Round Butte Dam & Powerhouse
- Three Francis style units
- Capacity = 372.5 MW
Pelton Dam & Powerhouse
- Three Francis style units
- Capacity = 110 MW
Pelton ReRegulating Dam & Powerhouse

• One horizontal shaft Kaplan unit
• Capacity = 19 MW
• Owned by Confederated Tribes of Warm Springs, Operated by PGE
Recent Changes affecting PRB Operation

- New FERC License
  - Tighter operating tolerances
  - Fish passage facilities connected to generation flow path

- Services Provided
  - Spinning Reserve/10 Min spin
  - Automatic Generation Control
  - Frequency Response
  - Shaping of renewable generation resources
  - Energy Imbalance Market participation

- Industry/Market changes
  - Shaping influx of renewable generation resources
  - Energy Imbalance Market participation
Sample of Operations – April 7, 2015
Sample of Operations – April 7, 2019
Sample of Operations – April 8, 2019
Sample of Operations – May 8, 2019
Sample of Operations – Feb 15, 2020, 8 hour
Result of Changes...

More cycling on/off and operation through the rough zone
  • Hydro resources aren’t designed for frequent cycling
  • Challenge is to quantify maintenance impacts

Less Efficient Operation
  • Does the benefit of flexibility to meet market needs outweigh the cost?
What we’re doing...

- Generator rewinds
- Turbine upgrades
  - Capacity vs minimize/offset rough zones
- Cycling Cost Study
- Wicket gate pin re-design and break detection system
- Upgrading governors
- Upgrading exciters
- Cavitation monitoring
- Control System Upgrade
- Trending data to inform condition based monitoring
- Currently participating in a PNNL case study for impacts of EIM participation
Questions...