SKAGIT RIVER HYDROELECTRIC PROJECT (NO. 553)
ERRATA TO THE PRE-APPLICATION DOCUMENT
Version: January 25, 2021

INTRODUCTION

Seattle City Light (City Light) recently revised Exhibits K and M to the current Skagit River Hydroelectric Project (No. 553) License. Exhibit K Drawings were updated to include all fish and wildlife mitigation lands purchased since 2010. Exhibit M, General Description of Mechanical, Electrical and Transmission Equipment was updated to reflect upgrades to powerhouse equipment the resulted in changes to turbine ratings, total plant capability (nameplate), and total authorized installed capacity. In addition, a new section was added to Exhibit M that addressed federal lands.

As a result of the revisions to Exhibits K and M, some of the information on the Project lands and infrastructure in the Pre-Application Document (PAD) for the relicensing process is now out of date. This Errata summarizes the specific updates that should be considered when reviewing the PAD.

Project Lands (Revised Exhibit K)

The Project Boundary, as described in the PAD, was based on the most current Exhibit K Drawings for the license. These were developed in 2011 for the Application to Amend the Skagit Project License for the Gorge Second Tunnel License and approved by the Federal Energy Regulatory Commission (Commission) in the July 17, 2013 Order to Amend the License. The Project Boundary in the 2011 Exhibit K Drawings included the 9,337 acres of land acquired for fish and wildlife habitat mitigation roughly from 1995 through 2010.

Between 2011 and the end of 2019 City Light acquired an additional 1,503 acres of fish and wildlife habitat lands and, with approval of the Wildlife Land Acquisition Group, disposed of 132 acres. In an Order issued on January 27, 2020 the Commission directed City Light to submit revised Exhibit K Drawings that incorporated the lands acquired since 2010 into the Project Boundary. The updated drawings with the new Project Boundary were filed with the Commission on April 30, 2020; they were modified slightly to indicate the High Ross Inundation Zone and refiled on August 19, 2020.

Based on the GIS data used to create the 2020 Exhibit K Drawings, the Skagit River Project Boundary currently encompasses 32,773 acres. This includes 22,105 acres related to generation (reservoirs, powerhouses, the towns of Newhalem and Diablo) and transmission and 10,804 acres of fish and wildlife habitat land. It is important to note that the transmission line right-of-way overlaps some of the fish and wildlife parcels, which was not accounted for in the 2011 Exhibit K Drawings. The revised Exhibit K Drawings correct this error, so the total Project Boundary area is less than the sum of the parts, as it does not double count the overlaps. The drawings also corrected several survey-related errors and adjustments to several parcels along the Sauk River that have lost area from erosion. These changes are summarized in the table below.

	As Reported in PAD (March 2020)	Revised Exhibit K Drawings (April 30, 2020, updated August 19, 2020)	Effected PAD Sections
Project Boundary[1]	31,451 ac	32,773 ac	3.2, 3.4.11
Generation & Transmission Related Lands & Waters	22,105 ac	22,105 ac	4.8.9
Wildlife & Fish Lands in the Project Boundary	9,337 ac	10,804 ac	4.8.9
Total Wildlife and Fish Mitigation Lands	Approx 10,850 ac	10,804 ac	ES, 4.6.1.3, 4.6.8.1, 4.7.7.1, 4.8.1.9, 4.9.1.2
Total Wildlife Habitat Mitigation Lands[2]	10,450 ac	10,408 ac	3.4.10
Total Fish Habitat Mitigation Lands[2]	Approx 400 ac	396 ac	3.4.10
Sauk and Marblemount Boat Launches	9 ac	9 ac	3.4.7
Occupied Federal Lands[3,4]	19,281.93 ac	19,233.51 ac	3.2
Transmission Related	221.87 ac	226.5 ac	3.2
Non-transmission Related	19,060.06 ac	19,007.01 ac	3.2

[1] The boundary for the transmission line right-of-way overlaps some of the fish and wildlife parcels. This overlap was not accounted for in the 2011 Exhibit K Drawings. The Revised Exhibit K Drawings corrects this error, so the total Project Boundary area (32,773 ac) is less than the sum of the parts (32,918 ac), as it does not double count the overlaps.

[2] The wildlife and fish habitat acreages reported in Section 3.4.10 of the PAD included the estimated acreage for all land acquisitions through 2019, including parcels purchased since 2011 and not yet in the Project Boundary. The Revised Exhibit K drawings include all fish and wildlife acquisitions and wildlife parcel disposal approved by the Wildlife Land Acquisition Group and the FERC and makes several minor survey-related corrections.

[3] The total occupied federal lands in the Project Boundary decreased by 48.42 ac based on a discrepancy found between the GIS layer used for the 2011 Exhibit K drawings(19,281,93 acres) and the value on file with the Commission as per the 2013 License Order (19,281.93 acres). The 19,233.51-acre value includes 4.63 additional acres in the transmission line rights-of-way and 53.05 fewer acres that are non-transmission related.

[4] Occupied federal lands include 5,213.78 ac in the High Ross Inundation Zone.

In addition to the summary of changes provided in the table, the revised Exhibit K maps corrected some other acreage values reported in the PAD:

- Section 3.4.10: "*The largest habitat management unit, which is along the South Fork Nooksack River, is 4,420 acres, and was acquired in a series of transactions between 1991 and 2013".* These parcels are identified as Nooksack, Nooksack West, and Bear Lake; the corrected total acreage is 4,397 acres.

- Section 3.4.10: "*Since 2011, an additional approximately 1,350 acres have been acquired. On January 27, 2020, FERC approved the acquisition and disposition of lands pursuant to Articles 408 and 410 to include all aforementioned lands acquired since 2011 within the Project Boundary*." To be consistent with the values on page 1 of this document and a review of dates, these two sentences should be revised as follows: Between roughly 2010 and 2019 an additional 1,503 acres of wildlife mitigation lands were acquired and 132 acres

were disposed, for a net gain of 1,371 acres. On January 27, 2020, FERC approved the acquisition and disposition of lands pursuant to Articles 408 and 410 to include all aforementioned lands within the Project Boundary.

- Section 4.6.1.3: "*As of 2003, City Light had acquired 14 parcels, totaling over 8,300 acres of land within the South Fork Nooksack, Sauk, and Skagit watersheds." And "Between 2004 and 2019, City Light acquired approximately 2,550 acres of additional parcels that that are being managed as fish and wildlife mitigation lands*." Assuming the 8,300-acre value is correct, lands acquired between 2004-2019 should be modified to 2,504 acres, or approximately 2,500 acres (10,804-8,300 acres).

General Description of Mechanical, Electrical and Transmission Equipment (Revised Exhibit M)

Over the last 20 years or so, City Light has replaced and upgraded equipment at all three Skagit River Project powerhouses which resulted in changes to turbine ratings, total plant capability and total authorized installed capacity. In an Order dated October 17, 2019 the Commission directed City Light to update Exhibit M to reflect these changes. Some, but not all, these changes were reflected in the PAD. Table 3.4.1 from the PAD is replicated below; shading indicates the rows that have been changed to reflect the updated Exhibit M. The only revision that impacts other sections of the PAD is the change in total authorized installed capacity from 805.4 MW to 700.27 MW. Authorized installed capacity is referenced in the Executive Summary and the first sentences in Sections 3.4 and 3.5.3.2.

Table 3.4.1 (revised) Specifications for the three developments of the Skagit River Project.

Project Component	Development		
	Gorge	Diablo	Ross
Dam			
Composition and configuration	concrete arch gravity diversion	concrete arch	concrete arch
Structural height of dam	300 feet (ft)	389 ft	540 ft
Length of crest (including spillways)	670 ft	1,180 ft	1,300 ft
Dam thickness at base	170 ft	146 ft	208 ft
Dam thickness at roadway	70 ft	16 ft	33 ft
Elevation[1] of crest of dam (at roadway)	880.5 ft	1,218 ft	1,615 ft
Concrete volume:	Unknown	350,000 cubic yds	909,214 cubic yds
Spillway			
Number of spillways	1	2	2
Spillway gates: Number Type Dimensions	 2 Fixed wheel 50 ft high by 47 ft wide	 19 Radial Tainter 19 ft high by 20 ft wide	 12 Radial Tainter 20 ft high[2] by 19.5 ft wide
Spillway crest elevation[1]	825 ft	1,187 ft	1,582 ft
Maximum spillway capacity (at normal maximum water surface elevation)	120,000 cfs	98,500 cfs	124,800 cfs

Project Component	Development		
	Gorge	Diablo	Ross
Reservoir			
Normal maximum water surface elevation[1]	875 ft	1,205 ft	1,602.5 ft
Maximum drawdown elevation[1] (authorized by current Project license)	825 ft	1,198 ft	1,474.5 ft
Length of reservoir	4.5 miles	4.5 miles	24 miles[3]
Surface area at normal maximum water surface elevation	240 acres	770 acres	11,680 acres[3]
Shoreline length at normal maximum water surface elevation[4]	11 miles	20 miles	84 miles[5]
Gross storage	8,500 acre-ft	50,000 acre-ft	1,435,000 acre-ft[6]
Usable storage	6,600 acre-ft	8,820 acre-ft	1,052,000 acre-ft
Intake			
Intake structure[7]	1 bifurcated intake with 2 openings, each 20 ft wide and 88.9 ft long (4:1 vertical:horizontal incline)	2 bifurcated intakes with 4 openings, each 16.75 to 18.75 ft wide and 153.17 ft long (approximate 2.6:1 vertical:horizontal incline)	2 bifurcated intakes with 4 openings, each 20 ft wide and 198.13 ft long (4:1 vertical:horizontal incline)
Trashrack opening	3.5 inches by 2 ft and 2.5 inches	2.5 inches by 2 ft and 0.3 inches	3.5 inches by 2 ft and 1 inch for three rows per panel and 3.5 inches by 2 ft and 5.5 inches for one row per panel
Intake ("power") tunnel:			
Number	1	1	2
Invert elevation[1]	795 ft	1,080 ft	1,423 ft
Length of concrete-lined section (gate slot to steel liner)	11,000 ft	1,800 ft	1,800 ft/1,634 ft
Length of steel-lined section	NA	190 ft	NA
Diameter of concrete-line section	20.5 ft	19.5 ft	24.5 ft
Diameter of steel-lined section	NA	19.5 ft	NA
Penstocks:			
Number	4	4	4
Length	1,600 ft	290 ft	350 ft
Diameter of turbine inlet	10 ft (Units 21, 22, 23); 15 ft (Unit 24)	15 ft (Units 31, 32); 5 ft (Units 35 & 36)	16 ft (all units)
Penstock centerline elevation at turbine inlet[1]	497 ft	881 ft	1,211.5 ft
Powerhouse			
Total plant capability (Nameplate)	207.58 MW	182.4 MW	450 MW
	839.98 MW total		
Total authorized installed capacity[8,9]	189.3 MW	158.47 MW	352.5 MW
	700.27 MW total		
Annual capacity factor	52%	48%	13%
Normal tailwater elevation at dam[1]	495 ft	875 ft	1,205 ft

Project Component	Development		
	Gorge	**Diablo**	**Ross**
Normal gross head	380 ft	330 ft	397.5 ft
Turbines: Turbine type Number of units Ratings (hp=horsepower; RPM=rotations per minute)	 Francis vertical 4 Units 21, 22: 51,850 hp at 325 ft head, 257 RPM Unit 23: 45,000 hp at 325 ft head, 257 RPM Unit 24: 147,500 hp at 354 ft head, 163.7 RPM	 Francis vertical 4 Units 31, 32: 117,200 hp at 318 ft head, 171.5 RPM Units 35, 36: 2,200 hp at 306 ft head, 720 RPM	 Francis vertical 4 120,000 hp at 355 ft head, 150 RPM
Hydraulic capacity (at maximum plant output)	7,440 cfs	7,130 cfs	16,000 cfs
Generators: Generator manufacturer Ratings Plant factor (average)	 Westinghouse U21 36.86 MW U22 36.86 MW U23 36.86 MW U24 97.00 MW 107.59 MW	 Westinghouse U31 90 MW U32 90 MW U35 1.2 MW U36 1.2 MW 87.53 MW	 Westinghouse U41 112.5 MW U42 112.5 MW U43 112.5 MW U44 112.5 MW 60.10 MW

Sources: Power System Engineering Information 2019 (City Light 2019); Exhibit M: Table M-1 and General Description of Mechanical, Electrical and Transmission Equipment (City Light 2020).

1 All elevations in the table are City of Seattle Datum.
2 2.5-feet risers installed on top of each gate to increase storage capacity by 30,000 acre-feet and annual energy capability by 10,700 megawatt hours (MWh).
3 Approximately 23 miles and 11,180 acres in the U.S. and 1 mile and 500 acres in Canada.
4 Shoreline length calculated from Light Detection and Ranging (LIDAR) data collected in 2018 that is in North American Vertical Datum of 1988 (NAVD 88) datum.
5 Approximately 369,315 ft (69.9 miles) in U.S. and 75,742 ft (14.3 miles) in Canada. Shoreline length in Canada includes small channels and inlets with shallow water.
6 U.S. Geological Survey (USGS) uses 1,440,700 acre-feet as the capacity of Ross Lake.
7 There are two bifurcated intakes at Diablo Dam but only one is in use; the second intake was for planned future expansion of the powerhouse and a second tunnel, which were never constructed.
8 Generating capacity is limited to 173 MW at Gorge by head loss from tunnel capacity. In addition, Units 21, 22, and 23 at Gorge are restricted to a combined maximum of 96 MW due to water and generator bus limitations.
9 The small "house" units (35 and 36) at Diablo provide power to only the town, the powerhouse, and the North Cascades Environmental Learning Center on the north shore of Diablo Lake.

Lands of the United States

Based on Article 201 of the current Skagit License, as amended in 2013, the Skagit Project occupies 19,281.93 acres of federal lands, including 221.87 acres within the transmission line rights-of-way and 19,060,06 acres that are non-transmission related. These values are reported in the PAD, Section 3.2.

During the process of revising Exhibits K and M an inconsistency was discovered between the

"Occupied Federal Lands" GIS layer used for the 2011 Exhibit K and the federal lands value on file with the Commission, as per the 2013 License Order Article 201. Based on the GIS data, the Project occupies 19,233.51 acres of federal land, which is 48.42 fewer acres than the 19,281.93-acre value in License Article 201 and reported in the PAD. The 19,233.51-acre value includes 4.63 additional acres in the transmission line rights-of-way and 53.05 fewer acres that are non-transmission related.

Of the 19,233.51 acres of federal lands in the Project Boundary, 226.5 acres are within the transmission line rights-of-way and 19,007.01 are non-transmission line related. The federal lands include 5,312.78 of land within the High Ross Inundation Zone, defined as the area between the current Ross Lake normal maximum water surface elevation (NMWSE) of 1,602.5 ft City of Seattle Datum (1,607.91 ft NAVD 88) and the Project Boundary.