1 March 2025

BEFORE OREGON HOUSE COMMITTEE ON EMERGENCY MANAGEMENT, GENERAL GOVERNMENT, AND VETERANS - HB 3450

Chair Representative Thuy Tran
Vice-Chair Representative Dacia Graber
Vice-Chair Representative Rick Lewis
Members of the Committee

Total Support for HB 3540, provided that it declares a legislative emergency, plus one in real life, and calls for an emergency EO because of the jeopardy confronting CD1 as well as the rest of Oregon.

A Preliminary Reference Plan for Cascadia Readiness in Oregon Congressional District 1

A return of the next 2024+ Cascadia subduction megaquake is of particular interest to Oregon Congressional District 1. In Congressional District 1 no one is debating what we will see:

- failures in the Washington State petroleum pipeline feeding fuel to Oregon through CD1,
- structural collapses at the CEI Hub in CD1,
- infrastructure collapses at Warrenton, Astoria and all communities to the south in CD1,
- 40-to-100-foot tsunami inundation of the same coastal communities along 180 miles of coastline in CD1,
- road and bridge collapses within at least the first 20 miles of the CD1 coast,
- The immense cost of complex civic planning to avoid the predictable and terrible aftermath and then implementing widespread solutions
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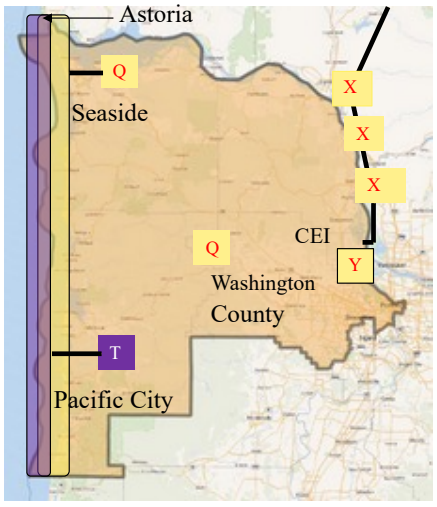


Seismic Day Zero – and all at the same time

X Olympic Pipeline failure
Strands Oregon
Y CEI Hub collapse
Strands Oregon
Q Quake collapse
Damages coastal infrastructure
Extensive coastal road/bridge loss
Extensive utility damage
Damages Wash Co infrastructure
Damages bridges, maybe utilities
T Tsunami
Damages coastal infrastructure
Extensive coastal road/bridge loss
Extensive utility loss

Such planning is not optional. No other jurisdiction in Oregon encompasses a population as terrorized by this prospect as in CD1. Fear is simply multiplied by not having a plan today, given that the Cascadia tectonic event is overdue.

After the Cascadia megathrust arrives the biggest regrets will stem from infrastructure disruption.

1. The last mile for the coastal electric grid.
   With minor damage to coastal delivery power lines from peak seismic ground acceleration, the tsunami will impose electric short-circuit overloads just prior to grid blackout conditions along 180 miles of our CD1 coastline. If shake-alert emergency shutdown were possible prior to the tsunami grid overload, major grid ripple effects would not have happened.
2. The first mile for fuel commodity pipeline grid.
   With the end of pipeline fuel deliveries from Washington, deliveries from alternative seismically stable depots located east of Cascades could have maintained deliveries needed to sustain the state economy plus emergency repairs to coastal communities and their CD1 access highways. Not transitioning to the new depots early enough is a huge regret.

Two priorities stand out:

A. Design for a Pre-planned Cascadia emergency drill to demonstrate the isolation of primary electric grids from coastal load disruption, after infrastructure investments needed to accomplish this. Could involve relocation of CD1 transformer substations on the coast to high ground. As found at Plugshare, most if not all EV charge stations are located so close to the beaches that they will be inundated and unusable. Relocation of grid delivery transformers to east-west highway access hubs on high ground seems crucial.
B. Assume no disruption in California fuel sources. The Washington Pasco rail transition to Oregon must be redesigned to bypass the expected high-volume rail deliveries relieving failed fuel refineries in Washington, arriving from Montana and Utah. Unless dealt with early, an immediate shortage of tanker trucks that can dispense directly to commercial and private vehicles could strand the state economy, when power grid and internet problems disable all the normal credit point fuel stations in CD1, leaving them unable to deliver from conventional on-site storage.

Political planning in CD1 is critical. The current popular skepticism aimed at all governance is hardly leverage for post-catastrophe mobilization or pre-catastrophe planning. Adults playing "Not It" is already a risk multiplier. The current dilemma characterized by rural interests competing with urban demands must be resolved by insightful Cascadia response measures that honor both simultaneously. Being caught short by the Cascadia wild card will not be helpful.

Funding is not a Problem – Redirect Existing Subsidies

Because of the threatened Cascadia repeat, urgent energy transition planning to expand and accelerate Going Green with non-emitting energy is essentially the same as Choosing Life. Big Petro could have mobilized to attain seismic durability for their own infrastructure except that it was out prioritized by everything else, despite their world-class seismic exploration technology

expertise. Stranding the military and society with passive-aggressive neglect is such a bad idea. Terrorizes everybody. If they get serious, in less than a week they could forgo their $20B in annual Congressional and state subsidies and fund the Washington / Oregon / CD1 crisis preparation, perhaps in time. This initial reference plan concentrating on CD1 is offered a pathfinder for all of Oregon (and as it turns out, Washington).

Starting Tomorrow

The ever-reluctant Western States Petroleum Association (WSPA) could deploy 200,000-gallon fuel bladders at rail-accessed areas located near the Washington County Portland-Hillsboro Airport,* servicing tanker trucks with the ability to dispense fuels directly to commercial vehicles. Failing their own redemption, the Oregon National Guard could do it. Or USACE. This plan would of course be defeated by discovery of seismically inadequate rail viaducts, bridges, tunnels. Like the Oswego rail bridge. Assessment of rail lines to Hillsboro would seem to be step 1.

*Rails south of the airport are TriMet MAX light rail. Freight rail can be found about 2 miles south at SW Adams Avenue.

Short-Term Concept

S1. Bypass the stranded CEI Hub by delivering CD1 fuels to Hillsboro Airport by seismically improved rail infrastructure expanded with a short spur to airport property.
S2. Locate high-volume fuel bladders at temporary areas protected by perimeter berm, operated under advanced emergency service contracts.
S3. Mobilize dispensing tankers that are replenished at the airport, enabled by advanced emergency service contracts.
S4. Secure last-mile transformers to inland high ground, with first-alert emergency shutdown.
S5. Upgrade coastal first responder fleets to electric, with inland high ground charging.
S6. Upgrade internet infrastructure for seismically durable emergency comms.
S7. Relocate all schools, emergency medical and disabled housing out of tsunami zones to seismically safe structures.
S8. Establish utility water access points out of the tsunami zones.
S9. Provite public toilets out of tsunami zones.
S10. Implement first alert sirens with tone-coded tsunami arrival times.

Medium-Term Concept

M1. Reduce reliance on commodity fuels. Mobilize all CD1 first responder fleets for electric charging.
M2. Relocate all tsunami-exposed coast charging stations to safe inland sites.
M3. Relocate all fire protection, police protection, medical facilities, grocery distributors and pharmacies out of tsunami zones.
M4. Reduce reliance on emergency generators. Upgrade with onsite battery storage augmented with solar arrays.
M4. Incentivize the transition to medium-duty electric delivery.
M5. Transition to exclusively electric school bus fleets.
M6. Transition to electric semi-tractor trucks and all-electric rail engines.
M7. All Federal and railroad bridges and viaducts upgraded for Cascadia-ready

M8. Fuel deliveries to Hillsboro Fuel Hub from initial Redmond Depot operations
M9. Decommission rail spur to Hillsboro fuel depot ASAP.

Long-Term Concept

L1. Minimal reliance on commodity fuels. Most or all first responder fleets electrified.
L2. Eliminate all petro-fueled emergency generators.
L3. Establish routine access to new state fuel depots.
L5. Expanded non-emitting grid capacity to service increased pre-Cascadia load growth.
L6. All state-owned bridges upgraded for Cascadia-ready.

Interpretation of Cascadia research data is not uniform. Valid math forecasts a 37% chance in 50 years (from 2010), and a 50% chance in 1946. CEI Hub operators in responce to the 2022 SB 1567 Assessments admit to a 2% chance (no worries). Most do not admit. A single policy decision for State action is needed. For CD1 we recommend urgent goals:
Near-term complete in 3 years (by 2028)
Medium-term complete in 5 years (by 2030)
Long-term complete in 7 years (by 2032)

Funding constraints can be obviated by WSPA gaining access to the $20 B in annual oil subsidies already paid for, diverting national assets to offset industry seismic negligence in Oregon (they know more about seismic truth than anyone). Their attorneys can sue to continue terrorizing Oregon fuel clients by doubling down on negligent inaction as time runs out. Starting in 2010 their strategic inaction, particularly obvious in Washington State, has the effect of stranding the military and everyone else after diligent science disclosed our coastal history.

Our CD1 Representative can argue our dire vulnerabilities in Congress. Probably means suing Congress to acknowledge science, then appealing to SCOTUS for the truth, counting the days until a full rip.

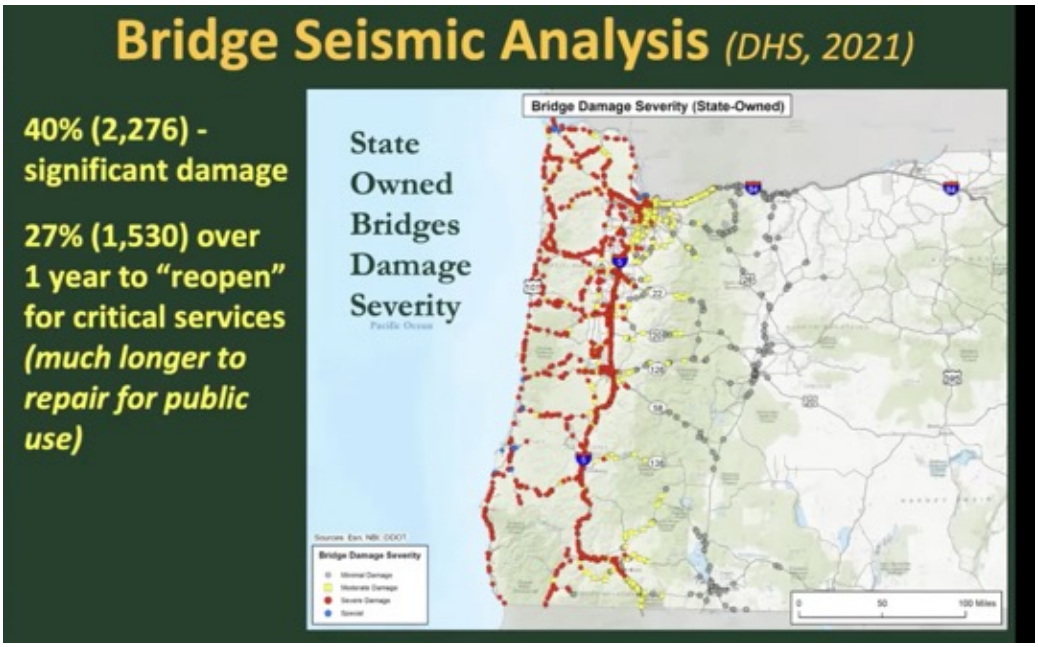
Respectfully submitted, Tracy Farwell, Better Energy LLC, Sustainability Desk

ATTACHMENTS

Attachment 1 – Cascadia M9 Bridge Damage in CD1
Attachment 2 – Cascadia M8 Conditions in CD1
Attachment 3 – Cascadia is at least 32x Worse than Loma Prieta, up to 1,000x Worse
Attachment 4 – Cascadia M9 Return Intervals
Attachment 5 – Cascadia M8 Return Intervals
Attachment 6 – Cost of Cascadia Aftermath is 10x worse than investment in preparations
Attachment 7 – Hillsboro Spur Concept
Attachment 8 – Policy Disarray

Attachment 1 – Cascadia M9 Bridge Damage in CD1

Argonne National Lab (CISA), Modeled M 9.0

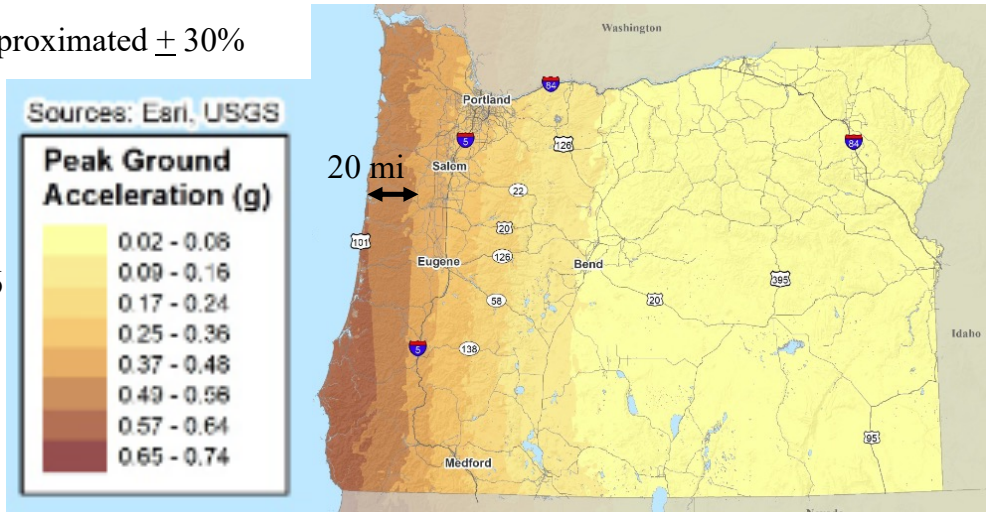


https://publications.anl.gov/anlpubs/2021/09/170001.pdf

Attachment 2 – Cascadia M8 Conditions in CD1

Peak Ground Acceleration (horizontal motion) for M9, with estimate shading for M8 (Wikipedia PGA)

Approximated ± 30%



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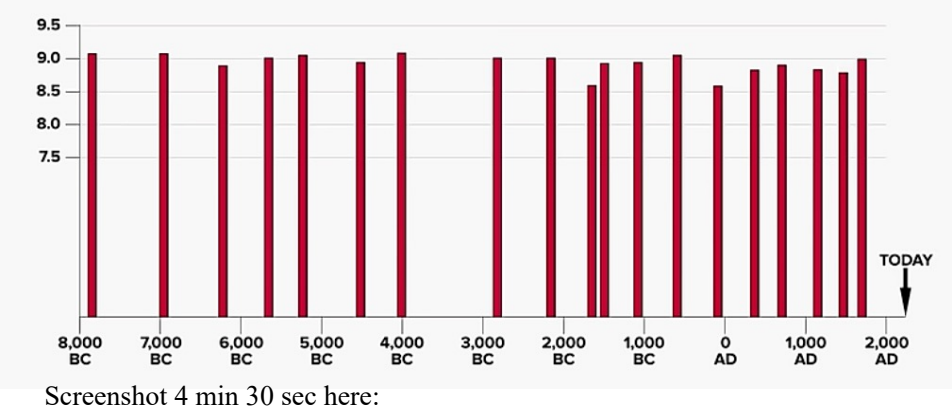
Attachment 3 – Cascadia is at least 32x Worse than Loma Prieta, up to 1,000x Worse

Loma Prieta 1989	Magnitude 6.9	63 Deaths	$10B recovery	Probability 1.0
Cascadia 1700	Magnitude 9.0	-	-	Probability 1.0
Cascadia 2024+	M 8.0 - 9.0	-	-	P = 0.5 in 1946

On energy scale, M8 = 32x M7
M9 = 1024x M7
On Oregon Coast, M8 conditions seem to occur up to 20 mi from beaches, for M8 or M9 event.

Attachment 4 – Cascadia M9 Return Intervals

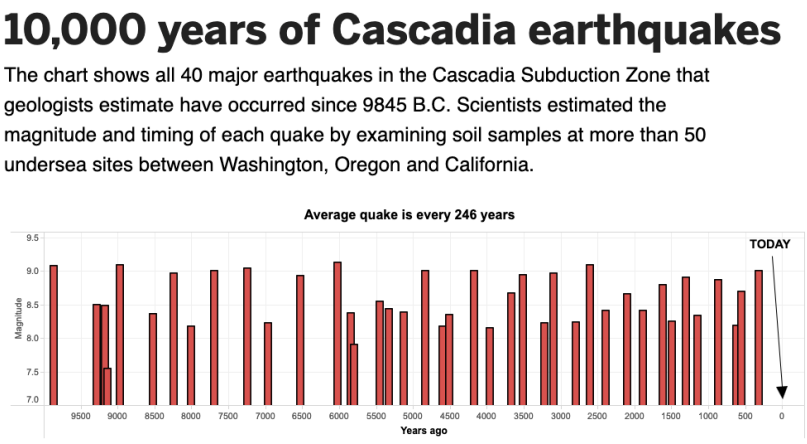


Screenshot 4 min 30 sec here:
https://www.youtube.com/watch?v=GP-vyAwiXCM

Says average interval 400 to 500 years.

Attachment 5 – Cascadia M8 Return Intervals

Northwest history of M8 and M9 Events



Last event was 1700. Add average 246 = 1946, when chance was 50%.
https://projects.oregonlive.com/maps/earthquakes/timeline

Attachment 6 – Cost of Cascadia Aftermath is 10x worse than investment in preparations

- Infrastructure rebuild costs after the fact are at least 10x the cost of mitigation
- Waiting for post-event investment is a known inflation driver

National Institute of BUILDING SCIENCES	ADOPT CODE	ABOVE CODE	BUILDING RETROFIT	LIFELINE RETROFIT	FEDERAL GRANTS
Overall Benefit-Cost Ratio	11:1	4:1	4:1	4:1	6:1
Cost ($ billion)	$1/year	$4/year	$520	$0.6	$27
Benefit ($ billion)	$13/year	$16/year	$2200	$2.5	$160
Riverine Flood	6:1	5:1	6:1	8:1	7:1
Hurricane Surge	not applicable	7:1	not applicable	not applicable	not applicable
Wind	10:1	5:1	6:1	7:1	5:1
Earthquake	12:1	4:1	13:1	3:1	3:1
Wildland-Urban Interface Fire	not applicable	4:1	2:1	not applicable	3:1

TABLE 1. Nationwide average benefit-cost ratio by hazard and mitigation measure. BCRs can vary geographically and can be much higher in some places. Find more details in the report.

https://www.nibs.org/files/pdfs/ms_v3_adopts_earthquake.pdf

Attachment 7 – Hillsboro Spur Concept

New railbed on existing right of way
Interim fuel delivery route
NOTE: Few rail accidents if any at Portland CEI Hub, with much higher traffic

New railbed on existing right of way
Interim fuel delivery route
NOTE: Few rail accidents if any at Portland CEI Hub, with much higher traffic

Attachment 8 – Policy Disarray

Until now FEMA has not acknowledged the inevitable Cascadia tectonic science.
Fox reports that the FEMA National Risk Index has not registered the Cascadia Disaster Theat.
It will be difficult to catch up if FEMA is defunded.

Due to the unique aspects of earthquake followed quickly by tsunami on the coast, the majority of 20,000 casualties are thought to be tsunami deaths rather than injuries. See Wang 2021, OEM 2024. Inland Multnomah County (2018) anticipates more injuries (20,000) than deaths (7,000).

WSPA opposes any state planning proposed in HB 3450, "Develop an energy storage transition plan for the critical energy infrastructure hub, stating it is theoretically unnecessary because nothing is going to happen to the CEI Hub for decades, no proof offered. See WSPA representative at 1 hr into testimony here.

Failing to plan is planning to fail. Hope is not a plan.

Attributed to Harrison Jones, pilot, flight instructor, writer