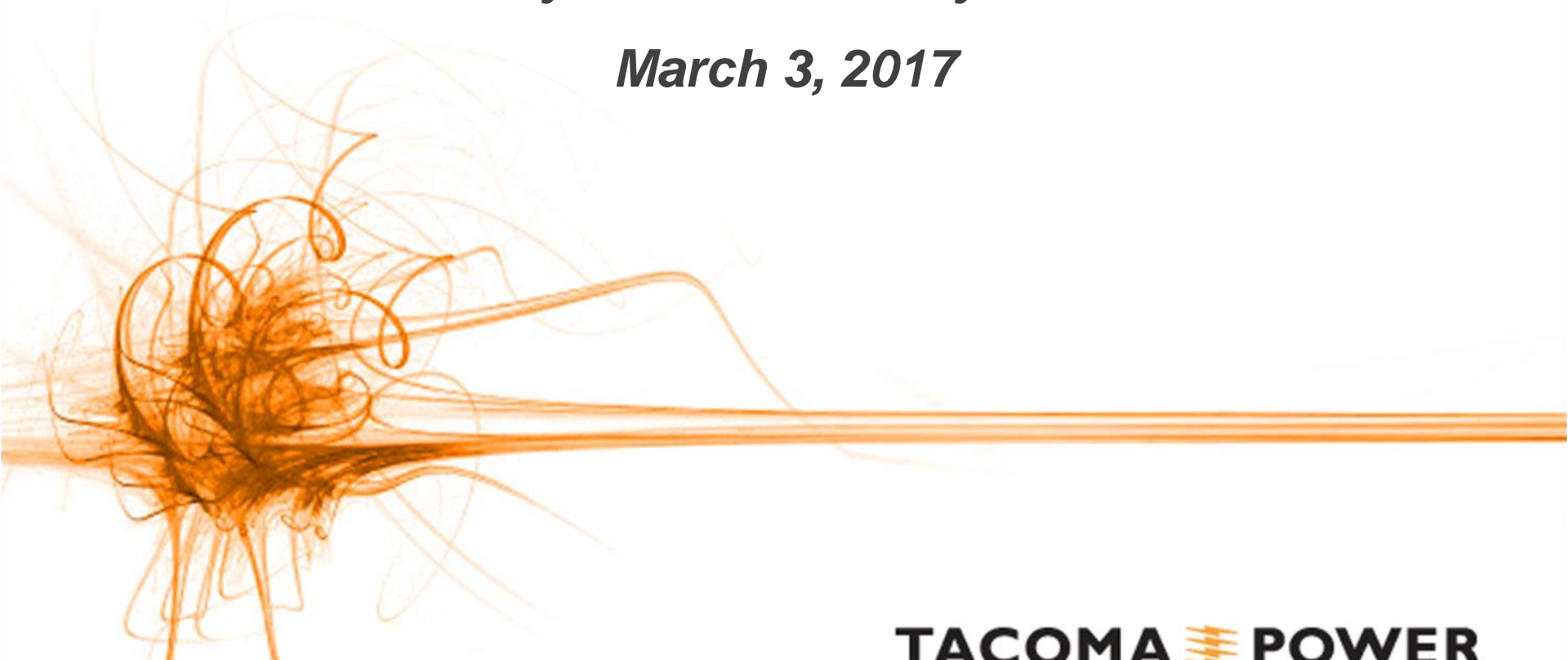


Mossyrock Dam/Riffe Lake Update

Generation Manager Pat McCarty

Mossyrock Community Center

March 3, 2017



AGENDA

- Overview
- Background
- Seismicity
- Current risks
- Temporary risk reduction methods
- Path forward
- Questions

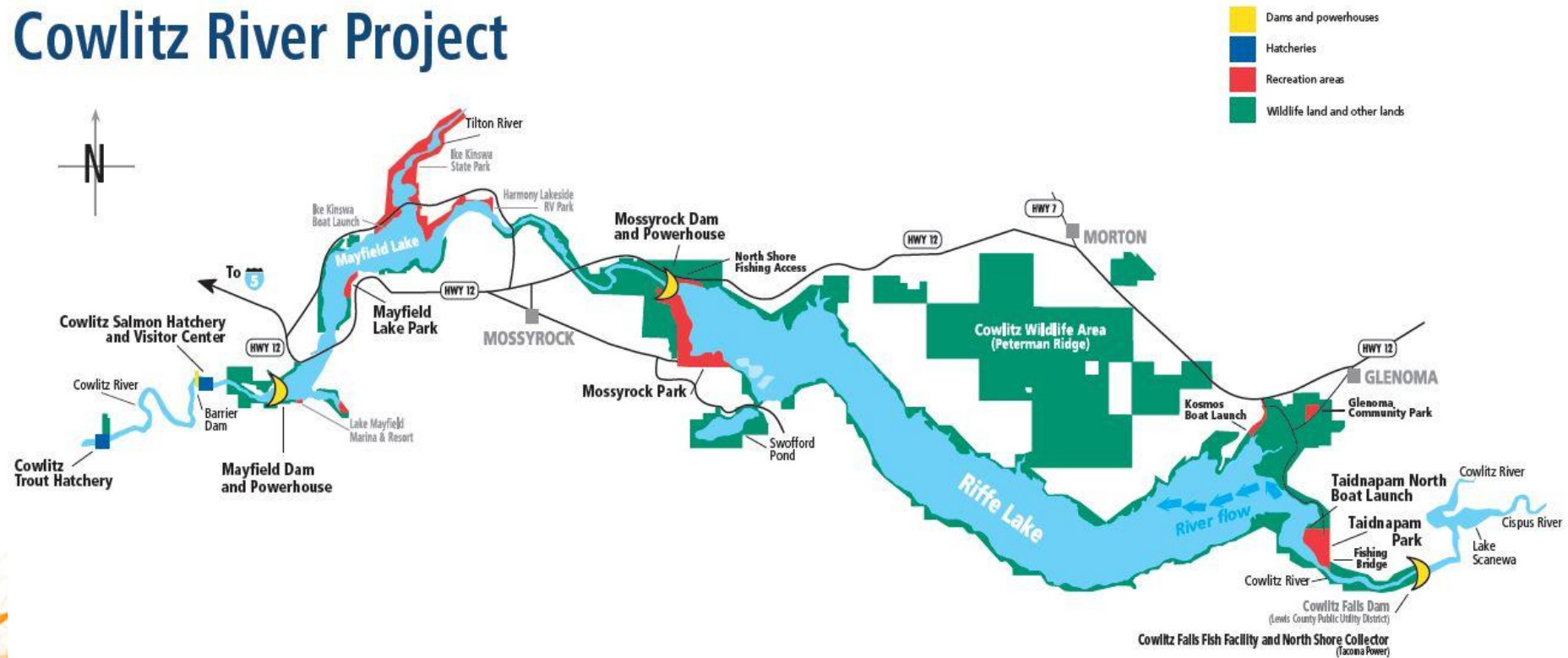
TACOMA POWER OVERVIEW

- **Four hydroelectric projects**
- **Seven dams**
 - Licenses provided by the Federal Energy Regulatory Commission (FERC)
- **Publicly owned since 1893**
 - Must collect enough revenues to equal expenses
 - Receive revenues mainly through wholesale/retail sales

Our top priority is safety

BACKGROUND

Cowlitz River Project



COWLITZ RIVER PROJECT

Mayfield Dam

Forms 13-mile-long Mayfield Lake



Mossyrock Dam

Forms 23-mile-long Riffe Lake



FERC OVERSIGHT

- Regulated by the Federal Energy Regulatory Commission (FERC)
- Currently licensed through 2037
- Dam safety program
 - Daily/weekly/annual inspections
 - Five-year review (Part 12)
 - Independent consultant
 - Potential failure mode analyses
 - Review current standards
 - ❖ Hydrometeorological reports
 - ❖ Updates to USGS seismic hazard maps

SEISMIC PATH

Seismicity: “The occurrence or frequency of earthquakes in a region.”

- Been looking at seismicity for years
- Made improvements; developed plans for spillway piers
- Got to the point of designing modifications to the piers
- New seismicity numbers were released by USGS
- Higher numbers required new structural evaluations; back to the drawing board
- The USGS numbers that are used to calculate potential seismic impacts have increased multiple times between 2001 and today.

EARTHQUAKE FACTORS

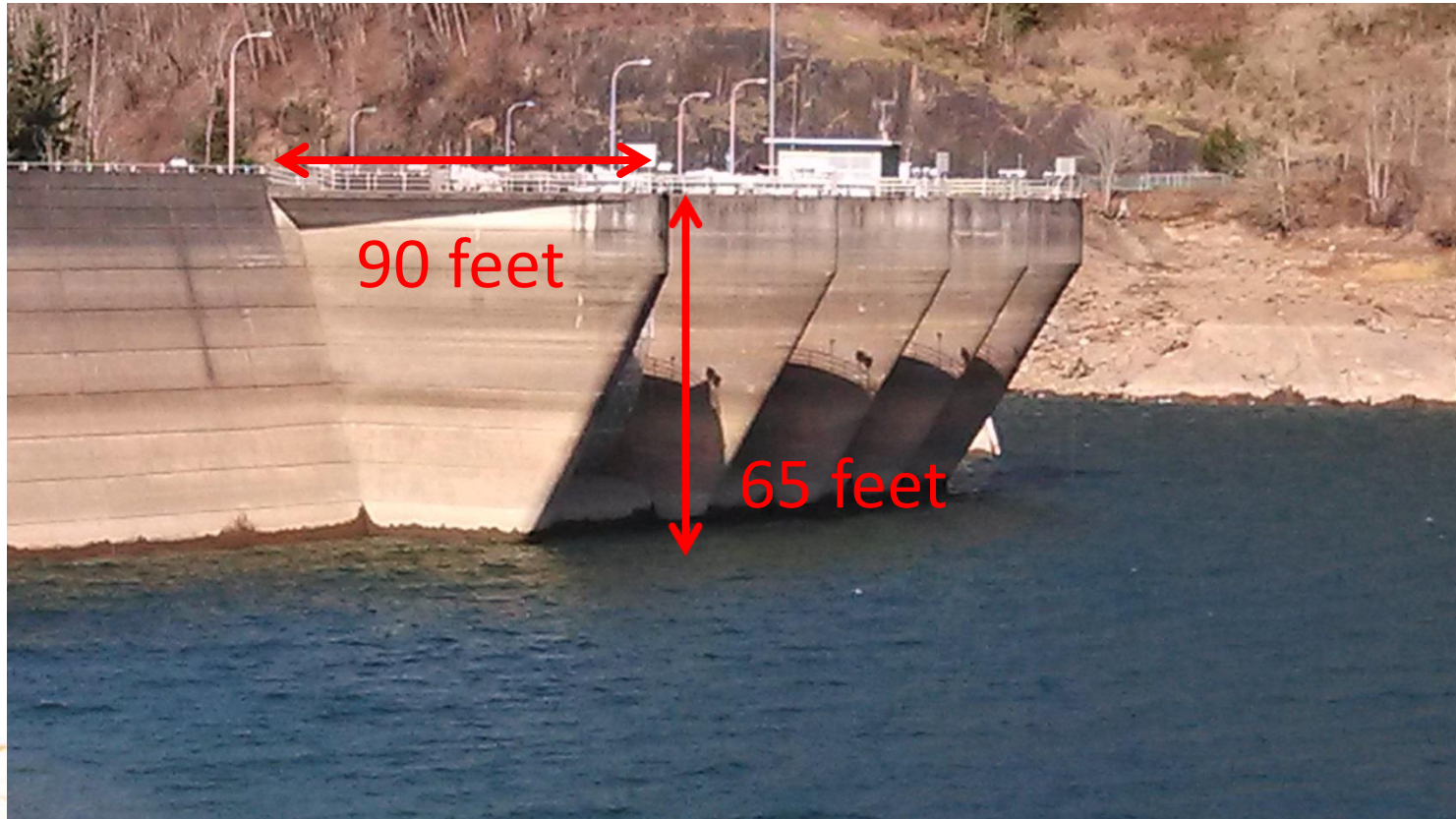
Magnitude (Richter or Moment Magnitude Scale)	Depth	Distance from the epicenter	Local geologic conditions	Duration

= Resulting Peak Ground Acceleration

MOSSYROCK SPILLWAY PIERS



MOSSYROCK SPILLWAY PIERS



MOSSYROCK SPILLWAY RISKS

➤ PIER AND GATE FAILURE

- If piers fail, gates may fail
- Uncontrolled release of water



RISKS

1 cubic foot per second =

Size of one basketball



7.48 liquid gallons per second



Elevation (in feet)	Amount of water released (cubic feet per second)	Equivalent number of gallons per second
749	60,000 <i>(Flood of Record level released from Mayfield Dam)</i>	448,800
755	85,000	635,800 <i>(Olympic-sized swimming pool = 660,430 gallons)</i>
760	112,500	841,500
778.5	230,000	1,720,400

12

RISKS AT ELEVATION 778 FEET

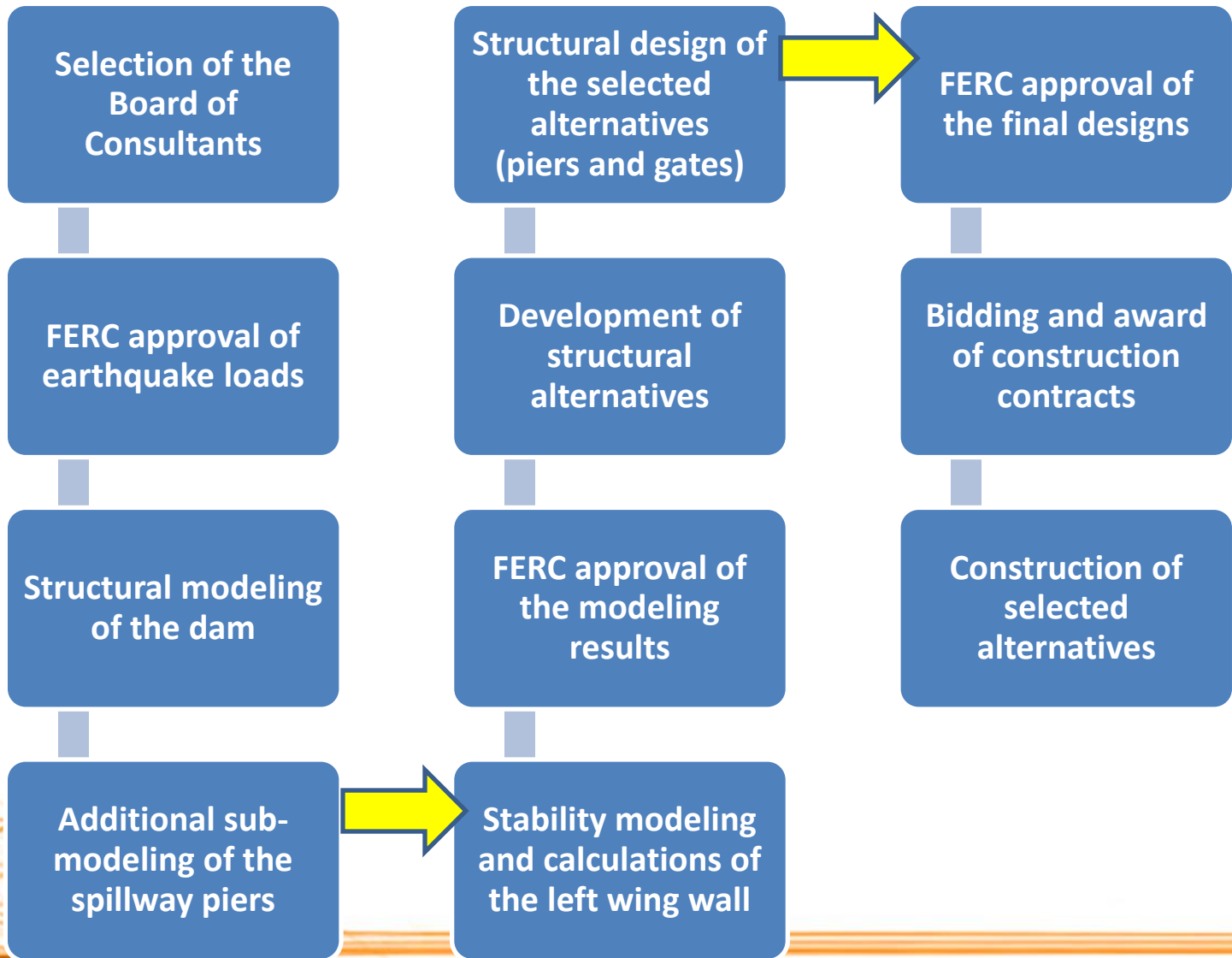
➤ EXPECTED RESULTS (IN GEOGRAPHICAL ORDER)

- Flooding of Salmon Hatchery
- Overtop and destroy Barrier Dam
- Flooding of local homes
- Flooding of Trout Hatchery
- Flooding parts of Toledo, Castle Rock, Kelso and Longview

PROPOSED RISK REDUCTION PROCESS

- **12/06/16:** Received FERC letter asking for interim risk reduction methods
- **12/21/16:** Received FERC letter requiring us to convene an independent Board of Consultants to evaluate seismic hazards
- **02/07/17:** Submitted plan to FERC that proposed modifying Riffe Lake summer elevation to 749 feet
- **02/14/17:** Publicly announced Riffe Lake elevation plan
- **??/??/??:** FERC responds

PATH FORWARD – STRUCTURAL EVALUATIONS



PATH FORWARD - RECREATION

MOSSYROCK PARK

➤ PROPOSED NEW SWIM BEACH AND BOAT RAMP MODIFICATIONS

- State Environmental Policy Act (SEPA)
- Shoreline permit
- Hydraulic Project Approval
- Army Corps of Engineers permit
- FERC approval
- Site construction

RECREATION - MOSSYROCK PARK

➤ CAMPING RESERVATIONS

- Emailed 1,079 people with reservations at Mossyrock Park on Feb. 22.
- Between Feb. 22 and March 2, there were only 11 cancellations (1%)
- 150 more reservations at Mossyrock Park than were in the system at this time in 2016

RECREATION – CULTURAL RESOURCES

“There is one positive aspect here. I had the day off and after only a couple of hours found more arrowheads and fishing lures than I would have with a full lake. Might turn into quite the tourist attraction to go out arrowhead hunting.”

– comment posted 02/24/17 on Lewis County Sirens.com (Riffe Lake article)

- FERC license requirement to protect cultural resources.
- We expect that FERC will ask for a mitigation plan and schedule as to how we'll further protect the resources.
- Not a tourist attraction; still unlawful to remove minerals, wood and artifacts from the Cowlitz Wildlife Area and Tacoma Power lands without authorization.

FISHERIES – RIFFE LAKE

- Not an actively managed fishery
 - Resident coho
 - Washington Department of Fish and Wildlife
- Continue to stock 100,000 rainbow trout between Mayfield Lake, Swofford Pond, South Lewis County Park Pond and Lake Scanewa annually.
- Looking into other potential stocking opportunities, but no decisions have been made yet.



EMERGENCY NOTIFICATION SYSTEMS

- We have been testing our siren system annually for the past five years.
- This year, for the first time (unrelated to these changes), we will conduct a coordinated test with the Lewis County Department of Emergency Management.
- Test will be at 11 a.m. on Wednesday, April 5.
 - Siren test (Ike Kinswa State Park, Mayfield Lake Park and the Cowlitz Salmon Hatchery)
 - Lewis County alert notification system test: Sign up at lewiscountywa.gov or call (360) 740-1157 to register for the notification system (which has replaced “Code Red”)

RESOURCES

- Get updates at MyTPU.org/RiffeLake
- River flow and lake level information:
MyTPU.org/lakelevels
- Email cowlitz@cityoftacoma.org

QUESTIONS

