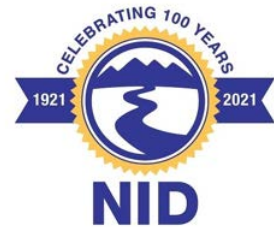


Hydroelectric Department



Emergencies / Unplanned Events
2021 Project Highlights
Department Updates
2022 Plans
South Yuba Canal/Deer Creek Update

Emergency & Unplanned Events

Bowman Wind Event

January 18, 2021



Emergency & Unplanned Events

Fire Events



Spot fires discovered by Hydro staff



View of the River Fire from
Rollins Powerhouse

Emergency & Unplanned Events

Drought & Curtailments

- Wilson Creek Diversion
- Variance request – Jackson Meadows reservoir flow changes

STOP work if you see these (Sierra Nevada yellow-legged frogs):

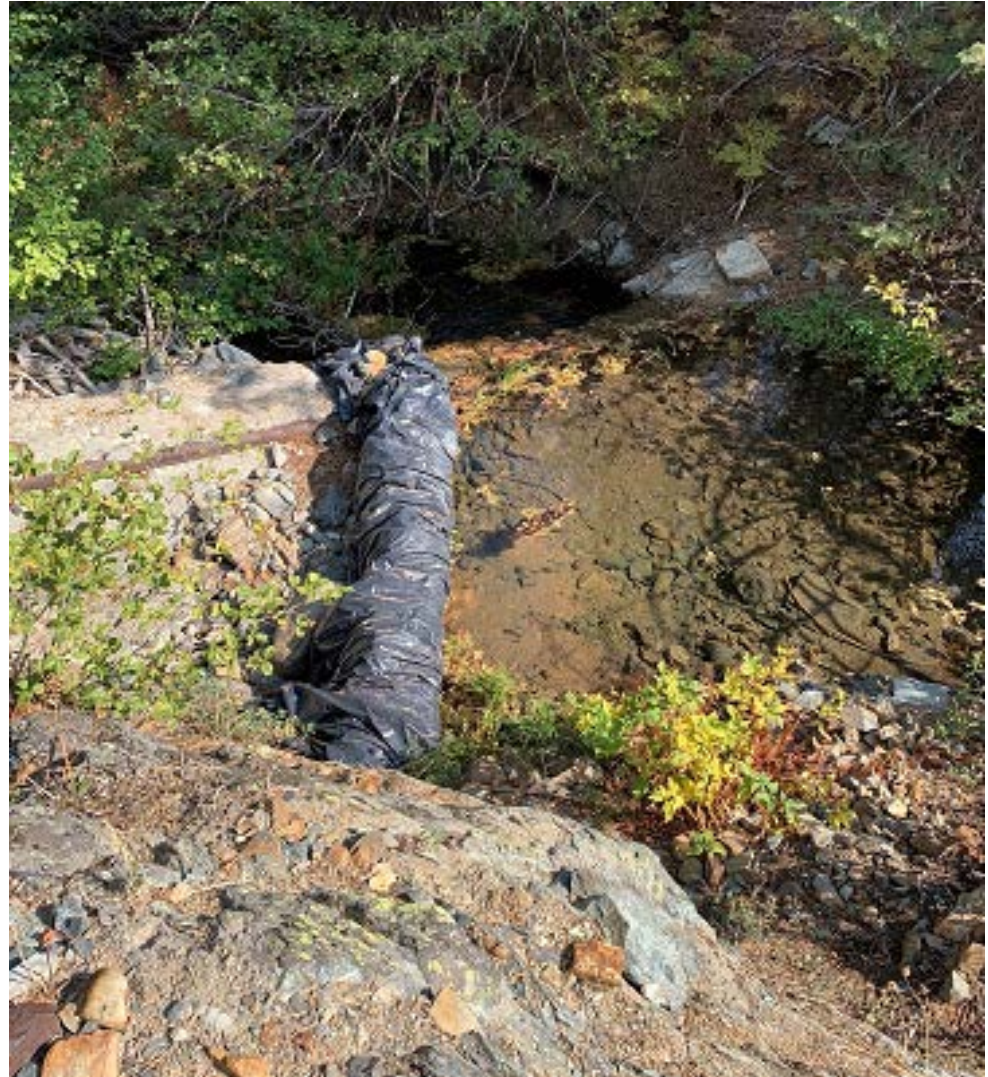


Other species that may be in the area:

Pacific Chorus Frogs: (distinctive black eye stripe):

California Toad:

(warty and white stripe on back):



Emergency & Unplanned Events

Rollins Lake Fuel Shed at Long Ravine



2021 Project Highlights

Combie South Transformer Replacement

Project No. 2168

- Scope: Replace generator step up transformer
- Electrical specification by consultant
- Civil design by NID staff
- Testing, installation, and commission by NID staff



2021 Project Highlights

Rollins Breaker Replacement

Project No. 2351

- Scope: Replace 60kV SF6 breaker with vacuum circuit breaker
- Electrical design and specifications by consultant
- Civil design by NID staff
- Testing, installation, and commissioning by NID staff



2021 Project Highlights

Chicago Park Cooling Water Upgrades

Project No. 2402

- Scope: Modernize / improve flow measurement
- Design and specification by consultant
- Testing, installation, and commissioning by NID staff



2021 Project Highlights

Chicago Park Fire Detection & Suppression

Project No. 2164

- Scope: Install new fire detection and modernize/improve suppression system
- Inspection and safety consultation by NID staff
- Design and construction by contractor



2021 Project Highlights

Texas Creek Slope Stabilization

Project No. 2525

- Scope: Repair erosion below spillway
- Design, specification, and inspection by NID staff
- Construction by contractor



2021 Project Highlights

Bowman 60kV Transmission Line Vegetation Management

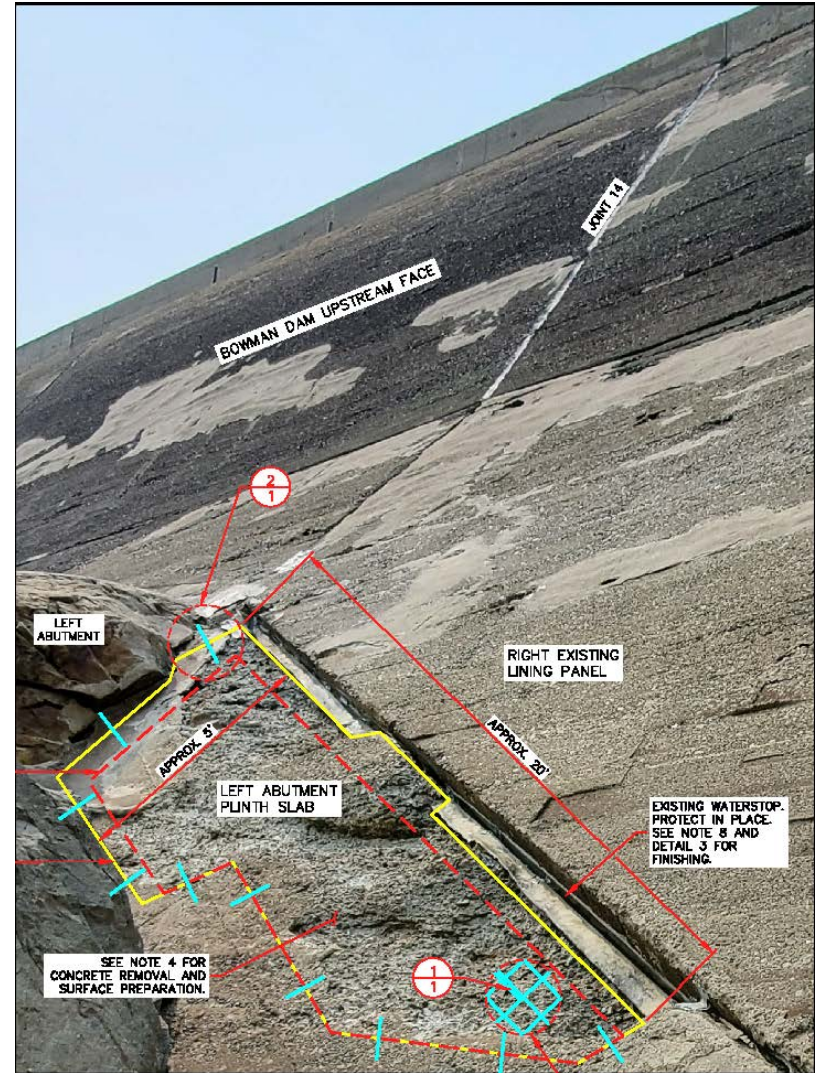


2021 Project Highlights

Bowman Face Repairs

Project No. 2359

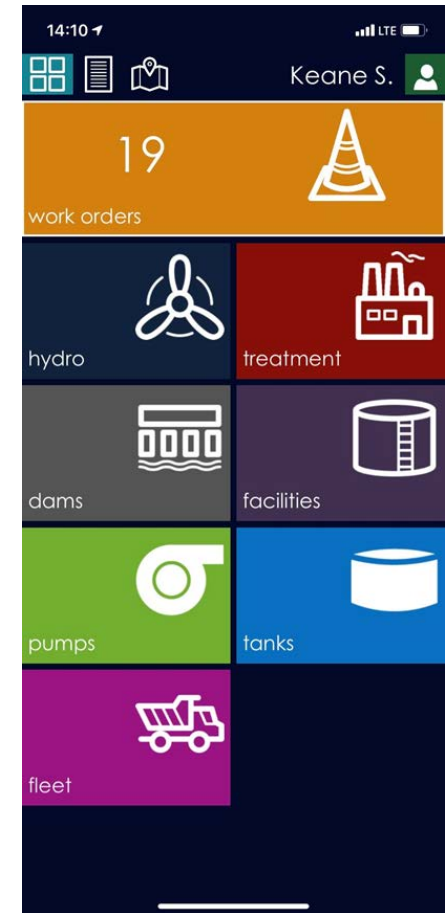
- Scope: Seal joints and repair concrete damage
- Design, specification, inspection, safety review, and some construction by NID staff
- Some construction by contractor



Hydro Administration

Key Activities

- Combie South Power Purchase Agreement (PPA)
- Computerized Maintenance Management System (CMMS)
- Insurance – Zurich Risk Assessment and Risk Involvement
- South Sutter Water District Operations & Maintenance



Hydro Dam Safety

Part 12D Independent Consultant (IC) Review

- August 2 – 6th, 2021 – Site inspections with FERC, IC and DSOD.
- August 9 – 13th Potential Failure Mode Analysis (PFMA) Sessions held with FERC, IC, and DSOD in attendance.



Hydro Dam Safety

Scotts Flat Spillway

Project No. 2351

- Alternatives Analysis and Preliminary Design



Hydro Dam Safety

Corrosion Assessment and Control

- Preliminary review of all facilities
- Detailed review of selected facilities scheduled



HDR

Nevada Irrigation District
Penstock Condition
Assessment and
Corrosion Control

PO Number: C0055426

HDR Project Number: 10210226

Colfax, California

July 10, 2020

Prepared By:



2379 Gateway Oaks Drive, Suite 200
Sacramento, California, 95833
916.679.8700 Phone 916.8679.8701 Fax
HDR Project Manager: Kenny Dosanjh, PE

Hydro Dam Safety

Stability Reevaluation – Bowman South Arch

- Stable under Probable Maximum Flood and Maximum Credible Earthquake
- Improvements to rock mass near thrust block recommended

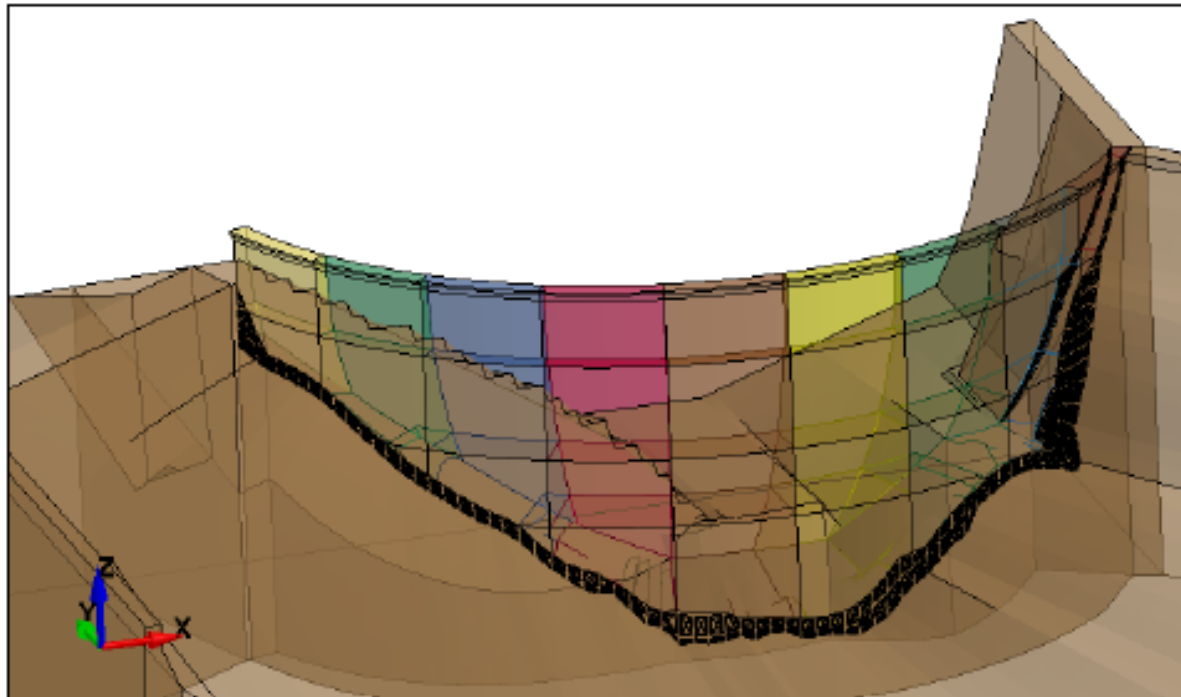
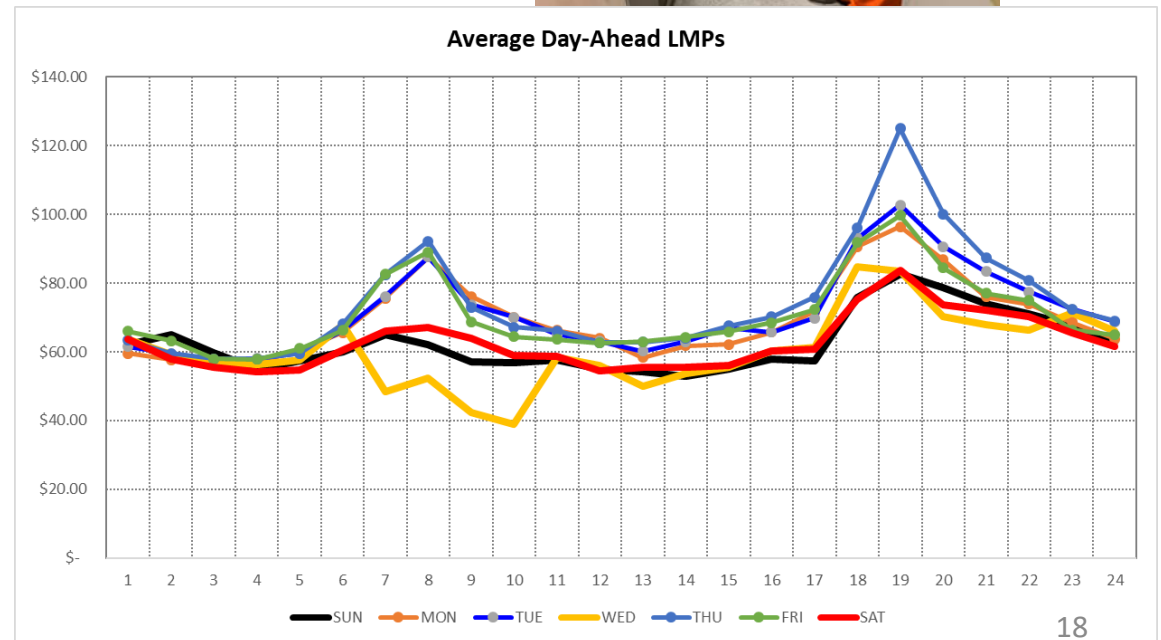


Figure 4-19. Gap friction contacts between dam monoliths and foundation (including bullnose).

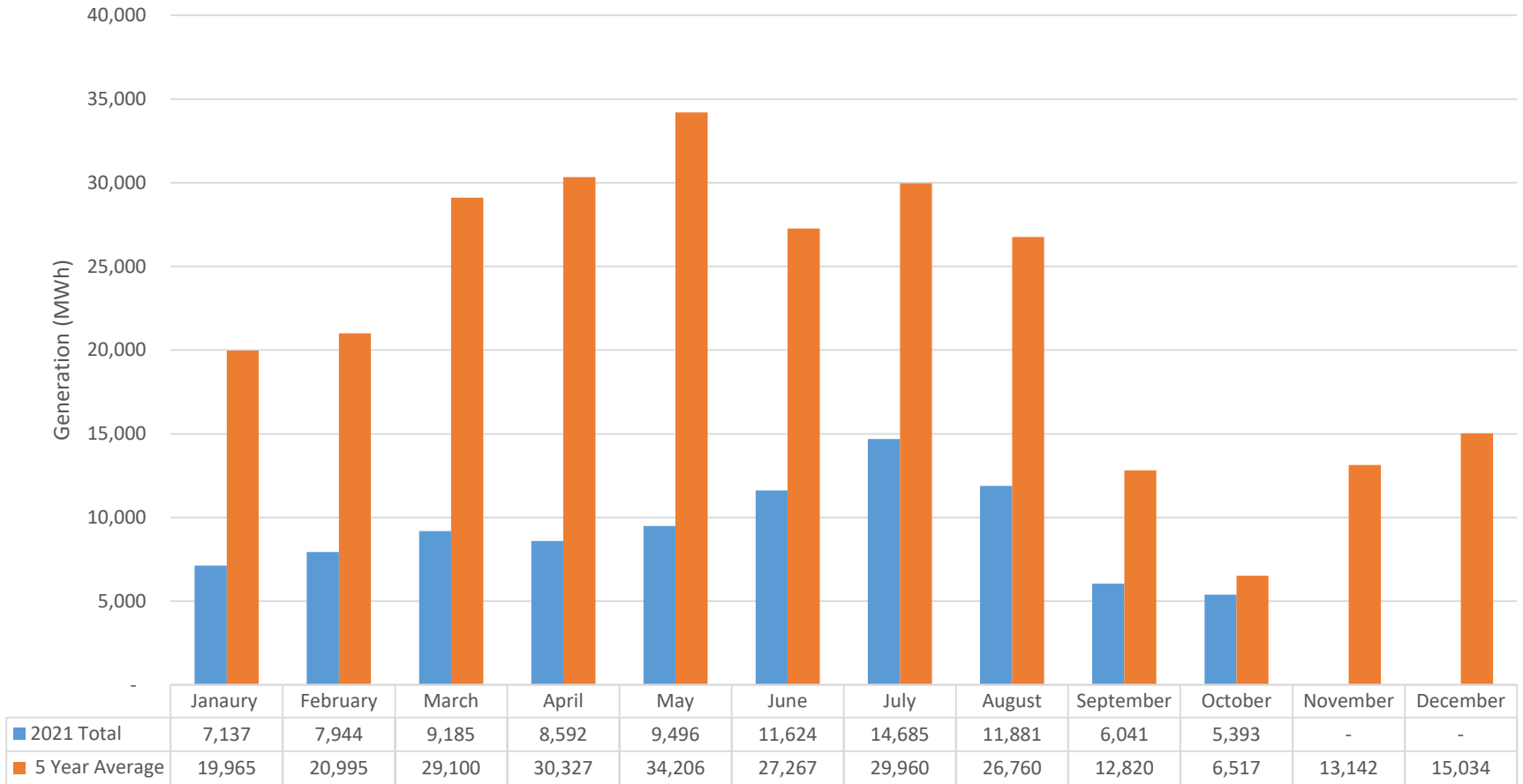
Hydro Operations

24/7/365 Response & Combie South Powerhouse



Hydro Operations

Monthly Generation



Hydro Operations

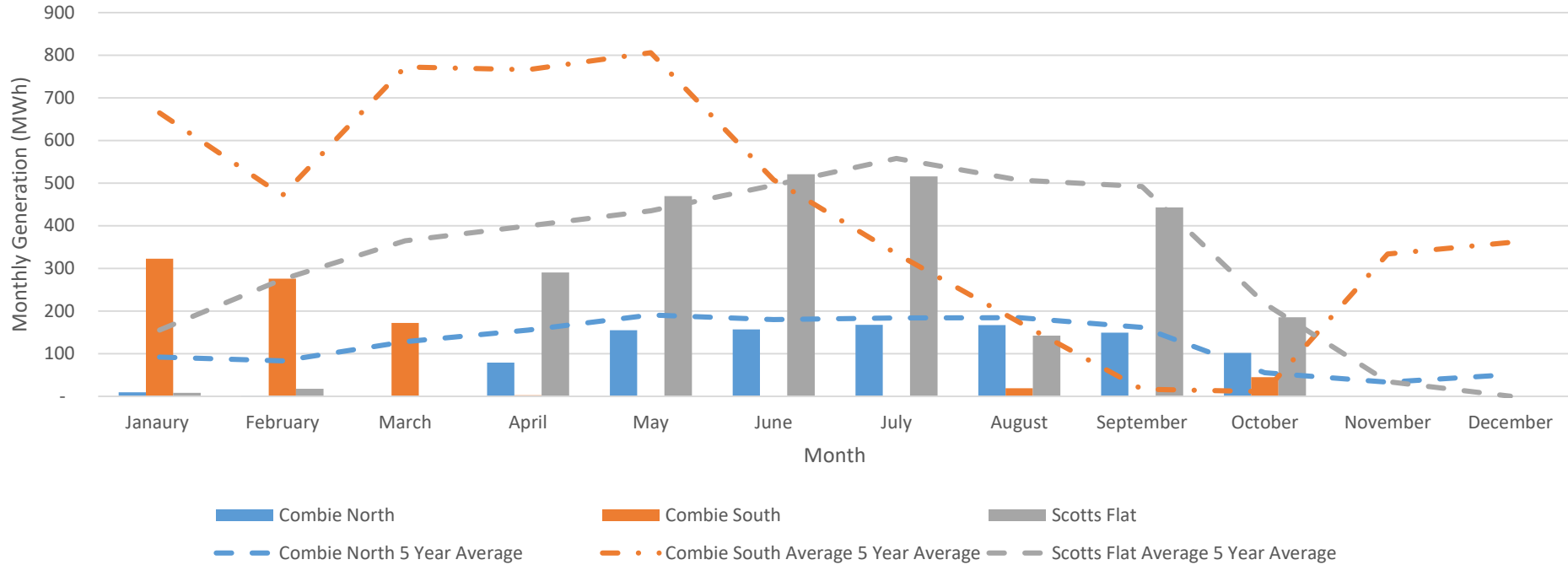
Monthly Availability

Month	Chicago Park	Rollins	Dutch Flat No. 2	Bowman
January	100.00%	100.00%	100.00%	73.83%
February	100.00%	100.00%	100.00%	98.71%
March	100.00%	100.00%	95.20%	99.92%
April	100.00%	100.00%	100.00%	100.00%
May	100.00%	100.00%	100.00%	99.55%
June	100.00%	100.00%	100.00%	100.00%
July	100.00%	100.00%	100.00%	99.95%
August	100.00%	100.00%	100.00%	100.00%
September	100.00%	100.00%	100.00%	100.00%
October	100.00%	100.00%	100.00%	99.46%
2021 Average (Jan-Oct)	100.00%	100.00%	99.52%	97.14%
2016 - 2020 Average (Jan-Oct)*	99.79%	99.70%	99.18%	93.91%

*2016 Bowman Powerhouse availability data was not available for this analysis

Hydro Operations

2021 Combie South / North & Scotts Flat Powerhouse Generation Through October



Generation (MWh) Summary Table

Facility	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Combie South (5 year average)	665	471	772	766	806	508	335	173	17	11	334	361
2021 Combie South	323	276	172	0	0	0	0	19	0	11	-	-
Combie North (5 year average)	92	83	128	155	191	180	184	184	161	55	35	51
2021 Combie North	10	2	0	79	155	157	167	167	149	101	-	-
Scotts Flat (5 year average)	155	274	365	399	435	495	558	507	492	217	35	0
2021 Scotts Flat	8	17	0	290	469	521	515	142	443	185	-	-

Hydro Maintenance



Quartz Peak Repeater

Planning New Radio Tower



Bowman Transmission Line Pole Replacement

Hydro Maintenance

Inspection of Turbine Shutoff Valve
at Dutch Flat #2 Powerhouse



Clear Creek Tunnel Improvements

Hydro Maintenance

Inspection, maintenance, and repair of Prime Mover

Runner inspection at Bowman Powerhouse



Clearance checks on runner at
Scotts Flat Powerhouse

Hydro Compliance

Environmental Compliance

- Quagga/Zebra Mussel (with Recreation)
- FERC Relicensing – Additional Information Request (AIR)



Table 3. Summary of value of Yuba-Bear Hydroelectric Project energy and renewable energy credits under Scenarios 2, 3, 4 and 5 relative to the environmental baseline (Scenario 1).

Yuba-Bear Hydroelectric Project Powerhouse and Water Year Type	Scenario 1, Baseline	Scenario 2, FEIS		Scenario 3, FEIS + 50% UIF (YB)		Scenario 4, FEIS + 50% UIF (YB, UDS & LD)		Scenario 4, FEIS + 65% UIF (YB, UDS & LD)	
	Value of Average Annual Project Power (2020 \$)	Value of Average Annual Project Power (2020 \$)	Difference Compared to Scenario 1 (2020 \$ and percent)	Value of Average Annual Project Power (2020 \$)	Difference Compared to Scenario 1 (2020 \$ and percent)	Value of Average Annual Project Power (2020 \$)	Difference Compared to Scenario 1 (2020 \$ and percent)	Value of Average Annual Project Power (2020 \$)	Difference Compared to Scenario 1 (2020 \$ and percent)
BY YUBA-BEAR HYDROELECTRIC PROJECT POWERHOUSE									
Bowman	\$629,229	\$585,348	-\$43,881 (-7.0%)	\$346,326	-\$280,904 (-44.6%)	\$346,326	-\$280,904 (-44.6%)	\$257,059	-\$372,170 (-59.1%)
Dutch Flat 2	\$2,078,124	\$1,721,467	-\$356,657 (-17.2%)	\$1,502,325	-\$575,798 (-27.7%)	\$686,382	-\$1,391,742 (-67.0%)	\$431,363	-\$1,646,558 (-79.2%)
Chicago Park	\$4,134,367	\$3,596,795	-\$537,572 (-13.0%)	\$3,260,034	-\$874,333 (-21.1%)	\$2,215,878	-\$1,918,489 (-46.4%)	\$1,702,204	-\$2,432,163 (-58.8%)
Rollins	\$3,312,197	\$2,992,700	-\$319,496 (-9.6%)	\$2,834,054	-\$478,143 (-14.4%)	\$2,051,129	-\$1,261,068 (-38.1%)	\$1,508,516	-\$1,803,681 (-54.5%)
BY WATER YEAR TYPE									
Extreme Critically & Critically Dry ¹	\$3,698,605	\$3,043,504	-\$655,101(-17.7%)	\$2,408,096	-\$1,290,509 (-34.9%)	\$1,225,867	-\$2,472,738 (-66.9%)	\$814,429	-\$2,884,176 (-78.0%)
Dry	\$6,820,085	\$6,037,591	-\$782,494 (-11.5%)	\$5,064,867	-\$1,755,218 (-25.7%)	\$2,489,300	-\$4,330,785 (-63.5%)	\$1,485,314	-\$5,334,771 (-78.2%)
Below Normal	\$9,985,911	\$8,793,321	-\$1,192,590 (-11.9%)	\$7,746,717	-\$2,239,195 (-22.4%)	\$4,941,487	-\$5,044,424 (-50.5%)	\$3,018,688	-\$6,967,224 (-69.8%)
Above Normal	\$12,350,096	\$10,777,931	-\$1,572,165 (-12.7%)	\$9,852,503	-\$2,497,593 (-20.2%)	\$6,906,919	-\$5,443,177 (-44.1%)	\$5,274,830	-\$7,075,266 (-57.3%)
Wet	\$15,084,143	\$13,399,859	-\$1,684,285 (-11.2%)	\$12,299,856	-\$2,784,287 (-18.5%)	\$9,145,979	-\$5,938,165 (-39.4%)	\$7,348,364	-\$7,735,779 (-51.3%)
OVERALL YUBA-BEAR PROJECT									
Annual Average	\$10,153,917	\$8,896,310	-\$1,257,607 (-12.4%)	\$7,944,739	-\$2,209,178 (-21.8%)	\$5,301,714	-\$4,852,203 (-47.8%)	\$3,899,344	-\$6,254,572 (-61.6%)

¹ NID combined the Extreme Critically Dry and Critically Dry WY types in this analysis.

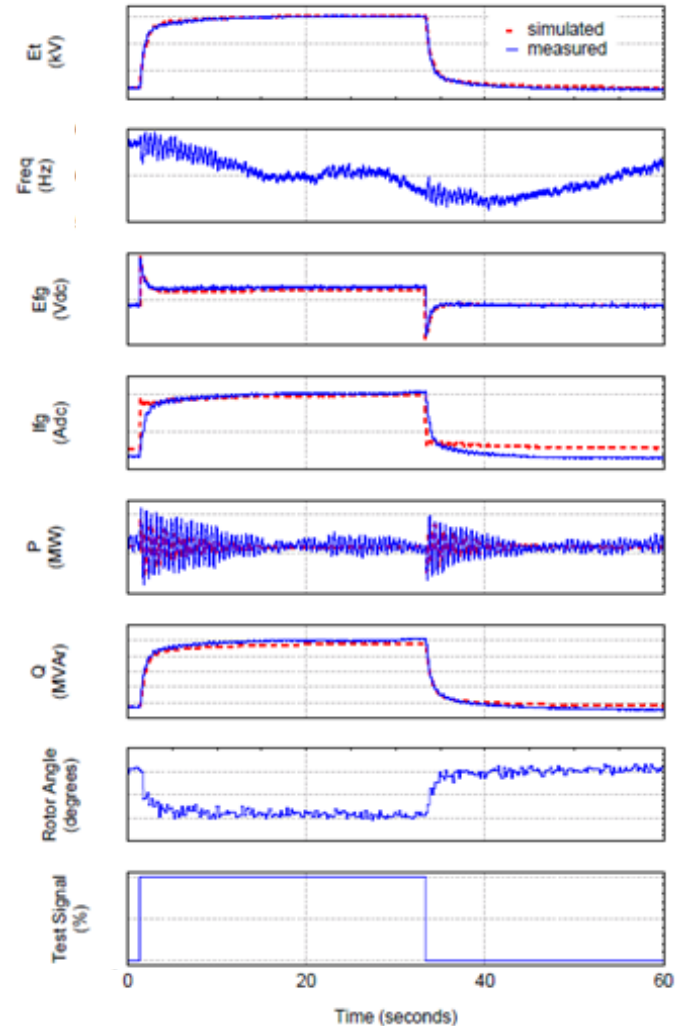
Hydro Compliance

Electrical Compliance

- Generator capability testing and modeling
- NERC Alerts
- Meter maintenance and reporting



Online AVR 2% Step Response



Hydro Compliance

Other

- Hazardous material disposal
- Emergency Action Plan updates
- FCC licensing
- “Other duties as assigned”



2021



Emergency Action Plan

Nevada Irrigation District

Updated September 2021

Yuba-Bear Project (FERC No. 2266)

- Jackson Meadows Dam and Spillway (DSOD No. 61.020)
- French Lake Dam (DSOD No. 61.006)
- Faucherie Dam (DSOD No. 61.022)
- Sawmill Dam and Spillway (DSOD No. 61.010)
- Jackson Lake Dam (DSOD No. 61.017)
- Bowman Dams: North, South, and Spillway (DSOD No. 61.002)
- Dutch Flat No. 2 Forebay Dam (DSOD No. 61.024)
- Dutch Flat Afterbay Dam (DSOD No. 61.023)
- Rollins Dam and Spillway (DSOD No. 61.021)

Lake Combie Project (FERC No. 2981)

- Combie Dam (DSOD No. 61.009)

Scotts Flat Project (FERC No. 5930)

- Scotts Flat Dam and Spillway (DSOD No. 61.018)

Non-FERC EAP Dams

- Deer Creek Diversion Dam (DSOD No. 61.003)
- Loma Rica Airport Dam (DSOD No. 61.025)



2022 Plans

Looking Ahead

- South Yuba Canal and Deer Creek Powerhouse
- Key Projects
 - Dutch Flat #2 fire detection/suppression
 - Chicago Park remote terminal unit
 - Chicago Park rewind/transformer/overhaul planning
 - Rollins relay protection
 - Scotts Flat spillway
 - Bowman-Spaulding Canal lining
 - Communication tower
- Relicensing (AIR)
- Operations and Maintenance - CMMS
 - Implementation
 - Recurring maintenance work order development

South Yuba Canal/Deer Creek Powerhouse

Review

- November 14, 2018 NID Board of Directors Adopted Resolution 2018-35 approving purchase of:
 - Deer Creek Development
 - Portions of South Yuba, and Chalk Bluff Canal
 - Deer Creek Forebay Dam/ Powerhouse and Penstock/ Switchyard
 - Deer Creek Lands
 - Approximately 765 Acres
 - Subject to Bear Yuba Land Trust Conservation Easement Commitment
 - Tangible Personal Property
 - Gages/ Alarms/ Contents of Powerhouse
 - Water Rights (combined 20 cfs/ pre-1914)
 - Pending FERC License Application and Related Materials
 - Deer Creek Easements (Encumbering PG&E's Retained Lands)
 - Wheeling Agreement
 - Obligates PG&E to Convey NID Water From B-S to YB 139 If COA Expires or Terminates
- April 28, 2021 NID Board of Directors Adopted Resolution 2021-12 reaffirming their Commitment to the acquisition of the Deer Creek Assets

South Yuba Canal/Deer Creek Powerhouse

Update

- November 18, 2021 FERC issued Order Approving Partial Transfer of License, Amending License, and Substituting Relicense Applicant
 - Last major hurdle remaining
 - Starts clock for final stage of transition
- Numerous closing conditions that need to be met
 - Generator Interconnect Agreement/CAISO coordination
 - Assessment of Materially Comparable Conditions
 - Communication upgrades for NID Operations
 - FERC required documentation (Drawings, etc.)
 - Forest Service Special Use Permit
 - Survey Monumentation

Questions?

