Whatcom County
Planning & Development Services
Staff Report to Council

Review of Uses Allowed in the Heavy Impact Industrial District within Urban Growth Areas

I. File Information

File # PLN2024-00007

File Name: Review of uses allowed in the Heavy Impact Industrial District (HII) within Urban Growth Areas

Applicant: Whatcom County Planning and Development Services (PDS) on behalf of the County Council

Summary of Request: Amend Whatcom County Code Chapter 20.68 (Heavy Impact Industrial) and other relevant sections of Title 20 to define appropriate industrial uses and conditions for industrial uses in Heavy Impact Industrial (HII) Districts within a city's designated urban growth area.

Location: Alderwood neighborhood, northwest of Bellingham and south of the airport

Recommendation(s):

- The *Planning Commission* was not able to offer a recommendation on amendments to WCC Chapter 20.68. Instead, they approved a resolution (Exhibit F) suggesting that the Council consider a targeted moratorium, potentially excluding the waterfront HII properties, until this matter can be better addressed through the Comprehensive Plan Periodic Update.
- *Planning and Development Services* recommends that the Council consider adopting the proposed code amendments shown in Exhibit A of the draft ordinance as the first step in defining appropriate industrial uses and conditions for industrial uses in Heavy Impact Industrial (HII) Districts within a city's designated urban growth area. As a second step, PDS recommends that the County consider addressing this areas' land use compatibility issues by analyzing potential zoning changes to some properties through the Comprehensive Plan Periodic Update, and updating the County's industrial and manufacturing land use regulations (WCC Chapters 20.66, 67, and 68).

II. Background

Council Directive

In 2024 Council placed on the docket:

> **PLN2024-00007 – Heavy Impact Industrial Zones within city UGA**
> Amend Whatcom County Code Chapter 20.68 and other relevant sections of Title 20 to define appropriate industrial uses and conditions for industrial uses in Heavy Impact Industrial (HII) Districts within a city's designated urban growth area.

Council added this to the docket in response to concerns from surrounding residential neighbors when a permit application for a metal recycling facility was submitted,[1] with the goal of reducing potentially adverse impacts from other similar potential uses in the future.

Pursuant to Council direction, this item is intended to be the first phase in assuring future uses are compatible and consistent with each other and the vision for the community. At the 5/21/24 Council Planning & Development Committee meeting another motion was approved 7-0 "that the Council support re-examining the use of the HII zone in the UGA to include other zoning designations as possible." This motion institutes a second phase in planning for this area, which is intended to occur through the Comprehensive Plan Update and would include a more thorough review of zones, uses, compatibility, outreach, coordination with the City and Port of Bellingham, residents, businesses, etc. The Planning Commission's current task is addressing the docketed item above with deeper and broader discussions to follow with the second phase.

Council Clarification

Upon the Planning Commission's request for clarification from Council as to what they were looking for through their docket item, the Council's Committee of the Whole, at their 7/23/24 meeting, provided a list of uses the Commission should review and consider prohibiting within the Bellingham UGA. Specifically, a motion was approved "that Planning and Development Services Department use this included and excluded list as a starting point for working with the Planning Commission on advancing a Phase 1 code changes discussion." These lists are attached as Exhibits B and C.

Councilmember Donovan, who originally developed these lists, conferred with existing businesses and the Port of Bellingham (who owns some of the HII properties) to ensure that the excluded list does not significantly affect any existing businesses.

Processing Timeline

- 4/9/24 – Council added PLN2024-00007 to the docket.
- 5/23 to 9/12/24 - The Commission held 6 workshops and heard from numerous parties, including residents, businesses, and other interest groups.
- 5/21/24 - Council provided additional direction, directing PDS to "re-examine the use of the HII zone in the UGA to include other zoning designations as possible" through the CompPlan Update, affirming that PLN2024-00007 is just the first phase of addressing this issue.
- 7/23/24 - Council provided addition direction, providing lists of uses for the Commission to consider excluding and including.
- 8/22/24 – The Commission considered a resolution recommending that Council only consider such zoning changes through the CompPlan Update and potentially enacting a targeted moratorium on new HII uses in the UGA; however, the motion failed.
- 9/12/24 – The Commission provided PDS clear direction on potential language based on the Council's "excluded" list
- 9/26/24 – The Planning Commission held a public hearing. Upon deliberation the Commission was not able to gain enough votes to offer a recommendation on the amendments. Instead, they approved a resolution (Exhibit F) suggesting that the Council—again—consider a targeted moratorium, potentially excluding the waterfront HII properties, until this matter can be better addressed through the Comprehensive Plan Periodic Update.

[1] Though has subsequently been withdrawn.

Affected Location(s)

There is only one location that this directive would affect, that being the Alderwood neighborhood, as it is within the Bellingham UGA and contains properties zoned Heavy Impact Industrial (HII). (There are no other areas in the county zoned HII within any other city UGAs.)

The area is located adjacent to the northwest portion of Bellingham. It is comprised of a mix of light and heavy industrial (LII and HII), residential (URMX, URM3, URM6, and URM18), commercial (NC), and recreation and open space (ROS) zoning and uses (see figures, below). It has been an industrial area since before zoning was first adopted, as it is near the port and is served by rail and the nearby shipping terminals. However, in the last few decades residential uses have intensely developed around and in between the industrial properties.

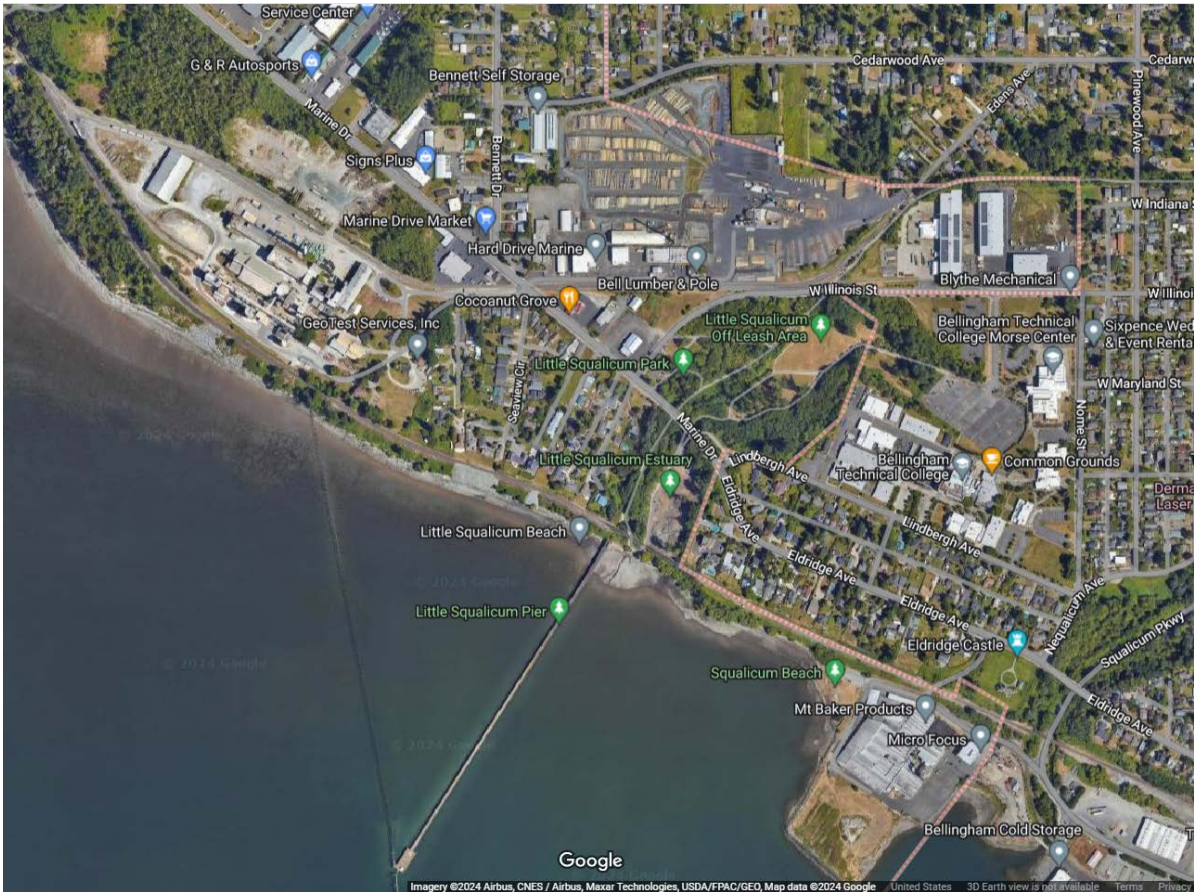


Figure 1. Aerial of the Alderwood Neighborhood

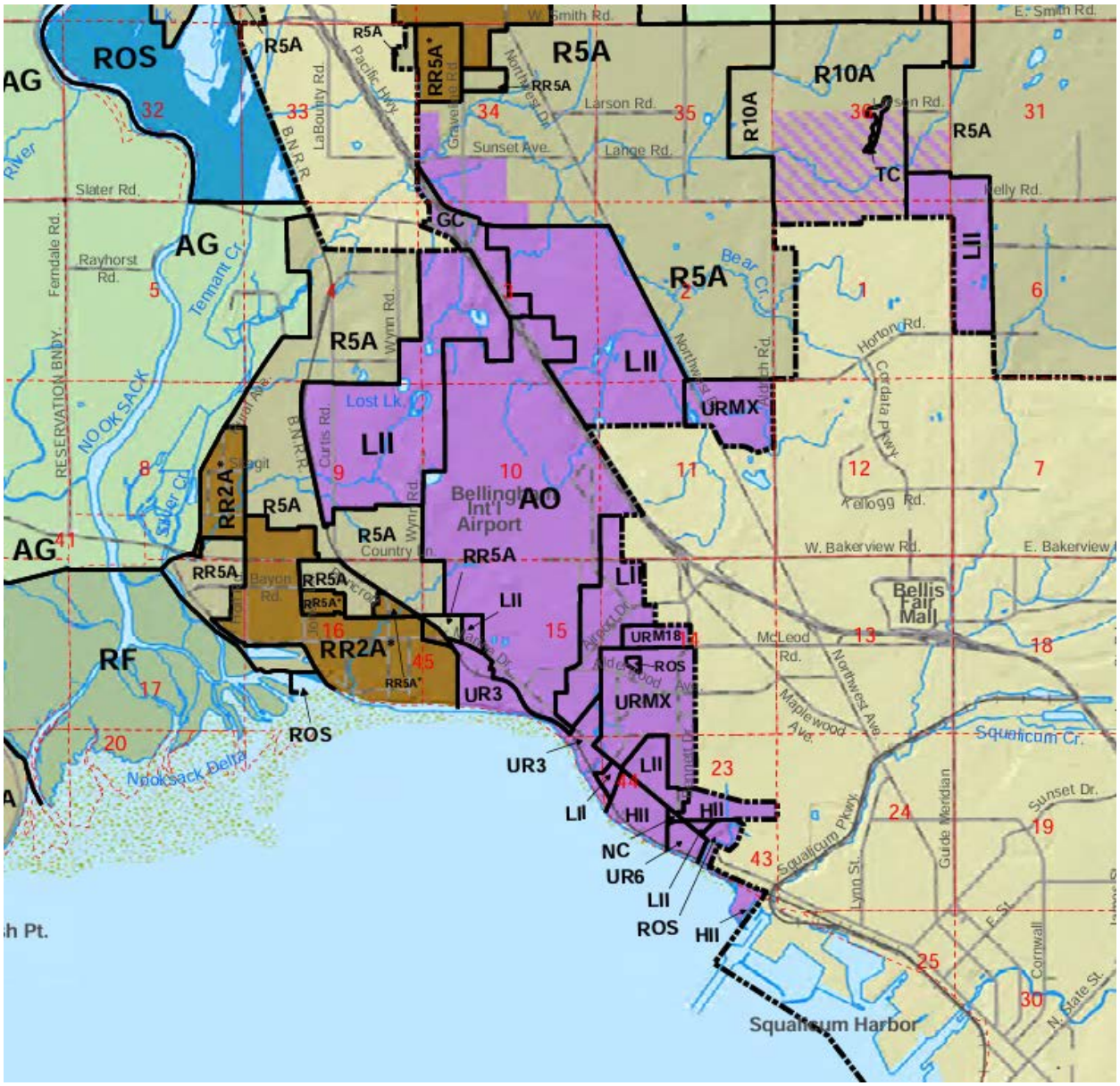
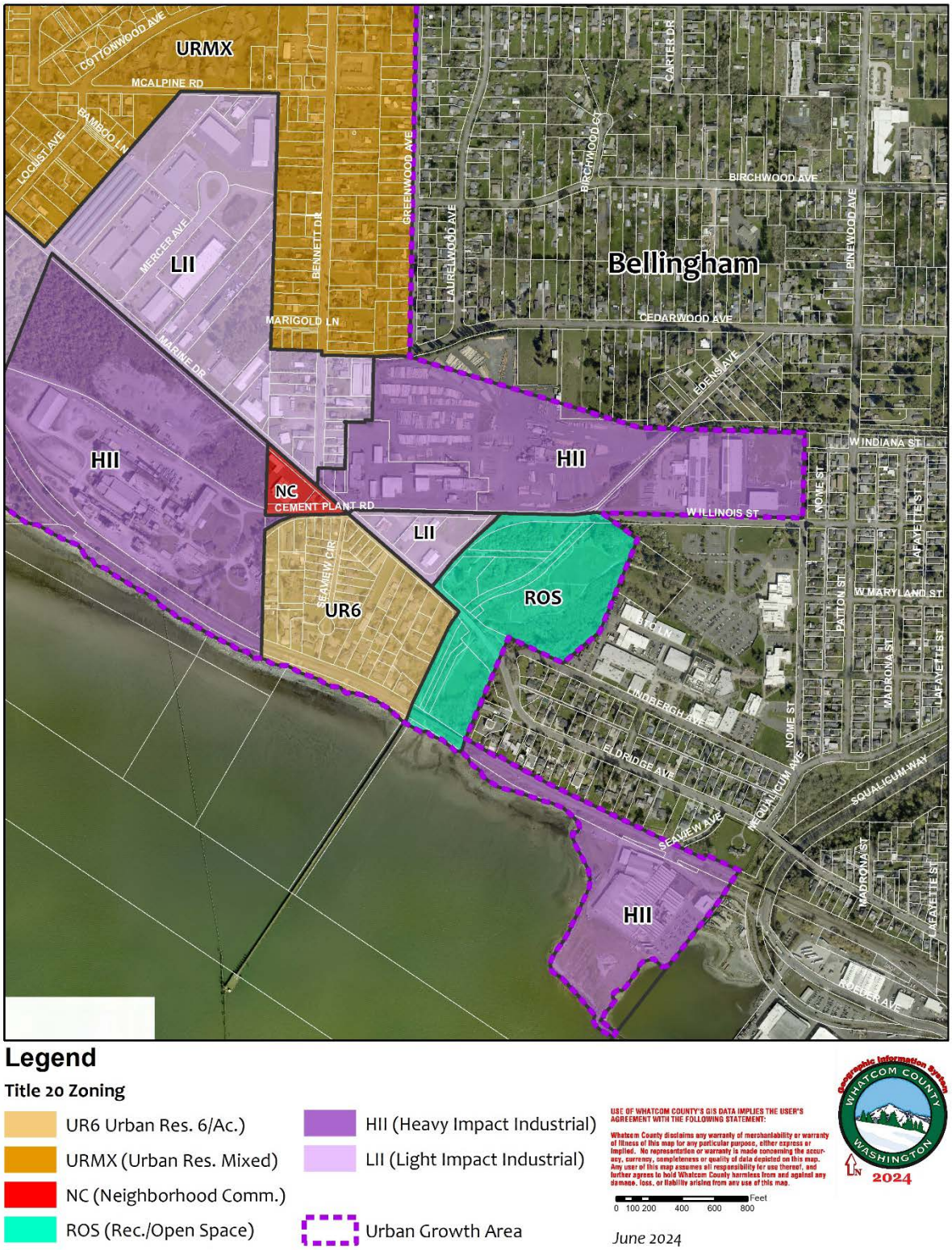


Figure 2. Portion of the Whatcom County Zoning Map for the Alderwood Neighborhood



Legend

Title 20 Zoning

- UR6 Urban Res. 6/Ac.
- URMX (Urban Res. Mixed)
- NC (Neighborhood Comm.)
- ROS (Rec./Open Space)
- HII (Heavy Impact Industrial)
- LII (Light Impact Industrial)
- Urban Growth Area

0 100 200 400 600 800 Feet

June 2024

Figure 3. Zoomed in Map of the Alderwood Neighborhood showing zoning districts

III. Code Amendments

WCC Title 20 regulates uses, and the permits they require, by categories: permitted, accessory, administrative, conditional, and (sometimes) prohibited uses. While historically the Alderwood neighborhood was predominantly an industrial area, there are uses allowed in the HII district that may not be appropriate for this area today. The following (details in Exhibit A) is an attempt to do so. The existing portion of the HII code showing the entire list of permitted, accessory, administrative, conditional, and prohibited uses is provided in Exhibit D.

Consolidation of Bellingham UGA Use Exceptions

Sprinkled throughout the existing code (in WCC 20.68.050, 20.68.150, and 20.68.200) are several exceptions to the use allowances that apply specifically within the Bellingham UGA. To make it easier to find these exceptions the draft amendments move them all to one new section 20.68.210, entitled "Use Allowances Specific to the Bellingham Urban Growth Area." The list of prohibited uses is based on Council's input (Exhibits B & C) and modified based on community input and Planning Commission recommendations. Exhibit A reflects both the Council's lists as well as some of these refinements.

Definitions

A proposed amendment necessitated by the Council's and Planning Commission's concerns to not effecting existing businesses is the modification of the County's definition of "manufacturing," and the addition of definitions for "primary manufacturing" and "secondary manufacturing." Currently the code distinguishes between the two as allowed or not allowed in numerous sections; however, there are no definitions specifying what the actual difference is. (See Exhibit A, page 3)

Prohibition of Certain Uses in the Bellingham UGA

Using the lists provided by Council (Exhibits B and C), PDS developed draft code amendments consistent with Council's direction and input. PDS also worked with the Port of Bellingham (POB) to refine them so as not to affect existing businesses or POB plans. And the Planning Commission—after hearing from residents, business owners, the POB, and other interest group in their work sessions—recommended some edits to Council's list, which are indicated below.

20.68.212 Except as prohibited by WCC 20.68.216, u~~U~~ses allowed in the Light Impact Industrial district as permitted uses (WCC 20.66.150~~0~~) shall be permitted ~~outright~~ uses within the Heavy Impact Industrial District.

Staff Explanation: This existing language has been moved from 20.68.064 (with a citation corrected).

20.68.216 The following uses are prohibited:

(a) Fossil or renewable fuel refineries or transshipment facilities, and the primary manufacturing of products thereof;

Staff Explanation: This language has been developed using the existing, but consolidated, language from 20.68.203, .204, and .250, which together prohibit all such uses within the Bellingham UGA.

(b) Primary manufacturing and processing of rubber, plastics, paper, asbestos~~, and products derived thereof~~;

Staff Explanation: There was concern as to whether the manufacturing of paper products should be prohibited, as there are existing businesses that produce paper products. However, they use paper in a secondary manufacturing process rather than a primary manufacturing process.

Though this line is existing text and these items are currently prohibited in the Bellingham UGA, and Council has included it on their "excluded" list, the POB would like to retain paper manufacturing as a permissible use, as there are existing businesses that use paper to manufacture finished products. However, with the addition of definitions for primary and secondary manufacturing, the prohibition of the *primary* manufacturing of paper (or any of the listed uses) could stay, as those existing businesses using paper in their processes would be considered secondary.

However, the phrase "and products derived thereof" seems to speak to secondary manufacturing. The Commission agreed that primary manufacturing of certain products should be prohibited, but that the secondary manufacturing of products using the primary products should be allowed. Thus, in the latest version of the language this phrase is proposed for deletion.

(c) Primary metal industries including blast furnaces and steel works and mills for primary smelting;

Staff Explanation: This is existing language from 20.68.203.

(d) <u>Metal recycling or any outdoor manufacturing or processing of metal products described in WCC 20.68.054(6);</u>

Staff Explanation: Language developed to preclude outdoor metalworking or metal recycling in this neighborhood.

(e) <u>Primary</u> manufacturing of chemicals and associated products, including industrial inorganic and organic chemicals; synthetic resins, rubber, fibers and plastic materials; soap, detergents and cleaning preparations; paint, linseed oil, shellac, lacquer and allied products; chemicals from gum and wood; and agricultural chemicals;

Staff Explanation: The Commission had concerns that there are existing businesses that use certain chemicals in their manufacturing processes, some of which are listed in (e). The Commission agreed that adding "primary," in conjunction with adopting definitions for "primary manufacturing" and "secondary manufacturing" (see Definitions, above), would allow secondary manufactures to continue, but that primary manufactures of these chemicals would be prohibited.

(f) Packinghouses and slaughterhouses and associated holding pens<u>, except for seafood facilities</u>;

Staff Explanation: The POB would like to ensure that seafood processing is not excluded, so "except for seafood facilities" has been added.

(g) Asphalt storage;

Staff Explanation: There were no objections to this from anyone.

(h) Bulk commodity storage facilities, and truck and vessel transshipment terminals and facilities <u>applied for after [effective date of this ordinance], except for those using only fully-enclosed containers</u>;

Staff Explanation: The POB would like to strike this entire subsection, arguing that this neighborhood has proximity to rail, truck routes, and storage/terminal facilities that may make this a viable use in the future and limits the ability to support new businesses and innovative ideas.

After discussion, the Commission suggested that a prohibition on these uses should only pertain to those applied for after the effective date of the ordinance effecting these amendments. Staff has added such language (with the date to be entered once known).

Additionally, the Commission added, "except for those using only fully-enclosed containers," after hearing from an audience member who described the difference in noise and other impacts between

transshipment facilities using open vs. closed containers and railcars. Typically, raw materials are transported in the latter, and finished products in the former.

(i) Hazardous waste treatment and storage facilities as a primary use;

Staff Explanation: Many businesses need to be able to treat and/or store hazardous waste as part of their practices (e.g., an auto repair shop needs to be able to properly store and dispose of numerous chemicals). Staff believes it was Council's intent not to exclude such as an accessory use, but only a primary use. Thus, "as a primary use" has been added.

(k) Thermal power plants as a primary use;

Staff Explanation: producing technologies that could be interpreted to fall under "thermal power plants," and they didn't want to preclude these. Thus, "as a primary use" has been added, which would mean that stand-alone power plants would be prohibited, but not small-scale power backup systems (e.g., generators).

(l) Battery Energy Storage System (BESS) of greater than 20 megawatts that run for a duration of four hours or greater;

Staff Explanation: Though Council included Battery Energy Storage Systems (BESS) on their "excluded" list (Exhibit B), the POB would like to retain BESS as a permissible use, as they're looking to install a BESS for use by ships in-port. Additionally, many businesses have on-site BESS, used to manage their energy demands. The POB also argues that:

- PLN2021-0001 already addressed "Battery Energy Storage Systems" and allowed BESS of any storage capacity to be permitted in LII and HII zones.
- Comprehensive Plan Policy 7C-3, which supports working with service providers for a dependable electric power supply, alternative energy sources, communications, and evolving technology to support existing and future business development supports leaving this as an allowed use
- Existing businesses, including the Port, are proposing battery energy storage facilities associated with other uses. Adding this to the prohibited list adds uncertainty as we are moving to diversifying energy sources, providing energy security and sustainability.

In their discussion the Commission wanted to know more about the fire risk of BESS. Exhibit E provides information from various sources on the internet. After reviewing this material, the Commission voted to add the clause "of greater than 20 megawatts that run for a duration of four hours or greater"

(m) Type 2 cannabis production facilities;

Staff Explanation: There were no objections to this from any one.

(n) Cannabis processing facilities;

Staff Explanation: There were no objections to this from any one.

Clarification

Staff is also proposing a change to WCC 20.68.152 (Conditional Uses), to provide additional clarity. The language is somewhat unclear as to which portions apply where, though the intent was for all of it to apply outside of the Bellingham UGA.

IV. Comprehensive Plan Evaluation

Whatcom County Comprehensive Plan

Though there are some CompPlan goals or policies that speak to joint planning in the Bellingham UGA, none specifically address the Alderwood neighborhood or HII designations. Staff finds no policies with which these amendments would be inconsistent. Thus, the proposed amendments are consistent with the Comprehensive Plan.

Urban Fringe Subarea Plan

The Urban Fringe Subarea Plan is a sub-plan of the Whatcom County Comprehensive Plan and contains policies specific to those areas in Urban Growth Areas. The following policies are applicable to the topic at hand:

Policy 1.13 Minimize land use conflicts in the Urban Growth Area through the use of appropriate buffering mechanisms, design standards, and locational criteria. Promote compatibility between land uses, especially among residential, commercial, industrial and Airport Operations designations.

Policy 4.2 The rationale of the Heavy Impact Industrial zoning designation in the Urban Fringe Subarea is to acknowledge existing heavy industrial uses situated in proximity to Bennett Drive, Marine Drive, and Roeder Avenue; to endorse a diverse economic base; and to attain compatibility between industrial activities and adjoining residential land uses.

Policy 4.8 When practical, Whatcom County encourages industrial operations to take place within enclosed structures with the intent of minimizing potential light, glare, odors and noise impacts to adjoining residential uses.

Policy 4.9 Because the HII areas adjoin existing and planned residential areas situated in Whatcom County and the City of Bellingham, it is necessary to move toward obtaining mutual compatibility with these residential areas. To obtain mutual compatibility, it is the policy of Whatcom County to permit those existing uses and future uses which will minimize hazards, pollution, nuisances and odors to surrounding residential areas. The following uses will not be permitted in the Heavy Impact Industrial zoning district in the Urban Fringe Subarea: manufacturing and processing of asbestos and products derived therefrom; petroleum refining and the primary manufacture of products derived directly therefrom; primary manufacturing of rubber, plastics, chemicals, paper, and primary metal industries.

Policy 4.10 With the intent of fostering and promoting compatibility with surrounding residential land uses both in the county and the City of Bellingham, it is the policy of Whatcom County to require industrial users to provide a buffer which is situated on industrial land and adjoins the residential areas. The buffer may alternately be provided off-site by written agreement in the form of a deed restriction on the off-site parcel that runs with the land and that is filed with the County Auditor. The off-site buffer agreement will be written so that it may be revised or rescinded in the event that land uses or zoning designations are changed in such a way that the buffer is no longer necessary.

However, none of these conflict with what is being proposed and therefore the proposed amendments are consistent with the Urban Fringe Subarea Plan.

V. Proposed Findings of Fact and Reasons for Action

1. Whatcom County Planning and Development Services has submitted an application to amend Whatcom County Code Chapter 20.68 and other relevant sections of Title 20 to define appropriate

industrial uses and conditions for industrial uses in Heavy Impact Industrial (HII) Districts within a city's designated urban growth area.

2. A determination of non-significance (DNS) was issued under the State Environmental Policy Act (SEPA) on August 26, 2024. No comments have been received to date.
3. Notice of the subject amendment was submitted to the Washington State Department of Commerce on August 1, 2024, for their 60-day review. No comments were received.
4. The Planning Commission held 6 workshops between 5/23 to 9/12/24 and heard from numerous parties, including residents, businesses, and other interest groups.
5. The Planning Commission held a duly noticed public hearing on the proposed amendments on September 26, 2024.
6. The Planning Commission considered the County Council's input in developing their recommendation, including the docket language as well as Exhibits B and C, though modified some language based on input from the community. However, the Commission was not able to gain enough votes to offer a recommendation on the amendments.
7. Instead, the Planning Commission approved a resolution (Exhibit F) recommending that the Council consider a targeted moratorium, potentially excluding the waterfront HII properties, until this matter can be better addressed through the Comprehensive Plan Periodic Update.
8. The County Council held a duly noticed public hearing on the proposed amendments on _____, 2024.
9. The amendments are consistent with Comprehensive Plan Policy Goal 2D to "refine the regulatory system to ensure accomplishment of desired land use goals in a fair and equitable manner." There are no policies with which these amendments would be inconsistent.
10. The amendments are consistent with the Urban Fringe Subarea Plan.

VI. Proposed Conclusions

1. The amendments are in the public interest.
2. The amendments are consistent with the Whatcom County Comprehensive Plan.

VII. Recommendation(s)

- The *Planning Commission* was not able to offer a recommendation on amendments to WCC Chapter 20.68. Instead, they approved a resolution (Exhibit F) suggesting that the Council consider a targeted moratorium, potentially excluding the waterfront HII properties, until this matter can be better addressed through the Comprehensive Plan Periodic Update.
- *Planning and Development Services* recommends that the Council consider adopting the proposed code amendments shown in Exhibit A of the draft ordinance as the first step in defining appropriate industrial uses and conditions for industrial uses in Heavy Impact Industrial (HII) Districts within a city's designated urban growth area. As a second step, PDS recommends that the County consider addressing this areas' issues by rezoning some properties through the Comprehensive Plan Periodic Update, finding other appropriate properties to rezone as Industrial, and modernize the County's industrial and manufacturing land use regulations (WCC Chapters 20.66, 67, and 68).

VIII. Exhibits

A) Proposed Ordinance and Code Amendments
B) Council's "Excluded" List
C) Council's "Included" List
D) Existing Heavy Impact Industrial Code
E) BESS Safety Information
F) Planning Commission Resolution

Exhibit B: Council's "Excluded" List

Re: AB 2024-427: Additional direction to Planning Commission for uses to be excluded in the HII UGA

(Editor's Note: The intent of this list is to provide direction to the Planning Commission as to which uses might not be compatible with the residential uses in the Alderwood neighborhood. Strikeouts shown are Council's.)

- Battery energy storage systems (BESS)
- Treatment and storage facilities for hazardous wastes
- Metal recycling and any new outdoor manufacturing or processing of metal products in relation to the metal production and processing uses allowed in WCC 20.68.054(6)
- Packinghouses and slaughterhouses
- Packinghouses and slaughterhouses
- Holding pens associated with packinghouses and slaughterhouses
- Primary metal industries including blast furnaces and steel works; mills for primary smelting
- The manufacture of chemicals and allied products including industrial inorganic and organic chemicals; synthetic resins, rubber, fibers and plastic materials; soap, detergents and cleaning preparations; paint, linseed oil, shellac, lacquer and allied products; chemicals from gum and wood; and agricultural chemicals.
- Storage of asphalt
- Bulk commodity storage facilities, and ~~rail,~~ truck, vessel and transshipment terminals and facilities
- Stationary thermal power plants
- Floating thermal power plants
- Cannabis processing facilities
- Type 2 (outdoor) cannabis production facilities
- New renewable fuel refineries or renewable fuel transshipment facilities
- Treatment and storage facilities for hazardous wastes
- Type I solid waste handling facilities.
- Type II solid waste handling facilities.
- Type III solid waste handling facilities
- The manufacture and process of paper including ~~pulp,~~ paper and paperboard mills; and building paper and board mill products
- The manufacture and processing of rubber and plastic products.

Exhibit C: Council's "Included" List

Remaining HII permitted uses in HII UGA

(Editor's Note: This intent of this list is to show what uses would still be allowed on HII properties within the Bellingham UGA if those uses in Exhibit B are excluded. Strikeouts shown are Council's.)

20.68.050 Permitted Uses
(…)

.051 The manufacture and processing of food including meat ~~(including packinghouses and slaughterhouses)~~, dairy, fruits, vegetables, seafood, grain mill, large scale bakery, sugar and beverage products, provided the following criteria are met:

(2) The facility shall comply with the solid waste handling standards as set forth in Chapter 173-350 WAC, as administered by the Whatcom County health department as adopted by reference in Chapter 24.06 WAC.
(3) If required by the Washington State Department of Ecology, the following permits shall be obtained:
  (a) State waste discharge permit (Chapter 173-216 WAC);
  (b) Industrial stormwater permit – general permit (Chapter 173-226 WAC);
  (c) An NPDES permit (Chapter 90.48 RCW and Chapter 173-220 WAC).

.052 Manufacturing and processing of textiles including weaving cotton, synthetic, silk or wool fabrics; knitting yarn and thread mills; textile bleaching, dyeing and printing; and carpet manufacture.

.**053** The manufacture and processing of lumber and wood including sawmills; planing mills; millwork; veneer, plywood and prefabricated wood products; wooden containers and cooperage.

.054 The following are permitted uses except as otherwise prohibited:

(1) The manufacture and process of paper including ~~pulp,~~ paper and paperboard mills; and building paper and board mill products.
(2) ~~The manufacture and processing of chemicals and allied products including industrial inorganic and organic chemicals; synthetic resins, rubber, fibers and plastic materials; soap, detergents and cleaning preparations; paint, linseed oil, shellac, lacquer and allied products; chemicals from gum and wood; and agricultural chemicals.~~
(3) The manufacture and processing of rubber and plastic products.
(4) Leather tanning and finishing.
(5) The manufacture and processing of cement and glass; and concrete, gypsum, plaster, abrasive, asbestos and nonmetallic mineral products.
(6) ~~Primary metal industries including blast furnaces and steel works; mills for primary smelting,~~ secondary smelting, refining, reducing, finishing, rolling, drawing, extruding, and casting of ferrous and nonferrous metals; and the manufacture of miscellaneous metal products.

.056 The manufacture of machinery including engines; turbines; farm machinery and equipment; construction, mining and materials handling equipment; machine tools and dies; and special and general industrial equipment.

.057 The manufacture of electrical machinery including transmission and distribution equipment, and industrial apparatus.

.058 The manufacture of transportation equipment including automobiles, trucks, buses, airplanes, boat building and repair, railroad equipment, bicycles and motorcycles.

.059 ~~Bulk commodity storage facilities, and truck,~~ rail~~, vessel and~~ transshipment terminals and facilities ~~except as conditionally permitted under WCC 20.68.153 and 20.68.154 or prohibited under WCC 20.68.200~~.

.061 Heavy construction contractors.

.062 Public uses and community facilities including police and fire stations, libraries, activity centers, community centers, park and recreation facilities identified in an adopted city or county Comprehensive Plan or Park Plan, and other similar noncommercial uses, excluding state education facilities and correction facilities.

.063 One one-story detached accessory storage building per lot; provided, that the floor area shall not exceed 200 square feet and shall only be used for personal storage and not for habitation or business; and provided further, that the storage building shall contain no indoor plumbing but may be served with electrical power for lighting.

.064 Uses allowed in the Light Impact Industrial Zone as permitted uses, WCC 20.66.100, shall be permitted outright within the Heavy Impact Industrial District in the Bellingham UGA.

.065 Trails, trailheads, restroom facilities and associated parking areas for no more than 30 vehicles.

.081 Freight railroad switching yards and terminals, except as prohibited under WCC 20.68.200.

.082 Marine port facilities, except as prohibited under WCC 20.68.200.

.108 Day care centers.

.110 Self-service storage facilities.

.111 Propane retail and distribution facility.

20.68.150 Conditional uses.
The following uses require a conditional use permit in the HII Zoning District:

.152 Uses allowed in the Light Impact Industrial Zone as permitted uses, WCC 20.66.100, subject to the following:

(1) Outside of the Bellingham Urban Growth Area, approval shall be supported by a finding by the hearing examiner that allowing the use will not limit the supply of land available to meet the demand for future heavy industrial uses.
(2) Filing of a deed restriction acknowledging that heavy industrial uses are the preferred uses in the zone and agreeing not to protest proposed heavy industrial uses allowed in the zone in accordance with Chapter 20.68 WCC, and to refrain from legal action against any heavy industrial use in compliance with the regulations of WCC Title 20 and any conditions of approval which might have been proposed.

(…)

Exhibit D: Existing HII Code

WCC Title 20, Chapter 20.68 HEAVY IMPACT INDUSTRIAL (HII) DISTRICT

20.68.010 Purpose.
The purpose of the Heavy Impact Industrial District is to implement the Heavy Impact Industrial land use designation of the Comprehensive Plan by supplying a reasonable amount of land, commensurate with demand, for the location and grouping of heavy impact industrial uses. Heavy industrial uses are primarily related to producing, distributing and changing the form of raw materials; whereby, product demand and industrial employment are predominately basic, that is, serving nonlocal markets. In addition, the purpose of this district is to encourage the siting of industrial uses which will optimize the limited resource of land available for heavy impact industry. A further purpose of this district is to minimize the scope of impacts generated within the HII District and to provide protection for nonindustrial districts situated outside thereof; as enabled through the district's performance and development standards, and the buffer and setback requirements.

20.68.050 Permitted uses.
Unless otherwise provided herein, permitted and accessory uses shall be administered pursuant to the applicable provisions of Chapters 16.08 WCC (SEPA), 20.80 WCC (Supplementary Requirements) and 22.05 WCC (Project Permit Procedures), and WCC Titles 21 (Land Division Regulations) and 23 (Shoreline Management Program). The purpose of the SIC numbers listed within this chapter is to adopt by reference other activities similar in nature to the use identified herein. (Policies of the subarea Comprehensive Plan may preclude certain permitted uses to occur in particular subareas. Please refer to the policies of the applicable subarea plan to determine the appropriateness of a land use activity listed below.)

.051 The manufacture and processing of food including meat (including packinghouses and slaughterhouses), dairy, fruits, vegetables, seafood, grain mill, large scale bakery, sugar and beverage products, provided the following criteria are met:

(1) Holding pens associated with packinghouses and slaughterhouses shall be limited to that necessary to accommodate animals intended for processing within 24 hours.
(2) The facility shall comply with the solid waste handling standards as set forth in Chapter 173-350 WAC, as administered by the Whatcom County health department as adopted by reference in Chapter 24.06 WAC.
(3) If required by the Washington State Department of Ecology, the following permits shall be obtained:
    (a) State waste discharge permit (Chapter 173-216 WAC);
    (b) Industrial stormwater permit – general permit (Chapter 173-226 WAC);
    (c) An NPDES permit (Chapter 90.48 RCW and Chapter 173-220 WAC).

.052 Manufacturing and processing of textiles including weaving cotton, synthetic, silk or wool fabrics; knitting yarn and thread mills; textile bleaching, dyeing and printing; and carpet manufacture.

.053 The manufacture and processing of lumber and wood including sawmills; planing mills; millwork; veneer, plywood and prefabricated wood products; wooden containers and cooperage.

.054 The following are permitted uses except as otherwise prohibited:

(1) The manufacture and process of paper including pulp, paper and paperboard mills; and building paper and board mill products.
(2) The manufacture and processing of chemicals and allied products including industrial inorganic and organic chemicals; synthetic resins, rubber, fibers and plastic materials; soap, detergents and cleaning preparations; paint, linseed oil, shellac, lacquer and allied products; chemicals from gum and wood; and agricultural chemicals.
(3) The manufacture and processing of rubber and plastic products.
(4) Leather tanning and finishing.
(5) The manufacture and processing of cement and glass; and concrete, gypsum, plaster, abrasive, asbestos and nonmetallic mineral products.
(6) Primary metal industries including blast furnaces and steel works; mills for primary smelting, secondary smelting, refining, reducing, finishing, rolling, drawing, extruding, and casting of ferrous and nonferrous metals; and the manufacture of miscellaneous metal products.
(7) Storage of asphalt in the Heavy Impact Industrial Zone.

.055 The fabrication of metal products including metal cans, hardware, hand tools, cutlery, heating apparatus, plumbing fixtures, structural metal and stamping.

.056 The manufacture of machinery including engines; turbines; farm machinery and equipment; construction, mining and materials handling equipment; machine tools and dies; and special and general industrial equipment.

.057 The manufacture of electrical machinery including transmission and distribution equipment, and industrial apparatus.

.058 The manufacture of transportation equipment including automobiles, trucks, buses, airplanes, boat building and repair, railroad equipment, bicycles and motorcycles.

.059 Bulk commodity storage facilities, and truck, rail, vessel and transshipment terminals and facilities except as conditionally permitted under WCC 20.68.153 and 20.68.154 or prohibited under WCC 20.68.200.

.060 Stationary thermal power plants with generating capacity of less than 250,000 kilowatts, floating thermal power plants with generating capacity of less than 50,000 kilowatts, and other power plants utilizing renewable resources from solar, wind (Chapter 20.14 WCC) or water sources, except that coal-fired power plants are prohibited.

.061 Heavy construction contractors.

.062 Public uses and community facilities including police and fire stations, libraries, activity centers, community centers, park and recreation facilities identified in an adopted city or county Comprehensive Plan or Park Plan, and other similar noncommercial uses, excluding state education facilities and correction facilities.

.063 One one-story detached accessory storage building per lot; provided, that the floor area shall not exceed 200 square feet and shall only be used for personal storage and not for habitation or business; and provided further, that the storage building shall contain no indoor plumbing but may be served with

electrical power for lighting.

.064 Uses allowed in the Light Impact Industrial Zone as permitted uses, WCC 20.66.100, shall be permitted outright within the Heavy Impact Industrial District in the Bellingham UGA.

.065 Trails, trailheads, restroom facilities and associated parking areas for no more than 30 vehicles.

.066 Type 2 cannabis production facilities, subject to WCC 20.80.690.

.067 Cannabis processing facilities, subject to WCC 20.80.690.

.068 Existing fossil fuel refineries, existing fossil fuel transshipment facilities, renewable fuel refineries, renewable fuel transshipment facilities, piers and docks legally established as of August 8, 2021; provided, that when a permit is sought for a project proposed within or attached to a facility of such classification, the applicant must disclose any capacity changes defined under WCC 20.68.153 and 20.68.154 to the county permitting authorities. Provided that a conditional use permit is not required by WCC 20.68.153 or 20.68.154, permitted uses include repairs, improvements, maintenance, modifications, remodeling or other changes including but not limited to the following:

(1) Accessory and appurtenant buildings, structures, and processing equipment.
(2) Office space.
(3) Parking lots.
(4) Radio communications facilities.
(5) Security buildings, fire stations, and operation centers.
(6) Storage buildings.
(7) Routine maintenance and repair.
(8) Environmental improvements and other projects on the subject site that are required or provided to allow compliance with federal, state, regional, or local regulations, including modifications of fossil fuel facilities for purposes of co-processing biomass with petroleum.
(9) Road projects and bridges.
(10) Temporary trailers.
(11) Heating and cooling systems.
(12) Cable installation.
(13) Information technology improvements.
(14) Continuous emissions monitoring systems or analyzer shelters.
(15) Wastewater and stormwater treatment facilities.
(16) Replacement and upgrading of existing equipment.
(17) Safety upgrades.
(18) Pipelines carrying petroleum or petroleum products solely within the Heavy Impact Industrial Zoning District.
(19) Pipelines carrying natural gas solely within the Heavy Impact Industrial Zoning District.
(20) Renewable fuel production and shipment.
(21) Transferring fossil fuels during emergency scenarios where contingencies require fossil fuels to be moved.
(22) Necessary fossil fuels transfers during turn-arounds or maintenance periods.
(23) Storage tanks; provided, that the county decision maker shall include in any approval of an application for storage tanks at an existing fossil fuel refinery, fossil fuel transshipment facility,

renewable fuel refinery, or renewable fuel transshipment facility a condition that the storage tank shall only be used in the manner described in the application and approved in the permit. The application and permit shall describe the intended use of the storage tank, including the type of fuel to be stored and, if located within a fossil fuel refinery or renewable fuel refinery, whether the storage tank will or will not be used for transshipment.

(24)Other similar structures or activities.

.070 New renewable fuel refineries or renewable fuel transshipment facilities, except that new piers, docks, or wharves in the Cherry Point Industrial District are prohibited.

.071 Expansion of existing legal renewable fuel refineries or renewable fuel transshipment facilities; provided, that the expansion is for renewable fuels only.

.081 Freight railroad switching yards and terminals, except as prohibited under WCC 20.68.200.

.082 Marine port facilities, except as prohibited under WCC 20.68.200.

.085 Type I solid waste handling facilities.

.086 Type II solid waste handling facilities.

.108 Day care centers.

.109 Battery energy storage systems of any storage capacity.

.110 Self-service storage facilities.

20.68.100 Accessory uses.

.101 Employee recreation facilities and play areas.

.102 Restaurants, cafes and cafeterias operated primarily for the convenience of employees, clients and customers of the district.

.103 Temporary buildings for construction purposes for a period not to exceed the duration of such construction.

.104 When auxiliary to a principally permitted use: electric utility facilities; substations; generating plants, if less than 50-megawatt (MW) net plant capability; gas works; sewage disposal facilities; solid waste landfills and incinerators.

.105 Other accessory uses and buildings, including security services, customarily appurtenant to a principally permitted use.

.106 On-site treatment and storage facilities for hazardous wastes associated with outright permitted uses or approved conditional uses subject to the most current siting criteria under Chapter 173-303 WAC.

.107 Repealed by Ord. 2023-078.

.108 Electric vehicle rapid charging stations and battery exchange facilities.

.109 Inter-refinery shipments of refined products and intermediate materials such as unfinished oils and blendstocks.

20.68.130 Administrative approval uses.

.131 Commercial mushroom substrate production limited to the Cherry Point Industrial Area and

pursuant to the requirements as contained in WCC 20.15.020(2) (commercial mushroom substrate production facilities).

20.68.150 Conditional uses.
The following uses require a conditional use permit in the HII Zoning District:

.152 Uses allowed in the Light Impact Industrial Zone as permitted uses, WCC 20.66.100, subject to the following:

(1) Outside of the Bellingham Urban Growth Area, approval shall be supported by a finding by the hearing examiner that allowing the use will not limit the supply of land available to meet the demand for future heavy industrial uses.
(2) Filing of a deed restriction acknowledging that heavy industrial uses are the preferred uses in the zone and agreeing not to protest proposed heavy industrial uses allowed in the zone in accordance with Chapter 20.68 WCC, and to refrain from legal action against any heavy industrial use in compliance with the regulations of WCC Title 20 and any conditions of approval which might have been proposed.

.153 Expansion of existing fossil fuel refineries. For purposes of this section, an expansion is any development (including otherwise permitted or accessory uses), vested after August 8, 2021, that meets any one of the following applicable thresholds:
(1) Cumulatively increases the facility's total maximum atmospheric crude distillation capacity for fossil fuels by more than 10,000 barrels (or 420,000 gallons) per day based upon an evaluation of physical equipment limitations conducted by a licensed professional engineer; or
(2) Cumulatively increases the facility's total maximum transshipment capacity for fossil fuels by more than 10,000 barrels (or 420,000 gallons) per day based upon an evaluation of physical equipment limitations conducted by a licensed professional engineer in accordance with the definition of "maximum transshipment capacity" found in Chapter 20.97 WCC; or
(3) Increases the frequency of fossil fuel unit train shipments by rail unloaded or loaded at an existing facility in excess of limits, if any, established by county, state or federal authorities (where applicable) as of August 8, 2021, or the effective date of a previously approved conditional use permit, whichever is more recent.

If a conditional use permit is obtained, the baseline for determining the cumulative increases is reset.

.154 Expansion of existing fossil fuel transshipment facilities. For purposes of this section, an expansion is any development (including otherwise permitted or accessory uses), vested after August 8, 2021, that cumulatively increases the facility's total maximum transshipment capacity for fossil fuels by more than 10,000 barrels (or 420,000 gallons) per day, based upon an evaluation conducted by a licensed professional engineer in accordance with the definition of "maximum transshipment capacity" found in Chapter 20.97 WCC.

If a conditional use permit is obtained, the baseline for determining the cumulative increases is reset.

.155 Treatment and storage facilities for hazardous wastes subject to the following:
(1) The criteria for a conditional use listed under WCC 22.05.026.
(2) The most current state siting criteria under Chapter 173-303 WAC.
(3) It shall be the responsibility of the applicant to document to the satisfaction of the approving body the anticipated sources, types, volumes and final disposition of hazardous wastes to be collected and the type of treatments associated with those wastes. The permit shall be limited exclusively to those types of wastes and treatments as documented and approved.

(4) Total off-site facility capacity shall be limited to that needed to treat and store wastes generated within Whatcom County by generators requiring off-site management of hazardous wastes; provided, however, waste streams may be sourced from other jurisdictions through interagency zone designation agreements as approved by the county council, not to exceed 10 percent of the total local hazardous waste stream.

(5) Prior to occupancy of the facility, the State Department of Ecology shall certify to the county that the facility has been constructed consistent with state requirements.

(6) As a condition of approval, the applicant shall be required to keep and maintain accurate and current records of the types, amounts, sources, and final disposition of hazardous wastes collected. The applicant shall provide such records annually to the county, or sooner upon county request. If the facility is found to be exceeding the waste stream limitations or permit restrictions, the county staff shall so report to the approving body who shall have the authority to revoke the permit, following a public hearing, if the limitation has been exceeded absent an emergency situation. Any emergency must be documented by county staff.

(7) Annual inspections of the facility shall be a minimum requirement. The applicant shall be required to forward copies of all facility inspection reports to the county. If deficiencies are found, the operator shall, within 15 days, submit to the county for approval an implementation schedule of corrective measures. Such schedule shall include specific completion dates and inspection reporting procedures.

If the state does not inspect the facility within the year, the applicant shall be required to arrange and bear all costs for an inspection by a qualified and independent inspection agency satisfactory to the county.

(8) Should the facility be found to consistently operate in a manner unsatisfactory to the county in regard to the public health and safety, the permit may be revoked by the approving body following a public hearing.

.156 Public and private parks facilities not included in an adopted city or county Comprehensive Plan or Park Plan.

.157 Trailheads with parking areas for more than 30 vehicles.

.158 Athletic fields.

.180 Major passenger intermodal terminals.

.187 Type III solid waste handling facilities; provided, that:

(1) The facility or site will not be located within the 100-year floodplain or the Lake Whatcom watershed. The facility or site will not be located within any area identified in an adopted critical areas ordinance unless outside of the floodplain and at least three feet in elevation higher than the floodway elevation;

(2) Solid waste handling facilities shall be located at least 1,500 feet from the following:
   (a) All zoning district boundaries, except Commercial Forestry and Industrial Zones;
   (b) Public parks, public recreation areas, or publicly-owned wildlife areas;
   (c) Archaeological and historical sites that are registered with the State Office of Archaeology and Historic Preservation;
   (d) Shorelines that are within the jurisdiction of the Shoreline Management Program;
   (e) Rivers, streams or creeks that contain documented threatened or endangered fish species;
   (f) This 1,500-foot buffer does not apply to:

(i) Structures used for offices, storage areas for equipment, and weigh scales. These facilities shall be set back from the property line 100 feet or the standard zoning district setback, whichever is greater;
(ii) Inert landfills;

(3) Inert landfills shall be located at least 500 feet from the following:
(a) All zoning district boundaries, except Commercial Forestry and Industrial Zones;
(b) Public parks, public recreation areas, or publicly owned wildlife areas;
(c) Archaeological and historical sites that are registered with the State Office of Archaeology and Historic Preservation;
(d) Shorelines that are within the jurisdiction of the Shoreline Management Program;
(e) Rivers, streams or creeks that contain documented threatened or endangered fish species;
(f) This 500-foot buffer does not apply to:
(i) Structures used for offices, storage areas for equipment, and weigh scales. These facilities shall be set back from the property line 100 feet or the standard zoning district setback, whichever is greater;

(4) The facility or site will not result in filling or excavation, location of structures or buildings, driveways or machinery use except for vegetation maintenance within 100 feet of any property line and except for driveways within 150 feet of any county or state road right-of-way;

(5) The facility or site will have vehicular approaches designed to minimize conflict between automobile and truck traffic, will maintain the carrying capacity of county roads, and will be located on a road classified as all weather, except where use is shown to be intermittent and easily delayed until emergency conditions have passed;

(6) The facility or site has complied with the provisions of WCC 22.05.026 and all other ordinances and laws regulating solid waste facilities and sites, such as but not limited to WCC Title 24, the Whatcom County SEPA Ordinance, as well as state and federal regulations concerning solid waste facilities and sites;

(7) All landfills have a final closure plan meeting the requirements of WCC Title 24 and of Chapter 173-350 WAC, and the closure plan includes:
(a) Reclamation in two- to 10-acre increments, as appropriately responsive to the size and intensity of the particular activity, with seeding to be accomplished annually but no later than September 30th; and
(b) Permanent vegetative cover that will maintain in healthy growing condition with the level of maintenance that is covered through the financial assurance for post-closure activities;

(8) The buffer areas and visual screening shall include a minimum of 50 feet wide of landscaping meeting the requirements of WCC 20.80.300 (Landscaping);

(9) Solid waste facilities or sites shall be located outside the 10-year time of travel boundary of a public water system's delineated wellhead protection area;

(10) Solid waste facilities or sites that handle putrescible waste will be located at least 10,000 feet from airports serving turbine-powered aircraft and at least 5,000 feet from airports serving piston-powered aircraft. These buffers shall be measured from the boundary of the Airport Operations Zone or, if the airport is not within an Airport Operations Zone, from the boundary of the airport property;

(11) In addition, the Whatcom County hearing examiner may impose conditions of approval which may be necessary to protect the value and enjoyment of existing adjacent uses.

.188 Mitigation banks as a form of compensatory mitigation for wetland and habitat conservation area impacts when permitted in accordance with the provisions of Chapter 16.16 WCC; provided,

applications for mitigation banks shall be processed as a major development project pursuant to Chapter 20.88 WCC.

20.68.200 Prohibited uses.
All uses not listed as permitted, accessory, administrative approval, or conditional uses are prohibited, including but not limited to the following, which are listed here for purposes of clarity:

.201 Reserved.

.202 Adult businesses.

.203 In the Bellingham Urban Growth Area the following uses are prohibited: petroleum refinery and the primary manufacturing of products thereof, primary manufacturing and processing of rubber, plastics, chemicals, paper, asbestos and products derived thereof; and primary metal industries.

.204 New fossil fuel refineries.

.205 New fossil fuel transshipment facilities.

.206 New piers, docks, or wharves in Cherry Point Industrial District.

.207 Coal-fired power plants.

.208 Aerial application of chemicals, including but not limited to pesticides and insecticides, previously regulated by the DNR as Class I, II, III or IV-Special forest practices, when located within an urban growth area.

.209 Slash burning, when located within an urban growth area.

Exhibit E: BESS Safety Information

In their discussion on 9/12, the Planning Commission wanted to know more about the fire potential of BESS. Below is some information from various sources on the internet, though staff cannot attest to their veracity.

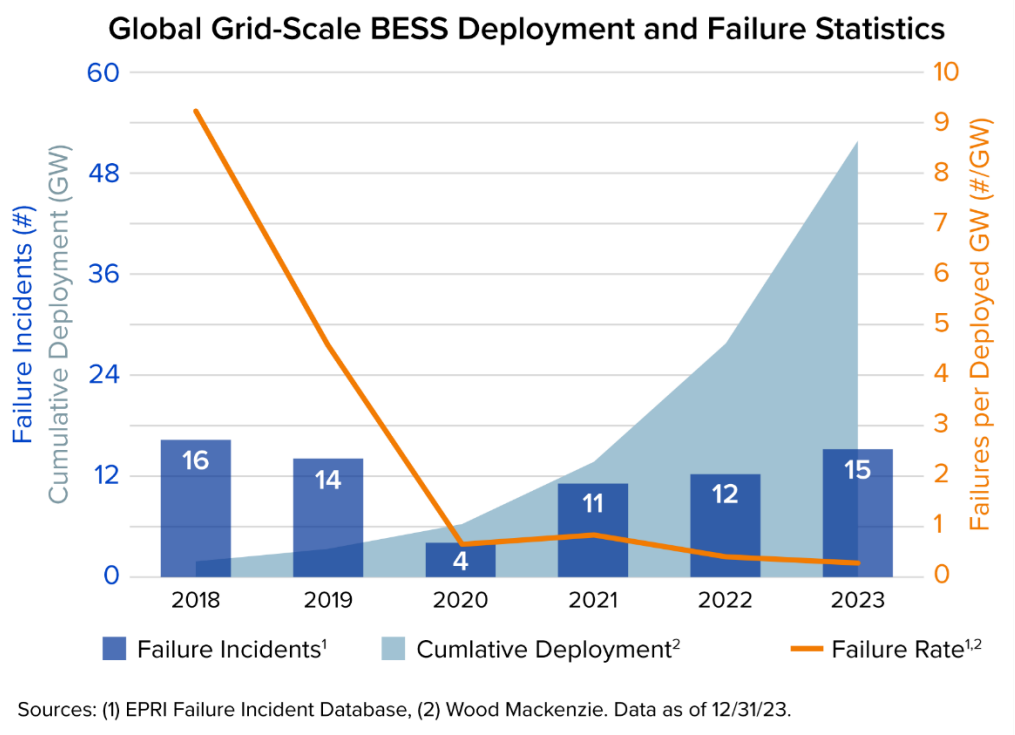
From Google's AI Overview

While there have been some fires in battery energy storage systems (BESS), the overall rate of incidents has been decreasing. Here is some information about BESS fires:

- Overall rate: The overall rate of BESS failure incidents has decreased, even as the global installed capacity has increased.
- Early fires: Early BESS fires in South Korea negatively impacted energy storage companies in that country.
- Safety concerns: Codes and standards for energy storage systems have evolved to address safety concerns.
- Risk during first two years: The California Public Utilities Commission estimates that the risk of major safety-related incidents is highest during the first two years of operation for grid storage facilities.
- Lithium-ion battery fires: Lithium-ion battery fires are rare but extremely difficult to put out.
- Cell failure rates: Cell failure rates are very low.
- Battery industry R&D: The battery industry continues to research and develop ways to reduce risk.

From the Electric Power Research Institute's StorageWiki

(https://storagewiki.epri.com/index.php/Welcome_to_StorageWiki)



From American Clean Power

(https://cleanpower.org/resources/claims-vs-facts-energy-storage-leading-on-safety/)

CLAIM: The incidence of battery fires is increasing.

FACTS: Energy storage battery fires are decreasing as a percentage of deployments.

- Between 2017 and 2022, U.S. energy storage deployments increased by more than 18 times, from 645 MWh to 12,191 MWh1, while worldwide safety events over the same period increased by a much smaller number, from two to 12.
- During this time, codes and standards regulating energy storage systems have rapidly evolved to better address safety concerns.

CLAIM: Today's larger battery systems use tens of thousands of cells, so fires are inevitable.

FACTS: Cell failure rates are extremely low, and safety features in today's designs further reduce the probability of fires.

- One estimate from 2012 quotes a failure rate ranging from 1 in 10 million to 1 in 40 million cells3, and there are undoubtedly improvements from these levels.
- Lithium-ion batteries experience extremely low failure rates, as shown by electric vehicle data.
- Tesla alone sold nearly 900,000 vehicles in the first half of 2023. These sales of new vehicles represent around three-quarters of a billion cells, but safety events involving all EVs on the road globally, from all manufacturers, amounted to just a few dozen fires.
- Today's energy storage systems (ESSs) predominantly use safer lithium-iron phosphate (LFP) chemistry, compared with the nickel-manganese-cobalt (NMC) technology found in EVs.
- LFP cell failure results in less energy release and a lower probability of fire.
- ESS designs incorporate features to avoid propagation of cell failure within the battery, contributing to improved safety.

CLAIM: E-bike and e-scooter fires have resulted in deaths—so large batteries for energy storage may be even more deadly.

FACTS: No deaths have resulted from energy storage facilities in the United States. Battery energy storage facilities are very different from consumer electronics, with secure, highly regulated electric infrastructure that use robust codes and standards to guide and maintain safety.

- E-mobility devices have been lightly regulated in the past, and some products have used poor-quality battery cells and ineffective safety systems.
    - They are also charged inside homes, sometimes along egress routes, creating a high level of risk.
- Like EV batteries, ESS battery systems are highly regulated and subject to stringent certification and testing requirements.
    - The difference in regulation is evident in vehicle statistics. Worldwide, for the first half of 2023, EV FireSafe cites 500+ light electric vehicle (E-bike and E-scooter) battery fires, but only 44 passenger EV fires.
    - Additionally, utility-scale energy storage systems are located within secure facilities with site plans explicitly designed around maximizing safety of those operating the facilities and their neighbors.
- The ESS industry meets with and shares best practices with first responders and communities.

    - Lessons learned from earlier ESS incidents have been reflected in the evolution of codes and standards. Often, companies go beyond mandatory testing to test more extreme failure scenarios.
- Altogether, like other electric grid infrastructure, energy storage systems are highly regulated and there are established safety designs, features, and practices proven to eliminate risks to operators, firefighters, and the broader community.
- The industry is committed to meeting these standards, such as NFPA 855, which are regularly updated to reflect the latest evidence-based best practices.

CLAIM: Battery fires emit toxic fumes and pose a risk to the community

FACTS: Past incidents demonstrate that fires are contained within the facility, and air quality in neighboring areas remains at safe levels.

- Laboratory testing of emissions from Li-ion cells in thermal runaway shows that emissions are similar to those found in plastics fires.
- During an ESS battery fire, only trace amounts of chemicals are detected in sampling around the event, and overall air quality remains at safe levels.
- During a fire at a Tesla Megapack at Moss Landing in California, air-quality testing showed no hazards to human health.

CLAIM: Fire suppression systems should be mandatory for all lithium-ion battery systems.

FACTS: Regulations that aren't vetted by organizations like the National Fire Protection Association or are inconsistent with the International Fire Code may make projects less safe.

- Established national and international codes and standards already require BESS to incorporate the appropriate safety features to contain any potential fires or thermal events.
- Successful suppression of a fire does not guarantee that the underlying thermal runaway event has been terminated, so containing a fire is the best way to protect first responders and communities.
- The energy storage industry is working to avoid events such as the explosion at an installation in McMicken, Arizona, in which four firefighters were injured. Prior to this event, the industry was focused on extinguishing fires as quickly possible, but McMicken showed that explosion can be a greater hazard and fire containment is a better strategy.
- The accepted best practice for the rare ESS fires that do occur is to contain them, managing the burn of the limited affected unit in a controlled manner while protecting nearby structures and equipment. This strategy eliminates any explosion hazard, avoids issues with stranded energy and reignition, and minimizes contaminated runoff of firefighting water.
- Codes and standards are changing to reflect this practice, placing an emphasis on explosion prevention. One proposal for the 2026 edition of NFPA 855, Standard for the Installation of Stationary Energy Storage Systems, would forbid installation of traditional clean-agent or aerosol fire suppression systems unless testing demonstrates that use of such systems does not create an explosion risk.

AI Overview

Learn more

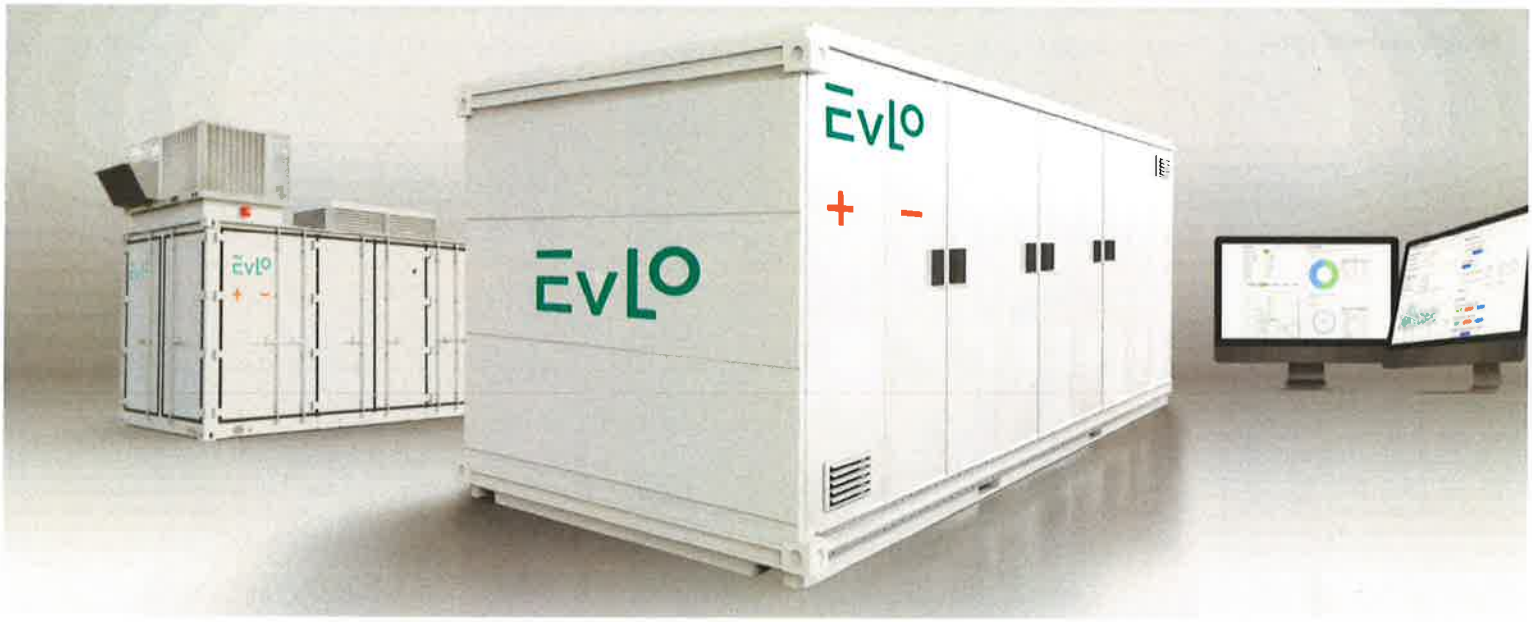
A 5 MW Battery Energy Storage System (BESS) can look like a number of different things, depending on the specific design and components used:

- Enclosed area: A 5 MW BESS may be housed in an enclosed area, such as a shipping container or small enclosure, that also contains other equipment.
- Battery cells: The battery cells may be lithium-ion and connected in stacks.
- Equipment: Other equipment that may be included in a 5 MW BESS includes an inverter, battery management system, and HVAC unit.
- Safety features: A 5 MW BESS may include safety features such as a system controller, short circuit protection, and fire detection and suppression.
- Thermal design: A 5 MW BESS may have a thermal design that keeps the battery cells at an optimal temperature.
- Compatibility: A 5 MW BESS may be compatible with a range of inverter brands.
- Energy density: A 5 MW BESS may have an energy density that is higher than standard systems.

The MW rating of a BESS is related to the speed of energy delivery, while the MWh rating is related to the duration of energy delivery. The selection of a BESS should take both of these ratings into account when considering the specific application.

EVLO Expands Portfolio with Launch of EVLO SYNERGY – A High-Density 5 MWh Battery Storage Solution

August 28, 2024



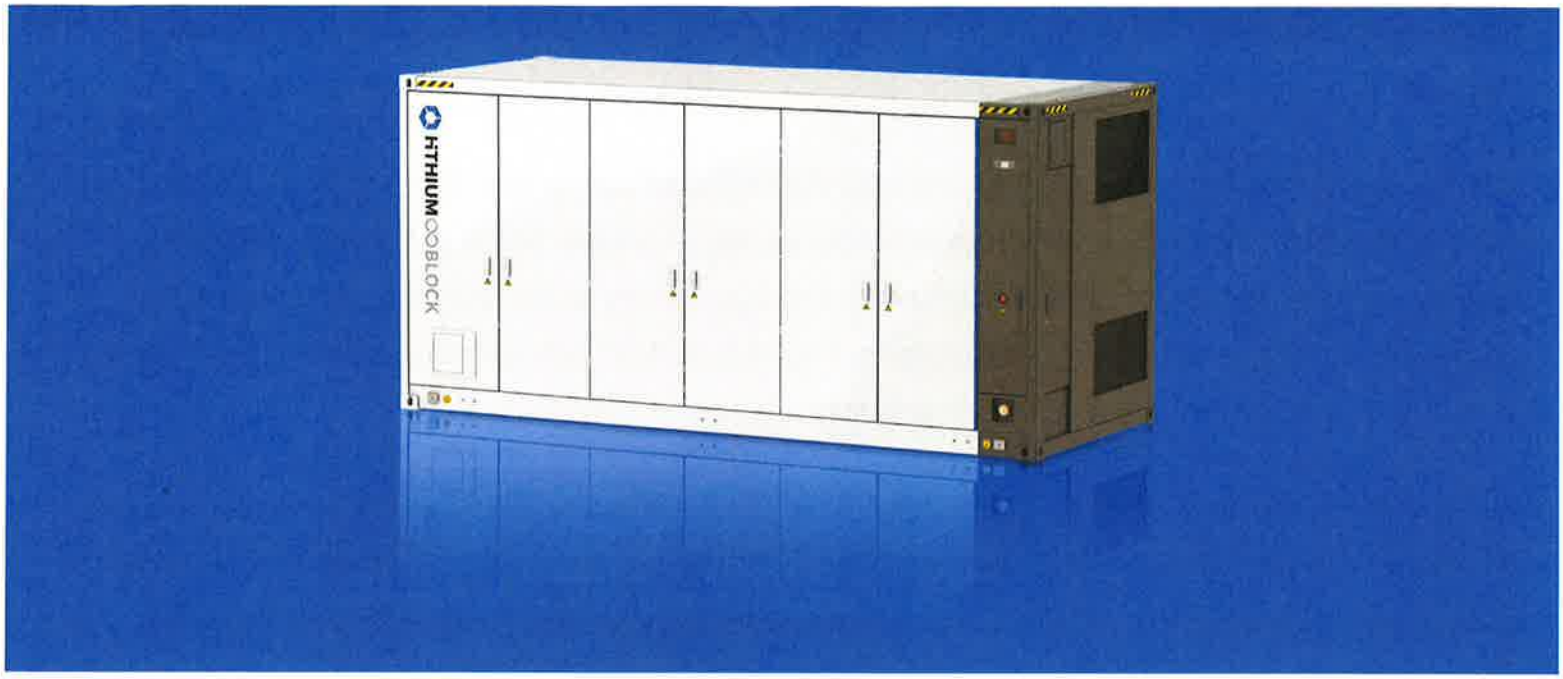
New generation BESS delivers exceptional value for large-scale energy storage projects.

August 28, 2024 — Montréal — EVLO Energy Storage Inc. (EVLO), a fully integrated battery energy storage system (BESS) provider and wholly owned subsidiary of Hydro-Québec, announces EVLO SYNERGY, a new 5-megawatt-hour (MWh) BESS in a 20-foot enclosure. EVLO SYNERG the latest addition to EVLO's portfolio of BESS products dedicated to the integration of renewable energy, participation to capacity services, and resiliency of the electrical grid.

Engineered to serve the evolving needs of today's market, EVLO SYNERGY's high energy density unlocks a highly competitive cost of ownersh large-scale projects at the heart of modern energy infrastructure. Its efficient design reduces land use, construction materials, and project timelir making it the optimal solution for large-scale projects.

"This launch is a significant expansion of our portfolio, emphasizing our commitment to advanced, safe, and cost-effective energy solutions that support our customers' requirements for clean energy projects," says Sonia St-Arnaud, president and CEO of EVLO. "As with all of our solutions EVLO SYNERGY is supported by EVLO's best-in-class customer experience, which ensures a collaborative partnership throughout a project's e lifecycle."

System specifications:



Hithium announces **first 5 MWh container** with 46% greater energy density

Press release

Standard 20-foot container will come ready to connect

Safety features include liquid-cooling technology and smart thermal management

Compatible with wide range of inverter brands

Sept 12, 2023, Las Vegas, NV – Hithium has announced a new 5 MegaWatt hours (MWh) container product using the standard 20-foot container structure. The more compact second generation (ESS 2.0), higher-capacity energy storage system will come pre-installed and ready to connect. It will be outfitted with 48 battery modules based on the manufacturer's new 314 Ah LFP cells, each module providing 104.5 kWh capacity and designed to meet the needs of large utility scale systems.

AI Overview

Learn more

A 20 MW battery energy storage system (BESS) can include a variety of components and features, including:

- Batteries: A 20 MW BESS can include 12,240 lithium-ion batteries.
- Enclosure: The battery enclosure can be located within an existing warehouse and divided into fire-rated rooms.
- HVAC: Air-cooled condensing HVAC units can be used to cool the batteries.
- Fire protection: A fire protection system can be installed, such as an FM200 system that is connected to a remote monitoring station.
- Metering and relay: New battery banks and associated metering and relay design can be included.
- Switchgear: The BESS can be connected to existing 13.8 kV switchgear.
- Footprint: A 20 MW/40 MWh BESS can have a typical footprint of 2,300 square meters.

A BESS can provide a variety of services, including: Solar generation smoothing, Var support, Spinning reserve, Peak shaving, and Black start support.

When preparing a grid application for a BESS, it's important to understand what services are needed and what local limitations are in place.

Containerized Battery Energy Storage System (BESS)

Top energy density. Reliable in harsh environments. Best return on investment

We offer unmatched benefits to customers

1. **Top energy density**

   We combine high energy density batteries, power conversion and control systems in an upgraded shipping container package. **Lithium batteries are CATL brand,** whose LFP chemistry packs 1 MWh of energyinto a battery volume of 2.88 m3 weighing 5,960 kg.

2. **Reliability in harsh environmental conditions**

   Our design incorporates safety protection mechanisms to endure extreme environments and rugged deployments. Our system will operate reliably in varying locations from North America to sub-Saharan Africa.

3. **Customizable formats to optimize return on the investment**

   We adapt our reference design to fit customers' specific energy storage/power requirements and environmental conditions.
   We use modelling simulation to optimize

UNDERSTANDING MW AND MWH IN BATTERY ENERGY STORAGE SYSTEMS (BESS): KEY SPECIFICATIONS EXPLAINED

6/28/2023

In the context of a Battery Energy Storage System (BESS), MW (megawatts) and MWh (megawatt-hours) are two crucial specifications that describe different aspects of the system's performance. Understanding the difference between these two units is key to comprehending the capabilities and limitations of a BESS.

1. MW (Megawatts): This is a unit of power, which essentially measures the rate at which energy is used or produced. In a BESS, the MW rating typically refers to the maximum amount of power that the system can deliver at any given moment. For instance, a BESS rated at 5 MW can deliver up to 5 megawatts of power instantaneously. This specification is important for applications that require high power over short periods, such as frequency regulation in power grids or fast charging of electric vehicles.

2. MWh (Megawatt-hours): This is a unit of energy, which measures the total amount of electricity that can be stored or delivered over time. In a BESS, the MWh rating typically refers to the total amount of energy that the system can store. For instance, a BESS rated at 20 MWh can deliver 1 MW of power continuously for 20 hours, or 2 MW of power for 10 hours, and so on. This specification is important for applications that require energy delivery over extended periods, such as load shifting or backup power supply.

The MW and MWh specifications of a BESS are both important, but they serve different purposes. The MW rating determines how much power the system can deliver at any moment, while the MWh rating determines how long the system can deliver that power. In other words, the MW rating is about the "speed" of energy delivery, while the MWh rating is about the "distance" or duration of energy delivery.

In terms of their importance in the design and operation of a BESS, both specifications are crucial. The MW rating is primarily determined by the power capabilities of the battery cells and the power electronics in the system, such as inverters and converters. The MWh rating, on the other hand, is primarily determined by the energy capacity of the battery cells and the total number of cells in the system.

In conclusion, understanding the MW and MWh specifications of a BESS is essential for assessing its suitability for different applications. A system with a high MW rating but a low MWh rating might be suitable for short-duration, high-power applications, while a system with a low MW rating but a high MWh rating might be more suitable for long-duration, low-power applications. Therefore, the selection of a BESS should always be based on a careful consideration of both its MW and MWh specifications, in relation to the specific requirements of the intended application.

PROJECT

20 MW Battery Storage Project

Client: AltaGas
Location: Pomona, CA

As the demand for energy increased in the Los Angeles area due to constricted fuel supplies to area power plants, Southern California Edison (SCE) sought a solution to mitigate costly and inconvenient intermittent blackouts.

SCE decided that a Battery Energy Storage System (BESS) would solve the problem during peak energy demands and approached AltaGas to build, own and operate a 20 MW system. With this back-up supply, the BESS provides 80MWh for four hours, delivering energy to 200,000 homes.

To support SCE's solution, POWER provided

LIBRARY

Industries

Power Generation Renewables and Storage

Regions

Pacific

Services

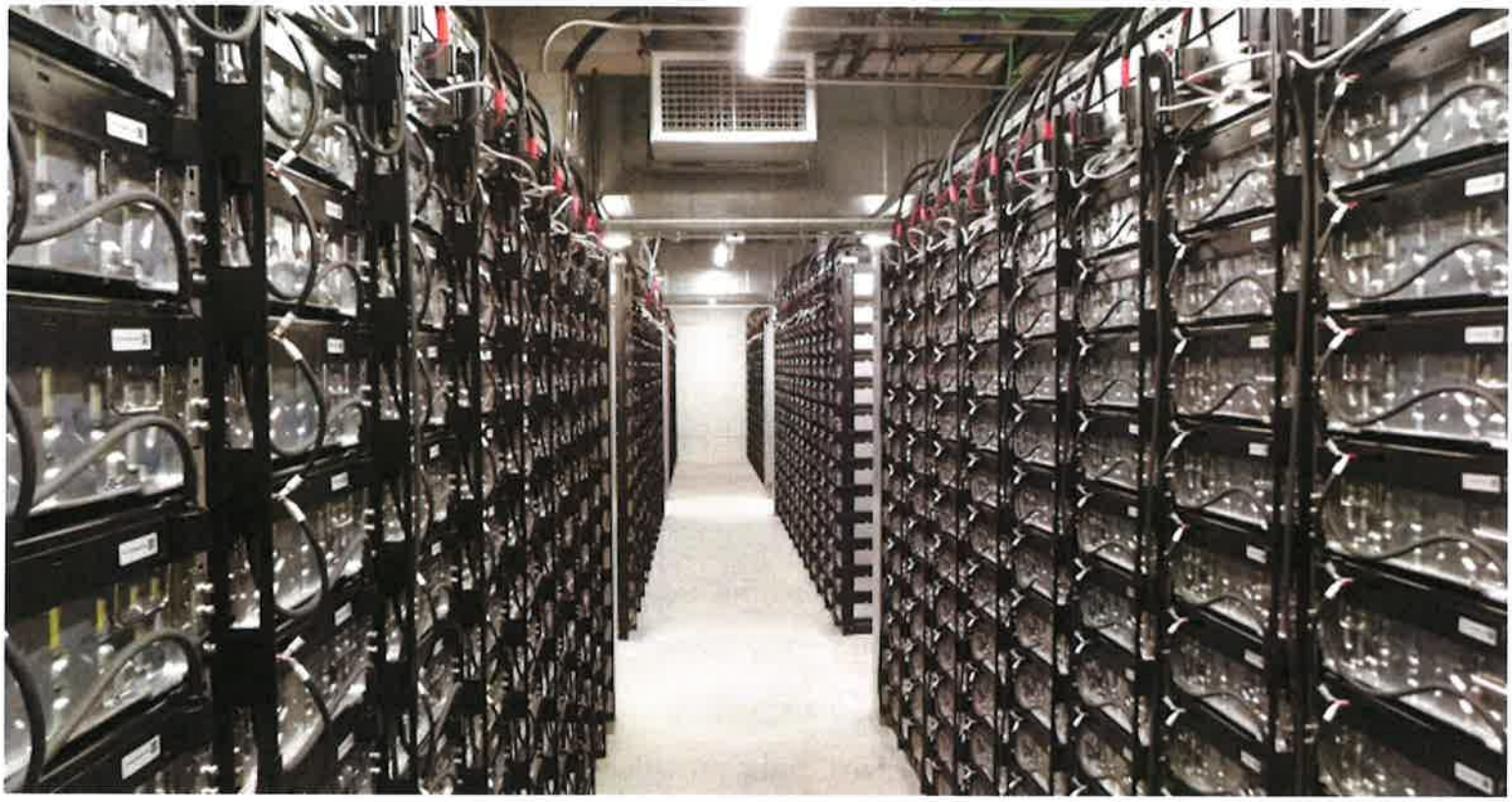
Power Plant Engineering
Distributed Energy Resources

External Links

Client Press Release
Trade Publication Article
MarketWatch Press Release

20 MW/80 MWh Pomona Battery Storage Project

Client: AltaGas Pomona Energy
Location: California



AltaGas brought one of the largest lithium-ion battery energy storage systems in the United States online in less than four months.

Southern California Edison experienced a shortage of natural gas storage that introduced the potential for blackouts. AltaGas agreed to provide SCE with a 20 MW battery energy storage system (BESS) that smoothed out demand spikes and made SCE's system more resilient to fluctuating natural gas supplies. SCE had a demanding four-month schedule for delivery of the system, but the project was delivered on time and budget.

PUGET SOUND ENERGY

Glacier Battery Storage Pilot Project

FAQs

September 2016

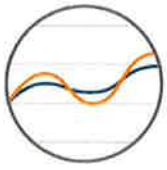
What is the Glacier battery pilot project?

Puget Sound Energy, in partnership with the Washington State Department of Commerce, developed a utility-scale battery energy storage pilot project in Glacier to test the benefits of distributed generation. Improvements in energy storage technology, such as large-scale battery systems, are making it more practical for utilities to invest in distributed generation systems which capture, store and release energy into the power grid.

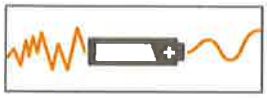
The Glacier battery storage pilot project entails installation of a 2 megawatt (MW) / 4.4 megawatt-hour (MWh) lithium-ion battery system. The state-of-the-art system is connected to PSE's electric distribution power grid and located near the existing Glacier substation. The project is funded in part by a generous $3.8 million Smart Grid Grant from the Washington State Department of Commerce in addition to $7.4 million invested by PSE.

What are the primary functions of the battery?

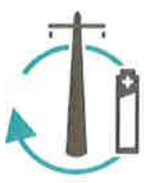
The Glacier battery storage pilot project will perform three key functions, including:



Reducing system load during periods of high demand.



Balancing energy supply and demand, helping to support greater integration of intermittent renewable generation on PSE's grid.



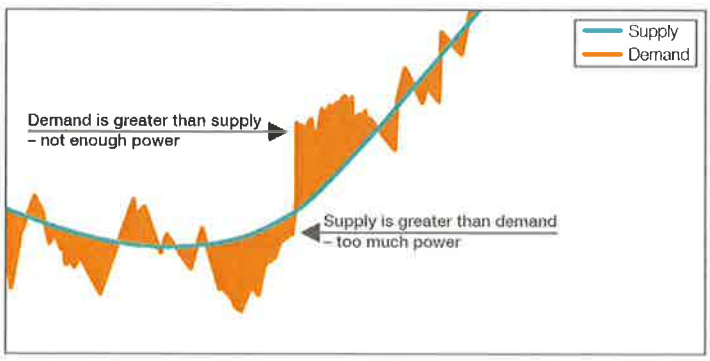
Serving as a short-term backup power source to a portion of the local Glacier circuit during outages.

A view of the battery at the Glacier substation.

Will the battery provide back-up power to the entire town? How will I benefit if I'm not in the battery back-up area?

While the battery isn't large enough to back up all of Glacier, it is expected to back up a core "island" of customers in town. This will allow the central businesses to remain open for use during an outage. In the event of an outage, some residents would still be without power, but they would have access to places with power that would otherwise be unavailable during an outage.

Additionally, all customers in the area will benefit from the battery's other functions. Energy storage can be used to fill the minute-to-minute gaps between supply and demand. This keeps the system healthy and supports the use of renewable energy supplies, which can fluctuate when wind picks up or clouds pass over solar panels.



pse.com/glacierbattery

Glacier demonstration project

Utility-side solutions for outage mitigation and balancing demand

In late 2015, PSE started construction on a 2-megawatt (MW), 4.4 megawatt-hour (MWh) lithium-ion battery system adjacent to the existing substation in the Whatcom County town of Glacier.

The project is funded in part by a $3.8 million Smart Grid grant from the Washington State Department of Commerce, in addition to a $7.4 million investment by PSE. The Glacier demonstration project is designed to perform three primary functions:

- Reduce system load during periods of high demand
- Balance energy supply and demand, helping to support greater integration
- Serve as a short-term backup power source to "island" a portion of the local Glacier circuit during outages

Islanding: an evolving technology

Islanding (sometimes called a "microgrid") is a complex process that involves many working parts. But, for battery installations like the one in Glacier, it basically means creating a power source that can safely operate separately from the grid.

Utilities across the country are testing battery technology and islanding capabilities with varying degrees of success. Each community must tackle distinctive geographical and weather challenges, different energy requirements, unique infrastructure, etc. In other words, while battery technology offers a lot of exciting potential, it's still a process determining the best applications to serve customers' unique needs.

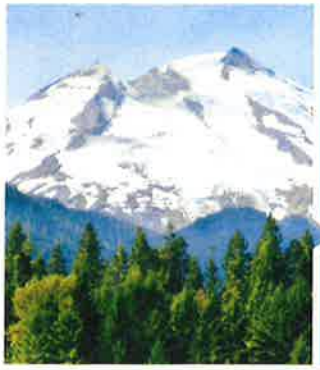
As for PSE's Glacier installation, the town's remote location and energy infrastructure make it a good setting for testing and evaluating many applications, including islanding. The town is serviced by a 55 kV radial transmission line that runs approximately 10 miles along a heavily-forested highway, making it challenging for crews to locate and repair electrical problems during storms. Battery storage systems, like the one in Glacier, have the potential to provide several hours of back-up power to the town core during storm outages, as well as other grid-enhancing functions throughout the year.

Project details

The battery was energized in 2016, and in January, 2017, achieved its first successful islanding attempt. Between January, 2018 and June, 2018, Pacific Northwest National Laboratory (PNNL) performed two use test cases. Since then, PSE has continued to test the battery's capabilities under planned outage scenarios – working toward the goal of successfully responding to unplanned outages.

As of August, 2019, PSE has successfully powered Glacier's town core through more than six planned outages. It should be noted that planned outages and testing procedures can pose inconveniences for residents, but they ultimately yield vital information for responding to unplanned events.

The Glacier battery's first successful unplanned response occurred on Monday, February 4, 2019. On that day, the battery remotely responded to an outage and provided power for approximately 4 hours, until repairs were made to the transmission line.



PSE PUGET SOUND ENERGY

Glacier Battery Storage Innovation Pilot Project

Project background

Improvements in energy storage technology, such as large-scale battery systems, are making it more practical for utilities to invest in distributed generation systems which capture, store and release energy into the power grid. Puget Sound Energy, in partnership with the Washington State Department of Commerce, is developing a utility-scale battery energy storage pilot project in Glacier, WA to test the benefits of distributed generation.

The Glacier battery storage pilot project entails installation of a 2 megawatt (MW) / 4.4 megawatt-hour (MWh) lithium-ion battery system. The state-of-the-art system is tied to PSE's electric distribution power grid and located in the existing Glacier substation. The project is funded in part by a generous $3.8 million Smart Grid Grant from the Washington State Department of Commerce in addition to $7.4 million invested by PSE.

Benefits

The Glacier battery storage pilot project will perform three primary functions:

1. **Serve as a short-term backup power source to a portion of the local Glacier circuit during outages.** The battery system will draw electricity from the distribution system during times of minimal customer usage and will be capable of storing up to 4.4 MWh. During an outage, the battery system will release the stored energy (enough electricity to power the core downtown Glacier area) back into the electric grid. PSE demonstrated the batteries backup power capabilities on August 28, 2017 during a planned outage and will continue to use planned outages to test safely test use of the automation function. Testing ensures the batteries will respond to an unplanned outage in the future.
2. **Reduce system load during periods of high demand.** The battery will be capable of absorbing electricity when customers' power consumption is low, storing that power, and releasing it back into the system when needed. This will help balance the electric system when demand is high and the grid is strained, such as during extreme cold temperatures when customers need to use more electricity to heat homes and businesses.
3. **Balance energy supply and demand, helping to support greater integration of intermittent renewable energy generation on PSE's grid.** Energy storage can be used to fill the minute-to-minute gaps between supply and demand, keeping lights on for customers while maintaining a healthy electric system. With energy storage, PSE can balance out the regional electric system by quickly reacting to a sudden drop or surge from generation output (such as from wind or solar anywhere on the grid) or an unexpected change in power demand from customers. For example, if energy output decreases at PSE's Wild Horse Wind and Solar Facility, the Glacier battery system may be able to balance that decrease in output by picking up a small portion of the load in Glacier.

Battery energy storage technology

Lithium-ion battery technology is not new: roughly half of cell phone and laptop batteries in the U.S. use the same type of lithium-ion chemistry as the Glacier battery. Lithium-ion batteries are becoming more affordable, longer lasting, and able to be manufactured at the scale required for use in utility grids. Many other utilities as well as commercial, industrial and even residential customers are already using battery systems like Glacier's. The Glacier battery storage project, includes four battery modules, each in a standard 40-foot shipping container, and is expected to have a 20-year lifespan. The battery will be monitored and operated remotely using sophisticated software developed locally in the Puget Sound.

PUGET SOUND ENERGY

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Battery testing completed on Nov. 15.

- The next scheduled test is expected in 2017.
- Learn more about the Glacier battery project at **pse.com/glacierbattery**.
- Questions? Reach out to us at **majorprojects@pse.com** or **1-888-404-8773**.

https://www.lyndentribune.com/news/pse-partner-agree-on-glacier-battery/article_4ef3157e-5f7f-5e4b-a651-321421ffcb44.html

PSE, partner agree on Glacier battery

by Calvin Bratt
Dec 31, 2014

BELLEVUE — Puget Sound Energy and Renewable Energy Systems Americas Inc. have signed cooperative agreements on launching an innovative battery storage project in Whatcom County that could pave the way for larger-scale efforts in PSE's service territory.

Electricity will be stored in state-of-the-art battery modules that are as large as 40-foot shipping containers, the same amount of energy found in 1.7 million AA batteries. The battery system will be capable of providing up to 18 hours of power during an outage for the core area of Glacier, the last service stop up the Mount Baker Highway. The average demand of the core part of town is estimated to be 250 kilowatts.

The project will also perform "peak shaving," which involves harnessing electricity when customers' energy consumption is low, storing it and then releasing it back into the system when demand is high, for instance on extremely cold days. The battery system also increases PSE's flexibility of the power grid and supports greater integration of renewable generation, such as wind and solar power.

"Battery storage technologies are like a Swiss Army knife for the grid," said PSE's Patrick Leslie, project manager of Emerging Technologies. "They can provide multiple services, like backup power, reducing peak load and helping balance out intermittent renewable energy sources."

PSE is partnering with RES Americas, an established leader in the North American renewable energy industry with expertise in energy storage. RES Americas also constructed PSE's three wind farms around the state.

"RES Americas is proud of our growing position as an industry leader in the rapidly developing field of energy storage," said Victor Babbitt, vice president of Energy Storage at RES Americas. "Battery storage is going to play a large role in the future of our nation's grid."

PSE is working with the state Department of Commerce in developing this pilot project. In July, the department's Clean Energy Fund awarded PSE $3.8 million to engineer and construct the 2-megawatt, 4.4-megawatt-hours lithium-ion battery system at the existing PSE Glacier substation near the Mount Baker Highway.

The King County Council on Tuesday approved legislation that establishes regulations around how and where battery energy storage systems – essentially rechargeable battery arrays – can be set up.

These systems are becoming increasingly critical in the use of renewable energy, but without the proper safety, zoning and insurance requirements, they can pose a risk to people and the environment. The legislation approved Tuesday – brought forward by Councilmember Sarah Perry –aims to advance the county's Strategic Climate Action Plan priorities by making battery energy storage systems of all scales an allowed use on nearly ninety-seven percent of the county's unincorporated land area.

Battery energy storage systems help mitigate the often-intermittent supply from renewable energy sources like solar and wind. These systems, both consumer and commercial, store excess energy when demand is low, and then feed that back into the system when demand is high or production is low.

Because of the elements used in batteries, the systems can pose the risk of thermal runaway and associated secondary risks such as inhalation of smoke and gases.

Perry's legislation is aimed at ensuring that battery energy storage systems are built in King County and located to minimize disruption of natural resource-related activity, are compatible with resource management, and protect public health and the environment. It will also hold operators responsible for the risks through insurance, safety, and environmental requirements.

Washington state in March adopted the updated edition of the International Fire Code, with new construction and fire safety requirements to minimize the risk of damage to nearby structures and properties. This code includes regulations that require testing, documentation and training of personnel, on-going inspection, size and separation requirements, vegetation control, fire detection and suppression, exhaust ventilation, explosion control, spill control, and thermal runaway protections.

The ordinance will take effect in October of this year.

> *We know that battery energy storage systems, or BESS, play a crucial role in modern energy supply. By making renewable energy sources more reliable, battery energy storage systems are important in helping King County meet its Strategic Climate Action Plan goal of reducing greenhouse gas emissions in the county by eighty percent by 2050.*

> *BESS are an important tool in our toolkit for the necessary transition to a green energy economy and they are vital for achieving our shared goal of reaching net zero emissions by 2050. However, as with any technological advance, it matters how we do it and the type of oversight we require. We have an opportunity to meet our clean energy needs while also acting with intention to implement guardrails that protect the residents of King County.*

FOR MORE INFORMATION, CONTACT

Melani Hay, Clerk of the Council

Address: 516 Third Ave, Room 1200
Seattle, Washington 98104 <
https://www.google.com/maps/dir//516+3rd+Ave,+Seattle,+WA+98104/@47.607401,-122.3425895,15z/data=!4m8!4m7!1m0!1m5!1m1!1s0x54906aba6e:122.330656!2d47.6026851?entry=ttu>

Email: clerk.council@kingcounty.gov < mailto:clerk@kingcounty.gov>

Phone: 206-477-1020 < tel:2064771000>

TTY/TDD: Relay 711

METROPOLITAN KING COUNTY COUNCIL
NOTICE OF PUBLIC HEARING
Battery Energy Storage System Regulations
Proposed Ordinance 2023-0263

NOTICE IS HEREBY GIVEN, that a public hearing will be held before the Metropolitan King County Council on the 24th day of September, 2024, at 1:30 p.m. to consider adoption of Proposed Ordinance 2023-0263, an ordinance establishing regulations for battery energy storage systems. The public hearing will be held at the King County Courthouse, 516 3rd Avenue, Room 1001, Seattle; remote public testimony on Zoom will also be accepted. Written public testimony will be accepted from 9 a.m. on August 23rd, 2024 through 10 a.m. on September 24, 2024, by sending such public testimony to clerk.council@kingcounty.gov < mailto:clerk.council@kingcounty.gov>. Please include the legislation number and related agenda item in the subject line. More information on the public hearing and how to participate in public testimony can be found at this website: https://www.kingcounty.gov/council/committees/full_council.aspx < https://www.kingcounty.gov/council/committees/full_council.aspx>.

It is expected that the Council will take action on this Proposed Ordinance at the September 24, 2024 meeting following the public hearing.

SUMMARY:

The Proposed Ordinance would adopt regulations for battery energy storage systems in unincorporated King County.
The Proposed Ordinance would do the following:
Zoning Conditions

- Allow BESS for residential, commercial/industrial, and resource accessory use, in all zones where those accessory uses are allowed. BESS over 2 MW would not qualify as accessory uses.
- Allow accessory BESS to be used for load sharing and for electric vehicle charging in the right-of-way.
  For non-accessory BESS:
- A conditional use permit would be required in the Residential (R) zones
- A special use permit would be required in Forest (F) zones
- BESS would not be allowed in the Agricultural (A) zones
- Would be a permitted use in all other zones.

Public Liability

Applicants for construction of a BESS would be required to demonstrate at permit application that they have at least $1 million of financial responsibility (insurance, bonds, etc.) that would cover damages from a thermal event, ONLY IF:

- The BESS is over 2 MW; AND
- The battery technology requires thermal runaway protections under state law; AND
- Any individual room, cabinet, container, or other enclosure containing the system has an energy rating greater than two megawatt-hours, or any two enclosures are less than ten feet apart; AND

King County

Metropolitan King County Council
Local Services and Land Use Committee

REVISED STAFF REPORT

Agenda Item:	6	**Name:**	Jake Tracy
Proposed No.:	2023-0263	**Date:**	July 17, 2024

COMMITTEE ACTION

Proposed Substitute Ordinance 2023-0263.2, adopting regulations for battery energy storage systems, passed out of committee on July 17, 2024 without recommendation. The Proposed Ordinance was amended in committee with Amendment S3 to:

- Remove the "Consumer-scale BESS" definition and instead refer to these as BESS for residential accessory use, commercial/industrial accessory use, or resource accessory use, as those terms are defined in the K.C.C. 21A.06.
- Clarify that, for the purposes of being considered an accessory use, vehicle charging on-site or in the immediately adjacent right-of-way is allowed. When a BESS qualifies as an accessory use, and is used solely to serve electric vehicle charging infrastructure within a street setback, the BESS would also be allowed to be located within the street setback.
- Allow BESS for accessory use to participate in load sharing or other electricity sharing programs that may involve some amount of off-site use.
- Stipulate that BESS over 2 MW do not qualify as an accessory use.
- In the Forest (F) zone, require a special use permit, unless the system meets the definition of a resource accessory use or residential accessory use.
- In the Agricultural zone, prohibit BESS unless the system meets the definition of a resource accessory use or residential accessory use.
- Change the financial responsibility required for fire and explosion to financial

The PO would define "BESS" and "Consumer-scale BESS" as distinct uses in K.C.C. Title 21A. BESS would be a permitted use in all zones except for R zones, where they would require a conditional use permit. Consumer-scale BESS would be accessory uses, allowed only when accessory to another allowed use on a site.

The PO would include the requirements below for BESS and Consumer-scale BESS.

Table 1. Proposed Requirements for BESS and Consumer-scale BESS

	BESS Under 1 MW[1]	BESS 1 MW or more	Consumer-Scale BESS Under 1 MW	Consumer-Scale BESS 1 MW or more
Ten-foot separation between the facility and vegetation	Yes	Yes	No	Yes
No projections into setbacks	Yes	Yes	Yes	Yes
Special requirements in RA, UR, R Zones	Yes	Yes	No	No
Size limitation in A and F zones	Yes	Yes	No	No
Financial responsibility for explosion and decommissioning	No	Yes	No	Yes

There is a striking amendment, S3, that would make changes to allowances for BESS for accessory use, change the thresholds at which financial responsibility is required, change the amount of financial responsibility required and methods for calculation, require a special use permit for non-accessory BESS in the F zone, prohibit non-accessory BESS in the A zones, require sharing of emergency plans with the local fire protection district, make changes relating to BESS for electric vehicle charging, and require a report. There is also a title amendment, T2.

BACKGROUND

Battery Energy Storage Systems. Battery Energy Storage Systems (BESS) are technologies that use rechargeable batteries to store electrical energy for later use, intended to enhance the stability, reliability, and efficiency of electrical grids.

BESS consist of battery modules or packs, power electronics, and control systems that enable them to charge and discharge electricity. They can be deployed at various scales, ranging from residential and commercial applications to utility-scale installations, each serving specific grid needs and energy requirements.

The primary purpose of BESS is to balance supply and demand in the electrical grid, mitigating the challenges posed by the intermittency of renewable energy sources, such as solar and wind power, by providing a way to store excess energy during periods of high generation and release it when energy demand is high or generation is low. This can smooth out power fluctuations and provide grid stability, help avoid grid congestion, reduce the need for fossil fuel-based peaker plants, and enhance the overall reliability of the electrical system.

[1] Megawatt

evacuation if necessary, and that flammable gases during a fire will be controlled through the use of ventilation, prevention of accumulation, or by deflagration venting.

- System testing prior to commissioning is required.
- Identification, documentation, and training of personnel is required.
- Ongoing inspection and testing are required.
- Noncombustible enclosures are required.
- A management system that disconnects electrical connections if potentially hazardous conditions are detected is required.
- Fire-resistant separations required.
- Vehicle impact protection required.
- Size and separation requirements.
- Fire detection and suppression required.
- Vegetation control surrounding a BESS required.
- Exhaust ventilation, explosion control, spill control, and thermal runaway protections required.

The State has also adopted amendments to IFC Section 322, regarding storage of lithium-ion batteries in particular. In addition to the requirements listed above, lithium-ion battery storage would be required to have a fire safety plan, and indoor storage and storage in a container would be subject to a technical opinion and report to evaluate the fire and explosion risks associated with the indoor storage area and to make recommendations for fire and explosion protection. Outdoor battery storage would be subject to size limits and a requirement for separation from buildings, lot lines, public streets, and each other.

ANALYSIS

Definitions. The PO would define "BESS" and "Consumer-scale BESS" as distinct uses in K.C.C. Title 21A. They would be defined as follows:

> Battery energy storage system: A facility designed and constructed for the purpose of storing electrical energy using battery technology. Battery energy storage system does not include consumer-scale battery energy storage systems.
>
> Consumer-scale battery energy storage system: A facility designed and constructed for the purpose of storing electrical energy using battery technology, and used solely to store energy for use on the site on which the system is located, excluding net metering.

"Net metering," as referenced in the Consumer-scale BESS definition, refers to an electricity billing mechanism through which consumer-scale renewable energy generation systems, such as solar panels on a home, can feed a portion of the excess power they generate back into the grid. The proposed definition aligns with the County's definition of "consumer-scale renewable energy generation system," which allows for net metering.

Consumer-scale BESS. By formally adding Consumer-scale BESS to the list of residential accessory uses, commercial/industrial accessory uses, and resource accessory uses, Consumer-scale BESS would remain a permitted use in all zones.

SEPA. The proposed ordinance would not affect the state requirements for SEPA review of BESS or Consumer-scale BESS. All projects would be subject to SEPA review unless found to be exempt under state law or K.C.C. Title 20.

Specific Requirements. The proposed ordinance would add new requirements to K.C.C. 21A for permit approval. Requirements would differ for BESS and Consumer-scale BESS, as well as based on whether the capacity of the system was below 1 megawatt (MW) or was at or above 1 MW. For reference, in California, a 1 MW system is estimated to store enough electricity to power 750 homes for four hours.[7] The requirements are summarized in Table 2 and discussed in more detail below.

Table 2.
Proposed Requirements for BESS and Consumer-scale BESS

	BESS Under 1 MW	BESS 1 MW or more	Consumer-Scale BESS Under 1 MW	Consumer-Scale BESS 1 MW or more
Ten-foot separation between the facility and vegetation	Yes	Yes	No	Yes
No projections into setbacks	Yes	Yes	Yes	Yes
Special requirements in RA, UR, R Zones	Yes	Yes	No	No
Size limitation in A and F zones	Yes	Yes	No	No
Financial responsibility for explosion and decommissioning	No	Yes[8]	No	Yes[8]

Nonvegetated Buffer. The PO would require a minimum separation of ten feet between structures containing BESS and landscaping or other vegetation. The International Fire Code has a similar requirement, but allows some exemptions in which vegetation could be placed closer than ten feet.[9] The PO would eliminate the possibility of these

[7] https://www.gov.ca.gov/2023/07/12/icymi-california-grid-reaches-5600-mw-of-battery-storage-capacity-a-1020-increase-since-2020/#:~:text=With%20one%20megawatt%20of%20electricity,batteries%20need%20to%20be%20recharged.
[8] Only required for privately owned facilities. See discussion below.
[9] IFC 1207.5.7.

Financial Responsibility. In May 2023, the Council adopted Ordinance 19601, which established financial responsibility requirements for privately owned fossil fuel facilities and nonhydroelectric generation facilities. The PO would extend these requirements to privately owned BESS with 1 MW or more of capacity, as well privately owned Consumer-scale BESS with 1 MW or more of capacity. The County is prohibited by state law from imposing financial responsibility on public entities, but the PO would encourage the Permitting Division to seek voluntary compliance from public entities.[11]

The financial responsibility requirements would be moved to a new chapter in Title 21A, but would be identical to the existing requirements for fossil fuel facilities and nonhydroelectric generation facilities. Applicants would be required to demonstrate proof of financial responsibility in an amount necessary to compensate for the maximum damages from an explosion resulting from a worst-case release, and proof of financial responsibility in an amount necessary to compensate for facility decommissioning (e.g., brownfield remediation).

The level of financial responsibility necessary would be determined by the Executive based on studies provided by the applicant at the time of permit application. The PO lays out the information that would be required in these studies.

For the explosion scenario, the study would be required to:

- Incorporate the volume of oils, gases, refrigerants, and other flammable or explosive chemicals stored, used, or generated within the facility;
- Consider such matters as: the frequency of facility operations; facility layout and vegetation that could cause flammable vapor accumulation; the damages that could result from the explosion to public and private structures onsite and offsite; public infrastructure and environmental resources and functions; and the potential loss of life and injury to persons onsite and to members of the public;
- Include modeling and disclosure of a nil or very low wind condition vapor cloud explosion scenario;
- Be prepared by a person accredited in vapor cloud explosion analysis, or an equally qualified individual as authorized by the director, at the applicant's expense; and
- Undergo third-party validation by a qualified entity to be hired upon mutual agreement of the applicant and the department, at the applicant's expense.

For decommissioning, the study would be required to include, but not be limited to:

- Listing of the hazardous substances, as defined in RCW 70A.305.020, that will be stored, handled or generated within the facility; the range of potential release volumes requiring cleanup in the event of failures of technological or safety catchment features; and whether such releases have the potential to contaminate groundwater or surface waters on or adjacent to the site;
- The range of cleanup activities that would be required to address such hazardous substances;
- Detailed estimates of the cost to implement the plan, including conducting cleanup and facility closure, based on the cost of hiring a third party to conduct all activities. All cost estimates must be in current dollars and may not include a

[11] RCW 36.32.590

- Would stipulate that BESS over 2 MW do not qualify as an accessory use.

Agricultural and Forest Zone. In the Forest (F) zone, BESS would:

- Require a special use permit, unless the system meets the definition of a resource accessory use or residential accessory use.
- Not be subject to the 2-acre limitation in the initially introduced version of the ordinance.

In the Agricultural zone, BESS would be prohibited unless the system meets the definition of a resource accessory use or residential accessory use.

Financial Responsibility for Public Liability and Environmental Risks. Would change the financial responsibility required for fire and explosion to financial responsibility for public liability and environmental risks, and would change the amount to a flat $1 million, rather than an amount determined based on a study of maximum potential damages.

Would also change the threshold at which this financial responsibility is required. Rather than a 1 MW threshold, the striking amendment would stipulate the following:

- 2 MW or less – financial responsibility not required.
- Over 2 MW – financial responsibility required if all three of the following conditions are met:
    - The battery technology requires thermal runaway protections under state law;
    - Any individual room, cabinet, container, or other enclosure containing the system has an energy rating greater than two megawatt-hours, or any two enclosures are less than ten feet apart; and
    - The system does not qualify as a "remote facility" under the International Fire Code – in other words, it is within one hundred feet of buildings, lot lines, public ways, stored combustible materials, hazardous materials, high-piled stock, or other exposure hazards.

Exhibit F: Planning Commission Resolution

RESOLUTION NO. 2024-01

RESOLUTION OF THE WHATCOM COUNTY PLANNING COMMISSION REGARDING DOCKET ITEM PLN2024-00007: REVIEW OF USES ALLOWED IN THE HEAVY IMPACT INDUSTRIAL DISTRICT WITHIN MUNICIPAL URBAN GROWTH AREAS

WHEREAS, the County Council placed on its annual docket item PLN2024-00007; and,

WHEREAS, the Planning Commission has fully considered the Council's directive, guidance, and clarifications, including possible uses to preclude in a Heavy Impact Industrial District in a municipal Urban Growth Area; and,

WHEREAS, the Planning Commission is concerned that such significant changes to the allowed uses would essentially change the zoning designation; and,

WHEREAS, the Planning Commission seeks to provide a stable business environment; and

WHEREAS, the Planning Commission is unable to provide a recommendation on an interim measure without a more comprehensive analysis and review in collaboration with the appropriate stakeholders as part of the comprehensive plan process; and

WHEREAS, the Planning Commission hereby adopts the following findings of fact:

FINDINGS OF FACT

1. Docket item PLN2024-00007 instructs Planning and Development Services and the Planning Commission to "Amend Whatcom County Code Chapter 20.68 and other relevant sections of Title 20 to define appropriate industrial uses and conditions for industrial uses in Heavy Impact Industrial (HII) Districts within a city's designated urban growth area."
2. Planning and Development Services prepared several options for the Planning Commission to consider and reviewed them with the Commission in 7 work sessions between May 23 and September 26, 2024.
3. At their July 25th meeting, the Planning Commission asked for additional guidance and clarification from the Council.
4. In responding, Council provided two lists, one of potential uses to exclude, and one a list of uses that would remain permissible were the excluded list be adopted. They then moved "that Planning and Development Services Department use this included and excluded list as a starting point for working with the Planning Commission on advancing a Phase 1 code changes discussion." This response was provided to the Commission at their August 8th work session.
5. The Planning Commission received numerous public comments and testimony from citizens and businesses of the Alderwood neighborhood, the Port of Bellingham, and interest groups (both pro and con) in each of their work sessions and 9/26/24 public hearing, and deliberated on several proposed amendments provided by PDS; and,
6. On September 26, 2024, the Planning Commission was unable to pass a recommendation on code amendments, but did vote 5 yea/0 no/1 abstain to approve this resolution.

NOW, THEREFORE, BE IT RESOLVED by the Whatcom County Planning Commission that:

Section 1. The Planning Commission is not able to offer a recommendation on amendments to WCC Chapter 20.68 that affect allowed uses in the Heavy Impact Industrial district in a municipal Urban Growth Area at this time. Rather, changes to zoning in this area are recommended to be made through the 2025 Comprehensive Plan Periodic Update in a more comprehensive manner, engaging all stakeholders, including the citizens and businesses of the surrounding neighborhoods, the City of Bellingham, the Port of Bellingham, interest groups, and any other interested parties.

Section 2. In the interim, a targeted moratorium, potentially excluding the waterfront HII properties, could be considered. The moratorium should be carefully crafted so as not to affect existing businesses in the area and should expire upon adoption of the 2025 Comprehensive Plan Update.

ADOPTED this 26th day of September, 2024.

WHATCOM COUNTY PLANNING COMMISSION
WHATCOM COUNTY, WASHINGTON

ATTEST:

Aileen Kogut-Aguon, Planning Commission Clerk

Kelvin Barton, Planning Commission Chair