

Staff Report

for the Board Meeting of July 8, 2020

TO: Board of Directors

FROM: Keane Sommers, P.E., Hydroelectric Manager *KSS*
Matt Wheeler, P.E., Compliance Administrator

DATE: July 1, 2020

SUBJECT: Implementation Costs and Forward Planning Related to New
FERC License for Yuba-Bear Project (FERC No. 2266)

HYDROELECTRIC

RECOMMENDATION:

Receive an informational presentation on the projected efforts and costs associated with implementation of a new Federal Energy Regulatory Commission (FERC) License for the Yuba-Bear Project.

BACKGROUND:

On April 15, 2011, Nevada Irrigation District (NID or District) filed an application for a new major FERC license to operate and maintain the Yuba-Bear Hydroelectric Project (Project No. 2266). An amended application was filed on June 18, 2012. The project includes four developments located on the Middle Yuba River, the South Yuba River, and the Bear River in Sierra, Nevada, and Placer Counties, California. The project encompasses 1,749.3 acres of federal land, including 1,540.8 acres within the Tahoe National Forest administered by the Forest Service (USFS) and 208.5 acres administered by the Bureau of Land Management (BLM). Project facilities include:

- Thirteen (13) main dams
- Eleven (11) reservoirs/impoundments
- Four (4) major water conduits
- Four (4) powerhouses
- One (1) power transmission line
- Associated appurtenant facilities and structures, including recreation facilities

The application for a new license includes significant proposed changes to the existing Yuba-Bear Project license operating conditions as well as some proposed

changes to the project facilities. Proposed (new or modifications to) facilities and operations include:

- New powerhouse at Rollins (Rollins #2) Lake
- FERC project boundary adjustments (roads)
- Modification of existing environmental measures
- Addition of new environmental measures and operating conditions
- Recreation area facility construction and/or rehabilitation at seven (7) project locations
- Road removal at two locations

Proposed modifications to project operations are largely due to environmental and other public benefit considerations, which have been expressed by project stakeholders - including jurisdictional agencies, Non-Government Organizations (NGOs), conservation groups, and the affected community.

The new license has not been issued by FERC for the Yuba-Bear Project, as two key milestones have not yet been completed. Specifically:

- Environmental Species Act (ESA) Section 7 Consultation with the U.S. Fish & Wildlife Service (USFWS) is not yet complete (Note: this item is waiting on issuance of a formal Biological Assessment from FERC to the National Marine Fisheries Service)
- Final ruling on FERC concurrence that the State of California has waived its right to issue a 401 Water Quality Certification. (FERC has made this finding. However; several appeals/protests have been filed and the item is not yet concluded.)

At this time, FERC does not have a definitive timeline for issuance of the new license. However, license issuance could occur within the next 12-months.

Upon issuance of the new license, the District will be required to adhere to 195 updated operating conditions, implement 28 operational/resource plans (2 plans require modification and 15 plans remain to be developed), complete multiple studies, and construct or modify several project facilities under a time schedule. The material costs and staff efforts necessary to implement the new license will be substantially higher than current operation (costs/staffing). In an effort to be prepared for the new license obligations, NID enlisted the services of a consulting firm (HDR) with specific expertise in the subject of FERC license requirements and implementation to assist us with projecting the costs over the initial term of the new license.

The attached memorandum (dated May 19, 2020) provides the estimated annual cash flow for implementation of the new FERC license for the Yuba-Bear Project over 40 years. The HDR memo provides planning-level detail and estimates on external costs for consultants, materials, and contractors to perform specific license-

related efforts (studies, development of mitigation plans, design, construction, specialty operation and inspections, and subject matter expertise support). *It is important to note that the HDR memo does not include estimates for NID staffing levels (or associated costs) in the analysis.*

Some of the memo highlights are provided below as a summary.

- Total cost over 40-years to implement the new license is approximately \$216,625,000.
- The average annual cost of implementation during the first 30-years of the license term is between \$2,200,000 and \$4,000,000 per year, which could be considered the base annual cost for the new license
- The highest cost period is expected during the first 4-years of license implementation, with an estimated cost totaling \$42,673,000. Major cost drivers include:
 - Design and construction of the new Rollins #2 Powerhouse
 - Development of 15 new operational/resource plans
 - Implementation of 28 operational/resource plans
 - Implement other conditions in new license
 - Commence monitoring activities
 - Repair and/or replacement of recreation facilities
 - Assessments, design, and permit applications for new (or modifications to) facilities
 - Additional activities (road and channel stabilization, other unforeseen)
- The second highest cost period is expected during years 6 and 7 of license implementation with a combined cost of \$27,869,000. Costs during this period is largely driven by construction of the Milton-Bowman Tunnel Fish Screen – as well as continued implementation of prior conditions and plans
- Other periods (years 13-15 and 18-20) include spikes in activity and monitoring as well as specific plan implementation (such as major recreation rehabilitation)
- The estimated cost portion for design and construction of the Rollins #2 Powerhouse will be \$24,677,000 expended over the first 7 years of the license term (approximately 11% of the total estimated cost of license implementation)
- The estimated cost split for license implementation is \$119M for Capital Costs and \$97M for O&M Costs.

The figure below shows a breakdown of license implementation costs by year, based on the information provided in the attached memorandum.

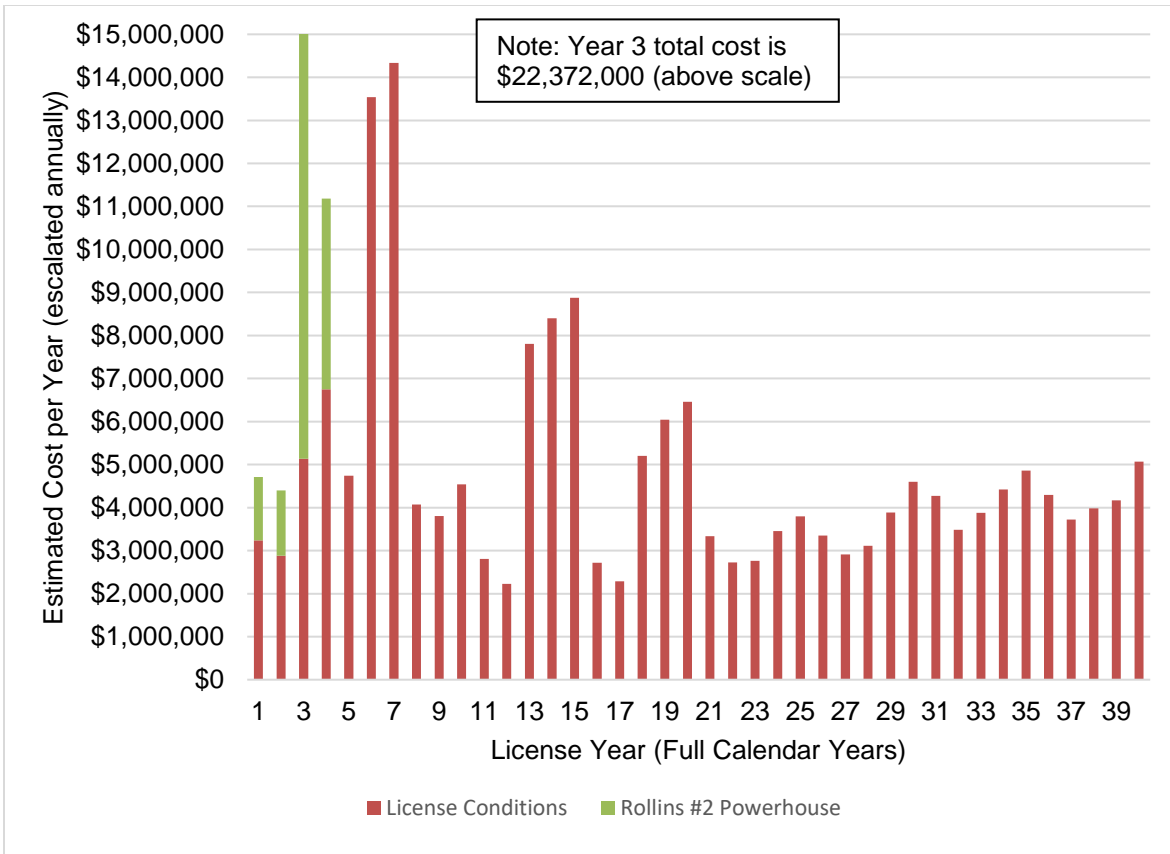


Figure 1 License Implementation Cost by Year

It is worth noting that development and implementation of 10 of the 195 license conditions will result in approximately 82% of the costs to implement the new license. The largest cost drivers in the license conditions are listed below for information:

1. Recreation Facilities Plan (\$119,375,000 at 55.1% of total)
2. Milton-Bowman Diversion Tunnel Fish Screen (\$21,672,000 at 10.0% of total)
3. Fish Stocking Plan (\$8,043,000 at 3.7% of total)
4. Integrated Vegetation Management Plan (\$5,884,000 at 2.7% of total)
5. Foothill Yellow-Legged Frog Monitoring (\$4,376,000 at 2.0% of total)
6. Fish Monitoring (\$3,902,000 at 1.8% of total)
7. Historic Properties Management Plan (\$3,714,000 at 1.7% of total)
8. Canal Outage Fish Rescue Plan (\$3,534,000 at 1.6% of total)
9. Channel Stabilization Plan (\$3,383,000 at 1.6% of total)
10. Benthic Macroinvertebrates Monitoring (\$3,213,000 at 1.5% of total)

This item is in alignment with Goal No.3 of the District’s Strategic Plan, as it works to identify and plan for regulatory changes which will affect our operations, costs, and ability to deliver service.

BUDGETARY IMPACT:

Implementation of the new FERC license to operate the Yuba-Bear Project will significantly impact the District's annual expense budget(s). In addition, reserves will be necessary to cover the operational costs during periods of increased activity.

Some of the operational/resource plans, which require development, will take several months (and possibly up to two years) for drafting, consultation with stakeholders, submittal, review, and adoption. However, new license conditions will typically require these plans be developed and submitted within the first year of license implementation. NID should consider commissioning development of these operational/resource plans in advance of the new license issuance – in order to stay ahead of the completion deadlines, and to maintain the best possible negotiating position for plan requirements with stakeholders.

In addition, it is estimated that the new flow-related requirements of the new license could result in a reduction of annual generation as follows:

- 4% to 5% lost generation with construction of Rollins #2 powerhouse
- 11% to 12% lost generation without construction of Rollins #2 powerhouse

NID's current power purchase agreement (PPA) with PG&E anticipated the potential of lost generation with implementation of the new FERC license. However; if the Rollins #2 powerhouse is not constructed (or not included in the PPA), NID is at risk of re-negotiating the terms of the current PPA for the Yuba-Bear Project. This could have a significant effect on the District's revenues, as power prices are not as strong today as they were at time of negotiating the current PPA.

The District should consider adopting spending policies/practices which will build-up reserves for FERC license implementation needs as well as un-encumbering Hydroelectric revenues for use during license implementation.

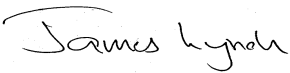
MJW
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Attachments: (2)

- HDR Memo - Cost for Implementation of New License (dated 5/19/2020)
- Presentation for July 8, 2020 Board of Directors Meeting



Memo

Date:	Tuesday, May 19, 2020
Project:	Yuba-Bear Hydroelectric Project
To:	Matthew Wheeler, Hydroelectric Compliance Administrator, Nevada Irrigation District Keane Sommers, Hydroelectric Manager, Nevada Irrigation District
From:	 Jim Lynch, HDR
Subject:	Estimated Schedule and Cost for Implementation of the New License

SUMMARY: *I estimate the total cost to the Nevada Irrigation District (NID) over 40 years to implement the new license for the Yuba-Bear Hydroelectric Project (Project) is \$216,625,000, with annual estimated costs ranging from a high of \$22,372,000 in Year 3 of the new license to a low of \$2,230,000 in Year 12. My cost estimate makes certain assumptions that should be carefully considered, and does not include cost related to lost generation.¹*

Excluding four high cost periods, in the first 30 years of the new license NID's license implementation estimated costs will be between about \$2,200,000 and \$4,000,000, with annual estimated costs increasing after Year 30 due to escalation. The first higher cost period is the first 4 years of the new license (Years 1 through 4). Costs are driven by the design and construction of the Rollins #2 Powerhouse, development and implementation of resource plans, monitoring, and beginning of recreation facilities modification with a total estimated cost during the period of \$42,673,000 (i.e., 20% of the total estimated cost). Years 6 and 7 are the second higher cost period with a total estimated cost during the period of \$27,869,000 (i.e., 13%), mostly related to the Milton-Bowman Diversion Tunnel fish screen. Years 13 through 15 and Years 18 through 20 periods are the third and fourth higher cost periods, respectively, with estimated costs in the periods totaling \$25,087,000 and

¹ In its August 2012 filing with FERC, NID estimated that under historic conditions, the Project generated on average 266 gigawatt-hours (GWh) annually. NID estimated that the flow-related requirements in the new license would result in a reduction of annual generation by 13 GWh, assuming the new 11.4 megawatt Rollins #2 Powerhouse was added to the Project.



\$17,703,000 (i.e., 12% and 8%), respectively, including major recreation rehabilitation or construction and monitoring (Figure 1).

The Rollins #2 Powerhouse cost is estimated to be \$24,677,000, approximately 11 percent of the total estimated cost.

The remaining 89 percent of estimated costs are related to implementation of 195 license conditions that could be included in the new license. Ten of the conditions represent 82 percent of the license implementation estimated costs, with the conditions pertaining to the Recreation Facilities Plan and the Milton-Bowman Diversion Tunnel Fish Screen together representing 65 percent of the total implementation estimated cost. Collectively, the remaining 185 conditions represent 7 percent of the total license implementation estimated cost (Figure 2).

The greatest demand by far on NID staff is anticipated to occur in the first several years of the new license, with similar but somewhat less demand in the Years 6 through 10 period, reaching a lower, steady demand with occasional spikes in demand after Year 10. This resource demand scenario is driven by the intense effort in Year 1 to implement the license, consult with agencies on the development of 17 resource plans, manage initiation of required monitoring, and oversee the design and construction of Rollins #2 Powerhouse and Milton-Bowman Diversion Tunnel Fish Screen.

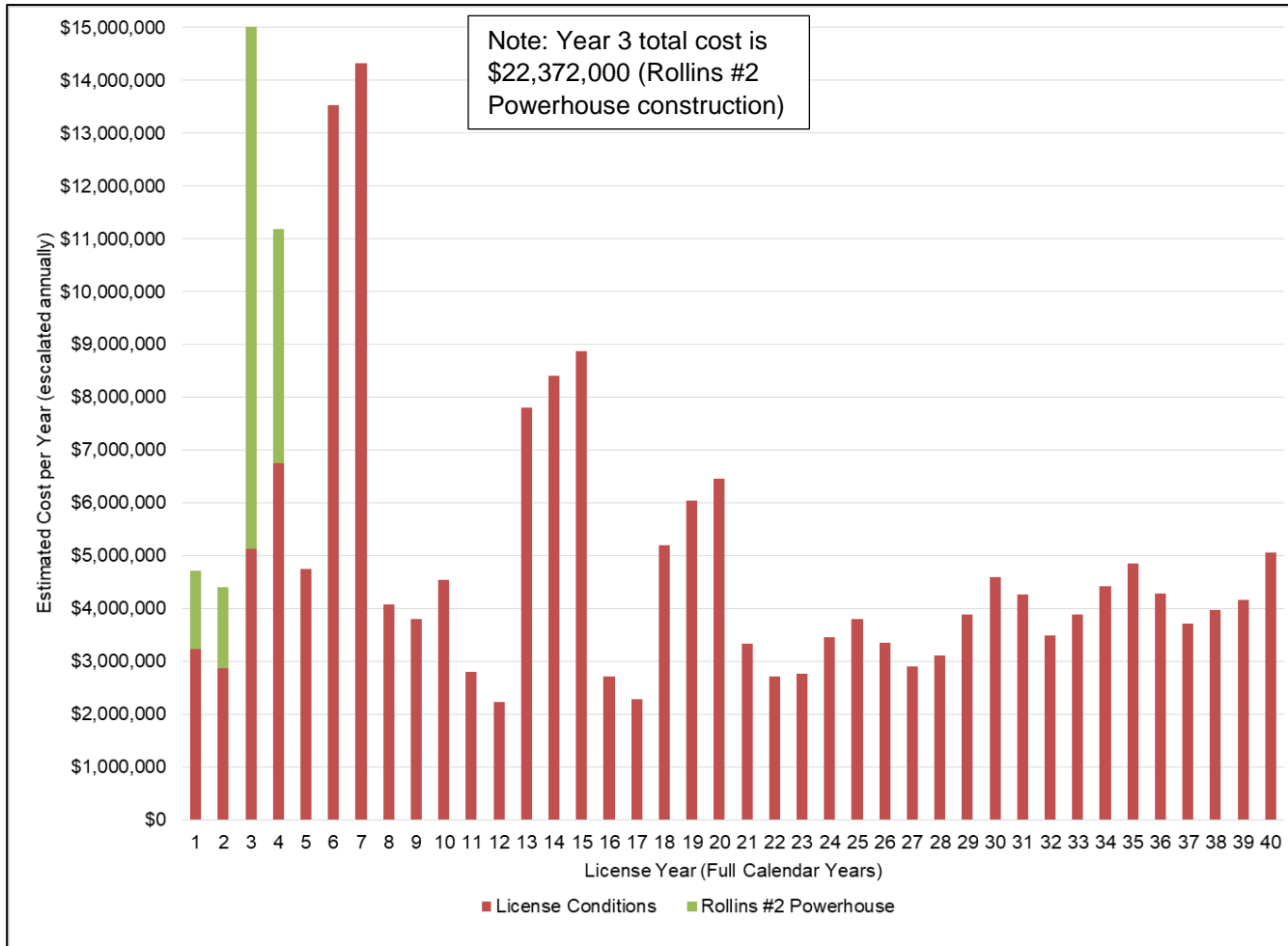


Figure 1. Estimated cost per year for implementation of the new Yuba-Bear Hydroelectric Project license assuming a 40-year license term (costs escalated at 2.5% per year).

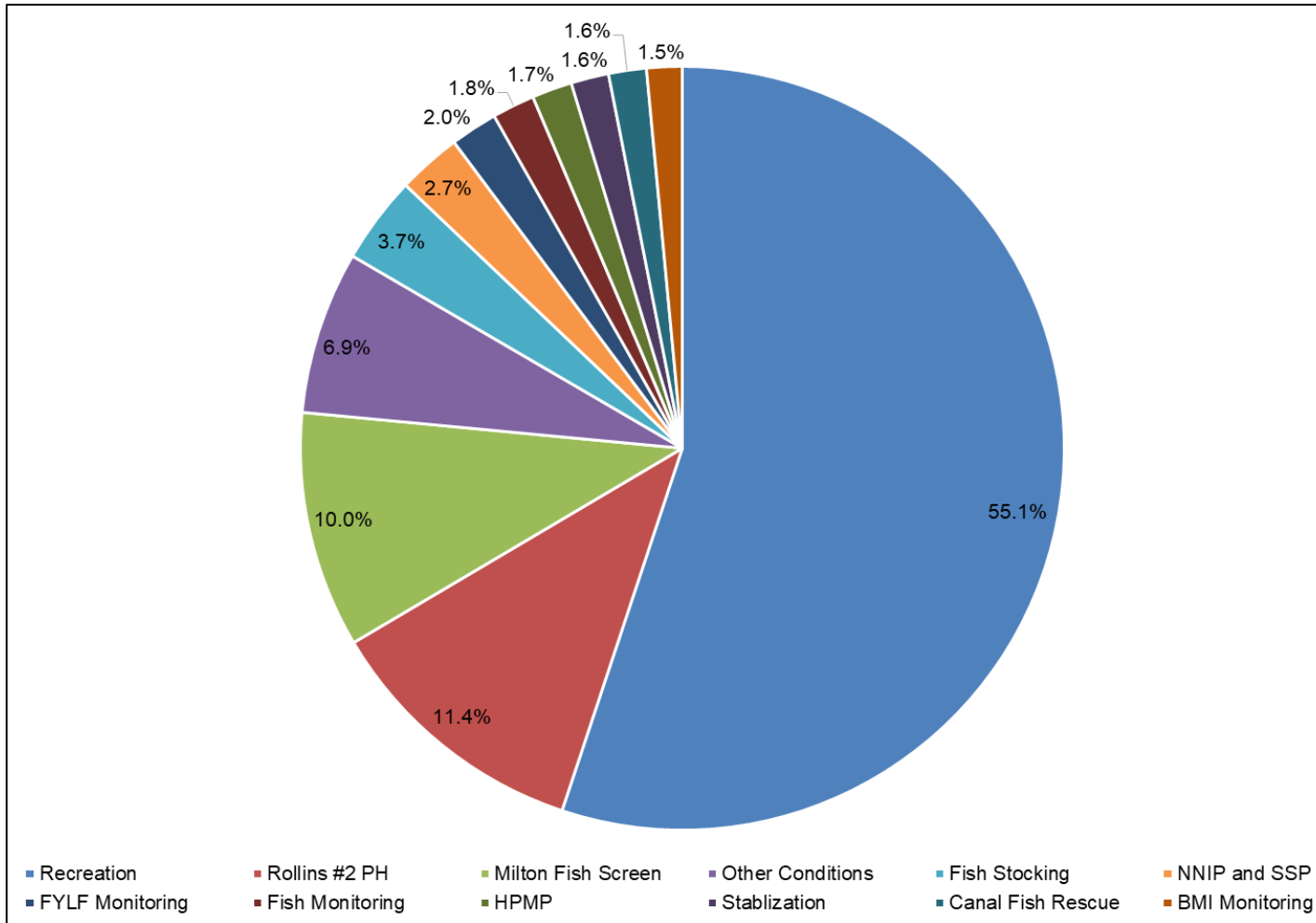


Figure 2. Percentage that the Rollins #2 Powerhouse and each license condition represents of the total estimated cost for implementation of the new Yuba-Bear Hydroelectric Project license.



This memorandum (memo) provides to the Nevada Irrigation District (NID) an estimated annual cash flow for implementation of the new license, which feasibly could be issued to NID by the Federal Energy Regulatory Commission (FERC) as soon as late 2020,² for NID's Yuba-Bear Hydroelectric Project (Project).

MATERIAL REVIEWED AND SOME CONSIDERATIONS

I reviewed FERC's December 2014 Final Environmental Impact Statement (FEIS) for relicensing of NID's Project. The FEIS provides FERC staff's recommendation for the terms and conditions that FERC should include in a new license for the Project. I did not include in my consideration the preliminary conditions filed with FERC by the State Water Resources Control Board (SWRCB) for a Clean Water Act Section 401 water quality certification (WQC) because FERC recently issued an order concluding the SWRCB waived its authority to issue a WQC for the Project relicensing.³ Importantly, FERC staff in the FEIS notes that it's recommended terms and conditions for the new license would be in addition to Federal Power Act (FPA) Section 4(e) mandatory conditions from the United States Department of Agriculture, Forest Service, (FS) and from the United States Department of the Interior, Bureau of Land Management (BLM), which were filed with FERC by those agencies on April 10 and April 14, 2014, respectively. I reviewed these two filings as well. In addition, since the FEIS and FPA Section 4(e) conditions were issued, NID and the United States Department of the Interior, Fish and Wildlife Service (FWS) agreed to measures that address potential Project effects on Endangered Species Act (ESA)-listed species and their designated critical habitats under FWS jurisdiction. NID filed a license application modification on December 21, 2018, to incorporate the conditions in its application, and presumably FERC will include them in the new license. I reviewed these conditions as well.

The attached Microsoft™ Excel file (Attachment A) includes a list of FERC staff's recommended conditions, the FS's final FPA Section 4(e) conditions, the BLM's final FPA Section 4(e) conditions, and the NID's license application modifications related to ESA consultation with FWS. I aligned the conditions to show conditions that are similar, and I developed an annual estimated cost to implement each of the conditions⁴, and included in the attached file the basis for the cost estimate. I summed each of the conditions costs to

² The only remaining hurdle to FERC issuing a new license to NID is FERC's consultation with the United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS) under Section 7 of the Endangered Species Act (ESA). I understand that FERC intends to issue "in late May 2020, or later" to NMFS a Biological Assessment (BA). A late 2020 issuance of a new license by FERC is reasonable if FERC's BA determines the Project has no effect on ESA-listed anadromous fishes, as NID has urged, and NMFS concurs with FERC's determination. If not, issuance of a new license could be delayed indefinitely.

³ A party could request that FERC rehear its order, or refer the order to a court for adjudication.

⁴ I began developing costs for each condition by reviewing the costs for conditions provided in NID's 2012 Application for New License and FERC's 2014 FEIS. I adjusted those costs based on my experience.



calculate a total estimated cost for each condition as well as a total estimated cost to implement the new license. Some important considerations are:

1. I escalate estimated costs annually by 2.5 percent.⁵
2. I do not account for “cost of money” (e.g., borrowing and deposit interest rates, or payment of interest on bonds) that NID might incur if it chooses to fund some or all of license implementation costs.
3. I assume “Year 1” of the new license is 2021.
4. For simplification, while the estimated costs in Attachment 1 are the nearest dollar, estimated cost shown in this memo are rounded to the nearest \$1,000 dollars.
5. The estimated costs in this memo and attachment are based on my current understanding of each possible license condition: they are based on the material I reviewed and the caveats provided in this memo.
6. When estimating cost for individual conditions, I do not attempt to employ any synergistic strategies to reduce cost because I am not sure what approach NID will take. The estimated cost for each condition is estimated as a stand-alone cost.
7. I use a 40-year new license term since that is the period that FERC considers its “default” period for new license. However, NID requested from FERC a license term of 50 years, the maximum term that FERC can include in a new license. I suspect the new license will have a term closer to 50 years, especially if NID justifies such a term to FERC.⁶
8. I provide both a total estimated cost over 40 years for implementation of the condition and an annual levelized estimated cost (i.e., divided the total cost over 40 years by 40). In addition, I provide the percent of the total estimated cost each condition represents.
9. For some conditions, the year in which the activity would occur is not defined in the condition (e.g., depends on water year type or some action that would trigger the condition) but the current available information was used to assign a period.

⁵ As background, escalated dollars account for \$67,931,000, or 31 percent of the total implementation estimated cost of \$216,625,000. Without escalation, the estimated cost of implementation is \$148,694,000.

⁶ FERC’s Policy Statement on Establishing License Terms for Hydroelectric Projects (161 FERC ¶ 61,078 (2017)) includes as a justification for granting a longer license term than 40 years where significant measures are expected to be implemented under the new license for non-development purposes (e.g., environmental, recreation, water supply) or those that enhance power and developmental purposes. Further, America’s Water Infrastructure Act of 2018 (Pub. L. No. 115-270, 132 Stat. 3765) requires FERC to give equal weight to investments by the licensee over the term of the existing license that resulted in redevelopment, new construction, new capacity, efficiency, modernization, rehabilitation or replacement of major equipment, safety improvements, or environmental, recreation, or other measures. I recommend that, in the next few months, NID consider compiling this information and filing it with FERC to justify a term of 50 years in the new license.



10. Where I believe a condition would be implemented in-house by NID, I do not attempt to estimate the in-house cost but assume it is a sunk cost.
11. In some cases (e.g., the monitoring), NID developed detailed plans that FERC staff, FS, BLM and FWS all seem to agree with and direct NID to implement when the license is issued. Other conditions are dependent on consultation with agencies and design that will not occur until after the license is issued. In each instance, I use the best available information along with my experience to develop the cost estimates.
12. My estimated costs are incremental: they do not include NID's normal operation and maintenance cost for the hydropower facilities, or any costs towards a hydropower reserve fund.
13. The estimated costs for some of the conditions likely overlaps with costs currently incurred by NID for implementation of the existing license. For instance, costs NID currently expends related to recreation or road maintenance are not additive to costs NID is estimated to spend in the new license; many requirements in the new license are the same as requirements in the existing license. I do not attempted to compare those costs and adjust the estimated costs going forward under the new license: the estimated cost in Attachment 1 for each condition is the total estimated cost for that condition, not the incremental increase from the existing cost.
14. As requested by NID staff, my estimated cost to implement the new license includes design and construction of the new Rollins #2 Powerhouse. NID proposed and the FEIS includes the addition of a new Rollins #2 Powerhouse to the Project. Therefore, FERC's approval for construction of the new powerhouse is likely to be included in the new license.

OVERVIEW OF LIKELY CONDITIONS IN THE NEW LICENSE

The new license may include 195 conditions, many of which overlap and are administrative. In the FEIS, FERC staff recommends 14 conditions, many of which augment FS or BLM FPA Section 4(e) conditions. The FS's FPA Section 4(e) includes 63 conditions, 24 of which are administrative; and the BLM's FPA Section 4(e) includes 66 conditions, 25 of which are administrative. Many of the FS and BLM FPA Section 4(e) conditions are similar if not identical. Also, many of the FS and BLM FPA Section 4(e) conditions, most notable flow-related conditions and many implementation plans, were collaboratively developed and agreed to among NID, FS, BLM, FWS, California Department of Fish and Wildlife (CDFW) and other agencies and non-governmental organizations (NGO). FERC may combine some of these in the new license. In addition, subsequent to issuance of the FEIS, NID and FWS reached agreement on 15 FWS conditions related to ESA-listed species and NID filed those conditions with FERC. The conditions generally relate to a condition proposed by FERC staff, FS, or BLM and, therefore, do not add significant additional costs. Last, FERC will include in the new license 37, mostly administrative, conditions in FERC's Form L-5



Standard Articles (Terms and Conditions of License for Constructed Major Project Affecting Navigable Waters and Lands of the United States).

Most of the conditions include a statement concerning when the new condition will become effective upon issuance of the new license (e.g., immediately, within 3 months, or at some other time after license issuance), and many include a requirement to file something (e.g., a plan or a report) with FERC, or to submit something (e.g., a report) to an agency. Further, conditions that include some form of monitoring (e.g., collecting fish or temperature data) include when those data will be collected, usually beginning in the first full calendar year after license issuance, and filed.

Collectively, the FERC staff's recommendations, FS's FPA Section 4(e) conditions, and BLM's FPA Section 4(e) require NID to implement 28 resource plans.⁷ These are:

- Plans Developed and Agreed to by All Parties during Relicensing
 - *Implement Plan in 1st Calendar Year After License Issuance*
 1. Canal Outage Fish Rescue
 2. Gaging
 3. Bald Eagle Management
 4. Erosion and Sediment Control
 5. Fish Population Monitoring
 6. Foothill Yellow-legged Frog Monitoring
 7. Chanel Morphology Monitoring
 8. Water Temperature and Stage Monitoring
 9. Transportation System Management
 10. Visual Resource Management
 11. Historic Properties Management
- Plans Developed and Agreed to by All Parties during Relicensing, but FERC Staff Recommends NID Modify the Plans Slightly
 - *File Modified Plan with FERC Within 3 Months of License Issuance*
 12. Integrated Vegetation Management
 - *FERC Staff Did Not Say When the Modified Plan Was to be Filed with FERC*
 13. Fire Management and Response
- Plans Not Developed and Agreed to by All Parties, but FERC Staff Recommends the Plan be Developed
 - *File New Plan Within 3 Months of License Issuance*
 14. Coordinated Operations

⁷ Attachment 1 provides a list of these plans, including which agency requires the plan.



- *File New Plan Within 12 Months of License Issuance*
 15. Channel Stabilization
 16. Milton-Bowman Diversion Tunnel Fish Entrainment Protection
 17. Canal Release Point
 18. Riparian Vegetation Monitoring
 19. Hazardous Substance
 20. Aquatic Invasive Species Management and Monitoring
 21. Aquatic Benthic Macroinvertebrates Monitoring
 22. Recreation
 23. Recreation Streamflow Information
 24. Dutch Flat Afterbay Large Woody Debris
 25. Wildlife Crossings
 26. Avian Management
 27. Bat Management
 28. Fish Stocking

Importantly, the FEIS requires that NID “consult with” various agencies or other parties when modifying or developing a plan, and file with the plan evidence of consultation and, if an agency recommendation was not included in the plan, the reason why it was not included.

ESTIMATED ANNUAL CASH FLOW

The total estimated cost over 40 years to implement the new license is \$216,625,000.

As shown in Figure 1, excluding four high cost periods, in the first 30 years of the new license NID’s license implementation estimated costs will be between about \$2,200,000 and \$4,000,000, with annual estimated costs increasing after Year 30 due to escalation. Each of the four higher cost periods is discussed below.

High Cost Period 1: Years 1 through 4 (\$42,673,000: 20% of Total Estimated Cost)

License implementation costs in Years 1 through 4 range from \$4,401,000 to \$22,372,000 and this period is, by far, the most NID staff resource demanding period in the new license. Discussed below are some of the major activities that would occur during this period.

Design and Construction of Rollins #2 Powerhouse

I assume that in the first 4 years of the new license, NID would design and construct the 8 MW Rollins #2 Powerhouse. FERC typically requires such a new facility be in service within 7 years of license issuance. For the purpose of the cash flow, I assume NID would do this in 4 years to avoid an overlap of these high costs with those costs that will be incurred for the design and construction of the Milton-Bowman Diversion Tunnel Fish Screen in Years 6 and 7.



Develop and Implement Resource Plans

As discussed above, within the first year or so of the new license, NID would be implementing 11 resource plans, and consulting with various agencies to modifying 2 plans and develop 15 new resource plans and filing with FERC these 17 plans for approval. As FERC approves the modified and new plans, NID would implement them.

Commence Monitoring

Besides any monitoring specified in the resource plans listed above, the FEIS specifies other monitoring beginning when the license is issued. Some of the monitoring includes:

- Monitor Animal Losses in Canals
- Monitor Avian Collisions with Powerlines
- Steephill Creek Foothill Yellow-Legged Frog Monitoring

Begin Repair/Replacement of Recreation Facilities

I anticipate, based on the FS's and BLM's Section 4(e) conditions and assuming FERC approves the Recreation Plan early in the second year, that in the third year of the new license NID will be designing and repairing, replacing and possibly constructing new recreation facilities.

Hold Meetings

The FEIS requires that NID arrange and hold the annual meetings with the FS and with BLM (i.e., separate meetings), arrange and hold annual recreation planning meetings with the FS, and form a Consultation Group with FS, BLM and other agencies and NGOs and hold annual meetings with them. In addition, I assumed that more frequent meetings might be necessary in the first few years of the new license to facilitate implementation.

Implement other Conditions in the New License

While doing all of the above in the first 4 years of the new license, NID must also implement other portions of the new license, such as:

- Establish Water Year Types
- Release Minimum Flows
- Release Minimum Streamflows during Bowman-Spaulding Canal Annual Planned Outages
- Release Wintertime Minimum Streamflows
- Release Wilson Creek Minimum Flows
- Implement Spill Cessation
- Review List of Special-Status Species



- Pass Large Woody Material at Dams
- Implement the Rollins Reservoir Elevation Control

Determine If New Facilities are Needed to Comply with Flow Requirements

Most of the flow-related conditions state that NID would implement the new flow condition within 3 months of license issuance, unless facility modifications are needed. In that case, the condition states NID would make the necessary facility modifications after obtaining the necessary approvals. I assume these assessments, designs and permit applications, if needed, would be prepared in the first year of the new license.

Additional Activities

In addition, during the first 4 years of the new license, NID would likely put in place road, recreation and channel stabilization measures and implement the Historic Properties Management Plan (HPMP). Some of these costs might be shifted, but that is unlikely. Note that unforeseen costs (e.g., contracting) will likely occur during this period as well since license implementation process itself will add cost.

High Cost Period 2: Years 6 through 7 (\$27,869,000: 13% of Total Estimated Cost)

These two years represent the second highest cost period for the new license. High cost items in this period include a continuation of most of the activities begun in the first 4 years as well as construction of the Milton-Bowman Diversion Tunnel Fish Screen. Some of these cost might be shifted. In particular, I suspect consultation, permitting, design and construction of the fish screen will take longer than anticipated in the condition as currently written. I anticipate the staff resource demand on NID would be significantly less in this period than in the Years 1 through 4 period because any facility modifications to comply with flow requirements would be completed and much of the monitoring would be initiated.

High Cost Period 3: Years 13 through 15 (\$25,087,000: 12% of Total Estimated Cost)

These three years represent the third highest cost period for the new license. High cost items in this period include: continued implementation of the HPMP, increases in biological monitoring, and recreation facility rehabilitation and construction, which is emphasized in this period. This would result in some increase in demand on NID staff.

High Cost Period 4: Years 18 through 20 (\$17,703,000: 8% of Total Estimated Cost)

This period is similar to Years 13 through 15, with a slightly less emphasis on monitoring.



COSTS BY POTNTIAL LICENSE CONDITION

Figure 2 shows the license implementation conditions with higher (i.e., more than 1.0% of the total estimated cost) total costs over 40 years. Excluding the Rollins #2 Powerhouse that represents 11.4 percent of the total license implementation cost, the items that represent more than 1 percent of the total license implementation estimated cost are:

1. Recreation Facilities Plan (\$119,375,000: 55.1% of Total Estimated Cost) - I only include the estimated cost associated with the Recreation Facilities Plan here. However, three BLM conditions (i.e., Nos. 32, 34 and 36) have associated recreation costs for a new Dutch Flat Afterbay Day Use Area, recreation O&M on BLM lands and payments to BLM for managing recreation facilities on BLM lands that total \$3,115,000. As noted above, much of the recreation costs would have been incurred by NID under the new license if there were no changes for recreation from the existing license (i.e., the vast majority of the recreation cost under the new license is to maintain and upgrade existing facilities, which NID would have done even if no change to the existing license).
2. Milton-Bowman Diversion Tunnel Fish Screen (\$21,672,000: 10.0%)
3. Fish Stocking Plan (\$8,043,000: 3.7%)
4. Integrated Vegetation Management Plan (\$5,884,000: 2.7%)
5. Foothill Yellow-Legged Frog Monitoring (\$4,376,000: 2.0%). I suspect this cost may increase slightly because, since the time NID filed its application and FERC issued the FEIS, the frog has been listed as threatened under the California Endangered Species Act potentially requiring additional authorizations which could include an Incidental Take Permit.
6. Fish Monitoring (\$3,902,000: 1.8%)
7. Historic Properties Management Plan (\$3,714,000: 1.7%)
8. Canal Outage Fish Rescue Plan (\$3,534,000: 1.6%)
9. Channel Stabilization Plan (\$3,383,000: 1.6%)
10. Benthic Macroinvertebrates Monitoring (\$3,213,000: 1.5%)

The above 10 conditions represent 82 percent of the license implementation costs, and the first two conditions together represent 65 percent of the total implementation cost. These two conditions are open-ended – they both require development of a plan in consultation with the FS, a mandatory conditioning agency, and other agencies, as well as significant capital outlays.

I believe there are strategies that NID could employ prior to license issuance and during license implementation to significantly reduce many of these cost and to reduce the annual



cash flow burden (i.e., spread costs out from higher cost years into lower cost years), and would be happy to discuss those strategies with NID at its convenience.

Please contact me if you have any questions concerning this memo or if HDR can be of any further assistance to NID.

Attachment: Estimated Cash Flow for Implementation of NID's Yuba-Bear Hydroelectric Project's New FERC License (Microsoft™ Excel File with 1 spreadsheet)⁸

⁸ Attachment 1 includes the figures used in this memo.

FERC Relicense Costs and Planning Yuba-Bear Project (FERC No. 2266)

NID Board of Directors' Meeting of July 8, 2020



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Status of Application

- ▶ April 15, 2011 - Initial Application Filed by NID
- ▶ June 18, 2012 - Amended Application Filed
- ▶ New License Issuance Timeline - Unknown

Key Milestones Necessary for License Issuance by FERC:

- ▶ ESA Section 7 Consultation with USFWS / NMFS
- ▶ Final Ruling on State Waiving 401 Water Quality Certification
- ▶ License Issuance Could Occur within 12-Months



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Changes to Project in License Application

- ▶ New (additional) powerhouse at Rollins Lake
- ▶ FERC project boundary adjustments
- ▶ 195 Updated Operating Conditions:
 - ▶ Modification of existing environmental measures
 - ▶ Addition of new environmental measures
 - ▶ Implement 28 operational/resource plans
 - ▶ Complete multiple studies
 - ▶ Construction and modification of several Project facilities
- ▶ Recreation facility construction and/or rehabilitation
- ▶ Road removal at two locations



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Costs and Timing

- ▶ \$216,625,000 - Total Implementation Cost over 40-years
- ▶ \$2,200,000 to \$4,000,000 - Average Annual Cost (first 30-years)
- ▶ Timing of cost spikes based on projection of major milestones
- ▶ Estimated cost split:
 - ▶ \$119M for Capital Costs
 - ▶ \$97M for O&M Costs



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Costs by Year

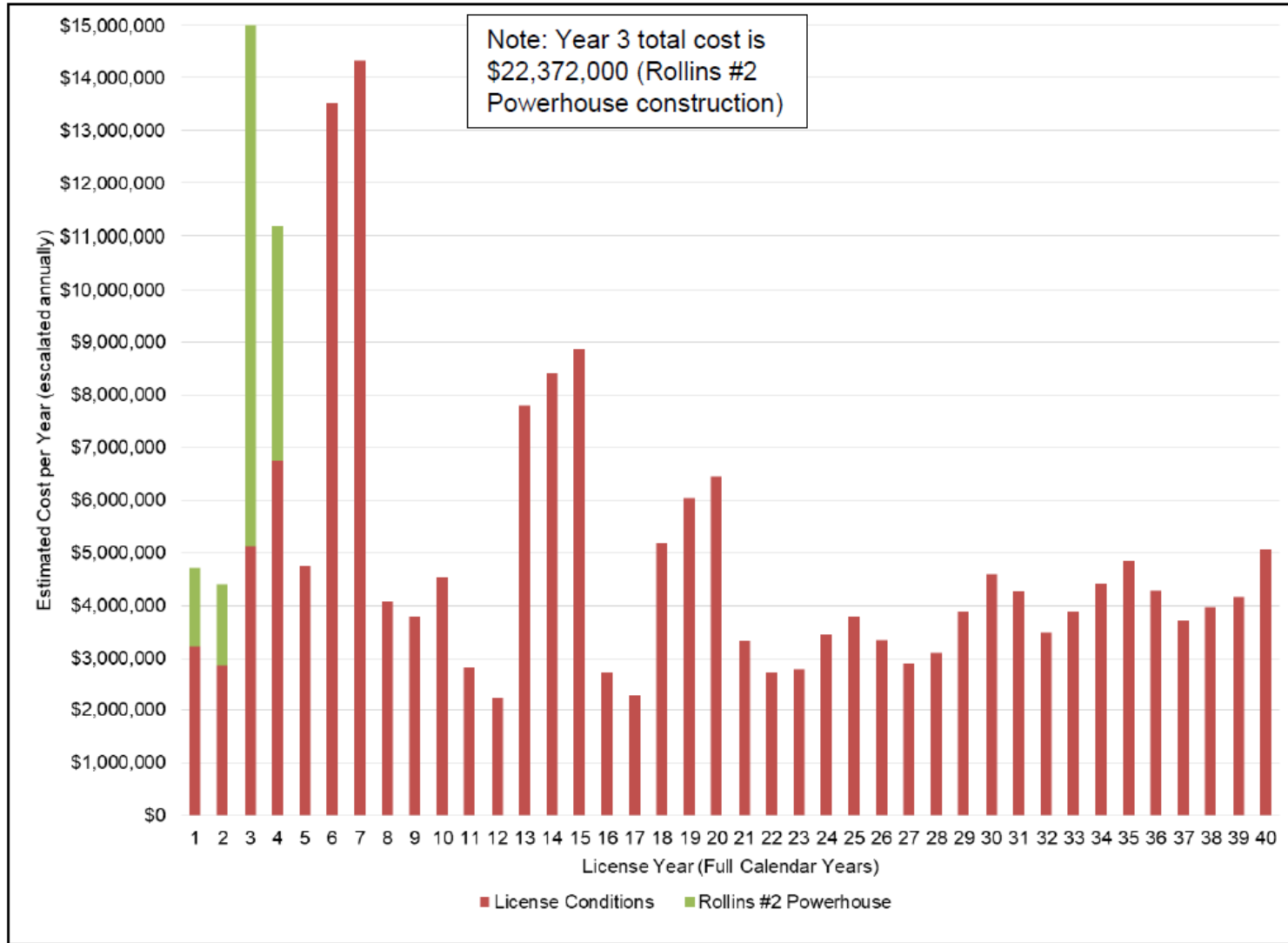


Figure 1. Estimated cost per year for implementation of the new Yuba-Bear Hydroelectric Project license assuming a 40-year license term (costs escalated at 2.5% per year).



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Costs by Category

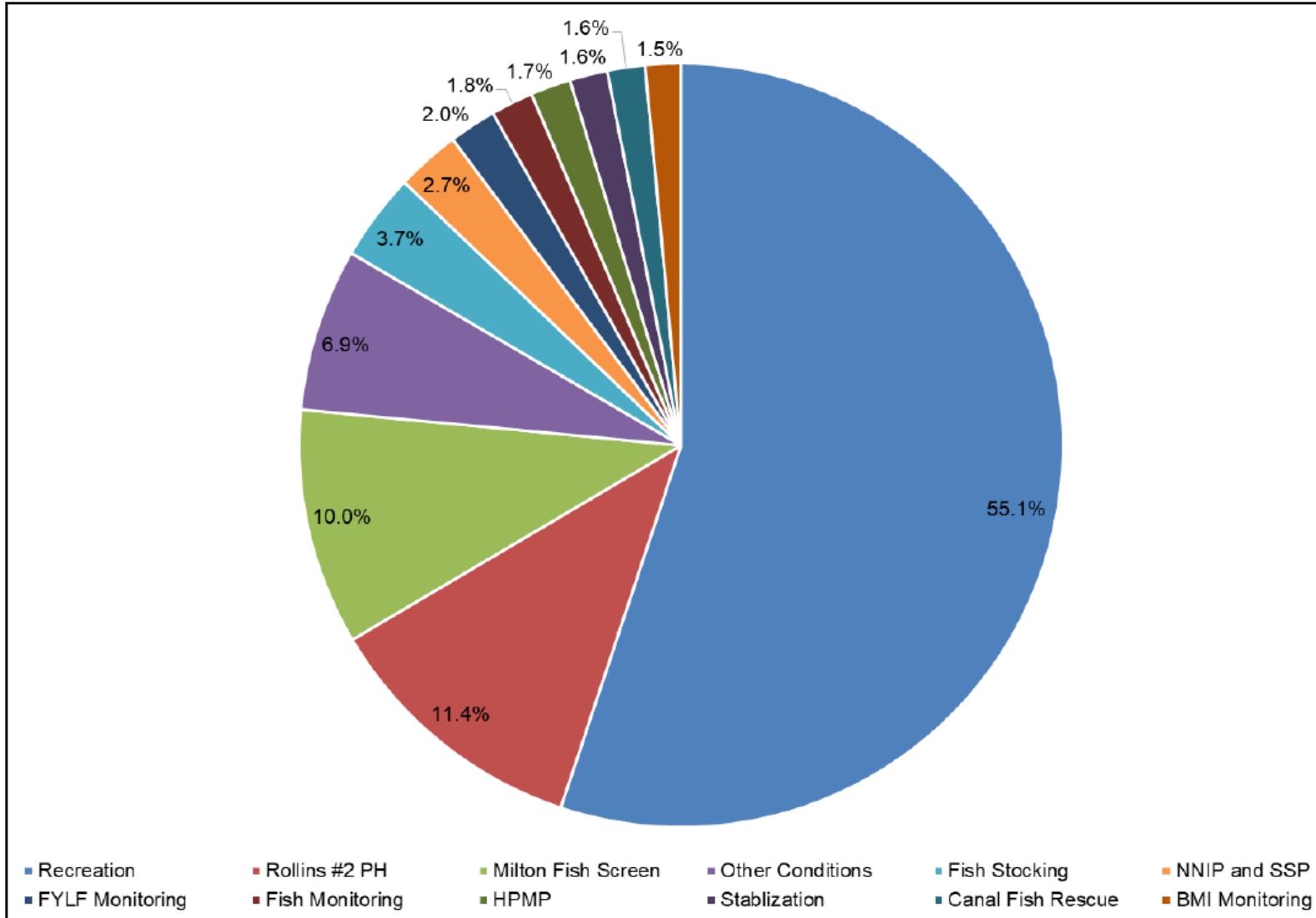


Figure 2. Percentage that the Rollins #2 Powerhouse and each license condition represents of the total estimated cost for implementation of the new Yuba-Bear Hydroelectric Project license.

Budgetary Impacts and Considerations

- ▶ Reserves will be necessary to cover costs during “spike” years
- ▶ Some operational/resource plans may need to be commissioned in advance of license issuance
- ▶ Potential reduction of power generation due to new license conditions may significantly affect District revenues
- ▶ District spending practices and reserve policies should be re-visited in light of cost projections



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Questions?



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