# BATTERY ENERGY STORAGE SYSTEMS (BESS)

And The Battle for Safety in our Community

#### **GOAL**:

### TO EDUCATE OUR COMMUNITY ABOUT THE SITUATION AND RISKS



#### **WHAT**

What is a BESS and what is being proposed near our homes?
What are the dangers?



#### WHO/ WHY

Who is building this and why in this location?
Who benefits?



#### WHEN

of the permit/
application to date
and what is
predicted to come.



#### ACTION?!

What can YOU do to oppose in ways that impact King County leaders?
How can you add your voice?



### NEIGHBOR DIGS INTO RESEARCH



#### **CORE SAMPLES?**

James Delay & his wife Desiree saw core samples being drilled next to their home in Dec 2022. He was curious what they were looking for...

#### THE STORY DEEPENS

Found CDUP23-0003 permit application for <u>14 acres</u> of battery storage units (lithium) – called Kingfisher Energy Project

### OWNER OF LAND IS 83 & CHILDREN WISH TO SELL (NONE LOCAL)

The current plans are to build asap around her home until she dies, then they can level the house.

#### **DANGERS & SCALE SHOCKING!**

His research soon showed:

- Little regulations exist around this new tech
- There ARE dangers & catastrophic side effects
- The size is MASSIVE on the world scale
- No one even KNEW about this!





#### FACEBOOK PAGE FORMED 3/2023

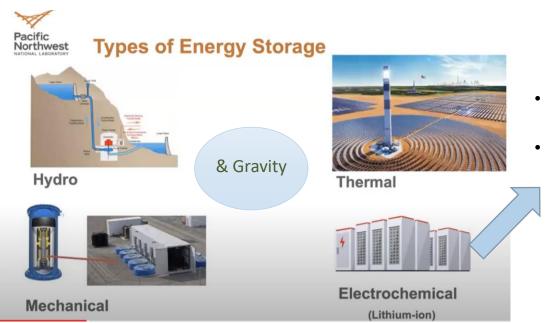
His Facebook page is a database for research/info; articles of fires from around the world, King County info, upcoming meetings, & community engagement



### WHAT IS A BESS?

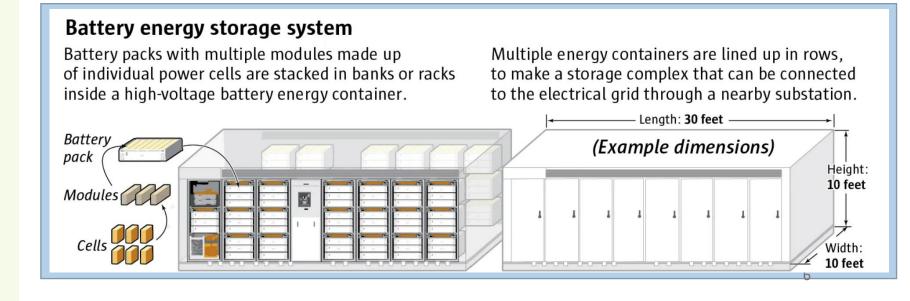
- A type of battery-based energy storage system that can be used to store excess energy from renewable sources.
- Energy comes from solar, wind, hydro, etc.
- This stored energy can then be drawn upon when needed to meet various demands for power





#### LITHIUM-ION VS LFP

- Lithium ion is most unstable
- Lithium Iron Phosphate (LFP) is considered "less fire prone" but explosions are far more damaging! (less data as well)
  - BESS builders switched to LFP in 2021 (Tesla, etc)
- Both have lifespan (10-20 yrs) and maintenance issues



# ARE ANY IN WASHINGTON STATE?

- Most in the US are packed into states with high demand for energy w/o enough production: California, Texas, Florida, Arizona, New York.
- Washington has only 2
   operating BESS sites (test sites)
- Both are near Boeing (industrial zones) and 2MW (very small)
- Many more are being proposed in Washington RIGHT NOW with less thoughtful siting – LIKE OUR COVINGTON COMMUNITY!

### US & WORLDWIDE BESS SITING

\* MANY ARE PLACED NEXT TO WIND/SOLAR FARMS



\* LARGER BESS SITES STARTED ONLY AROUND <u>5 YEARS AGO</u> (2018)

- \* ZONING STANDARDS DO NOT EXIST IN WASHINGTON STATE
- \* "PACIFIC NORTHWEST NATL LAB" HAS BEEN GATHERING DATA AROUND STATE ORDINANCES/ CODES OTHER STATES ARE DRAFTING

\* THEY TRY TO BUILD NEAR SUBSTATIONS TO MAXIMIZE EFFICIENCY OF TRANSFER



Nursling, Southampton (UK) 50MW BESS - unveiled 2021



### SIZE UNDERSTANDING

- Residential scale battery storage is in kilowatts, but utility-scale battery storage is in megawatts (1 megawatt = 1000 kilowatts)
- wA has only two, 2 MW sites currently, Tenaska proposes 200+ MW to be behind Mattson Middle School!
- Largest in the world is
   Moss Landing, CA 400MW

#### EXAMPLE OF 1 "CABINET" (2MW)



MOSS LANDING, CA (400MW)



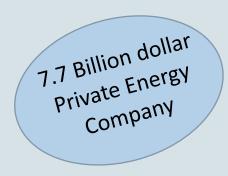
**EXAMPLE OF 11 ENCLOSURES (20MW)** 

(shipping container sized)









### KINGFISHER BATTERY ENERGY STORAGE PROJECT

Tenaska (Nebraska energy company) wants to build INDUSTRIAL SITE on 14 ACRES



- Would be located in unincorporated King County, next to Mattson Middle School.
- Would therefore be permitted by <u>King</u>
   <u>County</u> NOT City of Covington



· Interconnection voltage: 230 kV

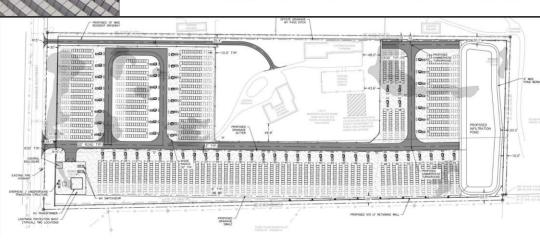
· Point of Interconnection: Berrydale Substation

· Schedule: Construction of 8-12 months

· Start of Operations planned for 2025

 Sample layout shown – original + adjusted versions (visual sim in development)





### KINGFISHER BATTERY ENERGY STORAGE PROJECT

"Clever" Site Choice to Minimize Public Awareness

& Rush Permit Approval Without Opposition



\*\* Tenaska has been working on this permit "over a year"

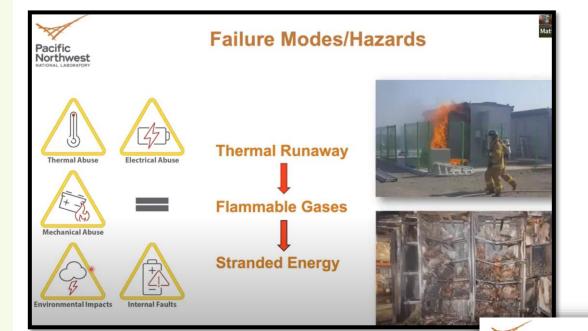


- Whatcom County voted in 2022 to limit BESS sites more than 5 MW to industrial zones and rural sites near substations
- Tenaska tried to build 9 acre site in Renton in 2022
  - In April 2022 the Renton City Council placed <u>6-</u> month moratorium on battery storage proposals while they determine how to be "safe"
- No restrictions currently in King County!
  - Unincorporated King County has no City Council representative to speak up for the residents (& Covington has no jurisdiction to regulate this site)
  - Tenaska hoped for less awareness when it mattered; TOO LATE to speak up once permitted (as proven in Grand Terrace, CA rare industrial zoned site next to a school that never knew until it was built)



### **BATTERY** FIRES/EXPLOSIONS

- These fires can't be extinguished with chemicals or water - they must "burn out" while firefighters in Hazmat suits monitor.
- In the past they have been caused by extreme heat, lightening strikes, or malfunctions.
- Surprise, AZ fire in 2020 burned for 11 days & residents for miles around were forced to evacuate...





NOT "IF", BUT "WHEN" A BATTERY FIRE/EXPLOSION OCCURS!



#### Reducing Explosion Risks is Key Gap

An energy storage system fire and explosion at a solar power facility in Hongseong, South Chungcheong Province, on April 6.



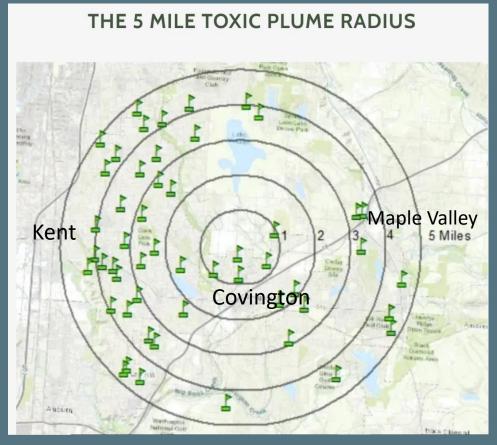
#### No Warning Prior to **Explosion**

- · Extension of fire contained to single enclosure.
- Firefighting operations focused on exposure
- Merseyside Fire Dept responding agency
- Fire cause investigation



slides taken from Nov 2022 Workshop by Washington State Dept of Commerce re BESS siting and safety – Matthew Paiss (PNNL technical fire advisor) slides

### FIRES LEAD TO DEADLY TOXIC SMOKE & IMMEDIATE EVACUATIONS

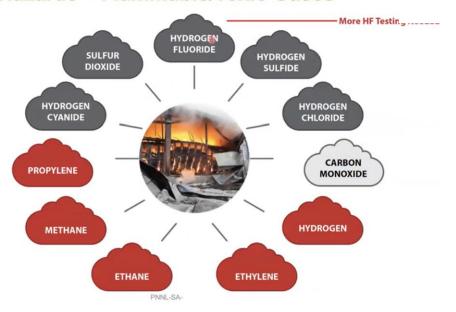


### 50+ SCHOOLS WILL BE AFFECTED BY THE TOXIC PLUME

Based on previous fires at these facilities, the toxic plume may reach a 5-mile radius requiring evacuation of schools, residents and businesses.



#### Hazards - Flammable/Toxic Gases







\* 1 of the many Moss Landing fires which resulted in freeway shutdown and shelter-in-place d/t toxic fumes!

### BESS FIRES IN THE NEWS (A VERY SMALL SAMPLING)

### Report: Four Firefighters Injured In **Lithium-Ion Battery Energy Storage System Explosion - Arizona**

July 29, 2020

battery energy storage system explosion.

Funded by the U.S. Department of Homeland Security (DHS) and Federal Emergency Managemer Agency (FEMA) Assistance to Firefighters Grant Program, *Four Firefighters Injured In Lithium-Ion* 

Energy Storage System Explosion - Arizona is the first report issued as part of the Study of

Morris fire: Lithium batteries a concern as blaze burns for 2nd day; evacuation order extended

Evacuation order for 1,000 homes continues until 9 p.m. Thursday

By Diane Pathieu, John Garcia, Liz Nagy, and ABC7 Chicago Digital Team 🚳

Wednesday, June 30, 2021





FSRI releases new report investigating near-miss lithium-ion The cause of the fire in the large storage facility in Neuhardenberg remains unclear

> JULY 22, 2021 SANDRA ENKHARDTThe extent of the damage is also still open, as the site has been cordoned off by the police since the fire. The fire brigade reports that highly toxic hydrofluoric acid was present in the extinguishing water during the fire, which th... See more

"Tesla Megapack battery ignites at substation after less than 6 months

219 comment bubble on white

IT'S BETTER TO BURN OUT THAN TO FADE AWAY

iconBrandon Vigliarolo

Wed 21 Sep 2022 // 16:30 UTC

Fire crews tend to massive, smoldering battery in Chandler facility

Ryan Randazzo and Perry Vandell Arizona Republic









#### lithium-ion battery fire site in Warwick considered within 'normal' range

Jun 30, 2023, 9:23am • Updated on Jun 30, 2023

By: News 12 Staff



Here's drone footage of the burned Warwick NY Lithium Iron Phosphate ( LFP ) BESS fire on the school's campus:

https://fb.watch/IUcgAGRI6R/



As 2 lithium-ion battery site fires smolder Warwick, more questions raised over Sta Island facilities

Published: Jul. 09, 2023, 5:50 a.m.



ille is pictured here. Fires at two battery energy storage sites in ck, N.Y., have been smoldering for more than a week, after officials say a elated issue caused the newly installed units to ignite and burn in two

LONG ISLAND / POLITICS

**ONLY IN NEWSDAY** 





East Hampton storage battery could be out for months after fire



#### By Mark Harrington

mark.harrington@newsday.com MHarringtonNews

Updated June 27, 2023 7:42 pm

Th SHARE

A \$55 million storage battery in East Hampton that was damaged in a fire in late May could be out of commission

LOCAL NEWS >

### **Tesla Moss Landing power storage facility** fire shuts down Highway 1; Residents told to shelter in place









### SOUND POLLUTION (NON-STOP NOISE!)

- Noise levels expected to reach 106dB on site from the cooling fans that will operate 24/7.
- Without these fans, thermal runway and explosions/fires occur
- Tenaska says they will build a wall to dampen the noise to 50dB in neighboring areas (equivalent to the sound of a dishwasher).
- How will they dampen the noise to address 2story homes?

#### **JACKHAMMER IS 102DB**



#### TRAIN HORN IS 90DB 500FT AWAY



(we can hear a train horn over a mile away! Imagine that non-stop)

Ex: 200 MW BESS under permit in Benton County

Table 8. Modeled Octave Band Sound Power Level for Major Pieces of Project Equipment

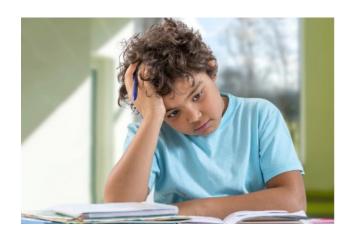
Sound Source	Sound Power Level (Lw) by Octave Band Frequency dBL									Broadband Level
	31.5	63	125	250	500	1k	2k	4k	8k	dBA
Step-up Transformer	77	77	73	73	73	67	62	56	49	73
Inverter	71	79	86	87	86	83	78	71	64	92
BESS	85	93	100	101	100	97	92	85	78	106
Substation Transformer	100	104	99	100	99	93	89	83	75	100

### NO SAFE EVAC PLAN FOR 800+ STUDENTS & RESIDENTS

- This is a residential-zoned area without proper infrastructure for major emergencies.
- How will students & residents evacuate safely when the transportation infrastructure is limited to 2-lane streets that all exit onto 164th street SE?!
- How will fire & police GET IN?

### MATTSON MIDDLES SCHOOL TEST SCORES MAY PLUMMET

A study from a <u>NY school</u> near a subway showed low test scores (constant noise interferes with learning), then after sound barriers & building updates, scores improved.





### HEALTH RISK TO MATTSON MIDDLE SCHOOL STUDENTS

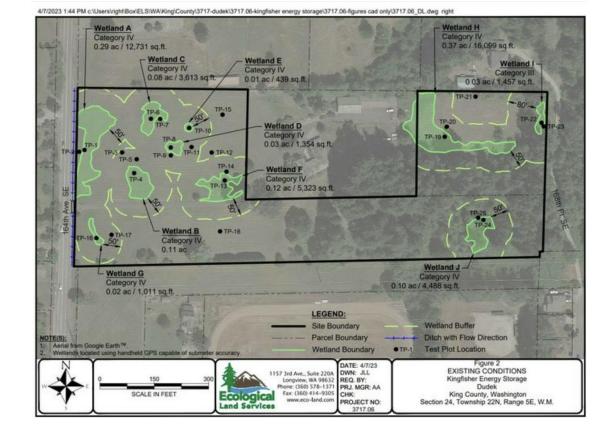
The middle school was constructed in 1981. It has an outdoor courtyard and hallway design with old HVAC and windows. "Shelter in place" is not a safe option when a fire or explosion occurs.

### WETLAND IMPACTS

- Per Wetlands Delineation
   Report, 10 wetlands present
- Approx 50 percent of the 14.1
   acre project site
   is <u>unbuildable</u> as it contains
   Class III and IV wetlands which
   require a 150 foot setback

#### WILL \$ WIN OVER ECOLOGY?

The county can permit destruction of the wetlands by a requesting that the developer provide compensation to a mitigation bank



The ecologist
assigned by King
County to perform
the "eco review"
replied to Lead
Permitter Tracy Cui's
request with:



From: Pursley, Joseph <jpursley@kingcounty.gov>

Sent: Wednesday, May 17, 2023 1:57 PM

To: Cui, Tracy < Tracy.Cui@kingcounty.gov>

Subject: RE: Routing: CDUP23-0003 Battery Storage - eco review

Tracy,

Is this a test?

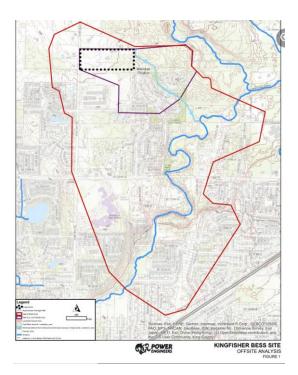
This proposed project fully impacts 10 wetlands and their buffers. I am not sure what is proposed can even be allowed through a Alteration Exception.

Maybe we can talk and figure out how to respond to the applicant.

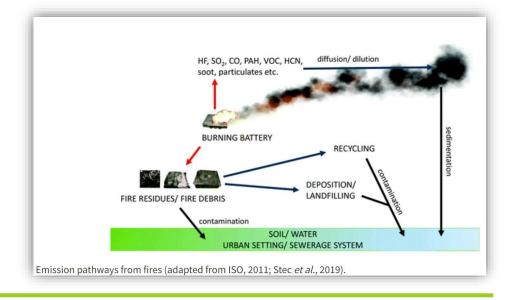
Joe

### CONTAMINATES WATER

- Runoff from water treatment to cool exploded/burning battery units will contaminate wellwater/aquifer/water table
- Millions of gallons of defensive runoff spray puts area at risk



Drainage maps prepared for the Project shows the run-off will drain to the east polluting Little Soos Creek, a salmon bearing stream, and all its tributaries on the way to the Green River.



# WILDLIFE CORRIDOR IMPACTS

- The PGE transmission corridor where the High Voltage line will be sited is an active wildlife corridor.
- Deer, elk, coyotes, owls, raptors, all frequent this area and cross through the Project site, heading to Little Soos Creek for water.

### PROPERTY VALUE DECREASE

- For those homes around this industrial site, property values will assuredly decrease!
- This reduces school funding –
   as they depend on property
   taxes

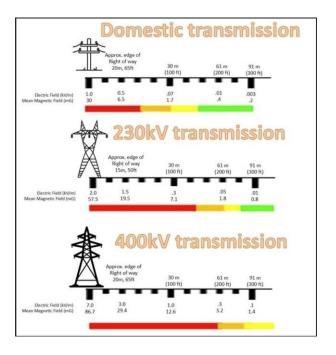


### ELECTROMAGNETIC RADIATION



- Cumulative radiation from the three lines can damage DNA and cells.
- Symptom include headaches, insomnia, depression, anxiety, etc.
- Several states have residential setbacks in place for these utilities that range from 300ft to 700ft.
   Washington State has no setbacks.

- be installed in a 150ft wide corridor behind the Tamarack Ridge Community.
- Two lower voltage lines are currently sited in that corridor.





Clean Energy needs to be a PRIORITY focus with our future in mind!

### INCENTIVES FOR FASTER CLEAN ENERGY CONVERSION

But HOW it is handled needs to be THOUGHTFUL vs RUSHED (Or we risk exchanging 1 danger for another)

#### WASHINGTON CLEAN ENERGY TRANSFORMATION ACT (CETA) - 2019

- Requires WA's electric supply be free of greenhouse gas(GHG) emissions by 2045
- By 2025 NO COAL
- By 2030 GHG neutral standard
- By 2045 100% clean standard









#### KING COUNTY'S 2020 STRATEGIC CLIMATE ACTION PLAN (SCAP)

2020 SCAP Guiding Principles:

• Act with urgency and intention. • Lead with racial justice and equity. • Respond to community needs and priorities. • Use and develop best available science. • Seek systemic solutions. • Build partnerships. • Lead through local action. • Prioritize health and co-benefits. • Be transparent and accountable.



### PRESSURE FROM PRIVATE ENERGY COMPANIES

- Private energy companies are highly incentivized to get projects approved before regulations are in place.
- They have powerful lobbyists, PR firms employed, and billions of dollars motivating them.



### TENASKA WILL SELL TO CA, TX, ETC FOR <u>4X</u> (MIN) THE PROFIT

- WA energy is the cheapest in the US – we currently overproduce & export 30% of our energy to other states (hydro power esp).
- Will continue to overproduce for projected 10+ years (but will need plan in place for future)





### **TIMELINE**

Tenaska proposed Renton BESS frozen d/t 6 month moratorium voted by Renton City Council (safety concerns!) Tenaska upgraded application for Conditional Use Permit titled "CDUP23-0003"

Reagain Drum
Contribution Control 9
Metropolitan King County Council 9
District Council 10



King County Councilman Reagan Dunn opposes BESS to permitting execs

4/?/2022

6/1/2022

2/15/2023

3/2/2023

3/23/2023

Tenaska's Kingfisher Energy Project initial permit application titled "PRFA22-0125"

(August 2022 a PR firm "Strategies360" was hired to help sway public opinion – esp after Renton "failure")

James DeLay created Facebook group for awareness and research

Volunteers go Doorto-Door in 2 closest housing developments by Mattson to inform of BESS & City Hall Presentation (call for Presence & Opposition!) Volunteers go Door-to-Door to give new flyers re info on proposal & public comment period ending 6/26/23 per newspaper listing. (call for emails/comments!)

(1,740 flyers distributed!)



Kent School

District Board

voted to oppose
the Kingfisher

BESS Project



6/8-11/2023

6/13/2023

6/22-25/2023

6/26/2023

5/28/2023

7/9/2023

Tenaska presentation to Covington City Hall (per their request).

Huge turnout (most in over 10 yrs) at around 200 people



Volunteers became aware (via permit status website) that King County Permitter, Tracy Cui, noted the Conditional Use Permit "CDUP23-0003" was <u>paused</u> d/t "concerns on the procedural aspect of the CUP approach" & "ecological related issues"

Seattle Times article released entitled: "Big Batteries by a school? Project stirs concerns as WA seeks clean energy" by Daniel Beekman



### Covington City Council sent very strongly worded opposition letter to King County:

"we have unequivocally concluded that the siting of this BESS in a residential neighborhood and near Mattson Middle School is a grave neglect of the life and safety duty you owe King County residents." ???? - Need to stay vigilant re updates on permit process and possible loopholes to be attempted (Tenaska trying for "utility" exemption – FAR WORSE as less requirements). Be ready to show up at County meetings, email reps, & educate others!

New WA state law to take effect October 2023 re fire safety requirements, limits on indoor systems, construction standards, and more.

Will this protect us from this site? Will the standards be enough??

7/13/2023

7/15-16/2023

**TBD** 

8/22/2023

10/1/2023

#### Covington Days Parade & Festival:

Volunteers educated public & advertised newly created central hub website of www.movethebattery.com



August 22, 2023 Local Services & Land Use Committee hearing of King County Councilmember Sarah
Perry's proposal to establish
regulations around zoning, safety, and insurance requirements for BESS

Will they be stringent enough??





### CALL TO ACTION!!

What YOU Can Do To Make An Impact



### STAY INFORMED VIA LOCAL CRAFTED WEBSITE

- Built by neighbors as more concise central hub for key info & links related to this BESS site.
- Join email list action items & FYIs to be sent (some emergent as Permit situation evolves)
- "Send us a message" if you have ideas, skills to assist, or questions

WWW.MOVETHEBATTERY.COM



### YOUR VOICE MATTERS & EMAILS MULTIPLY INTO A MOVEMENT

- Refer to <u>www.movethebattery.com</u> for a list of King County officials (& beyond) to email opposition/concerns
- Emails (esp during critical public comment periods) are more impactful than petitions – even if short and copy & pasted to multiple recipients
- · Public Officials read & DO respond!

#### BE READY TO ACT

Be ready to act during the Appeal Process once/if the County approves the application for a Critical Area Alterations Exception!! This CAEX would eliminate many studies meant to protect the public & environment!

### EDUCATE FRIENDS & FAMILY – AWARENESS IS KEY TO TAKING ACTION



#### REFERENCES

BIG BATTERIES BY A
SCHOOL? PROJECT
STIRS CONCERNS AS
WA SEEKS CLEAN
ENERGY | THE
SEATTLE TIMES

7/8/2023 – Wonderfully indepth piece about BESS's, Washington current state, and proposed site by Covington's Mattson Middle School

# COVINGTON CITY COUNCIL MEETING JUNE 13, 2023 YOUTUBE

Tenaska/ Kingfisher presentation to Covington City Hall Recording.

# COVINGTON BATTERY ENERGY STORAGE SYSTEM (BESS) | FACEBOOK

FB opposition site filled with news articles, city public records, and information related to dangers related to this BES and it's proposed location

### FAQ | MOVE THE BATTERY

Built by neighbors & designed as more concise central hub for key information and links related to this BESS site. Find current updates, Action items, and facts for easy reference.

# WETLANDS DELINEATION REPORT.PDF

This report describes the ten wetlands and their buffers within the site according to the applicable sections of the King County Code (KCC) Chapter 21A.24, Critical Areas.

SITING ENERGY STORAGE - NOV 16 2022 - YOUTUBE

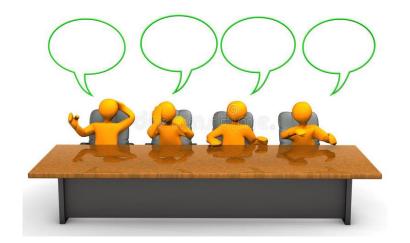
Workshop from Washington
State Dept of Commerce re BESS
siting and safety. (Research
analyst Jeremy Twitchell from
Pacific Northwest National
Laboratory included speech)

### ACCELA CITIZEN ACCESS

King County's permit page which allows us to follow the publicly avail timeline & details around this (and any) active or paused permit.

### <u>DATABASE - EPRI</u> <u>STORAGE WIKI</u>

A public resource for documenting publicly-available data on battery energy storage failure events from around the world. All information included is available in the linked public documents.



### PANEL DISCUSION

### PERMITTING DEFINITIONS (FOR REFERENCE)

#### Permitting Avenues for Renewable Energy Projects

**EFSEC** The State of Washington Energy Facility Site Evaluation Council (EFSEC or Council) provides a "one-stop" siting process for major energy facilities in the State of Washington. EFSEC coordinates all evaluation and licensing steps for siting certain energy facilities in Washington. EFSEC specifies the conditions of construction and operation. If approved, a Site Certification Agreement is issued in lieu of any other individual state or local agency permits. EFSEC also manages an environmental and safety oversight program of facility and site operations.

Conditional Use Permit (CUP) allows the county to consider a use of a property that is not routinely allowed, but can potentially be made compatible through the application of project and site-specific conditions. The CUP process also requires public notification and an opportunity for the public to comment on whether the proposal meets the criteria for approval.

Critical Area Alteration Exception. This application process allows adjustments in the application of zoning code standards related to critical area buffers to a particular property.

#### What is the timeline for processing a critical area alteration exception?

- Permitting staff will schedule a pre-application meeting within 30 days from the date of the request. (June 1, 2023)
- Permitting staff has 28 days from the date the application is filed to determine whether the application is complete. (TBD)
- After Permitting staff determines that the application is complete, a Notice of Application is issued. The minimum public comment period is 21 days.
- The process to make a final decision on a critical area alteration exception generally takes 120 days provided no appeals are filed or substantial additional information is required.

There is a 14-day appeal period whereby an aggrieved person can file an appeal together with an appeal filing fee to the King County Hearing Examiner.

### PERMITTING DEFINITIONS (FOR REFERENCE)

**State Environmental Protection Act (SEPA)** is a State of Washington policy that requires state and local agencies to consider the likely environmental consequences of a proposal before approving or denying the proposal.

**Categorical Exemptions.** Certain types of proposals are automatically exempt from the threshold determination and EIS preparation because they are a size or type unlikely to cause a significant adverse environmental impact.

**When do categorical exemptions not apply?** proposals involving lands covered by <u>water</u>; projects requiring a license to discharge to the air or water; or projects requiring a <u>rezone</u>. A city or county may also eliminate some exemptions if the project is located within a <u>designated critical area</u>.

NOTE: Representative Sean Penwell
cannot comment on safety record
of BESS sites... can only speak to
emergency response process
emergency response process

### PUGET SOUND REGIONAL FIRE AUTHORITY









#### FINAL Q&A

#### REMINDER: CLEAN ENERGY IS VITAL FOR OUR FUTURE.

But this massive industrial battery sites near a school and dense communities is a disregard for public safety!



### KNOWLEDGE IS POWER, & UNITY IS STRENGTH

