BEFORE OREGON HOUSE COMMITTEE ON CLIMATE, ENERGY AND ENVIRONMENT - HB 3247

Chair Representative John Lively
Vice-Chair Representative Mark Gamba
Vice-Chair Representative Bobby Levy
Members of the Committee

7 March 2025

Surviving Cascadia Entails Building-Out Durable Energy Generation and Distribution Plus Contingency Fuel Infrastructure

Total Support. This Bill protects energy security by assuring reliable and dispatchable electricity since electricity is the first energy resort following an inevitable Cascadia tectonic event. Our polluting energy sources are threatened with certain seismic collapse, meaning that a transition from legacy to clean energy is inevitable whether planned or not. Planned is so much better. HB 3247 is a key asset in overall planning.

This testimony asserts that the burden of proof for ODOE is to justify NOT declaring a Washington County Cascadia Readiness Emergency.

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The legal language in this bill is significant and inadequate for securing reliable electricity given the Cascadia inevitability. The reason for the absence of a practical emergency transition plan to secure non-emitting energy when the Cascadia disaster is time-uncertain is simple. There is no funding strategy for such an emergency plan, noting of course that no emergency has been declared.

Section 2(b)(4) of the Bill calls for the commission to "bring a civil action and seek an injunction or other appropriate relief" to enact the terms of the Bill. The administrative constraint requiring states to attain a balanced budget annually is unachievable since

1. The Transition Plan is complex, requiring a build-out of emergency contingency carbon fuels infrastructure while also simultaneously building out non-emitting energy resources long term,
2. There is no strategy to obtain Federal mandatory (dictated by prior law) Oregon funding that Ways and Means can invoke, causing a predictable demise in committee.

There is ample reason to believe that the cost of implementing an Oregon Emergency Energy Transition Plan is enough to break the budget for a decade. The Oregon AG will need to sue the US Government similar to ***Juliana, et al. v. United States of America,*** to obtain emergency Federal relief from an inevitable inescapable pending natural disaster.

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The extent of the Cascadia megathrust threat is not widely recognized, nor is the math characterizing the jeopardy faced by Oregonians, based on sound research that discovered west coast history only relatively recently. This testimony offers a perspective for hurry-up preparatory action well ahead of OEM's first response planning.

Recently it was disclosed that the National Risk Index does not acknowledge Oregon's Cascadia megathrust risk. Here is the infrastructure jeopardy Considered just in our First Congressional District::

- Extensive M8 or M9 seismic damage to coastal and inland infrastructure
- Followed by up to 100 ft tsunami inundation at Astoria and all coastal communities to the south, less than 30 min after the quake subsides
- Seagoing fuel tankers destined for Columbia ports will be blocked by Astoria Bridge debris
- The CEI Hub with 500 tanks on unstable Willamette shoreline soils is expected to fail
- This is an inescapable future, not a worst-case scenario

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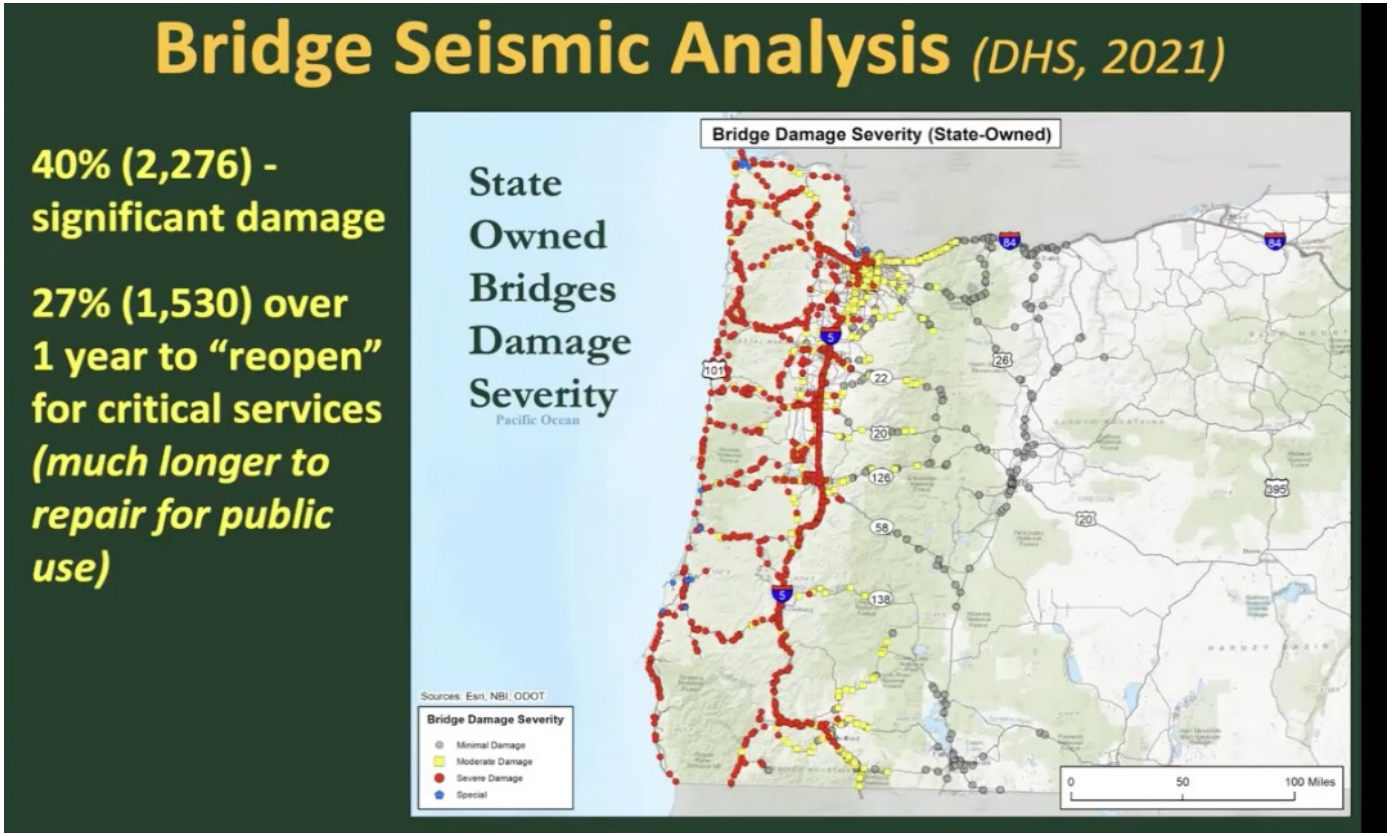
DHS CISA has predicted the coastal conditions and consequences for Washington County highway bridge and overpass damage.

Argonne National Lab (CISA), Modeled 9.0



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

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No one is arguing that Washington County is not THE most threatened in Oregon for fuel insecurity.

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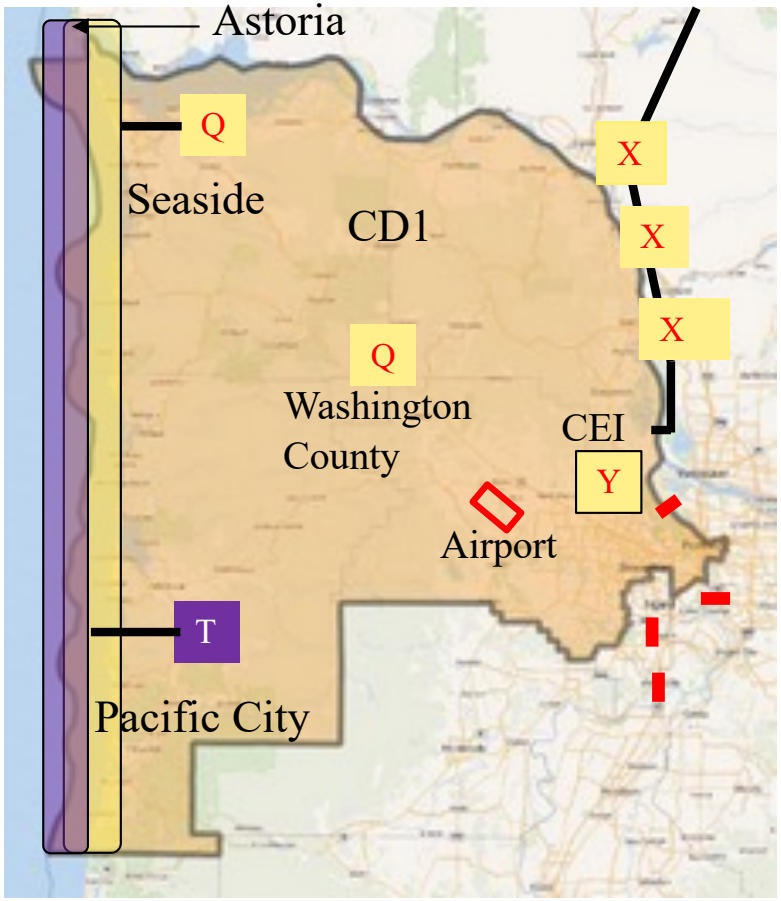
First Congressional District on Seismic Day Zero – and all at the same time



- Failed rail bridges preclude fuel delivery

X Olympic Pipeline failure
- Strands Oregon

Y CEI Hub collapse
- Ends tanker truck logistics to CD1

Q Quake collapse
- Closes Columbia at Astoria Bridge
- Damages coastal infrastructure
- Extensive coastal road/bridge loss
- Extensive utility damage
- Damages Wash Co infrastructure
- Damages bridges, maybe utilities

T Tsunami
- Re-damages coastal infrastructure
- More coastal road/bridge loss
- More utility loss

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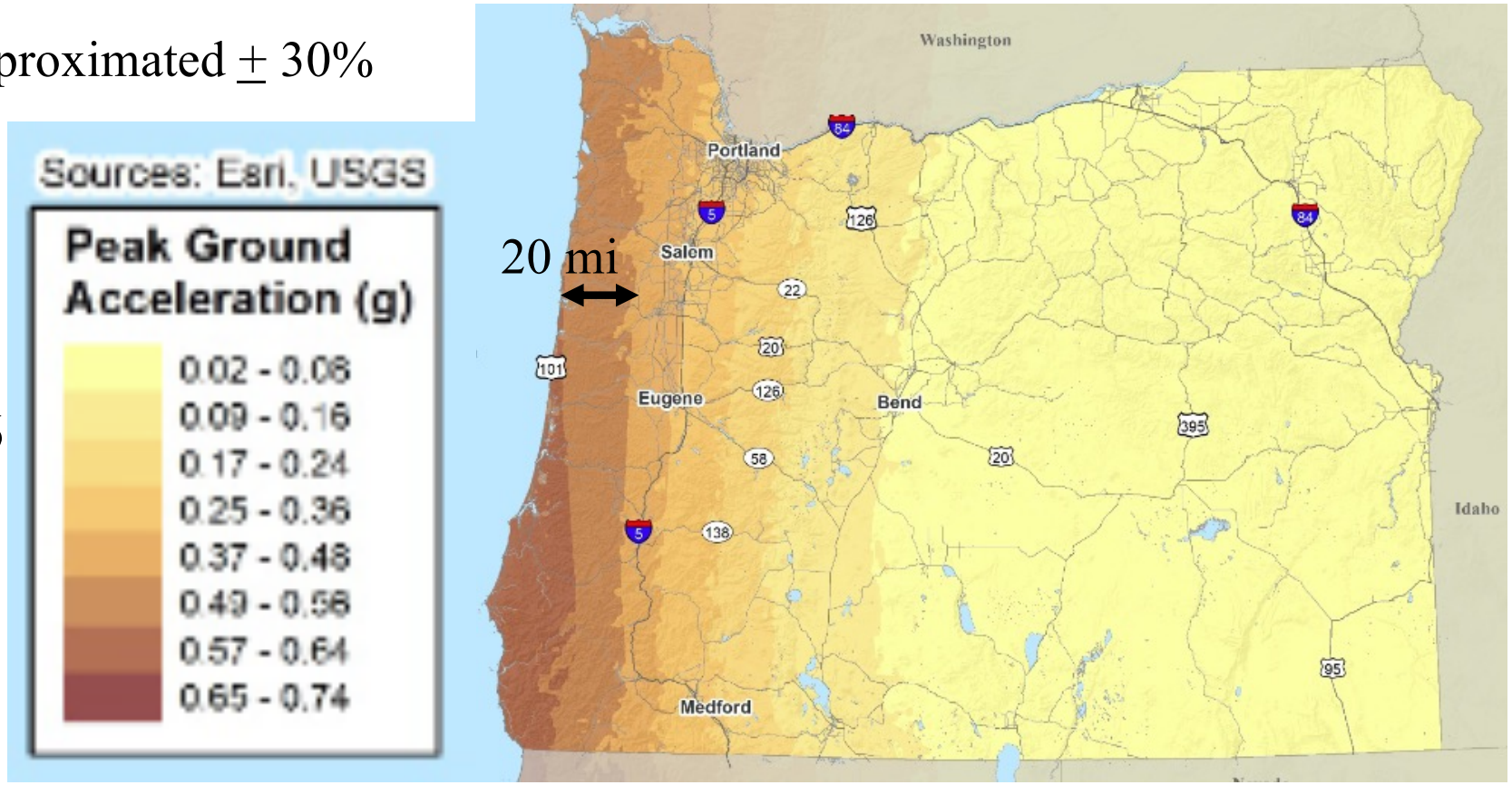
Peak Ground Acceleration (horizontal motion) for M9, with estimate shading for M8 (Wikipedia PGA)

Approximated ± 30%



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

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Shortest Seismic Risk Management Primer in the Free World

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 inland up to 20 mi from beaches, for either M8 or M9 events.

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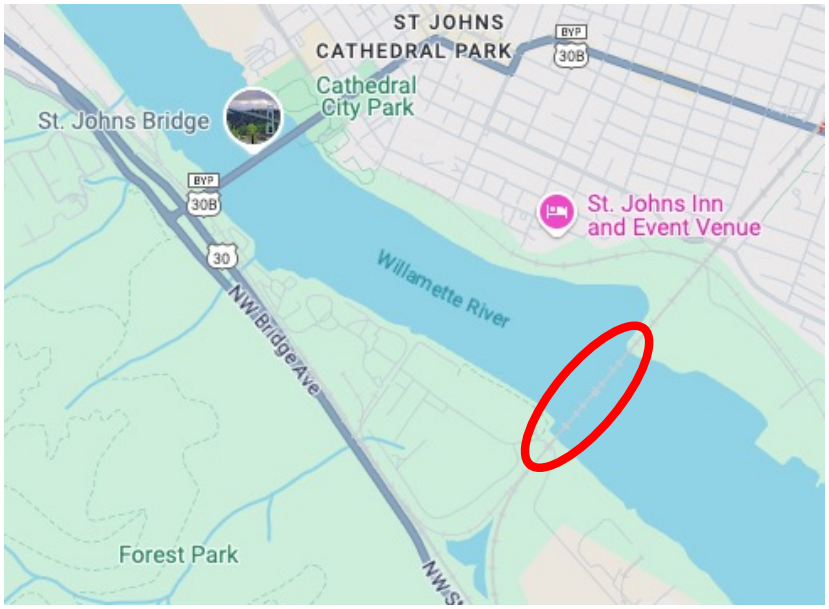
BNSF Railway Bridge 5.1



Silver spans - 1908
Weathered rust – 1989
Cascadia threat discovered 2010
What are the retrofits?

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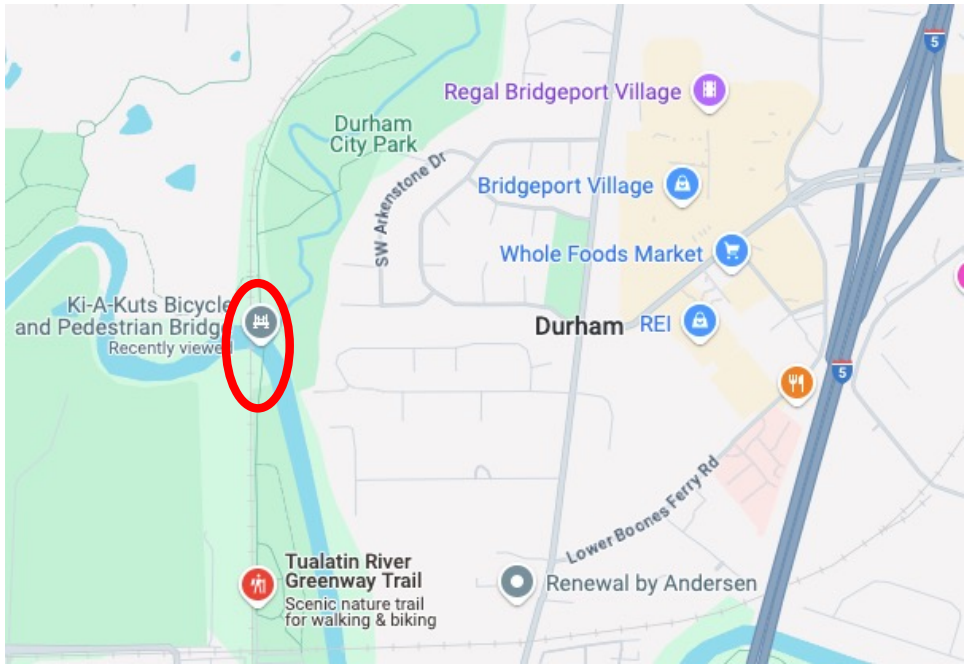
Tualatin Railroad Bridge – Milepost 35.3



Prior to 1968

Garden Home to Wilsonville Bridge

- Tualatin River

Cascadia threat discovered 2010

What are the retrofits?

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Willamette Rail Bridge - Wilsonville

1975
Portland and Western Railroad
Cascadia threat discovered 2010
What are the retrofits?

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Oak Grove – Lake Oswego Railroad Bridge

1910
Portland and Western Railroad
Cascadia threat discovered 2010
What are the retrofits?

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There are two general math choices for evaluating the likelihood of a Cascadia M8 arriving soon (there's no escaping it).

1. Expect 37% in the next 50 years, from 2012. Not updated in 2024. Thus, the risk is not less than 37% today, as tectonic stress accumulates. This is taken from the USGS Paleoseismicity report in 2012 (it also has 16 other 50-year percent choices, with no preferred math conclusions offered – find an essay on this here)

1. Expect 50% in 1946, because this is from the average repeat interval of 246 years known from the raw data tables the USGS Paleoseismicity report, added to the last M9 event in 1700. The risk is significantly higher today with no tectonic stress relief theorized since 1700.

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Oregon Department of Energy Report 5 years ago:

Fuel supply for first responder and repair equipment replenishment will fail. We know from the 2017 Oregon Fuel Action Plan that Oregon will need an alternate source for petroleum distribution.

From p5, "… the Olympic Pipeline that transports the majority of gasoline, diesel, and jet fuel to Oregon is projected to suffer as many as 250 breaks and 82 leaks."

This pipeline transits 9 Washington counties, each with their own post-Cascadia fuel-supply repair triage priorities, likely set my their Military Department, when fuel itself is scarce.

Oregon can establish rail depots in CD2 to supply the stranded CD1 and CD4 coastal communities

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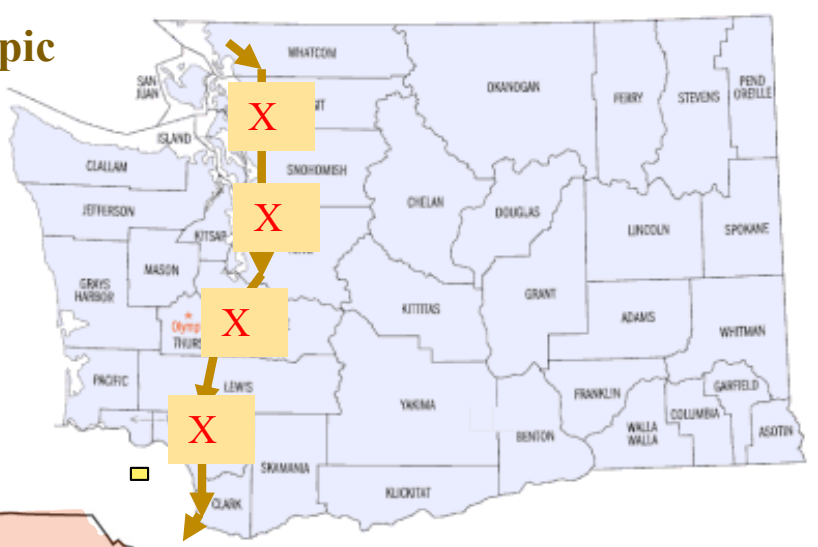
Cascadia # 40 in 1700

BP Olympic Pipeline

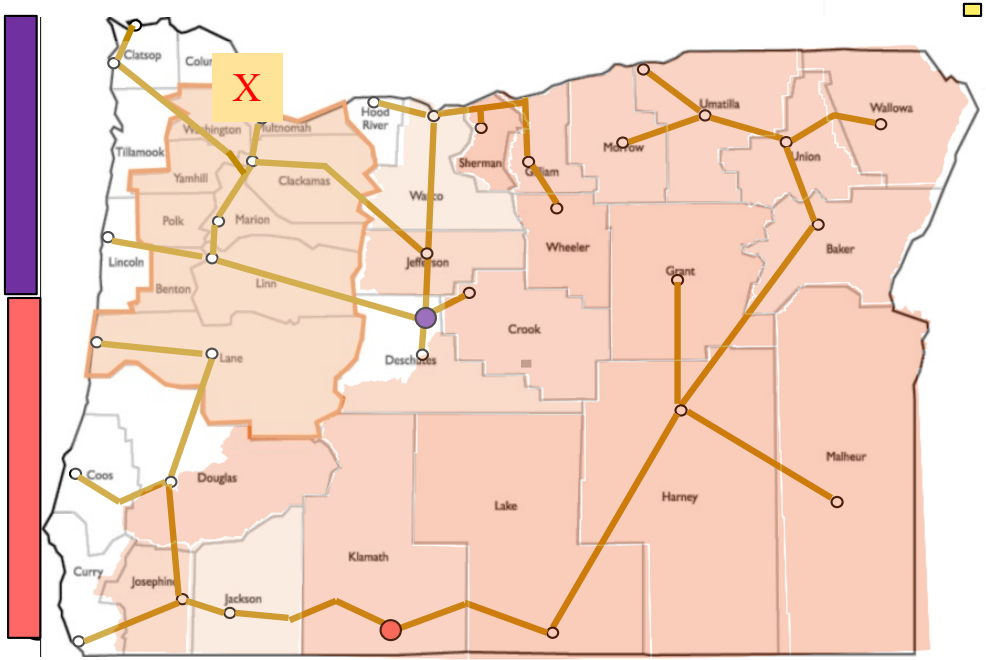


Cascadia # 41 in ?

Average return interval = 246 years

Chance of return in 1946 = 50%

Truck deliveries from CD 2 and CD 5



New Oregon Fuel Distribution Depots

- **Redmond (CD 5)**
- **Klamath Falls (CD 2)**

Delivered by rail from Montana, Utah, California

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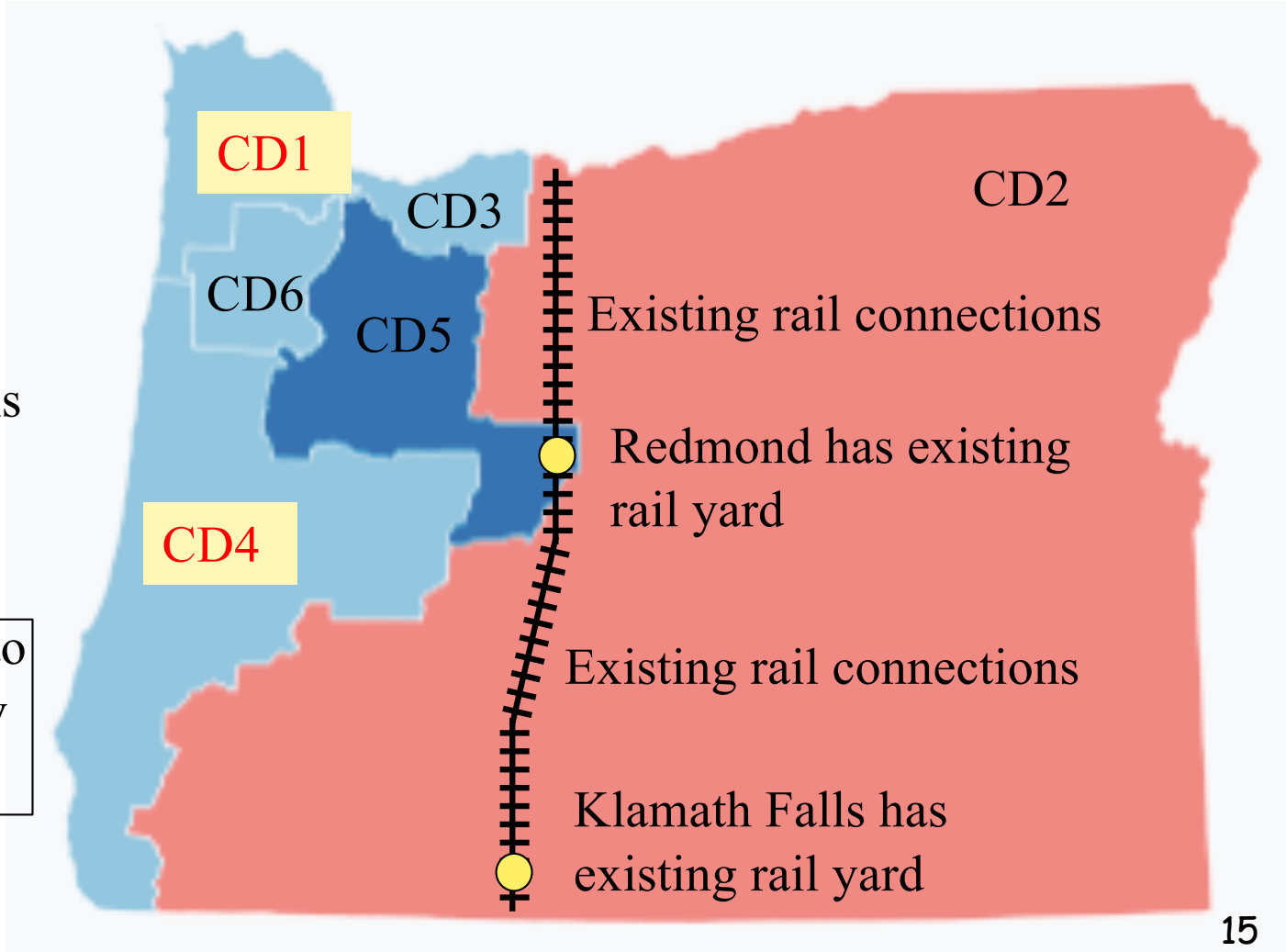
CD2 and CD5 act to save CD1 and CD4 coastal communities

- Build out fuel depots from existing rail yards
- CD2 is key
- Will serve all inland users
- Rail connections to refineries in CA, UT, MT

Can avoid default to military emergency on Day 1



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Redmond - CD5

Three tracks

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Klamath Falls – CD2

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Barriers we know of:

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FEMA does not acknowledge Cascadia seismic threat … if we have a FEMA DHS and CISA have researched and characterized the seismic threat,

- But have not provided recent findings from the Washington State Fuels Regional Redundancy Assessment Program (RRAP) that we know are dire. Strawman findings planned for January 2024 seem to be impounded.
- Funding for the Oregon infrastructure mitigation depots will not happen without the highly credible WA Fuels RRAP update

DHS/CISA can be defunded under directed Federal funding cuts.
Our CD2 Congressman will consider the cost of the infrastructure mitigation depots for Oregon while factoring the directed Federal spending cuts. Then what…….

The Cascadia megathrust wild card could happen tomorrow, or in the middle of transitioning to the new depots, or after the Oregon energy grids are ready

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Model for "Day 1 Plan to Assure Cascadia Survival in Washington County"

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1. Build new rail depots in CD2 to distribute fuel to Washington County by tanker truck.
   A. Employ tankers that can defuel to commercial cars and trucks directly
   B. Design safe routes avoiding hazards (US 26 tunnel in Portland)
   C. Establish a reserve of qualified drivers available for Day 1
2. Build-out durable electric energy generation well ahead of expected base load growth
3. Deploy electric drive fleets for Day 1 emergency and repair vehicles ASAP
   A. Survey electric utility grid to Washington County and fix to survive Day 0
4. Build a fuels depot at Hillsboro Airport and secure resupply logistics by rail
5. Prepare advance contracts for fuel deliveries to engage on Day 1
   A. Rail to depot
   B. Offload to tanker and deliver to Washington County
6. Transition to 50% capability at depots by January 2030 at latest
   1. Start reduction CEI stored commodities by January 2027 at latest
   2. Depots at 100% by 2032 at latest

Our correspondence with Washington County Commissioners

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Possible outcomes without a CD1/Washington County plan

Profound disruption to Oregon economy, civic order, with political recrimination

Example "California could have just turned on that valve"

With enough civil disruption, martial law

Military deprived of local fuel access, the same time the responsibility for multi-state emergency management defaults to military

Very bad stories about why disabled patients did not survive Rita-Katrina in New Orleans

Might extend inward from Coast for considerable distances, if stark fuel shortages occur for months

Infrastructure rebuild costs after-the-fact are 10x the early mitigation costs

CD1: The 3,000 sq mi of sacrifice zone for disaster capital

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Alternate Fuel Sources to Oregon

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Priority for Salem Ways and Means

- 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

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Concept for an Oregon Emergency Energy Security Transition Plan

Plan Authorship	Oregon Department of Energy	Maxwell Woods
	Chapter 1 Cascadia Ready Energy Security, Washington County	
Plan Legal	Oregon Public Utilities Commission	JP Batmale
Technical Officers	Oregon Department of Environmental Quality	Mike Kortenhof
		Kathryn Harrington
Science Consultant	Oregon Department of Geology	Alex Lopez
Project Schedules	Oregon Oregon Department of Transportation	
Governor Liaison	House Committee on Emergency Management	Rep Dacia Grayber

NOTE: Anyone not edgy about getting this right does not understand the problem.

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Chapter 1 Cascadia Ready Energy Security, Washington County

1.1 Securing access to existing Federal infrastructure funding for simultaneous start of Washington County Cascadia Emergency planning and essential infrastructure projects
1.2 Securing electricity reliability
1.3 Securing reliable fuel access by rail
1.4 Securing reliable fuel access by tanker truck logistics
1.5 Securing air sorties to coast for relief and infrastructure repair
    1.5.1Prioritize coastal charging stations for first responders
1.6 Securing inland charging infrastructure for county drivers and Max rail
1.7 Securing access to reliable water infrastructure

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Better Energy LLC is a STEM NGO that researches better energy options, originally concerned with renewable energy technology but discovered the Cascadia threat more imminent as risk to economy and society than uninterrupted climate pollution.

You get the same perspectives as from Marsh McLennan, but without the 90,000 staff and we don't invoice for our work conducted in the public interest. Our answers can be validated by ample reference links to open-source data without the pesky delays imposed by the funding scrambles that just compound the risk.

Marsh McLennan reports to the US House Committee on Homeland Security with this testimony about working with FEMA, with ample attention to Alabama, Florida, South Carolina, Louisiana. No mention of Oregon.

Respectfully, Tracy Farwell, HD-46, Sustainability Desk, Better Energy LLC