

**CLACKAMAS COUNTY BOARD OF COUNTY COMMISSIONERS**  
**Policy Session Worksheet**

**Presentation Date:** Jan. 14, 2020 **Approx. Start Time:** 11:00 AM **Approx. Length:** 30 minutes

**Presentation Title:** Oregon’s Critical Energy Infrastructure (CEI) Hub Seismic Risk Update

**Department:** Department of Disaster Management

**Presenter:** Jay Wilson

**WHAT ACTION ARE YOU REQUESTING FROM THE BOARD?**

Staff will provide an informational presentation as requested by Chair Jim Bernard.

**EXECUTIVE SUMMARY:**

Since 2013 the CEI Hub has been characterized as Oregon’s Achilles Heel because over 90% of the state’s liquid fuel is stored in a severe seismic hazard zone along 6 miles of the lower Willamette River in Portland. Many of these storage tanks are over 50 years old and have no seismic design standards. Though the CEI Hub is located in Multnomah County, a failure of the tanks in a major earthquake would disrupt Oregon’s immediate fuel reserves and cause one of the worst oil spills in U.S. history with little to no response, which will directly affect Clackamas County’s commerce and environment.

Using resilience as a guide, reducing this seismic risk problem through less oil dependence and facility improvements can also become a pathway to meeting long-term 2050 climate adaptation goals, while also helping to prevent an avoidable environmental catastrophe and the disruption to the Columbia River’s shipping-dependent economy. These steps will also enhance post-disaster recovery capacity.

A longer version of this presentation was the discussion framework for the closing Plenary Session at the 2019 Oregon Emergency Management Association Conference and subsequently has been delivered to the Policy Committee for the Regional Disaster Preparedness Organization (RDPO) and the Portland Disaster Policy Committee.

**FINANCIAL IMPLICATIONS (current year and ongoing):**

Is this item in your current budget?       YES       NO

What is the cost?    \$      N/A                              What is the funding source?      N/A

**STRATEGIC PLAN ALIGNMENT:**

The overarching aims of this presentation align with the all five of Performance Clackamas goals:

- Encouraging safe, healthy and secure communities through coordinated seismic and climate policies to address a complex problem;

- Honoring our natural resources, like the Willamette and Columbia Rivers, by avoiding a catastrophic oil spill;
- Building a strong infrastructure by mitigating, replacing, or relocating vulnerable facilities;
- Capitalizing on renewable and smart technologies to grow a vibrant economy; and
- Demonstrating good government risk reduction, economic visioning and environmental stewardship to build public trust.

**LEGAL/POLICY REQUIREMENTS:**

N/A

**PUBLIC/GOVERNMENTAL PARTICIPATION:**

Informing the Board of seismic and climate policy considerations of state-wide impact that are being reviewed by regional jurisdictions: City of Portland, Multnomah County, and Metro.

**OPTIONS:**

N/A

**RECOMMENDATION:**

N/A

**ATTACHMENTS:**

- Web link for 2-minute video introduction:
  - <https://srpntn.com/2019/10/21/cei-hub-google-earth-flyover/>
- Slides in pdf

**SUBMITTED BY:**

Division Director/Head Approval \_\_\_\_\_  
Department Director/Head Approval *Janey Benson*  
County Administrator Approval \_\_\_\_\_

For information on this issue or copies of attachments, please contact Jay Wilson @ 503-723-4848

# **Oregon's Critical Energy Infrastructure (CEI) Hub**

## **Finding the Nexus Between Seismic Risk Policy and Climate Change Policies**

Clackamas County Board of Commissioners

January 14, 2020

**Jay Wilson, Resilience Coordinator**  
Clackamas County Disaster Management



# Finding the Nexus Between Seismic Risk & Climate Change Adaptation: Oregon's Critical Energy Infrastructure (CEI) Hub

**Seismic  
Policy**



**Climate  
Policy**

Jay Wilson, Resilience Coordinator - Clackamas County Disaster Management

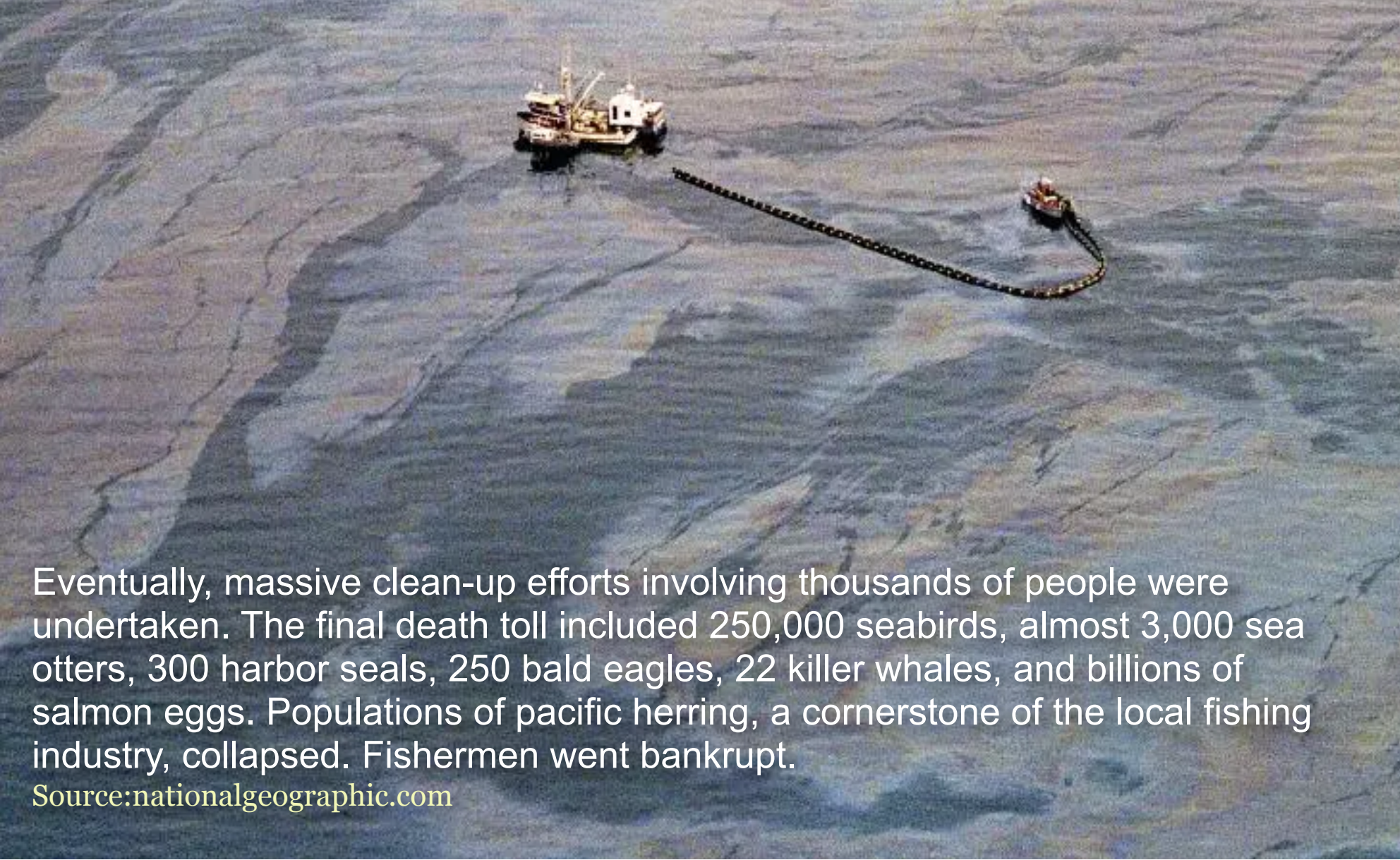
# 30 Year Anniversary - Loma Prieta Earthquake

## October 17, 1989



# 30 Year Anniversary of the Exxon Valdez Spill

## 10.8 million gallons of crude oil - March 24, 1989



Eventually, massive clean-up efforts involving thousands of people were undertaken. The final death toll included 250,000 seabirds, almost 3,000 sea otters, 300 harbor seals, 250 bald eagles, 22 killer whales, and billions of salmon eggs. Populations of pacific herring, a cornerstone of the local fishing industry, collapsed. Fishermen went bankrupt.

Source:[nationalgeographic.com](http://nationalgeographic.com)



# 30 Years from Now – 2050?



## Controversial cap & trade bill heads to Oregon House

Updated Jun 12, 2019; Posted Jun 12, 2019



AP

FILE - In this July 1, 2013 file photo, smoke rises from the Colstrip Steam Electric Station, a coal power plant in Colstrip, Montana. The plant's operator said Tuesday, June 11, 2019, that it plans to shut down two of the plant's four units about 2 ½ years early, citing costs and the unwillingness of a coal supplier to lower

HB 2020 - Reduction of greenhouse gas emissions to **80 percent below 1990 levels by 2050.**



Home > Articles > Biofuel > Oregon Enacts New Renewable Natural Gas Law

Articles Biofuel Policy & Regulations

## Oregon Enacts New Renewable Natural Gas Law

Posted by Betsy Lillian - September 23, 2019



Gov. Kate Brown, D-Ore., recently gathered with NW Natural and other renewable natural gas (RNG) stakeholders to ceremoniously sign a bill that will allow Oregon utilities to acquire RNG on behalf of their customers.

NW Natural, a subsidiary of NW Natural Holding Co. and a natural gas service provider in Oregon and southwest Washington, worked with

legislators to propose S.B.98 to create the path for RNG to become an increasing part of Oregon's energy supply.

Allows utility investment in the inter-connection of RNG production; supports targets of 15% by 2030, 20% by 2035 and **80 percent by 2050;**

Visioning . . .

30 Years from Now – 2050?



Electric Buses



Electric and Plug-in Hybrid Automobiles



Electric Bicycles and Scooters



Electric Vans, Trucks and Delivery Vehicles



# 30 Years from Now – 2050?

## 2017 CITY OF PORTLAND ELECTRIC VEHICLE STRATEGY



City of Portland  
The City That Works  
Call 823-4000  
Planning & Sustainability  
Vehicle No. 111027

Portland's Climate Action Plan provides a road map to reduce carbon emissions 40 percent by 2030 and **80 percent by 2050**.

Land use planning, transportation policies and investments are among the most important strategies to address climate change.

POPULATION AND JOBS UP / EMISSIONS DOWN

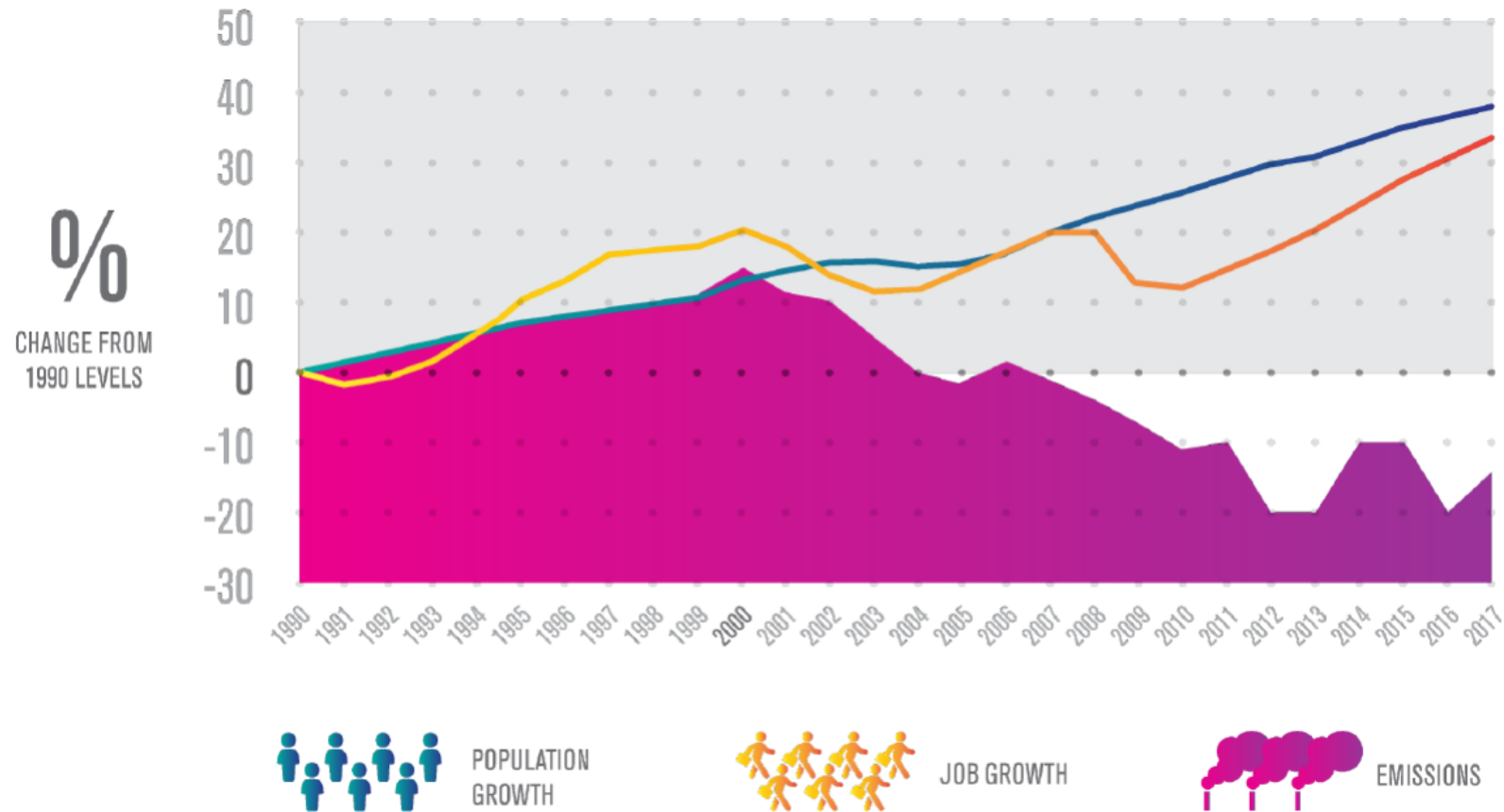


Figure 1: Emissions continue to decline from their peak in 2000, despite significant population growth and increase in jobs. Portland has maintained the decoupling of emissions from growth. However, reductions have reached a plateau in recent years.

# Climate Change Student Walkout Protest Portland - Sept 20, 2019



2020 is the 50th Anniversary of Earth Day

# Now - Oregon Resilience 2025

KGW8

WATCH LIVE  
On Air 2:55PM

Gov. Brown releases new earthquake plan



LOCAL

## Gov. Brown unveils earthquake survival plan

Brown released her plan, called Resiliency 2025.

Author: Christine Pitawanich, Keely Chalmers  
Published: 1:21 PM PDT October 16, 2018  
Updated: 6:35 PM PDT October 16, 2018

PORTLAND, Ore. — In Portland you'd be hard pressed to find someone who doesn't know about the possibility of the Cascadia Subduction Zone earthquake, also known as the "Big One."

"I have a kit in my basement. I think I've got 10 gallons of water, probably not enough," said Portlander Adam Clegg.

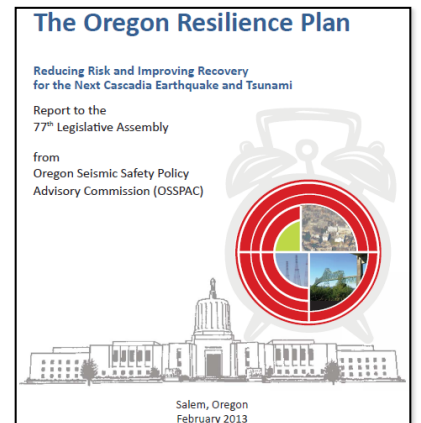
But at least he's doing something to prepare. That kind of thinking is exactly what Oregon Governor Kate

## Strategy 2 of 6

Develop a plan for the **Critical Energy Infrastructure Hub** to prevent and mitigate catastrophic failure and ensure fuel supplies and alternative energy resources are available to responders and the public.

OSSPAC to deliver report by end of 2019

2013 Oregon Resilience Plan  
50-Year Plan



# CEI Hub Natural Hazards

Liquefaction  
Shoreline

Portland Hills Fault

Landslides

Wildland  
Urban  
Interface

Populations  
HazMat  
Exposure

Image Landsat / Copernicus

Google Earth

# Risk - Over 500 Tanks with ~ 360 in Use

Numerous in-service large tanks built prior to 1930s  
Majority of fuel tank capacity built prior to 1970s

PBEM/PSU, May 2019

© 2018 Google  
Image Landsat / Copernicus

Google Earth

# Risk - 360 Million Gallons Storage Capacity

## Refined Petroleum

- Gasoline
- Diesel
- Aviation Fuel
- Jet Fuel
- Marine Fuel Oils
- Motor Oils
- Asphalt Oil
- Kerosene
- Naptha
- Fuel Additives

## Crude Oils

- Canadian Tar Sands
- Bakken

## Gases

- Butane
- Propane
- Liquefied Natural Gas

## Other

- Ethanol
- Green Oil/Bio Oil

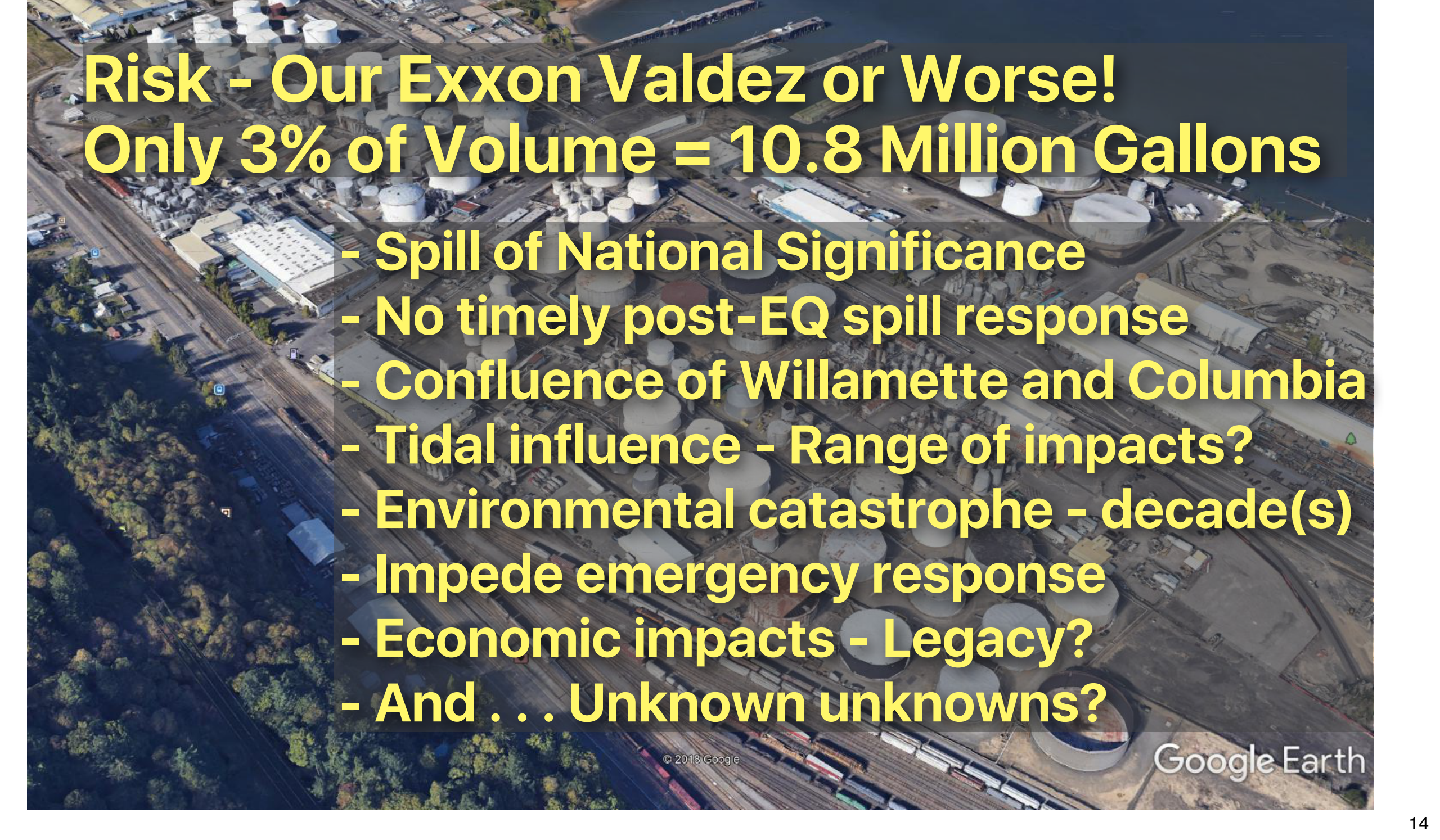
Also:

- Ammonia
- Chlorine



Source: EPA - Richard Franklin

Google Earth



# **Risk - Our Exxon Valdez or Worse!**

## **Only 3% of Volume = 10.8 Million Gallons**

- **Spill of National Significance**
- **No timely post-EQ spill response**
- **Confluence of Willamette and Columbia**
- **Tidal influence - Range of impacts?**
- **Environmental catastrophe - decade(s)**
- **Impede emergency response**
- **Economic impacts - Legacy?**
- **And ... Unknown unknowns?**



# The Unknown Unknowns?

- No Environmental Impact Analysis Exists
- No Worst-Case Planning for Cascadia

**Consulted: July - September 2019**

- EPA – Richard Franklin, Federal On-Scene Coordinator
- NOAA – Gary Shigenaka, Marine Biologist, Office of Response & Restoration
- DEQ – Mike Zollitsch, Emergency Response Unit Leader
- DEQ – Paul Seidel, Clean Up Program Manager
- WA Ecology – Ken Esplin, Facility Engineer, Spills Program
- Portland BES – Annie Von Burg, Portland Harbor Superfund
- Portland Water Bureau – Mike Stuhr, Director
- Willamette River Keeper – Travis Williams, Director

Data LDEO-Columbia, NSF, NOAA

Google Earth



Wheat barge on the inland Columbia Snake River System



Grain vessel loading on the deep draft Columbia river



Longshore workers unloading Subaru from a Roll-on, Roll-off "RoRo" vessel at the Port of Vancouver USA

## PNWA MEMBER LOWER COLUMBIA RIVER PORTS

### Columbia Snake River System

The nation's number one wheat export gateway and number two soybean export gateway is fed by a 365-mile, 14-foot draft inland barge system which stretches from Portland, OR to Lewiston, ID. The system exported over 50 million tons of cargo in 2016. It is also the west coast's number one wood and mineral bulks export gateway and a rising importer/exporter of vehicles. In all, over \$21 billion worth of cargo moves on the Columbia Snake River System each year.

### River System Highlights

- #1 U.S. wheat exports
- #2 U.S. corn and soy exports
- #1 West Coast wood exports
- #1 West Coast mineral exports
- #1 West Coast auto exports



### Deep Draft Channel Facts:

- 105 miles, 43 feet deep
- Over 52 million tons of international trade in 2017
- At least \$21 billion in cargo value
- 40,000 local jobs are dependent on this trade

Source: Pacific Northwest Waterways Association

# Oregon Critical Energy Infrastructure Hub

## Silos of Stakeholders



Photo: Jay Wilcox

# RESILIENCE IMPERATIVE

## How Do We Leverage the CEI Hub Risk in Order to Achieve the 2050 Vision?

- Role of Emergency Managers and Local Officials
- Roles of State and Federal Agencies
- Inform Public Officials and Motivate Public Interest
- Natural Hazard Mitigation Plans
- Pre-Disaster Recovery Planning
- Economic Opportunities
- Environmental Justice
- Social Equity

—————→ **Community Values**