, Police Chief Mark Berry, Chief Finance Officer Cherie Reierson, Administrative Services Director Chuck McEwen, Municipal Judge Anneke Berry, Judicial Branch Administrator Geri Resch, Public Services Director Jason Sullivan, Assistant to the City Administrator Leslie Harris, City Clerk Sadie Schaneman, and Records & Disclosure Coordinator Kandice Besaw.

III. 4:20pm Retreat Introduction And Ground Rules

Deputy Mayor Swatman thanked everyone for attending and went over the ground rules for sharing the floor, being respectful, and listening.

IV. 4:25pm Around The Horn: 5 Minutes Each Councilmember

A. I Ran For Election/Re-Election To The City Council Because

B. What I Hope The City Accomplishes During My Time On The Council Is

C. What I Think The City Needs To Work On Most Is

Each Councilmember and the Mayor took turns explaining why they ran for election, what they hope to accomplish, and what they feel the city needs to work on.

Deputy Mayor Swatman ran for election to work with the Council and to get the perspective of others. He hopes to accomplish having a mature budget and feels the city needs to work on budgeting.

Councilmember Davis ran for election because he grew up in Bonney Lake, is interested in the community, and working with dedicated staff. He hopes to strengthen public safety, infrastructure growth, and keeping the integrity of Bonney Lake. He feels the city needs to work on the Bonney Lake sports complex plan, the veterans' memorial, and improvements at Allan Yorke Park.

Councilmember Fullerton ran for election because she likes the current Council and feels everyone is on the same page. She would like to accomplish a good budget without raising taxes and making sure police get funding. She feels the city needs to work on the permitting process.

Councilmember Hubler ran for election to work on parks and making Bonney Lake safer for pedestrians. She hopes to accomplish bringing down labor costs and feels the city needs to work on the veterans' memorial and finishing midtown park.

Councilmember Baldwin ran for election because she wanted to listen to constituents and help them get their voice heard. She wants to accomplish the veterans memorial and finding better ways to communicate with public legislators. She feels the city needs to work on public safety and keeping small government.

Councilmember Rock ran for election to serve the citizens of Bonney Lake, give the community the type of government they want, to advocate for the city, and balance the state and community. She wants to make sure decisions that are made are in the best interest of the city and feels the city needs to work on keeping costs down and not have all decisions be in the best interest of the state.

Councilmember McClimans ran for election because he lives in Bonney Lake and his family is here. He wants to keep government small and feels the city needs to work on growing the city but not the government.

Mayor Carter ran for election because he likes the current Council and the great staff. He wants to set an example for others and leave the city better off than it was before.

V. 5:00pm Chief Financial Officer Budget Forecast

A. General Fund Balance History

Introduced by Chief Financial Officer Reierson who gave an overview of the general fund. The Council discussed and shared their concerns, including:

- General fund continuing to go down
- Causes

B. Revenue vs Expenses

Introduced by Chief Financial Officer Reierson who gave an overview of the revenues and expenses. The Council discussed and shared their concerns, including:

- The net balance does not include limited-term positions or recruitments
- Why revenue is down

VI. 5:30pm Expense Discussion

The Council discussed and shared their concerns, including:

- The increase in community development
- The importance of limited-term employees
- Moving funds around
- Insurance rates
- Sales tax
- Recreation program costs
- Emergency management costs
- Special events needs to get more donations and sponsorships
- Permit fees
- Animal control increases
- Needing more staff for public disclosures
- The fluctuation in other revenue sources
- Bringing disc golf to midtown park

VII. 6:00pm Revenue Streams

A. B & O Taxes

The Council discussed and shared their concerns, including:

- How to not have small business be effected
- Effects on big box stores
- Timeline to implement

Council decided not to go forward with this item at this time.

B. Car Tab Tax - No Advance Material

The Council discussed and shared their concerns, including:

- Can only be used for streets
- Hardship on residents

Council decided not to go forward with this item at this time.

C. Public Safety Tax

The Council discussed and shared their concerns, including:

- What tax can be used for
- The estimated amount
- Hardship on Residents

Deputy Mayor Swatman said that the Public Safety Tax is one of the preferred possibilities to further consider and look at.

VIII. 6:30pm Rest Break As Needed

IX. 6:40pm New Website Update Discussion

A. ADA Compliance For Videos

Introduced by City Clerk Schaneman who gave an overview of the ADA requirements for posting videos. The Council discussed and shared their concerns, including:

- Options for audio descriptions
- Costs for compliancy
- Necessity
- Types of videos

There was Council consensus to not post meeting videos at this time due to costs.

X. 7:00pm Open Discussion

XI. 7:45pm Goal Review and Prioritization

There was consensus of the Council to table the goal review and prioritization discussion for a future council workshop.

- A. Addition Of Items To Add To Goals
- B. Discuss List Of Goals And Add/Strike Items As Desired
- C. Prioritize Goal/Project List

XII. Adjournment

At 8:05 p.m. the Meeting was adjourned by eputy Mayor Swatman with the common consent of the City Council.

Sadie A. Schaneman, MMC, City Clerk

Dan Swatman, Deputy Mayor

Items presented to Council at the February 24, 2026, Meeting for the record: None.

Note: Unless otherwise indicated, all documents submitted at City Council meetings and workshops are added to the back of the packet the next day. For detailed information on agenda items, please view the corresponding Agenda Packets, which are posted on the city website and on file with the City Clerk.

City Council Meeting

March 10, 2026

6:00 PM

Minutes



<http://www.bonneylake.gov/>

Location: The physical location of the Council Meeting was at the Bonney Lake Justice & Municipal Center, 9002 Main Street East, Bonney Lake, Washington. The public was also given the option to call in or attend virtually the Council Meeting.

I. Call to Order

Mayor Carter called the meeting to order at 6:00 p.m.

A. Pledge of Allegiance

Mayor Carter led the audience in the Pledge of Allegiance.

B. Roll Call

City Clerk Sadie Schaneman called the roll. In addition to Mayor Carter, elected officials attending were Deputy Mayor Swatman, Councilmember Baldwin, Councilmember Davis, Councilmember Fullerton, Councilmember Hubler, and Councilmember Rock. Councilmember McClimans was in virtual attendance.

Staff members in attendance at the physical location were City Administrator John P. Vodopich, Acting Assistant Chief Ryan Harberts, Administrative Services Director Chuck McEwen, Public Services Director Jason Sullivan, City Clerk Sadie Schaneman, and Records & Disclosure Coordinator Kandice Besaw.

Staff member in virtual attendance were Legal Specialist II Carol Paul and City Attorney Jennifer Robertson.

C. Agenda Modifications

None.

II. Council Committee Reports

Councilmember Baldwin reported the Public Safety Committee met in person and virtually today at 3:45 p.m. The Committee received an update from the Police Department, Emergency Management, Code Enforcement, and the Courts, discussed juvenile crime and E-bikes and approved their minutes.

Deputy Mayor Swatman reported the Finance Committee met in person and virtually today at 5:00 p.m. The Committee went through personnel updates, discussed minute corrections, discussed ways to recruit and approved their minutes.

Councilmember Hubler:

Pierce County Regional Council (PCRC) held discussions regarding upcoming workplans and task forces, board assignments and challenges.

III. Consent Agenda

Councilmember Fullerton moved to Approve. Councilmember Baldwin seconded the motion.

Motion approved 7 – 0.

- A. **Approval of Accounts Payable and Utility Refund Checks/Vouchers:** For Checks/Vouchers #100863 to #100918, and Wire Transfers #202601281 and #20280128 in the amount of \$1,514,256.62. For Checks/Vouchers #100919 to #100989, and Wire Transfers #202601211, #20260212, #202602110, #20260206, and #20260202 in the amount of \$553,289.79 For Wire Transfer #PC012026 for City purchasing cards in the amount of \$41,107.40. For Checks/Vouchers #100990 to #101078, and Wire Transfers #20260226, #202602221, and #20260203 in the amount of \$337,544.37. **Void:** None.
- B. **Approval of Minutes:** February 10, 2026 City Council Meeting, And February 17, 2026, City Council Meeting
- C. **AB26-29 -** A Motion of the City Council of the City of Bonney Lake, Pierce County, Washington, Authorizing The Mayor to Sign The First Amendment To Lease Agreement Between City Of Bonney Lake And Goodroots Northwest

IV. Full Council Issues

- A. **AB26-27 -** A Motion Of The City Council of the City of Bonney Lake, Pierce County, Washington, To Amend The 2025-2026 Planning Commission Work Plan Adopted Under Resolution 3263 To Remove The Comprehensive Plan Update; Remove The Statutory Update Items Completed Under AB25-80 – Ordinance 1745; Remove The Annual Development Regulation Maintenance; Remove The Midtown Countywide Growth Center (CWGC) Designation; Add Removing Residential Fire Sprinkler Requirements; Add Removing Residential Sheetrock And Accessory Structures Requirements; Keep The Impact Fees Update; Add The 6-Year Capital Improvement Program (CIP); Add A Residential Reroof Permit Exemption; Add A Bulkhead Repair And Replacements Exemption; Keep The Construction Code Update; Add Geological Hazard Areas Update; And Add Replacement Of Chapter 14.130 BLMC With A Code Enforcement Title.
Deputy Mayor Swatman moved to Approve AB26-27. Councilmember Fullerton seconded the motion.

The Council discussed and shared their concerns, including:

- Midtown Countywide Growth Center

Motion approved 7 – 0.

- B. **AB26-28** - An Ordinance Of The City Council Of The City Of Bonney Lake, Pierce County, Washington, Relating To The Implementation Of A Public Safety Sales And Use Tax For Criminal Justice Purposes; Adding A New Chapter 3.46 Public Safety Sales And Use Tax To The Bonney Lake Municipal Code; Providing For Severability And Corrections; And Establishing An Effective Date.
Councilmember Fullerton moved to Refer AB26-28 to Finance Committee. Councilmember Baldwin seconded the motion.

Councilmember Baldwin asked to hear what the other Councilmembers' thoughts were before the item goes to committee.

Councilmember Fullerton moved to Rescind motion to Refer AB26-28 to Finance Committee. Councilmember Baldwin seconded the motion.

Motion approved 7 – 0.

The Council discussed and shared their concerns, including:

- Presenting to Public Safety Committee.
- Ending fund balance for 2028.
- Funding opportunities and associated obligations.
- Next opportunity for submission.

Councilmember Fullerton moved to Refer AB26-28 to Finance and Public Safety Committee. Councilmember Hubler seconded the motion.

Motion approved 7 – 0.

V. Audience Comments

For efficient use of city resources, comments will be a short summary and not verbatim. An audio recording is available on the [state digital archives](#) and [public portal website](#) if you are needing a complete review of comments.

Steve McCoy, Discussed the question of how government works and what it's supposed to look like. Take past principals and apply them to today and recreate a community.

Dan Decker, Spoke about the intimidation, violations and lack of fairness, transparency or respect within the court system.

VI. Council Open Discussion

Councilmember Fullerton

Council salary.

Council discussed and shared their thoughts including:

- Less prep work for Clerks department.
- More time available for the public to address the council at meetings.

Councilmember, Baldwin

Roll-call. Asked to have staff sitting at staff tables during meetings to be included in the roll call.

Councilmember Davis

Legislative Bills. Shared he has been keeping a close watch on the status of Bills 6002 and 6026.

VII. Workshop Discussion Items

- A. **Review of Minutes:** February 24, 2026, City Council Retreat and March 3, 2026, Joint Planning Commission Meeting/City Council Meeting Minutes
Minutes from the meeting were approved.

VIII. Executive/Closed Session

None.

IX. Adjournment

At 7:11 p.m. the Meeting was adjourned by Mayor Carter with the common consent of the City Council.

Sadie A. Schaneman, MMC, City Clerk

Terry Carter, Mayor

Items presented to Council at the March 10, 2026, Meeting for the record: None

Note: Unless otherwise indicated, all documents submitted at City Council meetings and workshops are added to the back of the packet the next day. For detailed information on agenda items, please view the corresponding Agenda Packets, which are posted on the city website and on file with the City Clerk.

City of Bonney Lake, Washington
City Council Agenda Bill (AB)

Agenda Bill Number:

Agenda Item Type: Resolution

Presenter: Jessica Yanak, Payroll Accountant

City Strategic Goal Category: None

Department/Division Submitting: Finance Staff

Impacted Departments That Received Notification: Finance

Full Title/Motion: Approval of Payroll: March 16-31, 2026 For Checks #35424-35435 Including Direct Deposits and Electronic Transfers Totaling \$969,638.54. **Voids:** None.

Short Background Summary:

Approval of Payroll: March 16-31, 2026 For Checks #35424-35435 Including Direct Deposits and Electronic Transfers Totaling \$969,638.54. **Voids:** None.

Budget Explanation:

Committee, Board, Commission, & Hearing Examiner Review

Name Of Committee/Commission/Examiner Meeting:

Date of Committee/Commission/Examiner Meeting:

Date of Committee/Commission Public Hearing:

Committee/Commission/Examiner Meeting Decision:

Council Action

Date of Council Workshop

Date of Council Meeting

Date of Council Public Hearing

**City of Bonney Lake, Washington
City Council Agenda Bill (AB)**

Agenda Bill Number:	AB26-23 -
Agenda Item Type:	Ordinance
Presenter:	Jason Sullivan, Public Services Director, Lauren Balisky, Development Services Manager
City Strategic Goal Category:	Growth Vision
Department/Division Submitting:	Public Services Staff
Impacted Departments That Received Notification:	None

Full Title/Motion: An Ordinance Of The City Council Of The City Of Bonney Lake, Pierce County, Washington, Regarding Accessory Dwelling Units, Amending Section 18.22.090.C Of The Bonney Lake Municipal Code To Provide Standards And Procedures For The Legalization Of Unpermitted Accessory Dwelling Units; Providing For Severability And Corrections; And Establishing An Effective Date.

Short Background Summary:

PURPOSE

The purpose of this item is to for City Council to review the Planning Commission recommendation on proposed updates to the enforcement regulations for Accessory Dwelling Units (ADUs) and decide whether to adopt proposed Ordinance D26-23.

DISCUSSION

City Council requested staff to bring forward an amendment to Bonney Lake Municipal Code (BLMC) 18.22.090 to provide alternative options for ADU enforcement, including allowing for residents to retain spaces that meet the definition of an ADU but who do not wish to complete the ADU permit process. This update:

- **BLMC 18.22.090.12.a:** Adds information on what is considered a legal, conforming ADU that is not subject to enforcement, based on the effective date of Ordinance 747, which is the original ordinance that adopted ADU regulations;
 - **BLMC 18.22.090.12.b:** Expands the options to:
 - Permitting the ADU, with construction permits for any unpermitted work;
 - Record a restrictive covenant that the space is not an ADU, with construction permits for any unpermitted work;
 - Removing the ADU, with a restrictive covenant, construction permits for any unpermitted work, and either:
 - Removing the range in the kitchen; OR
-

- Removing the sink in the kitchen; OR
- Removing the plumbing in the bathroom.
- **BLMC 18.22.090.12.c:** Adds language limiting the use of a covenant to one use per lot and process for releasing the restrictive covenant.
- **BLMC 18.22.090.12.d:** Renumbered from BLMC 18.22.090.12.c.
- **BLMC 18.22.090.13:** Added language to allow for a restrictive covenant when the property owner proposes a space that meets the definition of an ADU and the owner does not desire to permit the space as an ADU.
- **BLMC 18.22.090.14:** Added language around how documents are recorded, consistent with other recording provisions associated with ADUs in BLMC 18.22.090 and in the water and sewer utility codes.

At its discussion on February 4, 2026, the Planning Commission recommended clarifying which components associated with a gas or electrical range needed to be removed.

At its discussion on February 17, 2026, the Community Development Committee reviewed the draft ordinance and requested no changes.

PUBLIC HEARING

On April 1, 2026, the Planning Commission held a public hearing on the proposed ordinance. The Planning Commission recommended approval without amendments.

CITY ATTORNEY REVIEW

Review of the draft ordinance by the City Attorney was completed on February 6, 2026.

PUBLIC COMMENTS

The public was notified and invited to provide comment. No public comment was received.

DEPARTMENT OF COMMERCE COMMENTS

The draft ordinance was routed to Commerce for review consistent with [Revised Code of Washington \(RCW\) 36.70A.106](#). As of the date of preparation of this packet, no comments were received.

STATE ENVIRONMENTAL POLICY ACT (SEPA) REVIEW

The proposed amendment is categorically exempt from a SEPA threshold determination under [BLMC 16.08.030.R.2](#).

SCHEDULE

- ~~November 4, 2025 – City Council Open Council Discussion~~
 - ~~November 18, 2025 – Community Development Committee (CDC) Discussion~~
 - ~~November 18, 2025 – City Council Open Council Discussion~~
 - ~~February 4, 2026 – Planning Commission Discussion~~
 - ~~February 17, 2026 – CDC Discussion~~
-

- ~~April 1, 2026 – Planning Commission Public Hearing~~
- April 14, 2026 - City Council Decision

Budget Explanation:

N/A

Committee, Board, Commission, & Hearing Examiner Review

Name Of Committee/Commission/Examiner Meeting: Community Development Committee

Date of Committee/Commission/Examiner Meeting: 11/18/2025

Date of Committee/Commission Public Hearing: 4/1/2026

Committee/Commission/Examiner Meeting Decision: Continue to public hearing; then bring back to City Council for full discussion.

Council Action

Date of Council Workshop

Date of Council Meeting

Date of Council Public Hearing

ORDINANCE NO. XXXX

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, PIERCE COUNTY, WASHINGTON, REGARDING ACCESSORY DWELLING UNITS, AMENDING SECTION 18.22.090.C OF THE BONNEY LAKE MUNICIPAL CODE TO PROVIDE STANDARDS AND PROCEDURES FOR THE LEGALIZATION OF UNPERMITTED ACCESSORY DWELLING UNITS; PROVIDING FOR SEVERABILITY AND CORRECTIONS; AND ESTABLISHING AN EFFECTIVE DATE.

WHEREAS, the Washington State Growth Management Act (GMA) codified as Chapter 36.70A of the Revised Code of Washington (RCW) requires that the City of Bonney Lake adopts a local comprehensive plan; and

WHEREAS, RCW 36.70A.070(2)(d)(iv) requires cities to consider the role of accessory dwelling units in meeting housing needs as part of its comprehensive plan; and

WHEREAS, RCW 36.70A.040(3) requires cities to adopt development regulations that implement the comprehensive plan; and

WHEREAS, the City wishes to clarify the enforcement procedures for unpermitted accessory dwelling units; and

WHEREAS, the Public Services Director acting as the State Environmental Policy Act (SEPA) Responsible Official determined that the proposed amendment is categorically exempt from threshold determination pursuant to BLMC 16.08.030.R.2; and

WHEREAS, the City provided public notice of the hearing as required by Bonney Lake Municipal Code (BLMC) 14.140.040; and

WHEREAS, the Planning Commission held a public hearing on April 1, 2026, as required by BLMC 14.140.080 and recommended that the City Council adopt the proposed amendments, with two minor modifications, as required by BLMC 14.140.100; and

WHEREAS, pursuant to RCW 36.70A.106, the City submitted this Ordinance to the Washington State Department of Commerce (Commerce); and

WHEREAS, the Commerce review period has elapsed and the Ordinance is ready for passage;

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, WASHINGTON, DO ORDAIN AS FOLLOWS:

Section 1. Findings of Facts and Conclusions. The findings of fact and conclusions attached as Attachment A are adopted in full by the City Council in support of its decision. The recitals listed above in this Ordinance are further adopted as legislative findings.

Section 2. Amendment. Subsection 18.22.090.C of the Bonney Lake Municipal Code is hereby amended to read as follows:

18.22.090 Accessory Dwelling Units

... C. The creation of an ADU shall be subject to the following requirements, which shall not be subject to waiver or variance:

... 12. ~~Legalization of Nonconforming Unpermitted ADUs.~~

a. Any space meeting the definition of an ADU that can be demonstrated to have obtained the required permit(s), as specified below, shall be considered a legal, conforming ADU, and is not required to comply with this subsection:

i. The space was constructed under a valid building permit from the City, where the building permit application was complete on or prior to November 4, 1997; or

ii. The space was constructed under a valid ADU permit from the City, where the permit application was complete on or after November 5, 1997; or

iii. If the space was constructed prior to annexation by the City, under a valid permit from Pierce County.

b. Any space meeting the definition of an ADU that did not obtain the required permit(s), as specified above, is declared an unpermitted ADU. All owners of an ~~illegal unpermitted~~ ADU shall be required to comply with one of the following options as set forth in i – iii below:

i. a. ~~Legalize Permit the unit~~ ADU. To permit the ADU, the owner must:

A. ~~An application to legalize an existing ADU shall include an application~~ for an ADU permit, showing changes made to the primary dwelling unit or detached accessory building to accommodate the ADU. Approval shall be consistent with the ADU regulations and process outlined in this section. The ADU

shall be reviewed using the current editions of building codes in place at the time its owner brings the unit forward for permit; and

B. Obtain building or other permit(s) for any unpermitted work; or

ii. b. Record a restrictive covenant. This option shall only be used once per lot. The owner must:

A. Record a statement on the property title clarifying that the space within the primary dwelling unit or the detached accessory structure shall not be utilized as an ADU; and

B. Obtain building or other permit(s) for any unpermitted work; or

iii. Remove the ~~illegal unpermitted~~ ADU. The owner must:

A. Record ~~record~~ a statement on the property title clarifying the space within the primary dwelling unit or detached accessory structure shall not be utilized as an ADU; and

B. Obtain permits for any unpermitted work; and

C. Comply ~~comply~~ with one of the following requirements below so that the space no longer meets the definition of an ADU and is no longer considered an independent living space:

i-1. Remove the range and ~~cap the plumbing~~ either cap the gas service or remove the electrical system associated with the range by removing the plug and associated outlet box within the kitchen and circuit breakers at the electrical panel ~~so the ADU is not considered an independent living space.~~; or

2. Remove the sink and cap the plumbing within the kitchen; or

ii-3. Remove plumbing fixtures and cap the plumbing within the bathroom ~~so the ADU is not considered an independent living space.~~

c. A maximum of one restrictive covenant clarifying that a space shall not be utilized as an ADU is permitted per lot. The restrictive covenant shall be released from property title concurrent with recording of the covenant required under BLMC 18.22.090.B.3 when:

i. The space identified under the restrictive covenant is permitted as an ADU under this section; or

ii. A second space meeting the definition of an ADU is proposed. In this case, both the original space and the second space must comply with all applicable requirements for two ADUs and obtain an ADU permit for each ADU under this section.

ed. Nothing in this section shall require that the city to issue permits for or to allow existing ADUs that are determined to be dangerous pursuant to Chapter 15.04 BLMC.

13. Nothing in this section shall prevent the city from requiring an owner to record a statement on the property title clarifying that a space within the primary dwelling unit or detached structure shall not be utilized as an ADU associated with new construction, remodels, or additions, where the work under the permit otherwise meets the definition of an ADU and the owner does not want to use any portion of the subject primary dwelling unit or detached structure for an ADU.

14. Any covenant, agreement, or statement on the property title shall be recorded with the Pierce County auditor. The owner is responsible for recording the document with the Pierce County auditor and providing a conformed copy to the city. The form of the statement shall be specified by the director.

Section 3. Severability. If any section, sentence, clause, or phrase of this Ordinance should be held to be unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this Ordinance.

Section 4. Publication. This Ordinance shall be published by an approved summary consisting of the title.

Section 5. Corrections. Upon the approval of the city attorney, the city clerk, and/or the code publisher is authorized to make any necessary technical corrections to this ordinance, including but not limited to the correction of scrivener's/clerical errors, references, ordinance numbering, section/subsection numbers, and any reference thereto. Provided, however, that nothing in this section allows the city attorney, the city clerk, and/or the code publisher to change the intent of this Ordinance.

Section 6. Effective Date. This Ordinance shall be effective five days after publication as provided by law.

ADOPTED by the City Council of the City of Bonney Lake and attested by the City Clerk in authentication of such passage on this ___ day of _____, 20__.

APPROVED by the Mayor this ___ day of _____, 20__.

Terry Carter, Mayor

AUTHENTICATED:

Sadie A. Schaneman, MMC, City Clerk

AB _____
Passed:
Valid:
Published:
Effective Date:
This Ordinance totals _____ page(s)

FINDINGS OF FACT AND CONCLUSIONS

Having considered in detail both the oral and documentary evidence received concerning the update to the City of Bonney Lake Municipal Code (BLMC), the Bonney Lake City Council now makes and adopts the following Findings of Fact and Conclusions:

FINDINGS OF FACT

Public Participation

- 1) The Bonney Lake Planning Commission held a public meeting to discuss the amendments on February 4, 2026.
- 2) The Bonney Lake Planning Commission held a public hearing April 1, 2026, and recommended that the City Council adopted the proposed amendments.
- 3) The City issued an official notice of the public hearing on March 18, 2026, which is 15 days prior to the hearing.
- 4) The notice of public hearing provided a comment period, which concluded on April 1, 2026.
- 5) Notice of the hearing was also published in the newspaper on March 18 and March 25, 2026, as required by BLMC 14.140.040(D).

State Environmental Policy Act

- 6) The amendments to the City's Development Code are considered a non-project action as defined in WAC 197-11-704(2)(b) under the State Environmental Policy Act (SEPA).
- 7) Pursuant to WAC 197-11-926, the City of Bonney Lake was designated as the lead agency for the SEPA review of the proposed amendments contained in this ordinance.
- 8) The Public Services Director acting as the SEPA Responsible Official determined that the proposed amendment is categorically exempt from threshold determination pursuant to BLMC 16.08.030.R.2.

State Agency Review

- 9) Development regulations are defined as the controls placed on development or land use activities by a county or city, including, but not limited to, zoning ordinances, critical areas ordinances, shoreline master programs, official controls, planned unit development ordinances, subdivision ordinances, and binding site plan ordinances together with any amendments thereto pursuant to RCW 36.70A.030.

- 10) The City submitted the required notice of intent to adopt the proposed ordinance to the Department of Commerce as required by RCW 36.70A.106 on February 23, 2026.

Comprehensive Plan Policies

- 11) The City’s comprehensive plan, *Envision Bonney Lake*, includes the following goals and policies in the Community Development Element:
- a. Goal CD-H-1.1 establishes the goal to “Provide a variety of housing options that will meet the needs of all Bonney Lake’s current and future residents and are affordable to all economic segments of Bonney Lake.”
 - b. Policy CD-H-1.2 states that the City should “Update the City’s development regulations to permit a range of housing types that is consistent with the City’s growth strategy. This may include attached and detached single-unit dwellings, cottages, townhomes, accessory dwelling units, apartments, mixed-use, permanent supportive housing, income-restricted housing, and emergency shelters.”
 - c. Goal CD-H-6 establishes the goal to “Encourage the development of a wide variety of high-quality housing types to accommodate the diverse needs of Bonney Lake’s community members through changes in age, household size, income, mobility, and housing preferences.”
 - d. Policy CD-H-6.1 states that the City should “Allow a variety of residential densities and housing types to enable the development of housing to meet the needs of people of all incomes throughout their lifetime.”
 - e. Policy CD-H-6.2 states that the City should “Allow additional housing types, such as cottages, attached single-unit dwellings, townhouses, and accessory dwelling units (ADUs), in low-density residential zones.”
 - f. Policy CD-H-6.3 states that the City should “Allow ADUs within new and existing low-density developments and explore opportunities to promote ADU construction in existing homes.”
 - g. Policy CD-H-10.5 states that the City should “Support the development of ADUs through streamlined permitting, education and resources, and regular monitoring of the ADU regulations, as required by State law.”
 - h. Goal CD-LU-3 establishes the goal to “Provide healthy, livable, well maintained, walkable, and safe residential neighborhoods that provide opportunities for social interaction in a manner that harmoniously blends the natural and built environments.”

- i. Policy CD-LU-3.1 states that “Planning and land use decisions should recognize residents as the foundation of the community, by promoting compatibility between existing and new housing units, protecting residential uses from adverse impacts and uses, and maintaining a range of residential zones to support the identified housing needs.”
- j. Goal CD-LU-6 establishes the goal to “Guide growth and development to ensure that it is orderly and efficient; leverage public investment to address the needs of the underserved areas; ensure the continued availability of infrastructure and public services; reduce adverse impacts on adjacent properties; and to protect the natural environment.”
- k. Policy CD-LU-6.2 states that the City should “Adopt and routinely update development regulations to direct growth, ensure sufficient opportunities for new development, maintain and improve Bonney Lake's quality of life, preserve and rehabilitate existing housing stock, mitigate nuisances, achieve compatibility between adjacent properties and uses, and protect the health, safety and welfare of residents, workers, and visitors.”

Washington State Law

- 12) The amendments to the City’s Development Code and utility regulations comply with Washington state law, as follows:
 - a. The amendments allow for the continued application of public health, safety, building code, and environmental permitting requirements applicable to primary dwelling units, and protection of critical areas, consistent with Chapter 36.70A RCW.
 - b. The amendments to BLMC 18.22.090 allow for the continued use of legal nonconforming accessory dwelling units, constructed prior to the initial adoption of accessory dwelling unit regulations or prior to annexation.
 - c. The amendments to BLMC 18.22.090 allow for enforcement of unpermitted accessory dwelling units and the accessory dwelling unit regulations, as authorized by and consistent with RCW 35A.11.020.

CONCLUSIONS

Based upon the above findings the City Council adopts the following conclusions:

- 1) Notice of the public hearing for this matter has been conducted in accordance with City of Bonney Lake rules and regulations governing such matters for both the Planning Commission and the City Council (FINDINGS 1 – 5).
- 2) The City complied with the requirements to the State Environment Policy Act (Chapter 43.21C) and the implementing regulations found in Chapter 197-11 WAC and Title 16, Division I BLMC (FINDINGS 6 – 8).
- 3) The City complied with the requirements of RCW 36.70A.106 to notify the Department of Commerce of the City's intent to adopt an amendment to the City's development regulations (FINDINGS 9 – 10).
- 4) The proposed amendments are consistent with meet the approval criterion for amendments to a development regulation established in BLMC 14.140.090.B, as the proposed amendments are consistent with the goals and policies of the City's adopted comprehensive plan, *Envision Bonney Lake*, and consistent with the laws of the State of Washington (FINDINGS 11 – 12).



Memo

Date : April 1, 2026
To : Mayor and City Council
From : Jessica Bennion, Planning Commission Vice Chair
Re : **Ordinance D26-23**

On June 4, 2026, the Planning Commission conducted a Public Hearing on Ordinance D26-23 related to standards and procedures for the legalization of unpermitted accessory dwelling units. The Planning Commission voted 5-0-0 (2 members absent) to recommend that the City Council approve Ordinance D26-23, without amendments.

As required by BLMC 14.40.100, the Planning Commission has reviewed and adopted the findings of facts and conclusions included as Attachment A to Ordinance D26-23.

City of Bonney Lake, Washington
City Council Agenda Bill (AB)

Agenda Bill Number: AB26-33 -
Agenda Item Type: Ordinance
Presenter: Jason Sullivan, Public Services Director,
Lauren Balisky, Development Services
Manager
City Strategic Goal Category: Growth Vision
Water Resource Vision
Department/Division Submitting: Public Services Staff
**Impacted Departments That Received
Notification:** None

Full Title/Motion: An Ordinance Of The City Council Of The City Of Bonney Lake, Pierce County, Washington, Regarding Adoption Of A Temporary 6-Month Moratorium On The Acceptance, Processing, And/Or Approval Of Applications For Building, Land Use, Development, And Related Land Use Decisions For Battery Energy Storage System (Bess) Facilities To Be Located In Any Zoning District Within The City Of Bonney Lake; Scheduling A Public Hearing; Adopting Findings Of Fact; Providing For Severability And Corrections; Declaring An Emergency; And Establishing An Immediate Effective Date.

Short Background Summary:

PURPOSE

In Fall 2025, Puget Sound Energy (PSE) issued a Request for Proposals (RFP) for energy storage sites, including for Battery Energy Storage Systems (BESS) facilities. Staff have been receiving inquiries about the installation of these systems, including a pre-application meeting request for the property immediately north of the Public Safety building.

The purpose of this item is for the Council to consider and adopt a 6-month moratorium ordinance.

ABOUT BATTERY ENERGY STORAGE SYSTEMS (BESS)

Battery Energy Storage Systems (BESS) are systems of rechargeable large-format batteries that help electric utilities moderate demand for electricity during short-term peak usage and extreme weather events. In extreme cases, BESS can help protect sensitive equipment such as transformers, transmission lines, switches, and other infrastructure from overload, preventing blackouts or long-term service outages.

PSE's RFP seeks 5-megawatt lithium-ion systems placed along segments of its system capable of handling the storage systems without major off-site system upgrades. In Bonney Lake, this is

generally located along:

- Myers Rd E
- Bonney Lake Blvd E
- Locust Ave
- Veterans Memorial Dr E between Locust Ave E and 192nd Ave E
- Angeline Rd E between Rhodes Lake Rd E and the 9900 block of Angeline Rd E
- Small segments adjacent to Bonney Lake High School and Mountain View Middle School

The PSE Request for Proposals can be viewed online at: <https://www.pse.com/en/pages/energy-supply/acquiring-energy/2025-Distributed-Solar-and-Storage-RFP>

For more information on BESS facilities, see the attachments.

CURRENT CITY REGULATORY REQUIREMENTS

The rapid growth of BESS facilities worldwide, driven by technological advancements and the increasing adoption of renewable energy, has prompted the need for regulations to address their deployment. In the City of Bonney Lake, due to their relatively recent emergence, there are currently no specific zoning or other development regulations pertaining to BESS facilities.

Under the Bonney Lake Municipal Code (BLMC), "public utility facilities" are permitted outright in all zoning districts ([BLMC 18.08.020](#)). A "public utility" is "*an entity whose principal purpose is to provide electricity, water, sewer, storm drainage, gas, radio, television, telephone and/or other forms of communication utilizing electromagnetic spectrum to the general public*" ([Ordinance 1745, page 15](#)). The City requires that the property associated with a public utility facility is owned, under a contract for purchase, or leased by the public utility and not by a private entity to be permitted as a public utility facility.

In the City's residential zones (R-1, R-3, and RC-5), public utility facilities must be for the distribution of services and cannot be an office, warehouse, storage or service yard, or similar use. Landscaping is required.

In all other zones, construction of above-ground public utility facilities are required to comply with all critical area, construction code, and engineering standards. Installations exceeding 2000 square feet of gross floor area are also required to comply with applicable design review standards.

For a map showing the City's zoning districts, visit the Public GIS map at: <https://qrco.de/CBLGIS>

DISCUSSION

To address this gap and proactively manage the impact of BESS on the community, the Community Development Committee directed staff to prepare a 6-month moratorium ordinance for consideration by the full council.

This moratorium would temporarily halt the development, land use, and construction of BESS facilities within Bonney Lake while city staff conducts research and formulates appropriate regulations. The proposed moratorium would apply to all applications for permits, licenses, or other governmental approvals for BESS facilities within the City of Bonney Lake during the specified period.

Under [RCW 35A.63.220](#) and [RCW 36.70A.390](#), cities in Washington State have the authority to implement moratoria to pause land use actions, including permits or approvals for development projects like BESS facilities. This statutory authority enables cities to take the necessary time to study emerging issues and develop comprehensive plans or zoning regulations to address them effectively. By enacting a moratorium, the City will be afforded time to:

- Study whether BESS facilities are compatible and should be allowed within City limits, either as a permitted or conditional use; and
- If so, in which zone(s) and whether current development regulations in Title 18 BLMC and/or other official controls and development standards need to be updated to ensure such facilities can be safely and appropriately sited within the City.

This temporary measure provides the City with the opportunity to carefully consider the implications of BESS facilities, establish appropriate regulations, and ensure that any potential future BESS facility installations protect public health and safety and align with the community's long-term goals and values.

CITY ATTORNEY REVIEW

The ordinance was reviewed by the City Attorney on April 8, 2026.

STATE ENVIRONMENTAL POLICY ACT (SEPA) REVIEW

The proposed ordinance is exempt from a SEPA threshold determination under [BLMC 16.08.050.B.1](#).

Budget Explanation:

N/A

Committee, Board, Commission, & Hearing Examiner Review

Name Of Committee/Commission/Examiner Meeting: Community Development Committee

Date of Committee/Commission/Examiner Meeting: 4/7/2026

Date of Committee/Commission Public Hearing:

Committee/Commission/Examiner Meeting Decision: Prepare an ordinance for full council review on April 14, 2026.

Council Action

Date of Council Workshop

Date of Council Meeting

Date of Council Public Hearing

ORDINANCE NO. XXXX

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, PIERCE COUNTY, WASHINGTON, REGARDING ADOPTION OF A TEMPORARY 6-MONTH MORATORIUM ON THE ACCEPTANCE, PROCESSING, AND/OR APPROVAL OF APPLICATIONS FOR BUILDING, LAND USE, DEVELOPMENT, AND RELATED LAND USE DECISIONS FOR BATTERY ENERGY STORAGE SYSTEM (BESS) FACILITIES TO BE LOCATED IN ANY ZONING DISTRICT WITHIN THE CITY OF BONNEY LAKE; SCHEDULING A PUBLIC HEARING; ADOPTING FINDINGS OF FACT; PROVIDING FOR SEVERABILITY AND CORRECTIONS; DECLARING AN EMERGENCY; AND ESTABLISHING AN IMMEDIATE EFFECTIVE DATE.

WHEREAS, within the express terms of the Washington State Growth Management Act (“GMA”) codified as Chapter 36.70A of the Revised Code of Washington (RCW), the Washington State Legislature has specifically conferred upon the governing bodies of Washington cities the right to establish and adopt moratoria and interim zoning controls related to land uses, as set forth in RCW 35A.63.220 and RCW 36.70A.390; and

WHEREAS, a moratorium is a pause on new development, land use, and construction applications of the type set forth in the moratorium ordinance. This pause allows cities the time to consider new development and zoning regulations; and

WHEREAS, the City of Bonney Lake (“City”) possesses land use jurisdiction and regulatory authority over the City's incorporated lands; and

WHEREAS, Battery Energy Storage System (“BESS”) facilities are installations designed to store electrical energy for later use, typically consisting of batteries, power conversion systems, and control equipment; and

WHEREAS, the primary function of BESS facilities is to store excess electricity generated during periods of low demand or high renewable energy production, such as from solar or wind sources; and

WHEREAS, this stored energy can then be discharged when demand is high or when renewable energy generation is low, helping to stabilize the electrical grid and improve overall energy reliability; and

WHEREAS, BESS facilities can also have significant and serious risks, such as thermal runaway situations, fires, explosions, and the release of toxic gases therefrom, as well as noise and low-frequency noise impacts, groundwater impacts, water supply impacts, and impacts to wildlife; and

WHEREAS, BESS facilities may be small and used on a consumer scale for single-family residences, or may be large and used on a commercial scale. BESS facilities can take on a variety of designs based on the number of battery modules and the type of batteries used (e.g. lithium-ion, lithium iron phosphate, nickel-cadmium, sodium-sulfur); and

WHEREAS, time is needed for the City to study whether BESS facilities are compatible and should be allowed within City limits, either as a permitted use or as a conditional use; and

WHEREAS, if the City determines that BESS facilities should be a permitted use or conditional use, then time is needed for the City to study in which zoning district(s) BESS facilities should be allowed, and whether the current zoning regulations in Title 18 of the Bonney Lake Municipal Code (BLMC) and/or other official controls and development standards need to be updated to ensure such facilities can be safely and appropriately sited within the City; and

WHEREAS, the City’s development regulations, and specifically the definition of “public utility” in BLMC 14.10.030.X and the permitted and conditional uses provided in BLMC 18.08.020, have not been updated to reflect recent technological changes and business models in the energy storage and electric utility industry; and

WHEREAS, applying these outdated regulations in Title 18 BLMC to new technologies and business models could lead to approval of BESS facility projects that are undesirable, unsafe, and/or inconsistent with long-term planning goals and objectives of the City, particularly when the existing regulations have not been reviewed and updated for best practices nor reconsidered in light of technological changes and potential effects such facilities have on surrounding areas and community resources; and

WHEREAS, the City Council of the City of Bonney Lake (“City Council”) has determined the following facts, and identified the following unknown risks and economic factors, that may be relevant in assessing the desirability of, and siting concerns associated with, BESS facilities in the City:

- A. BESS are essentially rechargeable battery arrays that store excess energy when demand on the electrical grid is low and can feed power back into the system when demand is high or energy production is low.
- B. The elements used in these batteries can pose risks of explosion from overheating and of environmental contamination.
- C. BESS facilities present fire hazards that can take weeks to extinguish, requiring massive volumes of water and chemicals to bring under control.
- D. BESS facilities are sites where hazardous chemicals such as cyanide and hydrofluoric acid are present and thus pose the potential for discharge to surrounding property, air, and groundwater in the event of a fire.

- E. BESS facilities create a potential for air quality hazards in the event of a fire.
- F. BESS facilities may produce noise and visual impacts that are not currently well understood by the City.
- G. BESS facilities may produce impacts on wildlife that are not currently well understood by the City.
- H. BESS facilities may create additional strain on local emergency response agencies and their personnel.
- I. It is unclear whether BESS facilities are subject to review under the Washington State Environmental Policy Act, and the City needs time to determine whether updates to its regulations are required.
- J. The Washington State Department of Ecology is compiling guidance on BESS facility sites that the City wishes to study before updating its zoning and other regulations applicable to BESS facilities.
- K. The Washington State Legislature adopted House Bill 1216 in 2023, and new Washington State regulations codified at Washington Administrative Code (WAC) 51-54A-0105, 51-54A-0301, 51-54A-0322, and 51-54A-903, intended to minimize the risks of lithium-ion and lithium metal BESS facilities through fire safety requirements and construction standards. The City desires to study these new laws and regulations to determine what effects they will have on local regulatory authority.
- L. Puget Sound Energy (“PSE”), which issued a Request For Proposals for third-party private entities to develop energy storage facilities connected via high-voltage transmission lines to PSE’s regional substations, has published safety and reliability requirements for such facilities that need to be explored and better understood before the City can determine whether to permit BESS facilities in the City, where these may be appropriately located, and under what conditions.
- M. It is unknown what fiscal or economic development benefits would flow to the City if BESS facilities were permitted within the City or which zone(s) would be most advantageous for siting them. The City needs to investigate and analyze potential economic impacts and tax revenues associated with such projects.
- N. The United States Supreme Court in *Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency*, 535 U.S. 302 (2002) held that moratoria are essential tools for successful development regulations and re-affirmed that moratoria are not per se takings.
- O. The regulations currently in effect do not contemplate BESS facility development nor adequately ensure the protection of land within Bonney Lake for BESS facility development.
- P. Bonney Lake intends to develop permanent regulations to address the deficiencies in its current regulations.
- Q. This ordinance is exempt from the public participation requirements of the GMA, subject to the requirements of RCW 36.70A.390.

R. An emergency exists and the immediate adoption of a moratorium imposed by this ordinance is necessary for the protection of public health, safety, property, and peace; and

WHEREAS, due to the unique characteristics of BESS facilities, certain existing requirements in the BLMC may not appropriately address or mitigate the community impacts and risks such facilities may present; and

WHEREAS, processing applications for building permits, land use permits, or project permits, and related applications or code interpretations for BESS facilities under existing zoning regulations and other official controls could potentially result in approvals of undesirable and incompatible development and should be paused until such time that the City has properly reviewed its regulations and implemented any zoning code revisions or additional controls deemed necessary and proper for the health, safety, and general welfare of the City and its residents; and

WHEREAS, the City Council has significant concerns about whether BESS facilities can be appropriately reviewed and analyzed under current regulations and finds that unless the City preserves the status quo, there are likely to be adverse impacts on the City and the health, safety, and welfare of its citizens; and

WHEREAS, the above concerns can be addressed through the adoption of appropriate development regulations; and

WHEREAS, City staff may be able to draft such regulations to address these concerns within a reasonable timeframe; and

WHEREAS, those regulations would then be presented to the Planning Commission and City Council for consideration and adoption; and

WHEREAS, the drafting and finalizing of these regulations could require multiple discussions with the Planning Commission and City Council over several months; and

WHEREAS, to promote public health, safety, and welfare, the City Council deems it necessary and proper to impose a moratorium on land use and development permit applications related to BESS facilities; and

WHEREAS, RCW 35A.63.220 and RCW 36.70A.390 authorizes the City Council to adopt an immediate moratorium for a period of six months, or twelve months with a work plan, without holding a public hearing on the proposal, provided that a public hearing is held within at least 60 days of its adoption, where the City Council may adopt additional findings following the conclusion of said hearing; and

WHEREAS, pursuant to RCW 35A.63.220 and RCW 36.70A.390, the moratorium may be renewed for one or more six-month periods if a subsequent public hearing is held and findings of fact are made prior to each renewal; and

WHEREAS, the Public Services Director acting as the State Environmental Policy Act (SEPA) Responsible Official determined that the adoption of this moratorium is exempt from threshold determination pursuant to BLMC 16.08.050.B.1 regarding emergency legislative actions; and

WHEREAS, the potential adverse impacts on public health, property, safety and welfare of the City and its citizens if this moratorium does not take effect immediately, further justifies the declaration of an emergency and the designation of this ordinance as a public health emergency ordinance necessary for the protection of the public health, public safety, public property, or the public peace by the Council; and

WHEREAS, Council finds that the enactment of this ordinance constitutes an emergency due to the need to prevent the community detriment that would occur by allowing a BESS facility proposal to vest under the current land use regulations; and

WHEREAS, RCW 35A.13.190 permits an ordinance to become effective immediately but requires that it must be passed by a majority plus one of the whole membership of Council to have such an effect; and

WHEREAS, the moratorium imposed herein promotes the public good and is necessary for the protection of public health, property, safety, and welfare. A public emergency exists requiring that the City's moratorium takes effect immediately upon adoption.

NOW THEREFORE, THE CITY COUNCIL OF THE CITY OF BONNEY LAKE, WASHINGTON, DO ORDAIN AS FOLLOWS:

Section 1. Findings of Facts. The recitals above are hereby adopted as the City Council's initial findings of fact in support of the moratorium established by this ordinance. The City Council may, in its discretion, adopt additional findings after the public hearing referenced in Section 3 below.

Section 2. Moratorium Imposed. Pursuant to RCW 35A.63.220 and RCW 36.70A.390, a temporary development moratorium is hereby imposed on BESS facilities in any zoning district within the City of Bonney Lake. This moratorium also applies to the City acceptance, processing, or approval of any applications for building permits, land use permits, or project permits for BESS facilities, including without limitation:

- A. Building permits;
- B. Civil permits;
- C. Clearing and grading permits;
- D. Conditional use permits;
- E. Critical area report reviews, critical area exemptions, or critical area permits;
- F. Full subdivisions (plats);

- G. Reasonable use permits;
- H. Shoreline exemptions, shoreline substantial development permits, shoreline conditional use permits, or shoreline variances;
- I. Short subdivisions (plats);
- J. Site plan reviews;
- K. Temporary use permits;
- L. Tree removal permits
- M. Utility permits or reviews;
- N. Variances from Title 18 BLMC regulations;
- O. Deviations from any City of Bonney Lake engineering design and construction standards or other technical codes for any BESS facility within the City or any other type of development permit, approval, or code interpretation in connection with the same; and
- P. Any other development permits, licenses, or governmental approvals related to BESS facilities.

Section 3. Public Hearing. Pursuant to RCW 35A.63.220 and RCW 36.70A.390, the City Council shall hold a public hearing at a City Council meeting within 60 days of adoption of this ordinance in order to take public testimony and to consider adopting further findings of fact, on or before June 13, 2026. The Council hereby schedules the public hearing for May 19, 2026.

Section 4. Interpretive Authority. The City of Bonney Lake Public Services Director, or designee, is hereby authorized to issue official interpretations arising under or otherwise necessitated by this ordinance.

Section 5. Direction to Planning Commission; Work Plan. City staff and the Bonney Lake Planning Commission are hereby authorized and directed to study the issues presented in this Ordinance and to develop recommendations for whether BESS facilities should be allowed uses within the City and, if so, what development regulations and public processes are needed to protect the health, safety, and welfare of the community, and ensure that such facilities are developed in a manner that is compatible with the overall plan and vision for the City. These recommendations shall be reviewed and considered by the Bonney Lake City Council by October 14, 2026. This direction is subject to change upon subsequent direction of the City Council following the public hearing referenced in Section 3 of this Ordinance.

Section 6. Effect on Vested Rights. The moratorium imposed under Sections 2 through 5 of this Ordinance shall apply prospectively only and shall apply to all approvals and permits identified in Section 2 submitted after the effective date of this Ordinance. Nothing in this ordinance shall be construed to extinguish, limit, or otherwise infringe on any permit applicant's vested development rights as defined by state law.

Section 7. Severability. If any section, sentence, clause, or phrase of this Ordinance should be held to be unconstitutional by a court of competent jurisdiction, such

invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause or phrase of this Ordinance.

Section 8. Publication. This Ordinance shall be published by an approved summary consisting of the title.

Section 9. Corrections. Upon the approval of the city attorney, the city clerk, and/or the code publisher is authorized to make any necessary technical corrections to this ordinance, including but not limited to the correction of scrivener’s/clerical errors, references, ordinance numbering, section/subsection numbers, and any reference thereto. Provided, however, that nothing in this section allows the city attorney, the city clerk, and/or the code publisher to change the intent of this Ordinance.

Section 10. Declaration of Emergency. The City Council hereby declares that there is a significant potential for BESS facilities to create substantial adverse effects on public health, safety, and welfare if not addressed by adequate and appropriate regulations. Therefore, an emergency exists which necessitates that this Ordinance take effect immediately upon passage in order to preserve the public health, safety, and welfare. Non-exhaustive underlying facts necessary to support this emergency declaration are included in the recitals above, all of which are adopted by reference as finding of fact as if fully set forth herein.

Section 11. Effective Date. This moratorium shall take effective immediately upon passage of a majority plus one of the City Council and shall remain effective for six months, unless terminated earlier by the City Council; provided, that the Council may, at its sole discretion, renew the interim official control for one or more six-month periods in accordance with state law.

ADOPTED by the City Council of the City of Bonney Lake and attested by the City Clerk in authentication of such passage on this __ day of _____, 20__.

APPROVED by the Mayor this __ day of _____, 20__.

Terry Carter, Mayor

AUTHENTICATED:

Sadie A. Schaneman, MMC, City Clerk

AB _____
Passed:
Valid:
Published:
Effective Date:
This Ordinance totals _____ page(s)



Battery Energy Storage Systems: Main Considerations for Safe Installation and Incident Response

Battery Energy Storage Systems Overview

Battery energy storage systems (BESS) stabilize the electrical grid, ensuring a steady flow of power to homes and businesses regardless of fluctuations from varied energy sources or other disruptions. However, fires at some BESS installations have caused concern in communities considering BESS as a method to support their grids. BESS fires pose challenges to first responders due to the:

- Difficulty in putting out lithium-ion battery fires.
- Potential health impacts from emissions.
- Need to clean up and properly dispose of burned or impacted batteries.

Communities should consult BESS safety experts when considering and designing installations. Communities should also note that despite some high-profile incidents, improvements in BESS quality and design have led to a decrease in the number of failure incidents per gigawatt hour deployed (Figure 1).

In recent years, first responder and industry associations have developed guidance to help communities identify focus areas when planning a BESS, including how to work with local responders to improve incident preparedness. This document is a non-comprehensive collection of existing research and guidance.

Facts about Recent Fires

Since 2020, BESS failure incidents have decreased, but some recent fires have gained attention in the media. On May 15, 2024, Gateway Energy Storage Facility in San Diego, California, experienced a BESS fire with continued flare-ups for seven days following the fire. The facility held about 15,000 nickel manganese cobalt lithium-ion batteries. Following the incident, EPA has required the Gateway facility to conduct extensive environmental monitoring during battery handling and disposal operations and submit detailed work plans and progress reports.¹

This document includes information from first responder and industry guidance as well as:

- Background information on BESS, including challenges and recent fires
- BESS installation considerations
- BESS incident response considerations
- Resources for fire planning and response
- Standards and links to additional resources

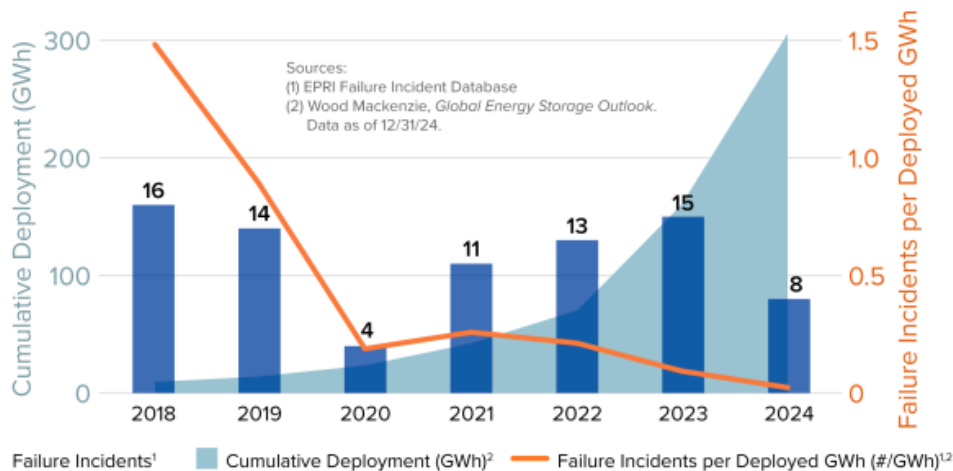


Figure 1. Global grid-scale storage deployment and failure statistics. Source: Electric Power Research Institute (EPRI), 2024.

¹ U.S. Environmental Protection Agency. (n.d.). Site profile: Gateway Energy Camino lithium-ion battery fire. https://response.epa.gov/site/site_profile.aspx?site_id=16485.

On January 16, 2025, a BESS fire broke out at the Moss Landing site in Monterey County, California, resulting in a 24-hour evacuation of about 1,200 residents. A joint effort among company personnel and the North County Fire Department kept the fire contained to one building, though with one notable flare-up. Air quality monitoring and sampling occurred during and after the fire and found no risks to public health. Following the incident, EPA continues to work with other regulators to ensure the safe storage, handling, and transportation of undamaged batteries remaining at the Moss Landing site.²

Clear and comprehensive incident response plans are critical when managing BESS sites to ensure preparedness in the event of a battery fire.

Installation Considerations

Proactive safety measures can be included in a BESS site design to minimize the risk of a BESS fire. Consider the following before installing a BESS:

- Comply with state and local siting, zoning, marking, and permitting requirements to ensure site suitability.
- Consider the design of BESS units (battery chemistry, manufacturing quality assurance/quality checks, unit design, battery management system analytic capabilities, and system integration) and consult the most recent industry safety standards.
- Include remote sensors and monitoring (e.g., infrared, thermal, fire detection).
- Communicate with local first responders to develop emergency response plans for incidents.

Incident Response Considerations

Consider the following when developing an incident response plan for BESS:

- Ensure use of Personal Protective Equipment (PPE) including self-contained breathing apparatuses to protect against hazardous air emissions.
- Set an isolation zone for large commercial BESS that is at least 330 feet, depending on the site.
- Position responders upwind and uphill.
- Evaluate the need for community shelter-in-place or evacuation, depending on the incident and site.
- Current guidance is to focus the response on preventing the spread of fire.
 - Direct fire crews to let the fire burn itself out and to use water to prevent the spread of fire to neighboring batteries or other structures.³
- Assess hazardous air emissions:
 - Use modeling to guide on-site decision making and initially monitor for hydrogen, carbon monoxide, hydrogen fluoride, hydrogen cyanide, and hydrogen chloride.
 - As an incident extends, sample air for metals and other combustion byproducts of burning plastics.
- Minimize, contain, and/or redirect runoff from water application, to the extent possible.
- Package contents safely for transport and disposal after the event, considering Department of Transportation and EPA requirements.

² Vistra. (n.d.). *Moss Landing response*. Moss Landing Response. <https://www.mosslandingresponse.com>.

³ Research is ongoing into the most effective method of water application to prevent spread.

Resources for Fire Planning and Response at BESS Installations

In addition to adhering to existing standards, communities and operators of BESS sites should reference existing resources to enhance fire preparedness and response plans. Table 1 includes a list of trainings, standard operating procedure (SOP) guides, toolkits, emergency response plans, and research for BESS sites.

Relevant BESS Standards

[National Fire Protection Association \(NFPA\) Standard 855](#): Standards detailing the requirements for mitigating the hazards associated with energy storage systems (ESS). First edition 2020; current edition 2023; next update 2026.

[Underwriters Laboratory \(UL\) 9540 and 9540A](#): Standards for energy storage systems and equipment: charging and discharging procedures, fire protection, and test methods for BESS. First edition 2016, current edition revised 2025.

Table 1. Additional resources for BESS sites

Resource (Linked)	Description
EPA On-Scene Coordinator Lithium-Ion Battery Outreach Page	<ul style="list-style-type: none"> • Outreach: The EPA On-Scene Coordinators are available to provide training to city and county fire fighters, Local Emergency Planning Committees (LEPCs), and conference audiences. Contact information is available on the Outreach page. • Resources: Resources for pre-planning with local responders, sample standard operating procedures, presentations, and worksheets. • Web-based: Remote training that covers battery basics, hazards, transport and disposal concerns, and air monitoring (coming soon).
NFPA ESS Safety Fact Sheet	<ul style="list-style-type: none"> • Fact sheet outlining ESS advantages, hazards, and safety measures.
San Diego Fire Department Toolkit	<ul style="list-style-type: none"> • Collection of resources on lithium-ion battery fire response, incident reports, research, and public safety education.
Tennessee Emergency Management Agency (TEMA) Toolkit	<ul style="list-style-type: none"> • Collection of fact sheets and presentations on BESS fire hazards and prevention.
International Association of Fire Chief (IAFC) Fact Sheet	<ul style="list-style-type: none"> • Fact sheet covering recommended fire department ESS pre-planning and incident response.
Electric Power Research Institute (EPRI) Research Hub	<ul style="list-style-type: none"> • Collection of energy storage research, including information about EPRI's database of BESS failures and root cause categorizations.
Fire Protection Research Foundation Website	<ul style="list-style-type: none"> • Information about an ongoing research project examining hazards and mitigation for BESS units.
New York Battery and Energy Storage Technology Consortium Library	<ul style="list-style-type: none"> • Library of systems safety and best practices resources from various associations and fire codes.



ENERGY STORAGE SYSTEMS SAFETY FACT SHEET

Growing concerns about the use of fossil fuels and greater demand for a cleaner, more efficient, and more resilient energy grid has led to the use of energy storage systems (ESS), and that use has increased substantially over the past decade. Renewable sources of energy such as solar and wind power are intermittent, so storage becomes a key factor in supplying reliable energy. ESS also help meet energy demands during peak times and can supply backup power during natural disasters and other emergencies. However, the rise in the number of ESS installations requires the need for a heightened understanding of the hazards involved and more extensive measures to reduce the risks.

What Is an ESS?

An ESS is a device or group of devices assembled together, capable of storing energy in order to supply electrical energy at a later time. Battery ESS are the most common type of new installation and are the focus of this fact sheet.

DID YOU KNOW?

Battery storage capacity in the United States is expected to more than double between 2022 and 2025 from 9.4 GW to 20.8 GW, according to the U.S. Energy Information Administration.

Some ESS Advantages

Supplement Renewables

Renewable energies such as solar panels or wind turbines only produce electricity when the sun is out or the wind is blowing. Supplementing these with ESS allows users to take advantage of the electricity that is generated when the renewable energy technologies are not producing electricity.

Peak Shaving

ESS allows a user to shift where their electricity comes from by drawing power from the batteries during the higher-cost daytime hours then recharging during the lower-cost nighttime hours. This practice is referred to as peak shaving.

Load Leveling

When power generation facilities ramp up and ramp down to keep up with the changing demand for electricity, it puts stress on the system. ESS can help flatten out the demand curve by charging when electrical demand is low and discharging when it is high.

Uninterruptible Power Supply

ESS can provide near instantaneous protection from power interruptions and are often used in hospitals, data centers, and homes.

Some ESS Hazards

Thermal Runaway

Thermal runaway is a term used for the rapid uncontrolled release of heat energy from a battery cell; it is a condition when a battery creates more heat than it can effectively dissipate. Thermal runaway in a single cell can result in a chain reaction that heats up neighboring cells. As this process continues, it can result in a battery fire or explosion. This can often be the ignition source for larger battery fires.

Stranded Energy

As with most electrical equipment there is a shock hazard present, but what is unique about ESS is that often, even after being involved in a fire, there is still energy within the ESS. This is difficult to discharge since the terminals are often damaged and presents a hazard to those performing overhaul after a fire. Stranded energy can also cause reignition of the fire hours, days, or even weeks later.

Toxic and Flammable Gases Generated

Most batteries create toxic and flammable gases when they undergo thermal runaway. If the gases do not ignite before the lower explosive limit is reached, it can lead to the creation of an explosive atmosphere inside of the ESS room or container.

Deep Seated Fires

ESS are usually comprised of batteries that are housed in a protective metal or plastic casing within larger cabinets. These layers of protection help prevent damage to the system but can also block water from accessing the seat of the fire. This means that it takes large amounts of water to effectively dissipate the heat generated from ESS fires since cooling the hottest part of the fire is often difficult.



ENERGY STORAGE SYSTEMS SAFETY FACT SHEET *CONTINUED*

Failure Modes

These are ways the batteries can fail, often leading to thermal runaway and subsequent fires or explosions.

Mechanical Abuse	Thermal Abuse	Electrical Abuse	Environmental Impacts
Can happen when a battery is physically compromised by either being dropped, crushed, or penetrated.	Can occur when a battery is exposed to external heat sources.	Can happen when the battery is overcharged, charged too rapidly or at high voltage, or discharged too rapidly.	Can lead to battery failure include seismic activity, rodent damage to wiring, extreme heat, and floods.

Tips to Help Keep People and Property Safe



For the Designer/Installer

Explosion Protection/Prevention

If there are enough batteries in a room to create an explosive atmosphere, then explosion prevention systems or deflagration venting should be installed per NFPA 68, *Standard on Explosion Protection by Deflagration Venting*, and NFPA 69, *Standard on Explosion Prevention Systems*.

Fire Suppression System

Testing has shown water to be the most effective medium for cooling an ESS fire. A sprinkler system that complies with NFPA 13, *Standard for the Installation of Sprinkler Systems*, should be installed in buildings where an ESS is installed.

Battery Management System (BMS)

A BMS is a critical system that should be used in an ESS to monitor, control, and optimize performance of an individual or multiple battery modules in an ESS. It can also control the disconnection of the module(s) from the system in the event of abnormal conditions.

Spacing

ESS units should be grouped into small segments limited to certain kilo-watt hours (kWh) and spaced from other segments and walls to prevent horizontal propagation. The table below, which summarizes information from a 2019 Fire Protection Research Foundation (FPRF) report, "Sprinkler Protection Guidance for Lithium-Ion Based Energy Storage Systems," demonstrates the recommended spacing for the testing for specific chemistries and arrangements.

Recommended Separation of Lithium-Ion Battery Energy Storage Systems

ESS Type & Capacity	Object Combustibility	Sprinklered ft (m)	Nonsprinklered ft (m)
LFP 31 kWh	Non Combustible	-	< 3 ft (< 0.9 m)
	Combustible	-	4 ft (1.2 m)
LFP 83kWh	Non Combustible	3 ft (0.9 m)	4 ft (1.2 m)
	Combustible	5 ft (1.5 m)	6 ft (1.8 m)
LNO/LMO 47 kWh	Non Combustible	-	4 ft (1.2 m)
	Combustible	-	6 ft (1.8 m)
LNO/LMO 125 kWh	Non Combustible	6 ft (1.8 m)	8 ft (2.4 m)
	Combustible	9 ft (2.7 m)	13 ft (4.0 m)



ENERGY STORAGE SYSTEMS SAFETY FACT SHEET *CONTINUED*



For the AHJ

Permitting Checklist

Permits should be issued by and in accordance with the procedures of all authorities having jurisdiction (AHJ) and should bear the name and signature of each AHJ or their designated representative(s). In addition, the permit should indicate the following:

1. Purpose of the ESS for which the permit is issued
2. Type of ESS, size, weight broken down by subcomponents or subsystems, type, and amount of any hazardous materials, general arrangement of the system, and extent of work to be performed
3. Address where the ESS is to be installed and operated
4. Name and address of the permittee
5. Permit number and date of issuance
6. Period of validity of the permit
7. Inspection requirements



For the Fire Service

Pre-Incident Planning

The fire department should develop a pre-incident plan for responding to fires, explosions, and other emergency conditions associated with the ESS installation, and the pre-incident plan should include the following elements:

1. Understanding the procedures included in the facility operation and emergency response plan described
2. Identifying the types of ESS technologies present, the potential hazards associated with the systems, and methods for responding to fires and incidents associated with the particular ESS
3. Identifying the location of all electrical disconnects in the building and understanding that electrical energy stored in ESS equipment cannot always be removed or isolated
4. Understanding the procedures for shutting down and de-energizing or isolating equipment to reduce the risk of fire, electric shock, and personal injury hazards
5. Understanding the procedures for dealing with damaged ESS equipment in a post-fire incident, including the following:
 - a. Recognizing that stranded electrical energy in fire-damaged storage batteries and other ESS has the potential for reignition long after initial extinguishment

- b. Contacting personnel qualified to safely remove damaged ESS equipment from the facility (This contact information is included in the facility operation and emergency response plan.)

Emergency Operations Planning

An emergency operations plan should be created and contain elements such as procedures to safely shut down the system, procedures for the removal of damaged ESS, general emergency procedures, and annual staff training.

CASE STUDY

On April 19, 2019, a thermal runaway event followed by an explosion occurred at the McMicken Battery Energy Storage System in Surprise, Arizona. A fire captain, a fire engineer, and two firefighters sustained serious injuries. The walk-in structure housed a 2.16 MWh lithium-ion battery energy storage system. This event highlighted the hazard of a non-flaming thermal runaway event and the need for deflagration prevention and protection.

FAQs

- Q:** Which NFPA standard covers the installation of ESS?
- A:** If you are installing ESS for either new construction or a renovation, you should review the requirements of NFPA 855, *Standard for the Installation of Energy Storage Systems*.
- Q:** What is the best extinguishing agent for a fire in a battery ESS?
- A:** Testing has shown that water is the most effective agent for cooling for a battery ESS. For this reason, a sprinkler system designed in accordance with NFPA 13, *Standard for the Installation of Sprinkler Systems*, is required by NFPA 855, *Standard for the Installation of Energy Storage Systems*.

Learn More

- ▶ Visit nfpa.org/ess to access more FAQs and the latest ESS-related training, information, research, and reports.
- ▶ To view NFPA 855, visit nfpa.org/855, or to access the standard plus expert commentary, visit nfpa.org/LiNK.



Safety of Grid Scale Lithium-ion Battery Energy Storage Systems

Eurlng Dr Edmund Fordham MA PhD CPhys CEng FInstP
Fellow of the Institute of Physics

Dr Wade Allison MA DPhil
Professor of Physics, Fellow of Keble College, Oxford University

Professor Sir David Melville CBE FInstP
Professor of Physics, former Vice-Chancellor, University of Kent

Sources of wind and solar electrical power need large energy storage, most often provided by Lithium-Ion batteries of unprecedented capacity.

Incidents of serious fire and explosion suggest that the danger of these to the public, and emergency services, should be properly examined.

5 June 2021

Executive Summary

1. Li-ion batteries are dominant in large, grid-scale, Battery Energy Storage Systems (BESS) of several MWh and upwards in capacity. Several proposals for large-scale solar photovoltaic (PV) “energy farms” are current, incorporating very large capacity BESS. These “mega-scale” BESS have capacities many times the Hornsdale Power Reserve in S. Australia (193 MWh), which was the largest BESS in the world at its installation in 2017.
2. Despite storing electrochemical energy of many hundreds of tons of TNT equivalent, and several times the energy released in the August 2020 Beirut explosion, these BESS are regarded as “articles” by the Health and Safety Executive (HSE), in defiance of the Control of Major Accident Hazards Regulations (COMAH) 2015, intended to safeguard public health, property and the environment. The HSE currently makes no representations on BESS to Planning Examinations.
3. Li-ion batteries can fail by “thermal runaway” where overheating in a single faulty cell can propagate to neighbours with energy releases popularly known as “battery fires”. These are not strictly “fires” at all, requiring no oxygen to propagate. They are uncontrollable except by extravagant water cooling. They evolve toxic gases such as Hydrogen Fluoride (HF) and highly inflammable gases including Hydrogen (H₂), Methane (CH₄), Ethylene (C₂H₄) and Carbon Monoxide (CO). These in turn may cause further explosions or fires upon ignition. The chemical energy then released can be up to 20 times the stored electrochemical energy. Acute Toxic gases and Inflammable Gases are “dangerous substances” controlled by COMAH 2015. Quantities present “*if control of the process is lost*” determine the applicability of COMAH.
4. We believe that the approach of the HSE is scientifically mistaken and legally incorrect.
5. “Battery fires” in grid scale BESS have occurred in South Korea, Belgium (2017), Arizona (2019) and in urban Liverpool (Sept 2020). The reports into the Arizona explosion [8, 9] are revelatory, and essential reading for accident planning. A report into the Liverpool “fire” though promised for New Year 2021, has not yet been released by Merseyside Fire and Rescue Service or the operator Ørsted; it is vital for public safety that it be published very soon.
6. No existing engineering standards address thermal runaway adequately, or require measures (such as those already used in EV batteries) to pre-empt propagation of runaway events.
7. Lacking oversight by the HSE, the entire responsibility for major accident planning currently lies with local Fire and Rescue Services. Current plans may be inadequate in respect of water supplies, or for protection of the local public against toxic plumes.
8. The scale of Li-ion BESS energy storage envisioned at “mega scale” energy farms is unprecedented and requires urgent review. The explosion potential and the lack of engineering standards to prevent thermal runaway may put control of “battery fires” beyond the knowledge, experience and capabilities of local Fire and Rescue Services. BESS present special hazards to fire-fighters; four sustained life-limiting injuries in the Arizona incident.
9. We identify the well-established hazards of large-scale Li-ion BESS and review authoritative accounts and analyses of BESS incidents. An internet video [10] is essential initial instruction.
10. We review engineering standards relating to Li-ion BESS and concur with other authorities that these are inadequate to prevent the known hazard of “thermal runaway”. We conclude that large-scale BESS should be COMAH establishments and regulated appropriately. We respectfully request evidence from the HSE that “mega-scale” BESS are *not* within the scope of COMAH.
11. We seek the considered response of relevant Government Departments as well as senior fire safety professionals to these concerns.

Contents

Executive Summary	p 2
1. Introduction	p 4
2. Leading concerns	p 10
3. Thermal runaway (Battery “fires”)	p 11
4. Toxic and flammable gas emissions	p 14
5. Total energy release potential	p 15
6. Applicability of the COMAH (Control of Major Accident Hazard) Regulations 2015	p 17
7. Engineering standards for BESS	p 18
8. Fire Safety Planning for BESS “fires”	p 19
References	p 22
Appendix 1: Battery capacity calculations for grid-scale BESS at “Sunnica”	p 24
Appendix 2: Applicability of the COMAH Regulations to large-scale BESS	p 26
Appendix 3: Shortcomings of existing engineering standards for large-scale BESS	p 29
Appendix 4: Fire Safety Planning in the Councils’ Response	p 30

1. Introduction

Lithium-ion (Li-ion) batteries are currently the battery of choice in the ‘electrification’ of our transport, energy storage, mobile telephones, mobility scooters etc. Working as designed, their operation is uneventful, but there are growing concerns about the use of Lithium-ion batteries in large scale applications, especially as Battery Energy Storage Systems (BESS) linked to renewable energy projects and grid energy storage. These concerns arise from the simple consideration that large quantities of energy are being stored, which if released uncontrollably in fault situations could cause major damage to health, life, property and the environment.

Table 1. Comparison of some recent “battery fires” since 2014.

Note: this is not a comprehensive list of all Li-ion BESS battery “fires.”

Location	Size	“Battery fire” cause	Time to bring under control	Water needed for cooling	Comments
Houston, Texas, April 2021	0.1 MWh	Driverless vehicle crash	4 hours	30,000 (US) gallons	Tesla Model S
South Korea	Various; 21 fires during 2018-19	Not known to Korean Ministry of Trade Industry and Energy	various	Not known	522 out of 1490 ESS facilities in Korea suspended (Korea Times 2 May 2019)
Drogenbos, Belgium. 2017	1 MWh	Not known.	“rapidly extinguished”	Not known	Occurred during commissioning of system by ENGIE
McMicken Facility Arizona, USA. 2019	2 MWh	Thermal runaway in a single rack out of 27 that were in the cabin – hence 74 kWh electrochemical energy released – less than the Tesla Model S crash.	2 hours from first report to “deflagration”		Explosion as H ₂ and CO mixed with air and ignited. Critically injured 4 fire-fighters. Extensive forensic report.
Carnegie Rd, Liverpool, UK, 2020	20 MWh	Not known	11 hours		Full report [1] delayed 4 months; still unpublished.

Even battery electric vehicle (BEV) batteries store energy sufficient for “fires” that have taken hours to control. A Tesla Model S crashed In Texas on the weekend of 17-18 April 2021 igniting a BEV battery fire that took 4 hours to control with water quantities variously reported [2] as 23,000 (US) gallons or 30,000 gallons (87 -115 m³). Yet the energy storage capacity in even the latest Tesla Model S vehicles is only 100 kWh. This is 1/20 the size of the BESS in Arizona [3] which failed in 2019, and 1/200 the size of the BESS in Liverpool [4] which caught fire [5] in September 2020, and 1/7000 the capacity of the Cleve Hill Solar Farm and Battery Store [6] approved in May 2020.

The past decade has seen a number of serious incidents in grid-scale BESS, which are summarised in Table 1. Despite these incidents, and our growing understanding of these, these large scale Li-ion BESS are not currently regarded by HSE as regulated under the COMAH

Regulations 2015. The legal basis for this attitude is unclear – simple calculations summarised in this paper argue that they should be – and the issue may yet be challenged in judicial review.

The reason the COMAH regulations should apply is the scale of evolution of toxic or inflammable gases that will arise in BESS “fires”. In the Drogenbos incident (2017, Table 1), the inhabitants of Drogenbos and surrounding towns were asked to keep all windows and doors shut; 50 emergency calls were made from people with irritation of the throat and airways¹. A chemical cloud which “initially had been enormous”, was charted by helicopter. The Belgian Fire Services could not control what was described as “the chemical reaction” and filled the cabin with water. Fears of an explosion with 20 metre flames kept people confined for an hour. Although the initial visible flames were controlled quickly, cooling continued over the next 36 hours.

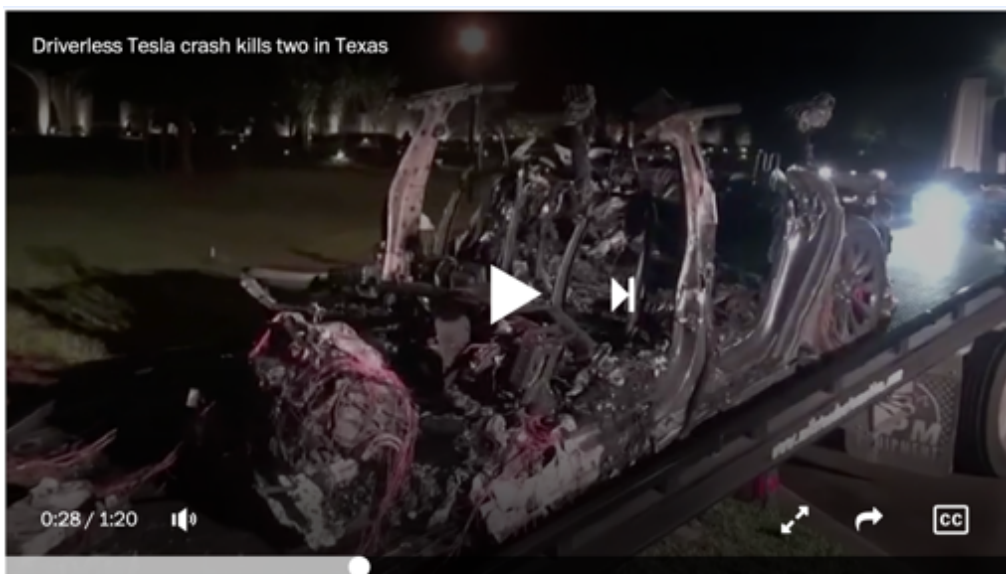


Figure 1: Remains of the Tesla Model S crash and fire, 17 Apr 2021, after 4 hours and 30,000 gallons. Battery capacity 100 kWh.

Two men died after a Tesla vehicle, which authorities said was operating without a driver, crashed into a tree in a Houston suburb on April 17. (Reuters)



Figure 2: Remains of a Korean BESS destroyed by a “battery fire”. An energy storage system was destroyed at the Asia Cement plant in Jecheon, North Chungcheong Province, on Dec. 17. Courtesy of North Chungcheong Province Fire Service Headquarters (Korea Times 2 May 2019)

¹ Tom Vierendeels (2017) “Explosiegevaar by brand in Drogenbos geweken : 50-tal oproepen van mensen die zich onwel voelen door rook.” *Het Laatste Nieuws*, 11 November 2017

Figure 3: “Battery Fire” at Drogenbos, Belgium 11 Nov 2017. Taken at the start of the incident and 15 minutes later (eye-witness footage). 1 MWh facility; fire occurred during commissioning.



Figure 4: The 2 MWh McMicken (Arizona) BESS after the explosion on 19 April 2019





Figure 5: The 20 MWh BESS at Carnegie Rd, Liverpool. Courtesy Ørsted.



Figure 6: The fire at Carnegie Road, 15 Sep 2020. Liverpool Echo report, which took 11 hours to control.

The incidents recorded in Table 1 are all in relatively small BESS or a single BEV. Yet “mega-scale” BESS are now planned on a very large scale in many current proposals in the UK, listed in Table 2 and illustrated in the subsequent Figures.

And no engineering standards are currently applied to pre-empt future accidents in grid-scale BESS, the most critical of which would be design features aimed at preventing the phenomenon of “thermal runaway”, the process whereby failure in single cell causes over-heating and then propagates to neighbouring cells so long as a temperature (which can be as low as 150 °C) is maintained.

BEV batteries do now include thermal barriers or liquid cooling channels between all cells to safeguard against this phenomenon, but no such engineering standards exist for grid-scale BESS. A large BESS can pass all existing engineering design and fire safety test codes and still fail in thermal runaway – by now a well-known failure mode. This must be urgently addressed.

The consequences of major BESS accidents could be significant and emergency services need adequate plans in place to handle any such incident.

Table 2. “Mega” scale solar plant and/or Li-ion BESS in Australia and the UK*

Project	Location	Status	Solar PV Scheme Size	Battery Stores	Battery type	Battery capacity
Hornsedale Power Reserve	S. Australia	Operational	Not directly associated	Single site	Li-ion	193 MWh
Cleve Hill Solar + Battery Store	Kent	Permission granted (2020)	350 MW; land coverage 890 acres	Single site	Li-ion	700 MWh
Sunnica Solar + Battery Store(2)	Cambridgeshire/ Suffolk	Pending submission	500 MW; land coverage approx. 2792 acres	31.5 ha of land over 3 compounds [7] of 5.2, 10.7 and 15.6 ha	Li-ion	Undeclared. Estimate 1500 – 3000 MWh
Longfield Solar + Battery Store	Essex	Pending statutory consultation	500 MW; land coverage approx. 1400 acres	Stated as 3.7 acres: number of sites TBD	Li-ion	Undeclared. Estimate: 150 MWh

* Li-ion technology has been assumed in all these proposals as Li-ion battery electrochemistry is dominant in grid-scale BESS applications (deployment at this scale is unlikely to involve technologies with lesser experience). Estimated values for Battery Capacity for the Sunnica are calculated based on the McMicken facility in Arizona (Appendix 1) and the Cleve Hill DCO. For the Longfield site it is estimated from Energy Institute guidance on energy density [25] at about 100 MWh ha⁻¹. The exact specification for the battery units has not been disclosed by the developers at this present time.



Figure 7: The Hornsdale Power Reserve (South Australia) in the process of expansion from 100 MW/129 MWh to 150 MW/193.5 MWh, as of November 2017.



Figure 8: a “typical” BESS compound (abstracted from Sunnica PEIR, Ch 3)

Plate 3-10. Typical battery storage compound configuration (image reproduced courtesy of Fluence Energy).



Figure 9: Artists impression of Tesla 250 MWh “Megapack”. Sunnica may have 3 × this capacity in just one of its three BESS compounds.

2. Leading Concerns

The main concerns regarding large scale Li-ion BESS are:

- 1) The potential for failure in a single cell (out of many thousands) to propagate to neighbouring cells by the process known as “thermal runaway”. Believed to be initiated by lithium metal dendrites growing internally to the cell, a cell may simply discharge internally releasing its stored energy as heat. Even sound Li-ion cells will spontaneously discharge internally if heated to temperatures which can be as low as 150 °C, releasing their stored electrical energy, thus overheating neighbouring cells and so on. Temperatures sufficient to melt aluminium (660 °C) at least have been inferred from analyses of such thermal runaway accidents. Eye-witness reports consistently speak of repeated “re-ignition” which is inevitable, even in the complete absence of oxygen, so long as the temperature anywhere exceeds the thermal runaway initiation threshold.
- 2) The emission of highly toxic gases – principally Hydrogen Fluoride – for prolonged periods, in the event of thermal runaway or other battery fires. At a minimum, respirators and complete skin protection would be required by any fire-fighters. Measures to protect the public from toxic plumes would also be necessary.
- 3) The emission of large quantities of highly inflammable gases such as Hydrogen, Methane, Ethylene and Carbon Monoxide even if a fire suppression system is deployed. These gases will be evolved from a thermal runaway accident regardless of such measures, with explosion potential as soon as they are mixed with air and in contact with hot surfaces. Such an explosion was the cause of the “deflagration event” at McMicken, Arizona in 2019 in a 2 MWh BESS, which critically injured four fire-fighters and was triggered simply by opening the cabin door.
- 4) The absence of any adequate engineering and regulatory standards to prevent or mitigate the consequences of “thermal runaway” accidents in Li-ion BESS.
- 5) The potential for thermal runaway in one cabin propagating to a neighbouring cabin. In Arizona [3] there were reports of *“fires with 10-15 feet flame lengths that grew into 50 - 75 feet flame lengths appearing to be fed by flammable liquids coming from the cabinets”*.
- 6) The significant volumes of water required to thoroughly cool the system in the event of a “fire”, and how this water will be contained and disposed of (since this will be contaminated with highly corrosive hydrofluoric acid and, therefore, must not be allowed to drain into the surrounding environment).

Such incidents are routinely and repeatedly described in the Press as “battery fires” though they are not “fires” at all in the usual sense of the word; oxygen is completely uninvolved. They represent an electrochemical discharge between chemical components that are self-reactive. They do not require air or oxygen at all to proceed.

Hence the traditional “fire triangle” of “Heat, Oxygen, Fuel” simply does not apply, and conventional fire-fighting strategies are likely to fail (Figure 10, over).

Thermal runaway events are uncontrollable except by *cooling* all parts of the structure affected – even the deepest internal parts – below 150 °C. This basically requires water, in large volumes.



Figure 11 The fire triangle and its relationship to thermal runaway

Figure 10: The traditional “fire triangle” does not apply to “thermal runaway”.

3. Thermal Runaway (Battery “fires”)

Li-ion batteries are sensitive to mechanical damage and electrical surges, both in over-charging and discharging. Most of this can however be safeguarded by an appropriate Battery Management System (BMS) and mechanical damage (unless deliberate and malicious) should not be a hazard. Internal cell failures can arise from manufacturing defects or natural changes in electrodes over time; these must be regarded as unavoidable in principle. Subsequent escalation into major incidents can propagate from such apparently trivial initiation.

In July 2020 a thorough failure analysis by Dr Davion Hill of DNV GL [8] was prepared for the Arizona Public Service (APS), following the April 2019 thermal runaway and explosion incident in the 2 MWh Li-ion BESS facility at McMicken, Arizona. This report is revelatory and more detailed than any other failure analysis known to us. It is essential reading for any professional involved in fire safety planning for major BESS. (Figures 11 to 13).

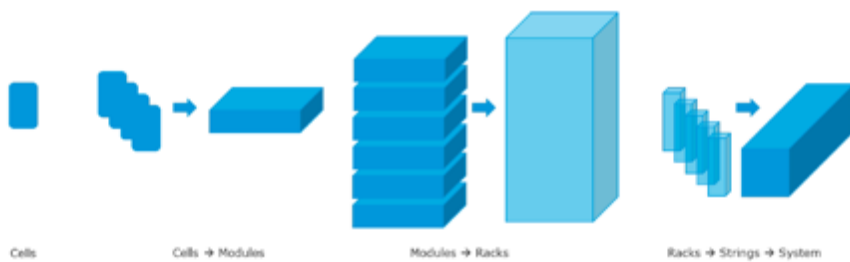


Figure 11: Cells stack into Modules; Modules into Racks; Racks into Strings; Strings into Systems.

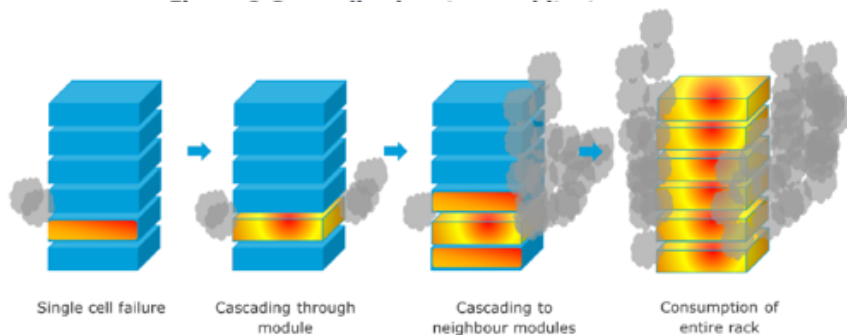


Figure12: Propagation of single Cell failure through Module; cascade to entire Rack.

Figure 25 A single cell failure propagated through Module 2, then consumed the whole rack, releasing a large plume of explosive gases. This process could have occurred without visible flame, which would explain why the gases were not burned as they were emitted.

A report by Underwriters Laboratories (UL) on the same incident [9] is less technical on the physics and engineering of the underlying causes and failure modes, but more comprehensive in terms of practical situations and consequences found, and suffered, by the “first-responders”. Two fire-fighters suffered life-limiting brain injuries, one suffered spinal damage and fourth facial lacerations. This report is similarly essential reading for any fire and emergency response planning.

Figure 13: Destruction of Rack at McMicken.



Detail: molten aluminium pools (exceeded 660 °C)



Figure A.1: Photograph taken during decommissioning of the ESS shows a pool of solidified aluminum on the floor in front of Rack 15 [1].

Forensic analysis [8] of the 2019 Arizona “fire” identified a failure mode different from mechanical abuse or electrical mis-management. The initiating failure was localised to a single cell at a known position in the rack. Although the cell itself was of course destroyed during the incident, the failure mode is believed to have been lithium metal deposition and abnormal growth of lithium metal dendrites. These phenomena were also found in randomly selected *undamaged* cells from the same BESS and also from a different BESS of the same manufacture elsewhere. These phenomena must be regarded as common, and inherent to the cells themselves.

The lithium metal deposits will react with air moisture, causing overheating and smoke. Battery swelling, electrolyte degradation, and internal short circuits are all possible modes of failure with internal discharge and generation of locally intense heat.

Because of the known thermal breakdown of even non-faulty cells, above a threshold temperature (which can be as low as 150 °C), the loss of even a single individual cell can rapidly cascade to surrounding cells, resulting in a larger scale “fire.” This is “thermal runaway” in which failures propagate from cell to cell within “modules” and from module to module within a “rack”.

This is what happened at McMicken [8], with temperatures sufficient to melt Aluminium (660 °C) being reached. Such “fires” can be extremely dangerous to fire fighters and other first responders because, in addition to the immediate fire and explosion risks, they would have to deal with toxic gases (principally hydrogen fluoride HF, also hydrogen cyanide HCN and other fluorine compounds such as phosphoryl fluoride POF₃) and exposure to other hazardous materials.

Rack to rack propagation fortunately did not happen at McMicken, though an explosion did [8]. A local conventional fire involving the plastics materials or gases evolved from them could have

initiated rack-to-rack propagation; the only essential factor would have been sufficient heat to trigger thermal breakdown in just one cell in a neighbouring rack. Li-ion cells have been observed to eject molten metal during thermal runaway, another possible mode of propagation over distance. Propagation through a subsequent rack would then occur by exactly the same thermal runaway mechanisms, and potentially beyond between neighbouring cabins in large-scale BESS.

Thermal runaway is illustrated in dramatic fashion with tiny commercial Li-ion cells in a useful internet video [10] (Figure 14). The commercial cells involved in this demonstration have tiny capacities: a mere 2.6 Ah or about 10 Wh for typical terminal voltages.

A Tesla Model S would have the capacity of about **10,000** such cells.
A 20 MWh BESS has the capacity of about **2 million** such cells.

In the video, the cell is deliberately over-heated on a small electric stove. The fully charged cell goes into thermal breakdown, eventually rupturing the can. The cell flies off as a rocket and seconds later is discharged but red hot and will burn anything combustible. Although not illustrated, it is evidently hot enough to produce the same thermal breakdown in an adjacent cell within a battery.

This illustrates the damage done to a non-faulty cell, simply by overheating externally.



Figure 14: (a) A charged 2.6 Ah cell being deliberately overheated. (b) at the point of rupture (c) the cell takes off as a rocket (d) seconds later the discharge is complete, and the cell is red hot.



4. Toxic and flammable gas emissions

During a Li-ion “battery fire,” multiple toxic gases including Hydrogen Fluoride (HF) [11], Hydrogen Cyanide (HCN) [13] and Phosphoryl Fluoride (POF₃) [11] may be evolved. The most important is Hydrogen Fluoride (HF), which may be evolved in quantities [11] up to 200 mg per Wh of energy storage capacity.

HF is toxic in ppm quantities and forms a notoriously corrosive acid (Hydrofluoric Acid) in contact with water. It is toxic or lethal by inhalation, ingestion and by skin contact. The ERPG-2 concentration (1 hour exposure causing irreversible health effects) given by Public Health England is just 20 ppm; the workplace STEL (15 minute Short-Term Exposure Limit) is just 3 ppm [12]. Major emissions of HF would form highly toxic plumes that could easily threaten nearby population centres, workplaces and schools.

Appendix 3 contains calculations of projected toxic gas quantities for 3 grid-scale battery stores that have been approved or are pending review by the Planning Inspectorate (Table 2).

The calculated capacities at the “mega-scale” sites listed in Table 2 are tens, or even hundreds, of times larger than the facilities in Table 1, which experienced significant fires or explosions.

In addition to evolution of toxic gases, even in an inert atmosphere (without Oxygen), multiple flammable gases (such as Hydrogen H₂, Carbon Monoxide CO, Methane CH₄, and Ethylene C₂H₄) would be evolved during thermal runaway. These are “typical of plastics fires” [8] and have been measured in sealed vessel tests [13]. As noted by Hill/DNV [8] and others [13], the proportions of H₂, CO, CH₄ and C₂H₄ do not in fact vary greatly between different cell technologies, simply because the chemical nature of the envelope polymers, separators, electrolyte solvents and electrolytes themselves do not differ greatly. The variations between Li-ion technologies are in the electrode systems, which are typically not polymeric.

Such inflammables can clearly create (ordinary, air-fuel) fires or explosions once mixed with air/oxygen. It is important to note that the Heats of Combustion of the inflammables may be up to 15 – 20 × the rated electrical energy storage capacity of the BESS. This has been demonstrated by the same tests which determined the quantities of HF evolved [11]. These were fire tests, not sealed vessel tests [13]. The stored electrical energy is therefore by no means a conservative estimate of the total energy release which could be released in a major (air-fuel) fire in a BESS, irrespective of whether the initiating cause was a conventional fire or Li-ion cell thermal runaway.

Appendix 2 estimates the inflammables potentially evolved from the BESS given in Table 2.

5. Total Energy Release Potential

Any large energy storage system has the risk that energy released in malfunction will be uncontrollable in ways that will do major damage. BESS can release electrochemical energy in the form of thermal runaway or “battery fires”. In addition they can release chemical energy in the form of explosions or conventional fires of inflammable gases, or of polymer components. Many thermal runaway “fires” have now happened, as has explosion of evolved inflammable gases.

An important indicator of the foreseeable scale of a “worst credible hazard” is provided by the total stored energy in the system. For BESS, this comprises two components:

- (i) The stored electrical energy which might be released in the event of thermal runaway incidents, a self-reactive electrochemical energy release not requiring oxygen at all, and
- (ii) Stored chemical (fuel) energy which might be released in complete combustion of the inflammable gases which might be released by (i).

Electrochemical energy release is uncontrollable once started, by any measure except cooling – of all cells and cell parts – below about 150°C. Water is the only fire-fighting substance with the necessary heat capacity. Concurrent conventional fire would first heat cells above the thermal runaway temperature, causing more thermal runaway. Chemical energy release from inflammable gases is also uncontrollable once those gases are mixed with air and ignited: explosions result.

What might be the scale of such energy releases? The Sunnica proposal is estimated to have a stored energy between 1.5 – 3.0 GWh in total, spread across 3 separate sites called Sunnica East A, Sunnica East B and Sunnica West A (see calculations in Appendix 1). It is between 2 – 4 times the capacity projected for Cleve Hill (700 MWh). It is 8 – 15 times the capacity (193 MWh) of the “Hornsedale Power Reserve” in Australia, at installation (2017) the world’s largest.

Compared to other energy storage technologies, the Dinorwig Pumped Storage Scheme in Snowdonia stores about 9 GWh [14]; the Sunnica BESS corresponds to 17 – 33 % of Dinorwig.

Compared to major explosions, the energy released in the Beirut warehouse explosion of August 2020 has been estimated [15] by Sheffield University at about 0.5 kilotons of TNT (best estimate) with a credible upper limit of 1.12 kilotons. A totally independent estimate [16] (based on seismic propagation instead of eye-witness footage) gives the same range, without specifying a “best” estimate. The popular measure of major explosions in “kilotons of TNT” has an agreed definition² of 1.162 GWh of released energy; in this paper we shall take “one Beirut” to be an explosive energy of 0.5 kilotons of TNT or about 580 MWh of released energy.

The projected BESS storage at Sunnica corresponds to 1.4 – 2.7 kilotons of TNT in total, across all three sites. In the “low” case, this would be “0.92 Beirut” at the Sunnica West A site alone, or “2.7 Beirut” over the whole scheme. In the “high” case “2.7 Beirut” could be stored in the Sunnica East B site alone. Note that these are stored electrochemical energy only; the potential for conventional fire or explosion of evolved inflammables could be **up to 20 × larger** [11]. See Table 3, Appendix 1.

This is plainly a quantity of stored energy which, if released uncontrollably, could do major damage. Explosions and fires at individual BESS are matters of record. They can propagate from failure in a single cell out of many thousands. Cell-to-cell and module-to-module propagation occurred at McMicken. Rack-to-rack propagation was avoided, but could readily occur if continuous

² See e.g. Wikipedia.

fires start. Cabin-to-cabin propagation of a major BESS “battery fire” would be the critical link that would escalate major but manageable fires into catastrophes.

Yet this propagation route remains unanalysed. Significantly, Commissioner Sandra D Kennedy of the Arizona State Commission [3] reviewed reports on the 2019 McMicken battery fire and also a 2012 battery fire at the APS Eldon substation facility in Flagstaff, AZ. She quotes the Flagstaff fire department report on the latter incident as referencing :

“Fires with 10-15 feet flame lengths that grew into 50 - 75 feet flame lengths appearing to be fed by flammable liquids coming from the cabinets”.

Finally, in the context of BESS, “Stranded Energy” will remain a hazard at any affected BESS cabins even assuming an initial incident is controlled. The accident investigation at McMicken required nearly 3 months, simply to discharge “stranded energy” safely [8].

“Mega-scale” Li-ion BESS should, in all prudence, require the highest level of regulation. The COMAH regulations are designed for this, including establishments where dangerous substances may be generated “if control of the process is lost” [17] in a thermal runaway accident.

6. Applicability of the COMAH (Control of Major Accident Hazard) Regulations 2015

The governing criteria for application of the COMAH Regulations [17] are:

1. The presence of hazardous materials, or their generation, “if control of the process is lost.”
2. The quantity of such hazardous materials present or that could be potentially generated.

There is no doubt that hazardous substances such Hydrogen Fluoride (an Acute Toxic controlled by COMAH) would be generated in a BESS accident (i.e., in “battery fires”). Similarly highly Inflammable Gases (also controlled by COMAH) would be evolved even if the atmosphere remained oxygen-free. Depending on the size of the “establishment” these could be produced in sufficient quantities to be in the scope of COMAH. In Appendix 2 we estimate quantities guided by the literature, where fire tests have directly measured evolution of the hazardous gases.

For small capacity BESS installations, under 25 MWh capacity, the quantities (“inventory”) of the evolved hazardous substances might be outside COMAH. This paper however addresses the recent trend towards “mega-scale” Li-ion BESS (Table 2) with very large quantities of stored energy, where the inventory should be large enough to bring the installation within scope.

Broadly speaking, the threshold for applicability of COMAH will be dependent on the precise BESS technology chosen, but likely to be for BESS in the region of 20 – 50 MWh. See Appendix 2.

A letter to the HSE regarding applicability of COMAH to large-scale BESS (dated 25 Nov 2020 [18]) received no reply until follow-up letters were sent addressed personally to the Chief Executive on 7 February 2021, with the intervention of Mrs Lucy Frazer MP. The reply from the Chief Executive [19] dated 22 February 2021 stated that “*Li-ion batteries are considered articles and are not in scope of COMAH*”.

We believe the current attitude of the HSE – that even large-scale Li-ion BESS are “articles” best regulated by operators – is not consistent with the law.

Unless tested in the Courts however, this throws the entire responsibility for ensuring the safety of major BESS “battery fires” onto the Fire and Rescue Services. Currently the HSE makes no representation to the Planning Inspectorate in respect of BESS hazards.

7. Engineering standards for BESS

As with any hazard, the basic principles of Prevention and Mitigation must be applied to minimise the risk to life, property and the environment. A major contribution of the Hill/DNV report [8] is a review of current engineering and fire protection standards. This did not concern planning, siting and electrical standards, but simply addresses the question: which standards, if any, offer Prevention or Mitigation of the phenomenon of thermal runaway? The answer appears to be none.

“Thermal runaway” is an electrochemical reaction, well-known in Li-ion BESS, that is largely uncontrollable once started. Since failures in single cells (among many thousands) can be sufficient to initiate thermal runaway, the only known Prevention measure is that adopted by the BEV industry, viz. thermal isolation of neighbouring cells, so that if failure occurs in any one cell, insulation or water cooling prevents easy thermal spread to neighbouring cells. Various design strategies have been adopted in BEV Li-ion batteries, usually involving some form of thermal barrier.

However these are not widely used in grid-scale Li-ion BESS. Current practice is the assembly of stacks of cells, typically “pouch” cells which are externally flat polymer bags, that are stacked side by side in low profile modules with no thermal isolation. This is not the construction adopted in current generation BEV batteries; BEV practice (*with* thermal isolation) extended to grid-scale BESS would obviously increase costs and complexity considerably.

The engineering standards reviewed by Hill/DNV [8] included NFPA 855, UL 1973 and UL 9540/9540A. UL 9540A is a US standard that is widely used in grid-scale BESS engineering, is routinely recommended by insurance and risk consultants [20] and was appealed to by the developer of the Cleve Hill solar farm (Table 2). The problem is that UL9540A is fundamentally a test procedure. It mandates no design features. It requires absolutely nothing that would prevent thermal runaway in any BESS design. This means that an operator can say truthfully that a given BESS is “fully compliant” with UL9540A, yet this would provide no assurances at all regarding thermal runaway prevention. It is therefore wholly insufficient as a safeguard to either the operator, the public, or to emergency services.

NFPA 855 [21], uniquely, requires evaluation of thermal runaway in a single module, array or unit and recognises the need for thermal runaway protection. However, it assigns that role, with complete futility, to the Battery Management System (BMS). Thermal runaway is an electrochemical reaction which once started cannot be stopped electrically. It is uncontrollable by electronics or switchgear. A BMS can locate faults, report and trigger alarms, but it cannot stop thermal runaway.

The Hill/DNV report [8] highlights the many shortcomings of existing standards, see Appendix 4. The basic issue is simple:

- (1) Thermal Runaway has very few means of Mitigation once started.
- (2) It is therefore essential to address Prevention as a priority.
- (3) ***No current engineering or industry standards require the Prevention of thermal runaway events by thermal isolation barriers.***

Nothing in existing standards prevents runaway incidents happening again, requiring for initiation only single-cell failures from known common defects in cell manufacture.

8. Fire Safety Planning for BESS “fires”

Taking the recent Sunnica BESS proposal as an example, a joint statutory consultation response has been submitted by the four Local Authorities concerned. The Local Authorities in this case are Cambridgeshire and Suffolk County Councils, and West Suffolk and East Cambridgeshire District Councils. This joint consultation response [22] included a section on Battery Safety (pp 74-75) and states as follows:

Suffolk Fire and Rescue Service (SFRS) will work and engage with the developer as this project develops to ensure it complies with the statutory responsibilities that we enforce.

Sunnica should produce a risk reduction strategy as the responsible person for the scheme as stated in the Regulatory Reform (Fire Safety) Order 2005. It is expected that safety measures and risk mitigation is developed in collaboration with services across both counties.

The response also later states: *As with all new and emerging practices within UK industry, the SFRS would like to work with the developers to better understand any risks that may be posed and develop strategies and procedures to mitigate these risks.*

It is clear that local Fire and Rescue Services have been given the lead responsibility for independent emergency planning, in concert with the developers. Because of the attitude of the HSE refusing to exercise regulatory control over BESS safety, local Fire and Rescue Services become the sole independent public body able to influence BESS safety issues at the planning stage.

Many detailed recommendations have been made by the Local Authorities in the case of Sunnica. It is unclear how much opportunity or input Suffolk FRS has had in these. However the recommendations offered betray some serious misunderstandings and a complete lack of awareness of the lessons and recommendations made in publicly available documents such as the Hill/DNV report [8] into the McMicken explosion.

These are taken point by point in Appendix 4 but some general points are made here.

1. Thermal runaway cannot be controlled like a regular (air-fuel) fire. The only way to mitigate “re-ignition” (a regular report of eye-witnesses) is by thorough cooling. Water is the only fire-fighting material with the necessary thermal capacity. Sprinkler systems, though with good records in conventional building fires, are likely to be completely inadequate. The purpose of the water is absorbing a colossal release of energy. The Hill/DNV report [8] called for so-called “dry pipe” systems allowing first responders to connect very large water sources to the interior without having to access the interior.

It is critical to appreciate that all parts of the battery system must be cooled down. Playing water on a battery “fire” may cool the surface, but so long as Li-ion cells deep inside the battery remain above about 150°C, “re-ignition” events will continue. It is not sufficient to estimate water requirements on the basis of calculations assuming water reaches everywhere, uniformly.

For example, in the recent Tesla car fire [2] the BEV battery kept re-igniting, took 4 hours to bring under control and used 30,000 (US) gallons of water (115 m³). This was for a 100 kWh BEV battery, designed with inter-cell thermal isolation barriers.

In the case of Sunnica, the Local Authorities have suggested that water supplies of 1900 litres per minute for 2 hours (228 m³) will be needed [22]. But this is grossly inadequate. Using the above Tesla BEV fire experience, this amount of water would suffice for just **two** Tesla Model S car fires. Scaling this up to even the smallest 2 MWh BESS (such as that in McMicken [8]), which contains

stored energy equivalent to **twenty** Tesla Model S cars, it is clear to see that a much greater amount of water would be needed.

The actual amount of water required will depend on the energy storage capacity per cabin which, in the case of Sunnica, is still unstated. Some simple estimates are, however, made below. **The requirements suggested to date by the Local Authorities for the Sunnica installation are completely inadequate and, if not addressed, would leave Suffolk FRS without the means to control a major BESS “fire”.**

Taking a storage capacity of 10 MWh in just one of the Sunnica cabins (see Appendix 1), a complete thermal runaway accident in such a BESS would release that stored electrochemical energy, plus an indeterminate quantity of heat from combustion of hydrocarbon polymer materials or inflammable gases evolved from them. Such Total Heat Release may be up to twenty times the amount of the stored electrochemical energy in the BESS [11].

The thermal capacity of water is $4.2 \text{ kJ kg}^{-1} \text{ K}^{-1}$ or in kWh terms, about $1.17 \text{ kWh m}^{-3} \text{ K}^{-1}$. If heated from $25 \text{ }^\circ\text{C}$ to boiling point about 87.8 kWh m^{-3} of thermal energy is required.

Hence the water volume required to absorb 10 MWh of released energy without boiling is about 114 m^3 or 30,000 US gallons, the same amount as required in practice to control a fire in a single Tesla Model S car with a mere 100 kWh battery, 100 times smaller than a 10 MWh BESS.

The quantity suggested by the Local Authorities’ joint response is 228 m^3 (1900 L min^{-1} for 2 hours), twice the above estimate, which would naively be sufficient for a 20 MWh BESS fire. **However, from the experience of recent BEV fires, it could be insufficient by a factor of 100.**

No such calculations were presented in the Examination of the 700MWh Cleve Hill BESS [6].

2. “Clean agent” fire suppression systems are a common fire suppression system in BESS, but are **totally ineffective** to stop “thermal runaway” accidents. The McMicken explosion was an object lesson in this: the installed “clean agent” system operated correctly, as designed, on detection of a hot fault in the cabin [8]. There was no malfunction in the fire suppression system. But it was completely useless because the problem was not a conventional fuel-air fire, it was a thermal runaway event. Only water will serve in thermal runaway.

Indeed in the McMicken explosion the “Novec 1230” clean agent arguably contributed to the explosion by creating a stratified atmosphere with an air/Novec 1230 mixture at the bottom and inflammable gases accumulating at the cabin top.

The most probable cause of the explosion was mixing caused by the opening of the door by first responders. The explosive mixture contacted hot surfaces and ignited [8].

3. A further recommendation of the Hill/DNV report [8] into the McMicken explosion is for a means of **controlled venting** of inflammable gases **before** first responders attempt access. In the Local Authority response to the Sunnica consultation, ventilation is listed as a BESS requirement [22] but the reason given, bizarrely, is “to control the temperature” – at which ventilation or air-conditioning (also listed) would be totally ineffective, lacking any significant thermal capacity.

The critical reason for controlled ventilation is the removal of inflammable gases **before** an explosive mixture forms. Deflagration panels (to decrease the pressure of explosions that do occur) are also recommended.

It should be noted that although controlled venting provisions would mitigate the consequence of inflammable gas evolution, they would also require simultaneous venting of Hydrogen Fluoride that would be evolved concomitantly.

Toxic gas hazard would continue to present a risk to the community and the environment for the duration of the incident. Fire-water will be contaminated with, *inter alia*, highly corrosive Hydrofluoric Acid. Contamination of water supplies and waterways **must** be prevented.

It is strongly recommended that Fire Services study the Hill/DNV report [8], and the related Underwriters Labs report [9], act upon their recommendations, and make realistic, physics-based, calculations of the water quantities required to be available at every single BESS cabin. There could be as many as 150 BESS cabins at the Sunnica East B site alone – see Appendix 1; each of these would need a sufficient water supply.

References

- [1] Major Emergency Report MER 49652 (Liverpool City Council, Environmental Health Dept) Report from Merseyside Fire and Rescue Services and operator Ørsted into the battery fire at Carnegie Rd, Liverpool, 14-15 September 2020.
Promised January 2021 but still not released as of May 2021.
MER 49652 is a Liverpool City Council file code.
- [2] Washington Post 19 April 2021
<https://www.washingtonpost.com/nation/2021/04/19/tesla-texas-driverless-crash/>
- [3] Letter 2 August, 2019 from Commissioner Sandra Kennedy, of the Arizona Public Service Commission. Docket E-01345A-19-0076, State of Arizona Public Service Commission.
- [4] Energy Storage News.
<https://www.energy-storage.news/news/fire-at-20mw-uk-battery-storage-plant-in-liverpool>
- [5] Liverpool echo, 15 September 2020.
<https://www.liverpooecho.co.uk/news/liverpool-news/live-updates-fire-rips-through-18934842>
- [6] Cleve Hill Development Consent Order.
<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010085/EN010085-001957-200528%20EN010085%20CHSP%20Development%20Consent%20Order.pdf>
- [7] Sunnica Preliminary Environmental Information Report, Ch 3: Scheme Description
- [8] D. Hill (2020). McMicken BESS event: Technical Analysis and Recommendations, Arizona Public Service. Technical support for APS related to McMicken thermal runaway and explosion.”
Report by DNV-GL to Arizona Public Service, 18 July 2020. Document 10209302-HOU-R-01
- [9] McKinnon, M B, DeCrane S, Kerber S (2020).
“Four fire-fighters injured in Lithium-ion Battery Energy Storage System explosion – Arizona”.
Underwriters Laboratories report July 28, 2020.
UL Firefighter Safety Research Institute, Columbia, MD 20145
- [10] Li-ion batteries video.
<https://www.youtube.com/watch?v=CUgbmCSmSNY>
- [11] Larsson F, Andersson P, Blomqvist P, Mellander BE (2017).
Toxic fluoride gas emissions from lithium-ion battery fires.
Scientific Reports **7**, 10018 doi: 10.1038/s41598-017-09784-z
- [12] Public Health England (2017).
Hydrogen Fluoride and Hydrofluoric acid – Incident Management, PHE gateway number 2014790
- [13] Golubkov A W, Fuchs D, Wagner J *et al.* (2014).
Thermal runaway experiments on consumer Li-ion batteries with metal-oxide and olivin-type cathodes.
RSC Advances **4**, 3633-3642 doi: 10.1039/c3ra45748f
- [14] D J C MacKay (2009) “Sustainable Energy – Without the Hot Air” UIT Cambridge Ltd p329

- [15] Rigby S E, Lodge T J, Alotaibi S *et al.*
Preliminary yield estimation of the 2020 Beirut explosion using video footage from social media.
Shock Waves. doi:10.1007/s00193-020-00970-z
- [16] Pilger, C, Hupe P, Gaebler P, Kalia A, Schneider F, Steinberg A, Henriette S & Ceranna L (2020). Yield estimation of the 2020 Beirut explosion using open access waveform and remote sensing data. Bundesanstalt für Geowissenschaften und Rohstoffe - submitted <https://doi.org/10.31223/X5W027>
- [17] Understanding COMAH – a Guide for new entrants
<https://www.hse.gov.uk/comah/guidance/understanding-comah-new-entrants.pdf>
Appendix 1 Figure 1 flowchart.
- [18] Letter from Dr E J Fordham to HSE, 25 November 2020.
Addressed impersonally but sent Recorded Delivery and receipted.
- [19] Letter from Ms Sarah Albon, Chief Executive of HSE, to Dr E J Fordham, 22 February 2021.
- [20] Allianz Risk Consulting (2019) Battery Energy Storage Systems (BSS) using Li-ion batteries, Technical Note Vol 26.
- [21] National Fire Protection Association (2020)
Standard for the Installation of Stationary Energy Storage Systems Standard 855, Table 9.2
- [22] Response of affected Local Authorities
(Cambridgeshire and Suffolk County Councils, West Suffolk and East Cambridgeshire District Councils) to Sunnica Consultation.
<https://democracy.westsuffolk.gov.uk/documents/s39360/Sunnica%20Statutory%20Consultation%20Response.pdf>
- [23] Note (2/11/20) from Councillor Andrew Douch, Freckenham Parish Council, meeting 30 October 2020
- [24] *Power Engineering*, 4/18/2017, “What you need to know about energy storage”.
- [25] Energy Institute (2019) Battery Storage Guidance Note 1: Battery Storage Planning, Sec 4.2 page 16
- [26] A guide to the COMAH regulations (2015): <https://www.hse.gov.uk/pubns/books/l111.htm>
- [27] A guide to the COMAH regulations (2015): <https://www.hse.gov.uk/pubns/books/l111.htm>
Schedule 1, Part 1, Col 2.

Appendix 1: Battery Capacity Calculations for the Grid-scale BESS proposed at the “Sunnica” site.

The Sunnica scheme will be taken as an example of a “mega-scale” solar plant with BESS. If approved, it would cover approximately 2800 acres and will include BESS on 3 separate sites.

The proposed BESS capacity in the Sunnica scheme has not been specified. Estimates of storage capacity can be made on the basis of the land areas allocated to the BESS compounds, assuming full use (per meeting with Parish Councillors, 30 October 2020 [23]). Li-ion battery technology has also been assumed because it is the most widely used in the industry today. Li-ion batteries have a high energy density, and the costs of these have fallen significantly over the past few years [24].

Land areas and cabin size are quoted in the Sunnica Scheme Description as:

Sunnica East A:	5.23 ha
Sunnica East B:	15.6 ha
Sunnica West A:	10.65 ha
Total:	31.48 hectares.

One storage cabin size is 15 m length × 5 m width × 6 m height. This height is *double* that of a so-called “hi-cube” shipping container and has a larger footprint (75 m² vs 30 m² for a standard 40-foot shipping container).

Storage capacity can be estimated based on other BESS and storage cabin volumes:

Single cabin energy storage capacity:

The McMicken, Arizona, Li-ion BESS was a single cabin, footprint of 60 m² and ‘shipping container’ height. The Sunnica BESS cabins are 75 m², with ‘double shipping container’ height (6 m). Energy storage at McMicken was 2 MWh.

Scaling by footprint and height yields a *single cabin* energy storage capacity estimate of 5 MWh for each of the “Sunnica” BESS cabins.

The Arizona cabin had empty space for expansion racks, so a larger single cabin energy storage capacity, up to say 10 MWh, is entirely conceivable.

Density of BESS cabins on allocated land:

This is unstated by Sunnica. We assume that 7.5% of the allocated land area will be occupied by the BESS cabins themselves (this allows for safety separations, fire access routes, Battery Management Systems (BMS) and other electrical plant, bunding for firewater in the event of incidents). This implies a total of 315 BESS cabins allocated over the three sites.

Total scheme storage capacity:

5 MWh (single cabin capacity) × 315 cabins yields a total energy storage capacity of **1575 MWh** (or 1.574 GWh), distributed over 3 separate battery compounds of unequal size (31.48 ha total). If the single cabin capacity were 10 MWh, the total doubles to **3150 MWh**.

A storage capacity between 1500 – 3000 MWh is therefore credible for the Sunnica proposal, depending on single cabin storage and the density of cabins on the land.

The area density of storage at this cabin density would be 50 MWh ha⁻¹ for a single-cabin storage of 5 MWh. This figure of 50 MWh ha⁻¹ is independent of the total area allocated; it depends only on the assumed fraction (7.5%) occupied.

For comparison, the corresponding density at Cleve Hill [3] is a very similar 69.2 MWh ha⁻¹.

The Energy Institute [25] gives 100 MWh ha⁻¹ as ‘typical’ for Li-ion BESS planning. This density would be reached in our assumptions if the single cabin capacity were 10 MWh. The latter figure is entirely conceivable because the “base estimate” derives from an incompletely populated cabin. It is also readily achievable if the spacing of cabins is closer than implied by the assumption of 7.5% land occupancy.

The “base case” estimate of 315 cabins and 1574 MWh is an overestimate *only if* the project does *not* fully occupy the allocated land (i.e. BESS cabin density is less than the 7.5% assumed), but this would be contrary to advice from the developer in meetings with local Councillors.

It is also an overestimate if the single cabin storage capacity is less than 5 MWh. This is unlikely because it is estimated from a BESS cabin still incompletely populated.

These estimates are summarised in the following Table.

Table 3. Estimates of electrical stored energy under various assumptions at Sunnica.

Note: “1 kiloton TNT” is equivalent to 1.163 GWh. “One Beirut” is equivalent to 580 MWh.

Compound	Area	No. of cabins at area density of 7.5%	Energy storage capacity		Comments
(Single cabin) (per cabin land)	75 m ² 1000 m ²	1	5 MWh	10 MWh	Per cabin assumptions
Sunnica East A	5.23 ha	52	260 MWh	520 MWh	Per compound estimates of stored energy
Sunnica East B	15.6 ha	156	780 MWh	1560 MWh	
Sunnica West A	10.7 ha	107	535 MWh	1070 MWh	
Whole Scheme	31.5 ha	315	1575 MWh 1.575 GWh 1.36 kilotons 2.72 “Beiruts”	3150 MWh 3.150 MWh 2.71 kilotons 5.44 “Beiruts”	Stored electrochemical energy only. Does not include chemical energy from inflammables.

Appendix 2: Applicability of the COMAH Regulations to large-scale BESS

The COMAH regulations (2015): COMAH regulates establishments with quantities of dangerous substances (categorised as toxic, flammable or environmentally damaging) that are present above defined thresholds. The substances do not need to be present in normal operation. If dangerous substances could be generated “if control of the process is lost”, the likely quantity generated thereby must be considered. If the mass of dangerous substances that could be generated in loss of control exceeds the COMAH thresholds, the Regulations apply.

There are two “tiers” to COMAH, the “upper tier” imposing more stringent controls. Thresholds of hazardous substances are listed with thresholds for both tiers.

The regulations specify aggregation rules when more than one substance in a hazard category (e.g. flammables) may be present; even if all such substance are below the COMAH thresholds, others in the same hazard category must be quantified and the proportions of the threshold aggregated. If the total exceeds one, the establishment is subject to COMAH. It is also clear that the inventories of all “installations” – including pipework – must be considered as a whole.

Extracts from COMAH Regulations [26] 2(1) (definitions):

“establishment” means the whole location under the control of an operator where a dangerous substance is present in one or more installations, including common or related infrastructures or activities, in a quantity equal to or in excess of the quantity listed in the entry for that substance in column 2 of Part 1 or in column 2 of Part 2 of Schedule 1, where applicable using the rule laid down in note 4 in Part 3 of that Schedule;

“presence of a dangerous substance” means the actual or anticipated presence of a dangerous substance in an establishment, or of a dangerous substance which it is reasonable to foresee may be generated during loss of control of the processes, including storage activities, in any installation within the establishment, in a quantity equal to or in excess of the qualifying quantity listed in the entry for that substance in column 2 of Part 1 or in column 2 of Part 2 of Schedule 1, and “where a dangerous substance is present” is to be construed accordingly;

Application to grid-scale BESS: The Regulations refer to “a dangerous substance which it is reasonable to foresee may be generated during loss of control of the processes”. Both Flammable Gases (P2) and Acute Toxics (H1 and H2) are certainly “reasonable to foresee” in thermal runaway incidents which are now well-documented. The evolution of regulated, named and categorised hazardous substances from Li-ion battery cells in thermal runaway is also well-documented. A “worst credible accident” would have to consider that the entire inventory of Li-ion cells would be destroyed in a single BESS cabin at least. Cabin-to-cabin propagation should also be considered.

The Regulations apply to the entire “establishment”, controlled by a single operator. Whilst the individual BESS compounds at Sunnica might be regarded as separate establishments, it is less reasonable that individual BESS cabins should be regarded as separate “establishments”. They are separate “installations” but “establishment” means the entire area under control of an “operator”.

Only if the most stringent safeguards were in place to ensure that the disastrous consequences of cabin-to-cabin propagation of “battery fires” could not conceivably occur, could it be argued that dangerous substances, exceeding the COMAH thresholds in quantity, were not “reasonable to foresee [being] generated during loss of control of the process”.

We believe the COMAH regulations apply to BESS and that the approach of HSE is wrong in law.

Dangerous substances “reasonable to foresee ... generated during loss of control of the processes”: The literature and known experience of BESS accidents is clear that dangerous

substances in the hazard categories H1 and H2 (Acute Toxic) and P2 (Flammable Gases) are foreseeable in the event of thermal runaway accidents. One of the Flammable Gases is Hydrogen, which is a “Named Dangerous Substance” in Part 2 of Schedule 1 of the COMAH Regulations 2015. Lower thresholds are specified for Hydrogen than for other P2 Inflammable Gases.

It remains therefore to consider the quantities of dangerous substances which could be generated if “control of the process is lost” in a thermal runaway incident. Published literature sources quantify evolution of flammable gases from tests of various Li-ion cells in sealed vessels. Open “fire tests” quantify the evolution of toxic gases particularly Hydrogen Fluoride. Many other test results exist in the records of specialist test laboratories, but here we rely upon two primary published sources.

Golubkov *et al.* (2014) [13] report quantities of evolved inflammables from Li-ion cells of three different electrode chemistries in thermal runaway situations. The proportion of Hydrogen (H₂), Methane (CH₄), Ethylene (C₂H₄) and Carbon Monoxide (CO) does not in fact vary greatly between different types of Li-ion cell, reflecting an underlying inventory of hydro-carbon material (plastics, electrolyte solvents etc) that remain similar in all Li-ion technologies. This is consistent with DNV/GL test data cited in the Hill/DNV report [8]. The quantitative estimates here are taken from results derived from cells with Nickel-Manganese-Cobalt (NMC) electrodes, as used in the McMicken BESS. It was not possible in the apparatus of Golubkov *et al.* to determine the concentrations of HF evolved.

Larsson *et al.* [11] report evolved quantities of Hydrogen Fluoride (HF) from Li-ion cells in open “fire tests”, and also the Total Heat Released (THR) from combustion of the inflammables. Again these vary between cell technologies and “form factors”, especially whether the cells have an outer metal cannister or are in the “pouch” format. Quantities between 20 – 200 mg / Wh are reported. The worst case figure is used in the following estimates; the lowest evolution reported for “pouch” cells was 43 mg/Wh.

Both sources report evolved gas quantities on a per Wh basis. We scale these to a Li-ion BESS cell size on the basis of stored energy since this will be roughly proportional to the electrolyte solvents and other polymer materials in the cell. Scaling on a per mass basis would be preferable, but this would require further information on the exact composition of the cells in the literature tests, and indeed those for the BESS in question. During the McMicken investigation, the cell manufacturers refused to release such data.

H1 and H2 Acute Toxics. The applicability of COMAH is easiest to determine in respect of Hydrogen Fluoride (HF). This has a dual hazard classification [12] as H1 Acute Toxic (skin exposure) and H2 Acute Toxic (inhalation) and both exposure routes would apply to the general public nearby. The lower tier COMAH threshold for H1 Acute Toxics is 5 tonnes [27]; using the upper estimate of 200 mg/Wh from Larsson, the BESS capacity at which a BESS enters the scope of COMAH (lower tier) is 25 MWh.

This is far below the projected storage capacities given in Table 3 (Appendix 1). With high storage capacity cabins (of e.g. 12.5 MWh), it would require propagation of a fire from just one cabin to a second, to generate HF above the COMAH threshold. It is not necessary to foresee a major conflagration involving multiple cabin-to-cabin propagation to bring the establishment within scope of COMAH; just two cabins would suffice. If 25 MWh were stored in a single large cabin, the question of cabin-to-cabin propagation is irrelevant.

The upper tier for “H1 Acute Toxic” is entered at four times higher capacity (100 MWh), which is well below the estimated capacity of Cleve Hill, and is also below *each* of the three Sunnica BESS compounds individually.

Even on the lowest evolution figure of 43 mg/Wh reported by Larsson *et al.* for “pouch” cells, the lower tier of COMAH is entered at a storage capacity of 120 MWh, again well within the “low case” capacity of each of the Sunnica BESS compounds, and Cleve Hill.

There is little doubt that either the lower or upper tier of COMAH is applicable to Cleve Hill and all three of the Sunnica BESS compounds, on the basis of “H1 Acute Toxic” (HF, skin route) alone.

Carbon Monoxide (CO) is categorised as an H2 Acute Toxic as well as a P2 Inflammable Gas, and will also be evolved, but in application of the aggregation rule its presence does not materially alter these conclusions. It is sufficient to consider HF alone.

P2 Inflammable Gases. Assessing applicability of COMAH on the basis of inflammable gases is more complicated because of the evolution of Hydrogen (H₂), Methane (CH₄), Ethylene (C₂H₄) and Carbon Monoxide (CO) in significant quantities, and because Hydrogen is a “named dangerous substance” for which different COMAH thresholds apply. These must be taken into account when applying the Aggregation Rule. Although proportions are generally similar, quantities do depend on the different electrode chemistries in the different Li-ion cell types.

Taking the largest evolutions reported by Golubkov *et al.* [13] for the LCO/NMC electrode type tested by them these are equivalent to 335 mg/Wh of P2 inflammables. For the NMC cells tested (the McMicken cells were NMC) the evolution was 214 mg/Wh. Taking the higher figure and applying the aggregation rule, grid-scale BESS enter the lower tier of COMAH at about 30 MWh capacity. Taking the lower figure, they enter the lower tier at 45 MWh capacity.

Hence there is little doubt that grid-scale BESS are lower tier COMAH establishments on the basis of “P2 Inflammable Gases” at storage capacities between 30 – 45 MWh.

Because of the variability between cell types, and the difficulty of scaling laboratory tests to actual BESS cells without detailed composition data, there is room for adjustment. However the calculated estimates of the thresholds for applicability of COMAH are so far below the projected capacities that it is inconceivable that the Cleve Hill and Sunnica BESS compounds would *not* be COMAH establishments, in lower tier at the very least, and probably the upper tier also.

Conclusion: Grid-scale Li-ion BESS should be considered COMAH establishments in the lower tier on the basis of “H1 Acute Toxic” (HF) alone, at energy storage capacities in the region of **25 MWh**. Upper tier would apply at about **100 MWh**. They should be lower-tier COMAH establishments on the basis of “P2 inflammable gases” alone, at storage capacities between **30 – 45 MWh**. Again larger establishments could become upper tier COMAH. Laboratory closed vessel and fire tests on actual Li-ion BESS cells proposed to be deployed would be required to refine these estimates definitively.

It is difficult to see how these conclusions could be avoided if tested in litigation.

Appendix 3: Shortcomings of Existing Engineering Standards for Li-ion BESS

The July 2020 report for the Arizona Public Service by Dr D Hill [8] provides a comprehensive discussion of existing engineering standards relating to BESS, and how they are *inadequate* to address the known hazards of “thermal runaway” incidents in Li-ion BESS. This was the failure mode leading to the explosion at McMicken, Arizona.

Unfortunately, when the UK’s first “mega-scale” solar plant and battery storage site was granted approval in May 2020, this paper had not been published. The Cleve Hill solar developers cited one standard, UL 9540A [3]. This is also cited by some insurance and risk consultants [20].

It is important to be clear that nothing in UL 9540A addresses thermal runaway, and as a test method standard, it can provide no “safety certification” for Li-ion BESS.

Specific criticisms made in the Hill/DNV report include the following:

1. UL 1973 allows for the complete destruction of a BESS and the creation of an explosive atmosphere so long as no explosion or external flame is observed. An installation can do all these things but still “pass” UL 1973. At McMicken one rack was completely destroyed and an explosive atmosphere created but no flame or explosion occurred until first-responders opened the cabin door.
2. UL 9540A is merely a test method for generating data. It does not define any “pass/fail” criteria for interpreting results. Specifically, it does not address cell-to-cell cascading in thermal runaway, nor the evolution of a potentially explosive atmosphere. It does not even prescribe that the cell-to-cell cascading rate be measured.
It allows that thermal runaway may proceed to an entire rack (as at McMicken) and offers testing of fire suppression systems (which operated correctly at McMicken but cannot prevent thermal runaway, and did not prevent an explosion).
Presentation of data generated under UL 9540A to an “AHJ” (Authority Having Jurisdiction) does not translate to a succinct understanding of potential risks.
3. NFPA 855 [21] does require evaluation of thermal runaway in a single module, array or unit and does acknowledge the need for thermal runaway protection. However, it assigns that role to the Battery Management System (BMS). Yet thermal runaway is an electrochemical reaction that once started cannot be stopped electrically. It is uncontrollable by electronics or switchgear, only by water cooling.

The evolution of engineering and safety standards has not yet incorporated the lessons of experience arising from the McMicken explosion [8] or explosion incidents in the UK like the Liverpool explosion and fire of 15 September 2020 [1]. Compliance with existing standards does not prevent such incidents happening again.

Articles in the industry press³ do now recognise and discuss the problem of thermal runaway but make proposals such as: *“If off-gases can be detected and batteries shut down before thermal runaway can begin, it is possible that fire danger can be averted”*.

Such statements betray a dangerous misunderstanding. Batteries cannot be “shut down”, except by complete discharge, which cannot be done quickly. Taking cells “out of circuit” is useless; thermal breakdown and runaway will still occur.

³ <https://www.energy-storage.news/blogs/preventing-thermal-runaway-in-lithium-ion-energy-storage-systems>

Appendix 4 – Fire Safety Planning requirements in the Local Authorities’ Joint Response to the Sunnica statutory consultation

This Appendix deals point by point with the BESS requirements in the Local Authority response (text in blue) pp 74 – 75.

Sunnica should produce a risk reduction strategy as the responsible person for the scheme as stated in the Regulatory Reform (Fire Safety) Order 2005. It is expected that safety measures and risk mitigation is developed in collaboration with services across both counties.

The Local Authorities require that the Fire Services work with Sunnica to prepare fire safety and risk mitigation measures. The Cambridgeshire and Suffolk Fire Services are therefore the only public bodies with independent oversight of BESS safety.

The use of batteries (including lithium-ion) as Energy Storage Systems (ESS) is a relatively new practice in the global renewable energy sector. As with all new and emerging practices within UK industry, the SFRS would like to work with the developers to better understand any risks that may be posed and develop strategies and procedures to mitigate these risks.

This paper is provided as input to this process, which appears to be insufficiently understood.

The promoter must ensure the risk of fire is minimised by:

- Procuring components and using construction techniques which comply with all relevant legislation.

This overlooks the points made in this paper that (i) existing legislation is being ignored by the statutory regulatory body, the HSE (ii) no adequate engineering standards exist to exercise Prevention measures over what is by now a very well-known hazard, viz. thermal runaway. Public Health and Safety cannot be assured whilst either of these situations continues.

- Developing an emergency response plan with both counties fire services to minimise the impact of an incident during construction, operation and decommissioning of the facility.
- Ensuring the BESS is located away from residential areas. Prevailing wind directions should be factored into the location of the BESS to minimise the impact of a fire involving lithium-ion batteries due to the toxic fumes produced.

This is impossible to satisfy. All the BESS compounds in the Sunnica proposal are sufficiently close to residential areas to present a major danger of toxic fumes in the event of an accident. Plume dispersal modelling should be performed to ensure that concentrations of HF cannot exceed dangerous thresholds in the event of the worst credible accident in a BESS compound.

- The emergency response plan should include details of the hazards associated with lithium-ion batteries, isolation of electrical sources to enable firefighting activities, measures to extinguish or cool batteries involved in fire, management of toxic or flammable gases, minimise the environmental impact of an incident, containment of fire water run-off, handling and responsibility for disposal of damaged batteries, establishment of regular onsite training exercises.

This requirement is very broad but insufficiently detailed. Means of cooling would require water volumes many times in excess of those requested. Management of inflammable gases is best addressed by venting, but that exacerbates the hazard of toxic gas plumes. Large water volumes may lead to unrealistic or impossible requirements for the containment, and subsequent disposal, of the contaminated water resulting from the fire-fighting activity. Other sections of this paper address these points.

- The emergency response plan should be maintained and regularly reviewed by Sunnica and any material changes notified to SFRS and CFRS.

- Environmental impact should include the prevention of ground contamination, water course pollution, and the release of toxic gases.

Preventing the release of toxic gases is all but impossible. A thermal runaway event WILL release toxic gases. If inflammables are vented to avoid /mitigate explosion risk, toxic gases WILL be vented. Ground contamination and water course pollution is almost certain to occur if sufficient water to control a major thermal runaway event is deployed. It will pose a significant challenge to contain, and safely dispose of, such large volumes of contaminated fire water.

The BESS facilities should be designed to provide:

- Automatic fire detection and suppression systems. Various types of suppression systems are available, but the Service’s preferred system would be a water drenching system as fires involving Lithium-ion batteries have the potential for thermal runaway.

This is a correct precaution, but no specification is made of likely water volume requirements, nor for a “dry pipe” system allowing water to be deployed without cabin entry. We provide some water estimates elsewhere in this paper.

Other systems, such as inert gas, would be less effective in preventing reignition.

This is also a correct insight. The so-called “clean-agent” fire suppression system at McMicken was triggered correctly, but was useless to control thermal runaway. Moreover the stratified atmosphere created allowed the build-up of inflammables to a dangerous level, before the explosion occurred.

- Redundancy in the design to provide multiple layers of protection.
- Design measures to contain and restrict the spread of fire through the use of fire-resistant materials, and adequate separation between elements of the BESS.

This comment only vaguely considers the true essentials. The “elements of the BESS” could be: cells, modules, racks, strings, and the entire system. As discussed in the Hill/DNV report what is required is for the industry as a whole to accept that thermal runaway in an unacceptable hazard, and demand engineering standards that Prevent thermal runaway by design, or if it occurs, Prevent its cascade or escalation to larger system elements. This requires

- a. Thermal barriers (i.e. Low thermal conductivity barriers, not merely refractory barriers, ideally with water cooling, between all cells, so that propagation from cell to cell cannot occur. This is precisely the requirement the industry has so far **NOT** made in the development of its engineering standards.
 - b. Separation of modules by similar barriers to Prevent module-to-module cascade.
 - c. Separation of Racks to prevent rack-to-rack cascade, even with ejection of molten metals.
 - d. Spacing of BESS cabins such that even with “75 foot flame lengths” cabin to cabin escalation is impossible. This is probably the most critical of all, since cabin-to-cabin escalation could turn a major fire incident into an unprecedented catastrophe, on the scale of the Beirut explosion or a small nuclear weapon.
- Provide adequate thermal barriers between switch gear and batteries,
 - Install adequate ventilation or an air conditioning system to control the temperature. Ventilation is important since batteries will continue to generate flammable gas as long as they are hot. Also, carbon monoxide will be generated until the batteries are completely cooled through to their core.

This comment is very strange. There is no possibility whatsoever that air conditioning could be adequate “to control the temperature”. The importance of ventilation is however recognised, as is

the generation of carbon monoxide (toxic as well as inflammable). However the generation of Hydrogen Fluoride will also continue until the batteries are “completely cooled” and HF (H1 Acute Toxic by skin exposure) is much more toxic than CO (H2 Acute Toxic).

- [Install a very early warning fire detection system, such as aspirating smoke detection.](#)

The “very early warning” fire detection system required should be thermocouples to report continuously on the local temperature at every cell in the entire system. A single cell overheating can escalate via thermal runaway. By the time smoke is generated, this will be a “very late”, rather than “very early” detection system. Just as thermal runaway events do not necessarily generate flame, neither do they necessarily generate smoke, until nearby combustibles are ignited.

- [Install carbon monoxide \(CO\) detection within the BESS containers.](#)

This is a good straightforward measure, but detectors for other gases expected (HF, H₂, CH₄) could equally well serve and multiple gas detection would provide additional security.

- [Install sprinkler protection within BESS containers. The sprinkler system should be designed to adequately contain and extinguish a fire.](#)

The excellent record of sprinkler systems in ordinary building fires shows they would help contain fire in regular combustible parts of the structure. However as discussed earlier in this paper, a mere sprinkler system would be useless to contain thermal runaway. Much larger water quantities would be needed.

- [Ensure that sufficient water is available for manual firefighting. An external fire hydrant should be located in close proximity of the BESS containers. The water supply should be able to provide a minimum of 1,900 l/min for at least 2 hours. Further hydrants should be strategically located across the development. These should be tested and regularly serviced by the operator.](#)

As discussed elsewhere, we believe these water requirements to be **under-specified by a factor of 100**, based on real experience with BEV fires. “Strategic location” is inadequate. Every single BESS cabin (potentially up to 150 of these at Sunnica East B alone) should have such a hydrant.

We remark elsewhere on the recommendation made by Hill/DNV for a “dry pipe” system to deploy water drenching inside via external connections, without cabin entry being needed.

- [A safe access route for fire appliances to manoeuvre within the site \(including turning circles\). An alternative access point and approach route should be provided and maintained to enable appliances to approach from an up wind direction. Please note that SFRS requires a minimum carrying capacity for hardstanding for pumping/high reach appliances of 15/26 tonnes, not 12.5 tonnes as detailed in the Building Regulations 2000 Approved Document B, 2006 Edition, due to the specification of our appliances.](#)

The requirement for safe access routes and space for appliances to manoeuvre could usefully be expanded into requirements for safe spacing of BESS cabins and thermal or flame barriers between cabins, to prevent the “disaster scenario” of cabin-to-cabin propagation.

Final Comment: (over)

Final Comment:

The fundamental failure mode of Li-ion batteries presenting major hazard is thermal runaway. This paper is far from the first to identify the risk which is now well-known.

However the BESS industry as a whole has still not agreed or implemented adequate engineering standards to address basic Prevention measures to pre-empt thermal runaway accidents.

Until it does, Mitigation of major accidents by the Fire Services will remain the sole recourse for public protection and safety.



**City of Bonney Lake, Washington
City Council Agenda Bill (AB)**

Agenda Bill Number:

Agenda Item Type: None

Presenter: Sadie Schaneman, City Clerk

City Strategic Goal Category: None

Department/Division Submitting: Admin

Impacted Departments That Received Notification: None

Full Title/Motion: Review of Minutes: April 7, 2026 City Council Minutes

Short Background Summary:

minutes

Budget Explanation:

Committee, Board, Commission, & Hearing Examiner Review

Name Of Committee/Commission/Examiner Meeting:

Date of Committee/Commission/Examiner Meeting:

Date of Committee/Commission Public Hearing:

Committee/Commission/Examiner Meeting Decision:

Council Action

Date of Council Workshop

Date of Council Meeting

Date of Council Public Hearing

City Council Meeting

**April 7, 2026
6:00 PM**



<http://www.bonneylake.gov/>

Minutes

Location: The physical location of the Council Meeting was at the Bonney Lake Justice & Municipal Center, 9002 Main Street East, Bonney Lake, Washington. The public was also given the option to call in or attend virtually the Council Meeting.

I. Call to Order

Mayor Carter called the meeting to order at 6:01 p.m.

A. Pledge of Allegiance

Mayor Carter led the audience in the Pledge of Allegiance.

B. Roll Call

City Clerk Sadie Schaneman called the roll. In addition to Mayor Carter, elected officials attending were Deputy Mayor Dan Swatman, Councilmember Angela Baldwin, Councilmember Aaron Davis, Councilmember Gwendolyn Fullerton, Councilmember Kerri Hubler, Councilmember J. Kelly McClimans and Councilmember Brittany Rock.

Staff members in attendance at the physical location were City Administrator John P. Vodopich, Acting Assistant Police Chief Ryan Harberts, Public Services Director Jason Sullivan, Development Services Manager Lauren Balisky, City Clerk Sadie Schaneman, and Records & Disclosure Coordinator Kandice Besaw.

Staff members in virtual attendance were Administrative Specialist II Debbie McDonald and Assistant to City Administrator Leslie Harris.

C. Agenda Modifications

None.

D. Announcements

1. Recognition Of Achievement

The Mayor recognized City Clerk Sadie Schaneman and Records and Disclosure Coordinator Kandice Besaw for their recent achievements. On March 19, 2026, both were sworn into leadership roles for the Washington Municipal Clerks Association (WMCA): Schaneman as Vice President and Besaw as Secretary. The City recognizes this as a significant accomplishment; not only being elected by their peers but also being asked to teach within other clerk organizations demonstrates their immense hard work and dedication to the profession.

2. Volunteer Appreciation Week Proclamation & Recognition

The Mayor read a proclamation in honor of Volunteer Appreciation Week, expressing gratitude to all city volunteers for their service. City Clerk Schaneman distributed certificates of appreciation to those in attendance. Mr. Gilmer spoke on behalf of the volunteers, highlighting the group's hard work and sharing his personal appreciation for the rewarding work done at the Senior Center.

II. Council Committee Reports

Community Development Committee: Councilmember Fullerton reported the Community Development Committee met in person and virtually today at 4:30 p.m. The Committee discussed BESS, battery energy storage systems, fire sprinkler ordinance and repealing chapter 15.16, and had an open discussion on the critical areas report.

Other Reports:

Councilmember Fullerton:

Puget Sound Regional Council (PSR) Meeting: Reported on her attendance at the Puget Sound Regional Council board meeting, where they discussed budget adjustments necessitated by recent legislation and recommended certification of the comprehensive plans and re-designations regarding the regional growth center and ended with discussing open space, plans and updates.

Pierce County Regional Council (PCRC) Meeting: The Pierce County Regional Council (PCRC) roundtable focused on small city issues. The discussion centered on securing funding and grants specifically for smaller jurisdictions, as well as improving local access to transit services.

Alliance for Sustainable Climate Change Association (ASCCA) Meeting. The Alliance for Sustainable Climate Change Association group discussed their recent legislative field trip and its subsequent impact on their budget. Held breakout sessions and discussed having a "Roadshow" presentation at a council meeting. Finally, she highlighted the upcoming Wildfire and Smoke Preparedness Workshop, which will be held at East Pierce Fire & Rescue Station 117 on May 8th.

Councilmember Davis:

Communities For Families (CFF) Meeting: Attended the Communities For Families meeting where they were reminded of the upcoming Lahar Dill on April 23rd, Healthy Kids Day at the YMCA on April 25th, the Summit on April 28th and the current Hill and Valley Shoe Drive.

Mayor Carter:

Pierce County Charter Review Commission: The Pierce County Charter Review Commission will be hosting a meeting in Bonney Lake at the Justice & Municipal Center (JMC) on April 20th at 6:00 PM. This is a public meeting, and all community members are encouraged to attend.

Senior Center Funding: The City successfully secured \$150,000 in funding for the Senior Center. This was made possible through the advocacy of our state representatives, following our recent lobbying efforts and active presence at the state level.

Angeline Road Roundabout Project: Pleased to announce that \$3.2 million has been secured for this construction project. This includes a \$1.2 million grant from the state and an additional \$2 million awarded through Representative Kim Schrier's office.

III. Consent Agenda

Deputy Mayor Swatman requested to move the February 24th City Council retreat minutes located within line item A to the Council workshop discussion items as item C for review.

Councilmember Baldwin moved to Approve as Amended . Councilmember Fullerton seconded the motion.

Motion approved as amended 7 – 0.

- A. **Approval of Minutes:** ~~February 24, 2026, City Council Retreat~~ (Moved to Workshop Discussion Item C) and March 3, 2026, Joint Planning Commission Meeting/City Council Meeting Minutes
- B. **Approval of Payroll:** February 16-28, 2026 For Checks #35407-35417 Including Direct Deposits and Electronic Transfers Totaling \$983,183.55. **Voids:** None.
- C. **Approval of Payroll:** March 1-15, 2026 For Checks #35418-35423 Including Direct Deposits and Electronic Transfers Totaling \$860,233.29. **Voids:** None.
- D. **Approval of Accounts Payable and Utility Refund/Checks/Vouchers:** For Checks/Vouchers #101079 to #101202, and Wire Transfers #20260121, #20260220, #20260312, #20260309, #2026305, and #51113225 in the amount of \$1,257,095.36. For Checks/Vouchers #101203 to #101289, and Wire Transfers #202603261, #202603262, #20260320, #51394717, and #20260302 in the amount of \$627,634.55. For Wire Transfer #20260228 For City Purchasing Cards in the amount of \$60,823.35. **Voids:** Check #100977, replaced with #101114. Check #1000682, replaced with #101205.

IV. Full Council Issues

- A. **AB26-30** - A Resolution Of The City Council Of The City Of Bonney Lake, Pierce

County, Washington, Authorizing Use Of Up to \$52,000 Of The General Fund Ending Balance To Complete Abatement Of The Real Property Located At 7222 193rd Street E, Bonney Lake, Pierce County, Washington.

Councilmember Baldwin moved to Approve AB26-30. Councilmember Fullerton seconded the motion.

The Council discussed and shared their concerns, including:

- Fence removal.
- Recouping of funds.
- Necessary spending such as hydro-seeding.
- Confirming correct street address as 193rd.

Motion approved as amended 7 – 0.

- B. **AB26-32** - An Ordinance Of The City Council Of The City Of Bonney Lake, Pierce County, Washington, Adopting Findings That The Maintenance Of A Central Index Of Records Is Unduly Burdensome And Establishing Policies For Public Access To Records; Providing For Severability And Corrections; And Establishing An Effective Date.

Councilmember Baldwin moved to Approve AB26-32. Deputy Mayor Swatman seconded the motion.

Council had no discussion on this topic.

Motion Approved 7 – 0.

V. Audience Comments

For efficient use of city resources, comments will be a short summary and not verbatim. An audio recording is available on the [state digital archives](#) and [public portal website](#) if you are needing a complete review of comments.

Robert Wright, spoke regarding an ongoing water leak issue. He presented supporting documentation to the Council and requested their assistance in resolving the matter.

Dan Decker, read a satirical piece titled, "The Meeting of Selective Outrage and the Lost Truth."

Jim Grob, expressed concerns regarding safety hazards on the Fennel Creek Trail and inquired about the City's current maintenance schedule for the area.

VI. Council Open Discussion

Councilmember Baldwin:

Leak Adjustment Policy Review: Requested that the leak adjustment portion of the City of Bonney Lake municipal code be referred to the Finance Committee for a formal re-review.

Fennel Creek Trail: Inquired about departmental responsibility for the Fennel Creek Trail. Public Services Director Sullivan clarified that while the City maintains certain sections and others are privately owned. Maintenance of City-owned portions is subject to available funding within the Parks budget. It was suggested that this issue be brought forth to the Pierce County Regional Council for funding assistance.

Battery Energy Storage Systems (BESS). Wanting to bring to the Council's attention that the City of Enumclaw is also facing similar challenges regarding Battery Energy Storage Systems (BESS), highlighting concerns regarding lithium storage and the potential safety hazards.

Bonney Lake Triathlon: Group named Raise the Bar will be hosting the Bonney Lake Triathlon on August 30th.

Councilmember Fullerton:

Court Statement: Referenced her oath of office and expressed concern regarding an attempt by another council member to silence a citizen. She noted that holding public office places individuals in a "glass house" and shared that, while she has faced personal verbal attacks, she considers it part of the territory of public service. She expressed significant frustration regarding a false statement submitted to the Pierce County Superior Court that was attributed to her. She clarified that while she had a conversation with a citizen and wrote a statement, the version submitted to the court contained inaccuracies and outright lies. Stated that her reputation has been unfairly tarnished and requested it be noted for the public record that the claims made on her behalf are false. She emphasized the importance of this clarification to ensure these inaccuracies do not negatively impact her standing or any future pursuit of government positions.

VII. Workshop Discussion Items

A. Review of Minutes: March 10, 2026 City Council Minutes

The draft minutes were forwarded to the April 14, 2026, Meeting for approval.

B. City Council Budget Goals and Objectives Review

The Council approved the staff edits and suggestions to the City Council Budget Goals and Objectives subject to one addition, one clerical correction, and one better clarification:

Addition: At the request of Councilmember Davis, a “Funding for Partnership Strategy” was added. This addition directs the City to pursue public-private partnerships, sponsorship opportunities, and grants to support the development of long-term, sustainable major park projects, including the Bonney Lake Sports Complex, the Veterans Memorial, and ongoing park maintenance.

Clerical Correction: Councilmember Baldwin noted a misspelling in the Overall Vision section under the 6th bullet point. The word “identity” was corrected to “identify” regarding the strategy to identify incentives that encourage job development within East Town.

Better Clarification: Councilmember Baldwin asked that the retail theft under

With these changes noted, the Council approved all remaining edits.

C. February 24, 2026, City Council Retreat Minutes

Minor correction: Roman numeral VII, section C, will now read as “Deputy Mayor Swatman said that the Public Safety Tax is one of the preferred possibilities to further consider and look at.

VIII. Executive/Closed Session

None.

IX. Adjournment

At 8:11 p.m. the Meeting was adjourned by Mayor Carter with the common consent of the City Council.

Sadie A. Schaneman, MMC, City Clerk

Terry Carter, Mayor

Items presented to Council at the April 7, 2026, Meeting for the record:

1. Water Leak Documentation - Robert Wright.
2. A Satire - Dan Decker.
3. Fennel Creek Trail Maintenance Concerns - Jim Grob.

Note: Unless otherwise indicated, all documents submitted at City Council meetings and workshops are added to the back of the packet the next day. For detailed information on agenda items, please view the corresponding Agenda Packets, which are posted on the city website and on file with the City Clerk.