Battery Energy Storage Systems

Code Amendments to Title 20 (Zoning)

September 28, 2021

Background

- NextEra submitted an application for a code amendment to allow Battery Energy Storage Systems (BESS) in the Rural zone with a Conditional Use Permit approval.
- Staff amended and expanded on the proposal to allow BESS in some additional zones and added some performance and use standards (see Exhibit A). NextEra agreed to these additional amendments.
- 07/08/2021: Planning Commission reviewed the proposal and recommended approval of staff's code amendments to Council (Ayes-7; Nays-0; Abstain-1).
- 07/27/2021: Council P&D committee discussed BESS with staff and the applicants; committee recommended the item be introduced.
- 07/27/2021: Item introduced. Council carried a motion to have the proposed ordinance be introduced for a public hearing
- 08/10/2021: Council heard public testimony and carried a motion to bring the ordinance back to P&D committee and requested PDS staff to bring a presentation on BESS.

What are Battery Energy Storage Systems?

- Battery energy storage systems are rechargeable battery systems that store energy from the electrical grid and then either sell energy back to the energy provider when needed or directly to a home or business.

Size and Scale of BESS Facilities

BESS Facilities 5 MW or Less

100 kW

500 kW

1 MW

2MW

BESS Facilities 5 MW or Less

5 MW BESS Facilities

Glacier, WA – PSE BESS Facility

2 megawatt (MW) / 4.4 megawatt-hour (MWh) lithium-ion battery system

Decatur Island Microgrid (1MW)

Snohomish County PUD BESS

Hardeson Substation

Everett Substation

2 and 2.2 MW Facilities

Where BESS Less Than 5 MW Can Be Located **(Proposed)**

- Zoning Districts:
  - Rural (Administrative Approval)
  - Residential Rural (Administrative Approval)
  - Residential Rural Island (Administrative Approval)
  - Light Impact Industrial (Permitted)
  - Heavy Impact Industrial (Permitted)

BESS Facilities Greater than 5 MW

NextEra 20 MW Pinal Central Solar Energy Center in Arizona

30 MW Ballarat Energy storage system in Victoria, Austrialia

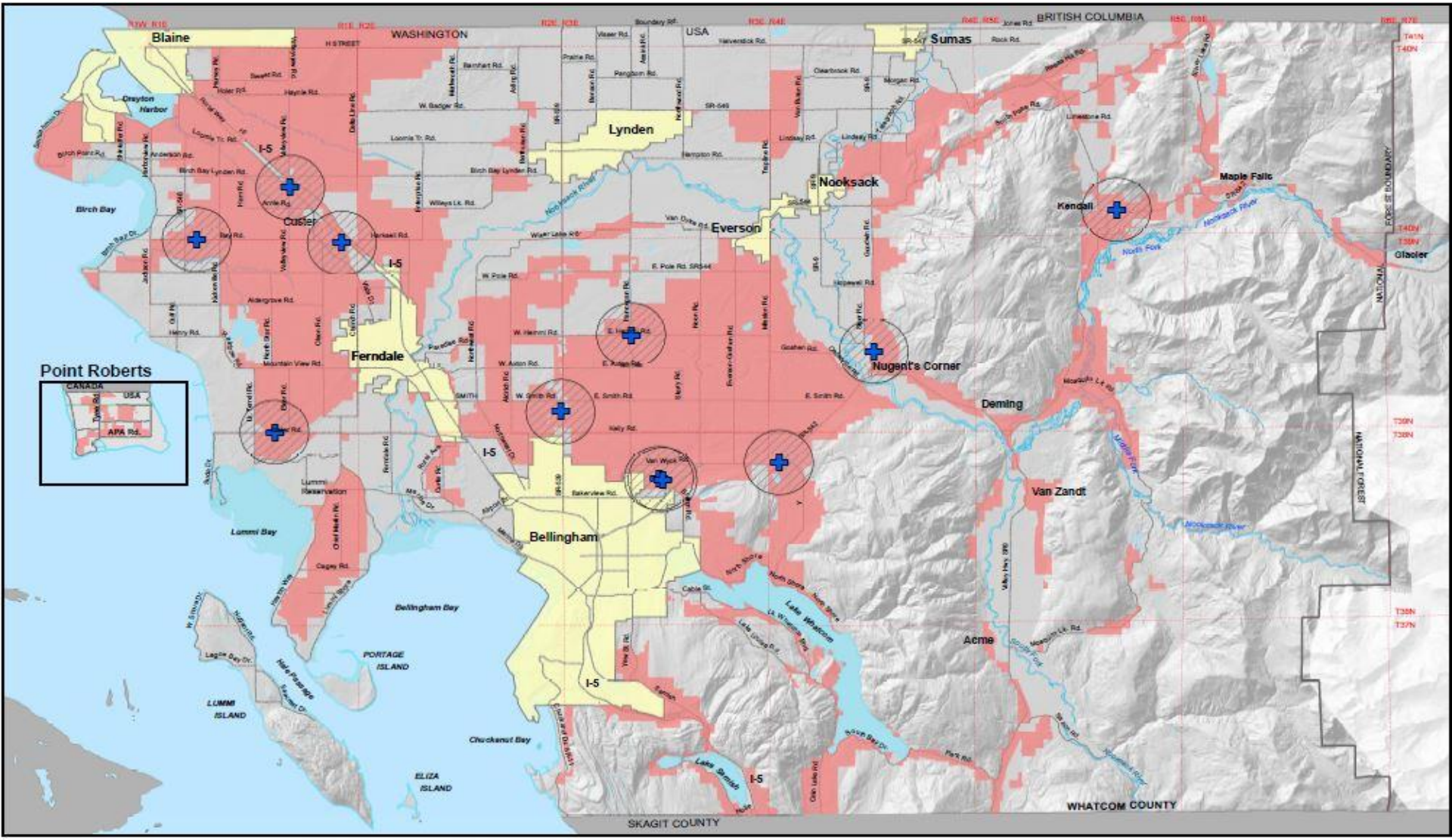
BESS Facilities Greater than 5 MW

Neoen Hornsdale
100 MW BESS
in Australia

Where BESS Greater Than 5 MW can be located (Proposed)

- Zoning Districts:
  - Rural Zone if within 1 mile of existing substation (Conditional Use Approval)
  - Light Impact Industrial (Permitted)
  - Heavy Impact Industrial (Permitted)

Locations of Existing Substations in Rural Zone



Whatcom County

Electrical Substations in Rural Zones

Legend

- Substations
- 1 Mile Buffer
- Rural Zoning Designations
- Incorporated City

June 2021

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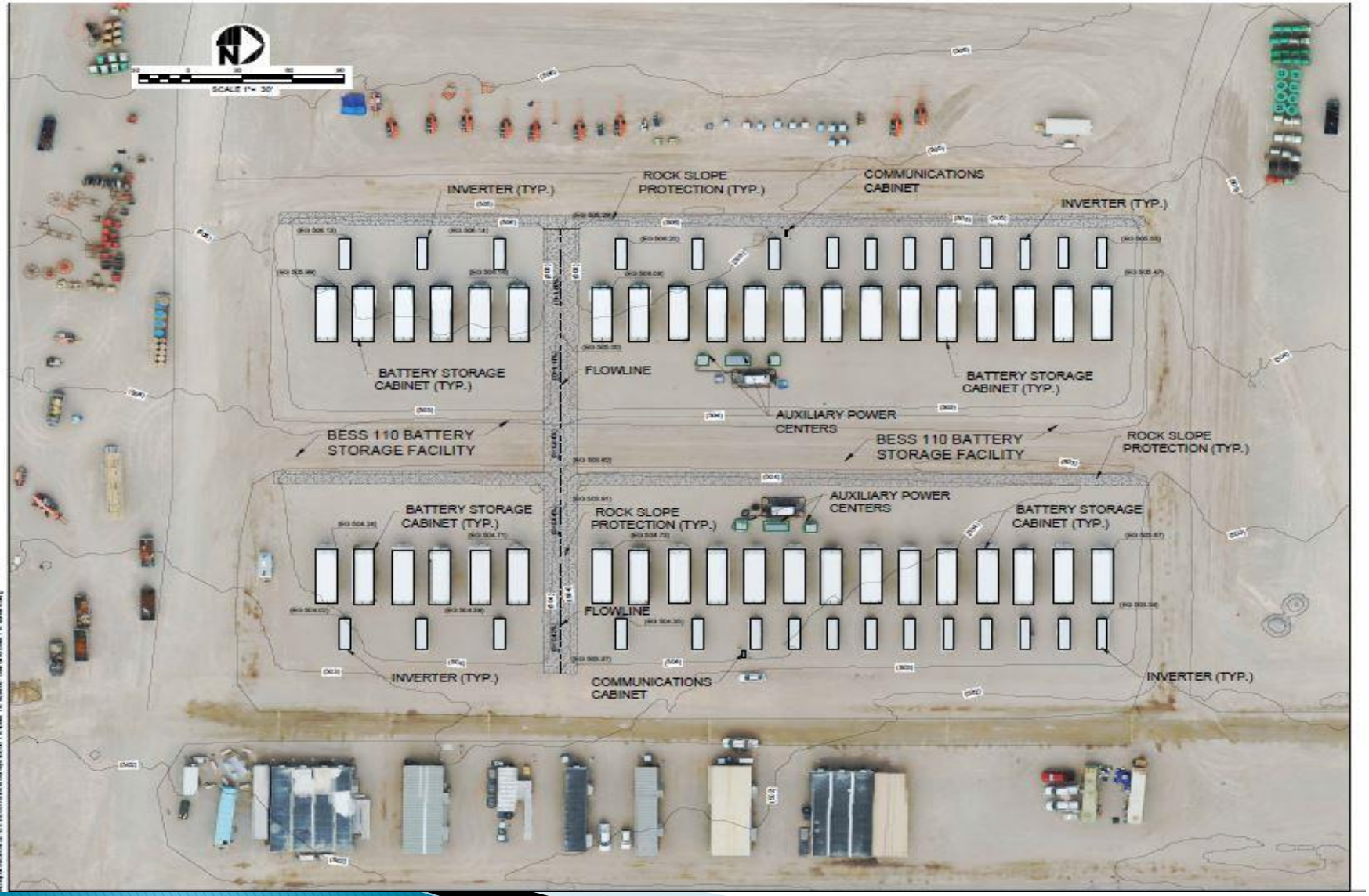
0 0.75 1.5 3 4.5 6 Miles

NextEra Facilities – 63 MW, 3.97 acres



NextEra Facilities – 110 MW

Fire Code Requirements for BESS

- IFC Volume 1, Chapter 12 – Energy Systems (added in 2018)
  - Section 1206 – Electrical Energy Storage Systems

Fire Code Requirements for BESS

- Sprinkler or Alternative Fire-Extinguishing (IFC 1206.2.11.1)
- Alarm Systems – 24/7 Monitoring (IFC 1206.2.11.3.2)
  - Can Send Someone To Shut Facility Off
- Site Security and Signage (IFC 1206.2.8.7.3 & 1206.2.8.6)
- Explosion Proof Venting (IFC 1206.2.11.31)
- Spacing Requirements and Location (IFC 1206.2.8.7.1)
- Hazardous Materials Containment (IFC 1206.3.5.4)
- Testing and Maintenance and Repair (IFC 1206.2.7)
- Thermal Runaway Prevention (IFC 1206.10.7)
- **Fire Marshal's Office will train Fire Districts if BESS is constructed within their District**

Battery Energy Storage Systems and fire safety

Fires involving battery storage systems are **rare**. Our energy storage projects are engineered to meet the **highest standards of safety and fire protection**.

- Energy storage systems typically **consist of racks of batteries**, not unlike the kind used in common electronic devices like laptops and smart phones
- Batteries contain organic material that may be flammable, but only in **rare and extreme conditions**
- Each battery is **continuously monitored** by an on-site system to automatically detect abnormal conditions and stop operations, if needed
- An off-site, 24-hour control room with **trained technicians** also constantly monitors each site and can **remotely shut down the facility**, if needed
- All of the battery module designs included in our facilities **undergo rigorous industry testing and certification related to fire safety**, in order to minimize the risk that a failure of any single battery cell or module spreads to adjacent batteries or other equipment
- Each storage facility is equipped with **its own air conditioning or cooling system** to ensure it operates within the ideal temperature range
- Our company will coordinate with first responders and fire officials to **safely extinguish any fire and dispose of any damaged materials** in compliance with local, state and federal regulations

Questions?