

# Rocky Reach Small Turbine Program

November 4, 2019



CHELAN COUNTY  
**POWER**

[www.chelanpud.org](http://www.chelanpud.org)

# What we will cover today...

Rocky Reach  
Small Turbine  
Seal Overview

C2 Status

C3 Status

c1 Progress

Rocky Reach  
Small  
Turbine  
Program

***No Board Action Required Today***

# History/Overview

We're in the midst of an aggressive increase in capital expenditures for our aging hydropower system – Aligned with our Strategic priorities of investing in our assets and our people.

- C1 – Removed from service in 2018 for trunnion bushing and seal replacement. Report 187 gallon release in January 2018.
- C2 – Currently evaluating trunnion bushing/seal concerns as of 10/11/19. Volume estimated at 83 gallons and to be reported after final review.
- C3 – Evaluated new seal designs since Fall 2018. Currently removed from service but with new seal design installed. In parallel, designing a procedure to temporarily remove oil from hub and satisfactorily test to ensure no excessive oil passes through the blade servo rod piston rings and seals. Reported 208 gallon loss on 6-6-19 and another 105 gallon on 10-11-19.

# Potential Path Forward

## Short Term:

- New seal designs
- Blade blocking (mechanical or hydraulic) with oil removal from hub (temporary)
- Trunnion bushing replacement - 3 sets of overstock trunnion bushings ordered

## Long Term Solution:

- Replace trunnion bushings and seals and refurbish turbine hubs on C2-C7

# C1 Line Boring





# C1 Trunnion Bushing Replacement



CHELAN COUNTY  
**POWER**

[www.chelanpud.org](http://www.chelanpud.org)

# C1 Summary

## C1 Next Steps:

- Wicket gate servo motor refurbishment
- Test & dry commission Jan. 2020
- Test & wet commission Feb. 2020
- Return to service Feb. 19, 2020

# Summary

## Next Steps:

- Test C3 and evaluate results to determine whether or not to return to service
- Develop best blade block option for small units
- Develop long term turbine hub refurbishment schedule for C2 – C7