

# 2024 & 2025 Coolmix Cost Impacts to Hydropower

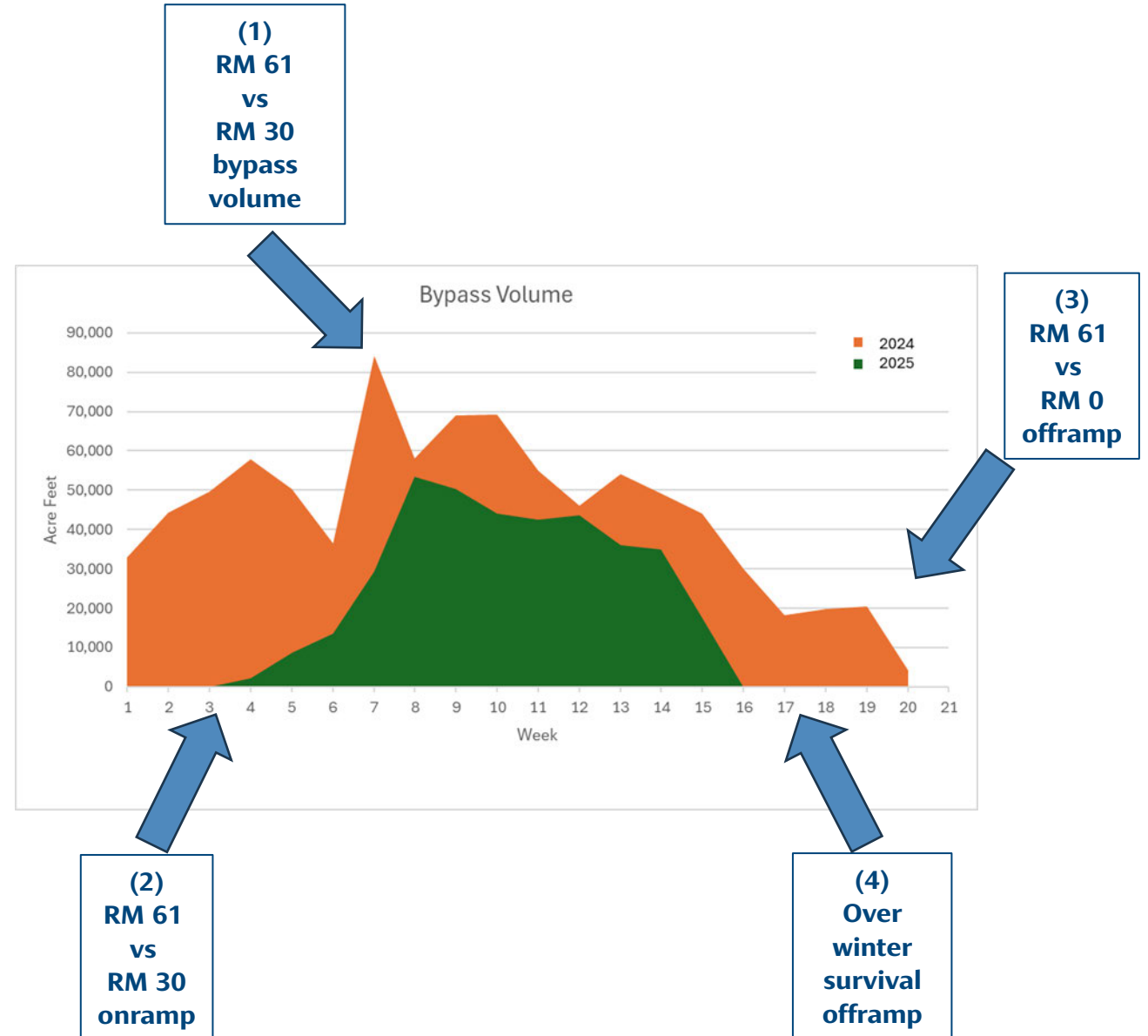
Technical Work Group  
for the Glen Canyon Dam Adaptive Management Program  
(GCDAMP)

December 11, 2025



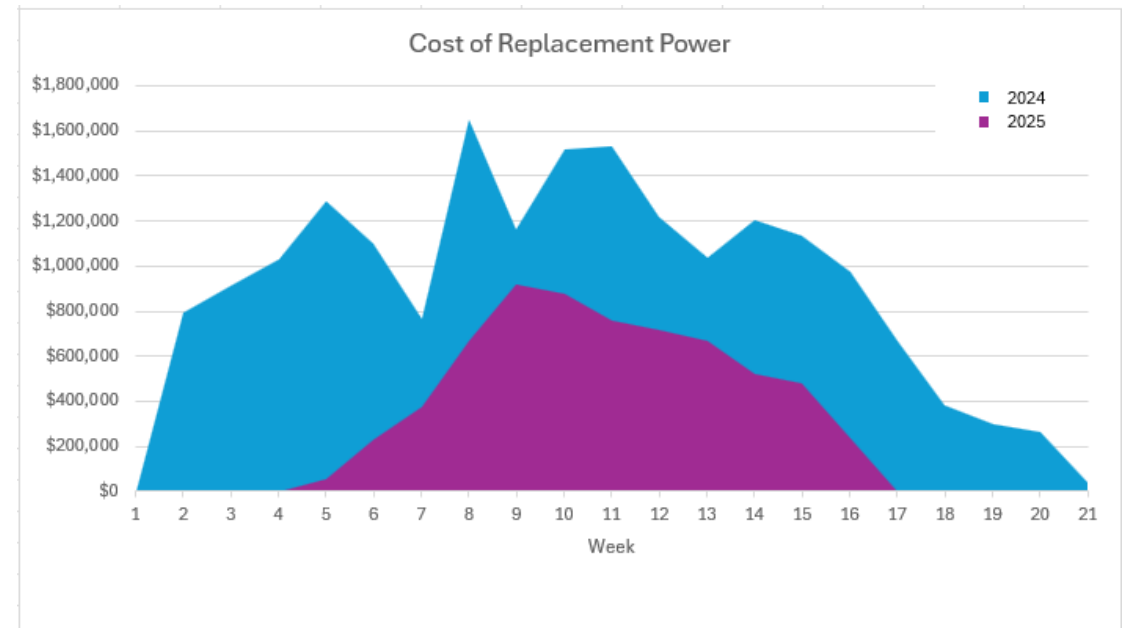
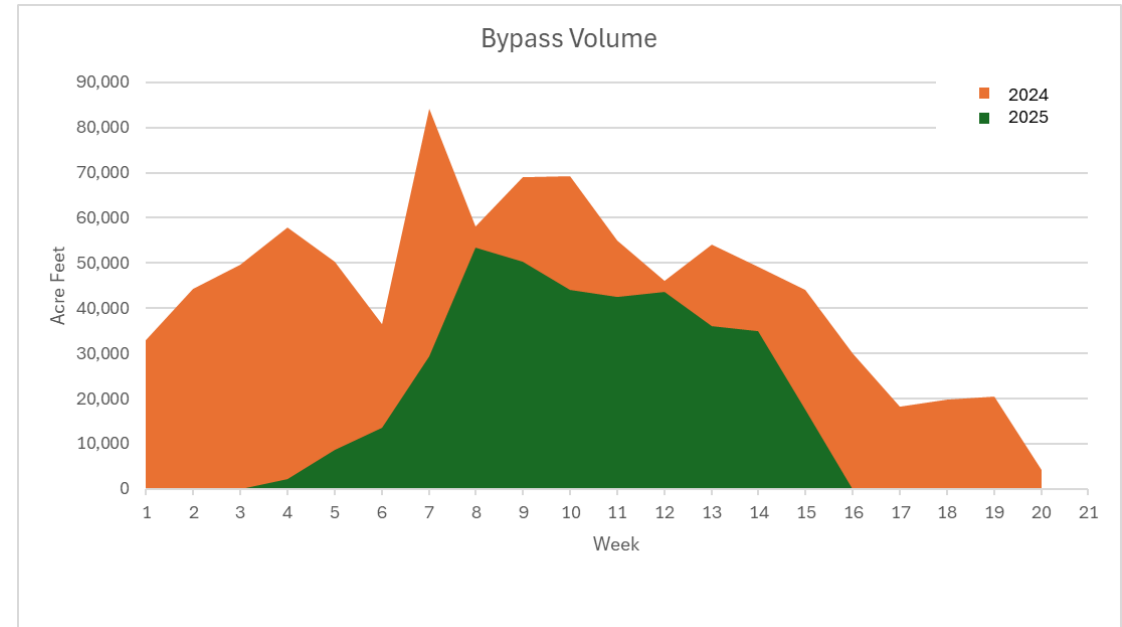
# General Observations

- Target River Mile
  - Further upstream
    - (1) Less bypass – downstream warming
    - (2) Later start – downstream warming
    - (3) Later stop – downstream cooling
- Overwinter survival offramp
  - (4) Earlier stop
- Elevations and Inflows
  - Higher reservoir elevations
    - Increased distance between thermocline and penstocks – less bypass
  - Larger inflows (especially at lower reservoir elevations)
    - Deeper thermocline – more bypass



# 2024 vs 2025 Coolmix

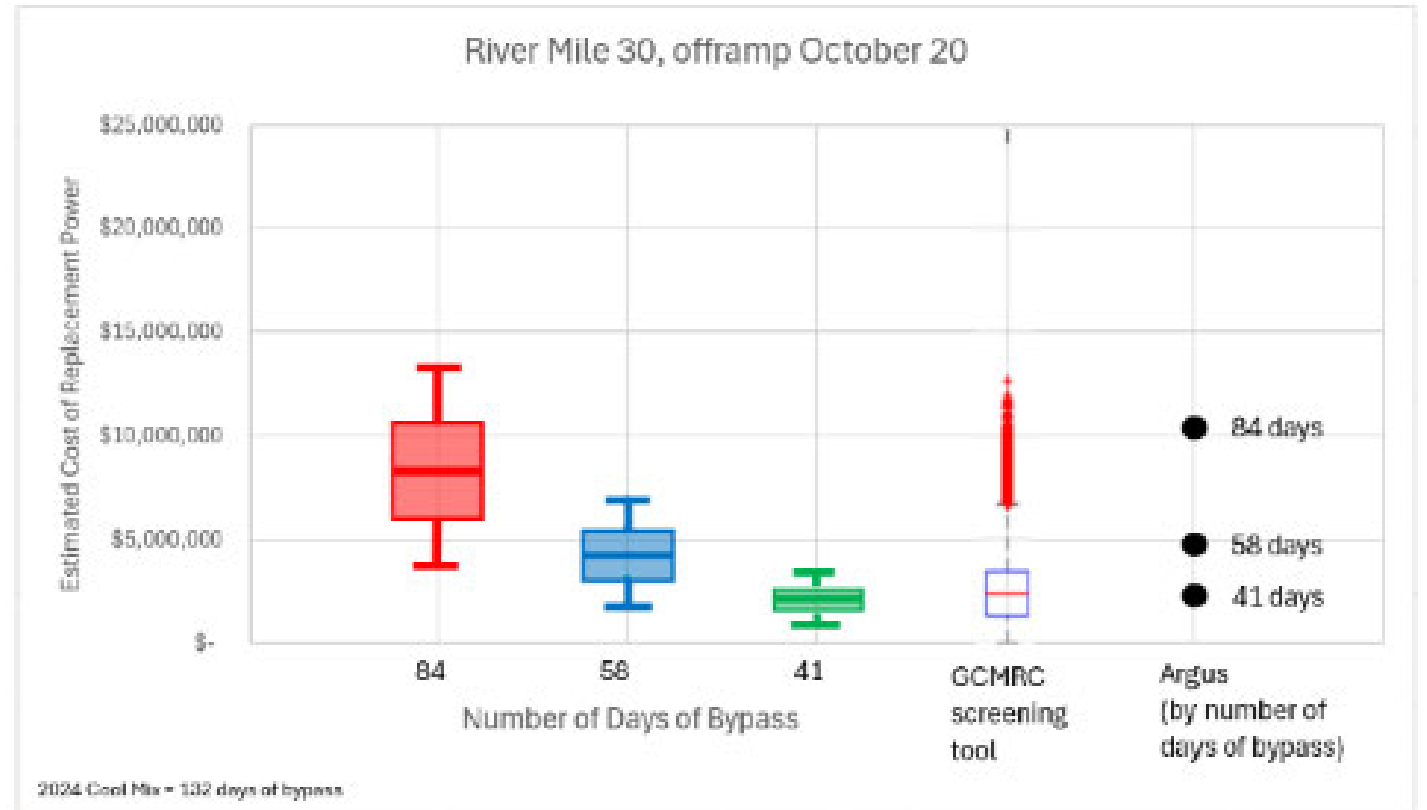
- 2024
  - Jul 9 – Nov 18 (132 days)
    - RM 61 target
    - Temperature trigger & offramp
  - Capacity optimization tool
  - AF bypassed: 892,694 AF
  - Lost generation: 372,341 MWh
  - Cost of replacement power: \$19.1M
- 2025
  - Aug 1 – Oct 20 (72 days)
    - RM 30 target
    - Temperature trigger
    - Over winter survival offramp
  - Capacity optimization tool
    - Rough zone avoidance (minimal impact)
  - AF bypassed: 376,119 AF
  - Lost generation: 145,227 MWh
  - Cost of replacement power: \$6.5M



Cost of replacement power is mostly driven by bypass volume

# 2025 Tech Team Cost Estimates

- WAPA: \$4.4 M
  - GTMax
  - CRMMS traces
  - Ranked traces by number of days of bypass
  - Selected a “min, max, most” to approximate hydrology
    - 84 days: dry/warm
    - 58 days: most probable
    - 41 days: wet/cool
- GCMRC: \$2.8 M
  - Screening Tool
  - CRMMS traces
  - 1,000 forecasts of hourly energy prices
- Argus: \$4.7 M
  - Point estimate of the 3 traces used by WAPA
- Actual: \$6.5 M



Actual: \$6.5M

Tech Team Cost estimates (April CRMMS 2025)  
Methods described in the 2025 Tech Team Report





Craig Ellsworth  
[ellsworth@wapa.gov](mailto:ellsworth@wapa.gov)  
(385) 228-3994

[https://gcdamp.com/index.php/SEIS\\_Bypass\\_Releases](https://gcdamp.com/index.php/SEIS_Bypass_Releases)



[www.wapa.gov](http://www.wapa.gov)



[@westernareapowr](https://twitter.com/westernareapowr)



[western-area-power-administration](https://www.linkedin.com/company/western-area-power-administration)



[WesternAreaPower1](https://www.youtube.com/channel/UC...)



[westernareapower](https://www.instagram.com/westernareapower)



[wapa.gov](https://www.facebook.com/wapa.gov)

