# FINAL LICENSE APPLICATION EXHIBIT D STATEMENT OF COSTS AND FINANCING

# SKAGIT RIVER HYDROELECTRIC PROJECT FERC NO. 553

Seattle City Light

April 2023

Section No.

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#### List of Acronyms and Abbreviations

CETA	.Clean Energy Transformation Act
CFR	.Code of Federal Regulations
City Light	.Seattle City Light
DLA	Draft License Application
ESA	Endangered Species Act
FERC	.Federal Energy Regulatory Commission
FLA	.Final License Application
FPA	.Federal Power Act
IDC	interest during construction
LP	licensing participant.
MW	.megawatt
MWh	.megawatt hour
O&M	operations and maintenance.
РМЕ	protection, mitigation, and enhancement
Project	.Skagit River Hydroelectric Project
RCW	Revised Code of Washington.
U.S.C	.United States Code
WECC	Western Electricity Coordinating Council

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# **EXHIBIT D: STATEMENT OF COSTS AND FINANCING**

## 1.0 CONTENTS AND PURPOSES OF THIS EXHIBIT

The Skagit River Hydroelectric Project (Skagit River Project or Project) is licensed by the Federal Energy Regulatory Commission (FERC) as FERC Project No. 553. The current FERC license expires on April 30, 2025.

This Exhibit D, that is being filed as part of the Final License Application (FLA), is a statement of costs and financing for the operation of the Skagit River Project, including new development costs, annual costs of the Project, the value of the Project power, and identification of the sources and extent of financing. Comments filed on Exhibit D of the Draft License Application (DLA; filed November 30, 2022) have been addressed herein and responses to all DLA comments are included in Appendix B of Exhibit E of this FLA.

Because Seattle City Light (City Light) is not applying for an initial license and because City Light is a municipality, 18 Code of Federal Regulations (CFR) § 4.51(e)(1) and 18 CFR § 4.51(e)(2), respectively, do not apply (see below).

### 2.0 ORIGINAL COSTS

The regulation 18 CFR § 4.51(e)(1) does not apply to the Skagit River Project because City Light is not applying for an initial license for the Project. Capital improvements made to the Project since the initial license was issued are summarized, to the extent relevant, in Exhibit C of this FLA. Capital costs associated with hydroelectric infrastructure projects and protection, mitigation and enhancement (PME) measures in the new license term are summarized in Section 4.0 of this Exhibit.

### 3.0 ESTIMATE OF THE AMOUNT PAYABLE IF THE PROJECT WERE TO BE TAKEN OVER PURSUANT TO SECTION 14 OF THE FEDERAL POWER ACT

The regulation 18 CFR § 4.51(e)(2) states that if the applicant is a licensee applying for a new license, and is not a municipality or a state, an estimate of the amount which would be payable if the project were to be taken over pursuant to section 14 of the Federal Power Act (FPA) upon expiration of the license in effect must be provided. Given that City Light is a municipality, this section does not apply.

#### 4.0 NEW DEVELOPMENT COSTS

As used here, "new development work" includes: (a) any capital expended to carry out improvements or betterments to the Project consistent with existing long-term plans that will continue during the term of a new license, or with the proposals contained in Exhibits A, B, C, E, and H; as well as (b) any capital required to provide environmental mitigation or enhancement during the term of a new license.

Costs for new development work for capital projects, hydroelectric infrastructure as well as PME measures, as proposed as part of the Proposed Action are summarized in Table 4.0-1. Costs are also provided for the hydroelectric infrastructure capital projects under consideration for the new license term but not included in the Proposed Action and included for informational purposes only (Table 4.0-2). Total estimated costs include overhead. The extent of the costs for any necessary land rights that would need to be acquired for the implementation of any of the new development PME measures would be determined at the time of purchase.

Pursuant to Section 36 of the FPA as adopted under the America's Water Infrastructure Act of 2018, FERC is required to consider, and give equal weight to, project-related investments by the licensee under the new license and voluntary investments under the existing license. This includes investments relating to redevelopment, new construction, new capacity, efficiency, modernization, rehabilitation or replacement of major equipment, safety, improvements, or environmental, recreation, or other PME measures. Voluntary costs incurred by City Light under the current license are described in the cover letter to the FLA and Attachment 1.

Component	Estimated Cost	Overhead	Total Capital Cost
Hydroelectric Infrastructure			
Major Capital Improvement Projects (CIP) at Powerhouses, Dams, and Reservoirs			
Ross Unit 41 Generator Rewind (2049)	\$35,200,000	\$5,632,000	\$40,832,000
Ross Unit 42 Generator Rewind (2045)	\$35,200,000	\$5,632,000	\$40,832,000
Ross Unit 43 Generator Rewind (2046)	\$35,200,000	\$5,632,000	\$40,832,000
Ross Unit 44 Generator Rewind (2047)	\$35,200,000	\$5,632,000	\$40,832,000
Diablo Unit 31 Generator Rewind (2058)	\$32,000,000	\$5,120,000	\$37,120,000
Diablo Unit 32 Generator Rewind (2059)	\$32,000,000	\$5,120,000	\$37,120,000
Diablo Unit 35 Generator Rewind (2027/2067)	\$7,000,000	\$1,120,000	\$8,120,000
Diablo Unit 36 Generator Rewind (2027/2067)	\$7,000,000	\$1,120,000	\$8,120,000
Gorge Unit 21 Generator Rewind (2029/2069)	\$48,000,000	\$7,680,000	\$55,680,000
Gorge Unit 22 Generator Rewind (2030/2070)	\$48,000,000	\$7,680,000	\$55,680,000
Gorge Unit 23 Generator Rewind (2031/2071)	\$48,000,000	\$7,680,000	\$55,680,000
Gorge Unit 24 Generator Rewind (2033/2073)	\$64,000,000	\$10,240,000	\$74,240,000
Ross Unit 41 Turbine Runner Replacement (2027/2067)	\$19,162,000	\$3,065,920	\$22,227,920
Ross Unit 42 Turbine Runner Replacement (2036)	\$9,581,000	\$1,532,960	\$11,113,960
Ross Unit 43 Turbine Runner Replacement (2037)	\$9,581,000	\$1,532,960	\$11,113,960
Ross Unit 44 Turbine Runner Replacement (2026/2066)	\$19,162,000	\$3,065,920	\$22,227,920
Diablo Unit 31 Turbine Runner Replacement (2034/2074)	\$17,420,000	\$2,787,200	\$20,207,200
Diablo Unit 32 Turbine Runner Replacement (2035)	\$8,710,000	\$1,393,600	\$10,103,600
Diablo Unit 35 Turbine Runner Replacement (2027/2067)	\$3,500,000	\$560,000	\$4,060,000
Diablo Unit 36 Turbine Runner Replacement (2027/2067)	\$3,500,000	\$560,000	\$4,060,000
Gorge Unit 21 Turbine Runner Replacement (2032/2072)	\$11,323,000	\$1,811,680	\$13,134,680
Gorge Unit 22 Turbine Runner Replacement (2031/2071)	\$11,323,000	\$1,811,680	\$13,134,680
Gorge Unit 23 Turbine Runner Replacement (2030/2070)	\$11,323,000	\$1,811,680	\$13,134,680
Gorge Unit 24 Turbine Runner Replacement (2046)	\$9,581,000	\$1,532,960	\$11,113,960
Diablo Transformer Replacement U31 (2055)	\$6,750,000	\$1,080,000	\$7.830,000

Table 4.0-1.Summary of estimated capital costs associated with new development proposed as part of the Proposed Action (All costs<br/>in 2021 dollars). 1,2

Component	Estimated Cost	Overhead	Total Capital Cost
Diablo Transformer Replacement U32 (2055)	\$6,750,000	\$1,080,000	\$7,830,000
Gorge Transformer Replacement BK22 (2065)	\$6,750,000	\$1,080,000	\$7,830,000
Gorge Transformer Replacement BK24 (2065)	\$6,750,000	\$1,080,000	\$7,830,000
Diablo Governors Replacement (2025)	\$5,600,000	\$896,000	\$6,496,000
Gorge Governors Replacement (2027)	\$8,000,000	\$1,280,000	\$9,280,000
Powerhouse major maintenance and other projects to address building code revisions and climate change impacts, including roof replacement, HVAC system upgrades, and seismic reinforcement (as needed)	\$225,000,000	\$36,000,000	\$261,000,000
Ross Dam Low-Level Outlet (LLO) Upgrades/Decommissioning (2027)	\$10,000,000	\$1,600,000	\$11,600,000
Ross Dam LLO and Mid-Level Outlet Debris Screen Replacements (2029)	\$9,000,000	\$1,440,000	\$10,440,000
Diablo Tailwater Restoration and River Maintenance (2025/every 10 years)	\$9,000,000	\$1,440,000	\$10,440,000
Diablo Larner-Johnson Valve – Rehabilitation/Decommissioning (2030)	\$2,209,492	\$353,519	\$2,563,011
Diablo Powerhouse Tailrace Bridge Upgrades, Painting, Repair (2039)	\$3,000,000	\$480,000	\$3,480,000
Diablo Automated Trash Rack Cleaning System Rehabilitation/Installation (2025)	\$2,700,000	\$432,000	\$3,132,000
Gorge Automated Trash Rack Cleaning System Rehabilitation/Installation (2026)	\$2,700,000	\$432,000	\$3,132,000
Gorge Spillway, Piers, Gates, and Hoist Superstructure Seismic Upgrade (2025-2029)	\$10,000,000	\$1,600,000	\$11,600,000
Gorge Dam Low Flow Valve/Gate Modification (2030)	\$6,446,175	\$1,031,388	\$7,477,562
Dredging to Reduce Fish Trapping/Stranding Risk and Improve Operational Flexibility (portions of Diablo and Gorge reservoirs, as needed)	\$5,000,000	\$800,000	\$5,800,000
Powerhouse and Dam Rockfall Mitigation (all dams, as needed)	\$22,902,849	\$3,664,456	\$26,567,305
Spillways and Training Walls Repairs, Spillway Gates and Operator Maintenance and Upgrades, and Spillway Bridge Upgrades, Painting, and Repair (all dams, as needed)	\$46,031,084	\$7,364,456	\$53,396,057
Structural Safety Improvements, Repairs, Upgrades of Dam Structures, Abutments, Foundation, and Surface Drainage and Dam Monitoring Instrumentation Upgrades/Improvements (all dams, as needed)	\$65,000,000	\$10,400,000	\$75,400,000
Physical Security and Surveillance Improvements (2025/2044)	\$3,000,000	\$480,000	\$3,480,000
Major CIP in Townsite and at Other Project Facilities			
Newhalem Water Tower Major Maintenance (2026)	\$367,581	\$58,813	\$426,394
Diablo Water Tower Replacement (2027)	\$4,000,000	\$640,000	\$4,640,000

\$9,280,000

\$8,000,000

\$1,280,000

Component	Estimated Cost	Overhead	Total Capital Cost
Newhalem Wastewater Treatment Plant Major Maintenance (2030)	\$626,599	\$100,256	\$726,855
Newhalem Lineman's Warehouse Contaminant Remediation and Demolition or Rehabilitation/Reconstruction (2030)	\$3,200,000	\$512,000	\$3,712,000
Newhalem and Diablo Lodging Rehabilitation and Energy Upgrades, as needed	\$7,000,000	\$1,120,000	\$8,120,000
Diablo Incline Lift Make-safe Stabilization (2025)	\$3,484,419	\$557,507	\$4,041,926
Emergency Outdoor Warning Sirens at Colonial Creek and Gorge Bypass Reach (2025-2029)	\$4,000,000	\$640,000	\$4,640,000
Dam Failure Evacuation Route Updates (2025)	\$500,000	\$80,000	\$580,000
Major CIP Involving Transportation and Marine Infrastructure			
Newhalem Road Reconstruction and Maintenance (2034-2044)	\$5,500,000	\$880,000	\$6,380,000
Diablo Road Replacement and Repairs (2044)	\$1,600,000	\$256,000	\$1,856,000
Bridge Upgrades/Repairs/Painting, as needed	\$75,000,000	\$12,000,000	\$87,000,000
Diablo Dam to ELC Road Reconstruction and Pedestrian Safety Upgrades (2025-2034)	\$3,000,000	\$480,000	\$3,480,000
Sourdough Vented Ford Replacement (2025-2034)	\$1,000,000	\$160,000	\$1,160,000
Diablo Dry Dock Rail System Restoration or Modification (2029)	\$500,000	\$80,000	\$580,000
Reservoir Debris Booms and Anchorage Improvements / Upgrades / Replacements (all dams; 2029)	\$2,300,000	\$368,000	\$2,668,000
Babcock Creek Bridge Abutments and Approaches Replacement (2025-2034)	\$1,000,000	\$160,000	\$1,160,000
Major CIP for Proposed New Facilities			
Ross Powerhouse Spare Transformer Concrete Pad (2034)	\$399,647	\$63,944	\$463,591
Diablo Lake Tour Dock (2025-2029)	\$2,071,399	\$331,424	\$2,402,823
Diablo Lake Ferry Kiosk (2027)	\$150,000	\$24,000	\$174,000
Diablo Firehouse (2025-2034)	\$7,787,661	\$1,246,026	\$9,033,687
Newhalem Firehouse (2025-2034)	\$7,787,661	\$1,246,026	\$9,033,687
Newhalem Radio/Microwave Base Station (2025-2034)	\$500,000	\$80,000	\$580,000
Newhalem Materials Storage Area (2025-2034)	\$19,469,154	\$3,115,065	\$22,584,218
EV Charging Stations (2025-2034)	\$1,000,000	\$160,000	\$1,160,000
Ross Lake Access Road (2025)	\$5,000,000	\$800,000	\$5,800,000
Hydroelectric Infrastructure Subtotal:	\$1,188,799,721	\$190,207,955	\$1,379,007,677

Component	Estimated Cost	Overhead	Total Capital Cost
Environmental Measures			
Geology and Soils			
Reservoir Erosion Management and Monitoring Plan			
Engineering and implementation (e.g., construction or planting) at treatment sites	\$4,000,000	\$640,000	\$4,640,000
Roads, Trails, and Transmission Line ROW Erosion Management Plan			
Bank hardening remediation or removal (construction)	\$4,000,000	\$640,000	\$4,640,000
Soil bioengineering/erosion controls/plantings installation at riparian erosion sites	\$3,000,000	\$480,000	\$3,480,000
Road and culvert improvements	\$10,000,000	\$1,600,000	\$11,600,000
Road decommissioning	\$100,000	\$16,000	\$116,000
Geology and Soils Total:	\$21,100,000	\$3,376,000	\$24,476,000
Water Resources			
No new development proposed that involves design and construction	N/A	N/A	N/A
Fish and Aquatics Resources			
Fish Passage Program (Phases 1 and 2)	\$30,000,000	\$4,800,000	\$34,800,000
Skagit River Riverscape Ecosystem Plan			
Mainstem habitat measures – Park Slough subreach	\$3,348,000	\$535,680	\$3,883,680
Mainstem habitat measures – Newhalem Ponds subreach	\$3,036,000	\$485,760	\$3,521,760
Mainstem habitat measures – County Line Ponds subreach	\$3,036,000	\$485,760	\$3,521,760
Mainstem habitat measures – Taylor Side Channel subreach	\$1,776,000	\$284,160	\$2,060,160
Mainstem habitat measures – Illabot and Powerline sites	\$600,000	\$96,000	\$696,000
Implementation of additional restoration opportunities (Aquatic Habitat Enhancement Accounts)			
Estuary Enhancement Account	\$15,000,000	\$2,400,000	\$17,400,000
Watershed Enhancement Account	\$5,000,000	\$800,000	\$5,800,000
Transmission line ROW habitat measures –Implementation of fish passage improvement actions for Groups A and B culverts	\$3,500,000	\$560,000	\$4,060,000
Transmission line ROW habitat measures –Implementation of fish passage improvement actions for Group C culverts	\$6,500,000	\$1,040,000	\$7,540,000
Channel migration areas near infrastructure initial project design, protocol development, and implementation	\$5,000,000	\$800,000	\$5,800,000

Component	Estimated Cost	Overhead	Total Capital Cost
Aquatic Invasive Species Plan			•
Establish wash station at Newhalem	\$1,500,000	\$240,000	\$1,740,000
Fish and Aquatics Resources Total:	\$78,296,000	\$12,525,360	\$90,823,360
Botanical Resources			·
Vegetation Management Plan			
Vegetation management in transmission line ROW related to avian and wildlife habitat enhancements	\$5,000,000	\$800,000	\$5,800,000
Ross Lake wetland enhancements	\$6,000,000	\$960,000	\$6,960,000
Botanical Resources Total:	\$11,000,000	\$1,760,000	\$12,760,000
Wildlife Resources			
Avian Species Protection Plan			
Bird exclusion measures at facilities and structures	\$50,000	\$8,000	\$58,000
Update avian safety measures on electrical lines	\$90,000	\$14,400	\$104,400
Fish and Wildlife Lands Management Plan			
Potential restoration projects	\$1,000,000	\$160,000	\$1,160,000
Wildlife Resources Total:	\$1,140,000	\$182,400	\$1,322,400
Recreation and Land Use			
Recreation Management Plan			
Facility improvements/rehabilitation – Diablo Dam Parking Area	\$948,000	\$151,680	\$1,099,680
Facility improvements/rehabilitation – Skagit Tour Dock	\$759,000	\$121,440	\$880,440
Facility improvements/rehabilitation – West Ferry Landing	\$963,000	\$154,080	\$1,117,080
Facility improvements/rehabilitation – East Ferry Landing	\$1,009,000	\$161,440	\$1,170,440
Facility improvements/rehabilitation - Environmental Learning Center shoreline parking area	\$2,681,000	\$428,960	\$3,109,960
Facility improvements/rehabilitation – Gorge Lake Boat Launch	\$728,000	\$116,480	\$844,480
Facility improvements/rehabilitation – Ross Lodge Picnic Shelter	\$638,000	\$102,080	\$740,080
Facility improvements/rehabilitation – Newhalem SR 20 Parking Area	\$1,984,000	\$317,440	\$2,301,440
Facility improvements/rehabilitation – Newhalem Main Street	\$1,124,000	\$179,840	\$1,303,840
Facility improvements/rehabilitation – Gorge Powerhouse Parking Area	\$474,000	\$75,840	\$549,840
Facility improvements/rehabilitation – Ladder Creek Falls Trail and Garden	\$946,000	\$151,360	\$1,097,360

Component	Estimated Cost	Overhead	Total Capital
Eacility improvements/rehabilitation Trail of the Cedars		\$134 720	\$976 720
	\$842,000	\$134,720	\$970,720
Facility improvements/rehabilitation – Skagit Information Center	\$210,000	\$33,600	\$243,600
Facility improvements/rehabilitation – Gorge Inn Museum	\$126,000	\$20,160	\$146,160
Recreation and Land Use Total:	\$13,432,000	\$2,149,120	\$15,581,120
Aesthetic Resources			
Lighting Management Plan			
Lighting BMP retrofit	\$266,190	\$42,590	\$308,780
Aesthetic Resources Total:	\$266,190	\$42,590	\$308,780
Cultural Resources			
Public information and program	\$100,000	\$16,000	\$116,000
Cultural Resources Total:	\$100,000	\$16,000	\$116,000
Tribal Resources			
Addressed by measures of other resource areas	N/A	N/A	N/A
Socioeconomics			
Addressed by measures of other resource areas	N/A	N/A	N/A
Environmental Justice	· · · ·		-
Addressed by measures of other resource areas	N/A	N/A	N/A
Environmental Measures Subtotal:	\$125,334,190	\$20,053,470	\$145,387,660
Grand Total:	\$1.314.133.911	\$210.261.425	\$1,524,395,337

 City Light does not anticipate indirect construction costs for any of the projects.
 In 2019 City Light stopped recording Allowance for Funds Used During Construction on all capital projects in efforts to help simplify financial reporting and tracking of capital assets.

Component	Estimated Cost	Overhead	Total Capital Cost
Major CIP in Townsite and at Other Project Facilities	Listimated Cost	Overneau	Cost
Currier Hall Rehabilitation and Upgrades (2034)	\$648,972	\$103,835	\$752,807
Sourdough Trail Garage Demolitions (2029)	\$116,147	\$18,584	\$134,731
Diablo Incline Lift Restoration (2034)	\$100,000,000	\$16,000,000	\$116,000,000
Diablo Incline Lift Decommissioning (2030)	\$10,000,000	\$1,600,000	\$11,600,000
Diablo Reflector Bar Administration Building Rehabilitation/Upgrades (2044)	\$389,383	\$62,301	\$451,684
Major CIP Involving Transportation and Marine Infrastructure			
Ross Lake Emergency Helipad Improvement (2039)	\$300,000	\$48,000	\$348,000
Diablo Lake West Barge Landing Reconfiguring (2034-2044)	\$4,000,000	\$640,000	\$4,640,000
Diablo Lake West Boat Launch Extension (2034-2044)	\$2,000,000	\$320,000	\$2,320,000
Replace Tugboats and Ferries (2050)	\$10,000,000	\$1,600,000	\$11,600,000
Major CIP for New Facilities Under Consideration	•		
Newhalem Operations Building (2025-2034)	\$7,787,661	\$1,246,026	\$9,033,687
Newhalem RV/Boat Storage (2025-2034)	\$1,297,944	\$207,671	\$1,505,615
Newhalem Service Yard Employee Parking Area (2025-2034)	\$1,297,944	\$207,671	\$1,505,615
Gorge Dam Bypass Flow Generator (2025)	\$160,283,259	\$25,645,321	\$185,928,580
Grand Total:	\$298,121,310	\$47,699,410	\$345,820,719

Table 4.0-2.Summary of estimated capital costs associated with new development under consideration but not proposed as part of<br/>relicensing action (All costs in 2021 dollars). 1,2

1 City Light does not anticipate indirect construction costs for any of the projects.

2 In 2019 City Light stopped recording Allowance for Funds Used During Construction on all capital projects in efforts to help simplify financial reporting and tracking of capital assets.

All costs associated with proposed PME measures (capital and operations and maintenance [O&M]) are summarized by resource area in Table 4.0-3 and detailed by individual measure in Appendix A.

Component	Estimated Capital <sup>1</sup>	Annualized O&M	Annualized Cost <sup>2</sup>
Project Operational Measures	N/A	\$1,420,029	\$1,420,029
Geology and Soils	\$24,476,000	\$621,731	\$2,048,256
Water Resources	N/A	\$557,087	\$557,087
Fish and Aquatic Resources	\$90,823,360	\$2,456,535	\$7,749,959
Botanical Resources	\$12,760,000	\$459,484	\$1,203,171
Wildlife Resources	\$1,322,400	\$897,692	\$974,765
Recreation and Land Use	\$15,581,120	\$1,361,786	\$2,269,894
Aesthetic Resources	\$308,780	\$21,625	\$39,621
Cultural Resources	\$116,000	\$810,015	\$816,776
Tribal Resources – Addressed by measures of other resource areas	N/A	N/A	N/A
Socioeconomics – Addressed by measures of other resource areas	N/A	N/A	N/A
Environmental Justice – Addressed by measures of other resource areas	N/A	N/A	N/A
<b>Operational PME Measures Subtotal:</b>	N/A	\$1,420,029	\$1,420,029
Non-operational PME Measures Subtotal:	\$145,387,660	\$7,185,432	\$15,659,005
Total:	\$145,387,660	\$8,605,461	\$17,079,034

Table 4.0-3.	Summary of estimated costs associated with City Light's PME proposal (All costs
	in 2021 dollars).

1 Capital costs includes the addition of overhead (see Table 4.0-1 of this Exhibit D for details).

2 Annualized values based on a 50-year license term.

Many of these PME measures have been developed in coordination with licensing participants (LPs). City Light continues to engage LPs regarding the operations proposal and PME measures that will ultimately be included in the new license. This engagement will continue following submission of this FLA. In the event this engagement results in revisions to the Proposed Action, City Light will supplement its FLA at a later date, as needed, to incorporate the revisions.

The annual costs of operating the Project for the period 2017 through 2021 are presented in Table 5.0-1.

Year	Operation and Maintenance <sup>2</sup>	FERC Fees <sup>3</sup>	Depreciation <sup>4</sup>	Admin and General <sup>5</sup>	Whatcom County Impact Payment <sup>6</sup>	Totals
2017	\$18,237,841	\$4,237,959	\$7,268,345	\$12,134,105	1,075,834	\$42,954,084
2018	\$12,433,139	\$4,646,422	\$6,627,275	\$12,292,427	1,100,763	\$37,100,025
2019	\$17,781,543	\$4,208,389	\$7,483,008	\$13,159,066	1,126,270	\$43,758,276
2020	\$19,021,038	\$3,735,987	\$7,612,603	\$15,409,646	1,152,367	\$46,931,641
2021	\$21,315,919	\$4,878,999	\$7,701,111	\$14,205,046	1,179,070	\$49,280,145
Average	\$17,757,896	\$4,341,551	\$7,338,468	\$13,440,058	\$1,126,861	\$44,004,834

Table 5.0-1.	Summary of operating costs and expenses for the Skagit River Project, 2017-
	2021. <sup>1</sup>

1 All dollars are nominal dollars.

5.0

2 FERC accounts in use as of 2017-2021: 535, 537, 538, 539, 541, 542, 543, 544, and 545.

3 FERC fees are Water for Power (FERC Account 536), and Land Use (FERC Account 540).

4 2017 Depreciation expenses are allocated to Skagit based on 2018 Skagit percent of total hydro asset depreciation.

5 Administrative and general costs include insurance and are allocated based on O&M labor costs.

6 City Light makes an annual impact payment to Whatcom County in compensation for services provided at the Skagit River Project.

### 5.1 Cost of Capital

City Light uses both debt and equity as sources of capital. The cost of capital is the interest rate weighted by the amount of that debt and equity. Table 5.1-1 summarizes the cost of capital to City Light. At the end of 2021, City Light had \$2.6 billion in outstanding debt, with a dollar-weighted interest rate of 4.17 percent and \$2.0 billion in accumulated equity, which by City policy is evaluated with a 7.00 percent return. Despite the considerable uncertainty in the future of capital markets, these interest rates and the 2021 weighted average are used as the cost of capital when annualizing costs in this FLA.

Table 5.1-1.Cost of capital for City Light (as of December 2021; City Light 2022a).

Description	Amount	Rate (percent)
Total outstanding debt	\$2,587,320,000	4.17
Accumulated equity	\$2,022,841,800	7.00
Total capitalization	\$4,610,161,800	
Weighted cost of capital		5.41

### 5.2 Local, State, and Federal Taxes

Combined state and local sales tax in Whatcom, Skagit, and Snohomish counties were 8 percent, 8.1 percent, and 9.2 percent, respectively, in 2021. Certain costs are eligible for deductions or

exemptions. For example, new or replacement equipment used in manufacturing is exempt from the sales and use tax (Revised Code of Washington [RCW] 82.08.02565, 82.12.02565). Consequently, new or replaced turbines or generators at the Project are exempt from the sales and use tax, but the labor and materials related to installation are subject to sales and use tax. PME measures are subject to the sales and use tax.

City Light makes an annual impact payment to Whatcom County in compensation for services provided at the Skagit River Project. The payment, which was \$1,179,070 in 2021, is based on the 2009 payment, which included a retroactive payment for 2008, plus an annual escalator of 2.3171736 percent. City Light will continue to make impact payments per the existing agreement through the December 31, 2023 end of its term, which can be extended for two 3-year periods by mutual agreement. After the expiration of the current agreement, City Light expects to negotiate a new impact payment agreement with Whatcom County.

City Light pays taxes to the state and City of Seattle based on retail revenue (see Washington Administrative Code 458-20-179 and Seattle Municipal Code 5.48.050.D, respectively). In the event the conditions of the new license increase the cost of owning and operating the Project, City Light will likely raise retail rates in order to pay the increased costs. The need to pay more taxes will contribute to the increase in retail revenue.

As a municipal utility, any gross income that City Light earns is exempt from federal income tax (26 United States Code [U.S.C.] 115). Also, no lands within the Skagit River Project are subject to property taxes (RCW 84.36.010).

#### 6.0 VALUE OF PROJECT POWER

As City Light's within-hour, load-following resource, the Skagit River Project is of significant value to City Light's ratepayers. In addition to the power used to serve load, the Skagit River generation is pooled with other City Light sources and net excess generation is sold on the secondary market and the net wholesale revenue is used to maintain stable, affordable rates for City Light's ratepayers.

To provide a consistent comparison among existing operations (No Action alternative) and alternate operations, the hourly energy production was determined by the Skagit River Operations Model (described in Exhibit B, Sections 3 and 5, of this FLA). For the No Action alternative, total energy production from the Project is approximately 2.63 million megawatt hours (MWh) based on modeled results.<sup>1</sup> Purchasing an equivalent quantity of energy from the Mid-Columbia trading hub would have cost City Light \$123.6 million given the relative on- and off-peak output and prices in 2021.<sup>2</sup>

Annual costs for the Project (i.e., production costs and an allocated share of debt service) totaled \$58.4 million in 2021. Production costs were \$41.6 million (total 2021 costs in Table 5.0-1 excluding depreciation). Debt service in 2021 (\$223.0 million) is allocated on the basis of the asset value of the Project (original cost of \$443.9 million as of December 31, 2021) as a percentage of City Light's total asset value (original cost of \$5.9 billion as of December 31, 2021). The allocated debt service for 2021 is \$16.8 million. This results in an average annual cost for the Project of \$22.18/MWh.<sup>3</sup>

An estimate of the net 2021 value of the Project output is approximately \$75.1 million, which is the difference between the gross value of the energy and the total of the production and allocated debt service costs. It should be noted that the firm market price used to estimate the gross value of the energy does not capture all the benefits and monetize all the values of the Project in 2021. These values include ancillary services, load following, price following, and resource reliability to City Light.

Factors that may influence these prices during the term of the new license are wide and varied. Most significant are the annual snowpack in the Pacific Northwest, the daily weather and its associated influence on heating and cooling loads, regulatory and legal requirements associated with the Endangered Species Act (ESA) and their constraints on generation, and the general state of wholesale energy markets in the West.

#### 6.1 **Replacement Costs of Energy and Capacity**

Over the past decade, the regulatory landscape in the Pacific Northwest has changed with the adoption of carbon-free energy laws and policies (Kramer Consulting and Ross Strategic 2022).

<sup>&</sup>lt;sup>1</sup> See Exhibit B, Section 3 of this FLA for an estimate of total average annual energy production for the full period of record (1988-2021).

<sup>&</sup>lt;sup>2</sup> The average price, based on actual 2021 Mid-Columbia hourly prices, weighted by the on-peak and off-peak production (see Section 6.3 of this Exhibit D), was \$46.94/MWh in 2021.

<sup>&</sup>lt;sup>3</sup> City Light followed the rules of accounting within the FERC Uniform System of Accounts when calculating this price (which was calculated solely for the purpose of this application).

The Clean Energy Transformation Act (CETA; Revised Code of Washington [RCW] 19.405) requires all utilities in Washington to provide carbon-neutral electricity by 2030 and 100 percent clean energy by 2045. Because utilities must eliminate coal and gas generation from their portfolios by 2045 or sooner, there has been and will continue to be an increased demand for clean electricity.

The Project generates dispatchable, reliable, and non-emitting hydropower that contributes to the Pacific Northwest region having some of the least carbon-emitting electricity generation in the country (Kramer Consulting and Ross Strategic 2022). The average generation at the Project from 2002 to 2021 was approximately 280 aMW. Within minutes, City Light can ramp up or down production and change the Project's output to meet demand, including during high-load times. The Project can respond to increases in demand resulting from extreme weather events and to energy losses from other sources in the grid.

City Light's ability to ramp up and down the amount of energy generated by the Project due to reservoir storage makes it a reliable source complementary to intermittent resources like wind and solar, which produce variable amounts of energy not by design but because of time of day, weather conditions, and lack of storage. These other renewable energy sources do not have the same ability as the Project to provide variable levels of demand response year-round. Presently, this capability is most needed in winter when energy demand is high and weather extremes are more frequent (Kramer Consulting and Ross Strategic 2022). As climate change progresses, precipitation trends are expected to result in increased water availability during the winter as more precipitation falls as rain rather than snow. Additionally, peak energy demand is shifting because of climate change and peaks can occur in the summer if a heat wave forces residents to use more air conditioning (Kramer Consulting and Ross Strategic 2022). Heat waves most commonly occur in the Pacific Northwest in the late summer, a challenging time for intermittent power sources (Kramer Consulting and Ross Strategic 2022). The Project's non-emitting, dispatchable and flexible energy production characteristics thus are expected to become more valuable to the energy system due to the retirement of thermal generation in the region and as climate change increases variability from historic climate patterns that have been traditionally utilized for forecasting (Kramer Consulting and Ross Strategic 2022).

Nonetheless, replacing the Project's energy production and ancillary services (discussed below) is possible with time, funding, and planning. Replacing the Project's energy production with renewable, carbon-free sources and battery technology to ensure the region's future dispatchable needs are met would add to the challenge, especially because adequate storage options would need to be developed (Kramer Consulting and Ross Strategic 2022). Replacing the energy and capacity from the Project would require constructing or buying output from alternative sources. State permitting regulations and City policies effectively preclude construction of, or contracts with, coal-fired plants and similar restrictions on gas-fired facilities are anticipated in the near future.

Two replacement options for the Project were evaluated using resources identified in City Light's 2022 Integrated Resource Plan (IRP; City Light 2022b):

- 485 MW Southeast Oregon Solar with 194 MW battery; and
- 310 MW Columbia River Gorge Wind.

These two replacement resources would closely match the Project's energy output on an annual basis. There would, however, be significant seasonal differences in output, so these replacement resources would not provide the same level of reliability every month. The replacement projects would provide similar winter reliability but would be less reliable in the summer, with more loss of load events expected.

The cost of the replacement resources, if pursued, is estimated to be a 30-year power purchase agreement costing \$149 million per year starting in 2026 with a 3 percent escalation assumption. While the annual energy is expected to be comparable with the Project, the seasonal differences would impact the value of City Light's secondary sales. The value in the change in secondary sales is highly dependent on seasonal wholesale prices. Estimates with current forward prices show the replacement resources increasing Net Wholesale Revenue by approximately \$1 million in 2026. Estimates using (lower) prices from a 3<sup>rd</sup> party fundamental forecast show the replacement resources decreasing Net Wholesale revenue by approximately \$7 million in 2026.

### 6.2 Value of Ancillary Services

Ancillary services include the ability of a power plant to respond quickly to changes in load from end-users or changes in supply from intermittent sources such as wind turbines. While the Pacific Northwest does not have an organized market or posted prices for these services, certain proxies are available.

Regional utilities post prices for these services in Open Access Transmission Tariffs and the Northwest Power Planning and Conservation Council estimates and projects these costs into the future. Based on an assessment of growing demand, the price of ancillary services is likely to rise at a rate higher than overall price inflation for the next 20 years.

City Light provides ancillary services from the Skagit River Project, Boundary Project, and through certain contracts as needed by ratepayers and third parties. The ability to provide ancillary services from multiple sources increases City Light's overall ability to respond to changes in load compared to a single-source scenario. Having multiple sources is advantageous to City Light's ratepayers but also complicates the task of estimating ancillary services from a single source, such as the Project.

### 6.3 On-peak and Off-peak Values of Project Power

In 2021, the average on-peak energy value was \$54.11/MWh, and the average off-peak hour energy value was \$36.80/MWh. These values are based on City Light sales, which vary by time of year and differ from a simple average price over all hours in the periods. During the course of the year, the on-peak/off-peak difference is usually highest in the summer and lowest in the winter. The Western Electricity Coordinating Council (WECC) defines the periods. Over the new license term, some difference between on-peak and off-peak is likely on a monthly and annual basis given changes in the Northwest to both power supply and loads. However, the exact amount is difficult to quantify. In general, significantly more renewable resources in the region may lead to more price volatility in market prices.

#### 6.4 Effect on the Value of Project Power Due to Proposed Changes in Project Operation

As indicated in the summary of cost estimates associated with City Light's Proposed Action (Table 4.0-2), City Light anticipates that the operational proposal will result in an estimated decrease of average annual power generation of 30,252 MWh and proposed dredging projects will result in an estimated increase of average annual generation 9,464 MWh, for a net decrease of Project generation of 21,983 MWh (Exhibit B, Sections 5.3 and 5.4 of this FLA). As a result, the estimated average value of Project power will decrease from \$123.6 million to \$122.6 million.

City Light has two sources of funding to meet the costs of new development and proposed changes to the Project. First, City Light generates cash from operations, which is available for purposes approved by the City's Mayor and City Council including costs at the Project. Retail revenue, wholesale revenue, and other revenue sources pay operating expenses, taxes, debt service, and some capital requirements. Cash from operations depends on many factors and can vary between \$10 million and \$150 million per year. Second, City Light can borrow money from private markets to meet capital requirements above the amount met with cash from operations. As of December 2021, City Light had \$2.6 billion in debt outstanding, and was borrowing every six to 24 months depending on capital markets and cash balances.

### 8.0 COST TO DEVELOP THE LICENSE APPLICATION

The cost to develop this FLA, from January 2018 through April 2023, is estimated at approximately \$70 million.

#### 9.0 **REFERENCES**

- Kramer Consulting and Ross Strategic. 2022. Lower Snake River Dams: Benefit Replacement Final Report. August 2022.
- Seattle City Light (City Light). 2022a. Financial Statements as of and for the Years Ended December 31, 2021. March 2022.

\_\_\_. 2022b. Integrated Resource Plan, Seattle City Light.

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### FINAL LICENSE APPLICATION EXHIBIT D

# APPENDICES

#### FINAL LICENSE APPLICATION EXHIBIT D

### **APPENDIX A**

### SUMMARY OF ESTIMATED COSTS ASSOCIATED WITH PROPOSED OPERATIONS AND PME MEASURES

#### Summary of Estimated Costs Associated with Proposed Operations and PME Measures<sup>1.2</sup>

		Cap	oital	O&M			Total
	Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost
Proj Leve	ECT OPERATIONAL MEASURES (FLOW REGIME / RESERVOIR LS)						
•	Ross Lake operations:	N/A	N/A	\$1,420,029	Annually	\$1,420,029	\$1,420,029
	<ul> <li>Summer Variable Reservoir Operations Zone</li> </ul>						
	<ul> <li>Modifications to Flood Risk Management Operations</li> </ul>						
•	Side and Off-Channel Connectivity and Process Flows (a component of the Skagit River Riverscape Ecosystem Plan, Flow Management Program below)	N/A	N/A	Included in costs for Ross Lake operations above	See above	See above	See above
•	Minimum instream flows in the Gorge Bypass Reach	N/A <sup>4</sup>	N/A	Included in costs for Ross Lake operations above	See above	See above	See above
	<b>Project Operational Measures Total:</b>	N/A	N/A	N/A	N/A	\$1,420,029	\$1,420,029
GEOL	OGY AND SOILS						
•	Develop and implement a Reservoir Erosion Management and Monitoring Plan. As part of the Plan:						
	• Annual reporting, meetings, and trainings	N/A	N/A	\$20,000	Annually	\$20,000	\$20,000
	• Monitor shoreline retreat rate sites	N/A	N/A	\$40,000	Every 2 years	\$31,549	\$31,549
	<ul> <li>Monitor erosion control measures</li> </ul>	N/A	N/A	\$40,000	Every 2 years	\$31,549	\$31,549
	• Monitor Ross drawdown zone (stump) transects	N/A	N/A	\$90,000	Every 5 years	\$36,612	\$36,612
	<ul> <li>Re-inventory/monitor shoreline erosion along entire shoreline of Ross, Diablo, and Gorge lakes</li> </ul>	N/A	N/A	\$100,000	Every 10 years	\$20,471	\$20,471
	• File report with FERC (following consultation with the Skagit Resource Coordinating Committee [SRCC]) summarizing erosion measures and monitoring	N/A	N/A	\$35,000	Every 10 years	\$7,165	\$7,165

<sup>&</sup>lt;sup>1</sup> All costs in 2021 dollars.

<sup>&</sup>lt;sup>2</sup> Annualized values based on a 50-year license term.

<sup>&</sup>lt;sup>3</sup> Calculation of annualized values for capital costs includes the addition of overhead (see Table 4.0-1 in main body this Exhibit D).

<sup>&</sup>lt;sup>4</sup> The capital costs associated with the modifications to or new structure at the Gorge Dam to pass the minimum instream flows are captured with the hydroelectric infrastructure capital improvement projects cost tables in Table 4.0-1 and 4.0-2 of this Exhibit D.

		Capital O&M			Total		
	Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost
0	Baseline vegetation mapping and site inventory at Ross, Diablo, and Gorge lakes	N/A	N/A	\$150,000	One time	\$8,294	\$8,294
0	Assess and prioritize sites for treatment and monitoring	N/A	N/A	\$50,000	One time (Year 2)	\$2,765	\$2,765
0	Assess selected sites for natural system design and develop designs for individual locations	N/A	N/A	\$75,000	One time (Year 2)	\$4,147	\$4,147
0	Plant propagation for use at treatment sites	N/A	N/A	\$80,000	Annually	\$80,000	\$80,000
0	Engineering and implementation (e.g., construction or planting) at treatment sites	\$4,640,000	\$270,431	N/A	N/A	N/A	\$270,431
0	Maintain treatment sites (construction)	N/A	N/A	\$50,000	Annually (Starting Year 5)	\$48,835	\$48,835
• De Lii	evelop and implement a Roads, Trails, and Transmission ne ROW Erosion Management Plan. As part of the Plan:						
0	Annual reporting, meetings, and trainings	N/A	N/A	\$20,000	Annually	\$20,000	\$20,000
0	Treatment site prioritization and planning	N/A	N/A	\$75,000	One time (Years 1-3)	\$4,147	\$4,147
0	Road and route decommissioning prioritization and planning	N/A	N/A	\$30,000	One time (Years 1-3)	\$1,659	\$1,659
0	Inventory of road conditions and associated drainage features	N/A	N/A	\$150,000	Every 5 Years	\$61,020	\$61,020
0	Assess removal of bank hardening, site assessment, design	N/A	N/A	\$150,000	One time	\$8,294	\$8,294
0	Monitor new construction projects	N/A	N/A	\$20,000	Every 7 Years (Years 7-35)	\$4,990	\$4,990
0	Monitor stream crossings and hydrologically connected areas following storm events	N/A	N/A	\$50,000	Every 10 Years (Years 1-30)	\$10,236	\$10,236
0	Monitoring of riparian erosion sites	N/A	N/A	\$50,000	Annually	\$50,000	\$50,000
0	Road and culvert O&M	N/A	N/A	\$100,000	Annually	\$100,000	\$100,000
0	Bank hardening remediation or removal (construction)	\$4,640,000	\$270,431	N/A	N/A	N/A	\$270,431
0	Maintain treated bank hardening and riparian treatment sites	N/A	N/A	\$70,000	Annually	\$70,000	\$70,000
0	Soil bioengineering/erosion controls/plantings installation at riparian erosion sites	\$3,480,000	\$202,824	N/A	N/A	N/A	\$202,824
0	Road and culvert improvements	\$11,600,000	\$676,078	N/A	N/A	N/A	\$676,078

	Сар	oital	O&M			Total
Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost
<ul> <li>Road decommissioning</li> </ul>	\$116,000	\$6,761	N/A	N/A	N/A	\$6,761
Geology and Soils Measures Total:	\$24,476,000	\$1,426,525	N/A	N/A	\$621,731	\$2,048,256
WATER RESOURCES						
• Develop and implement a Water Quality Monitoring and Data Management Plan (WQMDMP). As part of the Plan:						
• WQ monitoring	N/A	N/A	\$524,313	Annually	\$524,313	\$524,313
• Database development and application user portal	N/A	N/A	\$60,000	One time (Years 1-3)	\$3,317	\$3,317
• Database maintenance	N/A	N/A	\$30,000	Annually (Starting Year 4)	\$29,456	\$29,456
Water Resources Total:	N/A	N/A	N/A	N/A	\$557,087	\$557,087
FISH AND AQUATIC RESOURCES						
• Fish Passage Program (Phases 1 and 2)						
<ul> <li>Studies and planning</li> </ul>	\$34,800,000	\$2,028,235	N/A	N/A	N/A	\$2,028,235
• Ecosystem Monitoring and Adaptive Management Program (EMAMP)						
<ul> <li>Adaptive Management Research Fund</li> </ul>	N/A	N/A	\$250,000	Annually	\$250,000	\$250,000
• Structured-Decision Making (SDM) process	N/A	N/A	\$1,000,000	Annually (Years 1-3)	\$157,506	\$157,506
<ul> <li>Escapement monitoring</li> </ul>	N/A	N/A	\$500,000	Annually (Years 1-6)	\$145,993	\$145,993
o Smolt traps	N/A	N/A	\$250,000	Annually	\$250,000	\$250,000
• Develop and implement an Riverscape Ecosystem Plan (REP). As part of the Plan:						
<ul> <li>Flow Management Program (FMP)</li> </ul>	N/A	N/A	Included in Project Operational costs above	See above	See above	See above
<ul> <li>Aquatic Habitat (Non-Flow) Program</li> </ul>						
<ul> <li>Mainstem habitat measures – Park Slough subreach</li> </ul>	\$3,883,680	\$226,351	N/A	N/A	N/A	\$226,351
<ul> <li>Mainstem habitat measures – Newhalem Ponds subreach</li> </ul>	\$3,521,760	\$205,257	N/A	N/A	N/A	\$205,257

	Сар	ital	O&M			Total
Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost
<ul> <li>Mainstem habitat measures – County Line Ponds subreach</li> </ul>	\$3,521,760	\$205,257	N/A	N/A	N/A	\$205,257
<ul> <li>Mainstem habitat measures – Taylor Side Channel subreach</li> </ul>	\$2,060,160	\$120,072	N/A	N/A	N/A	\$120,072
- Mainstem habitat measures – Illabot and Powerline sites	\$696,000	\$40,565	N/A	N/A	N/A	\$40,565
- Quantitative modeling support for mainstem habitat improvement actions	N/A	N/A	\$125,000	Annually (Years 1-10)	\$55,152	\$55,152
- Mainstem habitat measures – Review additional restoration opportunities, outreach, and planning	N/A	N/A	\$200,000	One time (Year 10)	\$11,058	\$11,058
- Mainstem habitat measures – Periodic review of additional restoration opportunities, outreach, and planning	N/A	N/A	\$65,000	Every 5 Years (Starting Year 15)	\$24,084	\$24,084
- Mainstem habitat measure monitoring	N/A	N/A	\$833,000	Annually (Years 1-11)	\$420,526	\$420,526
- Implementation of additional restoration opportunities (Aquatic Habitat Enhancement Accounts)						
Estuary Enhancement Account	\$17,400,000	\$1,014,118	N/A	N/A	N/A	\$1,014,118
Watershed Enhancement Account	\$5,800,000	\$338,039	N/A	N/A	N/A	\$338,039
<ul> <li>Transmission line ROW habitat measures – Additional fieldwork for prioritization to build upon desktop analysis</li> </ul>	N/A	N/A	\$125,000	One time (Years 1-5)	\$6,911	\$6,911
- Transmission line ROW habitat measures – Implementation of fish passage improvement actions for Groups A and B culverts	\$4,060,000	\$236,627	N/A	N/A	N/A	\$236,627
<ul> <li>Transmission line ROW habitat measures – Implementation of fish passage improvement actions for Group C culverts</li> </ul>	\$7,540,000	\$439,451	N/A	N/A	N/A	\$439,451
<ul> <li>Transmission line ROW habitat measures – Monitoring of fish passage improvement actions</li> </ul>	N/A	N/A	\$65,000	Annually	\$65,000	\$65,000
- Wood augmentation in transmission line ROW	N/A	N/A	\$65,000	Annually (Years 12-23)	\$32,814	\$32,814
- Channel migration areas near infrastructure initial project design, protocol development, and implementation	\$5,800,000	\$338,039	N/A	N/A	N/A	\$338,039

	Car	oital	I O&M			Total	
Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost	
<ul> <li>Ongoing monitoring and planning in the channel migration areas near infrastructure</li> </ul>	N/A	N/A	\$65,000	Every 5 Years	\$26,442	\$26,442	
• Develop and implement a Reservoir Fisheries Management Plan (RFMP). As part of the Plan:							
<ul> <li>Fish population monitoring</li> </ul>							
<ul> <li>Develop Reservoir Fisheries Monitoring Study Plan</li> </ul>	N/A	N/A	\$250,000	One Time (Year 2)	\$13,823	\$13,823	
- Conduct fish population monitoring activities	N/A	N/A	\$800,000	Annually (Years 2-12)	\$379,090	\$379,090	
- Develop Fish Population Monitoring Report	N/A	N/A	\$250,000	One Time (Year 13)	\$13,823	\$13,823	
- Ongoing implementation of recommendations based on Fish Population Monitoring Report	N/A	N/A	\$250,000	Ongoing (Years 14-50)	\$230,988	\$230,988	
- Quantitative modeling support	N/A	N/A	\$125,000	Annually (Years 1-10)	\$55,152	\$55,152	
<ul> <li>Fish Stranding and Trapping Program</li> </ul>							
<ul> <li>Conduct stranding and trapping surveys on Gorge and Diablo lakes and two annual surveys during the drawdown cycle on Ross Lake</li> </ul>	N/A	N/A	\$200,000	Annually (Years 1-3)	\$31,501	\$31,501	
- Develop Stranding and Trapping report	N/A	N/A	\$100,000	One Time (Year 4)	\$5,529	\$5,529	
- Ongoing implementation of recommendations based on Stranding and Trapping Report	N/A	N/A	\$100,000	Ongoing (Years 5-50)	\$98,186	\$98,186	
<ul> <li>Reservoir Tributary Access Program – Survey tributary mouths</li> </ul>	N/A	N/A	\$100,000	Annually (Years 1-5)	\$24,950	\$24,950	
• Rainbow Trout Broodstock Program – Evaluation	N/A	N/A	\$150,000	One Time (Between Years 1 and 13)	\$8,294	\$8,294	
• Develop and implement an Aquatic Invasive Species Management Plan. As part of the Plan:							
<ul> <li>Risk assessment, annual coordination, reporting, meetings</li> </ul>	N/A	N/A	\$25,000	Annually	\$25,000	\$25,000	
<ul> <li>Information and education outreach</li> </ul>	N/A	N/A	\$1,000	Annually	\$1,000	\$1,000	
• Annual training for Project staff and contractors	N/A	N/A	\$25,000	Annually	\$25,000	\$25,000	
• AIS Unit support and supplemental sampling	N/A	N/A	\$35,000	3 Times	\$5,513	\$5,513	

	Cap	Capital		O&M		
Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost
<ul> <li>Artificial substrate installation and quarterly monitoring</li> </ul>	N/A	N/A	\$40,000	Annually	\$40,000	\$40,000
<ul> <li>Shoreline inspections</li> </ul>	N/A	N/A	\$10,000	Annually	\$10,000	\$10,000
<ul> <li>Operations of watercraft inspection and cleaning stations</li> </ul>	N/A	N/A	\$43,200	Annually	\$43,200	\$43,200
<ul> <li>Establish wash station in Newhalem</li> </ul>	\$1,740,000	\$101,412	N/A	N/A	N/A	\$101,412
Fish and Aquatics Resources Total:	\$90,823,360	\$5,293,423	N/A	N/A	\$2,456,535	\$7,749,959
BOTANICAL RESOURCES						
• Develop and implement an Invasive Plants Management Plan. As part of the Plan:						
• Annual reporting, meetings, and trainings	N/A	N/A	\$20,000	Annually	\$20,000	\$20,000
• Survey prioritized areas, update database and maps	N/A	N/A	\$100,000	Every 5 Years	\$40,680	\$40,680
• Treat management areas for invasive plants	N/A	N/A	\$150,000	Every 5 Years (Starting Year 1)	\$66,182	\$66,182
<ul> <li>Monitor treatment, seeded, or planted areas for effectiveness</li> </ul>	N/A	N/A	\$70,000	Every 2 Years	\$55,210	\$55,210
• Develop and implement a Vegetation Management Plan. As part of the Plan:						
<ul> <li>Establish baseline vegetation structure and composition in transmission line ROW</li> </ul>	N/A	N/A	\$90,000	Annually (Years 1-3)	\$14,176	\$14,176
<ul> <li>Perform vegetation management in the transmission line ROW related to avian and wildlife habitat enhancements</li> </ul>	\$5,800,000	\$338,039	N/A	N/A	N/A	\$338,039
<ul> <li>Measure changes to vegetation structure and composition in habitat enhancement areas within the transmission line ROW</li> </ul>	N/A	N/A	\$30,000	Every 5 Years	\$13,236	\$13,236
<ul> <li>Routine operations and maintenance, including maintenance of habitat enhancement areas</li> </ul>	N/A	N/A	\$250,000	Annually	\$250,000	\$250,000
Ross Lake wetland habitat enhancement measures	\$6,960,000	\$405,647	N/A	N/A	N/A	\$405,647
Botanical Resources Total:	\$12,760,000	\$743,686	N/A	N/A	\$459,484	\$1,203,171

	Cap	oital	O&M			Total	
		Annualized	Annual		Annualized	Annualized	
Proposed PME	Estimated Cost	Cost	Estimated Cost	Frequency	Cost	Cost	
WILDLIFE RESOURCES				I			
Develop and implement a Wildlife Protection and Enhancement Plan. As part of the Plan:							
<ul> <li>Annual consulting and reporting, including necropsy communication with NPS</li> </ul>	N/A	N/A	\$20,000	Annually	\$20,000	\$20,000	
• Annual training for staff and contractors	N/A	N/A	\$12,000	Annually	\$12,000	\$12,000	
<ul> <li>Maintain and update study result and incidental observation database and GIS maps</li> </ul>	N/A	N/A	\$10,000	Annually	\$10,000	\$10,000	
<ul> <li>Collaborative decision regarding bat surveys or monitoring of structure use</li> </ul>	N/A	N/A	\$25,000	One time	\$1,382	\$1,382	
<ul> <li>Update location data for Priority Habitats and Species (PHS) and State Wildlife Action Plan (SWAP) species, and NPS Management Priority Species</li> </ul>	N/A	N/A	\$10,000	Every 5 Years (Years 1-20)	\$2,047	\$2,047	
<ul> <li>Develop ungulate and forest carnivore movement monitoring methods and locations</li> </ul>	N/A	N/A	\$55,000	Annually (Years 1-10); Then Every 5 Years	\$36,300	\$36,300	
<ul> <li>Develop methods and locations to monitor wildlife habitat enhancements within the transmission line ROW</li> </ul>	N/A	N/A	\$55,000	One Time (Years 1-3)	\$3,041	\$3,041	
<ul> <li>Develop monitoring protocol and locations for special- status amphibians</li> </ul>	N/A	N/A	\$35,000	One Time	\$1,935	\$1,935	
• Implement ungulate and forest carnivore monitoring	N/A	N/A	\$35,000	Every 5 Years (Starting Year 1)	\$14,238	\$14,238	
• Monitor wildlife use at habitat enhancements within the transmission line ROW	N/A	N/A	\$70,000	Every 3 Years	\$41,197	\$41,197	
<ul> <li>Monitor spotted frog and western toad</li> </ul>	N/A	N/A	\$100,000	Every 5 Years	\$40,680	\$40,680	
• Develop and implement an Avian Species Protection Plan. As part of the Plan:							
• Bird exclusion measures at facilities or structures	\$58,000	\$3,380	N/A	N/A	N/A	\$3,380	
• Update avian safety measures on electrical lines	\$104,400	\$6,085	N/A	N/A	N/A	\$6,085	
<ul> <li>Update maps and database, report to NPS, annual consultation</li> </ul>	N/A	N/A	\$20,000	Annually	\$20,000	\$20,000	
• File five-year report with FERC	N/A	N/A	\$10,000	Every 5 Years	\$4,412	\$4,412	

		Car	oital	O&M		Total	
	Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost
0	Update GIS maps of potentially suitable habitat for northern spotted owl, marbled murrelet, and northern goshawk	N/A	N/A	\$213,000	Every 15 Years	\$33,549	\$33,549
0	Assess condition and location of avian safety measures	N/A	N/A	\$2,000	Annually	\$2,000	\$2,000
0	Monitoring of bald eagle, osprey, and peregrine falcon nest sites	N/A	N/A	\$56,000	Annually	\$56,000	\$56,000
0	Surveys for northern spotted owl, marbled murrelet, and northern goshawk	N/A	N/A	\$100,000	Every 5 Years	\$40,680	\$40,680
0	Assess northern spotted owl and marbled murrelet habitat and species presence in select locations near facilities	N/A	N/A	\$5,000	Every 5 Years	\$2,034	\$2,034
0	Develop methods and locations to monitor avian habitat enhancements within the transmission line ROW	N/A	N/A	\$35,000	Every 5 Years (Starting Year 1)	\$14,238	\$14,238
0	Monitor avian use at habitat enhancements within the transmission line ROW	N/A	N/A	\$100,000	Every 3 Years	\$61,362	\$61,362
0	Conduct annual trainings for employees and contractors on avian protection BMPs	N/A	N/A	\$20,000	Annually	\$20,000	\$20,000
0	Provide signage or informational brochures to educate visitors minimize effects to birds	N/A	N/A	\$1,000	Annually	\$1,000	\$1,000
• De La	evelop and implement a Fish and Wildlife Mitigation nds Management Plan. As part of the Plan:						
0	Potential restoration projects	\$1,160,000	\$67,608	N/A	N/A	N/A	\$67,608
0	Collect baseline data and fill data gaps by which to evaluate opportunities for protection and enhancements at mitigation lands	N/A	N/A	\$100,000	One Time (Years 1-3)	\$5,529	\$5,529
0	Provide GIS access routes for mitigation lands to Indian Tribes and Canadian First Nations and update throughout the license as necessary	N/A	N/A	\$15,000	Every 10 Years	\$6,102	\$6,102
0	Annual consultation and reporting to SRCC	N/A	N/A	\$20,000	Annually	\$20,000	\$20,000
0	Collaborative determination of property-specific protections and enhancements	N/A	N/A	\$20,000	Annually (Years 1-5)	\$4,990	\$4,990
0	Monitoring of wildlife protection and enhancement implementation actions	N/A	N/A	\$50,000	Every 3 Years	\$29,427	\$29,427
0	Ecosystem-based management collaboration efforts	N/A	N/A	\$100,000	Every 10 Years	\$20,471	\$20,471

		Cap	oital		O&M		
	Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost
0	Forest habitat assessments at Nooksack, Illabot, Barnaby, and Corkindale properties	N/A	N/A	\$150,000	Every 15 Years (Starting Year 2)	\$23,626	\$23,626
0	Forest Management – ungulate habitat and forest health	N/A	N/A	\$250,000	Every 5 Years	\$110,304	\$110,304
0	Planning and design of meadow restoration at McLeod, Corkindale and Savage Slough properties	N/A	N/A	\$75,000	One Time (Year 3)	\$4,147	\$4,147
0	Implementation of meadow restoration at McLeod, Corkindale and Savage Slough properties	N/A	N/A	\$30,000	Annually	\$30,000	\$30,000
0	Treatment and restoration of areas infested with invasive plants	N/A	N/A	\$30,000	Annually	\$30,000	\$30,000
0	Monitor land use access to determine specific security issues and locations and implement security precautions to prevent detrimental actions.	N/A	N/A	\$50,000	Annually	\$50,000	\$50,000
• W of	Vildlife Research and Monitoring Program ( <i>a component CEMAMP above</i> )	N/A	N/A	\$125,000	Annually (Starting Year 1)	\$124,477	\$124,477
	Wildlife Resources Total:	\$1,322,400	\$77,073	N/A	N/A	\$897,692	\$974,765
RECREA	TION AND LAND USE						
• Do that the	evelop and implement a Recreation Management Plan at encompasses all recreation-related PMEs. As part of e Plan:						
0	Diablo Lake						
	<ul> <li>Facility improvements/rehab – Diablo Dam Parking Area</li> </ul>	\$1,099,680	\$64,092	N/A	N/A	N/A	\$64,092
	- Facility improvements/rehab –Skagit Tour Dock	\$880,440	\$51,314	N/A	N/A	N/A	\$51,314
	- Facility improvements/rehab –West Ferry Landing	\$1,117,080	\$65,106	N/A	N/A	N/A	\$65,106
	- Facility improvements/rehab –East Ferry Landing	\$1,170,440	\$68,216	N/A	N/A	N/A	\$68,216
	<ul> <li>Facility improvements/rehab – Environmental Learning Center shoreline parking area</li> </ul>	\$3,109,960	\$181,257	N/A	N/A	N/A	\$181,257
	- O&M – Diablo Dam Parking Area	N/A	N/A	\$2,500	Annually	\$2,500	\$2,500
	- O&M – Skagit Tour Dock	N/A	N/A	\$325,000	Annually	\$325,000	\$325,000
	- O&M – West Ferry Landing	N/A	N/A	\$87,500	Annually	\$87,500	\$87,500
	- O&M – East Ferry Landing	N/A	N/A	\$87,500	Annually	\$87,500	\$87,500

			Capital		O&M		
Proposed PME		Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost
-	O&M – Environmental Learning Center shoreline parking area	N/A	N/A	\$7,500	Annually	\$7,500	\$7,500
-	Monitoring – Diablo Dam Parking Area	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
-	Monitoring – Skagit Tour Dock	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
-	Monitoring – West Ferry Landing	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
-	Monitoring – East Ferry Landing	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
-	Monitoring – Environmental Learning Center shoreline parking area	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
o G	orge Lake						
-	Facility improvements/rehab – Gorge Lake Boat Launch	\$844,480	\$49,219	N/A	N/A	N/A	\$49,219
-	Facility improvements/rehab – Ross Lodge Picnic Shelter	\$740,080	\$43,134	N/A	N/A	N/A	\$43,134
-	O&M – Gorge Lake Boat Launch	N/A	N/A	\$2,500	Annually	\$2,500	\$2,500
-	O&M – Ross Lodge Picnic Shelter	N/A	N/A	\$1,000	Annually	\$1,000	\$1,000
-	Monitoring – Gorge Lake Boat Launch	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
-	Monitoring – Ross Lodge Picnic Shelter	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
0 N	ewhalem						
-	Facility improvements/rehab – Newhalem SR 20 Parking Area	\$2,301,440	\$134,134	N/A	N/A	N/A	\$134,134
-	Facility improvements/rehab – Newhalem Main Street	\$1,303,840	\$75,991	N/A	N/A	N/A	\$75,991
-	Facility improvements/rehab – Gorge Powerhouse Parking Area	\$549,840	\$32,046	N/A	N/A	N/A	\$32,046
-	Facility improvements/rehab – Ladder Creek Falls Trail and Garden	\$1,097,360	\$63,957	N/A	N/A	N/A	\$63,957
-	Facility improvements/rehab – Trail of the Cedars	\$976,720	\$56,926	N/A	N/A	N/A	\$56,926
-	Facility improvements/rehab – Skagit Information Center	\$243,600	\$14,198	N/A	N/A	N/A	\$14,198
-	Facility improvements/rehab – Gorge Inn Museum	\$146,160	\$8,519	N/A	N/A	N/A	\$8,519
-	O&M – Newhalem SR 20 Parking Area	N/A	N/A	\$10,000	Annually	\$10,000	\$10,000
-	O&M – Newhalem Main Street	N/A	N/A	\$7,500	Annually	\$7,500	\$7,500

	Capital		O&M			Total
Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost
- O&M – Gorge Powerhouse Parking Area	N/A	N/A	\$7,500	Annually	\$7,500	\$7,500
- O&M – Ladder Creek Falls Trail and Garden	N/A	N/A	\$6,000	Annually	\$6,000	\$6,000
- O&M – Trail of the Cedars	N/A	N/A	\$5,000	Annually	\$5,000	\$5,000
- O&M – Skagit Information Center	N/A	N/A	\$75,000	Annually	\$75,000	\$75,000
- O&M – Gorge Inn Museum	N/A	N/A	\$500	One Time	\$28	\$28
- Monitoring – Newhalem SR 20 Parking Area	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
- Monitoring – Newhalem Main Street	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
- Monitoring – Gorge Powerhouse Parking Area	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
<ul> <li>Monitoring – Ladder Creek Falls Trail and Garden</li> </ul>	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
- Monitoring – Trail of the Cedars	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
- Monitoring – Skagit Information Center	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
- Monitoring – Gorge Inn Museum	N/A	N/A	\$14,000	Every 12 Years	\$2,866	\$2,866
• Develop and implement an Environmental Learning Center Management Plan. As part of the plan:						
o Programming	N/A	N/A	\$200,000	Annually	\$200,000	\$200,000
<ul> <li>ELC facility maintenance</li> </ul>	N/A	N/A	\$200,000	Annually	\$200,000	\$200,000
<ul> <li>Major maintenance</li> </ul>	N/A	N/A	\$300,000	Ongoing (Years 1-50)	\$300,000	\$300,000
Recreation and Land Use Total:	\$15,581,120	\$908,108	N/A	N/A	\$1,361,786	\$2,269,894
AESTHETIC RESOURCES						
• Develop and implement a Lighting Management Plan. As part of the Plan:						
<ul> <li>Lighting BMP retrofit</li> </ul>	\$308,780	\$17,997	N/A	N/A	N/A	\$17,997
<ul> <li>Lighting BMP replacement</li> </ul>	N/A	N/A	\$13,310	Every 5 Years	\$5,415	\$5,415
<ul> <li>Project lighting engineer assessment</li> </ul>	N/A	N/A	\$50,000	One Time	\$2,765	\$2,765
• Project lighting engineer monitoring assessment	N/A	N/A	\$12,500	Every 15 Years	\$1,969	\$1,969
• Lighting guidance document development	N/A	N/A	\$30,000	One Time (Years 1-2)	\$1,659	\$1,659
<ul> <li>Lighting guidance document update</li> </ul>	N/A	N/A	\$10,000	Every 5 Years	\$4,068	\$4,068
• Periodic inspections	N/A	N/A	\$6,000	Every 5 Years (Starting Year 6)	\$2,441	\$2,441

	Capital		O&M			Total
Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost
• Plan review and update	N/A	N/A	\$7,500	Every 5 Years	\$3,309	\$3,309
Sound protection BMPs	N/A	N/A	Included in Wildlife Protection and Enhancement Plan costs above	See above	See above	See above
Aesthetic Resources Total:	\$308,780	\$17,997	N/A	N/A	\$21,625	\$39,621
Cultural Resources						
• Develop and implement a Historic Properties Management Plan (HPMP) to guide treatment of historic properties; identify procedures for future potential discoveries.						
<ul> <li>Annual reporting, meetings, and trainings</li> </ul>	N/A	N/A	\$20,000	Annually	\$20,000	\$20,000
<ul> <li>Monitoring</li> </ul>	N/A	N/A	\$80,000	Every 3 Years (Starting Year 1)	\$49,089	\$49,089
<ul> <li>Cultural resources steward</li> </ul>	N/A	N/A	\$80,000	Annually	\$80,000	\$80,000
o Survey	N/A	N/A	\$40,000 (per occurrence)	Annually (Twice/Year for Years 1-10; Once/Year Years 11-50)	\$57,649	\$57,649
• NRHP evaluations	N/A	N/A	\$30,000 (per occurrence)	Annually (10 Times/Year for Years 1-10; 3 Times/Year Years 11-50)	\$182,655	\$182,655
<ul> <li>DT00212 NR form update</li> </ul>	N/A	N/A	\$60,000	Every 10 Years	\$14,970	\$14,970
<ul> <li>DT00066 NR form update</li> </ul>	N/A	N/A	\$60,000	Every 10 Years	\$14,970	\$14,970
<ul> <li>Adverse effects mitigation</li> </ul>	N/A	N/A	\$50,000 (per occurrence)	Annually (10 Times/Year for Years 1-10; Once/Year Years 11-50)	\$248,547	\$248,547
• TCP management	N/A	N/A	\$100,000	Annually	\$100,000	\$100,000
• Public information and program	\$116,000	\$6,761	\$15,000	Annually (Starting Year 5)	\$14,650	\$21,411
• HPMP updates and reviews	N/A	N/A	\$30,000	Every 10 Years	\$7,485	\$7,485

	Capital		O&M			Total		
Proposed PME	Estimated Cost	Annualized Cost <sup>3</sup>	Annual Estimated Cost	Frequency	Annualized Cost	Annualized Cost		
<ul> <li>General implementation protocols (i.e., emergency response, inadvertent discovery, etc.)</li> </ul>	N/A	N/A	\$20,000	Annually	\$20,000	\$20,000		
Cultural Resources Total:	\$116,000	\$6,761	N/A	N/A	\$810,015	\$816,776		
TRIBAL RESOURCES								
Addressed by measures of other resource areas	See above	See above	See above	See above	See above	See above		
SOCIOECONOMICS								
Addressed by measures of other resource areas	See above	See above	See above	See above	See above	See above		
ENVIRONMENTAL JUSTICE								
Addressed by measures of other resource areas	See above	See above	See above	See above	See above	See above		
<b>Operational PME Measures Subtotal:</b>	N/A	N/A	\$1,420,029	Annually	\$1,420,029	\$1,420,029		
Non-operational PME Measures Subtotal:	\$145,387,660	\$8,473,574	N/A	N/A	\$7,185,432	\$15,659,005		
Grand Total:	\$145,387,660	\$8,473,574	N/A	N/A	\$8,605,461	\$17,079,034		