



N O R T H E R N C A L I F O R N I A P O W E R A G E N C Y

# Hydroelectric 2017 Proposed Budget



March 7, 2016

**Union Reservoir**

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## Assumptions

- NCPA (Power Management) 20-Year price forecast (HLH & LLH)
- \$15 (fixed) REC price (New Spicer Meadow)
- Average Year Hydro conditions
  - 424 GWh HLH Collierville Generation
  - 139 GWh LLH Collierville Generation
  - 21 GWh New Spicer Meadow Generation



# Hydro FY2017 Proposed Budget

	FY 2015 Budget	FY 2015 Actual	FY 2016 Budget	Proposed FY 2017 Budget	Increase/ (Decrease)	
<b>Routine O&amp;M Costs</b>						
Fixed	\$1,347,035	\$927,193	\$1,533,035	\$1,350,035	(\$183,000)	
Water for Power	293,000	230,137	275,000	542,000	267,000	
Administration	211,100	119,312	203,700	196,100	(7,600)	
Mandatory Costs	1,824,320	1,352,514	1,753,000	1,630,000	(123,000)	
Transmission O & M	235,000	190,961	255,000	259,000	4,000	
<b>Routine O&amp;M Costs w/o Labor</b>	3,910,455	2,820,117	4,019,735	3,977,135	(42,600)	-1.1% Decrease in Routine O&M despite +\$250K in Water-for-Power
<b>Labor</b>	3,910,565	3,537,932	4,051,806	4,391,625	339,819	
<b>Total Routine O&amp;M Costs</b>	7,821,020	6,358,049	8,071,541	8,368,760	297,219	Labor increase per Union MOU, Retirement Medical
<b>Other Costs</b>						
CA ISO Charges (variable)	240,243	2,443,306	222,355	236,910	14,555	
Debt Service	37,884,580	37,213,559	37,934,653	38,252,575	317,922	
Other Costs	1,160,949	1,102,981	1,122,450	928,812	(163,638)	
Generation Services Shared	395,418	226,102	351,252	332,814	(18,439)	
Administrative & General	1,418,717	1,172,556	1,441,427	1,665,726	224,299	
<b>Total O&amp;M Costs</b>	48,920,927	48,516,553	49,143,678	49,815,597	671,919	
<b>Projects</b>						
Operations & Maintenance	910,000	423,353	660,000	1,565,000	905,000	
General & Plant	355,000	300,000	210,000	70,000	(140,000)	
Capital Development Reserve	1,000,000	1,000,000	1,125,000	1,125,000	0	
<b>Total Projects Costs</b>	2,265,000	1,723,353	1,995,000	2,760,000	765,000	Increase in Projects
<b>Annual Budget Cost</b>	<b>51,185,927</b>	<b>50,239,906</b>	<b>51,138,678</b>	<b>52,575,597</b>	<b>1,436,919</b>	

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## HYDRO - FY 2017 Proposed Projects

<b>O&amp;M Projects</b>	<b>Notes</b>	<b>\$ 1,565,000</b>
CV Needle Actuator Rebuild	D	100,000
Adit 4 Stabilization	M	1,000,000
11563 Part 12 Study	M	80,000
NFDD Tunnel Maintenance	M	200,000
Paint CV Crane & Bridge	D	125,000
CV Concrete Sealing	D	60,000
<b>General &amp; Plant Projects</b>	<b>Notes</b>	<b>\$ 70,000</b>
Vehicle Replacement	D	70,000
<b>Capital Development Reserve Projects</b>	<b>Notes</b>	<b>\$ 1,125,000</b>
McKays Reservoir & Dam Betterment (Clean Out)	M, CR	750,000
CV Unit 1 Generator Rewind	M, CR	250,000
Beaver Creek Dredging	M, CR	125,000

## FY 2017 – CV Needle Valve Actuator Rebuild

Project	Notes	Total Cost to Complete	FY 2016 Current Budget	FY 2017	FY 2018	FY2019
CV Needle Actuator Rebuild	D	250,000	100,000	100,000	50,000	0

### Notes:

- D Discretionary
- M Mandatory
- Annual deposit to the Capital
- CR Development Reserve

### Financial Evaluation:

Useful Life (Years):	20
IRR:	13.5%
Payback (years):	9.6
NPV @ 5%:	\$ 767,030
Est. Annual Benefits:	\$ 94,584

- Project initiated in 2008 based on failure of similar plant in Alaska.
- Nine (9) rebuilt to date. Three (3) to go.
- Plan to rebuild two per year.

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## FY 2017 – Adit 4 Stockpile Stabilization

Project	Notes	Total Cost to Complete	FY 2016 Current Budget	FY 2017	FY 2018	FY2019
Adit 4 Stabilization	M	~1,000,000	0	1,000,000	0	0

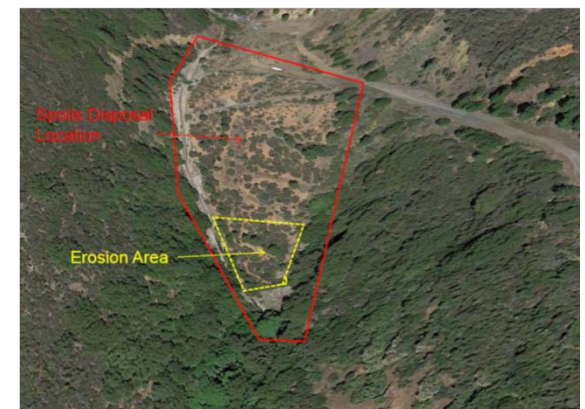
Notes:

- D Discretionary
- M Mandatory
- Annual deposit to the Capital
- CR Development Reserve

### Financial Evaluation:

**Mandatory**

- Eroding Tunnel Spoils Stockpile (200,000+ cubic yards).
- 1 mile above Collierville.
- BLM land. Steep terrain. Drainage.



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## FY 2017 – 11563 Part 12 Study

Project	Notes	Total Cost to Complete	FY 2016 Current Budget	FY 2017	FY 2018	FY 2019
11563 Part 12 Study	M	80,000		80,000		

Notes:

- D Discretionary
- M Mandatory
- Annual deposit to the Capital
- CR Development Reserve

### Financial Evaluation:

**Mandatory**

- Part 12D of Title 18 of the Code of Federal Regulations requires an Independent Engineering Consultant Dam Safety Review of each high hazard dam every 5 years.
- Alpine & Utica Dams due in upcoming fiscal year.





## FY 2017 – North Fork Tunnel Maintenance

Project	Notes	Total Cost to Complete	FY 2016 Current Budget	FY 2017	FY 2018	FY2019
NF Tunnel Maintenance	M	200,000	0	200,000	0	0

### Notes:

- D Discretionary
- M Mandatory
- Annual deposit to the Capital
- CR Development Reserve

### Financial Evaluation:

Useful Life (Years):	20
IRR:	19.0%
Payback (years):	8.1
NPV @ 5%:	\$ 493,710
Est. Annual Benefits:	\$ 56,364

- Tunnel transports ~50,000 acre-feet/year of water to NSM.
- Maintenance needed.

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## FY 2017 – Paint CV Crane & Bridge

Project	Notes	Total Cost to Complete	FY 2016 Current Budget	FY 2017	FY 2018	FY 2019
Paint CV Crane & Bridge	D	\$125,000	0	125,000	0	0

Notes:

- D Discretionary
- M Mandatory
- Annual deposit to the Capital
- CR Development Reserve

### Financial Evaluation:

**N/A**

- Coating wearing thin. Rust developing.
- 1985 PPA obligates NCPA to perform necessary maintenance such as painting.
- FERC sensitivities.

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## FY 2017 – CV Concrete Sealing

Project	Notes	Total Cost to Complete	FY 2016 Current Budget	FY 2017	FY 2018	FY 2019
CV Concrete Sealing	D	\$60,000	0	60,000	0	0

Notes:

- D Discretionary
- M Mandatory
- Annual deposit to the Capital
- CR Development Reserve

### Financial Evaluation:

**N/A**

- Water intruding into subsurface powerhouse.
- Concrete top deck requires maintenance.

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## FY 2017 – Vehicle Replacement

Project	Notes	FY 2016	FY 2017	FY 2018	FY 2019
		Current Budget			
Vehicle Replacement	D	70,000	70,000	55,000	55,000

Notes:

- D Discretionary
- M Mandatory
- Annual deposit to the Capital
- CR Development Reserve

- Routine vehicle replacement for high mileage, high maintenance, or unsafe vehicles.
- Hydro Fleet: 17 trucks collectively logging 200,000+ miles annually.



## FY 2017 – McKays Reservoir Clean Out Reserve

Project	Notes	Total Cost to Complete	FY 2016 Current Budget	FY 2017	FY 2018	FY 2019
McKays Reservoir Betterment	M, CR	\$20.5M+	750,000	750,000	750,000	750,000

**Notes:**

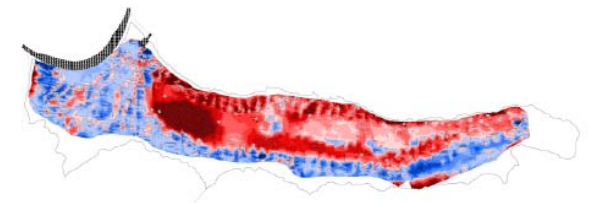
- D Discretionary
- M Mandatory
- Annual deposit to the Capital
- CR Development Reserve

**Financial Evaluation:**

Useful Life (Years):	20
IRR:	5.3%
Payback (years):	15.7
NPV @ 5%:	\$ 289,805
Est. Annual Benefits:	\$ 433,670

- Ongoing collection for Capital Development Reserve
- Mandatory for Dam Safety & Operational Flexibility
- ~\$13.8 M will have been collected by end of FY 2016

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## FY 2017 – CV Generator Rewind Collection

Project	Notes	Total Cost to Complete	FY 2016 Current Budget	FY 2017	FY 2018	FY 2019
CV Generator Rewind	M, CR	6,000,000	250,000	250,000	200,000	200,000

**Notes:**

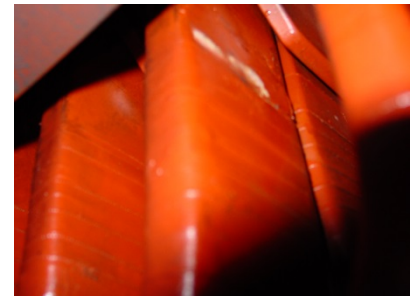
- D Discretionary
- M Mandatory
- Annual deposit to the Capital
- CR Development Reserve

### Financial Evaluation:

Useful Life (Years):	20
IRR:	16.0%
Payback (years):	7.7
NPV @ 5%:	\$ 4,971,718
Est. Annual Benefits:	\$ 566,127

- CV2 rewind tentatively planned to coincide with outage for McKays sediment removal project
- ~\$4.75M will have been collected by end of FY 2016
- Total Cost ~ \$5M - \$6.5M
  - Materials ~ \$1.5M - \$1.75 M per unit
  - Labor ~ \$1M - \$1.5M per unit

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## FY 2017 – Beaver Creek Dredging

Project	Notes	Total Cost to Complete	FY 2016 Current Budget	FY 2017	FY 2018	FY 2019
Beaver Creek Dredging	M, CR	\$600,000	125,000	125,000	133,192	137,188

Notes:

- D Discretionary
- M Mandatory
- Annual deposit to the Capital
- CR Development Reserve

### Financial Evaluation:

Useful Life (Years):	5
IRR:	182%
Payback (years):	1.4
NPV @ 5%:	\$ 962,585
Est. Annual Benefits:	\$ 218,250

- Recurring maintenance to remove sediment & debris  
(1997, 2006, 2008)
- Removal of ~ 5,000 cubic yards of debris
- Annual generation of ~66,000 MWh

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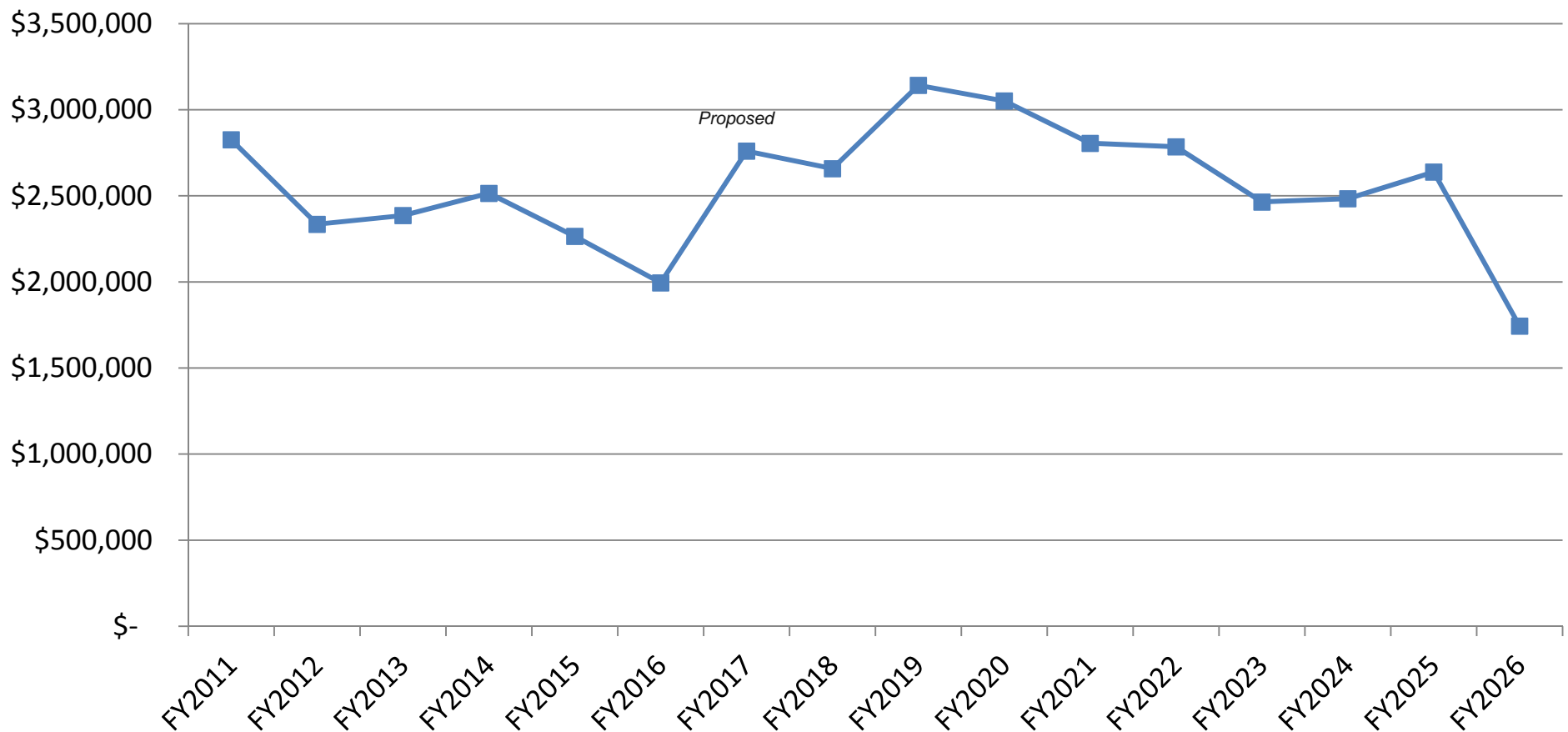
## HYDRO - FY 2017 Proposed Projects

<b>O&amp;M Projects</b>	<b>Notes</b>	<b>\$ 1,565,000</b>
CV Needle Actuator Rebuild **	D	100,000
Adit 4 Stabilization	M	1,000,000
11563 Part 12 Study	M	80,000
NFDD Tunnel Maintenance **	M	200,000
Paint CV Crane & Bridge **	M	125,000
CV Concrete Sealing **	M	60,000
<b>General &amp; Plant Projects</b>	<b>Notes</b>	<b>\$ 70,000</b>
Vehicle Replacement **	D	70,000
<b>Capital Development Reserve Projects</b>	<b>Notes</b>	<b>\$ 1,125,000</b>
McKays Reservoir & Dam Betterment (Clean Out) **	M, CR	750,000
CV Unit 1 Generator Rewind **	M, CR	250,000
Beaver Creek Dredging **	M, CR	125,000

**\*\* Possible to Defer up to \$1,680,000 if necessary**



## HYDRO Projects Including Capital Development Reserve





# NORTHERN CALIFORNIA POWER AGENCY

## HYDRO – Project 10 year Forecast

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
<b>O&amp;M PROJECTS</b>											
CV Battery Chargers Upgrade	75,000	-	-	-	-	-	-	-	-	-	-
CV Turbine Coupling Bolts	80,000	-	-	-	-	-	-	-	-	-	-
RTU Telemetry Upgrades	90,000	-	-	-	-	-	-	-	-	-	-
NSM Transfer Trip Fiber Upgrade	65,000	-	-	-	-	-	-	-	-	-	-
MPRRL GPS Upgrade	100,000	-	-	-	-	-	-	-	-	-	-
Physical Security	150,000	-	-	-	-	-	-	-	-	-	-
CV Needle Actuator Rebuild	100,000	100,000	50,000	-	-	-	-	-	-	-	-
Adit 4 Stabilization	-	1,000,000	-	-	-	-	-	-	-	-	-
11563 Part 12 Study	-	80,000	-	-	-	-	125,000	-	-	-	-
NFDD Tunnel Maintenance	-	200,000	-	-	-	-	-	-	-	-	-
Paint CV Crane & Bridge	-	125,000	-	-	-	-	-	-	-	-	-
CV Concrete Sealing	-	60,000	-	-	-	-	-	-	-	-	-
Paint MPDD Crane	-	-	100,000	-	-	-	-	-	-	-	-
Portable Generator	-	-	35,000	-	-	-	-	-	-	-	-
CV Tunnel Intake Transfer Trip	-	-	100,000	-	-	-	-	-	-	-	-
CV Units Generator Protection	-	-	35,000	-	-	-	-	-	-	-	-
CV Turbine Instrumentation Upgrade	-	-	50,000	250,000	250,000	-	-	-	-	-	-
CV Guide Bearing Conversion	-	-	-	250,000	250,000	-	-	-	-	-	-
2409 Part 12 Study	-	-	-	-	150,000	-	-	-	-	150,000	-
Union Slide Gate Replacement	-	-	350,000	-	-	-	-	-	-	-	-
Unidentified Projects	-	-	100,000	750,000	500,000	750,000	750,000	750,000	750,000	750,000	750,000
<b>TOTAL O&amp;M PROJECTS</b>	<b>660,000</b>	<b>1,565,000</b>	<b>820,000</b>	<b>1,250,000</b>	<b>1,150,000</b>	<b>750,000</b>	<b>875,000</b>	<b>750,000</b>	<b>750,000</b>	<b>900,000</b>	<b>750,000</b>
<b>CAPITAL PROJECTS</b>											
Vehicle Replacement	70,000	70,000	55,000	55,000	60,000	60,000	60,000	60,000	70,000	70,000	70,000
Snow Cat	140,000	-	-	-	-	150,000	-	-	-	-	-
Spicer Snow Cat Building	-	-	200,000	-	-	-	-	-	-	-	-
Microwave Radio Replacement	-	-	-	500,000	-	-	-	-	-	-	-
Unidentified Projects	-	250,000	500,000	250,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000
<b>TOTAL CAPITAL PROJECTS</b>	<b>210,000</b>	<b>320,000</b>	<b>755,000</b>	<b>805,000</b>	<b>810,000</b>	<b>960,000</b>	<b>810,000</b>	<b>810,000</b>	<b>820,000</b>	<b>820,000</b>	<b>820,000</b>
<b>RESERVE FUNDING</b>											
McKay's Sediment Removal	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	750,000	-
CV Generator Rewind	250,000	250,000	200,000	200,000	200,000	200,000	200,000	-	-	-	-
Beaver Creek Dredging	125,000	125,000	133,192	137,188	141,304	145,543	149,909	154,406	163,481	168,385	173,437
FERC Relicensing	-	-	-	-	-	-	TBD	TBD	TBD	TBD	TBD
<b>TOTAL RESERVE FUNDING</b>	<b>1,125,000</b>	<b>1,125,000</b>	<b>1,083,192</b>	<b>1,087,188</b>	<b>1,091,304</b>	<b>1,095,543</b>	<b>1,099,909</b>	<b>904,406</b>	<b>913,481</b>	<b>918,385</b>	<b>173,437</b>
PROJECTED RESERVE DISBURSEMENTS	0	-149,700	-2,050,000	0	0	-3,000,000	-1,500,000	-15,611,542	-4,750,000	-516,667	-516,667
PROJECTED RESERVE BALANCE	19,108,034	20,083,334	19,116,526	20,203,714	21,295,018	19,390,561	18,990,470	4,283,334	283,334	516,667	0
<b>TOTAL PROJECT FUNDING</b>	<b>1,995,000</b>	<b>3,155,000</b>	<b>2,658,192</b>	<b>3,142,188</b>	<b>3,051,304</b>	<b>2,805,543</b>	<b>2,784,909</b>	<b>2,464,406</b>	<b>2,483,481</b>	<b>2,638,385</b>	<b>1,743,437</b>

The background of the slide is a photograph of Union Reservoir. The water is calm and reflects the surrounding forest and sky. In the foreground, there are dark, silhouetted pine branches on the left and right sides. A large, dark rock formation is visible in the middle ground, partially submerged in the water. The sky is a clear, light blue.

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