March 27, 2023

TO: Tobias Read, Oregon State Treasurer, oregon.treasurer@ost.state.or.us

Michelle Kirby, Chief Financial Officer, City of Portland
michelle.kirby@portlandoregon.gov

SUBJECT: Is Portland Ready for a Cascadia Subduction Event?

We know from best available science that an historically precedented M8/M9 subduction earthquake is overdue on the West Coast and this event broadly threatens civic infrastructure, including Portland's fuel distribution hub that serves 90% of Oregon's transportation system. The seismic collapse of this Critical Energy Infrastructure Hub is not in question.

Portland Bureau of Development Services (BDS) has levied foundation structural codes on all development for the South Waterfront, while none are applied to the North Waterfront fuel distribution infrastructure.

The Democratic Party of Multnomah County wishes to ensure that critical infrastructure is prepared for this inescapable event. We believe that economic principles employed in 2007 and 2023, namely financial institution stress testing, offer the first step to enable investment in seismic resilience. In the following pages we propose an infrastructure stress test to be conducted in parallel with the DEQ Seismic Stability effort currently managed under 2022 SB 1567, although this bill assumes a 50-year seismic plan that we find to be not sufficiently responsive.

Our approach is based on an alternative study of M8/M9 event intervals that reveals the trend toward an overdue event, given the known intervals in the record. Easily verifiable references are available for every response we offer as part of our stress test concept.

We conclude that actions responding to SB 1567 are necessary but not sufficient. During the lead time needed to retrofit structures and foundations, changes to operations must be considered, such as lower operating volumes and berms that match these volumes.

Congress has established historic infrastructure bills that can be called upon to supply the urgent investments needed for Hub resilience and which are briefly summarized in the Attachments. We are not aware of any efforts thus far to access these resources for ruggedizing the Portland CEI Hub.

Your attention to this important economic and public safety issue is most appreciated.

County Platform Chair, Roberta Yambasu
County Infrastructure Study Group, Sam Kahl
Hub Research, Prof. Martin Mendelson
Hub Research, Dr. Ethan A. Scarl
Hub Research, Tracy Farwell

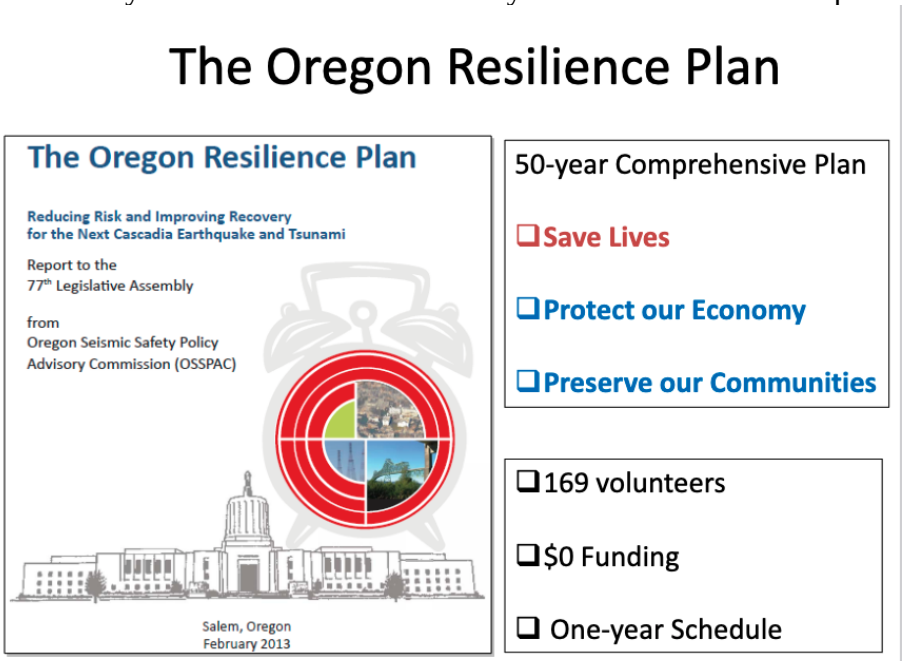
© 2023 Multnomah Democrats

March 27, 2023

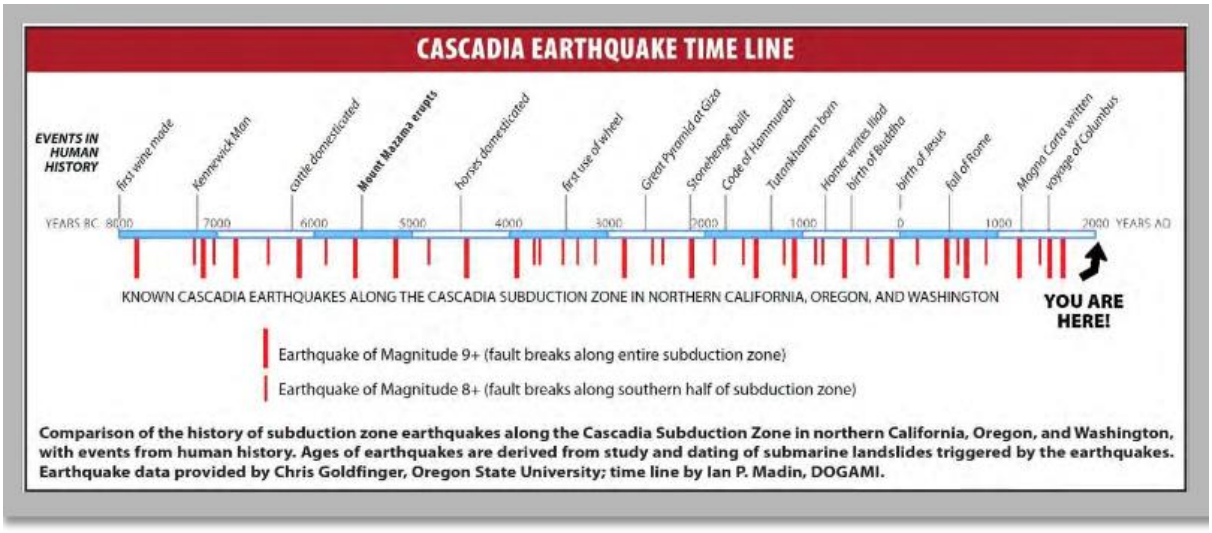
Peoposed Multnomah County Seismic Stress Test

The Fifty-Year Problem

Ever since OSU and Oregon's Department of Geology revealed the West Coast history of catastrophic subduction earthquakes, the story to the public was that the likelihood of such an event today is about 20% in the next 50 years. The USGS never questioned this.



The actual history has been depicted by the Oregon Department of Geology



This timeline compares the 10,000-year-long history of Cascadia earthquakes to events in human history.

Nothing has happened since 1700. Are there many extended intervals like this in our history?

© 2023 Multnomah Democrats

March 27, 2023

Like With the US Banking Crisis in 2008 and 2023, We Can Suggest a Seismic Stress Test
This can take the form of a series of questions.

Q1 Our current interval since 1700 is "2022 – 1700 = 322 years." Is this a typical interval?
A1. No. It is way long, considering our 10,000-year historical record.

Q2 Looking at the recurrence interval history in the last 10,000 years, how many have we used up since 1700?
A2. We have already exceeded 83% of known intervals, and in 2030 it will be 85%.
Our simple study of intervals: Alternative Analysis of Seismic Intervals

Q3 Does the 50-year probability number accurately represent the pending overdue geologic event?
A3. No, because it is a calculation based on average intervals, and ignores the fact that tectonic stress builds up during quiet times. The alternative calculation of interval exceedance in the A2 response does implicitly account for stress buildup.

Q4 How can we know if we are ready for the inevitable?
The Department of Geology found deficiencies in the structural readiness of the Critical Energy Infrastructure (CEI) Hub infrastructure as reported to the public in 2012. Is there any indication that any known deficiencies have been corrected in the last 10 years?
A4. No. Except that the Bonneville Power Administration has been steadily retrofitting power stations since then. A formal audit of Hub operator actions since 2012 is of course needed and is itself overdue. (SB 1567 does not call for this audit)

Q5 Is Portland at risk due to misjudged calculations of next quake likelihood?
A5. Yes. The recent bill passed by Salem (2022 SB 1567) assumes a 50-year plan as being adequate. We will know in late 2024 if the Hub operators think the risk of a quake-induced Hub collapse is an acceptable risk to Portland public safety and whether Oregon economic instability is acceptable to them.

Q6 Has Portland voted to accept this risk?
A6. No. This has never been on a ballot. Portland Bureaus have historically accepted this public risk even after the seismic risk became known and was added to the floodplain risk.

Q7 Considering Risk/Reward, what benefits accrue to Portland from seemingly accepting this risk?
A7. None. This assumed answer needs a BDS response to the public in the very short term. Commissioner Ryan surprisingly accepted fuel handling risk on behalf of Portland residents, businesses and the Port of Portland without exacting any public safety commitments from the benefitting Hub operators.

© 2023 Multnomah Democrats

Q8 Does this exposure of public safety, environmental safety, and the threats to under-represented populations plus to the state GDP also pose a threat to national interests?
A8. Yes. Since Portland is not funding any Hub safety seismic retrofits, and will never be able to carry the $6B - $10B debt that was incurred from the 1989 Loma Prieta disaster in San Francisco, Oregon catastrophic damage will call for federal relief. This will add to the national deficit, which drives economic inflation while deflating infrastructure value in Oregon.

Q9 What will the Portland civic bond rating look like after failing to prepare for the pending subduction event becomes evident?
A9. Not the current AAA rating.

Q10 Are there any resources made available by Congress that can be called upon to fund quake-readiness investments to limit the existential threats to public safety, the Oregon economy and the national deficit if accessed in a timely manner?
A10, Yes. The DeFazio IIJA and Wyden IRA bills. See the Attachments.

Q11 Is there any sign of urgency in the public record indicating City or County action to retrofit the CEI Hub for quake disaster readiness?
A11. Yes. PBEM-11 is on the books, but assumes the Hub operators will self-finance all necessary funding to alleviate the risks they perceive Portland should accept, with the rest carried by Oregon and federal taxpayers.

Q12 What does PBEM-11 state?
A12..”Work with industry and elected leaders to accomplish seismic retrofits of tanks, pipelines, and soil in the CEI hub. Ensure that potential costs for fuel clean-up and remediation after a seismic event or other significant spill are addressed by owner-operators and not by the public. Limit expansion of the CEI Hub.”

Q13 Is there any scientific evidence that a catastrophic event will not occur next week or next month?
A13. No.

Q14 Will Portland pass a subduction event readiness stress test?
A14. No.

Q15 Will Portland and Oregon treat citizen science with hostility?
A15. It’s possible. Governor Brown proposed to eliminate the budget for the Oregon Department of Geology in 2020. Governor Kotek proposed eliminating the role of the Oregon Resilience Office in 2023. Although these actions were eventually reversed, our State Resilience Office still is currently vacant. Current Resilience planning is ad hoc.

,
ATTACHMENTS

© 2023 Multnomah Democrats

March 27, 2023

Attachment A Infrastructure Investment and Jobs Act (IIJA)

Infrastructure Investment and Jobs Act

Among other provisions, this bill provides new funding for infrastructure projects, including for

- roads, bridges, and major projects;
- passenger and freight rail;
- highway and pedestrian safety;
- public transit;
- broadband;
- ports and waterways;
- airports;
- water infrastructure;
- power and grid reliability and resiliency;
- resiliency, including funding for coastal resiliency, ecosystem restoration, and weatherization;
- clean school buses and ferries;
- electric vehicle charging;
- addressing legacy pollution by cleaning up Brownfield and Superfund sites and reclaiming abandoned mines; and
- Western Water Infrastructure.

DeFazio Infrastructure Investment and Jobs Act

Attachment B Inflation Reduction Act

Reduces reliance on carbon-emitting fuels.

7 February 2023

The Inflation Reduction Act

Cutting Consumer Energy Bills and Emissions at the Same Time

This historic legislation will:

- Save American households up to $1,000 on their energy bills per year.
- Put the U.S. on track to reduce emissions by 40 percent in 8 years.
- Create an estimated 9 million good-paying American jobs.

Ways to Save:

The Residential Clean Energy Credit (Section 25D): The Inflation Reduction Act expands an existing tax credit allowing consumers to claim a credit for up to 30 percent of the costs of residential energy efficient property, such as the installation of solar. The credit is retroactive to the beginning of 2022.

© 2023 Multnomah Democrats

How much you can save:
The credit is for up to 30 percent of project costs and can be claimed in the year that the project is finished.

Qualifying Projects: Clean energy projects eligible for the credit include solar electric projects, solar water heating projects, fuel cell projects, small wind energy projects, geothermal heat pump projects, biomass fuel projects, and battery storage (beginning in 2023).

Click HERE for further details on how you can qualify.

The Energy Efficient Home Improvement Credit (Section 25C): The Inflation Reduction Act allows consumers to claim a credit for up to 30 percent of the cost of qualified energy efficiency improvements and expands the credit to cover home energy audits and certain electric panel upgrades. The expanded credit is available beginning in 2023.

How much you can save:
The credit has a total annual cap up to $1,200 per year, except heat pumps, heat pump water heaters, and biomass stoves (cap up to $2,000).

Qualifying Improvements: The credit applies to heat pumps, energy-efficient windows, energy-efficient exterior doors, insulation, and upgrading breaker boxes to accommodate additional electric load. Certain improvements must meet applicable Energy Star requirements. Roofing and air circulating fans will no longer qualify for the credit. The upgrade costs for appliances include equipment, installation, and labor costs.

The Clean Vehicle Credit (Section 30D and 25E): Consumer tax credit for up to $7,500 for individuals to buy new clean vehicles (Sec. 30D) and up to $4,000 to buy used clean vehicles (Sec. 25E).

The exact amount a consumer will receive for a particular vehicle varies based on various criteria.

- The Treasury Department will issue rules clarifying how much of a credit consumers can receive for particular electric vehicles purchased. Additional guidance relating to new battery content and critical mineral content criteria is expected in March 2023. In the interim period, these requirements are not yet in effect.
- As of January 1, 2023, the below income and MSRP limits are in effect.

How much you can save: The credit is limited to individuals with annual adjusted gross income below:

© 2023 Multnomah Democrats

- New Cars: $300,000 for joint filers, $225,000 for head-of-household filers, $150,000 for single filers;
- Used Cars: $150,000 for joint filers, $112,500 for heads of household, and $75,000 for single filers.

Qualifying Vehicles:

- New Vehicles: Individuals with a contract to purchase an electric vehicle signed prior to August 16, 2022 and who received the vehicle by the end of 2022 may claim a credit based on the rules that were in effect prior to enactment of the Inflation Reduction Act.
- Starting in 2023, the new vehicle credit is limited to sedans with a manufacturer's suggested retail price (MSRP) of up to $55,000 and trucks and SUVs with an MSRP of $80,000 or less.
- Used Vehicles: The credit can be used for clean non-commercial vehicles sold for $25,000 or less and of a model older than two years, including electric vehicles and plug-in hybrids.

EV owners can save thousands in operating and maintenance costs each year compared to gas vehicle owners.

Click HERE for the list of vehicles that may currently be eligible through December 31, 2022.

Click HERE for further details on the credit.

The High Efficiency Electric Home Rebate (HEEHRA): The Inflation Reduction Act provides $4.5 billion in direct rebates-discount deducted during purchase-beginning in 2023 for low- and moderate-income consumers who install new, efficient electric appliances.

How much you can save:

- Low-income households are eligible for 100 percent of electrification project costs up to $14,000.
- Moderate-income households are eligible for 50 percent of costs up to $14,000.
- The program extends rebates to multifamily buildings in which at least 50 percent of residents are low- or moderate-income.

Qualifying Appliances: The program covers heat pump HVAC systems, heat pump water heaters, electric stoves and cooktops, heat pump clothes dryers, and enabling measures such as upgrading circuit panels, insulation, air sealing, ventilation, and wiring. Project costs cover both purchase and installation costs.

© 2023 Multnomah Democrats

March 27, 2023

Click HERE for area median income lookup tool to see what your income limit is.

The Home Owner Managing Energy Savings (HOMES) Rebate Program: The Inflation Reduction Act provides rebates-discount deducted during purchase-beginning in 2023 for homeowners who retrofit with efficiency upgrades.

How much you can save:

- Low- and moderate-income homeowners may claim up to $4,000 of the project cost for energy savings of at least 20 percent or up to $8,000 for energy savings of at least 35 percent.
- Other homeowners may claim up to $2,000 per multifamily building with energy savings of at least 20 percent or up to $4,000 per multifamily building with energy savings of at least 35 percent.
- The program extends rebates to multifamily buildings in which at least 50 percent of residents are low- or moderate-income.

Qualifying Upgrades: The projects eligible for the rebate are based on actual energy performance savings. The rebate includes costs associated with work performed and the equipment needed to install upgrades, such as insulation or HVAC installations.

Consumers can save more than $1,000 per year by taking advantage of these energy efficiency incentives.

Click HERE to calculate how much you could save.

Click HERE to sign up for updates and to find out which programs are available to you.

Sincerely,

© 2023 Multnomah Democrats