Secretary shall, without consideration, release or otherwise convey the covered easement to the holder of such easement, if the Secretary determines that the covered easement is no longer required for purposes of navigation.

(b) SURVEY TO OBTAIN LEGAL DESCRIPTION.—The exact acreage and legal description of any covered easements to be released or otherwise conveyed under this section shall be determined by a survey that is satisfactory to the Secretary.

(c) COSTS.—An entity to which a release or conveyance is made under this section shall be responsible for all reasonable and necessary costs, including real estate transaction and environmental documentation costs, associated with the release or conveyance.

(d) ADDITIONAL TERMS AND CONDITIONS.—The Secretary may require that the release or conveyance of a covered easement under this section be subject to such additional terms and conditions as the Secretary determines necessary and appropriate to protect the interests of the United States.

(e) DEFINITION OF COVERED EASEMENT.—In this subsection, the term ''covered easement'' means an easement held by the United States for purposes of navigation in Nueces County, Texas.

SEC. 8369. LAKE CHAMPLAIN CANAL, VERMONT AND NEW YORK.

Section 5146 of the Water Resources Development Act of 2007 (121 Stat. 1255) is amended by adding at the end the following:

"(c) CLARIFICATIONS.—

"(1) IN GENERAL.—At the request of the non-Federal interest for the study of the Lake Champlain Canal Aquatic Invasive Species Barrier carried out under section 542 of the Water Resources Development Act of 2000 (114 Stat. 2671; 121 Stat. 1150; 134 Stat. 2652), the Secretary shall scope the phase II portion of such study to satisfy the feasibility determination under subsection (a).

"(2) DISPERSAL BARRIER.—A dispersal barrier constructed, maintained, or operated under this section may include—

"(A) physical hydrologic separation;

"(B) nonstructural measures;

"(C) deployment of technologies; and

"(D) buffer zones.".

SEC. 8370. REHABILITATION OF CORPS OF ENGINEERS CONSTRUCTED DAMS.

Section 1177 of the Water Resources Development Act of 2016 (33 U.S.C. 467f–2 note) is amended by adding at the end the following:

''(g) SPECIAL RULE.—Notwithstanding subsection (c), the non-Federal share of the cost of the project for rehabilitation of Waterbury Dam, Washington County, Vermont, under this section, including the cost of any required study, shall be the same share assigned to the non-Federal interest for the cost of initial construction of the Waterbury Dam.''.

SEC. 8371. PUGET SOUND NEARSHORE ECOSYSTEM RESTORATION, WASHINGTON.

In carrying out the project for ecosystem restoration, Puget Sound, Washington, authorized by section 1401(4) of the Water Resources Development Act of 2016 (130 Stat. 1713), the Secretary shall consider the removal and replacement of the Highway 101 causeway and bridges at the Duckabush River Estuary site to be a project feature the costs of which are shared as construction.

SEC. 8372. LOWER MUD RIVER, MILTON, WEST VIRGINIA.

(a) IN GENERAL.—The Federal share of the cost of the project for flood control, Milton, West Virginia, authorized by section 580 of the Water Resources Development Act of 1996 (110 Stat. 3790; 114 Stat. 2612; 121 Stat. 1154), shall be 90 percent.

(b) LAND, EASEMENTS, AND RIGHTS-OF-WAY.—For the project described in subsection (a), the Secretary shall include in the cost of the project, and credit toward the

non-Federal share of that cost, the value of land, easements, and rights-of-way provided by the non-Federal interest for the project, including the value of land, easements, and rights-of-way required for the project that are owned or held by the non-Federal interest or other non-Federal public body.

(c) ADDITIONAL ELIGIBILITY.—Unless otherwise explicitly prohibited in an Act making appropriations for the Corps of Engineers, the project described in subsection (a) shall be eligible for additional funding appropriated and deposited into the "CORPS OF ENGINEERS—CIVIL—CONSTRUCTION" account—

(1) without a new investment decision; and

(2) on the same terms as a project that is not the project described in subsection (a).

SEC. 8373. NORTHERN WEST VIRGINIA.

(a) IN GENERAL.—Section 571 of the Water Resources Development Act of 1999 (113 Stat. 371; 121 Stat. 1257; 134 Stat. 2719) is amended—

(1) in the section heading, by striking "**CENTRAL**" and inserting "**NORTHERN**";

(2) by striking subsection (a) and inserting the following:

"(a) DEFINITION OF NORTHERN WEST VIRGINIA.—In this section, the term 'northern West Virginia' means

the counties of Barbour, Berkeley, Brooke, Doddridge, Grant, Hampshire, Hancock, Hardy, Harrison, Jefferson, Lewis, Marion, Marshall, Mineral, Morgan, Monongalia, Ohio, Pleasants, Preston, Randolph, Ritchie, Taylor, Tucker, Tyler, Upshur, Wetzel, and Wood, West Virginia.";

(3) in subsection (b), by striking "central" and inserting "northern";

(4) in subsection (c), by striking "central" and inserting "northern"; and

(5) in subsection (h), by striking "$100,000,000" and inserting "$120,000,000".

(b) CLERICAL AMENDMENT.—The table of contents in section 1(b) of the Water Resources Development Act of 1999 (113 Stat. 269) is amended by striking the item relating to section 571 and inserting the following:

"Sec. 571. Northern West Virginia.".

SEC. 8374. SOUTHERN WEST VIRGINIA.

(a) IN GENERAL.—Section 340 of the Water Resources Development Act of 1992 (106 Stat. 4856) is amended—

(1) in the section heading, by striking "**ENVIRONMENTAL RESTORATION INFRASTRUCTURE AND RESOURCE PROTECTION DEVELOPMENT PILOT PROGRAM**";

(2) by striking subsection (f) and inserting the following:

''(f) DEFINITION OF SOUTHERN WEST VIRGINIA.—In this section, the term 'southern West Virginia' means the counties of Boone, Braxton, Cabell, Calhoun, Clay, Fayette, Gilmer, Greenbrier, Jackson, Kanawha, Lincoln, Logan, Mason, McDowell, Mercer, Mingo, Monroe, Nicholas, Pendleton, Pocahontas, Putnam, Raleigh, Roane, Summers, Wayne, Webster, Wirt, and Wyoming, West Virginia.''; and

(3) in subsection (g), by striking ''$120,000,000'' and inserting ''$140,000,000''.

(b) CLERICAL AMENDMENT.—The table of contents in section 1(b) of the Water Resources Development Act of 1992 (106 Stat. 4797) is amended by striking the item relating to section 340 and inserting the following:

''Sec. 340. Southern West Virginia.''.

SEC. 8375. ENVIRONMENTAL INFRASTRUCTURE.

(a) NEW PROJECTS.—Section 219(f) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 336; 121 Stat. 1258) is amended by adding at the end the following:

''(274) ALABAMA.—$50,000,000 for water, wastewater, and other environmental infrastructure in Alabama.

"(275) CHANDLER, ARIZONA.—$18,750,000 for water and wastewater infrastructure in the city of Chandler, Arizona.

"(276) PINAL COUNTY, ARIZONA.—$40,000,000 for water and wastewater infrastructure in Pinal County, Arizona.

"(277) TEMPE, ARIZONA.—$37,500,000 for water and wastewater infrastructure, including water reclamation and groundwater recharge, for the City of Tempe, Arizona.

"(278) ALAMEDA COUNTY, CALIFORNIA.—$20,000,000 for environmental infrastructure, in Alameda County, California.

"(279) BELL GARDENS, CALIFORNIA.—$12,500,000 for water and wastewater infrastructure, including water recycling and water supply, in the city of Bell Gardens, California.

"(280) CALIMESA, CALIFORNIA.—$3,500,000 for stormwater management and water supply infrastructure, including groundwater recharge and water recycling, in the city of Calimesa, California.

"(281) COMPTON CREEK, CALIFORNIA.—$6,165,000 for stormwater management infrastructure in the vicinity of Compton Creek, city of Compton, California.

"(282) DOWNEY, CALIFORNIA.—$100,000,000 for water infrastructure, including water supply, in the city of Downey, California.

"(283) EAST COUNTY, SAN DIEGO COUNTY, CALIFORNIA.—$70,000,000 for water and wastewater infrastructure, including water recycling and water supply, in East County, San Diego County, California.

"(284) EASTERN LOS ANGELES COUNTY, CALIFORNIA.—$25,000,000 for the planning, design, and construction of water and wastewater infrastructure, including water recycling and water supply, for the cities of Azusa, Baldwin Park, Covina, Duarte, El Monte, Glendora, Industry, Irwindale, La Puente, La Verne, Monrovia, San Dimas, and West Covina, and for Avocado Heights, Bassett, and Valinda, California.

"(285) ESCONDIDO CREEK, CALIFORNIA.—$34,000,000 for water and wastewater infrastructure, including stormwater management, in the vicinity of Escondido Creek, city of Escondido, California.

"(286) FONTANA, CALIFORNIA.—$16,000,000 for stormwater management infrastructure in the city of Fontana, California.

"(287) HEALDSBURG, CALIFORNIA.—$23,500,000 for water and wastewater infrastructure, including water recycling and water supply, in the city of Healdsburg, California.

"(288) INLAND EMPIRE, CALIFORNIA.—$60,000,000 for water and wastewater infrastructure, including water supply, in Riverside County and San Bernardino County, California.

"(289) LOMITA, CALIFORNIA.—$4,716,600 for stormwater management infrastructure in the city of Lomita, California.

"(290) MARIN COUNTY, CALIFORNIA.—$28,000,000 for water and wastewater infrastructure, including water supply, in Marin County, California.

"(291) MAYWOOD, CALIFORNIA.—$10,000,000 for wastewater infrastructure in the city of Maywood, California.

"(292) MONTEREY PENINSULA, CALIFORNIA.—$20,000,000 for water and wastewater infrastructure, and water supply, on the Monterey Peninsula, California.

"(293) NORTH RICHMOND, CALIFORNIA.—$45,000,000 for water and wastewater infrastructure, including coastal flooding resilience measures

for such infrastructure, in North Richmond, California.

"(294) ONTARIO, CALIFORNIA.—$40,700,000 for water and wastewater infrastructure, including water recycling and water supply, in the city of Ontario, California.

"(295) PARAMOUNT, CALIFORNIA.—$20,000,000 for water and wastewater infrastructure, including stormwater management, in the city of Paramount, California.

"(296) PETALUMA, CALIFORNIA.—$13,700,000 for water and wastewater infrastructure, including water recycling, in the city of Petaluma, California.

"(297) PLACER COUNTY, CALIFORNIA.—$21,000,000 for environmental infrastructure, in Placer County, California.

"(298) RIALTO, CALIFORNIA.—$27,500,000 for wastewater infrastructure in the city of Rialto, California.

"(299) RINCON RESERVATION, CALIFORNIA.—$38,000,000 for water and wastewater infrastructure on the Rincon Band of Luiseño Indians reservation, California.

"(300) SACRAMENTO-SAN JOAQUIN DELTA, CALIFORNIA.—$50,000,000 for water and waste-

water infrastructure (including stormwater management), water supply and related facilities, environmental restoration, and surface water protection and development, including flooding resilience measures for such infrastructure, in Contra Costa County, San Joaquin County, Solano County, Sacramento County, and Yolo County, California.

''(301) SAN JOAQUIN AND STANISLAUS, CALIFORNIA.—$200,000,000 for water and wastewater infrastructure, including stormwater management, and water supply, in San Joaquin County and Stanislaus County, California.

''(302) SANTA ROSA, CALIFORNIA.—$19,400,000 for water and wastewater infrastructure, in the city of Santa Rosa California.

''(303) SIERRA MADRE, CALIFORNIA.—$20,000,000 for water and wastewater infrastructure, and water supply, including earthquake resilience measures for such infrastructure and water supply, in the city of Sierra Madre, California.

''(304) SMITH RIVER, CALIFORNIA.—$25,000,000 for wastewater infrastructure in Howonquet Village and Resort and Tolowa Dee-ni' Nation, Smith River, California.

"(305) SOUTH SAN FRANCISCO, CALIFORNIA.—$270,000,000 for water and wastewater infrastructure, including stormwater management and water recycling, at the San Francisco International Airport, California.

"(306) TEMECULA, CALIFORNIA.—$18,000,000 for environmental infrastructure, in the city of Temecula, California.

"(307) TORRANCE, CALIFORNIA.—$100,000,000 for water and wastewater infrastructure, including groundwater recharge and water supply, in the city of Torrance, California.

"(308) WESTERN CONTRA COSTA COUNTY, CALIFORNIA.—$15,000,000 for wastewater infrastructure in the cities of Pinole, San Pablo, and Richmond, and in El Sobrante, California.

"(309) YOLO COUNTY, CALIFORNIA.—$6,000,000 for environmental infrastructure, in Yolo County, California.

"(310) HEBRON, CONNECTICUT.—$3,700,000 for water and wastewater infrastructure in the town of Hebron, Connecticut.

"(311) NEW LONDON, CONNECTICUT.—$16,000,000 for wastewater infrastructure in the

town of Bozrah and the City of Norwich, Connecticut.

"(312) WINDHAM, CONNECTICUT.—$18,000,000 for water and wastewater infrastructure in the town of Windham, Connecticut.

"(313) KENT, DELAWARE.—$35,000,000 for water and wastewater infrastructure, including stormwater management, water storage and treatment systems, and environmental restoration, in Kent County, Delaware.

"(314) NEW CASTLE, DELAWARE.—$35,000,000 for water and wastewater infrastructure, including stormwater management, water storage and treatment systems, and environmental restoration, in New Castle County, Delaware.

"(315) SUSSEX, DELAWARE.—$35,000,000 for water and wastewater infrastructure, including stormwater management, water storage and treatment systems, and environmental restoration, in Sussex County, Delaware.

"(316) WASHINGTON, DISTRICT OF COLUMBIA.—$1,000,000 for water and wastewater infrastructure, including stormwater management, in Washington, District of Columbia.

"(317) LONGBOAT KEY, FLORIDA.—$12,750,000 for water and wastewater infrastructure in the town of Longboat Key, Florida.

"(318) MARTIN, ST. LUCIE, AND PALM BEACH COUNTIES, FLORIDA.—$100,000,000 for water and wastewater infrastructure, including stormwater management, to improve water quality in the St. Lucie River, Indian River Lagoon, and Lake Worth Lagoon in Martin County, St. Lucie County, and Palm Beach County, Florida.

"(319) POLK COUNTY, FLORIDA.—$10,000,000 for wastewater infrastructure, including stormwater management, in Polk County, Florida.

"(320) OKEECHOBEE COUNTY, FLORIDA.—$20,000,000 for wastewater infrastructure in Okeechobee County, Florida.

"(321) ORANGE COUNTY, FLORIDA.—$50,000,000 for water and wastewater infrastructure, including water reclamation and water supply, in Orange County, Florida.

"(322) GEORGIA.—$75,000,000 for environmental infrastructure in Baldwin County, Bartow County, Floyd County, Haralson County, Jones County, Gilmer County, Towns County, Warren County, Lamar County, Lowndes County, Troup

County, Madison County, Toombs County, Dade County, Bulloch County, Gordon County, Walker County, Dooly County, Butts County, Clarke County, Crisp County, Newton County, Bibb County, Baker County, Barrow County, Oglethorpe County, Peach County, Brooks County, Carroll County, Worth County, Jenkins County, Wheeler County, Calhoun County, Randolph County, Wilcox County, Stewart County, Telfair County, Clinch County, Hancock County, Ben Hill County, Jeff Davis County, Chattooga County, Lanier County, Brantley County, Charlton County, Tattnall County, Emanuel County, Mitchell County, Turner County, Bacon County, Terrell County, Macon County, Ware County, Bleckley County, Colquitt County, Washington County, Berrien County, Coffee County, Pulaski County, Cook County, Atkinson County, Candler County, Taliaferro County, Evans County, Johnson County, Irwin County, Dodge County, Jefferson County, Appling County, Taylor County, Wayne County, Clayton County, Decatur County, Schley County, Sumter County, Early County, Webster County, Clay County, Upson County, Long County, Twiggs County, Dougherty County, Quitman County, Meriwether County, Stephens County, Wilkinson

County, Murray County, Wilkes County, Elbert County, McDuffie County, Heard County, Marion County, Talbot County, Laurens County, Montgomery County, Echols County, Pierce County, Richmond County, Chattahoochee County, Screven County, Habersham County, Lincoln County, Burke County, Liberty County, Tift County, Polk County, Glascock County, Grady County, Jasper County, Banks County, Franklin County, Whitfield County, Treutlen County, Crawford County, and Hart County, Georgia.

"(323) GUAM.—$10,000,000 for water and wastewater infrastructure in Guam.

"(324) STATE OF HAWAII.—$75,000,000 for water and wastewater infrastructure (including urban stormwater conveyance), resource protection and development, water supply, environmental restoration, and surface water protection and development, in the State of Hawaii.

"(325) COUNTY OF HAWAI'I, HAWAII.—$20,000,000 for water and wastewater infrastructure, including stormwater management, in the County of Hawai'i, Hawaii.

"(326) HONOLULU, HAWAII.—$20,000,000 for water and wastewater infrastructure, including

stormwater management, in the City and County of Honolulu, Hawaii.

"(327) KAUA'I, HAWAII.—$20,000,000 for water and wastewater infrastructure, including stormwater management, in the County of Kaua'i, Hawaii.

"(328) MAUI, HAWAII.—$20,000,000 for water and wastewater infrastructure, including stormwater management, in the County of Maui, Hawaii.

"(329) DIXMOOR, ILLINOIS.—$15,000,000 for water and water supply infrastructure in the village of Dixmoor, Illinois.

"(330) FOREST PARK, ILLINOIS.—$10,000,000 for wastewater infrastructure, including stormwater management, in the village of Forest Park, Illinois.

"(331) LEMONT, ILLINOIS.—$3,135,000 for water infrastructure in the village of Lemont, Illinois.

"(332) LOCKPORT, ILLINOIS.—$6,550,000 for wastewater infrastructure, including stormwater management, in the city of Lockport, Illinois.

"(333) MONTGOMERY AND CHRISTIAN COUNTIES, ILLINOIS.—$30,000,000 for water and wastewater infrastructure, including water supply, in Montgomery County and Christian County, Illinois.

"(334) WILL COUNTY, ILLINOIS.—$30,000,000 for water and wastewater infrastructure, including stormwater management, in Will County, Illinois.

"(335) ORLEANS PARISH, LOUISIANA.—$100,000,000 for water and wastewater infrastructure in Orleans Parish, Louisiana.

"(336) FITCHBURG, MASSACHUSETTS.—$20,000,000 for water and wastewater infrastructure, including stormwater management (including combined sewer overflows), in the city of Fitchburg, Massachusetts.

"(337) HAVERHILL, MASSACHUSETTS.—$20,000,000 for water and wastewater infrastructure, including stormwater management (including combined sewer overflows), in the city of Haverhill, Massachusetts.

"(338) LAWRENCE, MASSACHUSETTS.—$20,000,000 for water and wastewater infrastructure, including stormwater management (including combined sewer overflows), in the city of Lawrence, Massachusetts.

"(339) LOWELL, MASSACHUSETTS.—$20,000,000 for water and wastewater infrastructure, including stormwater management (including

combined sewer overflows), in the city of Lowell, Massachusetts.

"(340) METHUEN, MASSACHUSETTS.—$20,000,000 for water and wastewater infrastructure, including stormwater management (including combined sewer overflows), in the city of Methuen, Massachusetts.

"(341) MARYLAND.—$100,000,000 for water, wastewater, and other environmental infrastructure, Maryland.

"(342) BOONSBORO, MARYLAND.—$5,000,000 for water infrastructure, including water supply, in the town of Boonsboro, Maryland.

"(343) BRUNSWICK, MARYLAND.—$15,000,000 for water and wastewater infrastructure in the city of Brunswick, Maryland.

"(344) CASCADE CHARTER TOWNSHIP, MICHIGAN.—$7,200,000 for water and wastewater infrastructure in Cascade Charter Township, Michigan.

"(345) MACOMB COUNTY, MICHIGAN.—$40,000,000 for wastewater infrastructure, including stormwater management, in Macomb County, Michigan.

"(346) NORTHFIELD, MINNESOTA.—$33,450,000 for water and wastewater infrastructure in the city of Northfield, Minnesota.

"(347) CENTERTOWN, MISSOURI.—$15,900,000 for water and wastewater infrastructure in the village of Centertown, Missouri.

"(348) CITY OF ST. LOUIS, MISSOURI.—$45,000,000 for water and wastewater infrastructure in the city of St. Louis, Missouri.

"(349) ST. LOUIS COUNTY, MISSOURI.—$45,000,000 for water and wastewater infrastructure in St. Louis County, Missouri.

"(350) CLINTON, MISSISSIPPI.—$13,600,000 for environmental infrastructure, including water and wastewater infrastructure (including stormwater management), drainage systems, and water quality enhancement, in the city of Clinton, Mississippi.

"(351) MADISON COUNTY, MISSISSIPPI.—$10,000,000 for environmental infrastructure, including water and wastewater infrastructure (including stormwater management), drainage systems, and water quality enhancement, in Madison County, Mississippi.

"(352) MERIDIAN, MISSISSIPPI.—$10,000,000 for environmental infrastructure, including water

and wastewater infrastructure (including stormwater management), drainage systems, and water quality enhancement, in the city of Meridian, Mississippi.

"(353) OXFORD, MISSISSIPPI.—$10,000,000 for environmental infrastructure, including water and wastewater infrastructure (including stormwater management), drainage systems, and water quality enhancement, in the City of Oxford, Mississippi.

"(354) RANKIN COUNTY, MISSISSIPPI.—$10,000,000 for environmental infrastructure, including water and wastewater infrastructure (including stormwater management), drainage systems, and water quality enhancement, in Rankin County, Mississippi.

"(355) MANCHESTER, NEW HAMPSHIRE.—$20,000,000 for water and wastewater infrastructure, including stormwater management (including combined sewer overflows), in the city of Manchester, New Hampshire.

"(356) BAYONNE, NEW JERSEY.—$825,000 for wastewater infrastructure, including stormwater management (including combined sewer overflows), in the city of Bayonne, New Jersey.

"(357) CAMDEN, NEW JERSEY.—$119,000,000 for wastewater infrastructure, including stormwater management, in the city of Camden, New Jersey.

"(358) ESSEX AND SUSSEX COUNTIES, NEW JERSEY.—$60,000,000 for water and wastewater infrastructure, including water supply, in Essex County and Sussex County, New Jersey.

"(359) FLEMINGTON, NEW JERSEY.—$4,500,000 for water and wastewater infrastructure, including water supply, in the Borough of Flemington, New Jersey.

"(360) JEFFERSON, NEW JERSEY.—$90,000,000 for wastewater infrastructure, including stormwater management, in Jefferson Township, New Jersey.

"(361) KEARNY, NEW JERSEY.—$69,900,000 for wastewater infrastructure, including stormwater management (including combined sewer overflows), in the town of Kearny, New Jersey.

"(362) LONG HILL, NEW JERSEY.—$7,500,000 for wastewater infrastructure, including stormwater management, in Long Hill Township, New Jersey.

"(363) MORRIS COUNTY, NEW JERSEY.—$30,000,000 for water and wastewater infrastructure in Morris County, New Jersey.

"(364) PASSAIC, NEW JERSEY.—$1,000,000 for wastewater infrastructure, including stormwater management, in Passaic County, New Jersey.

"(365) PHILLIPSBURG, NEW JERSEY.—$2,600,000 for wastewater infrastructure, including stormwater management, in the town of Phillipsburg, New Jersey.

"(366) RAHWAY, NEW JERSEY.—$3,250,000 for water and wastewater infrastructure in the city of Rahway, New Jersey.

"(367) ROSELLE, NEW JERSEY.—$5,000,000 for wastewater infrastructure, including stormwater management, in the Borough of Roselle, New Jersey.

"(368) SOUTH ORANGE VILLAGE, NEW JERSEY.—$7,500,000 for water infrastructure, including water supply, in the Township of South Orange Village, New Jersey.

"(369) SUMMIT, NEW JERSEY.—$1,000,000 for wastewater infrastructure, including stormwater management, in the city of Summit, New Jersey.

"(370) WARREN, NEW JERSEY.—$4,550,000 for wastewater infrastructure, including stormwater management, in Warren Township, New Jersey.

"(371) ESPAÑOLA, NEW MEXICO.—$21,995,000 for water and wastewater infrastructure in the city of Española, New Mexico.

"(372) FARMINGTON, NEW MEXICO.—$15,500,000 for water infrastructure, including water supply, in the city of Farmington, New Mexico.

"(373) MORA COUNTY, NEW MEXICO.—$2,874,000 for wastewater infrastructure in Mora County, New Mexico.

"(374) SANTA FE, NEW MEXICO.—$20,700,000 for water and wastewater infrastructure, including water reclamation, in the city of Santa Fe, New Mexico.

"(375) CLARKSTOWN, NEW YORK.—$14,600,000 for wastewater infrastructure, including stormwater management, in the town of Clarkstown, New York.

"(376) GENESEE, NEW YORK.—$85,000,000 for water and wastewater infrastructure, including stormwater management and water supply, in Genesee County, New York.

"(377) QUEENS, NEW YORK.—$119,200,000 for water and wastewater infrastructure, including

stormwater management (including combined sewer overflows), in Queens, New York.

"(378) YORKTOWN, NEW YORK.—$40,000,000 for wastewater infrastructure, including stormwater management, in the town of Yorktown, New York.

"(379) BRUNSWICK, OHIO.—$4,510,000 for wastewater infrastructure, including stormwater management, in the city of Brunswick, Ohio.

"(380) BROOKINGS, OREGON.—$2,000,000 for wastewater infrastructure in the City of Brookings and the Port of Brookings Harbor, Oregon.

"(381) MONROE, OREGON.—$6,000,000 for water and wastewater infrastructure in the city of Monroe, Oregon.

"(382) NEWPORT, OREGON.—$60,000,000 for water and wastewater infrastructure, including water supply and water storage, in the city of Newport, Oregon.

"(383) LANE COUNTY, OREGON.—$25,000,000 for water and wastewater infrastructure, including water supply and storage, distribution, and treatment systems, in Lane County, Oregon.

"(384) PALMYRA, PENNSYLVANIA.—$36,300,000 for wastewater infrastructure in Palmyra Township, Pennsylvania.

"(385) PIKE COUNTY, PENNSYLVANIA.—$10,000,000 for water and stormwater management infrastructure, including water supply, in Pike County, Pennsylvania.

"(386) PITTSBURGH, PENNSYLVANIA.—$20,000,000 for wastewater infrastructure, including stormwater management, in the city of Pittsburgh, Pennsylvania.

"(387) POCONO, PENNSYLVANIA.—$22,000,000 for water and wastewater infrastructure in Pocono Township, Pennsylvania.

"(388) WESTFALL, PENNSYLVANIA.—$16,880,000 for wastewater infrastructure in Westfall Township, Pennsylvania.

"(389) WHITEHALL, PENNSYLVANIA.—$6,000,000 for stormwater management infrastructure in Whitehall Township and South Whitehall Township, Pennsylvania.

"(390) BEAUFORT, SOUTH CAROLINA.—$7,462,000 for stormwater management infrastructure in Beaufort County, South Carolina.

"(391) CHARLESTON, SOUTH CAROLINA.—$25,583,000 for wastewater infrastructure, including stormwater management, in the city of Charleston, South Carolina.

"(392) HORRY COUNTY, SOUTH CAROLINA.—$19,000,000 for environmental infrastructure, including ocean outfalls, in Horry County, South Carolina.

"(393) MOUNT PLEASANT, SOUTH CAROLINA.—$7,822,000 for wastewater infrastructure, including stormwater management, in the town of Mount Pleasant, South Carolina.

"(394) PORTLAND, TENNESSEE.—$1,850,000 for water and wastewater infrastructure, including water supply, in the city of Portland, Tennessee.

"(395) SMITH COUNTY, TENNESSEE.—$19,500,000 for wastewater infrastructure, including stormwater management, in Smith County, Tennessee.

"(396) TROUSDALE, MACON, AND SUMNER COUNTIES, TENNESSEE.—$178,000,000 for water and wastewater infrastructure in Trousdale County, Macon County, and Sumner County, Tennessee.

"(397) UNITED STATES VIRGIN ISLANDS.—$1,584,000 for wastewater infrastructure in the United States Virgin Islands.

"(398) BONNEY LAKE, WASHINGTON.—$3,000,000 for water and wastewater infrastructure in the city of Bonney Lake, Washington.

"(399) BURIEN, WASHINGTON.—$5,000,000 for stormwater management infrastructure in the city of Burien, Washington.

"(400) ELLENSBURG, WASHINGTON.—$3,000,000 for wastewater infrastructure, including stormwater management, in the city of Ellensburg, Washington.

"(401) NORTH BEND, WASHINGTON.—$30,000,000 for wastewater infrastructure, including stormwater management, in the city of North Bend, Washington.

"(402) PORT ANGELES, WASHINGTON.—$7,500,000 for wastewater infrastructure, including stormwater management, in the City and Port of Port Angeles, Washington.

"(403) SNOHOMISH COUNTY, WASHINGTON.—$56,000,000 for water and wastewater infrastructure, including water supply, in Snohomish County, Washington.

"(404) WESTERN WASHINGTON STATE.—$200,000,000 for water and wastewater infrastructure, including stormwater management, water supply, and conservation, in Chelan County, King County, Kittitas County, Pierce County, Snohomish

County, Skagit County, and Whatcom County, Washington.

"(405) MILWAUKEE, WISCONSIN.—$4,500,000 for water and wastewater infrastructure, including stormwater management (including combined sewer overflows), and resource protection and development, in the Milwaukee metropolitan area, Wisconsin.".

(b) PROJECT MODIFICATIONS.—

(1) CONSISTENCY WITH REPORTS.—Congress finds that the project modifications described in this subsection are in accordance with the reports submitted to Congress by the Secretary under section 7001 of the Water Resources Reform and Development Act of 2014 (33 U.S.C. 2282d), titled "Report to Congress on Future Water Resources Development", or have otherwise been reviewed by Congress.

(2) MODIFICATIONS.—

(A) CALAVERAS COUNTY, CALIFORNIA.—Section 219(f)(86) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 334; 121 Stat. 1259) is amended by striking "$3,000,000" and inserting "$13,280,000".

(B) SACRAMENTO AREA, CALIFORNIA.—Section 219(f)(23) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113

Stat. 336; 117 Stat. 1840; 134 Stat. 2718) is amended by striking ''Suburban''.

(C) LOS ANGELES COUNTY, CALIFORNIA.—Section 219(f) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 334; 117 Stat. 1840; 121 Stat. 1259) is amended by striking paragraph (93) and inserting the following:

''(93) LOS ANGELES COUNTY, CALIFORNIA.—$103,000,000 for water and wastewater infrastructure, including stormwater management, Diamond Bar, La Habra Heights, Dominguez Channel, Santa Clarity Valley, and Rowland Heights, Los Angeles County, California.''.

(D) BOULDER COUNTY, COLORADO.—Section 219(f)(109) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 334; 114 Stat. 2763A–220) is amended by striking ''$10,000,000 for water supply infrastructure'' and inserting ''$20,000,000 for water and wastewater infrastructure, including stormwater management and water supply''.

(E) CHARLOTTE COUNTY, FLORIDA.—Section 219(f)(121) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat.

336; 121 Stat. 1261) is amended by striking "$3,000,000 for" and inserting "$33,000,000 for wastewater and".

(F) MIAMI-DADE COUNTY, FLORIDA.—Section 219(f)(128) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 336; 121 Stat. 1261) is amended by striking "$6,250,000 for" and inserting "$190,250,000 for wastewater infrastructure, including".

(G) ALBANY, GEORGIA.—Section 219(f)(130) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 336; 121 Stat. 1261) is amended by striking "$4,000,000 for a storm drainage system," and inserting "$109,000,000 for wastewater infrastructure, including stormwater management (including combined sewer overflows),".

(H) ATLANTA, GEORGIA.—Section 219(e)(5) of the Water Resources Development Act of 1992 (106 Stat. 4835; 110 Stat. 3757; 113 Stat. 334) is amended by striking "$25,000,000" and inserting "$75,000,000".

(I) EAST POINT, GEORGIA.—Section 219(f)(136) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat.

336; 121 Stat. 1261) is amended by striking "$5,000,000 for" and inserting "$15,000,000 for stormwater management and other".

(J) COOK COUNTY AND LAKE COUNTY, ILLINOIS.—Section 219(f)(54) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 336; 114 Stat. 2763A–220) is amended—

(i) in the paragraph heading, by striking "COOK COUNTY" and inserting "COOK COUNTY AND LAKE COUNTY";

(ii) by striking "$35,000,000 for" and inserting "$100,000,000 for wastewater infrastructure, including stormwater management, and other"; and

(iii) by inserting "and Lake County" after "Cook County".

(K) MADISON AND ST. CLAIR COUNTIES, ILLINOIS.—Section 219(f)(55) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 334; 114 Stat. 2763A–221; 134 Stat. 2718) is amended by striking "$45,000,000" and inserting "$100,000,000".

(L) CALUMET REGION, INDIANA.—Section 219(f)(12)(A) of the Water Resources Develop-

ment Act of 1992 (106 Stat. 4835; 113 Stat. 336; 117 Stat. 1843; 121 Stat. 1225) is amended by striking ''$100,000,000'' and inserting ''$125,000,000''.

(M) BATON ROUGE, LOUISIANA.—Section 219(f)(21) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 336; 114 Stat. 2763A–220; 121 Stat. 1226) is amended by striking ''$35,000,000'' and inserting ''$90,000,000''.

(N) SOUTH CENTRAL PLANNING AND DEVELOPMENT COMMISSION, LOUISIANA.—Section 219(f)(153) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 336; 121 Stat. 1262) is amended by striking ''$2,500,000'' and inserting ''$12,500,000''.

(O) ST. CHARLES, ST. BERNARD, PLAQUEMINES, ST. JOHN THE BAPTIST, ST. JAMES, AND ASSUMPTION PARISHES, LOUISIANA.—

(i) ST. CHARLES, ST. BERNARD, AND PLAQUEMINES PARISHES, LOUISIANA.—Section 219(c)(33) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 334; 114 Stat. 2763A–219) is

amended by striking "Water and wastewater infrastructure" and inserting "Water supply and wastewater infrastructure, including stormwater management".

(ii) ST. JOHN THE BAPTIST, ST. JAMES, AND ASSUMPTION PARISHES, LOUISIANA.—Section 219(c)(34) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 334; 114 Stat. 2763A–219) is amended—

(I) in the paragraph heading, by striking "BAPTIST AND ST. JAMES" and inserting "BAPTIST, ST. JAMES, AND ASSUMPTION"; and

(II) by striking "Baptist and St. James" and inserting "Baptist, St. James, and Assumption".

(iii) AUTHORIZATION OF APPROPRIATIONS FOR CONSTRUCTION ASSISTANCE.—Section 219(e) of the Water Resources Development Act of 1992 (106 Stat. 4835; 110 Stat. 3757; 113 Stat. 334; 121 Stat. 1192) is amended—

(I) by striking the "and" at the end of paragraph (16);

(II) by striking the period at the end of paragraph (17) and inserting a semicolon; and

(III) by adding at the end the following:

"(18) $70,000,000 for the project described in subsection (c)(33); and

"(19) $36,000,000 for the project described in subsection (c)(34).".

(P) MICHIGAN COMBINED SEWER OVERFLOWS.—Section 219(f)(157) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 336; 121 Stat. 1262) is amended—

(i) by striking "$35,000,000 for" and inserting the following:

"(A) IN GENERAL.—$85,000,000 for"; and

(ii) by adding at the end the following:

"(B) ADDITIONAL PROJECTS.—Amounts made available under subparagraph (A) may be used for design and construction projects for water-related environmental infrastructure and resource protection and development projects in Michigan, including for projects for wastewater

treatment and related facilities, water supply and related facilities, environmental restoration, and surface water resource protection and development.''.

(Q) JACKSON, MISSISSIPPI.—Section 219(f)(167) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 336; 121 Stat. 1263) is amended by striking ''$25,000,000 for water and wastewater infrastructure'' and inserting ''$125,000,000 for water and wastewater infrastructure, including resilience activities for such infrastructure''.

(R) ALLEGHENY COUNTY, PENNSYLVANIA.—Section 219(f)(66)(A) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 336; 114 Stat. 2763A–221; 121 Stat. 1240) is amended by striking ''$20,000,000 for'' and inserting ''$30,000,000 for wastewater infrastructure, including stormwater management, and other''.

(S) LAKES MARION AND MOULTRIE, SOUTH CAROLINA.—Section 219(f)(25) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 336; 114 Stat. 2763A–220; 117 Stat. 1838; 130 Stat. 1677; 132 Stat.

3818; 134 Stat. 2719) is amended by striking "$110,000,000" and inserting "$165,000,000".

(T) MYRTLE BEACH AND VICINITY, SOUTH CAROLINA.—Section 219(f) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 334; 121 Stat. 1267) is amended by striking paragraph (250) and inserting the following:

"(250) MYRTLE BEACH AND VICINITY, SOUTH CAROLINA.—$31,000,000 for environmental infrastructure, including ocean outfalls, Myrtle Beach and vicinity, South Carolina.".

(U) NORTH MYRTLE BEACH AND VICINITY, SOUTH CAROLINA.—Section 219(f) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 334; 121 Stat. 1267) is amended by striking paragraph (251) and inserting the following:

"(251) NORTH MYRTLE BEACH AND VICINITY, SOUTH CAROLINA.—$74,000,000 for environmental infrastructure, including ocean outfalls, North Myrtle Beach and vicinity, South Carolina.".

(V) EASTERN SHORE AND SOUTHWEST VIRGINIA.—Section 219(f)(10)(A) of the Water Resources Development Act of 1992 (106 Stat.

4835; 113 Stat. 335; 121 Stat. 1255) is amended—

(i) by striking "$20,000,000" and inserting "$52,000,000"; and

(ii) by striking "Accomac" and inserting "Accomack".

(W) NORTHERN WEST VIRGINIA.—Section 219(f)(272) of the Water Resources Development Act of 1992 (106 Stat. 4835; 113 Stat. 334; 121 Stat. 1268) is amended—

(i) by striking "$20,000,000 for water and wastewater" and inserting the following:

"(A) IN GENERAL.—$20,000,000 for water and wastewater"; and

(ii) by adding at the end the following:

"(B) LOCAL COOPERATION AGREEMENTS.—Notwithstanding subsection (a), at the request of a non-Federal interest for a project or a separable element of a project that receives assistance under this paragraph, the Secretary may enter into an agreement developed in accordance with section 571(e) of the Water Resources Development Act of 1999

(113 Stat. 371) for the project or separable element.".

(3) EFFECT ON AUTHORIZATION.—Notwithstanding the operation of section 6001(e) of the Water Resources Reform and Development Act of 2014 (as in effect on the day before the date of enactment of the Water Resources Development Act of 2016), any project included on a list published by the Secretary pursuant to such section the authorization for which is amended by this subsection remains authorized to be carried out by the Secretary.

SEC. 8376. ADDITIONAL ASSISTANCE FOR CRITICAL PROJECTS.

(a) CONSISTENCY WITH REPORTS.—Congress finds that the project modifications described in this section are in accordance with the reports submitted to Congress by the Secretary under section 7001 of the Water Resources Reform and Development Act of 2014 (33 U.S.C. 2282d), titled "Report to Congress on Future Water Resources Development", or have otherwise been reviewed by Congress.

(b) PROJECTS.—

(1) CHESAPEAKE BAY.—Section 510 of the Water Resources Development Act of 1996 (110

Stat. 3759; 121 Stat. 1202; 128 Stat. 1317; 134 Stat. 3704) is amended—

(A) in subsection (a)(2)—

(i) by inserting ''infrastructure and'' before ''resource protection'';

(ii) in subparagraph (B), by inserting ''and streambanks'' after ''shorelines'';

(iii) by redesignating subparagraphs (E) and (F) as subparagraphs (H) and (I), respectively; and

(iv) by inserting after subparagraph (D) the following:

''(E) wastewater treatment and related facilities;

''(F) water supply and related facilities;

''(G) stormwater and drainage systems;''; and

(B) in subsection (c)(2)(A), by inserting ''facilities or'' before ''a resource protection and restoration plan''.

(2) FLORIDA KEYS WATER QUALITY IMPROVEMENTS, FLORIDA.—Section 109(f) of title I of division B of the Miscellaneous Appropriations Act, 2001 (Public Law 106–554, appendix D, 114 Stat. 2763A–222 (as enacted by section 1(a)(4) of the

Consolidated Appropriations Act, 2001 (114 Stat. 2763)); 121 Stat. 1217) is amended by striking ''$100,000,000'' and inserting ''$200,000,000''.

(3) NORTHEASTERN MINNESOTA.—Section 569(h) of the Water Resources Development Act of 1999 (113 Stat. 368; 121 Stat. 1232) is amended by striking ''$54,000,000'' and inserting ''$80,000,000''.

(4) MISSISSIPPI.—Section 592 of the Water Resources Development Act of 1999 (113 Stat. 379; 117 Stat. 1837; 121 Stat. 1233; 123 Stat. 2851) is amended—

(A) in subsection (b), by striking ''and surface water resource protection and development'' and inserting ''surface water resource protection and development, stormwater management, drainage systems, and water quality enhancement''; and

(B) in subsection (g), by striking ''$200,000,000'' and inserting ''$300,000,000''.

(5) LAKE TAHOE BASIN RESTORATION, NEVADA AND CALIFORNIA.—Section 108(g) of division C of the Consolidated Appropriations Act, 2005 (Public Law 108–447; 118 Stat. 2942) is amended by striking ''$25,000,000'' and inserting ''$50,000,000''.

(6) CENTRAL NEW MEXICO.—Section 593 of the Water Resources Development Act of 1999 (113 Stat. 380; 119 Stat. 2255) is amended—

(A) in subsection (a), by inserting "Colfax," before "Sandoval";

(B) in subsection (c), by inserting "water reuse," after "conservation,"; and

(C) in subsection (h), by striking "$50,000,000" and inserting "$100,000,000".

(7) NEW YORK CITY WATERSHED.—Section 552(a)(2) of the Water Resources Development Act of 1996 (110 Stat. 3780) is amended—

(A) by striking "design and construction assistance" and inserting "design, repair, replacement, and construction assistance"; and

(B) by striking "treatment, and distribution facilities" and inserting "treatment, stormwater management, and water distribution facilities".

(8) OHIO AND NORTH DAKOTA.—Section 594 of the Water Resources Development Act of 1999 (113 Stat. 381; 119 Stat. 2261; 121 Stat. 1140; 121 Stat. 1944) is amended—

(A) in subsection (h), by striking ''$240,000,000'' and inserting ''$250,000,000''; and

(B) by adding at the end the following:

''(i) AUTHORIZATION OF ADDITIONAL APPROPRIATIONS.—In addition to amounts authorized under subsection (h), there is authorized to be appropriated to carry out this section $100,000,000, to be divided between the States referred to in subsection (a).''.

(9) SOUTHEASTERN PENNSYLVANIA.—Section 566 of the Water Resources Development Act of 1996 (110 Stat. 3786; 113 Stat. 352) is amended—

(A) by striking the section heading and inserting ''**SOUTHEASTERN PENNSYLVANIA AND LOWER DELAWARE RIVER BASIN.**'';

(B) in subsection (a), by inserting ''and the Lower Delaware River Basin'' after ''southeastern Pennsylvania'';

(C) in subsection (b), by striking ''southeastern Pennsylvania, including projects for waste water treatment and related facilities,'' and inserting ''southeastern Pennsylvania and the Lower Delaware River Basin, including projects for wastewater treatment and related facilities (including sewer overflow infrastruc-

ture improvements and other stormwater management),";

(D) by amending subsection (g) to read as follows:

"(g) AREAS DEFINED.—In this section:

"(1) LOWER DELAWARE RIVER BASIN.—The term 'Lower Delaware River Basin' means the Schuylkill Valley, Upper Estuary, Lower Estuary, and Delaware Bay subwatersheds of the Delaware River Basin in the Commonwealth of Pennsylvania and the States of New Jersey and Delaware.

"(2) SOUTHEASTERN PENNSYLVANIA.—The term 'southeastern Pennsylvania' means Philadelphia, Bucks, Chester, Delaware, and Montgomery Counties, Pennsylvania."; and

(E) in subsection (h), by striking "to carry out this section $25,000,000" and inserting "$50,000,000 to provide assistance under this section to non-Federal interests in southeastern Pennsylvania, and $20,000,000 to provide assistance under this section to non-Federal interests in the Lower Delaware River Basin".

(10) SOUTH CENTRAL PENNSYLVANIA.—Section 313(g)(1) of the Water Resources Development Act of 1992 (106 Stat. 4845; 109 Stat. 407; 110 Stat.

3723; 113 Stat. 310; 117 Stat. 142; 121 Stat. 1146; 134 Stat. 2719) is amended by striking "$400,000,000" and inserting "$410,000,000".

(11) TEXAS.—Section 5138 of the Water Resources Development Act of 2007 (121 Stat. 1250) is amended—

(A) in subsection (b), by striking ", as identified by the Texas Water Development Board";

(B) in subsection (e)(3), by inserting "and construction" after "design work";

(C) by redesignating subsection (g) as subsection (i);

(D) by inserting after subsection (f) the following:

"(g) NONPROFIT ENTITIES.—In this section, the term non-Federal interest has the meaning given such term in section 221(b) of the Flood Control Act of 1970 (42 U.S.C. 1962d–5b(b)).

"(h) CORPS OF ENGINEERS EXPENSES.—Not more than 10 percent of the amounts made available to carry out this section may be used by the Corps of Engineers district offices to administer projects under this section at Federal expense."; and

(E) in subsection (i) (as redesignated), by striking "$40,000,000" and inserting "$80,000,000".

(12) LAKE CHAMPLAIN, VERMONT AND NEW YORK.—Section 542 of the Water Resources Development Act of 2000 (114 Stat. 2671; 121 Stat. 1150; 134 Stat. 2652) is amended—

(A) in subsection (b)(2)(C), by striking "planning" and inserting "clean water infrastructure planning, design, and construction"; and

(B) in subsection (g), by striking "$32,000,000" and inserting "$100,000,000".

(13) WESTERN RURAL WATER.—Section 595 of the Water Resources Development Act of 1999 (113 Stat. 383; 117 Stat. 139; 117 Stat. 142; 117 Stat. 1836; 118 Stat. 440; 121 Stat. 1219; 123 Stat. 2851; 128 Stat. 1316; 130 Stat. 1681; 134 Stat. 2719) is amended—

(A) in subsection (i)(1), by striking "$435,000,000" and inserting "$800,000,000"; and

(B) in subsection (i)(2), by striking "$150,000,000" and inserting "$200,000,000".

(c) EFFECT ON AUTHORIZATION.—Notwithstanding the operation of section 6001(e) of the Water Resources Reform and Development Act of 2014 (as in effect on the day before the date of enactment of the Water Resources Development Act of 2016), any project included on a list published by the Secretary pursuant to such section the authorization for which is amended by this section remains authorized to be carried out by the Secretary.

SEC. 8377. CONVEYANCES.

(a) GENERALLY APPLICABLE PROVISIONS.—

(1) SURVEY TO OBTAIN LEGAL DESCRIPTION.—The exact acreage and the legal description of any real property to be conveyed under this section shall be determined by a survey that is satisfactory to the Secretary.

(2) APPLICABILITY OF PROPERTY SCREENING PROVISIONS.—Section 2696 of title 10, United States Code, shall not apply to any conveyance under this section.

(3) COSTS OF CONVEYANCE.—An entity to which a conveyance is made under this section shall be responsible for all reasonable and necessary costs, including real estate transaction and environmental documentation costs, associated with the conveyance.

(4) LIABILITY.—An entity to which a conveyance is made under this section shall hold the United States harmless from any liability with respect to activities carried out, on or after the date of the conveyance, on the real property conveyed. The United States shall remain responsible for any liability with respect to activities carried out, before such date, on the real property conveyed.

(5) ADDITIONAL TERMS AND CONDITIONS.—The Secretary may require that any conveyance under this section be subject to such additional terms and conditions as the Secretary considers necessary and appropriate to protect the interests of the United States.

(b) CITY OF LEWES, DELAWARE.—

(1) CONVEYANCE AUTHORIZED.—The Secretary is authorized to convey, without consideration, to the City of Lewes, Delaware, all right, title, and interest of the United States in and to the real property described in paragraph (2), for the purpose of housing a new municipal campus for Lewes City Hall, a police station, and a board of public works.

(2) PROPERTY.—The property to be conveyed under this subsection is the approximately 5.26

acres of land, including improvements on that land, located at 1137 Savannah Road, Lewes, Delaware.

(3) REVERSION.—

(A) IN GENERAL.—If the Secretary determines at any time that the property conveyed under paragraph (1) is not being used in accordance with the purpose specified in such paragraph, all right, title, and interest in and to the property shall revert, at the discretion of the Secretary, to the United States.

(B) DETERMINATION.—A determination by the Secretary under subparagraph (A) shall be made on the record after an opportunity for a hearing.

(c) ARMY RESERVE FACILITY, BELLEVILLE, ILLINOIS.—

(1) CONVEYANCE AUTHORIZED.—The Secretary shall convey to the city of Belleville, Illinois, without consideration, all right, title, and interest of the United States in and to the real property described in paragraph (2).

(2) PROPERTY.—The property to be conveyed under this subsection is the approximately 5.2 acres of land, including improvements on that land, located at 500 South Belt East in Belleville, Illinois.

(3) DEED.—The Secretary shall convey the property under this subsection by quitclaim deed under such terms and conditions as the Secretary determines appropriate to protect the interests of the United States.

(4) REVERSION.—If the Secretary determines that the property conveyed under this subsection is not used for a public purpose, all right, title, and interest in and to the property shall revert, at the discretion of the Secretary, to the United States.

(d) LAKE BARKLEY, KENTUCKY.—

(1) IN GENERAL.—The Secretary is authorized to convey to the Eddyville Riverport and Industrial Development Authority all right, title, and interest of the United States in and to the approximately 3.3 acres of land in Lyon County, Kentucky, including the land identified as Tract 1216–2 and a portion of the land identified as Tract 112–2, adjacent to the southwestern boundary of the port facilities of the Authority at the Barkley Dam and Lake Barkley project, Kentucky, authorized by the first section of the Act of July 24, 1946 (chapter 595, 60 Stat. 636).

(2) RESERVATION OF RIGHTS.—The Secretary shall reserve and retain from the conveyance under

this subsection such easements, rights-of-way, and other interests that the Secretary determines to be necessary and appropriate to ensure the continued operation of the project described in paragraph (1).

(3) DEED.—The Secretary shall convey the property under this subsection by quitclaim deed under such terms and conditions as the Secretary determines appropriate to protect the interests of the United States.

(4) CONSIDERATION.—The Eddyville Riverport and Industrial Development Authority shall pay to the Secretary an amount that is not less than the fair market value of the property conveyed under this subsection, as determined by the Secretary.

(e) SARDIS LAKE, PANOLA COUNTY, MISSISSIPPI.—

(1) CONVEYANCE AUTHORIZED.—The Secretary is authorized to convey to the City of Sardis, Mississippi, all right, title, and interest of the United States in and to the real property described in paragraph (2).

(2) PROPERTY.—The property to be conveyed is the approximately 1,064 acres of lying in the eastern half of Sections 12 and 13, T 8 S, R 6 W and the western half of Section 18 and the western half of Section 7, T 8 S, R 5 W, in Panola County, Mis-

sissippi, and being more particularly described as follows: Begin at the southeast corner of said Section 13, run thence from said point of beginning, along the south line of said Section 13, run westerly, 2,723 feet; thence run N 27°39'53'' W, for 1,898 feet; thence run north 2,434 feet; thence run east, 1,006 feet, more or less, to a point on the easterly edge of Mississippi State Highway No. 315; thence run along said easterly edge of highway, northerly, for 633 feet; thence leaving said easterly edge of highway, run N 62°00' E, for 200 feet; thence N 07°00' E, for 1,350 feet; thence N 07°00' W, for 800 feet; thence N 37°30'W for 800 feet; thence N 10°00' W for 350 feet; thence N 11°00' E, for 350 feet; thence N 43°30' E for 250 feet; thence N 88°00' E for 200 feet; thence S 64°00' E for 350 feet; thence S 25°30' E, for 650 feet, more or less, to the intersection of the east line of the western half of the eastern half of the northwest quarter of the southeast quarter of the aforesaid Section 12, T 8 S, R 6 W and the 235-foot contour; thence run along said 235-foot contour, 6,392 feet; thence leaving said 235-foot contour, southerly 1,762 feet, more or less, to a point on the south line of Section 7; thence S 00°28'49'' E, 2,664.97 feet, more or less,

to a point on the south line of the northwest quarter of said Section 18; thence along said south line, easterly for 100 feet, more or less to the northwest corner of the southwest quarter of said Section 18; thence leaving said south line of said northwest quarter, along the east line of said southwest quarter, S 00°06'20" E, run 2,280 feet, more or less, to the southerly edge of an existing power line right-of-way; thence leaving said east line of said southwest quarter, along said southerly edge of said power line right-of-way, northwesterly, 300 feet, more or less, to the easterly edge of the existing 4–H Club Road; thence leaving said southerly edge of said power line right-of-way, along said easterly edge of said road, southeasterly, 420 feet, more or less, to the south line of said southwest quarter; thence leaving said easterly edge of said road, along said south line of southwest quarter, westerly, 2,635 feet, more or less, to the point of beginning, LESS AND EXCEPT the following prescribed parcel: Beginning at a point N 00°45'48" W, 302.15 feet and west, 130.14 feet from the southeast corner of said Section 13, T 8 S, R 6 W, and running thence S 04°35'58" W, 200.00 feet to a point on the north side of a road; running thence with the north side of said road, N

83°51' W, for 64.84 feet; thence N 72°26'44" W, 59.48 feet; thence N 60°31'37" W, 61.71 feet; thence N 63°35'08" W, 51.07 feet; thence N 06°47'17" W, 142.81 feet to a point; running thence S 85°24'02" E, 254.37 feet to the point of beginning, containing 1.00 acre, more or less.

(3) RESERVATION OF RIGHTS.—

(A) IN GENERAL.—The Secretary shall reserve and retain from the conveyance under this subsection such easements, rights-of-way, and other interests that the Secretary determines to be necessary and appropriate to ensure the continued operation of the Sardis Lake project, authorized by section 6 of the Act of May 15, 1928 (chapter 569, 45 Stat. 536).

(B) FLOODING; LIABILITY.—In addition to any easements, rights-of-way, and other interests reserved an retained under subparagraph (A), the Secretary—

(i) shall retain the right to flood land for downstream flood control purposes on—

(I) the land located east of Blackjack Road and below 301.0 feet above sea level; and

(II) the land located west of Blackjack Road and below 224.0 feet above sea level; and

(ii) shall not be liable for any reasonable damage resulting from any flooding of land pursuant to clause (i).

(4) DEED.—The Secretary shall—

(A) convey the property under this section by quitclaim deed under such terms and conditions as the Secretary determines appropriate to protect the interests of the United States; and

(B) ensure that such deed includes a permanent restriction that all future building of above-ground structures on the land conveyed under this subsection shall be restricted to areas lying at or above 301.0 feet above sea level.

(5) CONSIDERATION.—The City of Sardis, Mississippi, shall pay to the Secretary an amount that is not less than the fair market value of the property conveyed under this subsection, as determined by the Secretary.

(6) NOTICE AND REPORTING.—After conveying property under this subsection, the Secretary shall submit to the City of Sardis, Mississippi—

(A) weekly reports describing—

(i) the water level of Sardis Lake, as in effect on the date of submission of the report;

(ii) any applicable forecasts of that water level; and

(iii) any other information that may affect land conveyed under this subsection; and

(B) a timely notice of any anticipated flooding of a portion of the land conveyed under this subsection.

(f) ROGERS COUNTY, OKLAHOMA.—

(1) CONVEYANCE AUTHORIZED.—The Secretary is authorized to convey to the City of Tulsa-Rogers County Port Authority, all right, title, and interest of the United States in and to the real property described in paragraph (2).

(2) PROPERTY.—The property to be conveyed under this subsection is the approximately 176 acres of Federal land located on the following 3 parcels in Rogers County, Oklahoma:

(A) Parcel 1 consists of U.S. tract 119 (partial), U.S. tract 123, U.S. tract 120, U.S. tract 125, and U.S. tract 118 (partial).

(B) Parcel 2 consists of U.S. tract 124 (partial) and U.S. tract 128 (partial).

(C) Parcel 3 consists of U.S. tract 128 (partial).

(3) RESERVATION OF RIGHTS.—The Secretary shall reserve and retain from any conveyance under this subsection such easements, rights-of-way, and other interests that the Secretary determines to be necessary and appropriate to ensure the continued operation of the McClellan-Kerr Arkansas River navigation project (including Newt Graham Lock and Dam 18) authorized under the comprehensive plan for the Arkansas River Basin by the Act of June 28, 1938 (chapter 795, 52 Stat. 1218; 60 Stat. 634; 60 Stat. 647; 101 Stat. 1329–112; 117 Stat. 1842).

(4) DEED.—The Secretary shall convey the property under this subsection by quitclaim deed under such terms and conditions as the Secretary determines appropriate to protect the interests of the United States.

(5) CONSIDERATION.—The City of Tulsa-Rogers County Port Authority shall pay to the Secretary an amount that is not less than the fair market value of the property conveyed under this subsection, as determined by the Secretary.

(6) OBSTRUCTIONS TO NAVIGABLE CAPACITY.—A conveyance under this subsection shall not affect the jurisdiction of the Secretary under section 10 of the Act of March 3, 1899 (33 U.S.C. 403) with respect to the property conveyed.

(g) REGIONAL CORPS OF ENGINEERS OFFICE, CORPUS CHRISTI, TEXAS.—

(1) CONVEYANCE AUTHORIZED.—At such time as new facilities are available to be used as the office for the Galveston District of the Corps of Engineers, the Secretary shall convey to the Port of Corpus Christi, all right, title, and interest of the United States in and to the property described in paragraph (2).

(2) DESCRIPTION OF PROPERTY.—The property referred to in paragraph (1) is the land known as Tract 100 and Tract 101, including improvements on that land, in Corpus Christi, Texas, and described as follows:

(A) TRACT 100.—The 1.89 acres, more or less, as conveyed by the Nueces County Navigation District No. 1 of Nueces County, Texas, to the United States by instrument dated October 16, 1928, and recorded at Volume 193, pages 1 and 2, in the Deed Records of Nueces County, Texas.

(B) TRACT 101.—The 0.53 acres as conveyed by the City of Corpus Christi, Nueces County, Texas, to the United States by instrument dated September 24, 1971, and recorded at Volume 318, pages 523 and 524, in the Deed Records of Nueces County, Texas.

(C) IMPROVEMENTS.—

(i) Main Building (RPUID AO–C–3516), constructed January 9, 1974.

(ii) Garage, vehicle with 5 bays (RPUID AO–C–3517), constructed January 9, 1985.

(iii) Bulkhead, Upper (RPUID AO–C–2658), constructed January 1, 1941.

(iv) Bulkhead, Lower (RPUID AO–C–3520), constructed January 1, 1933.

(v) Bulkhead Fence (RPUID AO–C–3521), constructed January 9, 1985.

(vi) Bulkhead Fence (RPUID AO–C–3522), constructed January 9, 1985.

(3) DEED.—The Secretary shall convey the property under this subsection by quitclaim deed under such terms and conditions as the Secretary determines appropriate to protect the interests of the United States.

(4) CONSIDERATION.—The Port of Corpus Christi shall pay to the Secretary an amount that is not less than the fair market value of the property (including improvements) conveyed under this subsection, as determined by the Secretary.

SEC. 8378. LAND TRANSFER AND TRUST LAND FOR CHOCTAW NATION OF OKLAHOMA.

(a) TRANSFER.—

(1) IN GENERAL.—Subject to paragraph (2) and for the consideration described in subsection (c), the Secretary shall transfer to the Secretary of the Interior the land described in subsection (b) to be held in trust for the benefit of the Choctaw Nation.

(2) CONDITIONS.—The land transfer under this subsection shall be subject to the following conditions:

(A) The transfer—

(i) shall not interfere with the operation by the Corps of Engineers of the Sardis Lake Project, authorized pursuant to section 203 of the Flood Control Act of 1962 (76 Stat. 1187), or any other authorized civil works project; and

(ii) shall be subject to such other terms and conditions as the Secretary determines to be necessary and appropriate to ensure the continued operation of the Sardis Lake Project or any other authorized civil works project.

(B) The Secretary shall retain the right to inundate with water the land transferred to the Choctaw Nation under this subsection as necessary to carry out an authorized purpose of the Sardis Lake Project or any other civil works project.

(C) No gaming activities may be conducted on the land transferred under this subsection.

(b) LAND DESCRIPTION.—

(1) IN GENERAL.—The land to be transferred under subsection (a) is the approximately 247 acres of land located in Sections 18 and 19 of T2N R18E, and Sections 5 and 8 of T2N R19E, Pushmataha

County, Oklahoma, generally depicted as "USACE" on the map entitled "Sardis Lake – Choctaw Nation Proposal" and dated February 22, 2022.

(2) SURVEY.—The exact acreage and legal descriptions of the land to be transferred under subsection (a) shall be determined by a survey satisfactory to the Secretary and the Secretary of the Interior.

(c) CONSIDERATION.—The Choctaw Nation shall pay to the Secretary an amount that is equal to the fair market value of the land transferred under subsection (a), as determined by the Secretary, which funds may be accepted and expended by the Secretary.

(d) COSTS OF TRANSFER.—The Choctaw Nation shall be responsible for all reasonable and necessary costs, including real estate transaction and environmental documentation costs, associated with the transfer of land under subsection (a).

SEC. 8379. JOHN P. MURTHA LOCKS AND DAM.

(a) DESIGNATION.—Locks and Dam 4, Monongahela River, Pennsylvania, authorized by section 101(18) of the Water Resources Development Act of 1992 (106 Stat. 4803), and commonly known as the "Charleroi Locks and Dam", shall be known and designated as the "John P. Murtha Locks and Dam".

(b) REFERENCES.—Any reference in a law, map, regulation, document, paper, or other record of the United States to the locks and dam referred to in subsection (a) shall be deemed to be a reference to the ''John P. Murtha Locks and Dam''.

SEC. 8380. TREATMENT OF CERTAIN BENEFITS AND COSTS.

Section 152(a) of the Water Resources Development Act of 2020 (33 U.S.C. 2213a(a)) is amended by striking ''a flood risk management project that incidentally generates seismic safety benefits in regions'' and inserting ''a flood risk management or coastal storm risk management project in a region''.

SEC. 8381. DEBRIS REMOVAL.

Section 3 of the Act of March 2, 1945 (33 U.S.C. 603a), is amended by striking ''or recreation'' and inserting ''ecosystem restoration, or recreation''.

SEC. 8382. GENERAL REAUTHORIZATIONS.

(a) REHABILITATION OF EXISTING LEVEES.—Section 3017(e) of the Water Resources Reform and Development Act of 2014 (33 U.S.C. 3303a note) is amended—

(1) by striking ''this subsection'' and inserting ''this section''; and

(2) by striking ''the date that is 10 years after the date of enactment of this Act'' and inserting ''December 31, 2028''.

(b) INVASIVE SPECIES IN ALPINE LAKES PILOT PROJECT.—Section 507(c) of the Water Resources Development Act of 2020 (16 U.S.C. 4701 note) is amended by striking "2024" and inserting "2028".

(c) ENVIRONMENTAL BANKS.—Section 309(e) of the Coastal Wetlands Planning, Protection and Restoration Act (16 U.S.C. 3957(e)) is amended by striking "10" and inserting "12".

SEC. 8383. TRANSFER OF EXCESS CREDIT.

Section 1020 of the Water Resources Reform and Development Act of 2014 (33 U.S.C. 2223) is amended—

(1) in subsection (a), by adding at the end the following:

"(3) STUDIES AND PROJECTS WITH MULTIPLE NON-FEDERAL INTERESTS.—A credit described in paragraph (1) for a study or project with multiple non-Federal interests may be applied to the required non-Federal cost share for a study or project of any such non-Federal interest, if each such non-Federal interest agrees in writing to such application.";

(2) in subsection (b), by adding at the end the following:

"(3) CONDITIONAL APPROVAL OF EXCESS CREDIT.—Notwithstanding paragraph (2)(A)(ii), the Secretary may approve credit in excess of the non-

Federal share for a study or project prior to the identification of each authorized study or project to which the excess credit will be applied, subject to the condition that the non-Federal interest agrees to submit for approval by the Secretary an amendment to the comprehensive plan prepared under paragraph (2) that identifies each authorized study or project in advance of execution of the feasibility cost-sharing agreement or project partnership agreement for that authorized study or project.";

(3) in subsection (d), by striking "10 years after the date of enactment of this Act" and inserting "on December 31, 2028"; and

(4) in subsection (e)(1)(B), by striking "10 years after the date of enactment of this Act" and inserting "December 31, 2028".

SEC. 8384. TREATMENT OF CREDIT BETWEEN PROJECTS.

Section 7007(d) of the Water Resources Development Act of 2007 (121 Stat. 1277; 128 Stat. 1226) is amended by inserting ", or may be applied to reduce the amounts required to be paid by the non-Federal interest under the terms of the deferred payment agreements entered into between the Secretary and the non-Federal interest for the projects authorized by section 7012(a)(1)" before the period at the end.

SEC. 8385. NON-FEDERAL PAYMENT FLEXIBILITY.

Section 103(l) of the Water Resources Development Act of 1986 (33 U.S.C. 2213(l)) is amended—

(1) in the subsection heading, by striking "INITIAL";

(2) in the first sentence, by striking "At the request of" and inserting the following:

"(1) INITIAL PAYMENT.—At the request of"; and

(3) by adding at the end the following:

"(2) INTEREST.—

"(A) IN GENERAL.—At the request of any non-Federal interest, the Secretary may waive the accrual of interest on any non-Federal cash contribution under this section or section 101 for a project for a period of not more than 1 year if the Secretary determines that—

"(i) the waiver will contribute to the ability of the non-Federal interest to make future contributions; and

"(ii) the non-Federal interest is in good standing under terms agreed to under subsection (k)(1).

"(B) LIMITATIONS.—The Secretary may grant not more than 1 waiver under subparagraph (A) for the same project.".

SEC. 8386. COASTAL COMMUNITY FLOOD CONTROL AND OTHER PURPOSES.

Section 103(k)(4) of the Water Resources Development Act of 1986 (33 U.S.C. 2213(k)(4)) is amended—

(1) by redesignating subparagraphs (A) and (B) as clauses (i) and (ii), respectively, and adjusting the margins appropriately;

(2) in the matter preceding clause (i) (as so redesignated), by striking ''Notwithstanding'' and inserting the following:

''(A) IN GENERAL.—Notwithstanding'';

(3) in clause (i) (as so redesignated)—

(A) by striking ''$200 million'' and inserting ''$200,000,000''; and

(B) by striking ''and'' at the end;

(4) in clause (ii) (as so redesignated)—

(A) by inserting ''an amount equal to ⅔ of'' after ''repays''; and

(B) by striking the period at the end and inserting ''; and''; and

(C) by adding at the end the following:

''(iii) the non-Federal interest repays the balance of remaining principal by June 1, 2032.''; and

(5) by adding at the end the following:

"(B) REPAYMENT OPTIONS.—Repayment of a non-Federal contribution under subparagraph (A)(iii) may be satisfied through the provision by the non-Federal interest of fish and wildlife mitigation for one or more projects or separable elements, if the Secretary determines that—

"(i) the non-Federal interest has incurred costs for the provision of mitigation that—

"(I) equal or exceed the amount of the required repayment; and

"(II) are in excess of any required non-Federal contribution for the project or separable element for which the mitigation is provided; and

"(ii) the mitigation is integral to the project for which it is provided.".

SEC. 8387. NATIONAL LEVEE SAFETY PROGRAM.

(a) DEFINITION OF REHABILITATION.—Section 9002(13) of the Water Resources Development Act of 2007 (33 U.S.C. 3301(13)) is amended—

(1) by striking "The term" and inserting the following:

"(A) IN GENERAL.—The term";

(2) by inserting ", increase resiliency to extreme weather events," after "flood risk"; and

(3) by adding at the end the following:

"(B) INCLUSIONS.—The term 'rehabilitation' includes improvements to a levee in conjunction with any repair, replacement, reconstruction, or reconfiguration.".

(b) LEVEE SAFETY INITIATIVE.—Section 9005(g)(2)(E)(i) of the Water Resources Development Act of 2007 (33 U.S.C. 3303a(g)(2)(E)(i)) is amended by striking "2023" and inserting "2028".

(c) LEVEE REHABILITATION ASSISTANCE PROGRAM.—Section 9005(h) of the Water Resources Development Act of 2007 (33 U.S.C. 3303a(h)) is amended—

(1) in paragraph (1), by inserting "and levee rehabilitation" after "mitigation";

(2) in paragraph (7), by striking "$10,000,000" and inserting "$25,000,000"; and

(3) by adding at the end the following:

"(11) PRIORITIZATION.—To the maximum extent practicable, the Secretary shall prioritize the provision of assistance under this subsection to economically disadvantaged communities (as defined by the Secretary under section 160 of the Water Resources Development Act of 2020 (33 U.S.C. 2201

note)), including economically disadvantaged communities located in urban and rural areas.''.

SEC. 8388. SURPLUS WATER CONTRACTS AND WATER STORAGE AGREEMENTS.

Section 1046(c) of the Water Resources Reform and Development Act of 2014 (128 Stat. 1254; 132 Stat. 3784; 134 Stat. 2715) is amended—

(1) by striking paragraph (3); and

(2) by redesignating paragraph (4) as paragraph (3).

SEC. 8389. WATER SUPPLY STORAGE REPAIR, REHABILITATION, AND REPLACEMENT COSTS.

Section 301(b) of the Water Supply Act of 1958 (43 U.S.C. 390b(b)) is amended, in the fourth proviso, by striking the second sentence and inserting the following: ''For Corps of Engineers projects, all annual operation and maintenance costs for municipal and industrial water supply storage under this section shall be reimbursed from State or local interests on an annual basis, and all repair, rehabilitation, and replacement costs for municipal and industrial water supply storage under this section shall be reimbursed from State or local interests (1) without interest, during construction of the repair, rehabilitation, or replacement, (2) with interest, in lump sum on the completion of the repair, rehabilitation, or replacement, or (3)

at the request of the State or local interest, with interest, over a period of not more than 25 years beginning on the date of completion of the repair, rehabilitation, or replacement, with repayment contracts providing for recalculation of the interest rate at 5-year intervals. At the request of the State or local interest, the Secretary of the Army shall amend a repayment contract entered into under this section on or before the date of enactment of this sentence for the purpose of incorporating the terms and conditions described in paragraph (3) of the preceding sentence.''.

SEC. 8390. ABANDONED AND INACTIVE NONCOAL MINE RESTORATION.

Section 560 of the Water Resources Development Act of 1999 (33 U.S.C. 2336) is amended—

(1) in subsection (c), by inserting '', on land held in trust by the Secretary of the Interior on behalf of, and for the benefit of, an Indian Tribe, or on restricted land of any Indian Tribe,'' after ''land owned by the United States''; and

(2) in subsection (e)—

(A) by striking ''Rehabilitation'' and inserting ''Restoration''; and

(B) by striking ''Sacramento'' and inserting ''Albuquerque''; and

(3) in subsection (f), by striking ''$30,000,000'' and inserting ''$50,000,000''.

SEC. 8391. ASIAN CARP PREVENTION AND CONTROL PILOT PROGRAM.

Section 509(a)(2) of the Water Resources Development Act of 2020 (33 U.S.C. 610 note) is amended—

(1) in subparagraph (A), by striking ''or Tennessee River Watershed'' and inserting '', Tennessee River Watershed, or Tombigbee River Watershed''; and

(2) in subparagraph (C)(i), by inserting '', of which not fewer than 1 shall be carried out on the Tennessee–Tombigbee Waterway'' before the period at the end.

SEC. 8392. ENHANCED DEVELOPMENT PROGRAM.

The Secretary shall fully implement opportunities for enhanced development at lakes located primarily in the State of Oklahoma under the authorities provided in section 3134 of the Water Resources Development Act of 2007 (121 Stat. 1142; 130 Stat. 1671) and section 164 of the Water Resources Development Act of 2020 (134 Stat. 2668).

SEC. 8393. RECREATIONAL OPPORTUNITIES AT CERTAIN PROJECTS.

(a) DEFINITIONS.—In this section:

(1) COVERED PROJECT.—The term ''covered project'' means any of the following projects of the Corps of Engineers:

(A) Ball Mountain Lake, Vermont, authorized by section 203 of the Flood Control Act of 1954 (68 Stat. 1257).

(B) Townshend Lake, Vermont, authorized by section 203 of the Flood Control Act of 1954 (68 Stat. 1257).

(2) RECREATION.—The term ''recreation'' includes downstream whitewater recreation that is dependent on operations, recreational fishing, and boating at a covered project.

(b) SENSE OF CONGRESS.—It is the sense of Congress that the Secretary should—

(1) ensure that, to the extent compatible with other project purposes, each covered project is operated in such a manner as to protect and enhance recreation associated with the covered project; and

(2) manage land at each covered project to improve opportunities for recreation at the covered project.

(c) MODIFICATION OF WATER CONTROL PLANS.—The Secretary may modify, or undertake temporary deviations from, the water control plan for a covered project

in order to enhance recreation, if the Secretary determines the modifications or deviations—

(1) will not adversely affect other authorized purposes of the covered project; and

(2) will not result in significant adverse impacts to the environment.

SEC. 8394. FEDERAL ASSISTANCE.

Section 1328(c) of the Water Resources Development Act of 2018 (132 Stat. 3826) is amended by striking "4 years" and inserting "8 years".

SEC. 8395. MISSISSIPPI RIVER MAT SINKING UNIT.

The Secretary shall expedite the replacement of the Mississippi River mat sinking unit.

SEC. 8396. SENSE OF CONGRESS ON LEASE AGREEMENT.

It is the sense of Congress that the lease agreement for land and water areas within the Prado Flood Control Basin Project Area entered into between the Secretary and the City of Corona, California, for operations of the Corona Municipal Airport (Recreation Lease No. DACW09–1–67–60), is a valid lease of land at a water resources development project under section 4 of the Act of December 22, 1944 (16 U.S.C. 460d).

SEC. 8397. EXPEDITED COMPLETION OF PROJECTS AND STUDIES.

(a) AUTHORIZED PROJECTS AND STUDIES.—The Secretary shall, to the maximum extent practicable, expedite completion of the following projects and studies:

(1) PROJECTS.—

(A) Project for Juneau and Auke Bay, Floating Wave Attenuator, Alaska, authorized pursuant to section 204 of the Flood Control Act of 1948 (62 Stat. 1181).

(B) Project for flood risk management, Little Colorado River at Winslow, Navajo County, Arizona, authorized by section 401(2) of the Water Resources Development Act of 2020 (134 Stat. 2735).

(C) Project for flood damage reduction, Rio de Flag, Flagstaff, Arizona, authorized by section 101(b)(3) of the Water Resources Development Act of 2000 (114 Stat. 2576).

(D) Project for navigation, including maintenance and channel deepening, McClellan–Kerr Arkansas River, authorized under the comprehensive plan for the Arkansas River Basin by section 3 of the Act of June 28, 1938 (chapter 795, 52 Stat. 1218; 60 Stat. 634; 60 Stat. 647; 101 Stat. 1329–112; 117 Stat. 1842).

(E) Project for environmental restoration, Hamilton Airfield, California, authorized by section 101(b)(3) of the Water Resources Development Act of 1999 (113 Stat. 279; 121 Stat. 1110).

(F) Project for flood damage reduction and environmental restoration, Middle Creek, Lake County, California, authorized by section 1001(11) of the Water Resources Development Act of 2007 (121 Stat. 1051).

(G) The San Francisco Bay Beneficial Use Pilot Project, California, being carried out under section 1122 of the Water Resources Development Act of 2016 (130 Stat. 1645).

(H) Project for flood risk management, ecosystem restoration, and recreation, South San Francisco Bay Shoreline, California, authorized by section 1401(6) of the Water Resources Development Act of 2016 (130 Stat. 1714).

(I) Projects for ecosystem restoration included in the comprehensive Chesapeake Bay restoration plan developed under the Chesapeake Bay Environmental Restoration and Protection Program, authorized by section 510 of

the Water Resources Development Act of 1996 (110 Stat. 3759; 121 Stat. 1202; 128 Stat. 1317).

(J) Maintenance dredging and other authorized activities to address the impacts of shoaling affecting the project for navigation, Branford Harbor and Branford River, Branford, Connecticut, authorized by the first section of the Act of June 13, 1902 (chapter 1079, 32 Stat. 333).

(K) Maintenance dredging and other authorized activities to address the impacts of shoaling affecting the project for navigation, Guilford Harbor and Sluice Channel, Connecticut, authorized by section 2 of the Act of March 2, 1945 (chapter 19, 59 Stat. 13).

(L) Maintenance dredging and other authorized activities to address the impacts of shoaling affecting the project for navigation, Milford Harbor, Connecticut, authorized by the first section of the Act of June 23, 1874 (chapter 457, 18 Stat. 241).

(M) Project for ecosystem restoration at Bay Point dredge hole, Tampa Bay, Florida.

(N) Project for ecosystem restoration, Central and Southern Florida, Everglades Agricultural Area, authorized by section 1308 of the Water Resources Development Act of 2018 (132 Stat. 3819; 134 Stat. 2709).

(O) An update to the water control manual for Melvin Price Locks and Dam, Illinois, authorized by section 102 of Public Law 95–502 (92 Stat. 1695; 95 Stat. 1634).

(P) Projects for the restoration of the Illinois River Basin, carried out pursuant to section 519 of the Water Resources Development Act of 2000 (114 Stat. 2653; 121 Stat. 1221).

(Q) Projects for ecosystem restoration, Upper Mississippi River and Illinois Waterway System, authorized pursuant to title VIII of the Water Resources Development Act of 2007 (33 U.S.C. 652 note).

(R) Project for navigation, Kentucky Lock Addition, Kentucky, authorized by section 101(a)(13) of the Water Resources Development Act of 1996 (110 Stat. 3664).

(S) Project for flood damage reduction, Lower Jefferson Parish, Louisiana, authorized

by section 7016 of the Water Resources Development Act of 2007 (121 Stat. 1282).

(T) The portion of the project for flood control and other purposes, Cumberland, Maryland, consisting of the restoration of the historic Chesapeake and Ohio Canal, authorized by section 5 of the Act of June 22, 1936 (chapter 6881, 49 Stat. 1574; 113 Stat. 375).

(U) Project for flood control, Ecorse Creek, Wayne County, Michigan, authorized by section 101(a)(14) of the Water Resources Development Act of 1990 (104 Stat. 4607).

(V) Projects for ecosystem restoration, Salt River Marsh Coastal Habitat, Lake St. Clair, Michigan, authorized pursuant to section 506 of the Water Resources Development Act of 2000 (42 U.S.C. 1962d–22).

(W) Assistance for ecosystem restoration, Lower Yellowstone Intake Diversion Dam, Montana, authorized pursuant to section 3109 of the Water Resources Development Act of 2007 (121 Stat. 1135).

(X) Maintenance dredging and other authorized activities to address the impacts of shoaling affecting the project for navigation,

Portsmouth Harbor and Piscataqua River, Maine and New Hampshire, authorized by section 101 of the River and Harbor Act of 1962 (76 Stat. 1173).

(Y) Project for flood risk management, Tulsa and West–Tulsa Levee System, Tulsa County, Oklahoma, authorized by section 401(2) of the Water Resources Development Act of 2020 (134 Stat. 2735).

(Z) Project for flood risk management, Rio Guayanilla, Puerto Rico, authorized by section 401(2) of the Water Resources Development Act of 2020 (134 Stat. 2736).

(AA) Projects for critical restoration, Missouri River Restoration, South Dakota, included in the plan developed under section 905(e) of the Water Resources Development Act of 2000 (114 Stat. 2707).

(BB) Project for water quality control, Red River Basin Chloride Control Area VIII, Texas, authorized pursuant to section 203 of the Flood Control Act of 1966 (80 Stat. 1420).

(CC) Dredging for projects at Port of Galveston for Turning Basin 2 project, Royal Terminal, Galveston Bay, Galveston, Texas, au-

thorized pursuant to section 1401(1) of the Water Resources Development Act of 2018 (132 Stat. 3836).

(DD) Project for dam safety modifications, Bluestone Dam, West Virginia, authorized pursuant to section 5 of the Act of June 22, 1936 (chapter 688, 49 Stat. 1586).

(EE) The development and implementation of a sediment management plan at Big Horn Lake, Wyoming, pursuant to section 1179(a) of the Water Resources Development Act of 2016 (130 Stat. 1675).

(FF) Projects authorized by section 219 of the Water Resources Development Act of 1992.

(2) STUDIES.—

(A) Feasibility study of modifications to the portion of the project for flood control, water conservation, and related purposes, Russian River Basin, California, consisting of the Coyote Valley Dam, authorized by section 204 of the Flood Control Act of 1950 (64 Stat. 177; 130 Stat. 1682), to add environmental restoration as a project purpose and to increase water supply and improve reservoir operations.

(B) Feasibility study of modifications to the portion of the project for flood control, Santa Ana River Mainstem, California, consisting of Seven Oaks Dam, California, authorized by section 401(a) of the Water Resources Development Act of 1986 (100 Stat. 4113; 101 Stat. 1329–111; 104 Stat. 4611; 110 Stat. 3713; 121 Stat. 1115), to include water conservation as an authorized purpose.

(C) Feasibility study of modifications to the project for flood control, Redbank and Fancher Creeks, California, authorized by section 401(a) of the Water Resources Development Act of 1986 (100 Stat. 4112).

(D) The update of hydrological modeling of the Fox River Basin, Illinois.

(E) Feasibility study of modifications to the channel depths and dimensions pursuant to section 5 of the Act of March 4, 1915 (33 U.S.C. 562) for the project for navigation, Miami Harbor Channel, Florida, authorized by section 101 of the Water Resources Development Act of 1990 (104 Stat. 4606).

(F) A comprehensive 50-year review of the Kaskaskia River Navigation Project, Illinois,

pursuant to section 216 of the Flood Control Act of 1970 (33 U.S.C. 549a).

(G) Feasibility study for the Mississippi River and Tributaries project, to include the portion of the Ouachita River Levee System at and below Monroe, Louisiana to Caldwell Parish, Louisiana, authorized by section 204(b) of the Water Resources and Development Act of 2020 (134 Stat. 2678).

(H) Feasibility study for the project for ecosystem restoration and flood risk management at Coldwater Creek, Missouri, authorized pursuant to section 1202(b) of the Water Resources Development Act of 2018 (132 Stat. 3803).

(I) Feasibility study for the project for ecosystem restoration and flood risk management at Maline Creek, Missouri, authorized pursuant to section 1202(b) of the Water Resources Development Act of 2018 (132 Stat. 3803).

(J) Feasibility study for the project for flood protection at the Truman Lake Visitor Center, Warsaw, Missouri, authorized by section 203 of the Flood Control Act of 1954 (68 Stat. 1262; 84 Stat. 265).

(K) Feasibility study for an updated hydrologic analysis for the town of Estancia, Torrance County, New Mexico.

(L) Feasibility study for water supply to reduce water consumption from the Arbuckle Simpson Aquifer, Oklahoma, utilizing reserved municipal water supply within the Corps of Engineers-owned lakes, pursuant to section 838 of the Water Resources Development Act of 1986 (100 Stat. 4174).

(b) CONTINUING AUTHORITIES PROGRAMS.—The Secretary shall, to the maximum extent practicable, expedite completion of the following projects and studies:

(1) Projects for flood control under section 205 of the Flood Control Act of 1948 (33 U.S.C. 701s) for the following areas:

(A) Lower Santa Cruz River, Arizona.

(B) McCormick Wash, Arizona.

(C) Rose and Palm Garden Washes, Arizona.

(D) The Santa Rosa Canal Alternative Conveyance Project, Arizona.

(E) Southern Maricopa County, in the vicinity of the Ak-Chin Reservation, Arizona.

(F) Nancy Creek, Georgia.

(G) Peachtree Creek, Georgia.

(H) Sugar Creek, Georgia.

(I) South River Basin, Georgia.

(J) Passaic River, New Jersey.

(K) Salt River Marsh Coastal Habitat, Lake St. Clair, Michigan.

(L) Blind Brook, Rye, New York.

(M) Aibonito Creek and vicinity, Puerto Rico.

(N) Canóvanas River, Puerto Rico.

(O) Municipality of Orocovis, Puerto Rico.

(P) Municipality of San Sebastian, Puerto Rico.

(Q) Municipality of Villalba, Puerto Rico.

(R) Río Inabón, Ponce, Puerto Rico.

(S) Yauco River and Berrenchin Stream, Puerto Rico.

(2) Projects for navigation under section 107 of the River and Harbor Act of 1960 (33 U.S.C. 577) for the following areas:

(A) Sebewaing River, Port Sanilac Harbor, Lexington Harbor, and Harbor Beach Harbor, Michigan.

(B) Portsmouth Back Channels and Sagamore Creek, Portsmouth, New Castle, and Rye, New Hampshire.

(C) Sturgeon Point Marina, New York.

(D) Davis Creek and Mobjack Bay, Mathews County, Virginia.

(3) Project for aquatic ecosystem restoration under section 206 of the Water Resources Development Act of 1996 (33 U.S.C. 2330) for the following areas:

(A) El Corazon, Arizona.

(B) San Pedro River, Cochise County and vicinity, Arizona, including review of recharge facilities that preserve water flows and habitats.

(4) Project modifications for improvement of the environment under section 1135 of the Water Resources Development Act of 1986 (33 U.S.C. 2309a) for the towns of Quincy and Braintree, Massachusetts, for fish passage on the Smelt Brook.

(5) Project for the removal of obstructions and clearing channels for flood control under section 2 of the Act of August 28, 1937 (33 U.S.C. 701g) for the Passaic River, New Jersey.

(6) Project for shoreline erosion protection of public works under section 14 of the Flood Control

Act of 1946 (33 U.S.C. 701r) and for beach erosion and storm damage reduction under section 3 of the Act of August 13, 1946 (33 U.S.C. 426g) for Buffalo, New York.

(7) Project for beach erosion and storm damage reduction under section 3 of the Act of August 13, 1946 (33 U.S.C. 426g) for West Haven, Connecticut.

Subtitle D—Water Resources Infrastructure

SEC. 8401. PROJECT AUTHORIZATIONS.

The following projects for water resources development and conservation and other purposes, as identified in the reports titled "Report to Congress on Future Water Resources Development" submitted to Congress pursuant to section 7001 of the Water Resources Reform and Development Act of 2014 (33 U.S.C. 2282d) or otherwise reviewed by Congress, are authorized to be carried out by the Secretary substantially in accordance with the plans, and subject to the conditions, described in the respective reports or decision documents designated in this section:

(1) NAVIGATION.—

A. State	B. Name	C. Date of Report of Chief of Engineers	D. Estimated Costs
1. AK	Elim Subsistence Harbor Study, Elim	March 12, 2021	Federal: $99,057,000 Non-Federal: $2,517,000 Total: $101,574,000
2. CA	Port of Long Beach Deep Draft Navigation, Los Angeles County	October 14, 2021 and May 31, 2022	Federal: $87,063,000 Non-Federal: $88,724,000 Total: $175,787,000
3. GA	Brunswick Harbor Modifications, Glynn County	March 11, 2022	Federal: $10,555,500 Non-Federal: $5,680,500 Total: $16,236,000
4. NY, NJ	New York — New Jersey Harbor Deepening Channel Improvements	June 3, 2022	Federal: $2,408,268,000 Non-Federal: $3,929,279,000 Total: $6,337,547,000
5. WA	Tacoma Harbor Navigation Improvement Project	May 26, 2022	Federal: $140,022,000 Non-Federal: $203,561,000 Total: $343,583,000

(2) FLOOD RISK MANAGEMENT.—

A. State	B. Name	C. Date of Report of Chief of Engineers	D. Estimated Costs
1. AL	Selma Flood Risk Management and Bank Stabilization	October 7, 2021	Federal: $16,978,000 Non-Federal: $9,142,000 Total: $26,120,000
2. AL	Valley Creek Flood Risk Management, Bessemer and Birmingham	October 29, 2021	Federal: $21,993,000 Non-Federal: $11,906,000 Total: $33,899,000

A. State	B. Name	C. Date of Report of Chief of Engineers	D. Estimated Costs
3. CA	Lower Cache Creek, Yolo County, Woodland and Vicinity	June 21, 2021	Federal: $238,151,550 Non-Federal: $128,235,450 Total: $366,387,000
4. NE	Papillion Creek and Tributaries Lakes	January 24, 2022	Federal: $100,618,000 Non-Federal: $57,359,000 Total: $157,977,000
5. OR	Portland Metro Levee System	August 20, 2021	Federal: $89,708,000 Non-Federal: $48,304,000 Total: $138,012,000
6. PR	Rio Guanajibo Flood Risk Management, Mayaguez, Hormigueros, and San German	May 24, 2022	Federal: $184,778,000 Non-Federal: $0 Total: $184,778,000

(3) HURRICANE AND STORM DAMAGE RISK REDUCTION.—

A. State	B. Name	C. Date of Report of Chief of Engineers	D. Estimated Costs
1. CT	Fairfield and New Haven Counties Coastal Storm Risk Management	January 19, 2021	Federal: $107,350,000 Non-Federal: $57,804,000 Total: $165,154,000
2. FL	Florida Keys, Monroe County, Coastal Storm Risk Management	September 24, 2021	Federal: $1,774,631,000 Non-Federal: $955,570,000 Total: $2,730,201,000

A. State	B. Name	C. Date of Report of Chief of Engineers	D. Estimated Costs
3. FL	Miami-Dade County, Main Segment, Coastal Storm Risk Management	September 26, 2022	Initial Federal: $25,091,000 Initial Non-Federal: $18,470,000 Total: $43,561,000 Renourishment Federal: $143,874,000 Renourishment Non-Federal: $180,898,000 Renourishment Total: $324,772,000
4. FL	Okaloosa County, Coastal Storm Risk Management	October 7, 2021	Initial Federal: $21,274,025 Initial Non-Federal: $12,379,975 Total: $33,654,000 Renourishment Federal: $76,345,000 Renourishment Non-Federal: $79,292,000 Renourishment Total: $155,637,000
5. FL	Pinellas County, Treasure Island and Long Key Segments, Coastal Storm Risk Management	October 29, 2021	Initial Federal: $6,097,000 Initial Non-Federal: $9,864,000 Total: $15,961,000 Renourishment Federal: $115,551,000 Renourishment Non-Federal: $104,540,000 Renourishment Total: $220,091,000
6. LA	South Central Coast, Louisiana Hurricane and Storm Damage Risk Reduction	June 23, 2022	Federal: $809,297,450 Non-Federal: $435,775,550 Total: $1,245,073,000
7. LA	Upper Barataria Basin Hurricane and Storm Damage Risk Reduction	January 28, 2022	Federal: $1,184,472,250 Non-Federal: $637,792,750 Total: $1,822,265,000

A. State	B. Name	C. Date of Report of Chief of Engineers	D. Estimated Costs
8. NY	South Shore of Staten Island, Fort Wadsworth to Oakwood Beach, Coastal Storm Risk Management	October 27, 2016	Federal: $1,086,000,000 Non-Federal: $585,000,000 Total: $1,671,000,000
9. PR	San Juan Metropolitan Area Coastal Storm Risk Management	September 16, 2021	Federal: $288,294,000 Non-Federal: $155,235,000 Total: $443,529,000
10. SC	Charleston Peninsula, Coastal Storm Risk Management	June 10, 2022	Federal: $828,657,050 Non-Federal: $446,199,950 Total: $1,274,857,000
11. SC	Folly Beach, Coastal Storm Risk Management	October 26, 2021	Initial Federal: $49,919,000 Initial Non-Federal: $5,546,000 Total: $55,465,000 Renourishment Federal: $180,433,000 Renourishment Non-Federal: $29,373,000 Renourishment Total: $209,806,000

(4) FLOOD RISK MANAGEMENT AND ECOSYSTEM RESTORATION.—

A. State	B. Name	C. Date of Report of Chief of Engineers	D. Estimated Costs
1. TX	Coastal Texas Protection and Restoration	September 16, 2021	Federal: $21,380,214,000 Non-Federal: $12,999,708,000 Total: $34,379,922,000

(5) ECOSYSTEM RESTORATION.—

A. State	B. Name	C. Date of Report of Chief of Engineers	D. Estimated Costs
1. CA	Prado Basin Ecosystem Restoration, San Bernardino, Riverside and Orange Counties	April 22, 2021	Federal: $35,265,100 Non-Federal: $22,373,900 Total: $57,639,000
2. KY	Three Forks of Beargrass Creek Ecosystem Restoration, Louisville	May 24, 2022	Federal: $77,352,671 Non-Federal: $52,539,940 Total: $129,892,611

(6) MODIFICATIONS AND OTHER PROJECTS.—

A. State	B. Name	C. Date of Decision Document	D. Estimated Costs
1. DC	Washington, D.C. and Vicinity Flood Risk Management	July 22, 2021	Federal: $19,830,000 Non-Federal: $0 Total: $19,830,000
2. FL	Central and Southern Florida, Indian River Lagoon	June 30, 2022	Federal: $2,707,950,500 Non-Federal: $2,707,950,500 Total: $5,415,901,000
3. LA	Lake Pontchartrain and Vicinity	December 16, 2021	Federal: $950,303,250 Non-Federal: $511,701,750 Total: $1,462,005,000
4. LA	West Bank and Vicinity	December 17, 2021	Federal: $508,337,700 Non-Federal: $273,720,300 Total: $782,058,000
5. MI	New Soo Lock Construction Project, Sault Ste. Marie, Chippewa County	June 6, 2022	Federal: $3,218,944,000 Non-Federal: $0 Total: $3,218,944,000

A. State	B. Name	C. Date of Decision Document	D. Estimated Costs
6. WA	Howard A. Hanson Dam, Water Supply and Ecosystem Restoration	May 19, 2022	Federal: $878,530,000 Non-Federal: $43,085,000 Total: $921,615,000

SEC. 8402. SPECIAL RULES.

(a) SOUTH SHORE OF STATEN ISLAND, NEW YORK.—The Federal share of any portion of the cost to design and construct the project for coastal storm risk management, South Shore of Staten Island, Fort Wadsworth to Oakwood Beach, New York, authorized by this Act, that exceeds the estimated total project cost specified in the project partnership agreement for the project, signed by the Secretary on February 15, 2019, shall be 90 percent.

(b) CHARLESTON PENINSULA, SOUTH CAROLINA.—

(1) IN GENERAL.—Not later than 90 days after the last day of the covered period, the Secretary shall submit to the Committee on Transportation and Infrastructure of the House of Representatives and the Committee on Environment and Public Works of the Senate, a request for deauthorization of the project for hurricane and storm damage risk reduction, Charleston Peninsula, South Carolina, authorized by this Act, if the non-Federal interest has

not entered into a project partnership agreement for the project, or a separable element of the project, prior to such last day.

(2) DEFINITION OF COVERED PERIOD.—In this subsection, the term ''covered period'' means the period beginning on the date of enactment of this Act and ending on the date that is—

(A) 10 years after the date of enactment of this Act; or

(B) 10 years after the date on which a design agreement for the project described in paragraph (1) is executed, if such design agreement is executed prior to the date that is 10 years after the date of enactment of this Act.

SEC. 8403. FACILITY INVESTMENT.

(a) IN GENERAL.—Subject to subsection (b), using amounts available in the revolving fund established by the first section of the Civil Functions Appropriations Act, 1954 (33 U.S.C. 576), and not otherwise obligated, the Secretary may—

(1) design and construct the lab and office facility for a Mandatory Center of Expertise in Branson, Missouri, described in the prospectus submitted to the Committee on Transportation and Infrastructure of the House of Representatives and the

Committee on Environment and Public Works of the Senate on June 10, 2022, pursuant to subsection (c) of such Act (33 U.S.C. 576(c)), substantially in accordance with such prospectus; and

(2) carry out such construction and infrastructure improvements as are required to support such lab and office facility, including any necessary demolition of the existing infrastructure.

(b) REQUIREMENT.—In carrying out subsection (a), the Secretary shall ensure that the revolving fund established by the first section of the Civil Functions Appropriations Act, 1954 (33 U.S.C. 576) is appropriately reimbursed from funds appropriated for Corps of Engineers programs that benefit from the lab and office facility constructed under this section.

TITLE LXXXV—CLEAN WATER

Sec. 8501. Regional water programs.
Sec. 8502. Nonpoint source management programs.
Sec. 8503. Wastewater assistance to colonias.

SEC. 8501. REGIONAL WATER PROGRAMS.

(a) SAN FRANCISCO BAY RESTORATION GRANT PROGRAM.—Title I of the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) is amended by adding at the end the following:

"SEC. 125. SAN FRANCISCO BAY RESTORATION GRANT PROGRAM.

''(a) DEFINITIONS.—In this section:

From: Marker,Doug R (BPA) - AIR-7
Sent: Thursday, February 23, 2023 2:44 PM
To: Michael Deen
Subject: RE: Willamette Valley System Draft EIS
Attachments: BPA comments for Army WRDA 2022 Implementation Guidance Sonya's Version.docx

Thank you very much for sending to me, Michael.

Sonya provided oral comments to the Assistant Secretary of the Army, Civil Works, yesterday, for implementation guidance for WRDA 2022. Written comments are due later in March – I believe around the 21st, but don't have the notice available to me just now. I'm sending what Sonya read.

From: Michael Deen <mdeen@ppcpdx.org>
Sent: Thursday, February 23, 2023 1:35 PM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Subject: FW: Willamette Valley System Draft EIS

Hey Doug – FYI on the PPC comments as submitted a few minutes ago. Thanks!

From: Michael Deen
Sent: Thursday, February 23, 2023 1:31 PM
To: willamette.eis@usace.army.mil
Cc: Scott Simms <ssimms@ppcpdx.org>; Irene Scruggs <iscruggs@ppcpdx.org>; Karen Heim <kheim@ppcpdx.org>
Subject: Willamette Valley System Draft EIS

Good afternoon,
Please see the attached comments of the Public Power Council on the Willamette Valley System Draft Environmental Impact Statement. We welcome any questions or requests for additional information.

Michael Deen
Policy Director
mdeen@ppcpdx.org

Public Power Council
650 NE Holladay, Ste. 810
Portland, Oregon 97232
(503) 595-9770

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Suggested comments for Department of Army implementation guidance for Section 8220 of WRDA 2022 – Willamette Valley Disposition studies.

Thank you for the opportunity to comment on implementation guidance for Section 8220 of WRDA 2022 – Willamette Valley Disposition studies.

Bonneville believes that we have a shared interest with the Corps in ensuring that the sufficiency of the final Programmatic Environmental Impact Statement for Willamette Valley System Operations. Given the timeline for completion of the PEIS, Bonneville urges the Corps to meet Congress' schedule for completion of the disposition studies of the hydropower purpose of the Willamette dams by June 2024. BPA believes the PEIS would be improved by the Corps incorporating analysis of the disposition studies into the draft PEIS.

BPA appreciates that the Corps has expressed a sense of urgency on addressing mitigation of impacts on fish species in the Willamette. To facilitate that, the Congress directed the Corps in WRDA 2020 Section 218 to study the impacts on other authorized project purposes from any deauthorization of power at Cougar and Detroit/Big Cliff dams, in an effort to assist the Corps in expanding options that could help to mitigate the impacts to fish. Bonneville is not aware that the report has been provided to Congress as required. Bonneville provided to the Corps Bonneville's assessment that other project purposes would not be negatively impacted by deauthorization of the power purpose. Bonneville believes that the Corps's own assessment or the Corps's views of Bonneville's assessment would be useful for a complete assessment of deauthorizing the power purpose.

For WRDA 2022 Section 8220 in particular, Bonneville believes that the Corps should confine the disposition studies to the scope defined by section 8220: the hydropower purposes of the dams. Bonneville also believes that the Corps should rely on Bonneville's expertise for the finding of federal interest in the production of commercial power generation from the Willamette dams.

Bonneville also wants to reiterate points it recently provided to the Corps on the draft PEIS:

- An implementation plan for the consideration of deauthorization and cost allocation updates should be included in the final PEIS.

  - The Draft PEIS estimates the annual benefit of flood protection to be at least $1 billion and power generation to be $26 million, yet the power purpose's cost allocation averages around 40 percent. This estimate itself highlights the need for updated cost allocations, and should help inform the Corps of its appropriate short and long-term federal funding requests necessary to meet its most valued project purposes.

- The current PEIS analysis does not reflect the anticipated significant cost impact from continue operations of the 2021 Oregon District Court injunction until the Corps completes structural measures. These operations stand to reduce the value of

hydropower generation by nearly a third. Having that information incorporated into the analysis will help inform both Congress and the Final PEIS.

- Finally, Bonneville continues to urge the Corps to update structural cost estimates which the Corps states in the Draft PEIS are likely more than double the current estimates. In addition, recent economic events of inflation, constrained supply chains, and escalated interest rates also likely impact the cost estimates.

Thank you again for the opportunity to comment.

From: Marker,Doug R (BPA) - AIR-7
Sent: Tuesday, February 28, 2023 4:38 PM
To: Wingert,Kevin M (BPA) - DKP-7
Subject: RE: Willamette Valley fact sheet for review

(b) (5) [redacted]

From: Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Sent: Tuesday, February 28, 2023 4:36 PM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Subject: RE: Willamette Valley fact sheet for review

[redacted] (b) (5) [redacted]

Very Respectfully,

Kevin Wingert
Communications | Media Relations | Policy
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-4140 | C (b)(6) [redacted]

From: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Sent: Tuesday, February 28, 2023 4:32 PM
To: Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Subject: RE: Willamette Valley fact sheet for review

(b) (5) [redacted]

From: Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Sent: Tuesday, February 28, 2023 4:30 PM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Subject: RE: Willamette Valley fact sheet for review

(b) (5) [redacted]

Very Respectfully,

Kevin Wingert
Communications | Media Relations | Policy
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-4140 | C (b)(6) [redacted]

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From: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Sent: Tuesday, February 28, 2023 4:02 PM
To: Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Johnson,G Douglas (BPA) - DK-7 <gdjohnson@bpa.gov>; Goodwin,Summer G (BPA) - DKS-7 <sggoodwin@bpa.gov>
Subject: RE: Willamette Valley fact sheet for review

Kevin – I still think the tone and positions are appropriate. This sheet has needed review for the statistics that Tom noted. Jesse, do you know where that work is?

From: Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Sent: Tuesday, February 28, 2023 11:27 AM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>; Johnson,G Douglas (BPA) - DK-7 <gdjohnson@bpa.gov>; Goodwin,Summer G (BPA) - DKS-7 <sggoodwin@bpa.gov>
Subject: RE: Willamette Valley fact sheet for review

Jesse, Doug, et. al.,

I think this stalled out. Want to check back in on this. Have two essential questions:

1. Is this the language reflective of our agency comments into the Willamette Valley dams?
2. Is this too positional or does this reflect a change of stance in the agency on the topic from say 2-3 years ago?

Just want to manage expectations and get moving forward on this once more. Thank you for your insight.

Very Respectfully,

Kevin Wingert
Communications | Media Relations | Policy
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-4140 | C (b)(6)

From: Conning III,Edward Thomas (BPA) - DKP-7 <ETConning@bpa.gov>
Sent: Thursday, February 9, 2023 3:16 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Cc: Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Subject: FW: Willamette Valley fact sheet for review

Jesse and Doug,

Here are some comments back on this with some questions from our Power Communication team lead. What are your thoughts?

I'm inclined to leave with edits Kevin made and send to graphics (Kevin will be your main POC for this in the future). My interpretation is this is supposed to be a pretty frank piece of content regarding the future in the WV.

Thanks,

V/R

27641579(01).pdf

Tom Conning
Writer/Editor | Media Relations, Policy Communications and Writing
BONNEVILLE POWER ADMINISTRATION
ETConning@bpa.gov | O: 503-230-3832 I C: (b)(6)

From: Goodwin,Summer G (BPA) - DKS-7 <sggoodwin@bpa.gov>
Sent: Wednesday, February 8, 2023 5:48 PM
To: Conning III,Edward Thomas (BPA) - DKP-7 <ETConning@bpa.gov>
Cc: Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Subject: RE: Willamette Valley fact sheet for review

(b) (5) Did Jesse and Doug ever see a draft of this? If not, I wouldn't spend any more time editing it until after they have a look.

From: Conning III,Edward Thomas (BPA) - DKP-7 <ETConning@bpa.gov>
Sent: Wednesday, February 8, 2023 4:01 PM
To: Goodwin,Summer G (BPA) - DKS-7 <sggoodwin@bpa.gov>
Cc: Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Subject: RE: Willamette Valley fact sheet for review

Summer,

Did you have a chance to look at the fact sheet? I'd like to get it over to Doug Marker and Jesse Kintz tomorrow.

Thanks,

V/R

Tom Conning
Writer/Editor | Media Relations, Policy Communications and Writing
BONNEVILLE POWER ADMINISTRATION
ETConning@bpa.gov | O: 503-230-3832 I C: (b)(6)

From: Conning III,Edward Thomas (BPA) - DKP-7
Sent: Tuesday, February 7, 2023 3:25 PM
To: Goodwin,Summer G (BPA) - DKS-7 <sggoodwin@bpa.gov>
Cc: Johnson,G Douglas (BPA) - DK-7 <gdjohnson@bpa.gov>
Subject: FW: Willamette Valley fact sheet for review

Summer,

Here is the fact sheet after Kevin's edits. My plan is to accept them and send back over to Doug and Jesse before I send to Graphics. Let me know if you have any concerns.

Thanks,

27641579(01).pdf

V/R

Tom Conning
Writer/Editor | Media Relations, Policy Communications and Writing
BONNEVILLE POWER ADMINISTRATION
ETConning@bpa.gov | O: 503-230-3832 I C: (b)(6)

From: Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Sent: Tuesday, February 7, 2023 3:23 PM
To: Conning III,Edward Thomas (BPA) - DKP-7 <ETConning@bpa.gov>
Subject: RE: Willamette Valley fact sheet for review

Tom,

Here's the fact sheet back with edits. If you have any questions or concerns, let me know. Thank you for your work on this.

Very Respectfully,

Kevin Wingert
Communications | Media Relations | Policy
BONNEVILLE POWER ADMINISTRATION
bpa.gov | P 503-230-4140 | C (b)(6)

From: Conning III,Edward Thomas (BPA) - DKP-7 <ETConning@bpa.gov>
Sent: Wednesday, February 1, 2023 2:29 PM
To: Wingert,Kevin M (BPA) - DKP-7 <kwingert@bpa.gov>
Subject: Willamette Valley fact sheet for review

Kevin,

Can you please review the attached fact sheet (Doug Marker and Jesse Kintz provided the bulk of edits for their needs; Summer and Kristel have also reviewed/provided input)?

Would this need to go to Joel for further review? Summer would like to see it before I send along to graphics and I'd like to have that part initiated before I leave. Who should I hand this off to, to see to completion (I'm waiting for some data from Jesse on some of the numbers before this can be finalized (as noted in some comments))?

Thanks,

V/R

Tom Conning
Writer/Editor | Media Relations, Policy Communications and Writing
BONNEVILLE POWER ADMINISTRATION
ETConning@bpa.gov | O: 503-230-3832 I C: (b)(6)

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From: Marker,Doug R (BPA) - AIR-7
Sent: Tuesday, February 14, 2023 4:34 PM
To: Baskerville,Sonya L (BPA) - AIN-WASH
Subject: WRDA 2022 Implementation guidance
Attachments: 2023-01043.pdf

Here's the FRN. This is quite a bit earlier than two years ago.

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Tuesday, February 14, 2023 1:04 PM
To: Marker,Doug R (BPA) - AIR-7 <drmarker@bpa.gov>
Subject: FW: INPUT NEEDED Willamette Valley Operations EIS - Deputy Meeting

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From: Granet, Jesse J CIV USARMY CENWD (USA) <Jesse.J.Granet@usace.army.mil>
Sent: Monday, February 13, 2023 4:41 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Cc: Thompson, Bradley E CIV USARMY CENWD (USA) <Bradley.E.Thompson@usace.army.mil>
Subject: [EXTERNAL] RE: INPUT NEEDED Willamette Valley Operations EIS - Deputy Meeting

Hi Jesse,

March 21st is the deadline to get comments in regarding WRDA 2022 Implementation Guidance. Associated with the announcement are three public meetings. Logistics of these meetings is included in the Supplementary Information Section of the Fed Register Notice. See attached and direct link.

https://www.federalregister.gov/documents/2023/01/20/2023-01043/water-resources-development-act-of-2022-comment-period-and-stakeholder-sessions

Jesse Granet
Environmental Team Lead
US Army Corps of Engineers
Northwestern Division
(503) 808-3966

From: Granet, Jesse J CIV USARMY CENWD (USA)
Sent: Monday, February 13, 2023 4:15 PM
To: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Cc: Thompson, Bradley E CIV USARMY CENWD (USA) <Bradley.E.Thompson@usace.army.mil>
Subject: RE: INPUT NEEDED Willamette Valley Operations EIS - Deputy Meeting

Hi Jesse,

Let me ask around to see if I can find out the suspense for the implementation guidance. I recommend bringing it up with Brad as well.

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If you are ok waiting until next meeting to discuss BPA public comments until next meeting, it would allow us to cancel this week and free up time on folks calendars. We will definitely include it as an agenda item for our next meeting.

Thanks,
Jesse

Jesse Granet
Environmental Team Lead
US Army Corps of Engineers
Northwestern Division
(503) 808-3966

From: Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>
Sent: Monday, February 13, 2023 11:24 AM
To: Granet, Jesse J CIV USARMY CENWD (USA) <Jesse.J.Granet@usace.army.mil>
Subject: [Non-DoD Source] FW: INPUT NEEDED Willamette Valley Operations EIS - Deputy Meeting

Jesse,
I also missed the WRDA topic at the last meeting and had a question about the WRDA 2022 disposition study comment process – do you know when the comment date deadline is for the Army implementation process guidance? (If not I can ask Brad Thompson at our check in tomorrow.)

Thanks!
-Jesse

From: Kintz,Jesse H (BPA) - PG-5
Sent: Monday, February 13, 2023 9:31 AM
To: Granet, Jesse J CIV USARMY CENWD (USA) <Jesse.J.Granet@usace.army.mil>
Cc: Thompson, Bradley E CIV USARMY CENWD (USA) <Bradley.E.Thompson@usace.army.mil>; Wells, Elizabeth R CIV USARMY CENWP (USA) <Elizabeth.R.Wells@usace.army.mil>
Subject: RE: INPUT NEEDED Willamette Valley Operations EIS - Deputy Meeting

Good morning Jesse,
I had planned to share a brief update on the letter BPA sent to the Corps for our public comments, but if there aren't other reasons to hold a meeting this week, I can do that either separately with Brad and Liza, or at the next meeting.

Thanks,
-Jesse

From: Granet, Jesse J CIV USARMY CENWD (USA) <Jesse.J.Granet@usace.army.mil>
Sent: Monday, February 13, 2023 9:19 AM
To: Tackley, Kathryn L CIV USARMY CENWP (USA) <Kathryn.L.Tackley@usace.army.mil>; Eder, Christopher J <ceder@usbr.gov>; Balzarini, Stephanie A <Stephanie.Balzarini@sol.doi.gov>; Kintz,Jesse H (BPA) - PG-5 <jhkintz@bpa.gov>; Sullivan,Leah S (BPA) - PGB-5 <lssullivan@bpa.gov>; Welch,Julee A (BPA) - LP-7 <jawelch@bpa.gov>; Senters,Anne E (BPA) - LN-7 <aesenters@bpa.gov>; Poirier, Kaitlyn (ENRD) <Kaitlyn.Poirier@usdoj.gov>; Kim Kratz - NOAA Federal <kim.kratz@noaa.gov>; Kathleen Wells - NOAA Federal <kathleen.wells@noaa.gov>; anne.mullan@noaa.gov; Chris Fontecchio - NOAA Federal <chris.fontecchio@noaa.gov>; Bond, Carrie L CIV USARMY CENWD (USA) <Carrie.L.Bond@usace.army.mil>; Austin-Smith, Christina A CIV USARMY CENWD (USA) <Christina.A.Austin-Smith@usace.army.mil>; Holm, Leanne V CIV USARMY CENWD (USA)

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<Leanne.V.Holm2@usace.army.mil>; Wells, Elizabeth R CIV USARMY CENWP (USA) <Elizabeth.R.Wells@usace.army.mil>; Wingard, Kelly L CIV USARMY CENWP (USA) <Kelly.L.Wingard@usace.army.mil>; BUDAI, Christine M (Chris) CIV USARMY CENWP (USA) <Christine.M.Budai@usace.army.mil>; Royer, Ida M CIV USARMY CENWP (USA) <Ida.M.Royer@usace.army.mil>; Lyon, Amanda A CIV USARMY CENWP (USA) <Amanda.A.Lyon@usace.army.mil>; Ainsworth, Andrew - DELETED <Andrew.Ainsworth@usace.army.mil>; Latcu, Misty CIV USARMY CENWP (USA) <Misty.M.Latcu@usace.army.mil>; Allen, Chris <chris_allen@fws.gov>; Castro, Janine M <Janine_M_Castro@fws.gov>; Wilson, Frank S <Frank.Wilson@sol.doi.gov>; Thompson, Bradley E CIV USARMY CENWD (USA) <Bradley.E.Thompson@usace.army.mil>; Knudson, Nicklas B CIV CPMS (USA) <Nicklas.B.Knudson@usace.army.mil>; Smith,Glen A (BPA) - PG-5 <gasmith@bpa.gov>; Otero, William CIV USARMY CENWD (USA) <William.Otero@usace.army.mil>; Nagra,Angad S (BPA) - LN-7 <ASNagra@bpa.gov>; Hauenstein, Leah J CIV (USA) <Leah.J.Hauenstein@usace.army.mil>; Maslow,Jeffrey J (BPA) - EC-4 <jjmaslow@bpa.gov>; Ringold, Valerie A CIV USARMY CENWP (USA) <Valerie.A.Ringold@usace.army.mil>; Roland Springer <rspringer@usbr.gov>
Cc: CENWP-PME-WVS-EIS-Activities <CENWP-PME-WVS-EIS-Activities@usace.army.mil>; Taylor, Gregory A CIV USARMY CENWP (USA) <Gregory.A.Taylor@usace.army.mil>; Coffey, Michael A <mcoffey@usbr.gov>; Warner, Kathryn L CIV USARMY CENWP (USA) <Kathryn.L.Warner@usace.army.mil>; Chane, Ian B CIV USARMY CENWD (USA) <Ian.B.Chane@usace.army.mil>; Gibbons, Amy C CIV USARMY CENWP (USA) <Amy.C.Gibbons@usace.army.mil>
Subject: [EXTERNAL] INPUT NEEDED Willamette Valley Operations EIS - Deputy Meeting

Willamette Deputies,

Do any of the you have any specific topics for this weeks Deputies Meeting? If not, I'll cancel this week's meeting.

Thanks,
Jesse

Jesse Granet
Environmental Team Lead
US Army Corps of Engineers
Northwestern Division
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From: Marker,Doug R (BPA) - AIR-7
Sent: Monday, April 10, 2023 3:40 PM
To: dougmarker(b)(6)
Subject: Willamette DPEIS Comments - NFS et al.pdf
Attachments: Willamette DPEIS Comments - NFS et al.pdf

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Suggested comments for Department of Army implementation guidance for Section 8220 of WRDA 2022 – Willamette Valley Disposition studies.

Bonneville urges the Corps to meet Congress' schedule for completion by June 2024 of disposition studies for the hydropower purpose at the Willamette dams. The Corps should combine analysis from the draft Programmatic Environmental Impact Statement for Willamette Valley System Operations for the disposition studies.

Bonneville is concerned that the Corps has not yet met Congress' schedule for delivery of the study directed by WRDA 2020 Section 218, of the impacts on other authorized project purposes from the deauthorization of power at Cougar and Detroit/Big Cliff dams. That report was due to Congress by the end of 2022. Bonneville provided to the Corps its own assessment that other project purposes would be undiminished, but the Corps has not responded to Bonneville's analysis nor given Bonneville the opportunity to review and comment on its proposed report to Congress.

The Corps should confine the disposition studies to the scope defined by section 8220: the hydropower purposes of the dams. The Corps should rely on the Bonneville Power Administration's expertise for the finding of federal interest in the production of commercial power generation from the Willamette dams.

As both the disposition studies and completion of the final PEIS should occur at the same time, Bonneville offers points it recently provided to the Corps on the draft PEIS:

- Bonneville continues to request that the Corps include in the final PEIS its implementation plan for the consideration of de-authorization and cost allocation updates at these projects. ~~Bonneville notes the recent mandate from Congress in the 2022 Water Resources Development Act directing system-wide disposition studies of the power purpose of the Willamette dams by June 2024.~~ Bonneville also offers the following considerations for the disposition studies:

    - Disposition studies will inform potential congressional deauthorization of power at the Willamette dams. If Congress does deauthorize power, the Corps may be able to design less costly and more effective passage routes for juvenile salmon.

    - Disposition study analysis should also inform needed cost allocation updates. Significant operational changes and the shifting economics of managing hydropower and flood control at Willamette Valley projects make cost allocation updates necessary. The Draft PEIS estimates the annual benefit of flood protection to be at least $1 billion and power generation to be $26 million, yet power's cost allocation averages around 40 percent. If the disposition studies, as part of assessing whether hydropower is in the federal interest, do find net economic value for remaining hydropower generation at one or more of the Willamette dams, the Corps and Bonneville should use that analysis to implement the needed appropriate cost allocation between flood risk management and power.

    - Meeting Congress' timeline for completing disposition studies by June 2024 should support implementation planning for the Final PEIS and help inform Bonneville's decisions for continued investments in the dams' power facilities. It

will be important for the Corps to limit the scope of the disposition studies and focus only on the effects of deauthorizing hydropower.

Bonneville does have concerns about the economic analysis provided in the draft EIS and the disposition studies to reflect current information about the value of hydropower from the Willamette dams and the likelihood that capital cost estimates are incomplete and out of date.

- The Corps should revise the PEIS analysis to fully include the impact of the continuation of the near-term operations in the planned implementation of the final preferred alternative. The most significant impact on hydropower is the provision to continue the operations of the 2021 Oregon District Court injunction until the Corps completes structural measures, which, for some of the measures, would be well into the 2040s under the Draft PEIS implementation schedule. The current analysis does not reflect these operations which stand to reduce the value of hydropower generation by nearly a third. The Final PEIS should include revised estimates for the remaining value of hydropower generation that incorporates the near-term measures. Because these estimates are also necessary for the disposition studies directed by Congress, their inclusion will help inform both Congress and the Final PEIS.

- Bonneville continues to urge the Corps to update structural cost estimates. The estimated costs of structures for fish passage and water temperature seem to be quite conservative. The Corps states in the Draft PEIS that it is basing cost estimates on conceptual designs and that actual costs could likely more than double. However, recent economic events of inflation, constrained supply chains, and escalated interest rates make the Draft PEIS estimates likely out of date.

submitted in response to the agenda set forth in this notice by Monday, January 30, 2023, to be considered by the Board. The DFO will review all timely submitted written comments or statements with the Board Chair and ensure the comments are provided to all members of the Board before the meeting. Written comments or statements received after this date may not be provided to the Board until its next scheduled meeting. Please note that all submitted comments and statements will be treated as public documents and will be made available for public inspection, including, but not limited to, being posted on the Board's website.

Dated: January 13, 2023.

Aaron T. Siegel,

Alternate OSD Federal Register Liaison Officer, Department of Defense.

[FR Doc. 2023–01013 Filed 1–19–23; 8:45 am]

BILLING CODE 5001–06–P

DEPARTMENT OF DEFENSE

Department of the Army, Corps of Engineers

[COE–2023–0002]

Water Resources Development Act of 2022 Comment Period and Stakeholder Sessions

AGENCY: U.S. Army Corps of Engineers, DoD.

ACTION: Request for comments; announcement of stakeholder sessions.

SUMMARY: The Assistant Secretary of the Army for Civil Works (ASA (CW)) is seeking public comment on any provisions in the Water Resources Development Act (WRDA) of 2022. The Office of the ASA(CW) will consider all comments received during the 60-day public comment period in the preparation of any guidance.

DATES: The public comment period will end on March 21, 2023. To ensure your comment is considered during development of implementation guidance, comments should be received on or before that date. In addition, three stakeholder sessions will be held to allow the public to provide input on any provisions in WRDA 2022 at the following dates/times: February 15, 2023 from 2:00 p.m. to 4:00 p.m. Eastern; February 22, 2023 from 2:00 p.m. to 4:00 p.m. Eastern; March 1, 2023 from 2:00 to 4:00 p.m. Eastern. Please refer to the **SUPPLEMENTARY INFORMATION** section for additional information on the stakeholder sessions.

ADDRESSES: You may submit written comments, identified by Docket ID No. COE–2023–0002, by any of the following methods:

Federal eRulemaking Portal: http://www.regulations.gov/. Follow the online instructions for submitting comments.

Email: WRDA2022@usace.army.mil. Include Docket ID No. COE–2023–0002 in the subject line of the message.

Mail: U.S. Army Corps of Engineers, ATTN: Ms. Amy Frantz, CEW–P, U.S. Army Corps of Engineers, 3F91, 441 G St. NW, Washington, DC 20314.

Hand Delivery/Courier: Due to security requirements, we cannot receive comments by hand delivery or courier. Comments received may be posted without change to *https://www.regulations.gov/,* including any personal information provided.

FOR FURTHER INFORMATION CONTACT: All requests for further information on the notice and the stakeholder sessions may be directed to Mr. Gib Owen, 571–274–1929 or *gib.a.owen.civ@army.mil.* Mr. Owen may also be contacted by mail at Office of the Assistant Secretary of the Army for Civil Works, 108 Army Pentagon. Washington, DC 20310–0108.

SUPPLEMENTARY INFORMATION: This comment period regarding WRDA 2022 (Pub. L. 117–81) is being conducted in accordance with Section 1105 of the Water Resources Development Act of 2018 (Pub. L. 115–270). A copy of WRDA 2022 can be found at: *https://www.usace.army.mil/Missions/Civil-Works/Water-Resources-Development-Act/.* The ASA(CW) and the Corps will hold focused stakeholder sessions using webinars/teleconferences by means of the web link *https://usace1.webex.com/meet/WRDA2022* and teleconference information at (844) 800–2712, Code 199 937 4287. See dates and times above. Commenters can provide information on any provision of interest during each session. Written final guidance will be available to the public on a publicly accessible website (*https://www.usace.army.mil/Missions/Civil-Works/Project-Planning/Legislative-Links/wrda_2022/*).

Michael L. Connor,

Assistant Secretary of the Army (Civil Works).

[FR Doc. 2023–01043 Filed 1–19–23; 8:45 am]

BILLING CODE 3720–58–P

DEPARTMENT OF DEFENSE

Department of the Army, Corps of Engineers

National Wetland Plant List

AGENCY: U.S. Army Corps of Engineers, DoD.

ACTION: Notice.

SUMMARY: The National Wetland Plant List (NWPL) provides plant species indicator status ratings, which are used in determining whether the hydrophytic vegetation factor is met when conducting wetland delineations under the Clean Water Act and wetland determinations under the Wetland Conservation Provisions of the Food Security Act. Other applications of the NWPL include wetland restoration, establishment, and enhancement projects. To update the NWPL, the U.S. Army Corps of Engineers (USACE), as part of an interagency effort with the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service (FWS), and the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), is announcing the availability of the proposed changes to the 2022 NWPL and its web address to solicit public comments. The public will now have the opportunity to comment on the proposed changes to wetland indicator status ratings for two plant species in the Arid West (AW) region. In addition, we are accepting comments on the proposal to move from a two-year update cycle to a three-year update cycle for the NWPL. Finally, USACE is seeking comments on the overall NWPL update process.

DATES: Comments must be submitted on or before March 21, 2023.

ADDRESSES: U.S. Army Corps of Engineers, *Attn:* CECW–CO–R, 441 G Street NW, Washington, DC 20314–1000.

FOR FURTHER INFORMATION CONTACT: Brianne McGuffie, Headquarters, U.S. Army Corps of Engineers, Operations and Regulatory Community of Practice, by phone at 202–761–4750 or by email at *brianne.e.mcguffie@usace.army.mil.*

SUPPLEMENTARY INFORMATION:

Background

USACE administers the NWPL for the United States (U.S.) and its territories. Responsibility for the NWPL was transferred to USACE from the FWS in 2006. The NWPL has undergone several revisions since its inception in 1988. Additions or deletions to the NWPL represent new records, range extensions, nomenclatural and taxonomic changes, and newly proposed species. The latest review process began in 2022 and included review by Regional Panels (RPs) and the National Panel (NP).

Wetland Indicator Status Ratings

On the NWPL, there are five categories of wetland indicator status

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U.S. Army Corps of Engineers
Portland District
U.S. Army Corps of Engineers
Attn: CENWP-PME-E / Willamette EIS
P.O. Box 2946
Portland, OR 97208-2946

February 20, 2023

Submitted electronically via email correspondence to: willamette.eis@usace.army.mil

Re: Comments on Willamette Valley System Operations and Maintenance Draft Programmatic Environmental Impact Statement

Dear U.S. Army Corps staff,

The undersigned groups and individuals submit these comments to the U.S. Army Corps of Engineers (Corps) regarding the Draft Programmatic Environmental Impact Statement (DPEIS) Willamette Valley System Operations and Maintenance Plan (O&M Plan). These comments are based on the Corps' DPEIS under the National Environmental Policy Act (NEPA) and materials published by the Corps on its website for the Project.[1]

We appreciate that the Corps is at long last making efforts to update its operations and maintenance plans in order to take steps to mitigate some of the deleterious effects on native fish from operation of the Willamette Valley System. These comments detail our response to the Corps' analysis and preferred alternative through a focus on ensuring the survival and recovery of Endangered Species Act (ESA) listed Upper Willamette River (UWR) spring Chinook salmon, winter steelhead, and bull trout. We request that the Corps consider our comments as it moves forward with completing both the NEPA and ESA processes.

We are grateful to include expert technical review and comment by:

- **Richard Domingue**, Professional Hydrologist, National Marine Fisheries Service ret.
- **Kirk Schroeder**, Research Fisheries Biologist, Oregon Department of Fish and Wildlife ret.

Common themes and recommendations amongst the experts and non-governmental organizations (NGOs) include:

[1] https://www.nwp.usace.army.mil/Locations/Willamette-Valley/System-Evaluation-EIS/

1. The need to consider a broader range of measures, **including those which would require Congressional deauthorization of hydropower**. Such measures should include:
    a. Year-round deep drawdowns;
    b. Improving fish passage survival at existing facilities;
    c. Additional operations and project modifications to reduce Total Dissolved Gas (TDG) production;
    d. Additional measures that implement improvements to regulating outlets to improve their effectiveness as passage routes.
    e. Earlier initiation of spill at Detroit Dam for downstream passage;
    f. Removal, modification, and run-of-river operations of non-flood control reregulation dams (Big Cliff and Dexter);
    g. Reassessment of downstream passage and water quality measures at Detroit Dam, Hills Creek Dam, and Lookout Point Dam in the context of removal, modification, and/or run-of-river operations at Big Cliff and Dexter dams.
    h. More robust passage measures for Hills Creek dam, including measures that support movement of bull trout.
2. A commitment to continuing, funding, and making adaptive management changes to the near-term and operational measures until there is reasonable confidence that their performance can be equaled or exceeded by new structural measures.
3. A prioritization at all projects for volitional downstream passage.
4. A program of revetment removal, relocation, and modification to increase floodplain connectivity and side-channel habitat in the tributaries and mainstem Willamette River.
5. Dam operations should be designed to improve degraded habitat conditions below the dams.
6. More thorough disclosure of the limitations of the models used to assess proposed measures. Specifically:
    a. Model parameters are based on limited data, outdated data or data that may no longer represent current and future conditions, and qualitative opinion.
    b. Given the weaknesses and biases of the Fish Benefit Workbook model, the results of the life cycle modeling should be viewed with caution.
    c. The Fish Benefit Workbook model biases passage efficiency and survival in favor of structural measures based on limited data and untested assumptions.
7. More robust Research, Monitoring, and Evaluation (RM&E) and adaptive management plans that include a broader range of evaluation and performance metrics to ensure that operation of the WVS does not continue to jeopardize listed species or adversely affect their critical habitats.The RM&E plan:
    a. Should be based on the plan developed under the Injunctive Order in *Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al.,* Court case No. 3:18-cv-00437-HZ; Document 240-1, Willamette Project Interim Injunction Measures - Research Monitoring and Evaluation Plan.
    b. Needs to address the full range of life histories and fish sizes, as well as long-term juvenile survival that encompasses smolt migrants leaving the Willamette River as outlined in Document 240-1.
    c. Should include methods such as the use of PIT tags and tag detection infrastructure within subbasins and at Willamette Falls.

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8. More aggressive implementation, evaluation, and adaptive management timelines and a firm commitment to timely completion of work that should have been done a decade ago.

Thank you for accepting and considering these comments. Our collective organizations share a vision of abundant, wild fish returning to a healthy and thriving Willamette River basin that supports the many cultural, economic, social, and ecological needs of our communities and the landscape many of us call home. But we will only succeed if the agencies take seriously the important role they must play in achieving this goal.

Sincerely,

Kirk Schroeder
Research Fisheries Biologist
Oregon Department of Fish & Wildlife ret.

Rich Domingue
Professional Hydrologist
National Marine Fisheries Service ret.

Jennifer Fairbrother
Conservation Director
Native Fish Society

Mary Stites
Legal Fellow
Northwest Environmental Defense Center

Jonah Sandford
Executive Director
Northwest Environmental Defense Center

Daniel Timmons
Wild Rivers Program Director
Wild Earth Guardians

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Part I: Technical Review and Comments; Recommendations by Kirk Schroeder, Research Fish Biologist, ODFW ret.

My focus in the review was to assess the DPEIS within the larger context of recovery and conservation of ESA-listed fish species.

Summary

The Corps' DPEIS for operations and maintenance of the Willamette Valley Project (WVP) does not fully address one of its primary stated goals of "*meeting obligations under the ESA to avoid jeopardizing the continued existence of ESA-listed species*." [page ES-9] Alternatives developed to provide fish benefits that would help to conserve and recover listed species do not encompass the full suite of feasible options. The Corps rejected any measure that would eliminate or abandon hydropower based on their interpretation that this secondary purpose of the WVP was inviolable; even if the primary purpose of flood control was not jeopardized. Therefore, options that might remove some hydropower capacity while still allowing flood control and providing a high likelihood of recovering populations were not considered, developed, or evaluated. For example, the Middle Fork Willamette has the greatest potential for salmon population recovery (and bull trout) because it contains a large area of high quality habitat that currently lacks upstream and downstream access. Removal of Dexter Dam, modification of Lookout Point Dam to allow evacuation of the reservoir and passive passage of juvenile and adult fish, and modification of Hills Creek Dam to provide upstream and downstream passage would have a high likelihood of meeting fish conservation and recovery objectives. Other measures that were not addressed in the DPEIS include deep, extended drawdowns at several reservoirs, modification to regulating outlets (ROs) to provide safe passage through the route, and modification to RO outlets and stilling basins.

The effectiveness of measures and alternatives in meeting objectives for listed fish species was evaluated by a suite of models and model outputs were used to compare the effectiveness among alternatives in comparison to a no action alternative (NAA). The models and parameters used to populate the models are based on very limited data, flawed assumptions, and parameters based on opinion (qualitative in nature). In addition, data and assumptions about existing baseline conditions are outdated and do not reflect current conditions. Outputs of life cycle models used to compare and assess alternatives were largely driven by the Fish Benefits Workbook (FBW) results. Parameters used in FBW were often based on very limited data, data from hatchery fish, and assumptions unsupported by empirical data. In particular, FBW assumed high efficiency of structural fish collectors and almost no mortality through trapping, handling, and transporting captured juvenile fish downstream of dams. These assumptions biased the FBW outputs in favor of structural passage measures over operational measures.

Although DPEIS acknowledges that paucity of data hampered the development of models for assessing effects of alternatives (at both site-specific and fish population levels), DPEIS includes no RM&E to address this weakness. Nor does the DPEIS propose RM&E to fully evaluate the long term passage survival of juvenile salmonids. RM&E for measures proposed in the DPEIS

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should be based on the RM&E plan developed under the Injunction by an expert panel that included Corps members (Willamette Project Interim Injunction Measures Research Monitoring and Evaluation Plan; Document 240-1).

Volitional downstream passage measures should have the highest priority over measures that require trapping, handling, and transporting juvenile salmon and steelhead.

Flow and temperature models and metrics are flawed and based on assumptions not supported by empirical data or that acknowledge the lack of data and information. The primary assumption used by the Corps is that water temperature in summer is higher than "historic" and "disrupts" life stages. From that assumption, the focus for establishing flow and temperatures is narrowed down to one species and life stage (adult spring Chinook salmon), and largely focuses on one attribute (pre-spawning mortality). This simplistic approach is counter to that of the underlying models being cited as the basis for developing metrics that recommends a broader approach and consideration of other species and life stages. Metrics should include thermal exposure and accumulation for juvenile salmon and steelhead rearing within reaches. Additional analysis of climate change scenarios should be conducted to evaluate potential shifts in timing of flow (peak and low) and temperature (seasonal).

The DPEIS fails to acknowledge that lack of action regarding revetment modification, relocation, or removal will continue to negatively affect salmonid populations and other native fish species. In addition, the DPEIS needs to clearly identify significant steps to address the negative effects of revetments, including securing funding as was identified in the 2008 BiOp and was to have been completed by the end of 2010.

Assessment of climate change is qualitative and cursory in the DPEIS in terms of effects on water supply, air temperature, water temperature, flow, habitat suitability, and the associated effects on species populations. The DPEIS relied on the life cycle models to assess water temperature effects on listed species downstream of dams but as was noted by NOAA, *"we did not include any estimates of future temperature changes under a climate change scenario."* The DPEIS should have developed some specific climate change scenarios (moderate to severe) to project potential effects on flow and temperature. These scenarios should then be incorporated into existing or new models to specifically assess the potential effects of climate change on species populations and viability under current conditions as the baseline, and then an assessment of the effectiveness of proposed measures and alternatives in meeting biological objectives.

The DPEIS is deficient in assessing risk to bull trout. Under near-term operations water releases at Hills Creek Dam are prioritized for nighttime RO releases, specifically to increase downstream passage for juvenile spring Chinook salmon. Bull trout will pass downstream as a result, therefore upstream passage must be provided, and a temporary facility should be put in operation soon.

The DPEIS overstates the effect of hatchery fish on naturally produced fish primarily based largely on the presence of hatchery fish as measured by proportion of hatchery origin spawners (pHOS). This metric can be a function of the abundance of either hatchery or natural origin fish. Emphasis should be on increasing the abundance of wild fish because hatchery programs are tied

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to mitigation requirements. Hatchery salmon will also be the source for several reintroduction measures, therefore hatchery production levels should be tied to the establishment of self-sustaining populations and natural production numbers adequate to support limited sport fishing. Instead, the DPEIS has tied decisions about hatchery production to increased accessible habitat (no guarantee this would result in increased natural production) or "improved fish passage" —this is an inadequate metric because fish passage is generally poor or even nonexistent so any positive change could be considered an improvement even if numbers of wild fish did not improve.

The DPEIS evaluates only the effects the various measures and alternatives would have on reservoir recreation. As noted, with hatchery reductions tied to metrics other than increased wild fish abundance, such reductions could occur with "improved fish passage" even if wild fish numbers do not substantially increase. Reductions in the hatchery programs without being offset by increases in wild fish abundance would impact sport and commercial fisheries. A benefit of increased wild fish abundance as a result of measures taken in the DPEIS could provide increased recreational opportunities in sport fisheries. However, the DPEIS does not include any assessment of this potential benefit in their analyses, which would likely have been addressed if the Corps was confident about effectiveness of proposed measures and alternatives to increase wild fish abundance.

Objectives

Objective 2 – increase opportunities for nature-based structures during maintenance of revetments. First, the objective as worded is vague and does not commit the Corps to any action. This objective should be stated in a manner that use of nature-based structures will be implemented. Second, this objective should also commit the Corps to identify opportunities to remove or relocate revetments and to work toward implementing those opportunities. The 2008 BiOp clearly stated that the Corps was "required to seek funds to carry out projects [restoration or removal] at high priority sites". The DPEIS should identify how the Corps will finally address its inadequate implementation of BiOp requirements (*see additional comments on revetments; see also general comment below*)

Objective 4 - states that the objective is to increase fish passage survival compared to current conditions. This is a wholly inadequate objective in terms of ESA-listed fish species. The reality is that current conditions result in no to very low survival at many projects, thus almost any increase in survival would meet this objective, whereas the survival necessary for self-sustaining populations upstream of the dams is likely to be much higher.

A more appropriate objective would be to take actions that will result in the establishment of self-sustaining population by providing effective upstream and downstream passage at dams (or wording to that effect). This objective should be to provide significant improvement of ESA-listed fish species with an ultimate goal of recovering the species.

Objective 7 – reduce spawning and rearing competition caused by hatchery fish. The objective should be reworded to recognize this is secondary to other higher priority objectives. First, this

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objective assumes direct competition and negative effects caused by the presence of hatchery adults and juveniles, and further assumes spawning and rearing habitat are limiting factors. Data are limited to draw such a conclusion. The mere presence of hatchery fish overlapping with naturally produced fish does not prove competition. Second, within the context of recovery achieving this objective would have limited effect on the recovery of wild populations WITHOUT other effective measures. Hatchery fish are not the primary limiting factor for the listed species. Obvious steps to achieve this objective would be to immediately reduce or eliminate hatchery fish programs. Yet, reduction or elimination of hatchery programs would likely achieve little in terms of recovering wild fish populations without taking meaningful actions on the primary limiting factors such as degraded habitat downstream of dams and lack of access to habitat upstream of dams. In addition, the Chinook salmon within the hatchery programs of the individual subbasins are closely related to the native populations, therefore they represent the genetic legacy of the subbasin populations and will be critical for re-establishing populations.

General – An objective should be developed to improve habitat downstream of dams through direct action and through water and temperature management. The DPEIS states in several places that habitat downstream of dams has been degraded, at least partially because of dam operations, but does not include an objective to address how the Corps will take meaningful actions either directly (such as through operation measures) or through funding and partnerships.

Alternatives

In the screening process, the Corps eliminated some measures based on their interpretation of Congressionally authorized purposes of the projects (such as modification or elimination of hydropower at some dams) or that would change flood risk management (such as removal of dams).

1. The primary purpose of the Willamette Valley Project (WVP) is flood control. Other purposes are secondary such as hydropower and recreation. The DPEIS should reflect this hierarchy in development of measures and alternatives.
2. Although some of the secondary purposes were Congressionally authorized, it is doubtful the intent of Congress was to provide a blank check to the Corps or to remove flexibility in the way in which the project as a whole operates, especially with new information or changing societal and environmental conditions. In addition, operation of the project must adhere to other federal laws such as Clean Water Act or Endangered Species Act that could conceivably result in elimination or abandonment of one or more authorized purposes.
3. Based on the recent court ruling, the Corps' interpretation of what is or is not "required" under Continuing Authority should be questioned. As demonstrated by the court ruling in Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al., No. 3:18-cv-00437-HZ, the Corps may not narrowly interpret their authority in order to avoid taking actions. Thus, their interpretation of whether or not secondary purposes are inviolable may be faulty and overly narrow.

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The Corps did not consider removal of hydropower from ANY dam because it "*eliminates or abandons one or more of the Congressionally authorized project purposes*". By this rationale, all identified project purposes would carry the same weight and thus could not be abandoned, even if conditions changed such that a purpose designated many decades ago was no longer feasible or viable, either economically or environmentally.

Did Congress intend to lock the Corps into hydropower production in perpetuity, regardless of economic or environmental costs? A recent BPA fact sheet about hydropower production of the Willamette Valley Project indicated that the system produced less than 4% of the regional power and that the cost to produce this power was about $0.31/MWH compared to $0.09 for the mainstem Columbia and $0.11 for the upper Snake River. The hydropower cost is likely to increase as additional fish protection is implemented. Does the Corps contend that Congress wanted to impose an undue burden on taxpayers by disallowing the Corps to make rational decisions about the economic viability of hydropower production? Does the Corps also contend that Congress would not have allowed the Corps to incorporate new information in planning a 30-year operations plan that is intended to improve fish populations? By refusing to consider the removal of hydropower at some (not all) dams, the Corps has not evaluated the full suite of measures to effectively provide fish passage.

Another example is that the Corps would not consider the removal of any dams. However, removal of Dexter and Big Cliff dams would not affect flood control, the primary purpose of the WVP, because the dams are only for re-regulating flow. The Corps rejects the removal of any dam on the basis that it would eliminate hydropower or other authorized purposes. If considered separately, the production of hydropower from these two dams is a very small fraction of the overall regional production at a significantly higher cost than that of WVP as a whole. It is unlikely that the intent of Congress was to consider the purpose of each dam in isolation rather than in the context of the overall purpose of the WVP.

Because the Corps did not consider measures that would benefit listed fish species if they included elimination of some hydropower or removal of dams, they failed to fully develop and evaluate alternatives that would likely result in benefit to listed species populations. The Corps' approach means that they did not take a basin wide approach to the effects of the WVP, did not evaluate true economic and environmental costs and benefits, and did not develop alternatives that would maximize benefits to fish. A multiobjective approach would evaluate options such as how much flood control or hydropower capacity would be lost with removal of some dams and/or elimination of hydropower at some dams versus benefits achieved for fish recovery (e.g., Kuby et al. 2005). The DPEIS should include such analyses to provide a complete picture of costs and benefits, and provide a framework for evaluating a full suite of alternatives.

Missing Alternatives

It follows from the previous discussion that the DPEIS should include an alternative that would have a higher probability of increasing Chinook salmon populations in the Middle Fork Willamette subbasin than those proposed. Recovery of salmon in the Middle Fork Willamette

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subbasin is critical for the viability and persistence of salmon in the UWR, and historically the population in this subbasin was one of the most abundant. This alternative should include removal of Dexter Dam and operation of Lookout Point and Hills Creek reservoirs as strictly run-of-river (particularly LOP). This alternative should include identifying modifications to Lookout Point Dam that would allow for almost complete evacuation of the reservoir and would provide volitional passage of juvenile and adult salmon. The dam could still be used as temporary flood control with release of stored water timed to facilitate natural, volitional migration of juvenile salmon. Temporary adult collection could be incorporated into volitional adult passage at the dam until such a time that homing of hatchery salmon to Willamette Hatchery is shown to provide adequate broodstock for reintroduction and mitigation purposes (with ultimate goal of restoring self-sustaining populations that provide ecological and recreational benefits). Modifications of Hills Creek Dam should be developed to provide volitional passage, including, but not limited to, removal of the powerhouse to provide more flexibility in developing operational options for juvenile fish passage and/or modifications to allow evacuation of the reservoir. Improved upstream and downstream passage at Hills Creek Dam would also benefit bull trout, thus further elevating the importance and priority of providing full access for the Middle Fork Willamette subbasin. A temporary trapping facility should be designed and installed at Hills Creek Dam in the very near future to provide upstream passage for bull trout, especially considering that operational changes have been made at the dam to increase downstream passage (*see **Bull Trout** section).*

Alternatives should be developed or modified to implement full drawdown similar to Fall Creek Dam at other dams of the WVP. Full drawdown has been shown to be an effective volitional passage measures and should be implemented at other dams. Modifications may be required at dams to facilitate drawdown. Therefore, alternatives should be modified to include consideration of deep drawdowns and actions that would be required to implement the measure so that this measure can be evaluated.

Alternatives should be developed or modified to implement improvements to regulating outlet (RO) passage routes. Measures to achieve more effective and safe passage may include lining RO routes, modifying ingress and egress routes, extending RO outlets, modifying stilling basins, etc.

Volitional passage

Priority at all projects should be for volitional passage, whether through operational changes or structures. If operations prove to be insufficiently effective for juvenile fish passage, then structural options should be explored to provide volitional passage at or close to the dam. Options that require handling and transporting juvenile fish could result in extra stress and mortality to juvenile salmon and steelhead. In addition, such capture techniques would have to be highly effective over a range of flow/reservoir conditions and over a range of variable sizes of juvenile fish entering the reservoirs, including fry.

For example, under natural conditions some newly emerged fry begin to volitionally migrate long distances downstream. Migration does not appear to be driven solely by displacement

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through competition for space, but is likely an inherent dispersal behavior that results in an overall increase in carrying capacity because fish are using multiple habitats throughout the watershed. This behavior should be considered in development of measures, operational alternatives, and structural passage facilities.

Among the structural considerations, the floating fish collector and bypass pipe used for juvenile salmonid passage at North Fork Dam on the Clackamas River should be considered for juvenile fish passage at some of the upper Willamette dams. The bypass pipe passively transports juvenile salmonids downstream past the tailrace of the last of three dams in the Clackamas complex. This option, including use of a bypass pipe, would likely require a change in reservoir management but should be evaluated in terms of costs and benefits.

Evaluation of Alternatives

The primary tool of evaluating the effectiveness of alternatives on fish populations was through various models. General comments follow and comments on specific models and model parameters are presented later.

In general, the DPEIS oversells the models as an "quantitative framework" for evaluating the effectiveness of alternatives in meeting ESA-specific objectives. First, the models are not wholly quantitative because some of the parameters are not derived from data but rather from professional opinion (i.e., qualitative). Many of the parameters in all models, including the Fish Benefits Workbook (FBW), are based on limited data with considerable uncertainty in the values used for the parameters. Assumptions of the models are often based on old river or reservoir conditions and untested structural or operational measures; again, with limited acknowledgement or estimates of uncertainties about the assumptions or effects of assumptions on results. It is beyond the scope of this DPEIS review to thoroughly assess the models, the numerous parameters and values, or the analytical frameworks. Reviews of both the FBW and the NOAA Life Cycle Model were conducted in 2014 by the Independent Scientific Advisory Board (ISAB). In contrast, Integrated Passage Assessment model (IPA) has not been peer-reviewed or published and should be considered preliminary and used with caution.

The DPEIS contends that because major factors outside the alternative measures are the same, that the model outputs "*inform the level of effects each alternative would have on the species at a population level.*" (page 5.4). This is not completely true. First, this assumes that the models comprehensively capture aggregate effects of factors such as hydrology, river geomorphology, etc. As will be discussed below, the parameters used to populate various models are rife with uncertainty. Thus, the models may not accurately describe the effects of either alternative measures or other major factors in the basin. That is, if there is a disparate effect of a shared major factor on a life stage that is compounded by a particular alternative measure, then effects may be different depending on the alternative even in a shared environment. This, in turn, could have population effects that partially reflect watershed factors and partially reflect factors related to alternatives. Carryover effects can result in differing survival within the same, shared environment such as the mainstem Willamette River, and may be influenced by factors such as the body length or life stage of individual fish. Therefore, the population-level effect may differ

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within the context of shared major factors (water temperature, flow, etc.). The DPEIS overstates the robustness of various models and/or the model capacities for capturing aggregate effects.

The Corps has spent considerable time and money funding iterations of models based on data that is 5 years old and sometimes much older, rather than adequately funding or supporting studies that would produce new data to populate models with data-derived parameters and to address uncertainty within parameters. In addition, data used to develop parameters may be outdated or may have been collected under conditions that no longer represent current conditions.

Although simplification of models can increase their effectiveness for comparing among specific measures, there is also an inherent weakness in not capturing the complexity of life histories. For example, assumption that spring Chinook salmon migrate as smolts in their second year (yearling) may provide one level of comparison among measures but may result in mistakenly identifying a measure(s) as having greater benefits to fish. In this case, research has shown the importance of the subyearling life history in adult returns, many of which rear as juvenile fish in late winter and spring in mainstem reaches. Although a model might show that a measure(s) is more beneficial for yearlings, it might mask the jeopardy that the same measure(s) might have on other life histories, with a potential net negative effect when considering the cumulative contribution of all life histories.

Fish Benefits Workbook

The FBW is the primary model used to evaluate passage effectiveness of operations in passing juvenile fish and relies on the ResSim hydrological model for reservoir level, outflow, and route distribution. Results are then used in the Life Cycle Model (LCM) and Integrated Passage Assessment model (IPA) to evaluate the effectiveness of measures and alternatives on species populations. The 2014 review of the FBW by ISAB noted several weaknesses:

- Lack of dam-specific and fish-specific (e.g., life history, size, behavior) data for parameter estimates.
- Related to the above is use of surrogate data either from other dams, other fish, or other studies outside the basin with little justification for why values were chosen and inconsistency in what data were used. Heavy reliance on studies at Cougar and Detroit dams applied to other dams.
- Large data gaps and parameters are used without an assessment of accuracy or uncertainty.
- Questions about reliability of survival estimates with lack of robust data.
- FBW assumes that juvenile fish have to pass at certain times within their life stage or they must wait until a later life stage. Thus, the fish that arrive at the forebay in a certain time window are assumed to pass even if reservoir conditions are unfavorable rather than that the fish might hold in the reservoir and pass as soon as conditions are favorable within the same life stage period as when they entered the reservoir. Effect would be that some operations would be assumed to be ineffective and result in poor survival.

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- ResSim is based on historical record, which may not effectively describe conditions under recent conditions and those anticipated to occur with climate change.

It is unclear from the DPEIS and associated appendices how many, if any, of these weaknesses have been addressed or accounted for in the FBW. Obviously, any problems with parameters used in FBW would be compounded when applied to life cycle models to estimate the composite effects and/or benefits of alternatives on species populations.

Parameter inputs (such as dam passage efficiency and route survival) are point estimates, whereas existing studies indicate a wide range of results. Therefore, although an input such as survival has a wide range of uncertainty, that uncertainty is not captured in FBW. Nor does the FBW attempt to capture how change in operations that affect reservoir level might affect fish behavior and distribution within the reservoir, thus affecting arrival timing to forebays and size of fish. The model assumes fish behavior and distribution based on studies that were largely conducted under different reservoir conditions.

Parameter values are generally based on tagging studies. Some of the cited studies used large hatchery fish (and even other surrogates such as hatchery rainbow trout) and were often conducted under operating conditions that are different than those being proposed. In addition, there are no studies for fish <60 mm. FBW does not account for delayed or latent mortality as a result of dam passage (nor do the life cycle models adequately address latent mortality from dam passage).

FBW assumes run timing and size of fish arriving in the forebay area and contains parameters for the model. However, much of the information is based on studies that were conducted during different reservoir conditions than what are being assessed, and may be based on large fish, limited data, and experimental releases of study fish whose size and behavior is likely to differ from that of naturally produced juvenile fish entering the reservoirs. The uncertainty about how juvenile fish will respond to changes in reservoir conditions as a result of implemented measures is not adequately addressed. The effect of changes in reservoir elevation, temperature, and flow current within reservoirs on behavior and migration of fish (size, timing, numbers) is uncertain. NOAA acknowledges that aspects of juvenile fish behavior in reservoirs and the initiation of downstream migration have "considerable uncertainty" because of the "absence of relevant empirical data". [page E444]

FBW assumes high efficiency of juvenile fish collectors at the dams based on data from a limited number of sites and years. The downstream passage efficiency for alternatives that included fish collectors was derived from a logistic regression equation of Kock et al. 2019 developed from 7 sites. This equation was based on measures of collection efficiency from tagging studies and factors (covariates) that affected collection efficiency (forebay area, depth, temperature, etc.). Collection efficiencies used in the DPEIS were generally higher than most of the efficiencies reported in Kock et al. 2019. Chinook efficiency presented in the main FBW text of Appendix E ranged from 0.54 to 0.82 for Alternative 1 and 0.59 to 0.96 for Alternative 4. Additional estimates were reported in table footnotes in the Chinook and steelhead supplements of FBW appendix, but it was unclear if these included use of guidance nets. These estimates ranged from

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0.53 to 0.80 (mean = 0.69 for 5 dams) for Alternative 1 and 0.53 to 0.96 (mean = 0.81) for Alternative 4. Estimated efficiencies were 0.90 to 0.94 for steelhead. In contrast, the highest efficiency in Kock et al. 2019 was reported as a composite 0.93 for North Fork and River Mill dams on Clackamas (but just 0.60 for Chinook at North Fork Dam), and 0.75 to 0.88 for Baker dams in Washington, but those were for coho and sockeye and a single life stage. Collection efficiencies for other sites were generally around 0.30 or much lower. It should be noted that North Fork and River Mill dams do not fluctuate much (1 m or less), have relatively small reservoirs, are run-of-river, which provides current through the reservoirs, and the North Fork system uses a lead net. Because collectors in the Baker dams are operated to capture two species and a single life stage, they can target operations for a limited seasonal migration period. In addition, these systems use extensive netting to reduce the effective size of the forebay, guide fish to the collector, and prevent fish from accessing alternative routes. In summary, the FBW assumes a high efficiency of the structural fish collectors that appears unsupported by existing data from other sites.

In addition, FBW assumes a 98% route passage survival. It is not clear if this assumption is for all fish that enter the collector system or only those that survive; nor is it clear if this high survival accounts for stress of handling, transporting, and releasing juvenile fish or delayed mortality after release. This high survival assumes almost no effects of capture, handling (likely including tagging and genetic sampling), transportation, and release of juvenile salmon and steelhead.

In general, FBW biases passage efficiency and survival in favor of structural measures based on limited data and untested assumptions; and assumes that characteristics of the small number of successful collectors used in the Northwest can be duplicated at WVP dams despite physical differences (reservoir size and fluctuations), operations (run of river vs flood control), and target species and life stages. It should be noted that the Corps was also optimistic about the efficiency of an experimental floating fish collector that was very expensive and was an almost total failure in attracting and collecting juvenile salmon.

Life Cycle Model

Life cycle modeling attempts to estimate the overall survival of juvenile fish under varying measures and alternatives and provide estimates of population viability. These models attempt to track the full life cycle of salmon and steelhead using various age-structured demographic parameters based on factors such as survival and productivity. Results of FBW are incorporated into the models with the intent of comparing the overall effect of measures and alternatives on the viability of salmon and steelhead populations.

In general, the DPEIS overstates the robustness of various models and/or the model capacities for capturing aggregate effects. All models must be populated with parameters or values. Much of the data used in the DPEIS models is based on limited information, thus each parameter used to populate the models has an error factor, including some which are quite large. Most of the parameters are based on limited data, sometimes outdated data, and data from other basins. Some

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of the parameters are not based on data and represent a best guess, thus have no measure of uncertainty and are more accurately qualitative than quantitative.

Overall, data for spring Chinook salmon (adult spawners and life histories, juvenile rearing, migration, life histories) is more complete than for winter steelhead, where few data exist. However, data for Chinook salmon are incomplete or missing for all life stages, especially fry. Both species have complex freshwater life histories and associated behaviors (little is known about winter steelhead) that cannot be adequately captured with models and this uncertainty should be highlighted throughout the DPEIS.

A key model parameter for the life cycle model is spawning and incubation habitat, but NOAA notes that this is largely unknown so they used surrogate information about spawning based on historic and recent habitat surveys that assessed spawning capacity by quantifying suitable gravel size, depth, and gradient [page E-432]. Based on my extensive experience of surveying spring Chinook salmon and steelhead spawning, it is difficult to accurately assess where these fish will spawn just based on physical stream surveys. These fish can spawn in small, isolated patches of gravel that would likely be missed during surveys of physical characteristics. Regardless, the lack of empirical data on a key model parameter highlights the inherent uncertainty of model outputs.

Uncertainty is acknowledged in Appendix E. NOAA notes in several places the uncertainty about model parameters and outputs; e.g., "*The underlying uncertainty in many of the parameters used in developing this life cycle model contributes to the overall uncertainty in the estimates of abundance and viability*." [page E-412] The section on the Integrated Passage Assessment model concludes: "*There remains considerable uncertainty in all of these parameters. Should the priors formulated for them poorly represent the true values, the PMs [performance measures] computed for the EIS alternatives could deviate considerably from what they should be and even the actual rankings of the EIS alternatives in terms of the PMs could be quite different from results found in this report*." [page E-761] Although uncertainty about model parameters and outputs was emphasized in several places in Appendix E, the main body of the DPEIS makes no mention of uncertainty and treats model outputs as more or less a definitive "quantitative framework".

Despite the amount of effort in modeling various scenarios and their effects on fish populations, the main driver of outputs differentiating effects of alternatives was the FBW input: "*The FBW was the major source of differentiation between alternatives.*" [E-530] Given the weaknesses and biases of the FBW, the results of the life cycle modeling should be viewed with caution.

Because alternatives are measured against the no action alternative (NAA), the baseline that accurately describes existing conditions is critical. However, data to develop and fit models under the NAA state were very limited (e.g., lack of data on juvenile abundance and survival) and relied on redd counts to estimate adult production for both Chinook salmon and steelhead (steelhead data are particularly problematic). In addition, time series were relatively short. NOAA also noted that "*the NAA alternative does not necessarily capture the recent dam configuration and operations*." [page E-423] Thus, comparing among alternatives and benefits

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accrued by enacting measures under various alternatives as compared to NAA may unduly overstate benefits of the alternatives.

Integrated Passage Assessment model (IPA)

Problems with the NOAA life cycle model are similar or compounded in the IPA model. These include:

- Analysis and use of data from five and more years ago with little or no new data to reflect recent conditions.
- Reliance on parameters that are set by the model developers using assumptions about factors such as fish survival, fish migration, growth, life stage transitions, etc.
- Parameters based on flawed assumptions is a major issue that weakens the life cycle modeling. Model parameters drive the results, therefore errors in setting parameters using flawed assumptions become compounded throughout the model and affect the outputs.
- Many of the base assumptions are based on expert opinion and parameters are developed with little empirical data from the Willamette.
- IPA model is Bayesian, which "borrows" information from other sources or studies through prior probability distributions for a parameter being estimated for which there is no or limited data. However, much of the information is set by the users which can greatly affect the results.
- These types of models require large data inputs to work. However, none of the models used in the Willamette have anywhere near the appropriate data inputs; therefore, they rely heavily on inputs from limited data, numbers set by expert panels, or data from other basins/studies.
- All these issues are even more problematic for winter steelhead because data and knowledge are much more limited than for Chinook salmon.
- As an example, freshwater survival is a key parameter for life cycle models.
    - The IPA uses release and detection data from releases of PIT-tagged hatchery Chinook salmon. Generally, two or more detection sites or events within freshwater are used to estimate freshwater survival. IPA used detection of returning adults (small numbers) at the Willamette Falls fish ladder as the second detection site. This requires estimates and assumptions about estuarine and ocean survival that are largely derived from hatchery salmon.
    - The IPA starts with detection at Willamette Falls of juvenile PIT-tagged hatchery Chinook salmon as the first detection point. The hatchery salmon were released below dams as part of a paired release study to estimate dam passage survival. As mentioned, the detection of a limited number of returning adults from these releases was used in the estimate of freshwater survival.
    - Because of these limited data statistical 're-parameterization" is required to account for factors such as first ocean mortality, ocean harvest, terminal net and recreational fisheries harvest and incidental mortality of wild fish, etc. (but note that the model apparently did not attempt to account for pinniped mortality known

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to occur at Willamette Falls). Data often originates with hatchery fish, which requires additional "adjustments".

- Additional development of informative priors is required because of limited available data for factors such as river-smolt and smolt-adult survivals, tag detection probabilities, tag loss and mortality, and difference between hatchery fish (source data) and wild fish as it affects parameters such as survival.
- It should be noted that in some cases data were available, such as age composition of returning wild fish, but instead input values were set by an expert panel without explanation.

As an example of limited data or information that was noted in the development of IPA model:

- No information on how changes in dam passage efficiency may affect the passage migration of different life histories of juvenile salmon and steelhead, thus their contribution to the population (and consequent contribution to population resilience and persistence). [page E-620]
- Lack of knowledge about survival of juvenile salmon and steelhead in reservoirs. [page E-620]
- Proportions of juvenile fish life stages that migrate to forebays and those remaining in the reservoir were derived from expert panel values based partially on data from rotary screw traps above and below dams. [pages E-617 & E-621] Note: Trap catches are generally biased to small fish that are more easily entrained rather than larger fish that can more easily avoid the traps. In addition, little data exists on efficiency of traps, either composite or by size of fish, and in cases where tests were conducted the variance was large. Trap data downstream of dams is even more limited. Juvenile salmon distribution within some reservoirs was assumed from studies but studies were often conducted under reservoir conditions that are different from recent years or than what are being proposed in the alternatives.
- IPA assumes that "*fry migrants that pass dams in spring are more likely to continue downstream during spring and smolt than reside in lower reaches over the summer…*" [page E-621]. Note: The fry migrant life history as described in Schroeder et al. 2016 leave natal areas shortly after emerging from gravel and migrate often long distances (up to 100 miles) to rear in downstream reaches of tributaries and in the Willamette River. They rear for several months and migrate as subyearling smolts in spring. Therefore, if dam passage measures were effective for fry migrants, many of these fish would migrate through reservoirs to pass downstream to rear. Otherwise, they would be trapped in the reservoir and should really be considered a different migrant type characterized by being trapped to rear in a reservoir instead of rearing in downstream river reaches.
- IPA also assumes "*that smolting starts once movement downstream occurs*." [page E-621] Note: All migrant types of spring Chinook based on the McKenzie population included some rearing in downstream reaches during migration with fry migrants and fall migrants spending the most time. However, most yearling salmon leaving the natal areas also appeared to rear at varying times in downstream reaches before reaching Willamette Falls. The concept of fast migration to Willamette Falls is a holdover from studies using tagged hatchery salmon.

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- For outplanted adult salmon, the IPA assumed "*no mortality effects associated with the trap-and-haul process*." [E-629] Note: This is a false assumption and there is abundant data available from subbasin-specific outplant programs that indicate a range of mortality associated with handling, transport, and release of adults.

The IPA noted that "*most of the input parameters were from reports containing estimates generated from expert opinion. The parameter estimate distributions for the many LCM parameters ranged from broad to very narrow, but overall most parameter distributions were broad and uncertain for all sub-basins*." [E-689] Again, despite the acknowledgement of model uncertainties, the DPEIS ignores this in using model outputs as more or less definitive estimates of the effects on species populations.

Extinction risks were calculated in the IPA for the 30-year span of the operations plan. Because the IPA model is "*specifically for the population components that spawn above the dams*" [page E-598], the evaluated extinction risk is only for this component of the population so it is of limited use in evaluating the effects of alternatives on subbasin populations. In addition, salmon upstream of most dams will be supplemented with hatchery fish for a number of years. It really makes little sense to estimate extinction risks for this subset of the population.

In addition, the analysis covered an inadequate period to be of any use. Extinction risks in the IPA model were evaluated for just the 30-year span of the operations plan at the direction of the Corps: "*The extinction risk PM [performance measure] was calculated by determining the 4-year moving mean NOR abundance across years 16-30 of each simulation run, with the population deemed to go extinct if this mean abundance fell below a quasi-extinction threshold (QET) in those 15 years*." [page E-605] The standard for assessing extinction risk is for 100 years. Given the generation time of salmon and steelhead of 3-6 years and age-structured populations, this time frame provides little useful information to evaluate the effect of implemented measures on risk, especially considering the long lead time (and probable delays) in implementing some measures. Regardless, it is of little use to assess extinction risk for only the salmon and steelhead upstream of the dams. It would be more informative to assess the contribution of salmon and steelhead upstream of the dams to the overall population in terms of biological metrics.

Water Temperature and Flow

Effects of water temperature and flow on adult and juvenile salmonids is complex and varies seasonally as well as annually. Models have been developed to assess the effects of seasonal flow and temperature on different species and life stages (SWIFT). One challenge is to decide how to allocate water during deficit and inadequate water years. As with other models discussed in this review, parameters used as inputs in the model are limited and assumptions are required about fish behavior, fish habitat use, and response to flow and temperature in order to simplify the models in the absence of empirical data. Although these models can be used as one tool for developing options, the Corps has presented results of the model as a given with little discussion of uncertainties associated with the outputs. SWIFT was designed to be used as a structured decision model with inputs from experts and stakeholders (DeWeber and Peterson 2020; Peterson et al. 2022). The Willamette model was designed to show managers how to make

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real-time decisions (thus it is a structured decision model) and to set priorities for future research, such as targeting uncertainties illustrated by the model. It was not intended to be a static, measure-driven model. Implementing decision structured models is an iterative and long-term process that requires input and feedback from a spectrum of managers, with additional data inputs to fill identified gaps (DeWeber and Peterson 2020).

Although effect of flow on two species and life stages were modeled (Peterson et al. 2022), the Corps focused on a single species and life stage: "*The adult UWR spring chinook salmon species and life stage were chosen as the priority in the development of the fish flows.*" [page A-21] Decisions about flow and temperature management need to be more holistic, and to consider other species and life stages, and to identify data needs to more accurately assess the biological effects. More research is needed on habitat use, occupancy, and capacity by juvenile Chinook and steelhead specific to the Willamette Basin. Without these data, flow management focused solely on adult Chinook salmon with an intent to reduce pre-spawning mortality may negatively affect rearing and migration of salmon and steelhead juveniles. One potential consequence is negative effects on certain life histories, some of which may become more important in a warming environment even if they are a relatively minor component under present conditions (e.g., Cordoleani et al. 2021). RM&E should be targeted to collect pertinent information on habitat use and limitations of juvenile salmon and steelhead. Depending on the model used, assumptions, and ability to populate models with empirical data on life stages, results could indicate more sensitivity of fish to either flow or temperature. For example, results in Crozier et al. (2021) suggested that carrying capacity of smolts was limited by flow more than temperature.

DPEIS suggested that effects of water temperatures on spring Chinook and winter steelhead "are generally understood" [page N-42]. This may be generally true in terms of thermal tolerance and physiological effects that are tied to laboratory studies, but it would be foolish to broadly assume that juvenile salmonid habitat use, for insistence, can be determined with temperature modeling based on data from a few river gages. Other geomorphic features such as gravel bar development, floodplain area and inundation time, ground water exchange, and hyporheic flow may influence temperatures (e.g., Burkholder et al. 2008), which may then provide suitable habitats that could be discounted in simplistic models and limited field data. Therefore, updating flow-survival models with recent data on habitat needs for juvenile salmon and steelhead and collecting new data could lead to different results than the present focus on just adult Chinook salmon and pre-spawning mortality.

As an example, the model assumes a sequential occupancy of habitat by juvenile fish; i.e., as habitat is filled then fish move downstream to the next available habitat space. This greatly simplifies what we know about Chinook salmon movement and habitat use. Research has shown that newly emerged fry begin to volitionally migrate long distances downstream. This migration may be influenced by density displacement or physical displacement from high flows, but it may also be an inherent dispersal behavior that results in morphological differences between migrant types (Billman et al 2014; Unrein et al. 2018; Cogliati 2018). Dispersal of fry from spawning areas that were historically in the upper parts of watersheds would result in an overall increase in carrying capacity because fish could use multiple habitats throughout the watershed. Additional

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research is needed to relate flows more directly to biological responses of salmon and steelhead, to complement the use of surrogate metrics (means objectives) such as cumulative thermal exposure, estimated habitat capacity affected by flow changes, etc. (DeWeber and Peterson 2020). Although the DPEIS mentions the need for additional study and research, it does not specifically commit to RM&E, but rather leaves it to WATER and other processes, which has not worked well for implementing RM&E under the 2008 BiOp.

Measure 30

Flow targets should be based on a frequency distribution of sufficient and deficit water years from recent data instead of a full historic record to more accurately reflect prevailing conditions. In addition, a specific analysis of how climate change is likely to change this frequency is needed based on a range of probable scenarios encompassing moderate and severe climate change scenarios. Frequency distributions should also be analyzed for other intermediate conditions than just "wet" and "dry". Flow targets as affected by difference between wet and dry year classifications is 40% overall but can be as high as over 110%. These high differences in magnitude of flow can result in negative changes to fish abundance and population demographics (Poff and Zimmerman 2010). Mismatches between flow and life history traits/migration can affect survival of juvenile salmonids.

Additional metrics are needed for flow and temperature relative to adaptive management needs. The DPEIS presents just percentage of days below flow target and contribution of dam releases to flow, and 7-day mean daily maximums as percentage of days below reach targets and percent change from pulse releases [Table 5-1, page N-41]. DeWeber and Peterson (2020) presented additional metrics to assess the thermal exposure and accumulation for juvenile salmon and steelhead rearing within reaches. These included proportion of juvenile Chinook salmon migrants exposed to temperatures >18° C and adult salmon accumulated degree days as well, and juvenile steelhead exposed to temperatures >15° C in April-May. As mentioned earlier, studies should be conducted to relate flow and temperature more directly to biological responses of salmon and steelhead. Flow and temperature metrics should also be evaluated in relation to climate change scenarios in terms of effects on thermal exposure and accumulation, and on annual and monthly changes in magnitude, timing, and frequency of flow metrics.

Additional analysis of climate change scenarios should be conducted to evaluate potential shifts in timing of flow (peak and low) and temperature (seasonal). These analyses should be projected beyond the 30-year time period as a measure of whether or not proposed measures and alternatives would be sufficient to meet climate change challenges. This may be especially important for alternatives that propose large and expensive structures.

Water temperature

"*WRB rivers have been historically warmer in the summer than under current conditions. Fish adapted to the historical, warm summer conditions; therefore, the unseasonably cool water released from the reservoirs disrupts their life stages in summer.*" [Page 2-15]

This is an underlying assumption that serves as a basis for developing and choosing flow and temperature measures, but there is so much wrong with the way these sentences are written:

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1. Truly historic data on water temperature do not exist. Attempts have been made to estimate water temperature during early European settlement for the lower Willamette River, but these are based on limited water temperature measurements and extrapolations, and are for the lowest reach of river (Talke et al. 2022).
2. Available data (which is limited) indicate that mid to late summer water temperature is likely lower because of the release of cool water from reservoirs, but the effect is most pronounced in reaches close to the dams. Moreover, these data do not reflect conditions during pre-European settlement history under which native fish would have evolved.
3. Data do exist on how development of the river basin has resulted in the loss of channel complexity, channel length, loss of riparian forests, loss of connectivity to floodplains, loss of side channels and alcoves, etc. In addition, conversion of floodplains to agriculture (including widespread drainage of seasonally flooded land) would have affected the quantity and quality of groundwater and subsequently hyporheic flow into river channels. It is wholly conceivable that summer water temperatures in the historic Willamette River and the lower reaches of the eastside tributaries were similar (or possibly lower) that of the presently augmented river, at least in the upper Willamette Basin river reaches. The historic river conditions would have consisted of multiple channels with borders of mature riparian forests, numerous side channels and alcoves, and groundwater input via hyporheic flow that would have been replenished each winter with a vast network of flooded prairies and seasonal streams.
4. If the attempt here is to explain how cool water may slow the upstream migration of adult Chinook salmon to fish traps and hatcheries, one must put this in the context of the likely historic migratory behavior before dams. When unimpeded by dams, spring Chinook salmon tend to migrate quickly to reach holding areas in upper river reaches by late spring to early summer. Because of dams, Chinook salmon can no longer access the upper reaches of the watersheds and must hold in the lower reaches. Thus, the true "disruption" to this life stage is the presence of dams that block access rather than changes in water temperature (which are also an effect of dams).
5. To the extent that some native fish species have adapted to warm summer water conditions as contended, it is unlikely that the limited cooling by dam releases would truly "disrupt" the life stage of native fishes. For example, during late summer and early fall, thermal refugia were probably much more abundant in the historic lower eastside tributaries and Willamette River than during pre-dam (post-European) and post-dam periods. The likely behavior of native fish in summer would be to seek out cool water, including possible upstream migration into higher reaches of eastside tributaries.
6. Release of water from dams that is relatively cool would not disrupt the juvenile life stage of native fishes such as salmon and steelhead. Cool water from dam releases is unlikely to be outside the range of summer temperature variability in which the native species evolved.
7. In addition to blocked access to upper watersheds (resulting in high pre-spawn mortality of adult spring Chinook), a major disruption of life stages via release of water from dams is the early emergence of Chinook fry because the released water is warmer than normal incubation temperatures from dam releases. Another effect of dam releases are effects of

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flow fluctuation and total dissolved gasses on spawning adults, eggs, and newly emergent juveniles.

Release of water from dams to increase water temperatures for attracting adult salmon upstream to fish traps and hatcheries.

Such releases must balance the increase in water temperature to draw fish upstream and an increase in water temperature that could increase pre-spawning mortality.

Release of water in fall with objective of preventing redd dewatering. [page 2-10].

Releases must balance between providing enough water to access primary spawning areas and flows that may encourage fish to spawn in shallow water and side channels at the higher flows that may then become dewatered later after fall drawdowns are achieved. Spawning surveys to determine dates of peak and late spawning (and proportions of spawners within time periods) should be conducted and these data used with water temperature data to estimate development and hatch timing of eggs in redds downstream of dams. These data would be used to adaptively manage flow and prevent dewatering during incubation.

To the extent that operations are insufficient to achieve temperature objectives, and structural temperature control is considered, the structures should be developed to incorporate juvenile fish passage to the extent possible. That is, construct one multi-purpose structure rather than two stand-alone structures.

Flow relative to Alternative 5

The alternative would generally lower spring flow in dry years, shifting water from spring (Apr-Jun) to summer, with higher summer flow in almost all years (July-Oct). Assessment is needed on the potential effect on rearing for subyearling and yearling Chinook smolts, and juvenile steelhead in areas downstream of dams, including the Willamette River. For example, a large component of McKenzie spring Chinook migrate to the lower reaches as fry, rear through spring and migrate in May- mid July as subyearling smolts (Schroeder et al. 2016). Similar migratory patterns were observed in the Santiam subbasin for Chinook salmon spawning downstream of the dams. Subyearlings contribute to adult returns, with proportions varying within annual returns and among brood years. Other life histories migrate from natal areas in fall and early winter, rear, and migrate to ocean in March-May, thus also rear in mainstem habitats in the spring.

Data collected on juvenile Chinook salmon rearing in the Willamette River indicated that high spring flow resulted in higher survival to Willamette Falls. In years when flow remained high and water temperature was lower than average (e.g., 2008 with late snowmelt and 2010 with late heavy rains), juvenile spring Chinook salmon generally grew slower than in average years and migrated as subyearling smolts later, but their survival to Willamette Falls was higher.

Increased flexibility for reservoir and flow management should be incorporated in dry years with priority for storage rather than flood control starting in mid to late winter, depending on other objectives for fish passage measures in individual dams/reservoirs such as drawdowns. Available

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information on snow pack, precipitation, trend data, and precipitation forecasting models should be used to determine the probability of dry conditions in late winter and spring. These data would be used real-time to increase storage and decrease the probability of avoidable water shortage for flow management. In the past, the Corps has often released runoff from late winter and spring rains/snowmelt to adhere to their rule curve, even when all data and on-the-ground conditions indicated the prevalence of overall drought conditions. Thus, water that could have been stored was released, resulting in water shortages later that were needed for critical fish needs such as spawning. Flexible water management decisions are currently being implemented for Cougar Reservoir based on guidance in the injunction RM&E plan, Document 240-1. The Corps and NOAA are using hydrologic data from April and May to provide a delayed refill of Cougar Reservoir after the early spring drawdown to facilitate juvenile salmon passage. Data on snowpack, average weekly flow, extended water supply forecasts, and real-time fish migration data from trapping upstream and downstream of the project are all being used to decide when to begin refill in order to delay as long as possible, yet still reach summer reservoir level targets.

In addition, summer flow should be a lower priority than spring flows in dry years. Mainstem Willamette flow targets were initially developed for river transportation and later were used for pollution control by providing adequate "diluting" flows. Therefore, lower mainstem minimum flows should be considered during deficit water years.

Revetment Measures

These measures have been identified for decades. The 2008 BiOp set a date of December 31, 2010 to complete an assessment of revetments and identify sites with potential for modification, and also directed that agencies be "*required to seek funds to carry out projects at high priority sites*." Yet, the DPEIS continues to make excuses such as citing Continuing Authority Program requirements for funding and need for non-federal sponsors, or lack of funding, or need for additional technical analyses (DPEIS 2-55). First, one needs to question the Corps' interpretation of what is or is not "required" under Continuing Authority. As demonstrated by the court ruling in Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al., No. 3:18-cv-00437-HZ, the Corps may narrowly interpret their authority in order to avoid taking actions. Thus, their interpretation may be faulty and overly narrow. Second, even if one accepts the limitations, it is incumbent on the Corps to more actively seek funding and sponsors in order to make progress on revetments and subsequently habitat improvements. Because some work has been done to identify potential habitat improvements from modification or removal of revetments, the Corps needs to explicitly identify measures and timelines in the DPEIS for completing the work that was supposed to have been done under the 2008 BiOp, including securing necessary funding.

The 2008 BiOp clearly stated that the effect of keeping revetments in place without any modification would "*continue to diminish habitat suitability for multiple life stages of UWR Chinook and UWR steelhead, and to limit the habitat's capacity to support larger and more productive salmonid populations*." The DPEIS fails to acknowledge that lack of action will continue to negatively affect salmonid populations and other native fish species. In addition, the DPEIS needs to clearly identify significant steps to address the negative effects of revetments

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beyond the vague wording of "*considering Nature-based [sic] engineering*" (2-54), or a vague and excuse-ridden discussion of altering revetments (2-55). The DPEIS needs to include a firm commitment and timeline to complete work that should have been done over a decade ago. The DPEIS should more explicitly identify steps to implement the measures and should include measures such as complete removal of revetments and re-location of revetments away from river banks to allow more flooding, movement of river channels, and increasing hyporheic flow paths and exchange between surface and groundwater (e.g., Singh et al. 2018). These actions would necessitate associated conservation agreements with landowners that could be mediated with the help of groups currently working in the basin such as McKenzie River Trust and Greenbelt Land Trust. As was identified in the 2008 BiOp, these actions would improve habitat for endangered fish species.

In addition, the Corps should investigate the feasibility of constructing flood bypasses at certain control points (such as Harrisburg) that would allow for higher flows without flooding towns. The effect of this action would be to allow more flooding of off-channel (temporal and spatial), increasing rearing habitat for listed fish species and providing refuge from high velocity mainstem flows. Note that increasing floodplain area in the upper Willamette River would also act as temporary "storage" and allow for more active flood releases from the dams to facilitate river processes such as development of gravel bars, which are integral as rearing habitat for juvenile salmonids and other native species. Flow management in winter that allows increased flooding and access to floodplains can recharge groundwater that can supplement flows, help buffer water temperatures, and provide thermal refuges; all of which will increase in importance with climate change.

In addition to removal or re-location of revetments, other measures that would increase rearing capacity for juvenile salmon and steelhead should include development of side channels and re-connection of side channels and alcoves. These measures would increase hyporheic exchange, improve riparian shading, and increase cold water refuges. Increasing cold water refuges is more efficient within side channels and alcoves compared to larger main channels (e.g., Gombert et al. 2022). The Willamette River and lower reaches of eastside tributaries have been simplified through loss of dynamic river processes, connectivity with floodplains, and development of gravel bars and side channels; all are at least partially an effect of dam operations or Corps revetments.

Appendix N – Implementation

This section includes extensive discussion about adaptive management and inclusion of other entities such as through the WATER group. In reality, this is no different than what has been in place during implementation of the 2008 BiOp, which has had many problems:

- Lack of transparency. DPEIS mentions the need for transparency and provides flow charts to demonstrate how it works. However, the track record of the Corps on transparency is mixed, at best. Decisions, such as those made under "adaptive management", have often been dictated by the Corps and implemented with inadequate data and inadequate input from WATER members.

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- Lack of recognition of respective roles of WATER members. The Corps has often inserted themselves into fish management decisions that should be deferred to the actual fish managers in the basin. The Corps are first and foremost dam operators and need to include fish managers at state and federal levels in both the development and implementation of decisions that affect fish populations, including details of RM&E needed to assess long-term effectiveness of measures.
- Need for more direct involvement of state and federal fish biologists. Biologists, such as those within ODFW, have collected data independent of the Corps that supports long-term monitoring of populations (juvenile and adults). These data need to be incorporated as part of adaptive management decisions, and should be supported by the Corps. Within the Columbia River, state fish biologists are gathering their own data independent of federal agencies, which is then incorporated in the decision processes and adaptive management.

RM&E

Under the 2008 BiOp, RM&E has failed to establish and maintain long-term monitoring necessary for evaluating measures intended to aid fish recovery. Funding for RM&E has been inconsistent and multiple entities have been involved in collecting data, which has also contributed to inconsistency in data quality. The DPEIS does not address this ongoing weakness in RM&E. Indeed, what little information is presented on RM&E suggests continued lack of long-term monitoring. Despite acknowledging in the DPEIS that overall paucity of data is a weakness in model development and limits informed decisions about the effect of operations and measures on fish populations, the DPEIS proposes no RM&E to collect the necessary data, even for dam-specific questions.

RM&E for measures proposed in the DPEIS should be based on the RM&E plan developed under the Injunction by an expert panel that included Corps members (court case No. 3:18-cv-00437-HZ; Document 240-1, Willamette Project Interim Injunction Measures Research Monitoring and Evaluation Plan). This 70-page document details RM&E for many of the measures being proposed in the DPEIS and provides a template for developing RM&E. The document details RM&E activities for each subbasin as well as guidance for estimating long-term survival to Willamette Falls. In addition, detailed information about monitoring is given for North Santiam, Middle Fork Willamette, and McKenzie rivers. The DPEIS should be using this document to guide RM&E because it provides specific guidance for measures in the DPEIS, was developed by an expert panel that included federal biologists, and was accepted by the court as a guiding document. The principles underlying the RM&E document provide overall guidance for developing and implementing RM&E to estimate passage effectiveness. It is derelict that the Corps has not incorporated this RM&E document and associated template in the DPEIS, especially because the Corps helped to develop it.

RM&E has often been focused on very narrow, site-specific questions such as route passage at a dam. Although these are important areas for RM&E, they have often been conducted without the necessary scale or scope for determining the overall effectiveness of passage measures. For example, passage experiments have often been conducted without assessment of delayed

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mortality. In addition, these experiments have often been conducted using large hatchery fish whose size and behavior are different from naturally produced juvenile fish. What little detail the DPEIS presents on planned RM&E indicates a continuation of using active tagging to assess passage measures, rather than methods that would be more suitable for smaller fish and/or would allow for a larger number of fish within test releases. Although details would be included later in the development of RM&E, the lack of some basics in the DPEIS such as inclusion of control groups for helping to assess passage effectiveness is a weakness.

RM&E for some passage measures, such as fish collectors, appears to be limited to two separate years, which is inadequate for long-term assessments of passage and adult returns over several generations, especially because of the complexity of life histories present. For example, collecting information for just two years would likely be inadequate for assessing passage under "typical" conditions, which could vary within each migratory season and could have varying effects on different life histories.

RM&E needs to address the full range of life histories and fish sizes, as well as long-term juvenile survival that encompasses smolt migrants leaving the Willamette River as outlined in RM&E Document 240-1. As noted earlier, RM&E as presented in the DPEIS suggest a reliance on active tag studies to assess passage and survival. Although one metric is estimating survival to the confluence of the Willamette River, most of the locations where an array would be located are well upstream of the confluence, which may not adequately assess the effects of delayed mortality. In addition, some life histories passing the dam may rear for extended periods downstream of the dam and in the Willamette River.

Long-term survival of juvenile fish passing the dams should be assessed as survival to Willamette Falls, as was noted for steelhead smolts in Figure 5-1 (page N-43), as was used as a metric in life cycle models, and as outlined in RM&E Document 240-1. One method for assessing this would be to use PIT tags and to invest in tag detection infrastructure within subbasins and at Willamette Falls. Estimating survival to Willamette Falls provides a complete picture of passage effectiveness and provides agencies more immediate feedback for adaptive management than waiting for cohort returns years later. The DPEIS should recognize the limitations of assessing overall passage effectiveness using cohort replacement data because of the time lag for adults to return 3-5 years later. A more robust RM&E framework is needed to provide comprehensive monitoring of juvenile survival to Willamette Falls, and should be based on specifics and guidance provided in RM&E Document 240-1.

As noted in RM&E document 240-1, numbers and/or survival of juvenile fish should be estimated at multiple points along their migratory pathway: entry into reservoir (initial measure of outplanting success, coupled with spawning surveys and fish/habitat surveys upstream of dam), survival through reservoir (predation, disease, copepods), passage at dams, delayed mortality of fish passed at dams, downstream rearing and survival of fish that pass dams. Reach survival would require multiple points of monitoring fish; e.g., if fish are PIT-tagged then detection infrastructure should be installed and/or maintained at several points downstream of dams and at Willamette Falls.

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The need for PIT tag infrastructure is critical for monitoring survival and abundance of juvenile salmon and steelhead. These data are sorely lacking for the Willamette as reflected in the difficulty in developing model parameters based on empirical data. These data are also needed to fully evaluate the life cycle effects of measures and alternatives on species populations. Data would also provide critical information on number and survival of smolts that could be related to implementation of measures and alternatives and would provide early estimation of effectiveness rather than waiting for adults to return. The advantages of PIT tag technology in monitoring juvenile salmon and steelhead include ability to tag smaller fish than with active tags, ability to tag large numbers of fish (lower cost) either in field studies or for large-scale controlled experiments, and ability to detect returning adult fish (no battery life). However, the detection system at Willamette Falls needs to be updated or replaced with other systems. The Corps should work with federal agencies, state agencies, and Portland General Electric to explore detection options and funding.

Climate Change

Effects of climate change on ambient and water temperatures are already being expressed in the Willamette Basin. It is likely that these trends will accelerate in the near term such as over the 30-year period of the DPEIS. Assessment of climate change is qualitative and cursory in the DPEIS in terms of effects on water supply, air temperature, water temperature, flow, habitat suitability, and the associated effects on species populations. The Corps used a qualitative assessment to estimate how different alternatives would affect vulnerability of Chinook salmon to factors affected by climate change, such as water temperature. They also relied on the life cycle models to assess water temperature effects downstream of dams but as was noted by NOAA, *"we did not include any estimates of future temperature changes under a climate change scenario."* [page E-412]. The summary for the IPA model also noted the lack of a climate change assessment: "*it would be appropriate to develop extensions to represent potential freshwater and marine survival rate responses to a carefully formulated set of climate change scenarios. Dam passage measures and dam operations that could meet conservation objectives when climate change scenarios are considered could be somewhat different from those that could be found to do so under the current set of scenarios which ignore climate change."* [E-763]

The long-term effectiveness of alternatives in the DPEIS could be driven largely by climate change, depending on the realized scenarios. Thus, evaluation of alternatives with a more comprehensive assessment of climate change is needed for informed decisions about the effectiveness of the proposed alternatives and whether or not additional, more aggressive measures might be needed to achieve objectives for fish species populations. The DPEIS should have developed some specific climate change scenarios (moderate to severe) to project potential effects on flow and temperature. These scenarios should then be incorporated into existing or new models to specifically assess the potential effects of climate change on species populations and viability using current conditions as the baseline. Each subbasin should be modeled separately and a composite model for the Willamette Basin should be assessed.

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Models and assessments have been used to estimate effects of climate change on salmon and steelhead at small and large scales. These could be adapted for smaller scale assessment, such as for subbasin populations. Crozier et al. (2021) assessed effects of climate change on Chinook salmon and included evaluation of carryover effects that could be affected by climate change; and in the abstract noted that a dramatic increase in smolt survival would be needed to overcome the negative impacts of climate change. Beechie et al. (2023) evaluated the potential for habitat restoration to increase resilience of salmon populations in the face of climate change. Wade et al (2013) assessed the vulnerability of steelhead over a large geographic range and suggested connectivity to headwater areas to increase resilience and help ameliorate effects of climate change. Assessment can also include thermal exposure of different Chinook salmon migrant types (FitzGerald et al. 2021) to assess the effects of climate change on juvenile salmon and steelhead, and aid in assessing effectiveness of measures and alternatives in achieving biological metrics.

An assessment of climate change should also include effects such as increase in water temperature on potential increased susceptibility of salmon and steelhead to disease and parasites (e.g., *Ceratonova shasta* [formerly *Ceratomyxa*]; Chiaramonte 2013), to increased predation caused by increase in predator abundance and shifts in predator activity or avoidance behavior (e.g., Kuenhe et al. 2012; McInturf et al. 2022), and to increased effects from pesticide exposure (e.g., Magnuson et al. 2023). Each of these effects could be exacerbated or lessened by measures implemented in the alternatives, particularly in reaches downstream of the dams, and should be evaluated.

Bull Trout

Analysis of bull trout benefits and risk relative to downstream passage is flawed.

- DPEIS assumes that providing any downstream passage would result in loss of recruitment to the population upstream of the dam and therefore should not be considered.
- Operations have recently changed at Hills Creek Dam following the court injunction. Under near-term operations the priority is for nighttime RO water releases [page 2-39], specifically to increase downstream passage for juvenile spring Chinook salmon. This operation provides access to any species moving downstream, especially when instream flow is peaking. Because juvenile bull trout are surface oriented (similar to juvenile salmon) they may pass downstream. One subadult bull trout was caught in the Hills Creek RO trap in late December indicating that some fish are already passing downstream.
- Therefore, the DPEIS is deficient in rejecting upstream passage at Hills Creek Dam; i.e., not identifying measure #722 in the preferred alternative.
- By rejecting upstream passage at Hills Creek Dam, the Corps appears to be increasing the very demographic risk to bull trout that they cite in contending that bull trout should not be passed downstream.

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- DPEIS must consider that increased downstream fish passage measures at Hills Creek Dam will result in the passage of bull trout and take measures (such as #722) to pass bull trout upstream and minimize the risks and impacts of downstream passage.
- Downstream passage by itself is not the risk, nor is the lack of spawning habitat or higher temperatures downstream of the dam. Bull trout have a migratory life history in that they actively migrate downstream for overwinter foraging and rear in downstream reaches as subadults. Bull trout require pathways between overwintering downstream habitats and upstream spawning habitats.
- DPEIS discounts habitat downstream of Hills Creek Dam because spawning habitat is limited and water temperatures increase [page 3-660]. However, habitat downstream of the dam is suitable for overwintering, foraging, and migration. Bull trout that pass downstream may rear and forage before migrating upstream to spawn IF upstream passage was provided. They originated from areas upstream of the dam, are part of the same population, and are necessary to maintain the upstream population.

The DPEIS states that *"Even without passage, the population above Hills Creek has increased…indicates that this population performs reasonably well under the NAA"* [page 3-712]. This statement is misleading and largely irrelevant, because it does not acknowledge that the NAA does not describe current operating conditions, as described above. Changes in operating conditions to provide downstream passage for juvenile Chinook salmon are recent and there has been insufficient time or monitoring to determine that the population "performs reasonably well" or will continue to remain stable or improve in the near term or over the life of the operations plan.

A near-term passage solution must be implemented until a permanent solution is in place. A temporary facility should be designed that could attract adult bull trout, but does not need to be built to handle large numbers of fish. An upstream migrant trap needs to be functional in the near term to assist long-term bull trout recovery. Allowing for effective upstream and downstream passage at Hills Creek Dam is in agreement with the 2015 USFWS Bull Trout Recovery Plan.

The habitat upstream of Hills Creek Dam represents a large area of high quality, but underutilized, habitat for bull trout, spring Chinook salmon, and other native species. This habitat will become increasingly important with impending climate change and measures need to be implemented to provide connectivity to this habitat.

Hatchery programs – section 3.8.1.4

DPEIS seems to devote more space to discussing potential effects of hatchery fish on wild fish than they do on other more direct effects from presence and operations of dams. It is wholly conceivable that hatchery fish could be eliminated and wild fish populations would remain at their extremely low levels because other factors have a much larger, and more direct, effect on wild fish (e.g., blocked access, accelerated incubation temperatures, high TDG). In addition, the metric for reduction of hatchery production is inadequate:

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"Hatchery production levels would be decreased as the amount of accessible fish habitat resulting from fish passage measures increases. Hatchery levels would not be decreased until improved fish passage is observed, so effects would be long term." [page 3-1087]

Because hatchery programs are tied to mitigation requirements, and because hatchery salmon will be the source for several reintroduction measures, the hatchery production levels should be tied to the establishment of self-sustaining populations and natural production numbers adequate to support sport fishing. Hatchery production should not be tied to increased accessible habitat because there is no guarantee this would result in increased natural production, or "improved fish passage" because passage is generally poor or even nonexistent so this is not a good metric for gauging the reduction of hatchery production.

"The proportion of hatchery origin spawners below dams is currently very high, and would not be expected to change in the future even when fish passage at dams is improved unless decisions are made to reduce hatchery releases." [page 3-667] "Wild fish production below dams is already impacted by degraded habitat conditions, and is expected to continue to have very high levels of hatchery origin spawners, among other factors." [(page 3-668] DPEIS also states that spawning success of natural-origin fish is limited by high proportion of hatchery-origin Chinook spawners (among other factors).

The actual effect of hatchery fish on spawning success of wild fish is unclear. It is unlikely there is a direct effect in terms of competition for spawning gravel except in limited areas. There may be long-term genetic/fitness effects but this can also be attributed to low numbers of wild spawners, not just high numbers of hatchery spawners. There may be issues with disease transmission in areas where density of fish is high, which would primarily be in areas close to the dams where fish congregate because of the presence of dams and/or hatcheries.

The proportion of hatchery spawners can be reduced by lowering the number of hatchery fish, by increasing the number of wild fish or a combination. Emphasis should be on increasing the number of wild fish, which is necessary for long-term conservation and recovery. Because other factors are more directly important to the spawning success of wild fish, these should be adequately addressed first. Spawning success of wild fish is affected by factors other than just the presence of hatchery fish, such as blocked access to historic spawning grounds, high pre-spawning mortality influenced by release of water from dams, accelerated incubation and emergence of fry in winter rather than in spring, and loss of habitat quality from operations of dams (lack of gravel recruitment, lack of flooding for access to off-channel habitats, etc.). Dam operations should be designed to improve degraded habitat conditions below the dams rather than to accept these conditions as status quo.

Factors that also result in high pHOS levels include low attraction of hatchery fish to traps and hatcheries, which leaves large numbers of hatchery fish in the river and subsequently a very high percentage of hatchery fish spawning immediately downstream of dams and hatcheries [page 3-676 & 677]. Although the DPEIS addresses the attraction of fish as influenced by water temperature for South and North Santiam, there may be other factors that result in a large number of hatchery fish remaining in UWR spawning areas and these factors should be investigated with a goal of increasing the homing of hatchery fish to hatcheries to better manage pHOS. DPEIS

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should also identify other release strategies such as targeted off-site releases downstream of spawning areas to reduce the number of hatchery fish that remain in the river.

"USACE's hatchery program in the Middle Fork Willamette River affects natural origin UWR spring Chinook to varying degrees primarily through increased pHOS at low elevation, increased risk of pre-spawn mortality, and increased fish transport delays." [section 3.8.19.4, page 3-681]. Nothing in the rest of this section supports this opening statement, and in fact generally refutes it. The primary problem is the extremely low (functionally extinct) population of natural origin salmon. Modifying or even eliminating the hatchery program would do absolutely nothing to improve production of natural origin fish, and are actually needed to provide a source for re-establishing populations.

Recreation

The DPEIS evaluates only the effects the various measures and alternatives would have on reservoir recreation. One potential effect is reduction of hatchery programs on recreational and commercial fisheries. Although DPEIS contends that changes to the hatchery program would not be made until some metrics are achieved, the metrics expressed in the DPEIS are not related to an actual increase in wild fish populations. Instead, DPEIS appears to base decisions about its hatchery mitigation program on metrics such as "amount of accessible fish habitat resulting from fish passage measures increases" and "improved fish passage is observed" [page 3-1087]. As discussed earlier these are poor goals to measure success, not the least because the baseline is so low that almost anything would be an improvement, yet still be far from establishing sustaining populations of wild salmon.

A goal of recovering salmon and steelhead populations is to provide a full suite of environmental, ecological, and economic benefits. These benefits would include recovering populations to allow at least limited recreational sport fisheries in the Willamette River and in tributaries. The failure of the DPEIS to acknowledge this as an objective may speak to the Corps' lack of confidence that the proposed measures and alternatives will result in the establishment of sustaining populations upstream of dams and recovery of populations within subbasins (including those spawning and rearing downstream of dams). If the Corps was confident about the success of the alternatives, it seems like they would identify and evaluate increased sport fishing opportunities downstream of the dams as a benefit.

Specific Comments

Page 3-652: *"more recently, the number of wild returns has been just over 10,000."* This overstates the true status of wild fish. The count of unclipped Chinook salmon in 2016-2022 was 6,520, with a preliminary estimate of about 6,000 wild fish (some hatchery adult fish do not have a fin clip). Historic estimates of the wild salmon population were 300,000-450,000 fish based on estimated harvest and egg take numbers (Myers et al. 2003). Estimated number of natural salmon in the Willamette Falls counts has been possible since the 2002 returns; Figure 3.8-2 of the DPEIS should include these data for natural salmon abundance in falls counts.

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Page 3-666 – "including construction of four new adult fish facilities (Minto, Foster, Cougar and Fall Creek)"; cited as actions taken for passage. Minto, Fall Creek, and Foster are not new facilities, just upgraded; they have been in operation for many years and adult fish have been collected and transported from these facilities prior to their upgrades. Minto outplant upstream of Detroit is hatchery fish only at present (with exception of extremely low flow year of 2015).

Page 3-675 and 679-680: *populations upstream of Foster considered self-sustaining and populations upstream of Fall Creek considered sustaining*. These statements are not true because populations have not replaced themselves in some years. To be considered as self-sustaining, the number of returning adults should at least replace those that were released in respective brood years, and replacement should occur over many generations. In addition to basic replacement demographics, a self-sustaining population would also meet VSP requirements such as diversity (e.g., range of life histories represented in returning adults, high effective population size [N_e] in breeding populations), spatial distribution within areas upstream of the dams, etc. These population characteristics are necessary to avoid population declines from stochastic events. For example, if few spawners are successful (low N_e) and confined to limited spawning areas, the population would be at risk. Low N_e can occur from attrition of outplanted adults through pre-spawning mortality and poaching leaving few adults available to spawn, or from successful spawning by a small number of adults because of factors such as limited high quality spawning habitat or loss of redds/emergent fry from flooding or other disturbance, or from high mortality of juvenile fish because of poor incubation or rearing habitat.

Page 3-679: *"[dams] in the Middle Fork affects ESA-listed spring Chinook salmon and bull trout and has blocked passage along several reaches."* This is an interesting, albeit misleading way to describe the fact the Middle Fork Willamette dams have actually blocked passage to almost all historic salmon and bull trout habitat. In fact, in a previous paragraph on the same page, DPEIS lists that 92% of usable spawning habitat is upstream of the dams, more than just "several reaches".

DPEIS proposed a new weir design at Foster Dam (measure #392) or dedicated passage pipe. In several places, the DPEIS notes the fish passage actions already taken to improve downstream passage included the use of a fish weir [page 3-666, E-38]. However, the DPEIS also notes that the fish weir was redesigned in 2018 from an original design, but that one resulted in "*higher injury rates*" [page 3-675]. Therefore, it is unclear exactly what improvements are being considered that would make the third attempt more successful at effectively passing juvenile salmon and steelhead and steelhead kelts with low injury and mortality (perhaps the Corps is relying on "third time is a charm" maxim).

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Part II: Technical Review and Comments; Recommendations by Richard Domingue, Professional Hydrologist, NMFS ret.

Thank you for this opportunity to comment on the Willamette Valley System Operations and Maintenance Draft DPEIS. It is clear the Corps has invested considerable time and effort into producing this document. While the analysis is extensive, there are numerous omissions and inconsistencies that render the proposed action inadequate to guide project operations, modifications and maintenance over the next 30 years. My comments and an addendum follow. Questions raised in the addendum are part of my comments.

General Comments

1. *Purpose And Need*

   DPEIS Section 4.1 fails to identify the Corps' intent to use the preferred alternative as the proposed action in the ESA Section 7 consultation taking place between the Action Agencies (Corps, BPA, and the Bureau of Reclamation) and NMFS and FWS under court order (No. 2:18-cv-00437-HZ), to be completed and a remanded Biological Opinion issued by December 31,2024. Currently, this purpose is not described until Appendix A, Section 2.8.

   It appears that the Corps is also attempting to resolve the causes for NMFS' Jeopardy finding (June 28, 2019) regarding the Willamette River Basin Review Feasibility Study with this PEIS. According to Appendix J, the Corps anticipates a 2050 level of development in its modeling (Res-Sim) of all alternatives considered, increasing water use for irrigated agriculture from the current 50,000 acre-feet of contracted Corps storage to over 250,000 acre-feet. By including the 2050 build-out in all alternatives, it is not possible to identify the streamflow and fish habitat effects of this action. Flow diminishment is not the only effect of issuing water service contracts. The Corps would attempt to store the water needed to meet water service contracts, thereby limiting efforts to reduce storage to improve fish passage survival.

2. *Endangered Species*

   The DPEIS underplays the role of the WVS in the statuses and potentials for recovery of species listed under the Endangered Species Act, particularly Upper Willamette River (UW) Chinook salmon and steelhead. The DPEIS should be revised to clearly demonstrate that the preferred alternative does not appreciably reduce the species likelihood of survival and potential for recovery, does not adversely modify the species designated critical habitat, and minimizes the take of listed species. As presented, the preferred alternative is inadequate to achieve this goal. To measure success, the Corps proposes to use a single metric, recruits per spawner, with a goal of achieving R/S greater than one. A broader range of performance metrics should be adopted and fish passage success evaluated in accordance with NMFS' fish passage criteria. Because the WVS is a major contributor to these fishes' current statuses, the Corps should clearly state its intent to manage the project to improve their statuses and likelihood for recovery and adopt metrics to measure such improvement.

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3. *Fish Passage*

   The DPEIS claims to focus on fish passage, yet expanded operational measures, such as longer term and deeper drawdowns and improving regulating outlet fish passage and total dissolved gas performance, are not considered. The rationales for the proposed floating fish collectors and their construction schedules are poorly defined. Juvenile collectors at high-head dams typically show low fish collection efficiency. Life-cycle models used to estimate the likely population trajectories following implementation of each alternative use favorable assumptions for collector effectiveness (e.g. dam passage efficiency >50%) which are unlikely to be achieved. Currently, non-structural juvenile passage measures are being evaluated throughout the system. Until these and other operational measures are fully evaluated it would be unwise to design and install juvenile collectors.

4. *Narrow Range Of Alternatives Considered*

   Because the Corps has chosen not to consider alternatives that might require changes in the WVS' Congressional authorization, the potential benefits of such changes have not been analyzed. This limits the potential for avoiding jeopardizing and adverse modification of the UW Chinook salmon and steelhead critical habitats, and other potential benefits of project operations.

5. *Research, Monitoring, And Evaluation And Performance Goals*

   The DPEIS presents a series of actions, crafted and modeled to meet specific objectives, but there is a general lack of defined RM&E and no defined check-ins during which measure implementation and performance are evaluated, and changes developed as needed to meet performance objectives. Because the Corps proposes that this DPEIS guide operations and maintenance for the next 30 years, a set of fish population viability criteria should be adopted and the project's performance periodically reviewed every 5 years.

6. *Climate Change*

   The DPEIS presents extensive data on ongoing climate change including modeling work done by the Corps for this DPEIS, identifies a series of risks, including unusual and unseasonal flood and drought risk, yet offers no change in project operations to better manage such risks. This lack of proposed adaptations to changing hydrologic conditions also has implications for UW Chinook salmon and steelhead. (See Addendum)

7. *Operational Measures To Limit TDG Production*

   The only interim measures considered to reduce adverse total dissolved gas concentrations downstream from project dams is spreading spills across multiple spillway bays. This is insufficient.

   This issue is most acute in the North Santiam River downstream from Detroit and Big Cliff Dams where both UW Chinook salmon and steelhead spawn and rear and where

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high rates of spill can generate harmfully high concentrations of TDG. During the fall and winter of 2021-22 the Corps operated Detroit reservoir in an effort to reduce the magnitude of spills to the extent practical. This effort was mostly successful at maintaining episodic TDG concentrations downstream below 120% throughout the winter. [2] This interim measure should be continued as completion and evaluation of structural TDG reduction is at least 5 years away. The Corps should also commit to managing refills in a manner that reduces the potential for adverse fill and spill operations in the spring.

There is a general lack of discussion of spill operations to manage reservoir surcharges. As spills have an array of effects downstream, from contributing to the Corps' Environmental Flow program, to generating harmful concentrations of TDG downstream, a detailed discussion of surcharge and spill management is needed.

8. *Revetments*

The DPEIS does not propose any specific measures aimed at increasing floodplain connectivity and side-channel fish habitat. Numerous studies, including work produced by the Corps, have identified the loss of such habitat in the Willamette Valley as limiting anadromous fish production, and regional entities have invested in an ongoing program to increase floodplain habitat (Willamette Focused Investment Partnership). As the Corps constructed and currently maintains 100 miles of revetments along the mainstem and tributaries of the Willamette River, the Corps should include a program of revetment modification to increase floodplain connectivity and side-channel habitat in this DPEIS, either directly or in partnership with others.

9. *Duration Of The Proposed Action*

The Corps proposes that the DPEIS and subsequent Biological Opinion to be issued to cover it have a 30-year life with construction projects conducted through 2044. As the statuses of the fish, notably their abundances, are in decline, and the climate continues to change, a 30-year planning horizon is unrealistic. A better approach would be to view the process as iterative, 5 to 10-year time steps during which measures are implemented, their effects monitored, and the need to revise or add measures evaluated.

10. *Measures Not Considered*

In large measure, the lack of an emphasis on species recovery and an excessive reliance on existing operations, limits the range of measures considered, thereby rendering the DPEIS insufficient. The preferred alternative includes only minor operational changes, choosing instead to solve fish passage limits imposed by the dams and reservoirs through structural measures, mostly floating surface collectors located at the dams. These would take decades to complete, with the last scheduled to be completed in 2044. They are bewilderingly expensive (c. $400 million, each) and the likely success of such measures

[2] The severity of harms to aquatic life due to elevated TDG increase with frequency, duration, and magnitude of the high TDG events. At concentrations below about 120%, harms tend to be mild and at 130% and above exposure can cause severe injury or death to Chinook salmon and steelhead.

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is arguable. A recent survey of such systems at high-head dams (Kock et al. 2019) found a wide range of success, from very low to high. While there has been considerable technological advancement in the design of such structures, such as the use of computational fluid dynamics to site and models to size floating surface collectors, success cannot be assured.

It is important to recognize that fish collection efficiency (FCE), a measure of fish collection success (number captured in the collector/number released), has been measured differently by different studies, depending on the purpose of the study. To evaluate the potential effectiveness of floating surface collectors at the WVP, FCE_{res}, the ratio of fish captured at the floating surface collector to those released at or above the head of reservoir is the metric of interest. It is unclear whether the Corps life-cycle modeling used FCE_{res} or other measures of FCE. FCE also varies by species. For example, the fixed surface collector at North Fork Dam on the Clackamas River that collected over 90% of the steelhead and coho salmon juveniles released at the head of the reservoir, collected only 60% of the Chinook salmon juveniles released (reported in Kock et al. 2019). As other, less successful collection systems show similar low FCE_{res} for Chinook salmon, it is reasonable to assume that Chinook are harder to collect than steelhead or coho. **Review of life-cycle modeling conducted for this DPEIS (Appendix E) shows that overly optimistic FCE values were used, particularly where Chinook salmon were the target species.**

An issue missing in the evaluation is the importance of reservoir travel time to FCE and juvenile passage survival in general. In brief, the longer juvenile salmon and steelhead reside in a reservoir the lower their likelihood to pass successfully. Reservoir residence exposes juveniles to impaired water quality, disease, predation, residualism, and competition limits on successful dam passage. The longer juveniles remain in the reservoirs, the lower their likelihood of successfully passing the dams. Juvenile residence time is lower when reservoir storage is lower and when flows are high (Kock et al. 2015). Minimizing reservoir residence time should be an objective to achieve high passage survival.

Due to the inherent uncertainty in estimating juvenile passage survival and the potential benefits of large, expensive, structural measures such as FSCs, the preferred alternative should be one of experimental design. Initially, this experiment should focus on modifying existing facilities (e.g. TDG control, juvenile passage survival improvement) and operations (spills to pass fish and temporary powerhouse shutdowns to limit entrainment). An intensive RM&E program, such as that developed to evaluate ongoing interim measures, is needed to determine if such measures are adequate to support species recovery. If not, additional measures, such as FSSs may be needed. This could reasonably be accomplished within 7 years of ROD issuance.

For at least the first five years of operation under the new proposed action the focus should be on using existing facilities, or modified existing facilities to pass fish.

a. **Year-round deep drawdown.** At present, operational measures using existing project facilities to pass fish are underway. These include deep drafts and the use of regulating outlets to pass fish from the fall through winter, and spilling water

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over project spillways to pass fish in the spring and summer. Data collected during these operations and evidence from the Fall Creek reservoir drawdown as well as other high-head flood-control reservoirs in the region (e.g. Mud Mountain Dam) show year-round deep drawdown can provide safe and effective juvenile passage, reduce heat storage and subsequent water temperature issues, and provide more normative flows downstream. By comparison, juvenile collectors at high head dams often have low FCE, limiting the fraction of incoming juveniles that successfully pass the dam (Kock et al. 2019). **Among the alternatives considered should be deep, permanent drafts at several reservoirs – Green Peter, Cougar, and Lookout Point. Year-round drawdowns at these reservoirs should be analyzed both independently and collectively.** As the Corps has been authorized to evaluate de-authorization of power generation at the WVS, such operations should be evaluated as part of that effort as well. The possibility that such substantial changes in project operations would require Congressional authorization prior to implementation is insufficient cause not to evaluate them.

i. This would mean permanently lowering the reservoirs to within 20 feet of their lowest outlet, storing additional water only when needed to reduce downstream flood risk, and managing the release of such surcharges to minimize adverse TDG conditions downstream to the extent practical.
ii. As the regulating outlets would be the primary route of discharge and fish passage, outlet modifications should be considered at all ROs to reduce TDG production and improve fish passage survival. Approaches such as spillway flip-lips and modification of RO outfalls to broaden the impact area of the discharge stream to reduce plunge depth and thereby reduce gas saturation should be considered.
iii. Reservoir residence time would be minimized, increasing survival to the dam and dam passage efficiency (non-turbine passage) would dramatically increase. Successful passage would primarily be dependent on performance of the ROs, which should be improved as necessary.
iv. This would substantially reduce the stored water available to augment downstream flows and limit flat-water recreation during the summer and fall.
v. Hydroelectric power generation would only occur when surcharges raised the reservoirs above the minimum power pool. Generation and dependable capacity of the system would decline.
vi. By not refilling the reservoirs, such measures would increase spring flows in both the affected tributaries and the mainstem Willamette River. Flows in the affected tributaries and the mainstem Willamette River would be less modified by project operations, returning the rivers to more normative conditions.
vii. Permanently lowering the pools would also increase available flood storage, thereby reducing downstream flood risk and increasing climate resilience.
viii. At Cougar Dam the regulating outlet channel would need to be redirected into the river channel upstream from the adult trap. Design and

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construction would likely take at least five years, delaying potential implementation.

ix. These and other likely effects should be analyzed in detail.

x. The preferred alternative should adopt year-round minimum pool operations for at least one of these reservoirs for five years. Given the physical plant modifications necessary to provide year-round minimum pool operations at Cougar Dam, either Green Peter Dam, or Lookout Point Dam should be chosen as the test bed. Data collected during this operation would inform future decisions regarding operations and the need for new passage systems throughout the WVS.

b. **Improving fish passage survival at existing facilities.** Preliminary evidence from the interim operations has shown that fish are often injured passing through project regulating outlets and channels and going over spillways. Where DPE is high but injury rates are too high, efforts should be made to identify the causes of injury and remedial action taken. This could include measures from smoothing spillways and regulating outlet channels, to modifying RO mouths to spread the spill stream which would dissipate impact energy.

c. **Project modifications to reduce TDG production.** The high rate of TDG production at several WVS dams limits the range of operations that are safe for fish. The preferred alternative only considered modifications to reduce TDG at the Detroit/Big Cliff complex. As regulating outlets and spillways are the preferred routes for fish passage, **measures should be developed to reduce TDG production throughout the system, from reducing spill rates when possible, to modifying spillways and ROs to reduce TDG production.**

d. **Petition ODEQ for a waiver from the state standard for TDG.** The state standard for TDG is 110% of the saturation concentration. This standard is unobtainable during spill at WVS dams, particularly during floods and post-flood surcharge reduction operations. Further, efforts to meet this standard during spill operations for fish passage can limit the hours of operation, reducing effectiveness. For voluntary spill operations to facilitate fish passage the TDG limit should be increased to 120% of saturation. Such a waiver could be viewed as experimental and of a limited duration, say 5 years, to allow for monitoring and evaluation. There is precedent for such waivers (letter of January 13, 2020 from Richard Whitman, ODEQ Director, to Oregon Environmental Quality Commission; 85 FR 63834). Hopefully ODEQ and EPA would agree to expedite the process.

e. **Detroit and Big Cliff Dams.** Operating Detroit reservoir at a long-term low water surface elevation is unlikely to be feasible due to socio-economic concerns and the value of stored water. Hence, operational fish passage measures are limited to using the dam's regulating outlets and the spillway with limited changes to reservoir storage. Spring operation of the spillway has shown promise and is adopted in the preferred alternative. However, the approximate date when the Corps would open the Detroit Dam spillway in the spring and the hours of operation to provide fish passage are unclear. "Late spring" is indicated,

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suggesting June. This is inadequate as it would increase reservoir residence time for earlier arrivals which begin arriving in February. **Continuous spill over the surface spillway should occur as soon as practical after the reservoir water surface elevation is 1.5 feet or more over the spillway crest (el 1541), which generally occurs in mid-April and continues spilling for the next 30 days.** In 2022, the highest number of juvenile salmon collected in the rotary screw trap situated downstream from Big Cliff Dam occurred during the last two weeks of April, immediately after the spillway had been opened. Large numbers likely also passed in early May, but the trap was not fished for much of this time due to high flows.

Spilling water over the spillway or through the ROs, the outfalls of which are situated in the spillway, produces high levels of TDG and efforts to meet the state standard downstream can limit the hours of operation of both for fish passage purposes. Further, high TDG concentrations in the Big Cliff forebay is likely more harmful to juvenile Chinook salmon and steelhead because residence time in the forebay lasts for days while exposure to harmful TDG concentrations downstream from Big Cliff would affect actively migrating juveniles for a few hours as high concentrations of TDG monitored immediately downstream from Big Cliff Dam have been shown to dissipate by the time the water reaches the Minto trap, about 4 miles downstream. **Hence, reducing juvenile exposure to adverse TDG conditions should include modification of Detroit Dam's spillway and regulating outlets to reduce TDG production.**

Specific Comments

My comments focus on the treatment of ongoing interim operations and on the preferred alternative. As stated above, I do not support adoption of the preferred alternative.

1. Section 2.2.6. Should be revised to state that adopted interim operations will continue until structural measures and associated operations **have been shown to provide at least as much benefit to the species as the interim operations**, at which point they should be employed when structural measures are out of service.
2. Table 2.2-11. Detroit/Big Cliff. Should include discretionary operations aimed at controlling the magnitude of spills. This measure proved beneficial but insufficient to avoid project-generated harmful concentrations of total dissolved gas (TDG) downstream. In testing conducted during 2021-22 this measure mostly maintained TDG below 120% while storage was available. In keeping with its flood risk management objective, the Corps should continue to use its discretion in an effort to limit the magnitude and duration of spills to limit the production of TDG in concentrations known to be harmful to fish (>120%). **This measure should continue until structural TDG abatement is in place and shown capable of limiting TDG production.**

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By adopting Interim Risk Reduction Measures (IRRM) that limited available summer flood storage while maintaining the previous refill trajectory, the Corps has increased the risk of fill and spill at project dams. Fill and spill events at the Detroit/Big Cliff complex have caused toxic TDG conditions in the past. **See Addendum**

   a. Appendix D, 2.2 TDG. This analysis is focused on the frequency that operations under each alternative would result in TDG concentrations of 110% or more, the current state standard. No discussion of fish effects, tolerances, seasonal changes in fish health risk, or operational measures to reduce those risks is presented. The duration analysis of project-caused TDG risk (Appendix D, Figure 2-38) would be improved by presenting monthly analyses as fish harms vary seasonally.

3. 2.2.3.1 Deeper Fall Reservoir Drawdown for Downstream Fish Passage (#40). The minimum duration of deep drawdowns should be 30 days for at least the first 5 years of operation and data collection. Changing the duration of deep drawdowns could be considered through the adaptive management program and that program should be revised to include NMFS and FWS in an advisory role. Notes of all such meetings should be taken and made available on a publicly accessible website.
4. Table 2.2.11. Lookout Point deep drawdown. The table states that the target drawdown elevation would be 750 ft, but Table 2.2-7 lists el 762 as the target. Please explain. As the analysis for this action specified 750 ft., that should be the draft target. Also, as this measure has not yet been implemented, detailed evaluation should be conducted over the first 5-years of operation prior to defining long-term operations.
5. Section 2.2.5 Suite of Near-term Operations. Page 2-39. The statement: "These operations are designed to improve fish passage and water quality until the structural measures under an alternative can be implemented," is insufficient. **The Corps should commit to continuing these interim measures until their performance is equaled or exceeded by new measures and NMFS and FWS agree with that assessment.** Similarly, if a measure isn't effective, or causes unacceptable adverse effects, the same decision process should be used to modify or discontinue it.
6. Section 2.2.6. The Corps should ensure that its contractors conform to EPA's menu of current best management practices (BMPs) to protect water and soil resources.
7. Section 2.2.6.1. Detroit Selective Withdrawal Tower. This is a good idea as the benefit to Chinook reproduction would extend downstream past Mehama. However, the proposed in-the-wet construction would be difficult and environmentally risky. Sediment and anaerobic water liberated during dredging could adversely affect downstream water quality during the construction period. Construction in the dry, using a coffer dam would be simpler and less environmentally risky but would require a narrower and lower reservoir operating range during construction. The Corps should reconsider the method of construction. Also, the design and operation should consider and work to limit juvenile attraction and entrainment, particularly during spring and summer when the spillway should be used as much as possible to pass fish and manage discharge temperatures.
8. Section 2.2.6.2 Foster Fish Ladder Temperature Improvement (#479). Available evidence shows that this measure would likely be effective. This measure should be implemented as soon as possible. The time-line for this action is not shown on the construction schedule for the preferred alternative Figure 5.4-1.

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9. Section 2.2.6.6 Construct Structural Downstream Fish Passage (#392). This section assumes that FSCs or FSSs would provide safe and effective fish passage at WVS's high-head dams. Given the sizes of project reservoirs in relation to their inflows, reservoir residence time would likely remain very high (weeks to months). In general, the higher the juvenile residence time in the reservoirs, the lower their survival. Hence, prior to making the decision to build juvenile collectors, thorough evaluation of operational passage measures, including deep drawdowns, should be conducted. It will likely take another 5-7 years to develop sufficient data to make this determination. Where it is determined that operational measures are infeasible, or insufficient to support a viable salmonid population upstream, juvenile collection systems may be warranted. As handling stress reduces juvenile survival, systems to avoid or minimize handling, such as juvenile bypass systems, should also be considered.
10. Section 2.2. Response to Climate Change
    a. Very little is presented in regard to the Corps' program to improve the project's resilience in the face of climate change, though substantial gate and other structural improvements are underway improving the resilience of project dams.
    b. The Corps' reluctance to consider measures that would alter current Flood Risk Management limits the WVS's potential benefits during prolonged drought or other climate emergencies. As presented in Appendix F, climate-related risks are increasing. **See Addendum**.
11. Section 2.4.2.3 Maintain Revetments considering Nature-based Engineering or Alter revetments for Aquatic Ecosystem Restoration. This section is inadequate and incomplete. The Recovery Plan (ODFW, NMFS 2011) identifies the loss of floodplain connectivity and side channel habitat as limiting factors. Backwater and side-channels are prime juvenile salmon habitat. Floodplain and side channel connections are a focus of work being done under the auspices of the Oregon Watershed Enhancement Board (OWEB) and its Willamette Special Investment Partnership. Over half of the mainstem Willamette is cut off from its historical floodplain. Although Corps constructed and maintained revetments are only partly responsible for this lost habitat, absent a clear commitment to increase floodplain connectivity and side-channel habitat lost due to Corps-constructed and maintained revetments, the primary adverse effect of the program would remain unmitigated. **The Corps should either propose specific floodplain restoration projects, set specific floodplain/side-channel connection length goals within specified intervals, or commit to contributing funding to OWEB's SIP program throughout the life of its proposed action**. The Corps mentions the need to obtain local sponsors to cost-share ecosystem restoration projects as limiting its ability to mitigate revetment effects. Addressing Corps-caused adverse effects on species limiting factors is necessary and cannot be restricted by the actions of third parties. The Corps should place such projects or OWEB contributions in its annual budget submittals with or without local commitment.

Preferred Alternative

It is difficult to fully assess the preferred alternative because descriptions of the actions are scattered among the previous alternatives and its effects are analyzed in DPEIS Sections 3 and 5

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and several appendices. Section 2.4 would be improved by providing a full list of measures included and then analyzed in Section 3.

12. Section 2.4.11. Alternative 5. Neither the referenced section 2.3.1.1 or section 2.3.1.2 exist.
13. Appendix A. Page A-21-22. Water management during the conservation season under the preferred alternative is unclear. The concept of managing operations to meet both downstream flow and temperature goals is laudable, perhaps workable, but it is unclear how it would be implemented. Does the Corps intend to provide weekly modeled flow, temperature, and reservoir storage alternatives to the WATER team to inform its decisions? What weight would the WATER team's recommendations have as compared to model-driven operations? To be clear, modeled outcomes of alternative operations are very valuable to conservation season water management, but cannot replicate the 'expert system' provided by the WATER team which should make flow management decisions.
    a. WUA is weighted usable area, not wetted usable area.
    b. Although the analyses presented are voluminous, it isn't clear why the 2008 BiOp targets as therein described are not desired. Does modeling show a substantial decrease in available summer storage to meet summer and fall tributary flows following the existing regime? Please explain.
14. Appendix A, Page A-22 "Where feasible and funding is available, monitoring activities will be recommended and implemented to assess the stated benefits and inform future flow management." This is inadequate. Spawning surveys downstream from project dams should be conducted annually, as part of a RM&E program, fully funded by the Corps.
15. Appendix A, Page A-26 2.1.2 Measure 30b. Refined Integrated Temperature and Habitat Flow Regime. Although the proposed mainstem Willamette River minimum flow regime (Measure 30b) for abundant water years is very similar to the flow regime prescribed in the 2008 BiOp, minimum flows would be substantially reduced during normal and low water years below those currently prescribed. Further, in April, April through August runoff predictions using the River Forecast Center's ESP model carry wide confidence bands, meaning confidence is fairly weak. In fact, the Corps itself makes this argument in its response to concerns raised over refill operations at Detroit this spring (2022). [3] As suggested in Appendix A, Section 2.1.2 it would be entirely possible to estimate a low water year in April, only to be clearly in an abundant water year by early June, as occurred in 2022. By mid-June, when runoff is well known, so is reservoir storage and available storage should guide operations. The Corps should work with the RFC to develop better 30 to 90-day streamflow and runoff predictions to improve project operations in the spring. Rather than establishing hard operating rules, it would be better for the WATER team to make decisions regarding reducing mainstem and tributary flow targets, considering the latest hydrologic data and predictions, storage data, and Res-Sim model outputs. A point not lost on the WATER team is that maintaining fish friendly mainstem flows in the spring may have consequences on the stored water available to meet summer and fall flow and temperature objectives.

[3] "Seasonal water supply forecasts carry substantial uncertainty as described below…. Therefore, by basing decisions on April conditions, one is still faced with extremely variable outcomes later in the year." Excerpted from: Federal Experts' Response to Plaintiffs' Proposed Additional Operational Changes for TDG Abatement below Big Cliff Dam, August 25, 2022

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16. Appendix A. Table 2-2. Reducing tributary minimum flows during low-water, low-storage years, particularly during the summer, may be necessary to maintain sufficient water to meet Chinook salmon spawning flow needs in the fall and to avoid severe water temperature conditions. However, the proposal to substantially reduce tributary minimum flows when storage falls below 90% of the storage rule curve would result in very frequent reductions in minimum flows. Even in average water years, reservoir storage is often below 90% of the rule curve due to depletions to meet downstream needs, including minimum flows. Both the severity and the frequency of these minimum tributary flow reductions should be reduced, particularly during the spawning seasons for UW Chinook salmon (Sept – Oct) and steelhead (Mar – May). **Instream flow studies conducted by the Corps show that summer flow augmentation (July – August) does not provide a fish habitat benefit and could be reduced.**
17. Appendix A. Section 2.7.3.1 Scheduled/Routine Maintenance. The Corps should commit to revising each of the operations manuals listed in this section as needed to conform with final actions taken under the consultation within 18 months of ROD issuance. Similarly, following construction project completion and testing (e.g. Detroit temperature tower), operating manuals should be developed and project personnel trained in their operation.
18. Appendix A. Section 2.8.1 Overview 2021 Court Ordered Interim Injunction. This clear commitment to continue measures adopted under court order until replaced by measures adopted under the preferred alternative should occur in the body of the DPEIS, not just this Appendix. Also, the Corps should commit to continuing effective interim measures until new measures implemented under the proposed action have been shown to be at least as effective.
19. Appendix B Page B-62. "The downstream maximum rules are in effect year-round, but typically only govern the ResSim program decision making during a winter flood event. Smaller flood events may occur during the **spring refill season** or late in the drafting season as well and **need some regulation to manage.** …" Emphasis added.

    How does the Corps intend to manage spring and summer surcharge and high TDG risk? (See Addendum).

20. Section 3.8.1.6.1 "Passage for ESA-listed salmonids and steelhead at Detroit Dam/Big Cliff Dam Complex. Only adult hatchery origin UWR Chinook salmon are outplanted above Detroit Dam." Elsewhere, this section supports the Recovery Plan's (ODFW and NMFS 2011) a split-basin approach to managing the fishery, in which hatchery origin adults provide the bases for fisheries downstream from the dams where they may also spawn, while only wild fish would be transported upstream, preserving their genetic integrity. The current management scheme is at odds with the genetic isolation provided by the split-basin approach. This approach is also an affront to the idea of providing wild fish access to their natal streams as any unmarked progeny from upstream returning as an adult would be unclipped and therefore prevented from returning to its natal stream. Even if hatchery stock is frequently supplanted with infusions of wild fish, and there is not a measurable loss of fitness among hatchery origin spawners, measuring success, in terms of cohort replacement rate would be difficult.

    To be consistent with the Recovery Plan, all unclipped adult steelhead and Chinook salmon that arrive at Corps adult traps at Minto, Foster, Cougar and Dexter dams should be transported to sites upstream from their respective reservoirs.

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Due to a limited number of individuals imprinted on upstream habitats, re-establishing self-sustaining (CRR ≥ 1) populations may require several generations as fish imprinted on downstream habitats placed upstream may leave without spawning, following their imprinting downstream.

Modifying fishery management would require developing a consensus among the Corps, ODFW, NMFS, and FWS. As such, the Corps should demonstrate its support for fishery management that comports with species Recovery Plans in this DPEIS.

21. Section 5.4.1 Implementation of the Preferred Alternative. Overall, implementation of the proposed fish passage and water quality improvement structures is too slow and the rationale for the priorities displayed in the schedule (Figure 5.4.1) unexplained.
    a. No timeline for construction of the permanent temperature matching system at the Foster trap is presented. As the need for this structure has been demonstrated, final design and construction should be expedited.
    b. Appendix N, Section 2.1. "While these (court-ordered) actions are tracked in this Implementation Plan, the structural injunction measure will undergo a separate NEPA process that will assess the direct, indirect, and cumulative impacts of their effects on the human environment." To expedite implementation of these measures, compliance with NEPA should be provided by way of Categorial Exclusions if possible, or brief EAs if not.
    c. Appendix N, Page N-52. The proposed performance metrics are inadequate and call into question the life-cycle modeling performed to evaluate effects. The Corps intends to measure dam passage survival (DPS) of only juveniles detected in the dam forebay (Figure 5-3). This measure of success would ignore fish losses that occur within the body of the reservoir. The Corps should adopt measures of DPS that measure survival from reservoir entry to the unimpounded river, including all of the reservoir and the downstream re-regulating pool and dam. Adult fish collection at the base of Green Peter Dam isn't currently needed. Adult fish needed to seed habitat upstream are being collected at the Foster trap and that could continue. Ongoing monitoring could determine if a new trap is needed within 5 years of ROD signing.
    d. Juvenile fish passage using existing dam facilities and modified operations is currently being implemented. Until the effectiveness of those measures is known, planning to develop juvenile collection systems (FSSs and FSCs) at Detroit, Cougar and Lookout Point dams at this time is premature. **Within 7 years of ROD issuance, and following at least 5 years of implementing aggressive operational measures, the Corps, in consultation with NMFS and FWS, should determine if operational measures are sufficient to support species recovery and, if needed, initiate design/construct projects to meet juvenile passage needs.**
22. Section 5.5 Adaptive Management Plan. This plan is incomplete. Both performance evaluation and the development of remedial action should engage the regulatory agencies (NMFS and FWS) and interested parties (e.g. municipalities). The Corps should commit

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to periodic check-ins at predetermined intervals to track measure implementation and performance.

23. Appendix E. Life Cycle Modeling. Alternative 5, the preferred alternative, was not modeled. This was likely due to time constraints as the preferred alternative was developed late in the process. Given the overly high fish passage efficiency attributed to floating screen structures (FSS) and floating surface collectors (FSC), it is likely that life cycle modeling of Alternative 5 would provide similar results to that for Alternative 4, which presented a high species viability (VSP) scores. For reasons given below, these modeling results are unreliable.
24. Appendix E, Page E-47. "… it is important to recognize that the collectors discussed in the DPEIS and the BA have yet to be successfully implemented and there is considerable risk and uncertainty about the realized effectiveness of these structures." I agree. The referenced study by Koch et al. (2021) shows that FSCs have highly variable fish collection efficiencies (from head of reservoir), ranging from about 2% to over 90% at one project. This wide range of FCEs suggest that the life-cycle model used to compare the VSP scores should also carry very wide ranges of possible outcomes. Further, the majority of the structures investigated by Kock et al. (2019) were FSCs, rather than FSSs, which likely perform differently, thereby adding to model error.
25. Appendix E, Table 1-42. The FCE values presented are unlikely to be achieved and should not be used in life-cycle modeling. The referenced Kock et al. (2019) study presented FCE values for head of reservoir releases, forebay releases, and near collector entrance releases. This is clearly not a single population of data and it is unsurprising that the results of using Kock et al.'s regression equation to obtain FCE estimates for proposed FSSs are unrealistic. For example, the value given for steelhead in Table 1-42 is greater than 1, an impossibility. The value given for Chinook salmon is a negative value, which is also impossible. The Kock et al. study likely has value in sizing fish collectors, but the regression for FCE should not be used in life-cycle modeling.
26. Appendix E, Page E-411. "Alternatives that relied solely on operational passage, 3a and 3b, did poorly compared to the other alternatives. It is beyond the scope of this report to detail differences between structural and operational passage at high head dams; however, it appears much of the inefficiency inherent in operational passage (as expressed in the FBW) comes from periods of time when the reservoir elevations are not ideal for passage through regulating outlets or via spill." This statement assumes that operational passage would be constrained to follow existing reservoir storage rule curves. Year-round deep drawdowns were not considered. As described above, reservoir and dam passage survival would be greatly improved by deep, year-round drawdowns, which were not analyzed.
27. Appendix J. The flow duration analyses presented is not very useful in identifying and comparing the streamflow related fish habitat effects of the alternatives. Either fish-use seasonal evaluations, or monthly analyses would provide a better opportunity to evaluate fish habitat effects. Side-by-side comparisons would be more useful than displaying each alternative separately.

CONCLUSION

The DPEIS is inadequate.

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- It fails to fully disclose the purpose of the action (e.g. storage reallocation).The range of operational measures considered was truncated by extensive reliance on existing operating criteria.
- Very little evidence was provided to demonstrate that operational measures to pass juvenile UW Chinook salmon and steelhead would be inadequate, largely because a limited range of operational measures were considered.
- The proposed duration of the action is too long. It focuses on measure implementation goals rather than fish passage success metrics. In doing so it fails to recognize the experimental/iterative nature of achieving successful fish passage at high head dams.
- The preferred alternative should be incremental, implementing actions, evaluating their effects, and revising or replacing the action as shown to be needed.
- The life-cycle model used to compare the likely success of those alternatives that were evaluated is unreliable. It assumes very high fish collection efficiencies for proposed floating screen structures that are unlikely to be achieved.
- It fails to focus on the Corps' obligation to further species recovery efforts.
- The preferred alternative's reliance on extensive structural measures (temperature towers, TDG abatement, floating screen structures and floating surface collectors) that would be very costly and require Congressional approval, makes it both expensive and uncertain to occur.
- Deep drafts, a less expensive and potentially highly effective juvenile passage measure, were not thoroughly investigated.

Sincerely,

Richard Domingue, Professional Hydrologist, NMFS ret.

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Part II Addendum: Reservoir Refill, Spills and Climate Resilience Provided by Richard Domingue, Professional Hydrologist, NMFS ret.

The Corps has chosen not to consider actions that might modify operations in a manner that it considers could potentially affect its FRM actions. While it is reasonable for the Corps to reject actions likely to limit its ability to manage flood risk absent detailed investigation, hydrologic work presented in the DPEIS makes it clear that such changes could provide meaningful benefits (e.g. Appendix B, Table 7-2). Further, the changing climate shows that there are risks not considered when operations were originally devised.

There are beneficial operational measures the Corps could adopt now without any additional flood risk, such as delaying refill when appropriate. Others, such as extending the duration that surcharges (storage above the minimum conservation pool (rule curve)) is allowed to persist to improve the likelihood of refill in dry years, require additional study. Given the scope and scale of the analyses presented in support of the DPEIS, the Corps clearly has the expertise to conduct detailed flood risk assessments of alternative operations. These measures should be further evaluated for flood risk and adopted when appropriate.

Refill

Refilling the WVS's large storage reservoirs incurs two risks; low conservation season storage, and forced spills due to large freshets when the reservoir is full, termed: fill and spill. Both of these risks have implications for aquatic resources. In the event of low conservation season storage, downstream minimum flows could be reduced, and discharge temperature control made more difficult. In the event of filling and spilling, high to toxic levels to TDG may be generated.

The Corps refills its projects using fixed storage reservation diagrams or rule curves, designed decades ago to capture water under a range of conditions, recognizing that at times the reservoirs would not fill, and at other times, fill and spill.

Likelihood of refill/Conservation season storage Work presented in Appendix B on extending the duration that surcharges are allowed to persist during refill (February through May) from the current 7 – 10 days to 14 days demonstrates potential increases in conservation season storage. Extending the duration of surcharges also has the potential to reduce the magnitude of spills that cause high TDG production. The Corps has chosen not to conduct the detailed flood-risk analyses that would be needed to adopt this measure. Other approaches to increasing the likelihood of refill, such as an earlier start date during dry years, have also not been considered. In large measure, this is due to the difficulty of predicting spring runoff in the primarily rainfall driven Willamette Valley in January, when the action would have to occur. Accelerating refill beyond 14 days would require improvement in Willamette Valley runoff forecasting skill.

Fill and spill Spring flood events in the Willamette valley tend to be smaller and more localized than the large winter rain on snow events, but damaging events do occur (e.g April 2019 event downstream from Dorena Dam). Even smaller fill and spill events should be viewed as generally undesirable because such spills can be harmful to the fish and other biota downstream by generating toxic concentrations of TDG (e.g. May and June 2022 downstream from Big Cliff Dam). The following assessment focuses on operation of Detroit reservoir but should be reviewed for each of the large storage reservoirs operating under Interim Reservoir Risk Management limits.

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Due to a set of increasingly restrictive storage limits set since the reservoir operations were established, the ability of the dams to attenuate spring freshets has been reduced. For example, the original operating plan set el 1569 as full pool at Detroit reservoir and allowed an additional 3 feet or about 11,000 acre-feet for summer flood control storage. By 2011 (Corps Scheduled Water Control Diagram), the full conservation pool had been reduced to el 1563.5 to be achieved on or after May 4 but allowed almost 30,000 acre-feet for summer flood control storage above the maximum conservation pool. This target "full-pool" elevation has since been reduced by an Interim Reservoir Risk Management (IRRM) limit of el 1558.5, a 17,500-acre-foot reduction in available storage. Yet, no change in refill trajectory has been implemented, nor apparently any reservoir flood storage space maintained available to attenuate spring freshets. This means the reservoir is both "full" several days earlier than would have previously been the case, and when full, no summer flood control volume is available to attenuate freshets. As the Corps is aware, refill following these rules resulted in about 3 days of high spill at the dams and toxic (>130%) TDG conditions in the North Santiam River downstream from Big Cliff Dam in early May 2022 during winter steelhead spawning. Toxic TDG concentrations during spawning are particularly harmful because spawning fish remain near their redds for days, increasing the duration of exposure and the likelihood of injury or mortality.

By accelerating refill without setting aside a live storage volume for summer flood control, the IRRM limits have increased the probability of spring and summer fill and spill operations at Detroit/Big Cliff. Such spills can generate harmful to toxic levels of TDG. **The Corps should either allow surcharge above the IRRM limit, if dam-safety permits, or delay refill until the risk of fill and spill has substantially declined to reduce downstream high TDG events. Such a refill delay decision would consider forecasted inflows (e.g. NOAA River Forecast Center's (RFC) 10-day forecast), prevailing climatic conditions, and probability of refill estimates. The existing WATER process as described on page 3-43 would seem well-suited to this task.**

Not all high TDG-generating events can be avoided, but thoughtful refill management could reduce their occurrence during steelhead spawning. To be clear, delaying refill to reduce the risk of fill and spill operations would not in any way increase flood risk, but would reduce it.

While I have only taken the time to review operating limit changes through time at Detroit reservoir, all projects operating under IRRM likely also have a somewhat increased probability of fill and spill operations due to the loss of available summer flood storage. But the issue is perhaps most acute at Detroit because refill is a high priority and the need to avoid fill and spill is high due to high TDG production and the presence of listed fish.

Climate Resilience

The lingering snowpack and atmospheric river events of May and June 2022 were unusual events when viewed through the lens of the historical record. However, over the past 43 years in North America, the frequency of unusual heat and precipitation events is increasing rapidly: "The yearly trends of the risk of a 100-y high-temperature event show an average 2.1-fold increase over the last 41 y of data across all months, with a 2.6-fold increase for the months of July through October. The risk of high rainfall extremes increases in December and January 1.4-fold, but declines by 22% for the spring and summer months (PNAS 2022).

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Over the past 30 years (1986-2016), mean annual temperatures have increased by 1 to 2° F throughout the Pacific Northwest and precipitation in the Willamette Valley has increased by about 5% (Appendix F, Figures 3-2 and 3-3). Also, "… the Pacific Northwest has experienced a moderate increase in the precipitation falling during extreme events. This indicates that extreme events have been becoming increasingly intense over the past decades. The observed trends in heavy precipitation are supported by well-established physical relationships between temperature and humidity. These increases in annual and extreme precipitation depths and volumes have various implications for reservoirs, particularly those intended for flood risk management." Page F1-12.

The Corps' CHAT model and vulnerability assessment (VA)(Appendix F, Chapter 7) suggest possible higher runoff volumes and peak flows during the winter and spring with less change from current norms during the summer with prolonged drought as a vulnerability.

The VA also suggests physical plant modifications to allow a greater range of safe operation to increase WVS resiliency in the face of an uncertain hydrologic future. The Corps has undertaken gate improvements in recent years that have improved climate resilience. By increasing structural resilience such measures benefit all project purposes.

However, improving physical system performance is not the only mechanism available to increase WVS resilience in the face of climate risks. Increasing operational flexibility, using real-time and forecasted climate and hydrology data to inform operations, particularly during refill, would improve WVS response to changing hydrologic conditions at low cost.

The Corps should also seek to improve refill-season runoff forecasting to better manage refill for all project purposes. Operations evaluations should take place every 5-7 years throughout the 30-year life of the preferred alternative to incorporate new information, forecasting improvements, and lessons learned. It would benefit the WVS's climate resilience to adopt more flexible operations as forecasting skill allows.

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Part III: Additional comments provided by NGOs

Purpose and Need; Objectives

The DPEIS details two components of the purpose and need:

1) Manage for the Congressionally authorized purposes;
2) Meet the requirements under the ESA.

The purpose and need statement also acknowledges the need to be responsive "to changes in WRB conditions and new information related to system operations and technology, the affected environment, policies, and regulations such as the ESA" (DPEIS, p. 2-1). We suggest that this statement be amended to include specific acknowledgement that authorized purposes may change during the time horizon of the plan.

The DPEIS should also acknowledge that ESA obligations supersede desires to balance or maximize achieving the other authorized purposes except in the case of meeting flood control objectives and maintaining human health and safety. As explicated in *Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al.,* court case No. 3:18-cv-00437-HZ, the Corps has the discretion to implement operations that benefit listed fish at the expense, but not complete elimination, of the other authorized purposes.

We recommend that the Corps better articulate the purpose and need by amending point two to read: "Meet the requirements under the ESA **to ensure the survival and recovery of ESA-listed species**" (suggested edits in bold).

Complementing the purpose and need statement are seven Objectives that, if met, the Corps believes will achieve the desired outcomes articulated in the Purpose and Need (DPEIS, pg ES-17). It is a combination of both the Purpose and Need and Objectives that "guided the development of a reasonable range of alternatives" (DPEIS, pg ES-17).

While this structure provides a framework from which to develop the range of alternatives, Objective 3–allow greater flexibility in hydropower production–inappropriately constrains the alternatives analyzed. We recommend that Objective 3 be amended as follows: "Allow greater flexibility **or potential elimination** of hydropower production" (suggested edits in bold).

We agree that at present the Army Corps must be "flexible"[4] in producing hydropower. Flexibility in hydropower production enables consideration of a host of alternatives that would otherwise be constrained, less effective, or incompatible with a continued focus on maximizing hydropower production on the system. However, the Corps should be analyzing alternatives that consider the elimination of hydropower altogether. Failing to do so eliminates potentially effective alternatives from consideration and may change the efficacy of some of the existing proposed alternatives.

[4] We take the meaning of "flexible" as the ability to change the amount and timing and hydropower produced at individual dams in order to accommodate operations that are beneficial for other authorized purposes and to meet ESA obligations and operations.

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Additional measures/alternatives that should be included and analyzed in the DPEIS

While hydropower production was included as a purpose when Congress authorized the Willamette Valley System, production has had a major impact on past operations and contributed to the decline of threatened fish species. These impacts include diminishing the effectiveness of downstream fish passage and causing impacts to downstream flows and water quality.

Measures that should be considered in the analysis include but may not be limited to:

- Elimination of hydropower production: The Corps should assess operational measures that would be feasible if hydropower were eliminated at all projects or select projects. This should include:
    - Modification or removal of non-flood control dams: Dexter and Big Cliff are hydropower reregulation dams that do not serve any flood control purposes. As such, the Corps must produce and evaluate measures which include modification or removal of these dams to support the recovery of listed species. For example, measures that should be incorporated for consideration include operating these dams as run-of-the-river without hydropower operations or removing them completely.

    - Re-evaluate effectiveness of existing alternative downstream passage measures at Detroit, Hills Creek, and Lookout Point dams: Operating the reregulation dams as run-of-the-river without hydropower operations, or removing them completely, will enable the Corps to more fully evaluate operational changes to Lookout Point, Hills Creek and Detroit dams that are currently constrained by the presence and operation of the reregulation dams. For instance, establishing more effective volitional juvenile downstream passage (or passage without dams) at the reregulating dams may substantially improve the effectiveness of Detroit and Lookout Point volitional juvenile downstream passage alternatives analyzed in the DPEIS. Temperature impacts of a water temperature control tower at Hills Creek should also be re-evaluated in a scenario in which Dexter Dam has been removed and Lookout Point Dam is operated with longer drawdowns or run-of-river operations.

    - Additional volitional downstream passage operations: The Corps should evaluate measures to modify dams to allow run-of-river operations for most or all of the year (except when flood control storage is necessary), extended drawdowns, and measures evaluating passage opportunities through reconfiguring powerhouse routes from hydropower to non-hydropower producing outlets at all projects. Operational passage measures similar to those at Cougar dam should be evaluated at Hills Creek Dam.

Why the Corps must consider alternatives currently outside the agency's authority.

Recent Congressional Directives

Due to the high cost and uncertain success of downstream passage structures, Congress has indicated an interest in deauthorizing the hydropower production authority currently in place for

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the WVS. In the Water Resources Development Act (WRDA) of 2020, Congress directed the Army Corps to evaluate elimination of hydropower at Cougar and Detroit Dams.

In the WRDA 2022 (Incorporated as Sec. 8220 of H.R.7776 - James M. Inhofe National Defense Authorization Act for Fiscal Year 2023), Congress directed the Army Corps to undertake a disposition study of hydropower production for the WVS. Many of the requirements for the study can be produced through the DPEIS process as directed by Sec. 8220(a)(2):

> (2) Contents.--In carrying out the disposition study under paragraph (1), the Secretary shall review the effects of deauthorizing hydropower on--
>
> (A) Willamette Valley hydropower project operations;
>
> (B) other authorized purposes of such project;
>
> (C) cost apportionments;
>
> (D) dam safety;
>
> (E) compliance with the requirements of the Endangered Species Act (16 U.S.C. 1531 et seq.); and
>
> (F) the operations of the remaining dams within the Willamette Valley hydropower project.

These legislative directives indicate a Congressional interest in pursuing hydropower deauthorization. As such, the DPEIS should consider new and existing alternatives through the lens of hydropower elimination at specific dams and across the WVS as a whole. By undertaking this work in the DPEIS, the Army Corps will be able to meet the Congressional timeline of completing the study by July 2024 (as opposed to the Corps' proposed completion of 2028).

Legal obligation to analyze a reasonable range of alternatives

To ensure informed, environmentally sound decision making, agencies should identify and analyze a reasonable range of alternatives, even if an alternative extends beyond the lead agency's authority. Under NEPA, agencies are to provide decision makers, as well as the public, with a reasonable range of alternatives, including those which are beyond the agency's jurisdiction, as this practice promotes informed decision making. If an alternative is readily identifiable, it is reasonable, and it must be explored and objectively evaluated. California v. Block, 690 F.2d 753, 766 (9th Cir. 1982). Courts apply a "rule of reason" to determine what is reasonable or feasible. Citizens Against Burlington v. Busey, 938 F.2d 190, 195-196 (D.C. Cir. 1991).This determination is made by reference to the purpose of the proposed action rather than the agency's statutory authority. Id. While an agency need not consider every possible alternative, it must consider alternatives that are consistent with basic policy objectives. Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 814 (9th Cir. 1999). A failure to analyze a reasonable alternative that encapsulates the policy objectives of the proposed action is counter to the objectives of NEPA.

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Regulations have historically mandated that agencies consider alternatives regardless of the agency's statutory authority. 40 C.F.R. § 1502.14(c)(1977). An agency was not permitted to reject a reasonable alternative because it was "not within the jurisdiction of the lead agency." Nat'l Wildlife Federation v. Nat'l Marine Fisheries Service, 353 F.Supp.2d 1143, 1154 (W.D. Wash 2002). Courts have continually rejected Environmental Impact Statements, as well as agency arguments that state that alternatives could not be analyzed because they were beyond the statutory authority of the lead agency. Id. (Rejecting Corps' argument that they could not analyze other sediment control strategies because they did not have the authority to implement such a strategy); see also Natural Res. Def. Council v. Morton, 458 F.2d 827, 836 (D.C.Cir. 1972)(Recognizing that an alternative which requires legislative implementation must still be analyzed as an alternative to satisfy NEPA).

While the Trump administration took out the explicit language which mandated agencies to consider alternatives beyond their jurisdiction, the 2022 Final Regulations endorse that there will be scenarios where an alternative is both reasonable and beyond an agency's authority. See 87 Fed. Reg. 23453 ("There may be times when an agency identifies a reasonable range of alternatives that include alternatives…that go beyond the goals of the applicant or outside the agency's jurisdiction because the agency concludes that they are useful for the agency decision maker and the public to make an informed decision.") The spirit of NEPA is to promote sound decision making, and other NEPA regulations emphasize that sound analysis may go beyond one agency's jurisdiction or expertise. See e.g. 40 C.F.R. § 1508.1(e)(2022)("Cooperating agency means any Federal agency other than a lead that has jurisdiction by law or some special expertise with respect to any environmental impact involve in a proposal (or a reasonable alternative) for legislation or other major Federal action that may significantly affect the quality of the human environment"). Consequently, if an alternative is reasonable, it must be objectively analyzed in order to give effect to the environmental and decision making goals set forth in NEPA. 350 Montana v. Haaland, 50 F.4th 1254, 1265 (9th Cir. 2022).

ESA obligations in relation to other authorized purposes

The agencies must consider alternatives like extended drawdowns and year-round drafting of reservoirs that prioritize ESA-listed fish above other project purposes. The Ninth Circuit and U.S. District Court of Oregon have recognized the Corps' discretion to manage dams on the Columbia River for the benefit of threatened fish. *Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al.,* Case No. 3:18-cv-00437-HZ; *NWF v. NMFS*, 524 F.3d at 928-29; Nat'l *Wildlife Fed'n v Nat'l Marine Fisheries Serv.*, 2005 WL 1278878, at *9-10 (D. Or. May 26, 2005).

The Flood Control Acts authorizing these federal dams imposed broad goals but did not dictate how the Corps must fulfill those goals, giving the agency considerable discretion in choosing what specific actions to take. *See NWF v. NMFS*, 524 F.3d at 928-29. Moreover, subsequent to the Flood Control Act of 1950, the Fish and Wildlife Coordination Act and the Northwest Power Act specifically called for fish and wildlife conservation when managing the dams. *Id*. at 929 n. 8; *NWF vs NMFS*, 524 F.3d at 929.

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Thus, these courts have ordered the Corps to conduct operations to benefit fish at the expense of other project purposes like hydropower and recreation. *NWF v. NMFS* , 2017 WL 1829588, at *6, Aff'd, 886 F.3d 803.

Other courts have recognized that Flood Control Acts impose broad goals, and the Corps has broad discretion when balancing the multiple uses of dams, requiring compliance with the ESA. These include: *Miccosukee Tribe of Indians of Florida v. U.S. Army Corps of Eng'rs*, 716F.3d 535, 541-45 (11th Cir. 2013); *In re: Operation of the Missouri River System Litigation*, 421 F3d 618, 625 (8th Cir. 2005); *Am. Rivers v. U.S. Corps of Eng'rs*, 271 F.Supp.2d 230, 252-53 (D.D.C. 2003).

The same reasoning applies here. The Willamette Valley System was authorized by Flood Control Acts—including the one that applied to the Columbia River dams—that impose broad goals and do not mandate specific dam operations. (*See* supra p. 4; Flood Control Act of 1950, Pub L. No. 81-516, § 204, 64 Stat. 163, 178-79 (1950)). Accordingly, the Corps has the discretion to alter the management of the Willamette dams to benefit ESA-listed species at the expense of other uses—including power production and recreation—just as it does with the Columbia dams. The ESA requires the Corps to exercise that discretion to benefit ESA-listed species, even if that requires prioritizing fish needs above other authorized purposes.

Even if the Corps lacked authority to conduct operations or make improvements to operations to protect ESA-listed fish, the Corps should seek authorization from Congress to do so. Indeed, the 2008 Biological Opinion RPA required the Corps to identify where the agency lacks the authority to accomplish the required measures and to seek Congressional authorization where necessary to complete the mandated actions (RPA 4.8 (Interim Downstream Fish Passage through Reservoirs and Dams); 4.12 (Long-term fish passage solutions); 5.1.3 (Complex Interim Water Quality Measures) 5.2 (Water Temperature Control Facilities and Operations) 5.3.4 (Protecting Water Quality during Emergency and Unusual Events or Conditions)).

Problems with fish collectors for juvenile downstream passage.

The Corps "preferred alternative" fails to acknowledge the region wide problems with fish collectors for downstream passage including:

Low confidence in potential success of juvenile fish collection facilities

The parameterization and results in the Fish Benefit Workbook (Appendix E) for fish collection facilities relies on very limited data gathered from the handful of collectors in operation (as provided in Kock et al. 2019). As a result, we have low confidence in the accuracy of the results that suggest fish collection facilities will have a high rate of dam passage efficiency for both spring Chinook and winter steelhead. It is unclear if and how the Army Corps accounted for additional available information and science in assessing the potential success of Measure #392 (Construct Structural Downstream Fish Passage), particularly in relation to the use of fish collection facilities (described as Floating Screen Structures or Floating Surface Collectors in the DPEIS).

In *Synthesis of Downstream Fish Passage Information at Projects Owned by the U.S. Army Corps of Engineers in the Willamette River Basin, Oregon*, the authors note of a trial fish

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collector operated at Cougar Reservoir in 2014 and 2015, "Collection of juvenile Chinook salmon through the PFFC was evaluated during 2 years and was very low" (0.2% in 2014 and 1% in 2015) (Hansen et. al. 2017, pg.62) and "was determined to be ineffective" (Hansen et. al. 2017, pg.66). The Corps needs to disclose why the Fish Benefit Workbook results for a fish collection facility at Cougar modeled a significantly higher rate of success than was originally observed through testing of the PFFC and why the results of the trial were not incorporated into DPEIS analysis.

A study published in January 2019 by Kock et. al. (used in the DPEIS to craft a model of passage efficiency for fish collectors at WVS projects) assessed fish collectors in forebays of high-head dams. The authors concluded: "Collection efficiency of these facilities has ranged from nearly 0% to 100%, suggesting the need for a better understanding of factors affecting performance in these complex environments if they are to be designed and deployed at new sites." The sites that performed better were run-of-river projects with small reservoirs, high collector inflow, and small forebays, which is not the case at Detroit and Lookout Point reservoirs where non-volitional fish collection facilities are proposed as part of the preferred alternative.

At public meetings in the spring of 2019 for the Detroit Dam & Lake Downstream Passage Project, Army Corps staff indicated that they utilized lessons learned at other projects, like that of Pelton Round Butte (PRB) on the Deschutes River just one basin to the east, to inform the design and operations of the downstream fish collection facility passage project for Detroit. PRB, operated by the private utility company Portland General Electric, includes a water temperature control tower and associated fish collection facility (similar to what's proposed in the preferred alternative at Detroit Dam).

However, the DPEIS fails to provide any references to the reintroduction and recovery efforts at the PRB project. Such information may be useful in determining the potential efficacy of the proposed action in meeting recovery goals in the North Santiam and Middle Fork Willamette rivers. For instance, after more than ten years of operation, juvenile collection efficiency for spring Chinook salmon and summer steelhead remains far below the goal of 75%. Adult returns have been dismal. In 2018, only five adult spring Chinook salmon that had migrated downstream through the fish collection facility as juveniles returned as adults to the Pelton Trap. Even in the best collection year, spring Chinook returns to the Pelton Trap barely surpass 50 fish.[5] A large body of research has been conducted around the PRB reintroduction program with results showing that flows, flow timing, hatchery practices, smolt acclimation, water quality, and a number of other factors impact reintroduction outcomes. We encourage the Corps to review this information, reach out to PGE, ODFW, and Confederated Tribes of Warm Springs Indians, and incorporate the knowledge gained and lessons learned into the modeling and analysis for structural downstream passage measures.

Perhaps even more relevant are the results and data from the fish collection facility and operations at Swift Dam on the North Fork Lewis River. This program, operated by PacifiCorp,

[5] 2014-Present Deschutes River daily adult fish count at the Pelton Trap data can be accessed at: https://www.portlandgeneral.com/corporate-responsibility/environmental-stewardship/water-quality-habitat-protection/fish-counts-fish-runs/deschutes-daily-fish-counts

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has a number of similarities to the Willamette Valley System including the fact that the collection facility must be able to operate at a wide range of pool elevations.

Collection efficiency data presented in Kock et al. 2019 show extremely low rates of .112 and .016 for steelhead and chinook respectively. Modifications at Swift have continued to be made, and the Army Corps should reach out to fish passage managers at PacifiCorp to obtain and review the body of literature and data that has been collected.

Delayed mortality, transport, and juvenile stress relief/acclimatization

Delayed mortality does not appear to be considered in the Army Corps' analysis and should be factored in. Like many of the factors contributing to the overall success of non-volitional collection facilities, delayed mortality has been studied at a limited number of similar locations. Other projects like those at PRB and Swift have built or upgraded juvenile acclimation facilities where collected fish are given time to recover after transport but before release into downstream waters. However, limited data exist on delayed mortality post-release. It is unclear whether such facilities are being considered for the passage projects at Detroit and Lookout Point Dams and how the presence, absence, use, and design of such structures may impact overall passage mortality.

Predation

How does the Army Corps' analysis account for aquatic and terrestrial predation in reservoirs before fish are collected and at downstream release sites? Fish collection facilities around the region have experienced negative impacts to collection rates from predation. For instance, at both the PRB and Swift downstream collection facilities, juvenile fish tend to congregate and mill about the area in front of the collection entrance. As a result, bull trout and other piscivorous fish have been observed congregating around the collector entrance while piscivorous birds have similarly congregated on nearby floats and booms, increasing predation on juvenile fish in the reservoir. Predation at downstream release sites has also been a common problem observed in other trap and haul systems.

Reservoir thermal stratification

Because of the large volume of water maintained in most reservoirs of the WVS in the summer, thermal stratification is common. When surface temperatures become warmer, juvenile fish are likely to move down in the water column as they attempt to find cooler temperatures. Because of this, juvenile fish may be less likely to be attracted to surface collection devices, delaying migration (Kock et al. 2020).

The DPEIS fails to incorporate a robust adaptive management strategy

The DPEIS explains the concept of adaptive management, including the need for key aspects to be well defined including: monitoring, decision criteria, performance metrics, targets, evaluation, and decision triggers. The DPEIS and associated Appendix N: Implementation and Adaptive Management Plan, outline how these key components of adaptive management will be formulated to inform refinement and change of individual proposed measures. However, we encourage the Corps to ensure that targets are well defined and associated with specific

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timeframes. For example, for Detroit near-term operations performance targets (DPEIS Appendix N, pg. N-48), key indicators of fish passage success use a general target of "Increase in the number of juveniles passing" and "Increase in the distribution of fish lengths passing downstream." The Corps should outline what degree of increase and over what time period will be adequate to consider the measure a success. Otherwise, any amount of increase could be considered a success, but may not support species recovery or avoid continued jeopardy.

The Corps should also outline what metrics will be used to evaluate whether the plan as a whole is adequately contributing to the conservation and recovery of the species at the Evolutionarily Significant Unit (ESU) and Distinct Population Segment (DPS) level for UWR Chinook salmon and winter steelhead respectively. Without a population-wide perspective, the Corps will not know if the sum of the individual management measures is having the intended effect of preventing jeopardy to the species or contributing to the overall recovery of ESA-listed populations.

The adaptive management timeline via the WATER team process calls for adaptive management recommendations to be at least two fiscal years in the future. Given the dynamic nature of water management, the adaptive management plan should be flexible enough to enable operational adjustments depending on seasonal environmental conditions and forecasts. The plan should outline a process to make real-time decisions on trade-offs between water conditions, flows, and fish passage.

Adaptive management success will also depend on having adequate monitoring and data collection. The DPEIS and associated Appendix N indicate that "Study designs and methodology to assess the defined metrics will be determined during implementation so that the best available scientific approach and methods can be applied." At present, many of the interim downstream passage injunctive measures (many of which are proposed to continue as near term measures under the plan), are being monitored via screw trap collection of juvenile fish. We encourage the Corps to include the use of more descriptive data collection measures via tagging and tag arrays in tributaries and at Willamette Falls. RM&E plans should be developed now so that monitoring can be deployed immediately upon plan execution. Monitoring should also include more robust data collection of adult fish returns, distribution, pre-spawn mortality, and spawning.

Implementation timelines need to be accelerated

The Corps proposed timeline for key operational measures puts salmon and steelhead at increasing risk of extinction. The Corps needs to accelerate timelines for implementation of key measures.

As we stated in our scoping comments, the Corps is so far behind schedule on meeting multiple actions outlined in the 2008 BiOp's RPA that UWR Chinook salmon and steelhead are in jeopardy of extinction. This was affirmed by the U.S. District Court in *Northwest Environmental Defense Center, et al. v. United States Army Corps of Engineers, et al.,* Court case No. 3:18-cv-00437-HZ when the court found that "Far short of moving towards recovery, the Corps is pushing the UWR Chinook and steelhead even closer to the brink of extinction. The record demonstrates that the listed salmonids are in a more precarious condition today than they were at the time NMFS issued the 2008 BiOp."

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The Corps' failure to substantively address fish passage and water quality needs has directly contributed to the decline of the species. As such, the Corps needs to pursue even more aggressive measures and timelines to turn the tide and help begin species recovery. The Corps does not have a thirty year time horizon to fully implement the measures that the agency hopes will stop jeopardizing listed species.

The Corps cannot make implementation of measures, especially key measures like downstream passage, contingent on funding. The ESA obligates the Corps to stop jeopardizing the species; it's the Corps' responsibility to appropriately manage their budget and make adequate appropriations requests to meet these obligations. Outlining a "best case" timeline in the DPEIS is not adequate or acceptable.

In addition, the Corps has received directives from Congress regarding delivering the hydropower disposition study by July 2024. The Corps does not have the authority to make its own timeline for completion and delivery of this study which is currently listed in the DPEIS timeline for 2028, four years after the Congressional deadline mandated in WRDA 2022.

We strongly encourage the Corps to accelerate timelines for the hydropower disposition study as well as Cougar Diversion Tunnel Construction. The diversion tunnel project is currently outlined for completion in 2040. It includes nearly 5.5 years for engineering and design before construction is predicted to commence. We urge the Corps to begin this project immediately upon the start of the planning horizon. Further, the Corps should take actions to accelerate planning, design, and construction timelines for Cougar RO modifications, Cougar Diversion Tunnel Construction, the Detroit Selective Water Withdrawal Structure, Big Cliff TDG Abatement, and the Foster Downstream Fish Passage Structure projects.

The plan should also include contingencies for accelerating completion of the above listed projects if monitoring indicates populations become at greater risk for extinction or local extirpation or if project implementation timelines are not being rigorously met and adhered to.

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References

The following references should be considered by the Corps in their evaluation. Copies have been submitted for review.

General

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Documents related to: Northwest Environmental Defense Center, WildEarth Guardians, & Native Fish Society v. United States Army Corps of Engineers and National Marine Fisheries Service. Case No. 3:18-cv-00437-HZ

Opinion & Order (Injunctive Relief) - 2021

Willamette Project Interim Injunction Measures - Research, Monitoring, and Evaluation Plan

Summary Judgement - 2020

Plaintiffs' Opening Brief on Remedy

Third Declaration of Richard A. Domingue In Support of Plaintiffs' Request for Permanent Injunctive Relief

Fourth Declaration of Kirk Schroeder in Support of Plaintiffs' Motion for Permanent Injunctive Relief

Brief of Amicus Curiae State of Oregon in Support of Plaintiffs' Proposed Remedies

Amicus Curiae State of Oregon - Declaration of Dr. Elise Kelley

Amicus Curiae State of Oregon - Declaration of Jeffrey S. Ziller

Motion for Summary Judgement and Memorandum in Support

Third Declaration of Kirk Schroeder In Support of Plaintiffs' Motion for Summary Judgment

Declaration of John K. Johnson In Support of Plaintiffs' Motion for Summary Judgment

Second Declaration of Richard A. Domingue In Support of Plaintiffs' Motion for Summary Judgment

Motion for Preliminary Injunction and Memorandum in Support

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Declaration of Kirk Schroeder In Support of Plaintiffs' Motion for Preliminary Injunction

Declaration of Richard A. Domingue In Support of Plaintiffs' Motion for Preliminary Injunction

Declaration of John K. Johnson In Support of Plaintiffs' Motion for Preliminary Injunction

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Southeastern Power Administration
Proposed Appropriation Language

For expenses necessary for operation and maintenance of power transmission facilities and for marketing electric power and energy, including transmission wheeling and ancillary services, pursuant to section 5 of the Flood Control Act of 1944 (16 U.S.C. 825s), as applied to the southeastern power area, $8,449,000, including official reception and representation expenses in an amount not to exceed $1,500, to remain available until expended: Provided, That notwithstanding 31 U.S.C. 3302 and section 5 of the Flood Control Act of 1944, up to $8,449,000, collected by the Southeastern Power Administration from the sale of power and related services shall be credited to this account as discretionary offsetting collections, to remain available until expended for the sole purpose of funding the annual expenses of the Southeastern Power Administration: Provided further, That the sum herein appropriated for annual expenses shall be reduced as collections are received during the fiscal year so as to result in a final fiscal year 2024 appropriation estimated at not more than $0: Provided further, That, notwithstanding 31 U.S.C. 3302, up to $71,850,000 collected by the Southeastern Power Administration pursuant to the Flood Control Act of 1944 to recover purchase power and wheeling expenses shall be credited to this account as offsetting collections, to remain available until expended for the sole purpose of making purchase power and wheeling expenditures: Provided further, That for purposes of this appropriation, annual expenses means expenditures that are generally recovered in the same year that they are incurred (excluding purchase power and wheeling expenses).

Explanation of Changes

No changes.

Public Law Authorizations:
Public Law 78-534, Flood Control Act of 1944
Public Law 95-91, DOE Organization Act of 1977, Section 302
Public Law 102-486, Energy Policy Act of 1992

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Southeastern Power Administration

Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request
Gross	73,637	100,960	94,468
Offsets	-73,637	-100,960	-94,468
Net BA	0	0	0

Outyear Funding ($K)

	FY 2025 Request	FY 2026 Request	FY 2027 Request	FY 2028 Request
Gross	96,640	98,863	101,137	103,463
Offsets	-96,640	-98,863	-101,137	-103,463
Net BA	0	0	0	0

Overview

Southeastern Power Administration (Southeastern or SEPA) exists to carry out the functions assigned by the Flood Control Act of 1944: to market the electric power and energy generated by the Federal reservoir projects to public bodies and cooperatives in the southeastern United States in a professional, innovative, customer-oriented manner, while continuing to meet the challenges of an ever-changing electric utility environment through continuous improvement. Southeastern provides 472 public power customers with 3,392 megawatts of hydroelectric capacity from 22 Federal multipurpose projects, operated by the U.S. Army Corps of Engineers (Corps) at cost-based rates.

Annually, Southeastern produces an average of 7,717 gigawatt-hours of clean renewable hydroelectric energy. Southeastern maintains and upgrades its energy infrastructure to ensure reliable and efficient delivery of Federal power. Southeastern promotes energy efficiency, renewable energy, and sound management of the dispatch and distribution of Federal hydroelectric power resources in the southeastern United States while also meeting national utility performance standards and balancing the diverse interests of other water resource stakeholders. This Budget submission enables Southeastern to promote the effective management of hydroelectric resources.

Program Direction supports day-to-day agency operation and Purchase Power and Wheeling supports acquisition of replacement and pumping power along with contractually required transmission services. Consistent with the authority provided in the FY 2010 Energy and Water Appropriations, the FY 2024 Budget provides funding for annual expenses (Program Direction) through discretionary offsetting collections derived from power receipts collected to recover those expenses.

Highlights and Major Changes in the FY 2024 Budget Request

Compared to FY23 Enacted levels, Southeastern's Request for FY 2024 decreases Purchase Power and Wheeling (-$6.668 million), reflecting changes in transmission rates and rainfall estimates, and increases Program Direction (+$.176 million) based on more accurate cost estimates.

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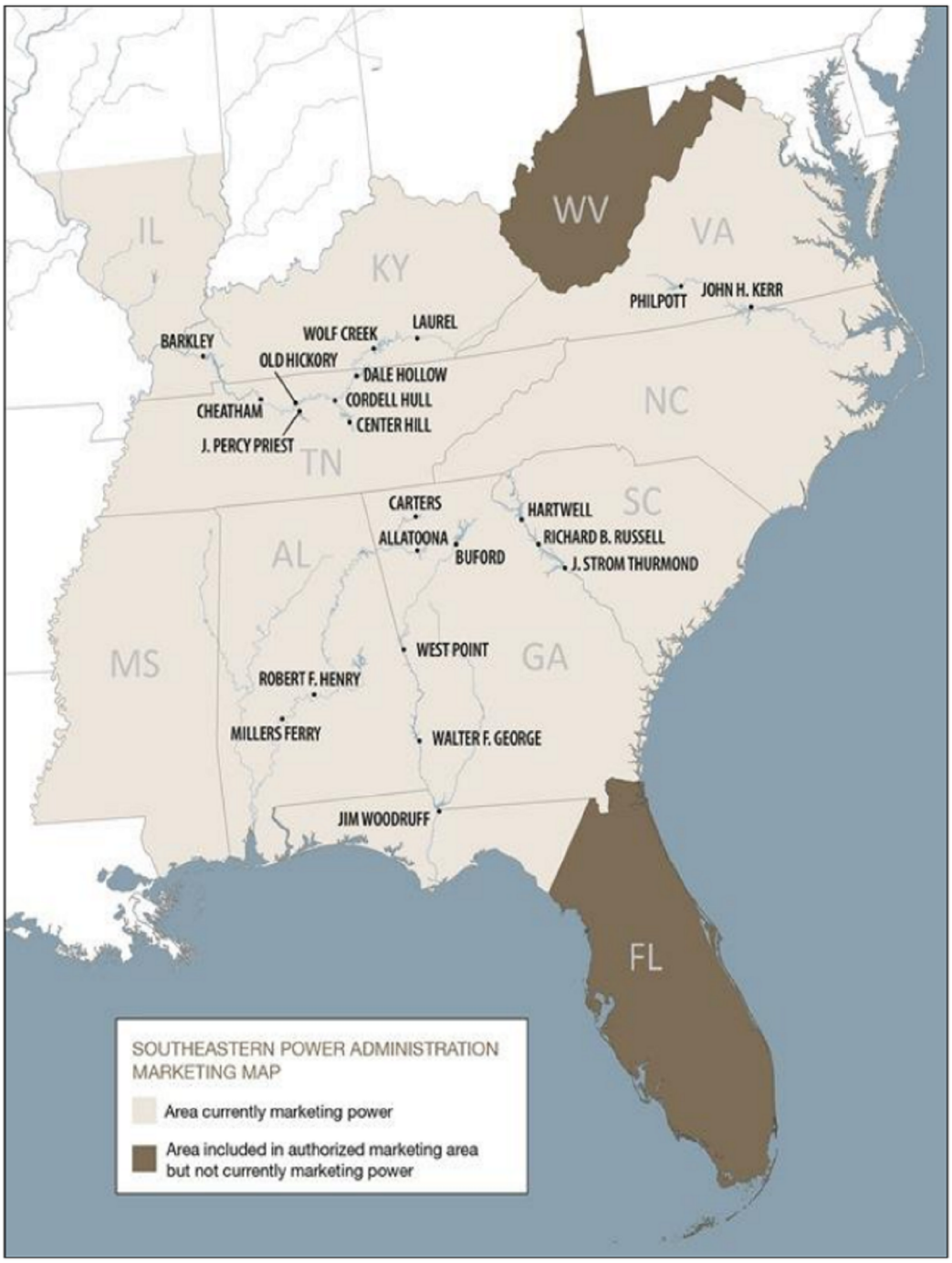
Service Area Map



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Southeastern Power Administration
Funding by Congressional Control ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Southeastern Power Administration					
Purchase Power and Wheeling (PPW)	66,353	92,687	86,019	-6,668	-7%
Program Direction (PD)	7,284	8,273	8,449	176	2%
Subtotal, Southeastern Power Administration	**73,637**	**100,960**	**94,468**	-6,492	-6%
Offsetting Collections, PPW	-53,000	-78,696	-71,850	6,846	-9%
Alternative Financing, PPW	-13,353	-13,991	-14,169	-178	1%
Offsetting Collections, Annual Expenses, PD	-7,184	-8,173	-8,449	-276	3%
Alternative Financing, PD	-100	-100	0	100	-100%
Total, Southeastern Power Administration	**0**	**0**	**0**	**0**	0%
Federal FTEs	**44**	**44**	**44**	0	0%

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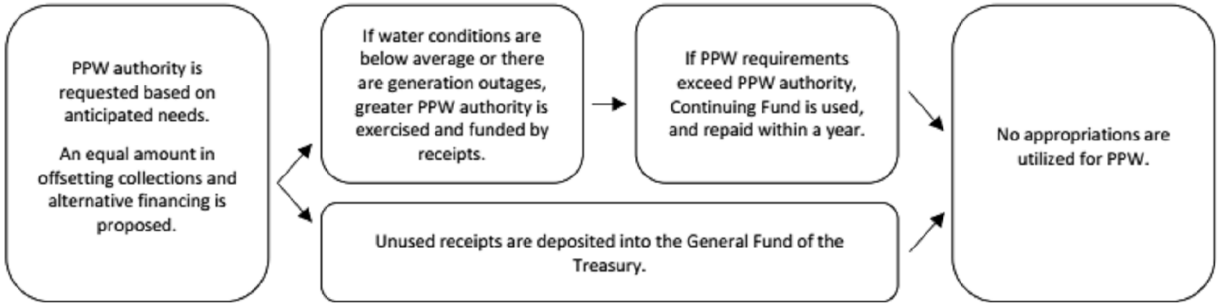
Purchase Power and Wheeling

Overview

The mission of Purchase Power and Wheeling (PPW) is to provide funding for acquisition of transmission services, ancillary services for the system, pumping energy for the Richard B. Russell and Carters Pumped Storage units, and support of the Jim Woodruff Project. Southeastern must purchase power on the open market when its Federal generating assets cannot provide enough power to fulfill its contracts with its customers.

Additionally, because Southeastern does not own or operate any transmission infrastructure, transmission expenses are based on contracts with area transmission providers to deliver specified amounts of Federal power from the hydropower projects to Federal power customers. Southeastern has access to a continuing fund for emergency expenses necessary to ensure continuity of service. Southeastern has implemented a plan to repay any Purchase Power and Wheeling expenditures made through the Continuing Fund within one year.

The FY 2024 Request uses customer receipts and net billing to pay for purchase power and wheeling expenses at no cost to the Federal Treasury. Some customers, acting independently or in partnerships, acquire replacement power and transmission services directly from suppliers. Southeastern will continue to assist its customers by arranging funding for these activities through alternative financing instruments, as needed.



Highlights of the FY 2024 Budget Request

The PPW subprogram supports Southeastern's mission to market and deliver reliable, cost-based hydroelectric power and related services. PPW enables Southeastern to wheel Federal power to preference customers, purchase replacement power, and acquire pumping energy to maximize the efficiency and benefits of Southeastern's hydropower resources. Power and services are marketed at rates designed to provide recovery of expenses and Federal investment, as established by law.

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Purchase Power & Wheeling
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Purchase Power					
Replacement Power	3,797	7,447	115	-7,332	-98%
Russell Project pumping power	6,900	12,017	12,405	388	3%
Carters Project pumping power	5,766	13,244	11,303	-1,941	-15%
Jim Woodruff Project support	2,600	2,000	2,000	0	0%
Total, Purchase Power	19,063	34,708	25,823	-8,885	-26%
Wheeling					
Wheeling service charges	42,580	53,239	55,456	2,217	4%
Ancillary Services	4,710	4,740	4,740	0	0%
Total, Wheeling	47,290	57,979	60,196	2,217	4%
Total, Purchase Power and Wheeling	66,353	92,687	86,019	-6,668	-7%
Alternative Financing					
Net Billing	-13,353	-13,991	-14,169	-178	1%
Subtotal, Purchase Power and Wheeling	53,000	78,696	71,850	-6,846	-9%
Offsetting Collections Realized	-53,000	-78,696	-71,850	6,846	-9%
Total, Purchase Power and Wheeling Budget Authority	**0**	**0**	**0**	0	0%

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Southeastern Power Administration
Purchase Power and Wheeling
($K)

Activities, Milestones, and Explanation of Changes ($K)

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Purchase Power and Wheeling $92,687	**$86,019**	**-$6,668**
Purchase Power $34,708	**$25,823**	**-$8,885**
• On-Peak Replacement Power purchased to meet contract minimum service in drought conditions. • Off-Peak Pumping Power purchased to supplement stream flow energy demand. • Jim Woodruff System Generating Support required for high river flows at low head plant.	• Continuing activities from prior year.	• Reflects anticipated needs based on projected market prices. • FY23 was the first year since FY17 that enacted funding authority matched requested levels. • Due to constrained enacted levels for PPW offsetting collection authority from FY18-FY22, a comparison of requested funding to enacted levels shows significant increases.
Wheeling $57,979	**$60,196**	**+$2,217**
• Transmission expenses based on contracts with area transmission providers to deliver specified amounts of Federal power from the hydropower projects to Federal power customers.	• Continued funding supports ongoing activities.	• Reflects variations in transmission rates. • FY23 was the first year since FY17 that enacted funding authority matched requested levels. • Due to constrained enacted levels for PPW offsetting collection authority from FY18-FY22, a comparison of requested funding to enacted levels shows significant increases.

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Program Direction

Overview

Program Direction provides the Federal staffing resources and associated costs required to provide overall direction and execution of the Southeastern Power Administration. Provision is made for negotiation and administration of transmission and power contracts, collections of revenues, accounting and budget activities, development of wholesale power rates, amortization of the Federal power investment, energy efficiency and competitiveness programs, investigation and planning of proposed water resources projects, scheduling and dispatch of power generation, scheduling storage and release of water, administration of contractual operation requirements, and determination of methods of operating generating plants individually and in coordination with others to obtain maximum allowable utilization of resources.

Highlights of the FY 2024 Budget Request

The FY 2024 Budget Request provides for the continuation of Southeastern's activities related to Program Direction at the level necessary to meet mission requirements.

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Program Direction Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Program Direction Summary					
Southeastern Power Administration					
Salaries and Benefits	5,600	5,800	6,075	275	5%
Travel	50	50	120	70	140%
Support Services	0	0	0	0	0%
Other Related Expenses	1,634	2,423	2,254	-169	-7%
Subtotal, Southeastern Power Administration	**7,284**	**8,273**	**8,449**	176	2%
Offsetting Collections (annual expenses)	-7,184	-8,173	-8,449	-276	3%
Alternative Financing, PD	-100	-100	0	100	-100%
Total, Program Direction	**0**	**0**	**0**	0	0%
Federal FTEs	**44**	**44**	**44**	0	0%
Support Services and Other Related Expenses					
Support Services					
Management and Professional Support Services	0	0	0	0	0%
Total, Support Services	**0**	**0**	**0**	0	0%
Other Related Expenses					
Training	21	35	40	5	14%
Communications, Utilities, Misc.	215	285	287	2	1%
Equipment	132	426	250	-176	-41%
Maintenance Agreements	338	570	540	-30	-5%
Land and Structures	0	0	0	0	0%
Rent to GSA	0	0	0	0	0%
Tuition	50	75	80	5	7%
Contract Services	482	552	617	65	12%
Audit of Financial Statements	263	320	260	-60	-19%
Supplies and Materials	74	85	95	10	12%
Working Capital Fund	50	65	75	10	15%
Printing and Reproduction	9	10	10	0	0%
Total, Other Related Expenses	**1,634**	**2,423**	**2,254**	-169	-7%

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Program Direction
($K)

Activities, Milestones, and Explanation of Changes ($K)

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Program Direction $8,273	**$8,449**	**+$176**
Salaries and Benefits $5,800	**$6,075**	**+$275**
The funding supports Federal salaries and benefits for 44 FTEs who market Federal hydropower, promote energy efficiency and renewable energy, administrative support, and workloads in cybersecurity and operational reliability. These estimates are derived from the current year budgeted salaries, plus cost-of-living adjustments, promotions, within-grade increases, overtime, DOE-cascading performance awards, retirement payouts for unused leave, and newly hired FTEs.	Continue funding support for Federal salaries and benefits for 44 FTEs.	Continue funding support for Federal salaries and benefits including the recruiting and retaining of FTEs.
Travel $50	**$120**	**+$70**
Funding supports transportation and per diem expenses incurred for preference customer meetings, relocation expenses for new FTEs, contract negotiations, rate forums, Congressional hearings, site visits, and operations meetings with industry organizations.	Continue funding supports ongoing activities.	Continue funding support for transportation and per diem expenses incurred for various meetings and site visits.
Support Services $0	**$0**	**$0**
No funding requested for FY 2023	No funding is requested for FY 2024.	Reduced customer participation in program funding.
Other Related Expenses $2,423	**$2,254**	**-$169**
Funding provides administrative support for headquarters office, emergency control center, communications, maintenance, utilities, contract services, supplies, materials, training, equipment and support for cyber and physical security. Training expenses for power operator certification and support for installation of electronic hardware and software for the operations center which provides maintenance to integrate real-time data from the control area and provides the data to other transmission operators and NERC.	Continue funding support for Southeastern Power Administration's headquarters office and emergency control center, along with services of the Power Marketing Liaison Office, and the Human Resources Shared Service Center (HRSSC).	Reflects required hardware purchases and software service agreements and updates along with training, tuition, and communications costs. Costs are based on the historical usage and actual cost of similar items as well as inflationary increases.

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Additional Tables

Revenue and Receipts ($K)

	FY 2022 Actual	FY 2023 Estimate	FY 2024 Estimate	FY 2025 Estimate	FY 2026 Estimate	FY 2027 Estimate	FY 2028 Estimate
Gross Revenues	306,606	317,955	320,109	322,378	324,759	327,261	329,889
Net Billing (Credited as an Offsetting Receipt)	-13,782	-13,991	-14,169	-14,355	-14,551	-14,757	-14,973
Total Cash Receipts	292,824	303,964	305,940	308,023	310,208	312,504	314,916
Use of Offsetting Collections to fund PPW	-53,000	-78,696	-71,850	-73,933	-76,118	-78,415	-80,825
Use of Offsetting Collections to fund Annual Expenses	-7,184	-8,273	-8,449	-8,443	-8,598	-8,753	-8,909
Total Receipts, net use of Offsetting Collections	232,640	216,995	225,641	225,647	225,492	225,336	225,182
Cumberland Rehabilitation	-43,328	-50,000	-50,000	-50,000	-50,000	-50,000	-50,000
GA-AL-SC Rehabilitation	-870	-15,000	-15,000	-15,000	-15,000	-15,000	-15,000
Kerr-Philpott Rehabilitation	-7,384	-5,000	-5,000	-5,000	-5,000	-5,000	-5,000
Jim Woodruff	0	-1,000	-1,000	-1,000	-1,000	-1,000	-1,000
Accts Rec Yearly Difference	-6,941	0	0	0	0	0	0
Total Proprietary Receipts	174,117	145,995	154,641	154,647	154,492	154,336	154,182
Percent of Sales to Preference Customers	99%	99%	99%	99%	99%	99%	99%
Energy Sales and Power Marketed (megawatt-hours)	7,409,202	5,587,740	5,587,740	5,587,740	5,587,740	5,587,740	5,587,740

Alternative Financing2022	Transmission	Purchase Power	Offsetting Collections	Net Billing	Appropriated Funds
Jim Woodruff System	377	1,141	-634	-884	0
Kerr-Philpott System	16,526	0	-16,526	0	0
GA-AL-SC System	20,959	17,928	-35,725	-3,162	0
Cumberland System	9,851	0	-115	-9,736	0
	47,713	19,069	-53,000	-13,782	0

2023	Transmission	Purchase Power	Offsetting Collections	Net Billing	Appropriated Funds
Jim Woodruff System	348	2,000	-1,648	-700	0
Kerr-Philpott System	18,477	0	-18,477	0	0
GA-AL-SC System	29,339	32,708	-58,492	-3,555	0
Cumberland System	9,815	0	-79	-9,736	0
	57,979	34,708	-78,696	-13,991	0

2024	Transmission	Purchase Power	Offsetting Collections	Net Billing	Appropriated Funds
Jim Woodruff System	348	2,000	-1,648	-700	0
Kerr-Philpott System	19,461	0	-19,461	0	0
GA-AL-SC System	30,568	23,823	-50,658	-3,733	0
Cumberland System	9,819	0	-83	-9,736	0
	60,196	25,823	-71,850	-14,169	0

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Power Marketed, Wheeled, or Exchanged by Project

Project	State	Plants	Installed Capacity (KW)	FY 2022 Estimated Power (GWH)	FY 2023 Estimated Power (GWH)	FY 2024 Estimated Power (GWH)
Kerr-Philpott System				293	293	293
John H. Kerr	VA-NC	1	291,000			
Philpott	VA	1	15,000			
Georgia-Alabama-South Carolina System				2,508	2,508	2,508
Allatoona	GA	1	82,000			
Buford	GA	1	127,000			
Carters	GA	1	600,000			
J. Strom Thurmond	GA-SC	1	364,000			
Walter F. George	GA-AL	1	160,000			
Hartwell	GA-SC	1	424,000			
R. F. Henry	AL	1	82,000			
Millers Ferry	AL	1	90,000			
West Point	GA-AL	1	87,000			
Richard B. Russell	GA-SC	1	656,000			
Jim Woodruff Project	FL-GA	1	43,500	148	148	148
Cumberland System				2,481	2,481	2,481
Barkley	KY	1	130,000			
Center Hill	TN	1	135,000			
Cheatham	TN	1	36,000			
Cordell Hull	TN	1	99,900			
Dale Hollow	TN	1	54,000			
Old Hickory	TN	1	103,752			
J. Percy Priest	TN	1	28,000			
Wolf Creek	TN	1	270,000			
Laurel	TN	1	61,000			
Total Power Marketed		22	3,939,152	5,430	5,430	5,430

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System Statistics

	FY 2022 Actual	FY 2023 Estimate	FY 2024 Estimate
Generating Capacity:			
Nameplate Capacity (KW)	3,939,152	3,939,152	3,939,152
Peak Capacity (KW) [a]	4,330,000	4,330,000	4,330,000
Generating Stations			
Generating Projects (Number)	22	22	22
Available Energy			
Energy from Stream-flow (MWH)	6,988,186	4,685,000	4,685,000
Energy generated from Pumping (MWH)	414,132	745,100	745,100
Energy Purchased for Replacement (MWH)	6,884	157,640	157,640
Total, Energy available for marketing [b] (MWH)	7,409,204	5,587,740	5,587,740

[a] Southeastern markets capacity based on nameplate plus an overload factor. NERC requires that Southeastern keep a portion of the capacity in reserve for emergency purposes and to cover losses.
[b] Gross amount. Transmission losses are deducted from this amount to estimate the amount of energy marketed.

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Southwestern Power Administration
Proposed Appropriation Language

For expenses necessary for operation and maintenance of power transmission facilities and for marketing electric power and energy, for construction and acquisition of transmission lines, substations and appurtenant facilities, and for administrative expenses, including official reception and representation expenses in an amount not to exceed $1,500 in carrying out section 5 of the Flood Control Act of 1944 (16 U.S.C. 825s), as applied to the Southwestern Power Administration, [$53,488,000]$52,326,000 to remain available until expended: Provided, That notwithstanding 31 U.S.C. 3302 and section 5 of the Flood Control Act of 1944 (16 U.S.C. 825s), up to [$42,880,000]$40,886,000 collected by the Southwestern Power Administration from the sale of power and related services shall be credited to this account as discretionary offsetting collections, to remain available until expended, for the sole purpose of funding the annual expenses of the Southwestern Power Administration: Provided further, That the sum herein appropriated for annual expenses shall be reduced as collections are received during the fiscal year so as to result in a final fiscal year 2023 appropriation estimated at not more than [$ 10,608,000]$11,440,000: Provided further, That, notwithstanding 31 U.S.C. 3302, up to [$70,000,000]$80,000,000 collected by the Southwestern Power Administration pursuant to the Flood Control Act of 1944 to recover purchase power and wheeling expenses shall be credited to this account as offsetting collections, to remain available until expended for the sole purpose of making purchase power and wheeling expenditures: Provided further, That for purposes of this appropriation, annual expenses means expenditures that are generally recovered in the same year that they are incurred (excluding purchase power and wheeling expenses).

Explanation of Changes

No changes.

Public Law Authorizations

Southwestern Power Administration:

- P.L. 78-534, Section 5, Flood Control Act of 1944
- P.L. 95–91, Section 302, DOE Organization Act of 1977
- P.L. 100-71, Supplemental Appropriations Act, 1987
- P.L. 101–101, Title III, Continuing Fund (amended 1989)
- P.L. 102-486, Section 721, Energy Policy Act of 1992
- P.L. 108-447, Appropriations Act, FY 2005
- P.L. 111-85, Appropriations Act, FY 2010

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Southwestern Power Administration
Overview
($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request
Gross	125,816	162,802	189,737
Offsets	-115,416	-152,194	-178,297
Net BA	10,400	10,608	11,440

Overview

Southwestern Power Administration's (Southwestern) mission is to market and reliably deliver Federal hydroelectric power, with preference to public bodies and cooperatives. This is accomplished by maximizing the use of Federal assets to repay the Federal investment, participating with other water resource users in an effort to balance diverse interests with power needs within broad parameters set by the U.S. Army Corps of Engineers (Corps), and implementing public policy.

Southwestern markets and delivers power at wholesale rates to 78 municipal utilities, 21 rural electric cooperatives, and 3 military installations in the six states of Arkansas, Kansas, Louisiana, Missouri, Oklahoma, and Texas[1]. In turn, these customers distribute that power to approximately 10 million end users in the six-state area. To integrate the operation of the Federal hydroelectric generating plants and to transmit power from 24 multi-purpose Corps dams to customers, Southwestern operates and maintains 1,381 miles of high-voltage transmission lines, 26 substations/switchyards, and 51 microwave and very high frequency (VHF) radio sites. Southwestern is headquartered in Tulsa, Oklahoma, and has maintenance facilities in Gore, Oklahoma; Jonesboro, Arkansas; and Springfield, Missouri. In addition, around-the-clock power scheduling and dispatching are conducted by staff in Southwestern's Operations Center located in southwest Missouri.

Southwestern participates in the Southwest Power Pool (SPP) Regional Transmission Organization (RTO) and the Midcontinent Independent System Operator (MISO) RTO, which reinforces Southwestern's role as part of the Nation's interconnected generation and transmission system. In participation with the RTOs, Southwestern works on regional and interregional transmission policy initiatives in response to the evolution of the electric utility industry. Furthermore, Southwestern coordinates its varied utility activities in conjunction with a broader group of stakeholders. As the demand for the transmission of power increases across regional and interregional footprints, maintaining and improving the Nation's energy infrastructure through improvements, replacements, interconnections, and coordination with the RTOs in Southwestern's marketing area has become more critical than ever. Southwestern assures the efficient and reliable delivery of Federal hydropower, thus fulfilling clean energy security for the present as well as for future generations.

Southwestern's marketing services and delivery capability provide for recovery of all annual operating costs, including the Corps' hydropower related costs, and for repayment of taxpayer investment in all assets and facilities that support the Federal hydropower program. Hydropower is not only an important part of the Nation's clean energy portfolio due to clean generation capabilities, but it also provides support for other renewable resources. Federal hydropower supports the Nation's grid and complements other generation to create stability as the industry faces energy production changes, organized market evolution and increased threats to the grid. Hydroelectric power is a domestic energy source that helps America achieve clean energy security. Southwestern markets an average of 5,570 gigawatt-hours of clean renewable hydroelectric energy annually.

Southwestern will use the following strategies to fulfill its mission:

[1] Southwestern's system map can be found at https://www.energy.gov/sites/default/files/2022-08/SWPA_System_Map.pdf.

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- Market and deliver, at the lowest possible cost, all available Federal hydropower generated at the Corps multipurpose projects and work with the Corps, States, cooperatives, and municipalities to meet its statutory requirements while balancing the interests of other water users.
- Maintain infrastructure and modernize systems to increase the resilience, reliability, efficiency, and use of Federal assets. This will be accomplished using appropriations; Federal power receipts; and alternative financing arrangements, which include net billing and/or reimbursable authority (customer advances).[2]
- Conduct annual power repayment studies to ensure power rates are sufficient to repay all annual operating costs and the Federal investment with interest.
- Meet Southwestern's 1200-hour peaking power contractual obligations with necessary purchase power and wheeling using Federal power receipts; alternative financing arrangements, which include net billing and/or reimbursable authority (customer advances); and the Continuing Fund as necessary in periods of below-average hydropower generation.
- Operate the transmission system efficiently to support the Nation's integrated power grid and engage in transmission policy initiatives within the RTOs in Southwestern's marketing area to respond effectively to the evolution of the electric utility industry.
- Meet requirements for Southwestern's compliance with the latest North American Electric Reliability Corporation (NERC) standards.
- Bolster Southwestern's grid resilience and cyber and physical security postures using best-available technologies and in cooperation with Department of Energy (DOE) and industry partners to protect the Federal transmission system and the Nation's power grid. Ongoing assessments, realigning vacant positions, investments in the cyber and physical security programs, and infrastructure protection improvements enable Southwestern to continue to provide a safe and reliable product. Southwestern will continue to emphasize security, both cyber and physical, as an agency priority.

External factors that present potential impacts to the overall achievement of the programs' strategic goals include weather, natural disasters, NERC reliability standards, industry market developments, physical and cybersecurity, changing electric industry organizational structure, interconnections, open access, the uncertainty of sustainable funding resources, competing uses' demand for the limited water resource, and other unforeseen requirements. More specifically:

- The bulk of Southwestern's transmission infrastructure is approximately 60 years old and requires ongoing maintenance and replacement while concurrently balancing changing and increasing demands for availability.
- Industry efforts to improve the reliability of the Nation's power grid are placing more requirements on Southwestern's workforce to implement mandatory reliability standards.
- The potential for malicious physical and cyber-attacks on Southwestern's assets remains a primary concern. These attacks, cyber and physical, on a utility's operation would threaten electric system reliability and potentially result in large scale power outages.
- As more of Southwestern's employees retire or leave Federal service, Southwestern must compete with the rest of the electric utility industry to attract and retain the quality workforce needed to provide a reliable power supply and transmission service.
- Southwestern is increasingly challenged by more complex transmission policy developments including intricate energy and capacity markets, transmission planning processes, and technical rate structures; the deployment of new technologies such as renewables and distributed generation; and heightening emissions and environmental restrictions.
- The Corps water resources projects from which Southwestern markets the hydropower are all multi-purpose. As the demand for water for other purposes increases, energy generation and operating capacity of the hydropower units can be impacted by loss of water storage and availability as well as required operational changes.
- Extreme regional weather events have demonstrated increased price volatility for potential replacement energy purchases necessary to meet contractual power delivery obligations.

[2] Southwestern's authority to use net billing is inherent in the authority provided by the Flood Control Act of 1944 and has been affirmed by the Comptroller General to the Honorable Secretary of the Interior B-125127 (February 14, 1956).

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- Greater support for climate resilience, regional grid reliability, infrastructure investment, and rate stability as regional utility customers make decisions to transition to cleaner energy resources.

Highlights of the FY 2024 Budget Request
Southwestern requests a net appropriation of $11.44 million for FY 2024. Southwestern's appropriation consists of four subprograms: Operations and Maintenance, Construction, Purchase Power and Wheeling, and Program Direction. Southwestern utilizes a variety of financing methods including appropriations, Federal power receipts, and alternative financing arrangements, which include net billing and/or reimbursable authority (customer advances).

Southwestern Power Administration
Outyear Funding

Net BA ($K)

	FY 2024 Request	FY 2025	FY 2026	FY 2027	FY 2028
Operation and Maintenance	11,440	11,703	11,972	12,247	12,529

Major Outyear Priorities and Assumptions
Outyear funding levels for Southwestern's Operation and Maintenance net appropriation total $47,547,000 for FY 2025 through FY 2028. Operation and Maintenance priorities include the following:

- Priority is placed on maintenance, upgrades, physical and cybersecurity, compliance, and cost containment.
- Replacement of Southwestern's transmission line structures many of which are approaching the estimated average service life for the components, to include the related capitalized payroll and travel costs.
- Increase physical security over Southwestern's assets to include the Substation Security Fence Replacement Program and IT's hardware and software upgrades that improve the ability to manage IT assets while driving efficiencies, controlling costs, maintaining compliance and reducing vulnerability.
- Implementation of DOE Order 470.3C Design Basis Threat (DBT) which places greater emphasis on limiting physical security risks at Power Marketing Administrations to include enhanced intrusion detection with surveillance cameras that link to existing Genetec Security system.

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Southwestern Power Administration
Funding by Congressional Control ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Operation and Maintenance					
Operations and Maintenance (O&M)	**11,082**	15,517	16,759	+ 1,242	+ 8%
Construction (CN)	**15,901**	16,035	13,806	- 2,229	- 14%
Purchase Power and Wheeling (PPW)	**62,000**	93,000	120,000	+ 27,000	+ 29%
Program Direction (PD)	**36,833**	38,250	39,172	+ 922	+ 2%
Subtotal, Operation and Maintenance	**125,816**	**162,802**	**189,737**	**+ 26,935**	**+ 17%**
Offsetting Collections, O&M	**-4,395**	- 7,998	- 8,884	- 886	- 11%
Offsetting Collections, PD	**-33,529**	- 34,882	- 32,002	- 2,880	- 8%
Offsetting Collections, PPW	**-39,000**	- 70,000	- 80,000	- 10,000	- 14%
Alternative Financing, O&M	**-4,591**	- 5,279	- 4,388	+ 891	+ 17%
Alternative Financing, CN	**-10,901**	- 11,035	- 8,806	+ 2,229	+ 20%
Alternative Financing, PD	**-0**	-0	- 4,217	- 4,217	- 100%
Alternative Financing, PPW	**-23,000**	- 23,000	- 40,000	- 17,000	- 74%
Net Budget Authority, Operation and Maintenance	**10,400**	**10,608**	**11,440**	**+ 832**	**+ 8%**
Federal FTEs	**194**	194	194	0	0%

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Operation and Maintenance
Explanation of Major Changes ($K)

	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Operations and Maintenance: The change reflects an increase in IT related support services, hardware and software upgrades, and an overall increase in equipment and material costs.	**+ 1,242**
Construction: The net change in the construction subprogram reflects a decrease due to a postponement of the Bull Shoals Communication Tower replacement project, and an increase for the Weleetka transformer purchase.	**- 2,229**
Purchase Power and Wheeling: The request reflects the anticipated needs for periods of severe drought or low water conditions, that can develop rapidly in Southwestern's region, based on projected market prices. It is important for Southwestern to maintain access to funding via spending authority from offsetting collections and alternative financing, at a level that provides Southwestern PPW funding options to best plan for and respond to varied hydrologic conditions, as well as operational impacts, such as hydropower unit outages for major rehabilitation.	**+ 27,000**
Program Direction: The increase in the program direction subprogram reflects aggressive recruiting to fill several technical hard to fill positions, back-filling retirees, cost of living increases for craft workers and power system dispatchers, and filling succession planning positions for knowledge transfer. Also, increase in support services for projected contractual cost of living adjustments.	**+ 922**
Total, Southwestern, Operation and Maintenance	**+ 26,935**

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Operations and Maintenance
Funding ($K)

	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)
Operations and Maintenance (O&M)			
Power Marketing	200	200	0
Operations	9,888	9,215	- 673
Maintenance	2,930	5,294	+ 2,364
Capitalized Moveable Equipment	2,499	2,050	- 449
Subtotal, Operations and Maintenance	**15,517**	**16,759**	**+ 1,242**
Offsetting Collections (annual expenses)	- 7,998	- 8,884	- 886
Alternative Financing	- 5,279	- 4,388	+ 891
Total, Operations and Maintenance	**2,240**	**3,487**	**+ 1,247**

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Southwestern Power Administration
Operations and Maintenance

Description

The activities of the Operations and Maintenance (O&M) subprogram are critical components in maintaining the reliability of the Federal power system, which is part of the Nation's interconnected generation and transmission system. By marketing and delivering hydroelectric energy, Southwestern makes a meaningful contribution of clean, safe, reliable, affordable, and secure renewable hydroelectric energy to our Nation. The Energy Policy Act (EPACT) and the DOE and Administration's policies emphasize its significant contribution to the Nation's past, current, and future energy supply; and identify Southwestern's important role in meeting electricity demand by supplying hydroelectric energy to its customers. These laws and policies emphasize the need to repair, maintain, and improve transmission and generation facilities to ensure safety, security, resilience, and reliability of the Nation's energy infrastructure. SWPA continuously assesses changing climate forecast data to improve climate resilience, including efforts to support the value and stability of the SWPA Federal hydropower products and to ensure response and recovery from climate and extreme weather events. SWPA is participating in the DOE Climate Adaptation and Resilience Plan implementation, and as part of that effort SWPA is in the process of conducting a Vulnerability Assessment and Resilience Plan.

Southwestern's planned O&M projects are subject to change due to unanticipated equipment failure, customer needs, and weather conditions. The realities of maintaining a complex interconnected electric power system periodically require unforeseen reprioritizations of planned projects. All projects share the commonality of maintaining, repairing, and improving the aging infrastructure to ensure the resilience and reliability of the Federal power system.

Power Marketing

The Power Marketing activity funds technical and economic studies to support Southwestern's transmission planning, water resources management, and communication functions. Technical and economic studies provide data to analyze and evaluate the impacts of proposed operational changes and decision-making based on cost-benefit analysis. Funding is also required for Southwestern's coordination with the RTOs and to provide regional power restoration assistance to other non-hydropower generation sources during electric power grid emergencies. The National Electric Transmission Congestion Study identified constraints in the Nation's interconnected electrical grid which could impede power flows. Studies to identify any constraints on Southwestern's system will continue to be conducted. These studies show how the marketing and delivery of power is operationally impacted. The funding level for this activity is derived from Southwestern's engineering plan, negotiated architect/engineering contracts, and the number of studies required per year.

Operations

The Operations activity funds communication functions associated with the dispatch and delivery of power; environmental, safety, and health activities; and other transmission activity costs such as physical security, cybersecurity, and day-to-day power dispatch functions. The Operations activity includes three subactivities:

Communications

This subactivity funds telemetering improvements, technical support to protect cyber infrastructure, an e-tagging system that electronically schedules power for customers, load forecasting, digital test equipment, the radio frequency spectrum fee, and supplies and materials. The telemetering improvements include replacement of obsolete power and energy accounting equipment and modification of existing remote terminal units that improve the reliability of the power system, specifically in the areas of monitoring and control. Funding is required for upgrades that enable Southwestern to meet the goals of the EPACT and NERC by replacing aging infrastructure while assuring reliability and continuing to coordinate with the RTOs in its marketing area.

Southwestern will continue to strengthen cyber and physical security postures using strong and proven technologies that are part of the Continuous Diagnostics and mitigation (CDM) program. In addition to CDM, Southwestern continues to look for other technologies that can be leveraged to ensure compliance with applicable laws and standards to protect the Federal transmission system and the Nation's power grid.

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Environmental, Safety, and Health

This subactivity funds environmental activities including waste disposal and clean-up of transformers, grounding and drainage, cultural resource reviews, and environmental assessments for threatened and endangered species such as the American Burying Beetle, various endangered bats, the Leopard Darter, and Interior Least Tern. Additionally, Southwestern may have environmental activities it performs as a Consulting Agency or participating agency resulting from a Biological Opinion or Biological Assessment, or as a participant on an interagency committee or working group. This subactivity also funds property transfers, wetland assessments, environmental library access, Toxic Substance Control Act and Resource Conservation Recovery Act compliance, contractor services, and requirements of the Environmental Protection Program as identified in DOE Order 450.1. The Safety and Health Program activities require funding for aviation safety, industrial hygiene, medical examinations, medical officer, wellness program, safety equipment, and first aid equipment and supplies.

Other Transmission

This subactivity funds physical security, field utility costs, and day-to-day power expenses of the dispatch center and the Alternate Control Center.

Maintenance

The Maintenance activity funds routine repair, maintenance, and improvement of Southwestern's substations/switchyards and high-voltage transmission lines and ensures delivery of reliable, efficient, and clean power to its customers. Southwestern's initial facilities, which were built approximately 60 years ago, are constantly evaluated. Internal and external factors that impact SWPA's maintenance activities and the asset replacement plan include obsolescence of technology and unavailability of replacement parts. By replacing aging equipment and removing constraints that impede power flows, Southwestern ensures the provision of a reliable Federal transmission system. The maintenance activity includes two subactivities:

Substation Maintenance

This subactivity funds power circuit breakers, disconnect switches, instrument transformers, protective relays and related equipment, computer aided drafting and design, revenue meters, vehicle maintenance, fuel, and other equipment to reliably perform general maintenance projects.

Transmission Line Maintenance

This subactivity funds the purchase and maintenance of wood and steel structures, crossarms and braces, right-of-way (ROW) clearing, herbicide application, aerial patrol of the transmission system to identify maintenance needs, routine vehicle repair and maintenance, tractors, equipment, and fuel. The number of steel or wood poles and crossarms and high-voltage insulators replaced is derived from internal maintenance information system criteria. Emphasis has been placed on ROW clearing since NERC identified improper/insufficient ROW clearing as a major factor in potential blackouts. The funding level is appropriate for the number of structures and components to be replaced and the miles of ROW to be cleared as set forth by Southwestern's maintenance plan for meeting the goals of the EPACT and NERC to maintain a reliable transmission system.

Capitalized Moveable Equipment

This activity funds the replacement of vehicles, tractor-trailers, and heavy equipment used for the maintenance and repair of the transmission system and facilities. These vehicles and equipment have exceeded their useful lives and require high levels of maintenance. The vehicle cost estimates are derived from General Services Administration (GSA) pricing schedules.

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Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Operations and Maintenance $15,517,000	**$16,759,000**	**+ $1,242,000**
Power Marketing $200,000	**$200,000**	**$0**
• The Power Marketing activity funds the technical and economic studies to support transmission planning.	• The Power Marketing activity funds the technical and economic studies to support transmission planning.	• Funding request remains the same.
Operations $9,888,000	**$9,215,000**	**-$673,000**
Communications ($6,466,000) • This subactivity funds telemetering improvements, technical support to protect cyber infrastructure, SCADA/EMS system maintenance, load forecasting, and digital testing equipment.	*Communications ($7,002,000)* • This subactivity funds telemetering improvements, technical support to protect cyber infrastructure, SCADA/EMS system maintenance, load forecasting, and digital testing equipment.	*Communications (+ $536,000)* • The increase reflects required hardware and software, and support services.
Environmental, Safety, and Health ($2,161,000) • The subactivity funds environmental, safety, and health services.	*Environmental, Safety, and Health ($1,367,000)* • The subactivity funds environmental, safety, and health services.	*Environmental, Safety, and Health (- $794,000)* • The decrease reflects the use of retained funds during renegotiation of the cultural resources archeological survey on Southwestern's transmission lines for phase 2 to be completed in FY 2024.
Other Transmission ($1,261,000) • The subactivity funds physical security, field utility costs, and day to day expenses of the dispatch center. Headquarters (HQ) utility costs were included in O&M for FY 2023.	*Other Transmission ($846,000)* • The subactivity funds physical security, field utility costs, and day to day expenses of the dispatch center.	*Other Transmission (- $415,000)* • The decrease reflects HQ utility costs being moved to Program Direction in FY 2024.

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FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Maintenance $2,930,000	**$ 5,294,000**	**+ $2,364,000**
Substation ($1,462,000) • This subactivity funds all equipment, parts, and materials for the operation of high voltage substations.	*Substation ($3,435,000)* • This subactivity funds all equipment, parts, and materials for the operation of high voltage substations.	*Substation (+ $1,973,000)* • The increase reflects parking lot refurbishment at 2 locations and increasing costs related to equipment purchases.
Transmission Line Maintenance ($1,468,000) • This subactivity funds all equipment, parts, and materials for the operation of the high voltage transmission system. Also, vegetation management contracts.	*Transmission Line Maintenance ($1,859,000)* • This subactivity funds all equipment, parts, and materials for the operation of the high voltage transmission system. Also, vegetation management contracts.	*Transmission Line Maintenance (+ $391,000)* • The change reflects an increase in cost of materials.
Capitalized Moveable Equipment $2,499,000	**$2,050,000**	**- $449,000**
• This activity funds the replacement of vehicles, tractor-trailers, and heavy equipment used for the maintenance and repair of the transmission system and facilities.	• This activity funds the replacement of vehicles, tractor-trailers, and heavy equipment used for the maintenance and repair of the transmission system and facilities.	• The decrease reflects fewer estimated replacements.

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Construction
Funding ($K)

	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)
Construction			
Transmission System			
Substation Upgrades	567	1,610	+ 1,043
Communication Upgrades	4,122	480	- 3,642
Transmission Upgrades	11,346	11,716	+ 370
Subtotal, Construction	**16,035**	**13,806**	**- 2,229**
Alternative Financing	- 11,035	- 8,806	+2,229
Total, Construction	**5,000**	**5,000**	**0**

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Southwestern Power Administration
Construction

Description

The activities of the Construction subprogram enable Southwestern to market and deliver Federal hydropower in the most reliable, safe, efficient, and cost-effective manner to meet the operational criteria required by the North American Electric Reliability Corporation while avoiding transmission infrastructure deterioration. Southwestern's planned construction projects are subject to change based on unanticipated equipment failure, customer needs, and weather conditions. The realities of maintaining a complex interconnected power system include unforeseen priority projects which arise periodically, causing a reprioritization of planned projects. All projects share the commonality of replacing aging infrastructure necessary to maintain the resilience and reliability of the Federal power system. SWPA supports climate resilience through improved response and recovery controls aimed to reduce the impact of various potential natural disaster risks to the transmission system.

Transmission System

This activity funds current construction projects that require expansion of, or additions to, existing facilities. Southwestern ensures system reliability and resiliency by replacing aging equipment and removing constraints that limit power flows. The projects outlined below address Southwestern's efforts to reduce the risk of extended service outages, avoid more costly replacements in the future, and support the increased transmission system usage. The funding level for this activity is derived from internal and external management decisions and field crew observations. System age, risk of equipment failure, life-cycles, obsolescence of technology and unavailability of spare parts, cost, and demand for more capacity are also considered in these budgeting decisions. These variables are assessed and incorporated into Southwestern's ten-year construction plan. The transmission activity includes three subactivities:

Substation Upgrades

This subactivity funds the construction and upgrade of the substations and the components necessary to provide improved system reliability and reduce future maintenance and equipment costs. Southwestern owns and operates 26 substation/switching stations. Many of these facilities were designed and constructed over 60 years ago. The equipment which will be replaced or upgraded includes power transformers, circuit breakers, and control equipment, as well as the structural components necessary to sustain reliable power delivery and support a stable, flexible interconnected power grid.

Communication Upgrades

This subactivity funds all communication equipment planned to provide improved system reliability and reduce future maintenance and equipment costs. This subactivity also provides funding for microwave radios and microwave tower additions, replacements, and modifications that will increase the reliability of communications with generating plants and substations. The communication system provides for the transfer of voice and data traffic to allow monitoring and control of power system generation and transmission assets.

Transmission Upgrades

This subactivity funds transmission system upgrades. Much of the conductor, optical ground wire (OPGW), and static wire on Southwestern's transmission lines has reached the end of its original assumed service life. With this assumed service life, approximately 20 to 30 miles of transmission line, including the conductor, OPGW, static wire, and structures, will need to be replaced each year. As Southwestern replaces the conductor, Southwestern will use the opportunity to increase line capacity where practical to accommodate increased loads in the region.

Spectrum Relocation

The Commercial Spectrum Enhancement Act of 2004 (CSEA, Title II of P.L. 108-494) created the Spectrum Relocation Fund (SRF) to streamline the relocation of Federal systems from existing spectrum bands and accommodate commercial use by facilitating reimbursement of relocation costs to affected agencies. Southwestern has received $42.8 million in spectrum relocation funds, as approved by the Office of Management and Budget, and as reported to the Congress. Southwestern has completed 100 percent of the tower installation project and anticipates completing antenna and radio installation and

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obtaining comparable capability by September 30,2024. These mandatory funds will remain available until expended, and Southwestern will return any amounts received in excess of actual relocation costs to the SRF. Spectrum relocation activities were funded from spectrum auction proceeds; thus, no funding is requested in this subactivity.

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Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Construction $16,035,000	**$13,806,000**	**- $2,229,000**
Transmission System $16,035,000	**$13,806,000**	**- $2,229,000**
Substation Upgrades ($567,000) • This subactivity funds all substation equipment replacements.	*Substation Upgrades ($1,610,000)* • This subactivity funds all substation equipment replacements.	*Substation Upgrades (+ $1,043,000)* • The increase reflects additional costs for the Weleetka transformer replacement.
Communication Upgrades ($4,122,000) • This subactivity funds all communication equipment additions and upgrades. Projects include microwave equipment, fiber terminal equipment upgrades, and microwave tower at Bull Shoals.	*Communication Upgrades ($480,000)* • This subactivity funds all communication equipment additions and upgrades.	*Communication Upgrades (- $3,642,000)* • The decrease reflects the postponement of the Bull Shoals Communication Tower.
Transmission Upgrades ($11,716,000) • This subactivity funds transmission system upgrades such as structure rebuilds, reconductoring, etc..	*Transmission Upgrades ($11,716,000)* • This subactivity funds transmission system upgrades such as structure rebuilds, reconductoring, etc..	*Transmission Upgrades (+ $370,000)* • The increase in the transmission upgrades reflects the additional materials needed for the increase in line miles to be rebuilt.

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Purchase Power and Wheeling
Funding ($K)

	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)
Purchase Power and Wheeling			
System Support	89,500	116,500	+ 27,000
Other Contractual Services	3,500	3,500	0
Subtotal, Purchase Power and Wheeling	**93,000**	120,000	**+ 27,000**
Offsetting Collections (PPW)	- 70,000	- 80,000	- 10,000
Alternative Financing	- 23,000	- 40,000	- 17,000
Total, Purchase Power and Wheeling	**0**	**0**	**0**

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Southwestern Power Administration
Purchase Power and Wheeling

Description

The Purchase Power and Wheeling (PPW) subprogram provides for the purchase of energy to meet peaking power contractual obligations and the delivery of Federal power. Except for contractual arrangements pertaining to a few electrically-isolated hydropower projects, Southwestern's power sales contracts provide for 1200-hours of peaking power per year delivered from its interconnected system of hydropower projects. At times, due to below average water conditions or hydropower unit outages, Southwestern must purchase power when the hydropower projects cannot produce enough to fulfill its 1200-hour contract obligations. Blending purchased power with the Federal hydropower provides a reliable product while ensuring contract fulfillment occurs. Extreme regional weather events in recent years have demonstrated increased price volatility for potential replacement energy purchases. Availability of requested PPW funding levels supports rate stability. Rate stability is increasingly important as regional utility customers make decisions regarding Federal hydropower and other clean energy resources as part of their evolving energy portfolios.

Southwestern assesses its purchase power needs based on hydrologic conditions and anticipated hydropower unit outages. Hydrologic conditions can vary widely and change rapidly, such that purchase power needs are assessed at least seasonally and can change daily. Unit outages for major rehab and replacement work are known years in advance so that purchase power needs can be planned; however, forced outages or delays in units returning to service can cause sudden changes to anticipated purchase power needs. Power purchases are typically made through contractual arrangements but may also be made on the spot market when conditions are more severe than anticipated or otherwise unexpected. Delivery of purchase power to Southwestern's system is made via the SPP RTO or Southwestern's own transmission system.

In prior years, inadequate funding for PPW and hydrological fluctuations required multiple requests to access the Continuing Fund to ensure sufficient funding was available to fulfill Southwestern's 1200-hour peaking power contractual obligations. Today, requirements associated with utilizing the Continuing Fund for PPW needs could spike power rates for customers and limits the usefulness of this tool for replacement energy needs. In FY 2001, Southwestern requested, and Congress enacted, authority to use Federal power receipts that recover purchase power and wheeling expenses (offsetting collections) to fund its PPW program (up to a specified limit). However, since FY 2018, the enacted levels have been significantly below the requested levels. The use of requested offsetting collections will be largely dependent upon the hydrological conditions realized during the fiscal year. Under average conditions, less than half of the limit requested will be collected and used.

Southwestern's Budget Request for the PPW subprogram reflects the maximum anticipated need to ensure adequate funding to fulfill its 1,200-hour peaking power contractual obligations considering volatile market prices, unknown forced generation outages, and all but the most severe hydrological conditions. Southwestern will continue to use offsetting collections and alternative financing arrangements, which include net billing and/or reimbursable authority (customer advances), to fund this subprogram. When hydropower generation falls significantly below normal due to severe drought conditions or major outages, Southwestern will utilize the Continuing Fund for emergency PPW expenses.

Southwestern employs a risk mitigation strategy to ensure continuous operations during periods of significant drought. The strategy involves maintaining an unobligated reserve balance of funds from receipts credited as offsetting collection for PPW, in order to respond to rapid-developing severe drought conditions. Any receipts retained are available until expended and are available only for PPW expenses. As of the end of FY 2022, Southwestern's PPW reserve balance was $108 million. Customers will provide other power resources and/or purchases for the remainder of their firm loads.

The activities of the PPW subprogram provide for the purchase of power that helps fulfill limited peaking power contractual obligations, thereby ensuring the marketability of the Federal hydropower resource and repayment of the Federal investment. This subprogram also provides for wheeling services that deliver Federal power to optimize the operation of the hydropower facilities marketed by Southwestern. This subprogram enhances the reliability of the electrical transmission grid. PPW includes two activities:

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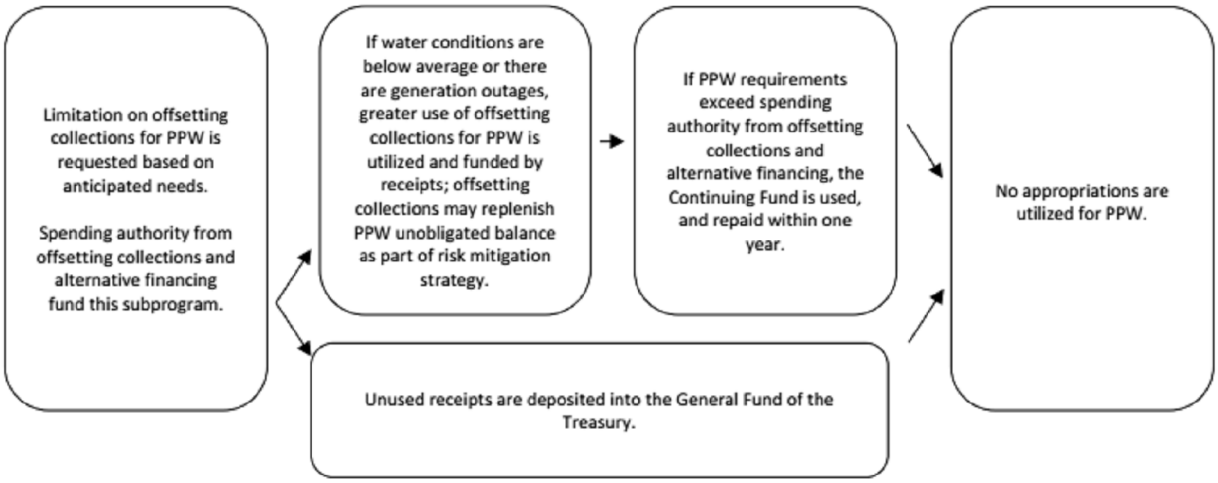
System Support

This activity funds Southwestern's purchase power requirements needed to fulfill all 1200-hour contractual peaking power obligations with customers. System support requirements depend on the conditions of the interconnected system of hydropower projects which is affected by weather, unit operational condition, power market prices (which can be volatile), and limited availability of energy banks. Since the rates Southwestern charges its customers are based on full cost recovery, Southwestern has a built-in incentive to minimize expenditures for purchase power.

Other Contractual Services

This activity funds other contractual services that provide for wheeling associated with the purchase of transmission service to meet limited peaking power obligations and for the integration of projects for the delivery of Federal power. The funding level is derived from contractual wheeling requirements. The FY 2023 funding request reflects the projected cost for wheeling services based on contractual pricing and delivery terms.



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Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Purchase Power and Wheeling $93,000,000	**$ 120,000,000**	**+ $27,000,000**
System Support ($89,500,000)	*($116,500,000)*	*(+ $27,000,000)*
• This activity funds purchase power requirement needed to fulfill all 1200-hour contractual peaking power obligations with customers.	• This activity funds purchase power requirement needed to fulfill all 1200-hour contractual peaking power obligations with customers.	• The overall increase in system support reflects maximum anticipated needs based on projected market prices and severe drought hydrologic conditions. Droughts in Southwestern's region can develop in a matter of months, such that adequate PPW funding must be available for proactive planning and rapid response.
Other Contractual Services ($3,500,000)	*($3,500,000)*	*(+ $0)*
• Contractual services for wheeling associated with the purchase of transmission service.	• Contractual services for wheeling associated with the purchase of transmission service.	• Funding request remains the same.

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Program Direction
Funding ($K)

	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)
Southwestern Power Administration			
Salaries and Benefits	28,528	28,667	+ 139
Travel	1,654	1,490	- 164
Support Services	4,387	3,963	- 424
Other Related Expenses	3,681	5,052	+ 1,371
Subtotal, Southwestern Power Administration	**38,250**	**39,172**	**+ 922**
Offsetting Collections (annual expenses)	-34,882	-32,002	+ 2,880
Alternative Financing	-0	-4,217	- 4,217
Total, Program Direction	**3,368**	**2,953**	**- 415**
Federal FTEs	194	194	0
Support Services			
Management Support			
Engineering and Technical Services	0	0	0
Technical Support			
Management and Professional Support Services	4,387	3,963	- 424
Total Support Services	4,387	3,963	- 424
Total, Support Services	**4,387**	**3,963**	**- 424**
Other Related Expenses			
Rent to Others	0	0	0
Communication, Utilities, Misc.	882	890	+ 8
EITS	50	85	+ 35
Printing and Reproduction	45	45	0
Other Services	766	1,011	+ 245
Training	197	200	+ 3
Power Marketing Liaison	104	125	+ 21
Financial Audit	450	440	- 10
Supplies and Materials	150	153	+ 3

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	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)
Equipment	473	1,463	+ 990
Working Capital Fund	564	640	+ 76
Total, Other Related Expenses	**3,681**	**5,052**	**+ 1,371**

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Program Direction

Overview

Southwestern's Program Direction subprogram ensures continued reliability of the Federal power system by utilizing Federal staffing resources and associated funds required to provide overall direction and execution of Southwestern's Operation and Maintenance Program.

The Program Direction subprogram supports DOE's and Southwestern's missions by providing compensation and all related expenses for its workforce, including those employees that operate and maintain Southwestern's high-voltage interconnected transmission system and associated facilities; those that plan, design, and supervise the construction of replacements, upgrades, and additions (capital investments) to the transmission facilities; those that market the power and energy produced to repay annual expenses and capital investment; those that perform cyber and physical security roles; and those that administratively support these functions.

Southwestern will use available programs and develop new strategies to hire and train the next generation of engineers, cyber and physical security specialists, power system dispatchers, high voltage electricians, and linemen. These initiatives will address the shortage of these valuable resources because of retirement trends, and the ever-expanding demands on the electric utility industry, such as compliance with NERC and FISMA standards.

Southwestern trains all employees on a continuing basis in occupational safety and health regulations, policies, and procedures to keep the safety culture strong. Accidents are always reviewed to ensure lessons are learned and proper work protocol is in place.

Program Direction is mainly funded from offsetting collections. Other funding utilized for Program Direction is appropriations and if necessary alternative financing arrangements.

Program Direction

Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Program Direction $38,250,000	**$39,172,000**	**+ $922,000**
Salaries and Benefits ($28,528,000)	*($28,667,000)*	*(+ $139,000)*

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Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
• The FY 2023 level supports 194 Federal employees: 54 percent of the employees are GS; salaries of the remaining 46 percent (craft workers and power system dispatchers) are determined through union negotiations and wage surveys. This activity also includes overtime, awards, relocation, workers' compensation, recruitment bonuses, retention pay, and advanced in-hire rates. By the end of FY 2023, approximately 27 percent of Southwestern's staff will be eligible for optional retirement. Southwestern will continue to invest in its employees, emphasizing strong development programs, completing skills gap analyses, and pursuing aggressive recruitment and retention efforts.	• The FY 2024 level supports 194 Federal employees: 54 percent of the employees are GS; salaries of the remaining 46 percent (craft workers and power system dispatchers) are determined through union negotiations and wage surveys. This activity also includes overtime, awards, relocation, workers' compensation, recruitment bonuses, retention pay, and advanced in-hire rates. By the end of FY 2024, approximately 25 percent of Southwestern's staff will be eligible for optional retirement. Southwestern will continue to invest in its employees, emphasizing strong development programs, completing skills gap analyses, and pursuing aggressive recruitment and retention efforts.	• The increase in Salaries and Benefits reflects aggressive recruiting to fill several technical hard to fill positions, back-filling retirees, and filling succession planning positions for knowledge transfer.
Travel ($1,654,000)	*($1,490,000)*	*(- $164,000)*
• This activity funds all related travel and per diem expenses for mission-related travel to maintain the integrity and reliability of Southwestern's geographically dispersed power system. The funding level for this activity is primarily derived from the daily requirement of the field maintenance personnel to maintain 1,381 miles of transmission lines, 26 substations/switchyards, 51 microwave/radio sites, communication equipment, and the Supervisory Control and Data Acquisition network. Travel for the performance of general and administrative functions is also included.	• This activity funds all related travel and per diem expenses for mission-related travel to maintain the integrity and reliability of Southwestern's geographically dispersed power system. The funding level for this activity is primarily derived from the daily requirement of the field maintenance personnel to maintain 1,381 miles of transmission lines, 26 substations/switchyards, 51 microwave/radio sites, communication equipment, and the Supervisory Control and Data Acquisition network. Travel for the performance of general and administrative functions is also included.	• The decrease in travel reflects estimated transmission policy related efforts, water resource activities, and field maintenance crew travel.

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FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Support Services ($4,387,000)	*($3,963,000)*	*(+ $424,000)*
• This activity funds contracted management support services including information technology, E-Government, and administrative/records management support. The funding level for this activity is derived from the most recent negotiated contract for support services essential to achieve Southwestern's mission.	• This activity funds contracted management support services including information technology, E-Government, and administrative/records management support. The funding level for this activity is derived from the most recent negotiated contract for support services essential to achieve Southwestern's mission.	• Decrease for a change in allocation of service contract costs between HQ and field.
Other Related Expenses ($3,681,000)	*($5,052,000)*	*(+ $1,371,000)*
• This activity funds rental space, facility security, the financial audit, services of the Power Marketing Liaison Office, the Human Resources Shared Service Center (HRSSC), the working capital fund, technology refresh in the areas of personal computers, hardware and software, printing and reproduction, and training and tuition fees in support of workforce planning and required training to meet the NERC emergency operations requirement. Rental space costs assume the GSA inflation factor. Other costs are based on the historical usage and actual cost of similar items.	• This activity funds facility security, the financial audit, services of the Power Marketing Liaison Office, the Human Resources Shared Service Center (HRSSC), the working capital fund, technology refresh in the areas of personal computers, hardware and software, printing and reproduction, and training and tuition fees in support of workforce planning and required training to meet the NERC emergency operations requirement. Costs are based on the historical usage and actual cost of similar items.	• Change reflects increase in software updates and maintenance costs required for FY 2024.

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Southwestern Power Administration
Revenues and Receipts
Funding ($K)

	FY 2022 Actual	FY 2023 Estimate	FY 2024 Estimate	FY 2025 Estimate	FY 2026 Estimate	FY 2027 Estimate	FY 2028 Estimate
Gross Revenues							
Sale and Transmission of Electric Energy	211,577	198,610	198,610	198,610	198,610	198,610	198,610
Alternative Financing Credited as an Offsetting Receipt (O&M, CN, PD, PPW), Net Billing	-38,438	-39,314	-57,411	-59,056	-58,853	-58,320	-61,372
Alternative Financing Credited as an Offsetting Receipt (Section 212), Net Billing[3]	-60,365	-39,909	-5,000	-3,000	-3,500	-3,500	-1,000
Offsetting Collections, Annual Expenses (Net Zero)	-37,924	-42,880	-40,886	-41,564	-40,691	-41,527	-42,038
Offsetting Collections, Purchase Power and Wheeling ('up to' ceiling)[4]	-39,000	-70,000	-80,000	-80,000	-80,000	-80,000	-80,000
Total Proprietary Receipts	35,850	6,507	15,313	14,990	15,566	15,263	14,200
Percent of Sales to Preference Customers	100%	100%	100%	100%	100%	100%	100%
Energy Sales from Power Marketed (billions of kilowatt hours)	5.4	5.3	5.4	5.4	5.4	5.4	5.4

[3] Actual Alternative Financing in estimated years may be more than estimated to provide funding to the WRDA 2000 Section 212 Customer Funding Program, as authorized, dependent upon available receipts based on actual revenues from the sale and transmission of electric energy and utilization of PPW offsetting collections and/or Alternative Financing for PPW in each FY.

[4] FY 2022 amount enacted for the limit on PPW offsetting collections was $39 million. For FY 2023 through FY 2028, the estimated amount of offsetting collections for PPW is equivalent to the "up to" amount enacted (FY 2023), requested (FY 2024), or anticipated to be requested (FY 2025-2028) in the Budget. The PPW offsetting collections limit requested (when matched with PPW receipts), along with alternative financing used for PPW, could potentially fund a drought for one year or replenish unobligated balances after a drought has occurred. This will also allow funding to be collected in case the drought persists for more than a year.

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Southwestern Power Administration
Estimate of Offsetting Collections for Reimbursable Work and Work for Others[5]

	Funding ($K)		
	FY 2022	FY 2023	FY 2024
Offsetting Collections for Reimbursable Work [6]			
Alternative Financing			
Operations and Maintenance	4,591	5,279	4,388
Construction	10,901	11,035	8,806
Purchase Power and Wheeling (PPW)	23,000	23,000	40,000
Program Direction	0	0	4,217
Subtotal, Alternative Financing	**38,492**	**39,314**	**57,411**
Offsetting Collections not anticipated for obligation in budget year	0	0	0
Subtotal, Offsetting Collections for Reimbursable Work	**38,492**	**39,314**	**57,411**
Offsetting Collections for Reimbursable Work-for-Others [7]			
Non-Federal	**12,508**	**12,686**	**12,589**
Federal	**6,000**	**6,000**	**6,000**
Total, Offsetting Collections for Reimbursable	**57,000**	**58,000**	**76,000**

[5]Southwestern received permanent non-Federal reimbursable authority pursuant to 16 USC 825s-4. Table is shown for transparency purposes.

[6]Southwestern relies significantly on alternative financing arrangements with customers to finance much of its direct mission work on a reimbursable basis.

[7] Southwestern utilizes various forms of Federal and non-Federal reimbursable agreements. Work-for-Others agreements include interconnection requests, system upgrades for reliability, relocation of structures for State and Federal highways and work for other Federal agencies.

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Southwestern Power Administration
System Statistics

	FY 2022 Actual	FY 2023 Estimate	FY 2024 Estimate	FY 2025 Estimate	FY 2026 Estimate	FY 2027 Estimate	FY 2028 Estimate
Installed Capacity	2,213,500	2,242,500	2,242,500	2,242,500	2,242,500	2,242,500	2,242,500
Marketed Capacity	2,058,500	2,058,500	2,058,500	2,058,500	2,058,500	2,058,500	2,058,500
Generating Stations							
Generating Projects (Number)	24	24	24	24	24	24	24
Substations/Switchyards (Number)	26	26	26	26	26	26	26
Substations/Switchyards (kVA Capacity)	1,026,900	1,026,900	1,026,900	1,026,900	1,026,900	1,026,900	1,026,900
Energy Generated	4,818,706	5,177,500	5,098,400	5,139,700	5,152,400	5,152,400	5,152,400
Energy Received	138,427	241,500	249,900	246,700	244,800	244,800	244,800
Total, Energy Available for Marketing	4,957,133	5,419,000	5,348,300	5,386,400	5,397,200	5,397,200	5,397,200
161-KV	1,118	1,118	1,118	1,118	1,118	1,118	1,118
138-KV	164	164	164	164	164	164	164
69-KV	99	99	99	99	99	99	99
Total, Transmission Lines	1,381	1,381	1,381	1,381	1,381	1,381	1,381

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Power Marketed, Wheeled, or Exchanged by Project

	State	Number of Plants	Installed Capacity (kW)	Marketed Capacity (kW)	FY 2022 Actual Energy (GWh)	FY 2023 Estimated Energy (GWh	FY 2024 Estimated Energy (GWh)	FY 2025 Estimated Energy (GWh)	FY 2026 Estimated Energy (GWh)	FY 2027 Estimated Energy (GWh)	FY 2028 Estimated Energy (GWh)
Power Marketed											
Integrated System:											1,871
	Missouri	4	470,000	713,166	1,739	1,879	1,854	1,867	1,871	1,871	
	Arkansas	9	1,058,050	395,856	965	1,043	1,029	1,037	1,039	1,039	1,039
	Oklahoma	7	514,100	426,635	1,040	1,124	1,109	1,117	1,119	1,119	1,119
				162,527							
	Texas	2	112,000		396	428	422	426	426	426	426
				136,495							
	Louisiana	0	0		333	360	355	357	358	358	358
				164,510							
	Kansas	0	0		401	433	428	431	432	432	432
Subtotals		22	2,154,150	1,999,188	4,874	5,268	5,197	5,235	5,246	5,246	5,246

Isolated:
(Sam Rayburn and Robert D. Willis Projects)

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	Texas	2	59,350	29,675	60	76	76	76	76	76	76
	Louisiana	0	0	29,675	24	76	76	76	76	76	76
Subtotals		2	59,350	59,350	84	152	152	152	152	152	152
				2,058,338							5,397
Total, Power Marketed[8]		24	2,213,500		4,957	5,419	5,348	5,386	5,397	5,397	
Power Wheeled (MW)					611	589	592	595	598	598	598

[8] Total, Power Marketed: actual energy data is the energy delivered and therefore net of losses and other non-marketed energy; estimated data comes from Southwestern's 2022 power repayment studies.

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Construction, Rehabilitation, Operation and Maintenance
Western Area Power Administration
Proposed Appropriation Language

For carrying out the functions authorized by title III, section 302(a)(1)(E) of the Act of August 4, 1977 (42 U.S.C. 7152), and other related activities including conservation and renewable resources programs as authorized, $313,289,000, including official reception and representation expenses in an amount not to exceed $1,500, to remain available until expended, of which $313,289,000 shall be derived from the Department of the Interior Reclamation Fund: Provided, That notwithstanding 31 U.S.C. 3302, section 5 of the Flood Control Act of 1944 (16 U.S.C. 825s), and section 1 of the Interior Department Appropriation Act, 1939 (43 U.S.C. 392a), up to $213,417,000 collected by the Western Area Power Administration from the sale of power and related services shall be credited to this account as discretionary offsetting collections, to remain available until expended, for the sole purpose of funding the annual expenses of the Western Area Power Administration: Provided further, That the sum herein appropriated for annual expenses shall be reduced as collections are received during the fiscal year so as to result in a final fiscal year 2024 appropriation estimated at not more than $99,872,000 of which $99,872,000 is derived from the Reclamation Fund: Provided further, That notwithstanding 31 U.S.C. 3302, up to $475,000,000 collected by the Western Area Power Administration pursuant to the Flood Control Act of 1944 and the Reclamation Project Act of 1939 to recover purchase power and wheeling expenses shall be credited to this account as offsetting collections, to remain available until expended for the sole purpose of making purchase power and wheeling expenditures: Provided further, That for purposes of this appropriation, annual expenses means expenditures that are generally recovered in the same year that they are incurred (excluding purchase power and wheeling expenses).

Explanation of Changes

There is no change in the appropriation language.

Public Law Authorizations
P.L. 57-161, "The Reclamation Act of 1902"
P.L. 78-534, "Flood Control Act of 1944"
P.L. 95-91, "Department of Energy Organization Act" (1977)
P.L. 102-486, "Energy Policy Act of 1992"
P.L. 66-389, "Sundry Civil Appropriations Act" (1922)
P.L. 76-260, "Reclamation Project Act of 1939"
P.L. 80-790, "Emergency Fund Act of 1948"
P.L. 102-575, "Reclamation Projects Authorization and Adjustment Act of 1992"
"Economy Act" of 1932, as amended (41 stat. 613)
"Interior Department Appropriation Act of 1928" (44 Stat. 957)
P.L. 70-642, "Boulder Canyon Project Act" (1928)
P.L. 75-756, "Boulder Canyon Project Adjustment Act" (1940)
P.L. 98-381, "Hoover Power Plant Act of 1984"
P.L. 75-529, "The Fort Peck Project Act of 1938"
P.L. 84-484, "The Colorado River Storage Project Act of 1956"
P.L. 90-537, "The Colorado River Basin Project Act of 1968"
The Act of June 18, 1954 (68 Stat. 255)
P.L. No 111-5, "American Recovery and Reinvestment Act of 2009"

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Falcon and Amistad Operating and Maintenance Fund
Proposed Appropriation Language

*For operation, maintenance, and emergency costs for the hydroelectric facilities at the Falcon and Amistad Dams, $3,425,000, to remain available until expended, and to be derived from the Falcon and Amistad Operating and Maintenance Fund of the Western Area Power Administration, as provided in section 2 of the Act of June 18, 1954 (68 Stat. 255): Provided, That notwithstanding the provisions of that Act and of 31 U.S.C. 3302, up to $3,197,000 collected by the Western Area Power Administration from the sale of power and related services from the Falcon and Amistad Dams shall be credited to this account as discretionary offsetting collections, to remain available until expended for the sole purpose of funding the annual expenses of the hydroelectric facilities of these Dams and associated Western Area Power Administration activities: Provided further, That the sum herein appropriated for annual expenses shall be reduced as collections are received during the fiscal year so as to result in a final fiscal year 2024 appropriation estimated at not more than $228,000: Provided further, That for purposes of this appropriation, annual expenses means expenditures that are generally recovered in the same year that they are incurred: Provided further, That for fiscal year 2024, the Administrator of the Western Area Power Administration may accept up to $1,872,000 in funds contributed by United States power customers of the Falcon and Amistad Dams for deposit into the Falcon and Amistad Operating and Maintenance Fund, and such funds shall be available for the purpose for which contributed in like manner as if said sums had been specifically appropriated for such purpose: Provided further, That any such funds shall be available without further appropriation and without fiscal year limitation for use by the Commissioner of the United States Section of the International Boundary and Water Commission for the sole purpose of operating, maintaining, repairing, rehabilitating, replacing, or upgrading the hydroelectric facilities at these Dams in accordance with agreements reached between the Administrator, Commissioner, and the power customers. (*Energy and Water Development and Related Agencies Appropriations Act, 2023.*)*

Explanation of Changes

There is no change in the appropriation language.

Public Law Authorizations
P.L. 103-236, "Foreign Relations Authorization Act, Fiscal Years 1994 and 1995"
The Act of June 18, 1954 (68 Stat. 255)

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Western Area Power Administration
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request
Gross	1,085,326	1,398,523	1,691,129
Offsets	-994,326	-1,299,563	-1,591,029
Net BA	**91,000**	**98,960**	**100,100**

Bipartisan Infrastructure Legislation (BIL) Appropriation ($K)

FY 2022 BIL Appropriation	FY 2023 BIL Appropriation	FY 2024 BIL Appropriation
499,500	0	0

Disaster Relief Supplemental (DRS) Appropriation ($K)

FY 2022 DRS Appropriation	FY 2023 DRS Appropriation	FY 2024 DRS Appropriation
0	520,000	0

Overview

Western Area Power Administration (WAPA) continues to support the Department of Energy (DOE) priorities for a resilient, reliable and secure North American electricity system.

WAPA's mission is to market and reliably deliver cost-based Federal hydroelectric power. WAPA markets power in 15 central and western states from Federally owned power plants operated primarily by the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation and the Department of State's International Boundary and Water Commission. WAPA operates and maintains a high-voltage, integrated transmission system, including approximately 17,000 circuit-miles of high-voltage transmission lines, more than 300 substations/switchyards and associated power system controls, and communication and electrical facilities.

WAPA serves a diverse group of nearly 700 wholesale customers, including more than two dozen military installations, DOE National labs, municipalities, rural electric cooperatives, public utility and irrigation districts, Federal and state agencies and Native American tribes. In turn, WAPA's customers provide service to 40 million Americans, including many disadvantaged and energy communities.

WAPA's base program is funded through three appropriation accounts: 1) the Construction, Rehabilitation, Operation and Maintenance Account (CROM); 2) Falcon and Amistad Operating and Maintenance Fund; and 3) Colorado River Basins Power Marketing Fund (CRBPMF). Within these three accounts, there are seven subprograms: four in the CROM Account, one in the Falcon and Amistad Operating and Maintenance Fund and two in CRBPMF.

WAPA's request has been formulated to meet its power marketing and contractual power delivery obligations with continued high marks for reliability. The Request prioritizes grid modernization through data-driven investment decisions designed to improve resiliency and reliability of WAPA's transmission system.

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Western Area Power Administration
Funding by Congressional Control ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Construction, Rehabilitation, Operation and Maintenance (CROM)					
Operation and Maintenance	81,983	85,229	130,131	+44,902	+53%
Construction and Rehabilitation	35,185	47,189	0	-47,189	-100%
Purchase Power and Wheeling	443,677	715,824	715,824	0	0%
Program Direction	267,246	277,287	295,039	+17,752	+6%
Subtotal, CROM Program	**828,091**	**1,125,529**	**1,140,994**	**+15,465**	**+1%**
Alternative Financing					
Operation and Maintenance	-7,122	-7,641	-42,276	-34,635	+453%
Construction and Rehabilitation	-31,090	-38,219	0	+38,219	-100%
Purchase Power and Wheeling	-273,677	-240,824	-240,824	0	0%
Program Direction	-51,849	-54,868	-60,084	-5,216	+10%
Subtotal, Alternative Financing	**-363,738**	**-341,552**	**-343,184**	**-1,632**	**0%**
Offsetting Collections from Colorado River Dam Fund					
Operation and Maintenance	-1,491	-1,449	-1,530	-81	+6%
Program Direction	-7,625	-7,955	-7,991	-36	0%
Subtotal, Offsetting Collections from Colorado River Dam Fund	**-9,116**	**-9,404**	**-9,521**	**-117**	**+1%**
Offsetting Collections, annual Operation and Maintenance and Program Direction					
Operation and Maintenance	-27,530	-29,180	-29,449	-269	+1%
Program Direction	-166,935	-171,661	-183,968	-12,307	+7%
Subtotal, Offsetting Collections, annual Operation and Maintenance and Program Direction	**-194,465**	**-200,841**	**-213,417**	**-12,576**	**+6%**
Offsetting Collections, Purchase Power and Wheeling	-170,000	-475,000	-475,000	0	0%
Use of Prior Year Balances					
Annual Operation and Maintenance	0	0	0	0	0%
Annual Program Direction	0	0	0	0	0%
Subtotal, Use of Prior Year Balances	**0**	**0**	**0**	**0**	**0%**
Subtotal, CROM	**90,772**	**98,732**	**99,872**	**+1,140**	**+1%**
Rescission of Prior Year Balances	0	0	0	0	0%

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	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Total, CROM	**90,772**	**98,732**	**99,872**	**+1,140**	**+1%**
Federal FTEs	**1,202**	**1,201**	**1,200**	**-1**	**0%**
Falcon and Amistad Operating and Maintenance Fund	7,545	7,928	8,297	+369	+5%
Offsetting Collections, annual Operation and Maintenance	-5,580	-6,102	-3,197	+2,905	-48%
Use of Prior Year Balances	0	0	-3,000	-3,000	0%
Alternative Financing	-1,737	-1,598	-1,872	-274	+17%
Total, Falcon and Amistad	**228**	**228**	**228**	**0**	**0%**
Federal FTEs	**0**	**0**	**0**	**0**	**0%**
Colorado River Basins Power Marketing Fund (CRBPMF)	237,290	258,466	535,238	+276,772	+107%
Offsetting Collections	-237,290	-258,466	-535,238	-276,772	+107%
Total, CRBPMF	**0**	**0**	**0**	**0**	**0%**
Federal FTEs	**308**	**308**	**311**	**+3**	**+1%**
Transmission Infrastructure Program Fund (TIP)					
Mandatory					
New Borrowing Authority	0	0	0	0	0%
Repayment of Borrowing Authority	0	0	0	0	0%
Subtotal, Borrowing Authority	**0**	**0**	**0**	**0**	**0%**
Operating & Debt Service	5,000	8,400	8,400	0	0%
Collections from Projects	-5,000	-8,400	-8,400	0	0%
Subtotal, Operating & Debt Service	**0**	**0**	**0**	**0**	**0%**
Total, Mandatory	**0**	**0**	**0**	**0**	**0%**
Discretionary					
Equipment, Contracts and Related Expenses	4	4	86	+82	+2,050%
Program Direction	12,396	6,596	6,514	-82	-1%
Subtotal, Discretionary	**12,400**	**6,600**	**6,600**	**0**	**0%**
Offsetting Collections	-12,400	-6,600	-6,600	0	0%
Total, Discretionary	**0**	**0**	**0**	**0**	**0%**

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	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Total, TIP	**0**	**0**	**0**	**0**	**0%**
Federal FTEs	**11**	**12**	**10**	**-2**	**-17%**
Total, Western Area Power Administration	**91,000**	**98,960**	**100,100**	**+1,140**	**+1%**
Federal FTEs	**1,521**	**1,521**	**1,521**	**0**	**0%**

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Construction, Rehabilitation, Operation and Maintenance
Western Area Power Administration
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request
Gross	828,091	1,125,529	1,140,994
Offsets	-737,319	-1,026,797	-1,041,122
Subtotal	**90,772**	**98,732**	**99,872**
Rescission of prior year balances	0	0	0
Net BA	**90,772**	**98,732**	**99,872**

Overview
WAPA markets and delivers reliable, cost-based Federal hydroelectric power and related services. WAPA's marketing efforts and delivery capability provide for recovery of annual operational costs, including the generating agencies' hydropower related costs, and repayment of taxpayer investment in the Federal hydropower program. WAPA repays the Federal investment for which it is responsible within the timeframes established by law and regulations.

WAPA's Construction, Rehabilitation, Operation and Maintenance Account (CROM) is comprised of four subprograms:

- Operation and Maintenance (O&M)
- Construction and Rehabilitation (C&R)
- Purchase Power and Wheeling (PPW)
- Program Direction (PD)

WAPA's subprograms are funded using a variety of financing methods including appropriations, alternative financing (primarily customer advances), and use of receipt authorities.

Highlights of the FY 2024 Budget Request
WAPA's request has been formulated to meet its power marketing and contractual power delivery obligations. The Request prioritizes grid modernization through data-driven investment decisions designed to improve resiliency and reliability of WAPA's transmission system.

For FY24 and outyears, WAPA is adhering more strictly to common capital program definitions to improve consistency and transparency of budgeted activities in the O&M and C&R programs across WAPA's separate regions and power systems. There is no change in WAPA's overall capital program requirement.

- O&M Replacements, Additions & Upgrades will include all capital replacement activity, including minor related upgrades and additions. The C&R program will no longer include replacement and additions. Over the years, replacement activity (a maintenance activity) has migrated to the C&R program as the build-out of WAPA transmission system has effectively completed
- C&R will include capital investments greater than $25 million in total anticipated costs that meet the following criteria:
    - Construction of new facilities that provide service to new customers, expand service to existing customers or provide cost-effective benefits for WAPA customers
    - Major rehabilitation of existing infrastructure intended to restore assets to acceptable operating or environmental conditions

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Outyear Funding
($K)

	FY 2024 Request	FY 2025	FY 2026	FY 2027	FY 2028
CROM Net BA	99,872	102,170	104,520	106,924	109,383

Major Outyear Priorities and Assumptions
Outyear funding levels for WAPA CROM total $422,997,000 for FY 2025 through FY 2028. The CROM appropriation priorities include:

- Operation and maintenance requirements for reliable and resilient transmission system
- Capital investments in grid modernization and safeguards
- Purchase power and wheeling to meet reserves and contractual power delivery obligations

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Operation and Maintenance
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Operation and Maintenance					
Regular Operation and Maintenance	36,322	38,490	38,965	+475	+1%
Replacements, Additions & Upgrades	45,661	46,739	91,166	+44,427	+95%
Total, Operation and Maintenance	**81,983**	**85,229**	**130,131**	**+44,902**	**+53%**
Alternative Financing	-7,122	-7,641	-42,276	-34,635	+453%
Use of Receipts from Colorado River Dam Fund	-1,491	-1,449	-1,530	-81	+6%
Offsetting Collections	-27,530	-29,180	-29,449	-269	+1%
Use of Prior Year Balances	0	0	0	0	0%
Total, Operation and Maintenance (Budget Authority)	**45,840**	**46,959**	**56,876**	**+9,917**	**+21%**
Replacements, Additions & Upgrades					
Aviation	650	450	450	0	0%
Communication	7,561	4,753	6,738	+1,985	+42%
Information Technology	6,588	5,488	5,228	-260	-5%
Miscellaneous	757	4,005	2,687	-1,318	-33%
Movable Equipment	11,184	10,057	11,935	+1,878	+19%
Substations	13,345	16,881	34,756	+17,875	+106%
Transmission Lines	5,576	5,105	29,372	+24,267	+475%
Total, Replacements, Additions & Upgrades	**45,661**	**46,739**	**91,166**	**+44,427**	**+95%**

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Description
The Operation and Maintenance (O&M) subprogram provides the supplies, materials, equipment and infrastructure necessary for WAPA to continue to deliver on its mission of providing reliable, resilient domestic energy to 40 million Americans across its 15-state footprint.

Regular Operation and Maintenance
Supplies and materials necessary to respond to routine and emergency situations across WAPA's 17,000 miles of high-voltage interconnected transmission system will be purchased. This includes miscellaneous equipment and software used for power billing, transmission planning, e-tagging, and energy scheduling, as well as supplies and materials such as wood poles (individual pole replacement only; excludes whole line replacements), instrument transformers, meters, relays, etc. Additionally, cyber and physical security audits and monitoring as well as grid operations and monitoring are provided through this activity, funded primarily through offsetting collections and alternative customer financing.

Replacements, Additions & Upgrades
Equipment and infrastructure investments necessary to maintain required service levels across WAPA's footprint. Planned replacements, additions & upgrades activity is based on cyber and physical security audits, assessments of condition and criticality of equipment, maintenance and frequency of problems on individual items of equipment, availability of replacement parts, safety of the public and WAPA's personnel, environmental concerns and an orderly work plan. Cost estimates are based on analysis of system operation and maintenance requirements, customer-coordinated work plans, actual costs of recent similar projects, and bottom-up budgeting techniques. Planned activity is detailed by category below.

Aviation
Helicopter and helicopter equipment investments that add value to, or extend the service life of the helicopter fleet, such as engines, rotor blades, avionics, airframes, and other major components.

Communication
Investments supporting telephone, mobile radio, microwave, and fiber optics communication systems.

Information Technology
Hardware and software investments supporting cybersecurity, network, infrastructure, supervisory control and data acquisition (SCADA), enterprise applications, power management and marketing, and operations and maintenance.

Miscellaneous
Investments that support the bulk electric system, such as maintenance facilities, access roads, water systems, physical security enhancements, and facility decommissioning and removal costs.

Movable Equipment
Equipment that supports the bulk electric system such as specialized vehicles (e.g., bucket trucks, graders, bulldozers, excavators, forklifts, trailers, mobile transformers) and test equipment (e.g., meter and relay test sets, pentameters, Ohm testers, oil dielectric testers, battery load testers, and communication and environmental control test equipment).

Substations
Substation infrastructure and related components, such as circuit breakers, transformers, relays, batteries and chargers, reactors, meters, buses, surge arresters, capacitor banks, and disconnect switches.

Transmission Lines
Transmission line infrastructure and related components, such as transmission line structures, hardware, conductor, and static wires.

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Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Operation and Maintenance $85,229,000	**$130,131,000**	**+44,902,000**
Regular O&M ($38,490,000) The continuing maintenance of WAPA's transmission system at or above industry standards supports DOE and WAPA missions by minimizing sudden failure, unplanned outages, and possible regional power system disruptions. The Request is based on projected work plans for activities funded from this account. Estimates are based on historical data of actual supplies needed to operate and maintain the transmission system and recent procurement of similar items. This Request also includes approximately $220,000 for appropriated O&M annual expenses that are required to fund WAPA's Salinity and Levee non-reimbursable power systems. The Request includes approximately $1,449,000 for activities in the Boulder Canyon Project, funded through receipts from the Colorado River Dam Fund.	*Regular O&M ($38,965,000)* The continuing maintenance of WAPA's transmission system at or above industry standards supports DOE and WAPA missions by minimizing sudden failure, unplanned outages, and possible regional power system disruptions. The Request is based on projected work plans for activities funded from this account. Estimates are based on historical data of actual supplies needed to operate and maintain the transmission system and recent procurement of similar items. This Request also includes approximately $248,000 for appropriated O&M annual expenses that are required to fund WAPA's Salinity and Levee non-reimbursable power systems. The Request includes approximately $1,530,000 for activities in the Boulder Canyon Project, funded through receipts from the Colorado River Dam Fund.	*Regular O&M (+$475,000)* Regular O&M increases are largely driven by transmission line maintenance requirements.
Replacements, Additions and Upgrades ($46,739,000) Replacement needs are based on age, reliability, and safety of equipment, customer-coordinated review, cost analysis of rebuild versus replacement, availability of replacement parts, and obsolescence of diagnostic maintenance tools. Estimates are determined using actual costs of similar items.	*Replacements, Additions and Upgrades ($91,166,000)* Replacement needs are based on age, reliability, and safety of equipment, customer-coordinated review, cost analysis of rebuild versus replacement, availability of replacement parts, and obsolescence of diagnostic maintenance tools. Estimates are determined using actual costs of similar items.	*Replacements, Additions and Upgrades (+44,427,000)* Replacements, Additions and Upgrades increases reflect a shift in activities previously included in the Construction and Rehabilitation subprogram. The combination of this activity and the C&R subprogram actually represents a decrease of $2.8 million year over year.

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Construction and Rehabilitation
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Construction and Rehabilitation					
Nogales to Saguaro Transmission Line	0	0	0	0	0%
Transmission Lines and Terminal Facilities	28,400	15,027	0	-15,027	-100%
Substations	888	22,801	0	-22,801	-100%
Other	5,897	9,361	0	-9,361	-100%
Subtotal, Construction and Rehabilitation	**35,185**	**47,189**	**0**	**-47,189**	-100%
Alternative Financing	-31,090	-38,219	0	+38,219	-100%
Total, Construction and Rehabilitation (Budget Authority)	**4,095**	**8,970**	**0**	**-8,970**	-100%

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Description

The Construction and Rehabilitation (C&R) subprogram supports WAPA's mission to deliver reliable, clean Federal hydroelectric power by emphasizing the construction of new facilities that provide service to new customers, expand service to existing customers, or provide cost-effective benefits across the customer base intended to provide continued reliability, improved connectivity, and increased resilience, flexibility and capability to the power grid; or major rehabilitation of existing infrastructure intended to restore assets to acceptable operating or environmental conditions.

Financing of the C&R subprogram is expected to rely primarily on voluntary stakeholder participation in alternative methods for capital financing except where specific infrastructure appropriations are made available. Stakeholder financing may be provided as either advances that are re-paid to the stakeholder through bill credits or as direct work for others financing resulting in contributed assets to WAPA without repayment to the stakeholder. The latter will be reflected in the Activities and Explanation of Changes at $0, with reimbursable authority included within the work for others request.

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Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Construction and Rehabilitation $47,189,000	**$0**	**-$47,189,000**

	Nogales to Saguaro Transmission Line ($0)
	• Public/private partnership:
	  o Customer will advance funds to WAPA for all project costs (no repayment by WAPA)
	  o WAPA will design, procure and construct the project at no cost to ratepayers
	• Construction of the following facilities:
	  o Rebuild/upgrade 64-mile 115-kV single circuit transmission line (wood H-frame structures) located on existing WAPA rights-of-way between Nogales (AZ) and Saguaro (AZ) substations to 230-kV double circuit transmission line (steel monopole structures)
	  o New 230-kV connections to three existing customer substations
	• Ownership:
	  o WAPA and customer will each own a 230-kV circuit with WAPA's operated at 115-kV
	• Benefit to WAPA customers:
	  o Rebuild of existing transmission system infrastructure with no impact on WAPA rates
		Nogales to Saguaro Transmission Line (+$0)
		Funding for this project is being provided through the work for others program at no cost to WAPA.

Transmission and Terminal Facilities ($15,027,000) • Continue rehabilitation and construction required on WAPA's transmission lines and terminal facilities to cost-effectively market and deliver clean Federal hydropower and promote a strong record of reliability and safety. • Address additional system reliability risk and operational problems. • Appropriations ($2,220,000) are requested for the following projects in FY 2023:		*Transmission and Terminal Facilities (-$15,027,000)* The decrease represents increased adherence to the definitions for replacements, additions and upgrades. Most projects recently reflected in the C&R subprogram were primarily larger scale replacements, additions, and upgrades, which are now more appropriately reflected within the Operations and Maintenance subprogram.

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FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
○ Trinity-Weaverville-Lewiston (CA) upgrade rights-of-way for existing 17-mile segment of transmission line to reduce the risk of wildfires and increase reliability and safety of the surrounding community • Alternative financing ($12,807,000) sought for the following projects in FY 2023: ○ Parker-Bouse (AZ) construct 15-mile segment of 230-kV double circuit transmission line and upgrade equipment at Bouse substation to improve reliability of service, improve safety, and reduce ongoing maintenance costs ○ Bouse-Kofa 161kV (AZ) rebuild of 75.6 miles of 161-kV transmission line to comply with NERC standards, increase reliability and reduce maintenance costs ○ Parker-Blythe 161-kV #2 Rebuild (AZ/CA) rebuild of 63.9 miles of 161-kV transmission line structure to increase reliability and reduce maintenance costs ○ Blythe-Knob (CA) replacement of failed and deteriorating wood transmission line structures to increase reliability and reduce maintenance costs		
Substations ($22,801,000) • Continue construction, modification, and rehabilitation of WAPA's substations to ensure power system reliability and stability. • Address additional system reliability risk and operational problems. • Appropriations ($4,100,000) are requested for the following projects in FY 2023:		*Substations (-$22,801,000)* The decrease represents increased adherence to the definitions for replacements, additions and upgrades. Most projects recently reflected in the C&R subprogram were primarily larger scale replacements, additions, and upgrades, which are now more appropriately reflected within the Operations and Maintenance subprogram.

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FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
○ Yellowtail Substation (MT) replacement of entire protection and control system, including control building, to increase reliability Alternative financing ($18,701,000) is being sought for the following projects in FY 2023: ○ Eagle Butte Substation (SD) replacement of existing single bus configuration with 115 kV ring bus to increase reliability and simplify maintenance procedures ○ Groton Substation (SD) transformer (40+ years) and control building replacement to reduce the risk of catastrophic failure, and increase reliability and safety ○ Philip Substation (SD) transformer replacement due to age (50+ years) and other asset management factors which could result in catastrophic failure, reliability, and customer outages ○ Sand Creek Switching Station (CO) installation of 3 breaker ring bus (power circuit breakers and control panels) to sectionalize the Erie-Hoyt-Willoby 115-kV transmission lines and to increase reliability and safety ○ Stegall Substation (NE) replacement of existing main and transfer bus configuration with breaker and a half arrangement to increase reliability and reduce maintenance requirements		

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FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Other ($9,361,000) • Appropriations ($2,650,000) are requested for the following projects in FY 2023: o Mead Substation (NV) roadway improvements to increase accessibility and safety o Mead Substation (NV) domestic water system improvements to increase reliability and safety • Alternative financing ($6,711,000) sought for the following projects in FY 2023: o Cottonwood Substation (CA) control building replacement (age and excessive maintenance requirements) to increase service reliability and reduce maintenance costs o Folsom Substation (CA) station service equipment upgrades to mitigate safety hazards and increase reliability o Rapid City Substation (SD) maintenance building replacement (40+ years old) will accommodate crew quarters, shop areas, house vehicles, and provide equipment storage and enable WAPA to be more efficient in maintenance and response to emergencies o Yuma (AZ) retrofit and equip newly acquired maintenance building critical to supporting aged and deteriorating transmission system infrastructure and increasing reliability for key preference customers		*Other (-$9,361,000)* The decrease represents increased adherence to the definitions for replacements, additions and upgrades. Most projects recently reflected in the C&R subprogram were primarily larger scale replacements, additions, and upgrades, which are now more appropriately reflected within the Operations and Maintenance subprogram.

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Purchase Power and Wheeling
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Purchase Power and Wheeling					
Central Valley	261,742	348,414	348,414	0	0%
Pick-Sloan Missouri Basin and other Programs	181,935	367,410	367,410	0	0%
Subtotal, Purchase Power and Wheeling	**443,677**	**715,824**	**715,824**	**0**	**0%**
Alternative Financing Needed	-273,677	-240,824	-240,824	0	0%
Offsetting Collections	-170,000	-475,000	-475,000	0	0%
Total, Purchase Power and Wheeling (Budget Authority)	**0**	**0**	**0**	**0**	**0%**

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Construction, Rehabilitation, Operation & Mainenance
Purchase Power and Wheeling

Description
The Purchase Power and Wheeling (PPW) subprogram continues to support WAPA's marketing efforts and delivery capability which spans a 1.3 million square mile area serving a diverse group of several hundred wholesale customers, including municipalities, cooperatives, public utility and irrigation districts, Federal and state agencies and Native American tribes. No appropriated budget authority is necessary.

For a historical perspective, WAPAs PPW subprogram is highly variable; it is affected by reservoir storage levels, annual and long-term drought conditions, downstream flow concerns due to icing, flooding, environmental, health and safety, recreation, irrigation, and navigation requirements. In recent years, PPW costs for WAPA Construction, Rehabilitation, Operation and Maintenance (CROM) account using PPW receipt authority and emergency appropriations have increased significantly, from $147 million in FY 2020, to $361 million in FY 2021, $418 million in FY 2022, and enacted at $475 million for FY 2023. The year-over-year increase is +146%, +16%, and +14% for FY 2021, FY 2022, and FY 2023 respectively. WAPA's budget request reflects anticipated requirements utilizing current information on hydro conditions, generation, contractual commitments, and power pricing.

WAPA has implemented a PPW risk mitigation strategy to ensure continuous operations during periods of significant drought. The strategy was developed consistent with existing authorities, and with the participation and support of WAPA power customers. Under this approach, WAPA retains receipts from the recovery of purchase power and wheeling expenses within the 'up to' amount specified by Congress. The receipts retained are available until expended and are available only for purchase power and wheeling expenses.

WAPA received a $500 million emergency appropriation through the Infrastructure Investment and Jobs Acts, providing near-term relief for immediate concerns regarding the reduced level of PPW reserves. Funds can be transferred from WAPA's CROM account to the Colorado River Basins Power Marketing Fund (CRBPMF) account as WAPA's Administrator determines is needed for purchase of power and transmission services per statute. The allocation of the IIJA funding will be prioritized in a manner that facilitates the restoration of PPW reserves in both the CROM and CRBPMF accounts.

WAPA received an additional $520 million appropriation through the Disaster Relief Supplemental for PPW support in FY 2023. Up to $100 million can be transferred from WAPA's CROM account to the Colorado River Basins Power Marketing Fund (CRBPMF) account as WAPA's Administrator determines is needed for purchase of power and transmission services per statute. The allocation of the DRS funding will be prioritized in a manner that facilitates the restoration of PPW reserves in both the CROM and CRBPMF accounts.

Since WAPA's inception, the full cost of the PPW program has been included in the rate setting process. Through this process, and utilizing interim rate adjusting capabilities, all PPW costs are fully recovered through WAPA's rates.

Central Valley Project
WAPA continues to deliver on its contractual power commitments to customers under the Central Valley Project's Post 2004 Marketing Plan. The Budget Request assumes current full load service customers will continue to choose service from WAPA through "Custom Product" contractual agreements. WAPA also purchases power to support variable resource customers on a pass-thru basis. If project net generation is not sufficient, WAPA may also purchase to support project use load, First Preference Customer load, and sub-control area reserve requirements. As part of the Order 741, FERC promulgated guidance requiring RTO/ISOs to take physical title/ownership to the energy bought/sold in their respective markets, making it necessary for WAPA to acknowledge that customers receive the financial, and not the physical benefit of their Federal power allocations. In order to provide service in the state, WAPA is voluntarily participating in the California greenhouse gas cap-and-trade program which became effective January 1, 2013.

Pick-Sloan Missouri Basin and Other Programs

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The Budget Request continues to support long-term firm power commitments to customers of the eastern and western divisions of the Pick-Sloan Missouri Basin Program, the Fryingpan-Arkansas Project, and the Parker-Davis Project commensurate with the levels of average firm hydroelectric energy marketed by WAPA. The Request also provides transmission support for the Pacific Northwest-Southwest Intertie Project. The total program estimates shown are based primarily on market pricing of short-term firm energy, negotiated transmission rates, and WAPA and generating agency's forecasts.

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Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Central Valley Project		
Program Requirements ($348,414,000) The Purchase Power and Wheeling subprogram continues to support WAPA's power marketing effort by providing for power purchases to firm the variable hydropower resource and securing transmission services as necessary to meet its contractual power delivery.	*Program Requirements (348,414,000)* The Purchase Power and Wheeling subprogram continues to support WAPA's power marketing effort by providing for power purchases to firm the variable hydropower resource and securing transmission services as necessary to meet its contractual power delivery.	*Program Requirements ($0)* No change year over year. Program amounts are financed through offsetting collections (from WAPA receipts) and alternative financing (to include net billing, bill crediting, energy exchanges and direct customer funding); no direct appropriations are requested for this activity.
Pick-Sloan Missouri Basin		
Program Requirements ($367,410,000) The Purchase Power and Wheeling subprogram continues to support WAPA's power marketing effort by providing for power purchases to firm the variable hydropower resource and securing transmission services as necessary to meet its contractual power delivery.	*Program Requirements ($367,410,000)* The Purchase Power and Wheeling subprogram continues to support WAPA's power marketing effort by providing for power purchases to firm the variable hydropower resource and securing transmission services as necessary to meet its contractual power delivery.	*Program Requirements ($0)* No change year over year. Program amounts are financed through offsetting collections (from WAPA receipts) and alternative financing (to include net billing, bill crediting, energy exchanges and direct customer funding); no direct appropriations are requested for this activity.

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Construction, Rehabilitation, Operation & Maintenance
Program Direction

Overview

WAPA's Program Direction subprogram provides compensation and all related expenses for its workforce, including those employees that operate and maintain WAPA's high-voltage interconnected transmission system and associated facilities; those that plan, design, and supervise the construction of replacements, upgrades and additions (capital investments) to the transmission facilities; those that market the power and energy produced to repay annual expenses and capital investment; and those that administratively support these functions.

The Program Direction subprogram supports DOE's and WAPA's mission of operating and maintaining a resilient and secure energy grid by attaining and developing a critical highly skilled workforce of engineers, dispatchers, linemen, power system operators, and high voltage electricians. The Program Direction subprogram also includes the administrative staff, including those positions that monitor, detect, and deter physical and cyber-attacks on WAPA's infrastructure.

WAPA trains its employees on a continuing basis in occupational safety and health regulations, policies, and procedures, and conducts safety meetings at employee, supervisory and management levels to keep the safety culture strong. Accidents are reviewed to ensure lessons are learned and proper work protocol is in place.

In consultation with its customers, WAPA reviews required replacements and upgrades to its existing infrastructure to sustain reliable power delivery to its customers and to contain annual maintenance expenses. The timing and scope of these replacements and upgrades are critical to assure that WAPA's facilities remain a reliable and resilient component of the nations interconnected power grid. WAPA pursues opportunities to join with neighboring utilities to jointly finance activities, which avoid redundant facilities and result in realized cost savings and/or increased efficiencies for all participants.

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Program Direction
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Program Direction					
Salaries and Benefits	183,875	191,911	205,871	+13,960	+7%
Travel	10,497	10,610	10,336	-274	-3%
Support Services	36,732	36,958	35,737	-1,221	-3%
Other Related Expenses	36,142	37,808	43,095	+5,287	+14%
Total, Program Direction	**267,246**	**277,287**	**295,039**	**+17,752**	**+6%**
Use of Alternative Financing	-51,849	-54,868	-60,084	-5,216	+10%
Use of Receipts from Colorado River Dam Fund	-7625	-7,955	-7,991	-36	0%
Offsetting Collections, Other Expenses	-166,935	-171,661	-183,968	-12,307	+7%
Use of Prior Year Balances	0	0	0	0	0%
Total, Program Direction (Budget Authority)	**40,837**	**42,803**	**42,996**	**+193**	**0%**
Federal FTEs	**1,202**	**1,201**	**1,200**	**-1**	**0%**
Support Services					
Technical Support					
Economic and Environmental Analysis	13,583	15,995	15,777	-218	-1%
Total, Technical Support	**13,583**	**15,995**	**15,777**	**-218**	**-1%**
Management Support					
Automated Data Processing	13,445	11,645	11,525	-120	-1%
Training and Education	3,537	3,313	3,000	-313	-9%
Reports and Analysis, Management and General Administrative Support	6,167	6,005	5,435	-570	-9%
Total Management Support	**23,149**	**20,963**	**19,960**	**-1,003**	**-5%**
Total, Support Services	**36,732**	**36,958**	**35,737**	**-1,221**	**-3%**
Other Related Expenses					
Rent to GSA	2,398	2,200	2,423	+223	+10%
Communication, Utilities, Misc.	7,930	6,969	7,140	+171	+2%
Printing and Reproduction	105	81	65	-16	-20%

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	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Other Services	11,019	12,189	17,874	+5,685	+47%
Training	12	2	0	-2	-100%
Purchases from Gov. Accounts	1,341	1,285	924	-361	-28%
Operation and Maintenance of Equipment	6,201	6,784	7,273	+489	+7%
Supplies and Materials	2,293	2,285	2,076	-209	-9%
Equipment	2,304	3,205	2,603	-602	-19%
Working Capital Fund	2,539	2,808	2,717	-91	-3%
Total, Other Related Expenses	**36,142**	**37,808**	**43,095**	**+5,287**	**+14%**

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Construction, Rehabilitation, Operation & Maintenance
Program Direction

Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Program Direction $277,287,000	**$295,039,000**	**+$17,752,000**
Salaries and Benefits $191,911,000	**$205,871,000**	**+$13,960,000**
Salary and benefits provide for Federal employees who construct and replace, operate and maintain and secure, on a continuing basis, WAPA's high-voltage interconnected transmission system. Salary and benefits fund those FTEs assigned to this account, including those salaries determined through negotiations.	Salary and benefits funding is for Federal employees who construct and replace, operate and maintain and secure, on a continuing basis, WAPA's high-voltage interconnected transmission system.	The salary and benefits reflect known and anticipated increases for General Schedule, Wage Board and Administratively Determined employees.
Travel $10,610,000	**$10,336,000**	**-$274,000**
This activity funds all travel, and related expenses associated with WAPA's mission-related operation and maintenance activities, and those functions that support them.	Request funds all travel, and related expenses associated with WAPA's mission-related operation and maintenance activities, and those functions that support them.	Request reflects variabilities in scope and location associated with mission related operation and maintenance travel, and travel for cross-functional collaboration among various internal and external programs.
Support Services $36,958,000	**$35,737,000**	**-$1,221,000**
Support Services funded in this category include information technology, job related training and education, engineering, miscellaneous advisory and reporting services, and general administrative support.	Request funds information technology, job related training and education, engineering, miscellaneous advisory and reporting services, and general administrative support services.	Request reflects decrease in technical support for operations security and environmental services, and general administrative support.

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Other Related Expenses $37,808,000	$43,095,000	+$5,287,000
Other related expenses include rental space, utilities, supplies and materials, telecommunications, information technology modernization (data/network), printing and reproduction, training tuition, and DOE's Working Capital Fund distribution. Rental space costs assume the General Services Administration's (GSA) inflation factor. Other costs are based on historical usage and actual cost of similar items.	Request funds rental space, utilities, supplies and materials, telecommunications, information technology modernization (data/network), printing and reproduction, training tuition, and DOE's Working Capital Fund distribution. Rental space costs assume the General Services Administration's (GSA) inflation factor. Other costs are based on historical usage and actual cost of similar items.	The primary increase is attributable to infrastructure other services related to substation and transmission facility maintenance and operations and slight increases in facility rent, communication, utilities; with decreases for equipment purchases and supplies and materials.

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Falcon and Amistad Operating and Maintenance Fund
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request
Gross	7,545	7,928	8,297
Offsets	-7,317	-7,700	-8,069
Net BA	**228**	**228**	**228**

Overview

The Falcon and Amistad Operating and Maintenance fund (Maintenance Fund) was established in the Treasury of the United States as directed by the Foreign Relations Authorization Act, FYs 1994 and 1995. The Maintenance Fund is administered by WAPA's Administrator for use by the Commissioner of the U. S. Section of the International Boundary and Water Commission (IBWC) to defray administrative, O&M, replacement, and emergency costs for the hydroelectric facilities at the Falcon and Amistad Dams. IBWC owns and operates the U.S. portion of the projects, and Federal staff funded under this program continues to be allocated to the U.S. Section of IBWC by the Department of State. The Falcon and Amistad project supports WAPA's program goals by providing power to rural electric cooperatives through WAPA. With the exception of monies received from the Government of Mexico, all revenues collected from the sale of electric power generated at the Falcon and Amistad Dams are credited to the Maintenance Fund. Monies received from the Government of Mexico are credited to the General Fund of the U.S. Treasury. Revenues collected in excess of operating expenses are used to repay, with interest, the cost of replacements and original investments. Full funding will support 24-hour/day operation and maintenance of the two power plants to ensure response to ever-changing water conditions, customer demand, and continual coordination with operating personnel of the Government of Mexico.

Highlights of the FY 2024 Budget Request

WAPA's request has been formulated to meet its power marketing and contractual power delivery obligations. Revenue collected from customers to recover the costs of the Federal Power Program will be sufficient to provide for planned expenses for the facilities operated by the IBWC. Also included is the continuation of WAPA's request to allow for U.S. customer(s) of the Falcon and Amistad Dams to contribute funds for use by the IBWC in fulfilling their duties in accordance with agreements between WAPA, IBWC, and the power customers. The contributed funds are planned to predominantly assist in capitalized replacement projects.

Outyear Funding
($K)

	FY 2024 Request	FY 2025	FY 2026	FY 2027	FY 2028
Falcon and Amistad Operating and Maintenance Fund Net BA	**228**	**233**	**238**	**244**	**249**

Major Outyear Priorities and Assumptions

Outyear funding levels for the Maintenance Fund total $964,000 for FY 2025 through FY 2028. Maintenance Fund priorities include the following:

- Annual operations and maintenance expenses will be offset by revenues collected from the customer
- The annual appropriation, along with customer advances, are necessary for capitalized replacement projects

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Falcon and Amistad Operating and Maintenance Fund
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Western Area Power Administration					
Falcon and Amistad Operating and Maintenance Fund	7,545	7,928	8,297	+369	+5%
Subtotal, Falcon and Amistad Operating and Maintenance Fund	**7,545**	**7,928**	**8,297**	**+369**	**+5%**
Offsetting Collections	-5,580	-6,102	-3,197	+2,905	-48%
Use of Prior Year Balances	0	0	-3,000	-3,000	0%
Alternative Financing	-1,737	-1,598	-1,872	-274	+17%
Total, Falcon and Amistad Operating and Maintenance Fund	**228**	**228**	**228**	**0**	**0%**

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Falcon and Amistad Operating and Maintenance Fund

Description

The Falcon and Amistad Project consists of two international dams located on the Rio Grande River between Texas and Mexico. The United States and Mexico operate separate hydroelectric power plants on each side of the Rio Grande River. The power plants are independent and legislatively severable from the international reservoir storage dams. The Operating and Maintenance Fund was established in the Treasury of the United States and is administered by WAPA's Administrator for use by the Commissioner of the U.S. Section of the IBWC to defray administrative, O&M, replacement, and emergency costs for the hydroelectric facilities at the Falcon and Amistad Dams.

IBWC

O&M

Activities include salaries and benefits for the approximately 40 positions of the U.S. Section of the IBWC who operate and maintain the two power plants on a 24-hour/day basis, planned maintenance activities, required safety services, and emergency response to flood operations and/or equipment failure. O&M includes inspection and service of the HVAC and air compressor system, fire suppression systems, elevators, self-contained breathing apparatus, recharge and hydro-testing of fire extinguishers, calibration of test equipment, rebuild of electric motors, and repair of obsolete equipment when replacement parts are no longer available. Travel, training, communications, utilities, printing, and office supplies and materials for the IBWC employees and technical advisors is also funded by the O&M activity. The Request includes essential training for employees to comply with standards of the Interagency Commission on Dam Safety, Occupational and Health Administration, and the National Dam Safety Act.

Capital Investment

WAPA, the IBWC, and the customer have collaboratively developed a rehabilitation work plan to address immediate and future infrastructure needs for the hydroelectric facilities. Future infrastructure needs will be appropriately planned and categorized by all parties through regularly scheduled progress reviews.

WAPA

Marketing, Contract, Repayment Studies

This activity funds power marketing, administration of power contracts, and preparation of rate and repayment studies. Based on accurate studies, staff ensures power revenues are set at an appropriate level to recover annual expenses and meet repayment schedules.

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Falcon and Amistad Operating and Maintenance Fund

Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Falcon and Amistad Operating and Maintenance Fund **$7,928,000**	**$8,297,000**	**+$369,000**
IBWC O&M ($6,041,000) This activity funds the salaries and benefits for those employees assigned to the U.S. Section of the IBWC who operate and maintain the two power plants, equipment inspections and maintenance services, and travel, training, communications, utilities, printing, and office supplies/materials for the IBWC employees and technical advisors.	*IBWC O&M ($6,147,000)* This activity funds the salaries and benefits for those employees assigned to the U.S. Section of the IBWC who operate and maintain the two power plants, equipment inspections and maintenance services, and travel, training, communications, utilities, printing, and office supplies/materials for the IBWC employees and technical advisors.	*IBWC O&M (+$106,000)* The Request reflects projects in the 10-year O&M work plan that was developed to address recommendations in the U.S. Army Corps of Engineers (USACE) inspection report completed in 2018. Projects planned include development of a circuit breaker testing program at Falcon. Amounts are for offsetting collections; no direct appropriations are requested for this activity.
IBWC Capital Investment ($1,826,000) This activity funds capital investment activities at the Falcon and Amistad hydroelectric facilities.	*IBWC Capital Investment ($2,100,000)* This activity funds capital investment activities at the Falcon and Amistad hydroelectric facilities.	*IBWC Capital Investment (+$274,000)* The Request reflects projects in the 10-year capital work plan that was developed to address recommendations in the U.S. Army Corps of Engineers inspection report completed in 2018. Projects planned include firewall containment improvements and repair/re-insulate stator winding at Falcon.
WAPA Marketing, Contracts, Repayment ($61,000) This activity funds power marketing, administration of power contracts, and preparation of rate and repayment studies.	*WAPA Marketing, Contracts, Repayment ($50,000)* This activity funds power marketing, administration of power contracts, and preparation of rate and repayment studies.	*WAPA Marketing, Contracts, Repayment (-$11,000)* The decrease is attributed to reduced costs associated with power repayment studies software. Amounts are for offsetting collections; no direct appropriations are requested for this activity.

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Colorado River Basins Power Marketing Fund
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request
Gross	237,290	258,466	535,238
Offsets	-237,290	-258,466	-535,238
Net BA	**0**	**0**	**0**

Overview

WAPA operates and maintains the transmission system for the projects funded in this account to ensure an adequate supply of reliable electric power in a clean and environmentally safe, cost-effective manner. The Colorado River Basins Power Marketing Fund Program (CRBPMF) is comprised of the Colorado River Storage Project, including the Dolores, Seedskadee, and Olmsted Projects, and the Fort Peck Project. WAPA is responsible for operation and maintenance, including purchase power and wheeling and capital replacement, additions, and upgrades of facilities for transmitting and marketing the electrical energy generated in these power systems.

Highlights of the FY 2024 Budget Request

WAPA's request has been formulated to meet its power marketing and contractual power delivery obligations. Revenues collected from customers to recover the costs of the Federal Power Program will be sufficient to provide for WAPA's planned expenses for the power systems in the CRBPMF. The Budget assumes continued severe drought conditions persist, impacting hydropower generation capability and significantly increasing purchase power and wheeling requirements.

Outyear Funding
($K)

	FY 2024 Request	FY 2025	FY 2026	FY 2027	FY 2028
CRBPMF Net BA	**0**	**0**	**0**	**0**	**0**

Major Outyear Priorities and Assumptions

Outyear funding levels for CRBPMF total $0 for FY 2025 through FY 2028. CRBPMF priorities include the following:

- Meeting power marketing and contractual power delivery obligations
- Addressing impact of severe drought and revenue concerns

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Colorado River Basins Power Marketing Fund
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Colorado River Basins Power Marketing Fund					
Equipment, Contracts and Related Expenses					
Supplies, Materials and Services	12,237	12,728	12,231	-497	-4%
Purchase Power Costs	104,946	119,236	401,799	+282,563	+237%
Capitalized Equipment	16,616	16,863	19,045	+2,182	+13%
Interest/Transfers	2,509	3,405	5,182	+1,777	+52%
Generating Agency Activities	26,401	26,695	16,600	-10,095	-38%
Total, Equipment, Contracts and Related Expenses	**162,709**	**178,927**	**454,857**	**+275,930**	**+154%**
Program Direction	**74,581**	**79,539**	**80,381**	**+842**	**+1%**
Total, Operating Expenses from new authority	**237,290**	**258,466**	**535,238**	**+276,772**	**+107%**
Offsetting Collections Realized	-237,290	-258,466	-535,238	-276,772	+107%
Total, Obligational Authority	**0**	**0**	**0**	**0**	**0%**

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Colorado River Basins Power Marketing Fund
Equipment, Contracts and Related Expenses

Description

WAPA's equipment, contracts and related expenses are necessary to operate and maintain this activity. Revenues from the sale of electric energy, capacity and transmission services replenish the fund and are available for expenditure for operation, maintenance, power billing and collection, purchase power and wheeling, interest, emergencies, and other power marketing expenses.

Supplies, Materials and Services

This activity funds the procurement of supplies, materials, and services necessary to respond to routine and emergency situations in the transmission system. Estimates are based on recent actual costs for supplies needed to maintain transmission system reliability.

Purchase Power Costs

This activity funds the procurement of electrical power, transmission capacity and wheeling services on the open market. The Request anticipates persisting drought conditions and the results of continued low-steady-flow tests conducted at Glen Canyon Dam, as required by the Glen Canyon Dam Environmental Impact Statement Record of Decision. Additionally, the Request includes obligation authority to accommodate replacement power purchases for customers served by the Colorado River Storage Project. The replacement power purchases, a provision of the Salt Lake City Area Integrated Projects electric power contracts, are made at the request of power customers at times when WAPA lacks sufficient generation to meet its full contract commitment. The funds for the replacement power purchases are advanced by the requesting customers prior to the purchase.

Capitalized Equipment

This activity funds the procurement of capitalized equipment including circuit breakers, transformers, relays, switches, transmission line equipment, microwave, SCADA, and other communication and control equipment to assure reliable service to WAPA's customers. Replacement and upgrade of aged power system components are crucial to system reliability and transmission services.

Transmission line estimates include the purchase of poles, crossarms, conductors, fusion splicers, line switches, overhead ground wire and hardware for the continued transmission line rebuilds. This estimate includes line rebuilds with the anticipated completion of 10 miles a year.

Planned substation estimates include upgrades, replacement of breakers and circuit switches, and replacement of transformers, test equipment, as well as other aged equipment at various substations. WAPA cyclically replaces older electro-mechanical relays with microprocessor relays. The microprocessor relays assist in finding faults faster in order to restore service more efficiently to customers. Other miscellaneous items required for substation replacements include surge arrestors, batteries and chargers, and monitoring equipment.

Planned movable capitalized property estimates include replacements of special purpose trucks, replacement of generators to maintain the reliability and backup power to the communications system, and replacement of outdated test and recording equipment. Other estimates include the replacement of test equipment used to troubleshoot the new digital microwave radio system. Ongoing replacement is also planned for aging information technology support systems and

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routers. Other requests include funding for other minor enhancements that provide for ease of maintenance, protection of equipment and materials, and environmental compliance.

Interest/Transfers
This activity funds interest payments to the U.S. Treasury. Estimates are based on Power Repayment Studies for the Projects funded in this account.

Generating Agency Activities
This activity direct funds the U.S. Army Corps of Engineers for operation and maintenance and procurement of capitalized equipment for the Fort Peck Power Plant. Estimates are based on recent actual costs for supplies needed to maintain generating system reliability.

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Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Equipment and Related Expenses $178,927,000	**$454,857,000**	**+$275,930,000**
Supplies, Materials & Services ($12,728,000) This activity funds the procurement of supplies, materials, and services necessary to respond to routine and emergency situations in the transmission system.	*Supplies, Materials & Services ($12,231,000)* This activity funds the procurement of supplies, materials, and services necessary to respond to routine and emergency situations in the transmission system.	*Supplies, Materials & Services (-$497,000)* This is primarily attributed to decrease in purchases of non-capitalized equipment, supplies and services for general substation maintenance with slight offset for increase in IT maintenance services.
Purchase Power Costs ($119,236,000) This activity funds the procurement of electrical power, transmission capacity and wheeling services on the open market. Purchase power cost estimates are based on 24-month study factors including water cycle, snowpack, and market rates.	*Purchase Power Costs ($401,799,000)* This activity funds the procurement of electrical power, transmission capacity and wheeling services on the open market. Purchase power cost estimates are based on 24-month study factors including water cycle, snowpack, and market rates.	*Purchase Power Costs (+$282,563,000)* The increase is primarily attributed to purchase power requirements and costs. Severe drought conditions continue to persist and could lead to periods where hydrogeneration is significantly constrained.
Capitalized Equipment ($16,863,000) This activity funds the procurement of capitalized equipment including circuit breakers, transformers, relays, switches, transmission line equipment, microwave, SCADA, and other communication and control equipment to assure reliable service to WAPA's customers.	*Capitalized Equipment ($19,045,000)* This activity funds the procurement of capitalized equipment including circuit breakers, transformers, relays, switches, transmission line equipment, SCADA, and other communication and control equipment to assure reliable service to WAPA's customers.	*Capitalized Equipment (+$2,182,000)* Request reflects increases in Movable Property replacements and Substation replacements.

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FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Interest/Transfers ($3,405,000) This activity funds interest payments to the U.S. Treasury. Estimates are based on Power Repayment Studies for the Projects funded in this account.	*Interest/Transfers ($5,182,000)* This activity funds interest payments to the U.S. Treasury. Estimates are based on Power Repayment Studies for the Projects funded in this account.	*Interest/Transfers (+$1,777,000)* Reflectsincrease in interest as calculated in the Power Repayment Study.
Generating Agency Activities ($26,695,000) This activity direct funds the U.S. Army Corps of Engineers operation and maintenance and procurement of capitalized equipment for the Fort Peck Power Plant.	*Generating Agency Activities ($16,600,000)* This activity direct funds the U.S. Army Corps of Engineers for operation and maintenance and procurement of capitalized equipment for the Fort Peck Power Plant.	Generating Agency Activities (-$10,095,000) The decrease reflects scheduled replacements for capitalized communication, substation equipment and maintenance for the Fort Peck Power Plant.

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Colorado River Basins Power Marketing Fund
Program Direction

Overview

Program Direction provides the Federal staffing resources and associated costs required to provide overall direction and execution of the Colorado River Basins Power Marketing Fund. WAPA trains its employees on a continuing basis in occupational safety and health regulations, policies, and procedures, and conducts safety meetings at employee, supervisory and management levels to keep the safety culture strong. Accidents are reviewed to ensure lessons are learned and proper work protocol is in place.

Highlights of the FY 2024 Budget Request

WAPA's request provides for the continuation of WAPA's revolving fund activities related to Program Direction at the level necessary to meet mission requirements.

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Colorado River Basins Power Marketing Fund
Program Direction
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Program Direction					
Salaries and Benefits	52,246	55,423	58,757	+3,334	+6%
Travel	3,466	3,428	3,024	-404	-12%
Support Services	8,176	9,032	8,019	-1,013	-11%
Other Related Expenses	10,693	11,656	10,581	-1,075	-9%
Total, Program Direction	**75,581**	**79,539**	**80,381**	**+842**	**+1%**
Federal FTEs	**308**	**308**	**311**	**+3**	**+1%**
Support Services					
Technical Support					
Engineering and Technical Services	2,214	2,858	2,397	-461	-16%
Total, Technical Support	**2,214**	**2,858**	**2,397**	**-461**	**-16%**
Management Support					
Automated Data Processing	2,921	3,225	3,003	-222	-7%
Training and Education	1,052	1,027	895	-132	-13%
Reports and Analyses, Management and General Administrative Support	1,989	1,922	1,724	-198	-10%
Total, Management Support	**5,962**	**6,174**	**5,622**	**-552**	**-9%**
Total, Support Services	**8,176**	**9,032**	**8,019**	**-1,013**	**-11%**
Other Related Expenses					
Rent to GSA	685	180	644	+464	+258%
Communication, Utilities, Misc.	2,227	2,466	1,850	-616	-25%
Printing and Reproduction	22	24	18	-6	-25%
Other Services	3,579	4,145	3,684	-461	-11%
Training	15	11	10	-1	-9%
Purchases from Gov. Accounts	343	364	258	-106	-29%
Operation and Maintenance of Equipment	1,782	2,008	2,040	+32	+2%

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	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Supplies and Materials	659	676	583	-93	-14%
Equipment	662	949	730	-219	-23%
Working Capital Fund	719	833	764	-69	-8%
Total, Other Related Expenses	**10,693**	**11,656**	**10,581**	**-1,075**	**-9%**

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Colorado River Basins Power Marketing Fund
Program Direction

Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Program Direction $79,539,000	**$80,381,000**	**+$842,000**
Salaries and Benefits $55,423,000	**$58,757,000**	**+$3,334,000**
Salary and benefits support General Schedule employees, as well as those salaries determined through negotiations. This activity provides for Federal employees who operate and maintain the Program's high-voltage integrated transmission system and associated facilities; plan, design, and supervise the replacement (capital investments) to the transmission facilities; and market the power and energy produced to repay annual expenses and capital investment.	Salary and benefits support General Schedule employees, as well as those salaries determined through negotiations. This activity provides for Federal employees who operate and maintain the Program's high-voltage integrated transmission system and associated facilities; plan, design, and supervise the replacement (capital investments) to the transmission facilities; and market the power and energy produced to repay annual expenses and capital investment.	The increase in salaries and benefits supports the level of FTE charging to this account for maintenance and capital activities as well as known and anticipated increases for General Schedule, Wage Board and Administratively Determined employees.
Travel $3,428,000	**$3,024,000**	**-$404,000**
This activity funds personnel travel and per diem expenses for essential mission-related activities, including the maintenance of transmission facilities. The Request includes estimates for the rent/lease of GSA vehicles and other transportation.	This activity funds personnel travel and per diem expenses for essential mission-related activities, including the maintenance of transmission facilities. The Request includes estimates for the rent/lease of GSA vehicles and other transportation.	The slight decrease in travel reflects continued effort to use technological capabilities to decrease travel requirements.
Support Services $9,032,000	**$8,019,000**	**-$1,013,000**
Support services funded in this category include information technology support, warehousing, computer-aided drafting/engineering, job related training and education, and general administrative support.	Support services funded in this category include information technology support, warehousing, computer-aided drafting/engineering, job related training and education, and general administrative support.	The decrease is primarily due to services that support technical engineering and advisory activities.
Other Related Expenses $11,656,000	**$10,581,000**	**-$1,075,000**

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FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Other related expenses include, but are not limited to, DOE's working capital fund distribution, space, utilities and miscellaneous charges, printing and reproduction, training tuition, maintenance of office equipment, supplies and materials, telecommunications, and office equipment to include computers.	Other related expenses include, but are not limited to, DOE's working capital fund distribution, space, utilities and miscellaneous charges, printing and reproduction, training tuition, maintenance of office equipment, supplies and materials, telecommunications, and office equipment to include computers.	The decrease to this activity is primarily driven by cyclic requirements for transmission, substation, communication and operation and maintenance services.

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Transmission Infrastructure Program
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request
Gross	17,400	15,000	15,000
Offsets	-17,400	-15,000	-15,000
Net BA	**0**	**0**	**0**

Overview

WAPA established the Transmission Infrastructure Program (TIP) and Office to implement Title III, Section 301 of the Hoover Power Plant Act of 1984 as amended by the American Recovery and Reinvestment Act of 2009 (Recovery Act), which provided WAPA borrowing authority of up to $3.25 billion for the purposes of: (1) constructing, financing, facilitating, planning, operating, maintaining, or studying construction of new or upgraded electric power transmission lines and related facilities with at least one terminus within the area served by WAPA; and (2) delivering or facilitating the delivery of power generated by renewable energy resources constructed or reasonably expected to be constructed after the Recovery Act's date of enactment.

TIP is expected to be an administratively self-sustaining program that relies on funding arrangements with project developers. When developers seek technical assistance, WAPA collects funds from the project developers to support development of eligible projects and to cover the overhead and administrative costs of the program. Reimbursable or Advance Funding Agreements with project developers are required prior to initiating efforts to evaluate the technical and financial merits of a potential project to ensure the full cost of services delivered are paid by project beneficiaries. For projects that are approved for use of WAPA's borrowing authority, the authority to cover the full amount of the loan is apportioned at the outset and cash is borrowed periodically from the Department of the Treasury (Treasury) as needed. The debt is repaid according to the financial agreement terms and conditions of each project.

As mandated, the TIP program is completely separate and distinct from WAPA's power marketing program.
TIP has one project currently using the borrowing authority for a total of $91 million in loan authority obligated.
All administrative costs for TIP are offset by advanced financing and collections. WAPA is not requesting any new annual appropriated funds for TIP.

Highlights of the FY 2024 Budget Request

Borrowing authority and interest assumptions are only included for projects that have an active loan and/or loan application. While there are numerous other ongoing projects at various stages of development at any given time, the decision and timing for loan applications is dependent on the project sponsors. Advance funding (non-Federal project sponsors) and reimbursable funding (Federal project sponsors) provide authority for development assistance activities prior to loan issuance.

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Outyear Funding
($K)

	FY 2024 Request	FY 2025	FY 2026	FY 2027	FY 2028
TIP Net BA, Mandatory	**0**	**0**	**0**	**0**	**0**
TIP Net BA, Discretionary	**0**	**0**	**0**	**0**	**0**

Major Outyear Priorities and Assumptions
Outyear funding levels for TIP total $0 net mandatory and $0 net discretionary for FY 2025 through FY 2028. TIP priorities include the following:

- Mandatory amounts provide borrowing authority, offset by repayment of debt, for projects with an active loan and/or loan application (projects under development are not included)
- Discretionary amounts provide advance/reimbursable funding, offset by collections from project developers, for projects being evaluated for technical and financial merit prior to application for borrowing

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Transmission Infrastructure Program
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Mandatory, Direct Budget Authority					
New Borrowing Authority	0	0	0	0	0%
Repayment of Borrowing Authority	0	0	0	0	0%
Net, Borrowing Authority	**0**	**0**	**0**	**0**	**0%**
Operating Expenses	1,200	4,600	4,600	0	0%
Interest Payment to Treasury	2,311	2,311	2,311	0	0%
Other Uses	1,489	1,489	1,489	0	0%
Collections from Projects	-5,000	-8,400	-8,400	0	0%
Net, Operating & Debt Service	**0**	**0**	**0**	**0**	**0%**
Total Mandatory	**0**	**0**	**0**	**0**	**0%**
Federal FTEs (Mandatory)	**1**	**1**	**1**	**0**	**0%**
Discretionary, Reimbursable Budget Authority					
Program Direction	12,396	6,596	6,514	-82	-1%
Equipment, Contracts and Related Expenses	4	4	86	+82	+2,050%
Gross, Discretionary	**12,400**	**6,600**	**6,600**	**0**	**0%**
Advance Funding (Non-Federal)	-1,750	-5,000	-5,000	0	0%
Reimbursable Funding (Federal)	0	-200	-200	0	0%
Offsetting Collections	-10,650	-1,400	-1,400	0	0%
Net, Discretionary	**0**	**0**	**0**	**0**	**0%**
Federal FTEs (Discretionary)	**10**	**11**	**9**	**-2**	**-18%**
Total, Transmission Infrastructure Program	**0**	**0**	**0**	**0**	**0%**
Total, Federal FTEs	**11**	**12**	**10**	**-2**	**-17%**

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Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Mandatory, Direct Budget Authority $0	**$0**	**$0**
New Borrowing Authority $0	**$0**	**$0**
Projected loan estimates for projects with active loans or active loan applications.	Projected loan estimates for projects with active loans or active loan applications.	There are no projects with an active loan or an active loan application with projected borrowing in FY 2024.
Repayment of Borrowing Authority $0	**$0**	**$0**
This activity represents repayments to Treasury from projects for principal.	This activity represents repayments to Treasury from projects for principal.	There are no anticipated repayments to Treasury in FY 2024.
Operating Expenses $4,600,000	**$4,600,000**	**$0**
Costs associated with operating and maintaining the ED5-PVH transmission system.	Costs associated with operating and maintaining the ED5-PVH transmission system.	No change to operating expenses.
Interest Payments to Treasury $2,311,000	**$2,311,000**	**$0**
Estimated interest payments to Treasury for the active ED5-PVH loan and other projects with active loan applications.	Estimated interest payments to Treasury for the active ED5-PVH loan and other projects with active loan applications.	No change to interest payments to Treasury.
Other Uses $1,489,000	**$1,489,000**	**$0**
This activity represents proceeds available for additional operating expenses or debt service requirements.	This activity represents proceeds available for additional operating expenses or debt service requirements.	No change to other uses.

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Transmission Infrastructure Program
Program Direction

Overview

WAPA's TIP Program Direction subprogram provides compensation and all related expenses for its workforce, including those employees that are directly assigned to the program as project management, technical experts, finance and administration; those that provide expertise in land acquisition, engineering and environmental compliance; those that provide legal counsel; and those that administratively support these functions.

All TIP program direction costs are expected to be offset by customers over time, either through advanced funding agreements or offsetting collections. Advanced funding is provided to TIP from project applicants who use TIP's expertise in the development of their project. The advanced funding agreements fund Federal and/or contract staff working on the development of a specific project. Other sources of funds include the overhead rate applied to each active project; service charges; interest rate differentials; and the advance collection of Project Proposal and Business Plan Proposal evaluation expenses. These collections offset the costs of administering the TIP program and provide a risk mitigation reserve.

The Program Direction subprogram supports DOE and WAPA missions, specifically in facilitating delivery of renewable energy resources to market.

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Program Direction
Funding ($K)

	FY 2022 Enacted	FY 2023 Enacted	FY 2024 Request	FY 2024 Request vs FY 2023 Enacted ($)	FY 2024 Request vs FY 2023 Enacted (%)
Transmission Infrastructure					
Salaries and Benefits	1,678	1,374	1,292	-82	-6%
Travel	94	44	44	0	0%
Support Services	1,485	60	62	+2	+3%
Other Related Expenses	9,139	5,118	5,116	-2	0%
Subtotal, Program Direction	**12,396**	**6,596**	**6,514**	**-82**	**-1%**
Use of Offsetting Collections	-12,396	-6,596	-6,514	+82	-1%
Total, Program Direction	**0**	**0**	**0**	**0**	**0%**
Federal FTEs (Mandatory)	**1**	**1**	**1**	**0**	**0%**
Federal FTEs (Discretionary)	**10**	**11**	**9**	**-2**	**-18%**
Federal FTEs (Total TIP)	**11**	**12**	**10**	**-2**	**-17%**
Support Services					
Technical Support					
Engineering and Technical Services	1,302	27	29	+2	+7%
Total, Technical Support	**1,302**	**27**	**29**	**+2**	**+7%**
Management Support					
Automated Data Processing	127	0	0	0	0%
Training and Education	12	13	13	0	0%
Reports and Analyses, Management and General Administrative Support	44	20	20	0	0%
Total Management Support	**183**	**33**	**33**	**0**	**0%**
Total, Support Services	**1,485**	**60**	**62**	**+2**	**+3%**
Other Related Expenses					
Communication, Utilities, Misc.	27	3	3	0	0%
Other Services	9,096	5,094	5,097	+3	0%
Working Capital Fund	16	21	16	-5	-24%
Total, Other Related Expenses	**9,139**	**5,118**	**5,116**	**-2**	**0%**

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Program Direction

Activities and Explanation of Changes

FY 2023 Enacted	FY 2024 Request	Explanation of Changes FY 2024 Request vs FY 2023 Enacted
Program Direction $6,596,000	**$6,514,000**	**-$82,000**
Salaries and Benefits $1,374,000	**$1,292,000**	**-$82,000**
Salary and benefits provide for Federal employees that are directly assigned to the TIP program as project management, technical experts, finance and administration; those that provide expertise in land acquisition, engineering and environmental compliance; those that provide legal counsel; and those that administratively support these functions.	Salary and benefits provide for Federal employees that are directly assigned to the TIP program as project management, technical experts, finance and administration; those that provide expertise in land acquisition, engineering and environmental compliance; those that provide legal counsel; and those that administratively support these functions.	The decrease in salary and benefits reflects a reduction of two FTE budgeted for this activity offset by known and anticipated increases for General Schedule employees.
Travel $44,000	**$44,000**	**$0**
Planned essential travel supports TIP's mission related activities. TIP supports efficient spending initiatives and is cognizant of travel costs associated with general program operations. TIP focuses on using alternative means to conduct meetings and training sessions where appropriate.	Planned essential travel supports TIP's mission related activities. TIP supports efficient spending initiatives and is cognizant of travel costs associated with general program operations. TIP focuses on using alternative means to conduct meetings and training sessions where appropriate.	No change in anticipated travel.
Support Services $60,000	**$62,000**	**+$2,000**
Support services funded in this category include technical support costs directly associated with TIP projects including environmental, lands, engineering, and project management activities; and management support costs including information technology, job related training and education, and general administrative support.	Support services funded in this category include technical support costs directly associated with TIP projects including environmental, lands, engineering, and project management activities; and management support costs to include information technology, job related training and education, and general administrative support.	The increase in support services is due to the growth in technical support associated with project management and stage of development of projects given revised work scope demands.
Other Related Expenses $5,118,000	**$5,116,000**	**-$2,000**
Other related expenses include communications, utilities, other services such as outside financial support and legal counsel, and DOE's working capital fund.	Other related expenses include communications, utilities, other services such as outside financial support and legal counsel, and DOE's working capital fund.	The decrease is due to lower anticipated outside financial support and legal counsel.

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Estimate of Gross Revenues [1]

(Dollars in Thousands)

	FY 2022 [2]	FY 2023	FY 2024
Boulder Canyon Project	69,825	93,752	96,153
Central Valley Project	315,521	412,452	420,435
Falcon-Amistad Project	8,188	8,796	7,517
Fryingpan-Arkansas Project	21,393	23,149	23,149
Pacific Northwest-Southwest Intertie Project	60,211	38,792	38,792
Parker-Davis Project	98,117	92,258	94,488
Pick-Sloan Missouri Basin Program	640,645	654,025	656,371
Provo River Project	485	459	494
Washoe Project	474	436	436
Salt Lake City Area Integrated Projects	255,106	166,724	166,392
Other	182,672	0	0
Total, Gross Revenues	**1,652,637**	**1,490,843**	**1,504,227**

[1] Amounts for FY 2023 and FY 2024 are based on the FY 2021 Final Power Repayment Studies (PRS).

[2] FY 2022 amounts are actuals from the preliminary annual financial reports. For Central Valley Project, FY 2022 amounts reported exclude contractual pass-through purchase power arrangements which are included in the PRS estimates. The 'Other' FY 2022 amounts shown represent WAPA activities reported in the financials that are not reimbursable through the power and transmission rate-setting process and are not forecasted through the PRS.

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Estimate of Proprietary Receipts

(Dollars in Thousands)

	FY 2022 Actual	FY 2023	FY 2024
Mandatory Receipts			
Falcon Amistad Maintenance Fund	271	0	0
Sale and Transmission of Electric Power, Falcon and Amistad Dams	600	1,000	1,000
Sale of Power and Other Utilities Not Otherwise Classified	0	0	0
Sale of Power–WAPA–Reclamation Fund	298,206	45,453	85,321
Total, Mandatory Receipts	**299,077**	**46,453**	**86,321**
Discretionary Receipts			
Offsetting Collections from the Recovery of Power Related Expenses – WAPA CROM	170,000	475,000	475,000
Less Purchase Power and Wheeling Expenses	-170,000	-475,000	-475,000
Subtotal, WAPA CROM Recovery of Power Related Expenses	0	0	0
Offsetting Collections from the Recovery of Annual Expenses – WAPA CROM	194,465	200,841	213,417
Less Operating and Maintenance expenses	-27,530	-29,180	-29,449
Less Program Direction Expenses	-166,935	-171,661	-183,968
Subtotal, WAPA CROM Recovery of Annual Expenses	0	0	0
Offsetting Collections from the recovery of power related expenses – Falcon and Amistad	5,580	6,102	3,197
Less Operating and Maintenance expenses	-5,580	-6,102	-3,197
Subtotal, Falcon and Amistad Recovery of Power Related Expenses	0	0	0
Total, Discretionary Receipts	**0**	**0**	**0**
Total, Proprietary Receipts	**299,077**	**46,453**	**154,321**

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Western Area Power Administration
Estimate of Offsetting Collections for Reimbursable Work and Work-for-Others

	(Dollars in Thousands)		
	FY 2022	FY 2023	FY 2024
Construction, Rehabilitation, Operation and Maintenance (CROM)			
Offsetting Collections for Reimbursable Work [1]			
Alternative Financing			
Operations and Maintenance	7,122	7,641	42,276
Construction and Rehabilitation	31,090	38,219	0
Purchase Power and Wheeling (PPW)	273,677	275,322	240,824
Program Direction	51,849	54,868	60,084
Subtotal, Alternative Financing	363,738	376,050	343,184
Offsetting Collections not anticipated for obligation in budget year	188,792	74,137	102,690
Less PPW net billing, bill crediting, energy exchange	-242,646	-238,591	-243,395
Offsetting collections from Colorado River Dam Fund	9,116	9,404	9,521
Subtotal, Offsetting Collections for Reimbursable Work	**319,000**	**221,000**	**212,000**
Offsetting Collections for Reimbursable Work-for-Others [2]	**337,000**	**390,000**	**416,000**
Total, Offsetting Collections for Reimbursable	**656,000**	**611,000**	**628,000**

[1] WAPA relies significantly on alternative financing arrangements with customers to finance much of its direct mission work on a reimbursable basis.
[2] WAPA has partnering arrangements with many power customers and Federal agencies to perform electrical systems operations, maintenance, construction, purchase power, and transmission services on a reimbursable basis.

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BONNEVILLE POWER ADMINISTRATION

FY 2024 Congressional Justification

March 2023

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Bonneville Power Administration
FY 2024 Congressional Budget

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Bonneville Power Administration FY 2024 Congressional Budget

FY 2024 Expenditure Authorization

Expenditures from the Bonneville Power Administration Fund, established pursuant to Public Law 93-454, are approved for official reception and representation expenses in an amount not to exceed $5,000, provided that during fiscal year 2024 no new direct loan obligations may be made. (Consolidated Appropriation Act, 2023.)

Explanation of Changes

The proposed appropriations language restricts new direct loans in FY 2024 as in FY 2022. This bill language is drafted consistent with the Credit Reform Act of 1990.

Overview

The Bonneville Power Administration (Bonneville) operates under a business-type budget under the Government Corporation Control Act, 31 U.S.C 9101-10, and on the basis of the self-financing authority provided by the Federal Columbia River Transmission System Act of 1974 (Transmission Act) (Public Law 93-454). Bonneville has authority to borrow from the U.S. Treasury under the Transmission Act, and the Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act) (Public Law 96-501) for acquisition of energy conservation, renewable and other power resources, investment in fish facilities, and other purposes, as well as the American Recovery and Reinvestment Act of 2009 (Public Law 111-5), the Infrastructure Investment and Jobs Act of 2021 (Section 40110, Public Law 117-58) and other legislation.

Authority to borrow from the U.S. Treasury is available to Bonneville on a permanent, revolving basis. The principal amount of U.S. Treasury borrowing outstanding at any time may not exceed $17.70 billion. The "obligation" of the $10.0 billion in additional borrowing authority that is made available to the Bonneville Administrator under Section 40110 of Public Law 117-58 shall not exceed $6 billion before fiscal year 2028. Bonneville finances its total program by using its power and transmission revenues, and the proceeds of borrowing authority from the U.S. Treasury. Bonneville's estimated FY 2024 obligations and cash transfers total approximately $4.5 billion.

This budget has been prepared in accordance with the Statutory Pay-As-You-Go Act (PAYGO) of 2010. Under PAYGO, all Bonneville budget estimates are treated as mandatory and are not subject to the discretionary caps included in the Budget Control Act of 2011. These estimates support activities that are separate from discretionary activities and accounts. Thus, any changes to Bonneville estimates cannot be used to affect any other budget categories, which have their own dollar caps. Because Bonneville's obligations are and will be incurred under pre-existing legislative authority, Bonneville is not subject to a "pay-as-you-go" test regarding its revision of current law funding estimates.

Please note – The FY 2024 Bonneville Congressional Budget submission includes FY 2023 budget estimates.

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Bonneville Funding Profile by Subprogram[1/]

(Accrued Expenditures in Thousands of Dollars)

	Fiscal Year			
	2022 Actuals	2023 Original [/2]	2023 Revised [/2]	2024 Proposed
Capital Investment Obligations				
Associated Project Costs [3/]	190,294	264,120	281,260	270,000
Fish & Wildlife	16,119	43,000	43,000	41,335
Subtotal, Power Services	206,413	307,120	324,260	311,335
Transmission Services	373,500	497,086	497,160	593,840
Capital Equipment & Bond Premium	20,905	22,002	21,047	23,983
Total, Capital Obligations [3/]	600,818	826,208	842,468	929,159
Expensed and Other Obligations				
Expensed	2,994,653	2,733,825	2,758,063	2,879,919
Projects Funded in Advance [4/]	120,536	55,775	61,166	45,924
Total, Obligations	3,716,007	3,615,808	3,661,697	3,855,001
Capital Transfers (cash)	694,200	696,000	735,596	673,266
Bonneville Total (Oligations & Capital Transfers)	4,410,207	4,311,808	4,397,293	4,528,267
Bonneville Net Outlays	(806,000)	(324,967)	(332,469)	(208,923)
Full-time Equivalents (FTEs) [5/]	2,847	3,000	3,000	3,000

Public Law Authorizations include:

Bonneville Project Act of 1937, Public Law No. 75-329

Federal Columbia River Transmission System Act of 1974, Public Law No. 93-454

Regional Preference Act of 1964, Public Law No. 88-552

Flood Control Act of 1944, Public Law No. 78-543

Pacific Northwest Electric Power Planning and Conservation Act of 1980 (Northwest Power Act), Public Law No. 96-501

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Bonneville Outyear Funding Profile by Subprogram[1/]

(Accrued Expenditures in Thousands of Dollars)	Fiscal Year			
	2025	2026	2027	2028
Capital Investment Obligations				
Associated Project Costs [3/]	275,675	281,620	288,001	294,794
Fish & Wildlife	41,300	29,000	15,700	15,000
Subtotal, Power Services	316,975	310,620	303,701	309,794
Transmission Services	581,009	555,897	537,180	546,032
Capital Equipment & Bond Premium	22,830	24,990	23,180	23,970
Total, Capital Obligations [3/]	920,814	891,507	864,061	879,796
Expensed and Other Obligations				
Expensed	2,993,800	3,094,149	3,176,877	3,257,217
Projects Funded in Advance [4/]	55,007	53,073	53,907	54,751
Total, Obligations	3,969,620	4,038,729	4,094,846	4,191,763
Capital Transfers (cash)	646,624	660,089	612,307	406,879
Bonneville Total (Oligations & Capital Transfers)	4,616,244	4,698,818	4,707,153	4,598,642
Bonneville Net Outlays	(137,386)	(121,344)	(102,062)	(49,988)
Full-time Equivalents (FTEs) [5/]	3,000	3,025	3,075	3,125

These notes are an integral part of this table.

1/ This budget has been prepared in accordance with PAYGO. Under PAYGO all Bonneville budget estimates are treated as mandatory and are not subject to the discretionary caps included in the Budget Control Act of 2011. These estimates support activities that are separate from discretionary activities and accounts. Thus, any changes to Bonneville estimates cannot be used to affect any other budget categories which have their own dollar caps. Because Bonneville's obligations are and will be incurred under pre-existing legislative authority, Bonneville is not subject to a "pay-as-you-go" test regarding its revision of current-law funding estimates.
For BP-1 table, the CJ reflects forecasted outlays while the yearend GTAS reflects the actual outlay in the Budget Appendix.

2/ Original estimates reflect Bonneville's FY 2024 OMB Budget Submission. Revised estimates, consistent with Bonneville's annual near-term funding review process, provide notification to the Administration and Congress of updated capital and expense funding levels for FY 2024. The BPA estimates in this budget are consistent with the BP-24 IPR.

3/ Includes infrastructure investments to address the long-term electric power related needs of the Northwest and significant changes affecting Bonneville's power and transmission markets.

4/ In this instance, Projects Funded in Advance represents prepayment of Power customers' bills reimbursed by future credits and third party non-federal financing for Conservation initiatives. Also this category includes those facilities and/or equipment where Bonneville retains control or ownership which are funded or financed by a third party, revenue, or with Power or Transmission reserves, either in total or in part.

5/ As of 10/20/2022, DOE HR staff has reported FY 2022 BPA's FTE useage at 2,847.

Additional table notes are on the following page.

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Additional Notes

Capital funding levels reflect external factors such as the significant changes affecting West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region.

Cumulative advance amortization payments as of the end of FY 2022 are $6,600 million.

Refer to 16 USC Chapters 12B, 12G, 12H, and Bonneville's other organic laws, including P.L. 100-371, Title III, Sec. 300, 102 Stat. 869, July 19, 1988, regarding Bonneville's ability to obligate funds.

Budget estimates included in this budget are subject to change due to rapidly changing economic and institutional conditions in the evolving electric utility industry.

Net Outlay estimates are based on current cost savings to date and anticipated cash management goals. They are expected to follow anticipated management decisions throughout the rate period that, along with actual market conditions, will impact revenues and expenses. Actual Net Outlays are volatile and are reported in Report on Budget Execution and Budgetary Resources (SF-133). Actual Net Outlays could differ from estimates due to changing market conditions, streamflow variability, continued restructuring of the electric industry, and other reasons.

Revenues, included in the Net Outlay formulation, are calculated consistent with cash management goals and assume a combination of adjustments. Assumed adjustments include the use of a combination of tools, including upcoming rate adjustment mechanisms, a net revenue risk adjustment, debt service refinancing strategies and/or short-term financial tools to manage net revenues and cash. Some of these potential tools will reduce costs rather than generate revenue, causing the same Net Outlay result. Adjustments for depreciation and 4(h)(10)(C) credits of the Northwest Power Act are also assumed.

FY 2022 Net Outlays are calculated using Bonneville's FY 2022 EOY Actuals. FY 2023 is based off of rate case and FY 2024 to 2028 Net Outlays are based on BP-24 IPR assumptions and an escalation factor from using the FY 2022 Whitebook Loads and Resources Report.

FTE outyear data are estimates and may change. Bonneville is facing a dynamic and changing energy marketplace and operations while, at the same time, many of its employees are eligible to retire in the near future. It is important that Bonneville continue to attract and retain skilled individuals to meet the growing demands of a competitive and rapidly changing industry. Accordingly, FTE estimates may need to be adjusted in the future.

Amounts in tables and schedules may not add to totals due to rounding.

Major Outyear Considerations

Bonneville's outyear estimates reflect ongoing efforts to achieve its long-term mission and strategic direction. The outyear estimates are developed with consideration and support of Bonneville's multi-year performance targets that lay out the course for achieving Bonneville's long-term objectives. Outyear capital investment levels support Bonneville's infrastructure program, hydro efficiency program, and its fish and wildlife mitigation projects.

Bonneville continues to incorporate the various aspects of the Energy Policy Act of 2005 related to its business, in particular the energy supply, conservation, and new energy technologies for the future that are highlighted in the legislation.

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Description of Bonneville Operations & Services

Bonneville markets power, provides transmission services, and acquires energy efficiency from its power customers. Bonneville's service territory is defined as the Pacific Northwest, which includes a 300,000 square mile area including the states of Oregon, Washington, Idaho, western Montana, and small parts of eastern Montana, California, Nevada, Utah, and Wyoming with a population of about 14 million people. Bonneville markets the electric power produced from 31 Federal Columbia River Power System (the FCRPS) hydro projects in the Pacific Northwest owned by the Corps and the Bureau of Reclamation. In addition, Bonneville also acquires power from non-federal generating resources, including the power from a nuclear power plant, the Columbia Generating Station (CGS). Bonneville uses the power from its non-federal resources and the Federal projects primarily to meet the Administrator's long term firm power sales contract obligations. Bonneville currently maintains and operates 15,108 circuit miles of transmission lines, 262 substations, and associated power system control and communications facilities over which this electric power is delivered. Bonneville has capital and similar leases for certain transmission facilities. Bonneville also supports the protection and enhancement of fish and wildlife, and encourages the development of conservation and energy efficiency, as part of meeting its obligations to supply power and balance the economic and environmental benefits of the FCRPS.

The organization of Bonneville's FY 2024 Budget reflects Bonneville's business services basis for utility enterprise activities. Bonneville's two major areas of activity on a consolidated budget and accounting basis are Power Services and Transmission Services and include their related administrative costs. Power Service's costs include line items for Fish & Wildlife, Energy Efficiency, the Residential Exchange Program, Federal Projects Operations & Maintenance (O&M) Costs, and the Northwest Power and Conservation Council (NPCC or Council). Transmission Service's costs include line items for Engineering, Operations, and Maintenance for Bonneville's electric transmission system.

Bonneville's mission as a public service organization is to create and deliver Federal power and transmission services at cost as it acts to assure its customers in the Pacific Northwest have the following: (1) an adequate, efficient, economical, and reliable power supply; (2) an open access transmission system that is adequate for integrating and transmitting power from Federal and non-federal generating units, providing service to Bonneville's customers, providing interregional interconnections, and maintaining electrical reliability and stability; and (3) mitigation of the impacts on fish and wildlife from the federally owned hydroelectric projects from which Bonneville markets power.

Bonneville's vision is to be an engine of the Northwest's economic prosperity and environmental sustainability by advancing a Northwest power and transmission system that is a national leader in providing high reliability, low rates consistent with sound business principles, responsible environmental stewardship, and accountability to the region, all through a commercially successful business. Bonneville pursues this vision consistent with its four core values of safety, trustworthy stewardship, collaborative relationships, and operational excellence.

Legislative History

The Bonneville Project Act of 1937 provides the statutory basis for Bonneville's power marketing responsibilities and authorities. In 1974, passage of the Federal Columbia River Transmission System Act (Transmission Act) applied provisions of the Government Corporation Control Act (31 U.S.C. §§ 9101-9110) to Bonneville. The Transmission Act provides Bonneville with "self-financing" authority, establishes the Bonneville Fund (a permanent, indefinite appropriation) allowing Bonneville to use its revenues from electric power and transmission ratepayers to fund all programs without further appropriation, and authorizes Bonneville to sell bonds to the U.S. Treasury. As of the end of FY 2022, Bonneville had revolving U.S. Treasury borrowing authority of $13.7 billion, of which approximately $8.02 billion remains available to be drawn.

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The 1980 enactment of the Northwest Power Act expanded Bonneville's authorities, obligations, and responsibilities. The purposes of the act include: encouraging development of electric energy conservation to meet regional electric power loads placed on Bonneville; the development of renewable energy resources within the Pacific Northwest; to assure the Northwest an adequate, efficient, economical, and reliable power supply; to promote regional participation and planning; and to protect, mitigate, and enhance the fish and wildlife affected by development and operation of Federal hydroelectric projects on the Columbia River and its tributaries. The Northwest Power Act also established a revised statutory framework for Bonneville's administrative ratesetting process and established judicial review of Bonneville's final actions in the U.S. Court of Appeals for the Ninth Circuit.

Financial Mechanisms

Bonneville's program is treated as mandatory and nondiscretionary. Bonneville is "self-financed" from its own revenues and does not rely on annual appropriations from Congress. Under the Transmission Act, Bonneville funds the expense portion of its budget and repays the Federal investment with revenues from electric power and transmission sales. Bonneville's revenues fluctuate for a variety of reasons, including in response to variations in market prices for fuels and stream flow in the Columbia River System caused by variations in weather conditions and fish mitigation needs.

In the FY 2024 Budget, the term Bonneville "bonds" refers to the debt instruments under which Bonneville receives advances of funds from the U.S. Treasury. This reference is consistent with Section 13(a) of the Transmission Act, which defines "bonds" as all bonds, notes, and other evidences of indebtedness issued and sold by Bonneville to the U.S. Treasury.

Bonneville and the U.S. Treasury have a comprehensive banking arrangement that covers Bonneville's short- and long-term Federal borrowings. This provides Bonneville with the ability to borrow from the U.S. Treasury to finance capital investments and, on a short-term basis, to cover Northwest Power Act-related operating expenses. This latter ability provides Bonneville with much needed liquidity to help manage within-year cash flow needs and mitigate risk. Access to this use of U.S. Treasury borrowing authority has been incorporated into and relied upon in Bonneville's ratesetting process.

As of May 2022, debt instruments issued by non-federal entities but secured by payment and other financial commitments provided by Bonneville received the following credit ratings: Moody's at Aa2 with a positive outlook, Standard & Poor's at AA- with a stable outlook, and Fitch at AA with a stable outlook.

U.S. Treasury Payments & Budget Overview

Bonneville's FY 2022 payment to the U.S. Treasury was approximately $951 million. This was the 39th consecutive year that Bonneville made its scheduled payments to the U.S. Treasury on time and in full. The payment included $694 million in principal, which included $346 million in early retirement of U.S. Treasury debt, $194 million for interest, $17 million in irrigation assistance payments, and $37 million in pension and post-retirement benefits. Total credits applied toward Bonneville's U.S. Treasury payment were about $136 million for FY 2022. The majority of these credits are established and applied under Section 4(h)(10)(C) of the Northwest Power Act. The FY 2023 and 2024 U.S. Treasury payments are currently estimated at $965 million and $895 million, respectively. The FY 2023 and 2024 4(h)(10)(C) credits are estimated to be $94.2 million and $111.3 million, respectively.

Bonneville's FY 2023 payment to the U.S. Treasury is currently estimated at approximately $965 million. Based on final FY 2022 financial results, operating conditions and financial reserves, Bonneville fully expects to make its FY 2023 Treasury payment on time and in full. This would be the 40th consecutive year that Bonneville has done so. Estimates of interest and amortization levels for outyear U.S. Treasury payments are included in the FY 2022-2023 final transmission and power rates. Bond and Appropriations Interest will continue to be revised based on

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upcoming capital investments and debt management actions. These estimates may change due to revised capital investment plans and actual U.S. Treasury borrowing. In recent years, Bonneville has made amortization payments in excess of those scheduled in its FERC-approved rate filings resulting in a balance of advance repayment. The cumulative balance of advance amortization payments as of the end of FY 2022 was in excess of $6.6 billion.

Bonneville has direct funding arrangements to fund the power-related portion of O&M and capital investments at Corps and Reclamation facilities as well as the expense O&M costs of the U.S. Fish and Wildlife Service (USFWS) Lower Snake River Compensation Plan facilities. Direct-funded FCRPS capital costs, which had been funded exclusively through appropriations to the Corps and Reclamation prior to the initiation of direct funding, are now funded primarily from the proceeds of bonds issued by Bonneville to the U.S. Treasury. Certain power prepayments have also been a source of funds for direct funding. Bonneville's aggregate direct funding provided for capital and O&M was $410 million in FY 2022.

Bonneville manages its overall debt portfolio, which includes both debt that is issued by non-federal entities and secured by Bonneville's financial commitments ("Non-Federal Debt"), and Bonneville's repayment obligations to the U.S. Treasury, to meet the objectives of: (1) minimizing the cost to Bonneville's ratepayers, (2) maximizing Bonneville's access to its lowest cost capital sources to meet future capital needs, and (3) maintaining sufficient financial flexibility to meet Bonneville's financial requirements.

Starting in FY 2014, Bonneville and Energy Northwest, the Washington state joint operating agency that owns and operates the CGS nuclear plant, have continued working together on an integrated debt management for their combined total debt portfolios. The debt service of these portfolios is borne by Bonneville and recovered from Bonneville ratepayers through Bonneville's rates. Energy Northwest-related debt, as refinanced under this effort, is called Regional Cooperation Debt.

The initial efforts under the Regional Cooperation Debt program included the issuance of Net Billed Bonds to refund outstanding Net Billed Bonds in Fiscal Year 2014 through Fiscal Year 2020. This enabled Bonneville to repay, earlier than would otherwise occur, Federal Appropriations Repayment Obligations.

The second phase of Regional Cooperation Debt program, which started in FY 2021, will have the effect of freeing up amounts in the Bonneville Fund that otherwise would have been used to fund the repayment of the principal of the refunded Net Billed Bonds, and that will instead be used to make payments to reduce the outstanding principal amount of bonds issued by Bonneville to the U.S. Treasury. Bonneville estimates that the aggregate remaining potential principal amount of refinancing Net Billed Bonds that could be issued in FY 2023 through 2030 could be up to $2.9 billion.

Bonneville can incur a bond premium when it repays a U.S. Treasury bond before the due date. When bonds are refinanced and premiums are incurred, the bond premiums can be capitalized. Historically, Bonneville generally has chosen to finance capitalized bond premiums with bonds issued to the U.S. Treasury, as envisioned by the Transmission Act.

Budget Estimates & Planning

This FY 2024 Budget proposes estimated accrued expenditures of $2,879 million for operating expenses, $46 million for Projects Funded in Advance (PFIA), $929 million for capital investments, and $673 million for capital transfers in FY 2024.

The estimated spending levels in this budget are still subject to change to accommodate competitive dynamics in the region's energy markets, debt management strategies, continuing changes in the electric industry, and other factors.

This FY 2024 Budget includes capital and expense estimates based on initial approved cost forecasts from Bonneville's BP-24 Integrated Program Review (IPR). Capital investment levels reflect Bonneville's capital asset

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management process and external factors such as changes affecting the West Coast power and transmission markets, along with planned infrastructure investments designed to address the long-term needs of the region and national energy security goals.

Bonneville utilizes a structured capital project selection process requiring submission of a standardized business case for review. Each business case consists of a description of the project, a clear statement of objectives, description and mitigation of risks, and a rigorous analysis of project costs and benefits, including a status quo assumption and preferred alternatives. In addition, both annual and end-of-project targets are set for each project covering cost, scope, and schedule. Progress reports on these targets are provided to Bonneville's senior executives at least quarterly.

FY 2023-2028 revenue estimates in this budget, included in the Net Outlay formulation, reflect revised cost estimates, debt management strategies, and capital financing assumptions. The Net Outlay also includes depreciation and U.S. Treasury repayment credit assumptions. These U.S. Treasury repayment credits offset, among other things, Bonneville's Fish & Wildlife program costs allocable to the non-power project purposes of the FCRPS, as provided under Section 4(h)(10)(C) of the Northwest Power Act.

Overview of Detailed Justifications

In Bonneville's Detailed Justification Summaries accrued expenditure is the basis of presenting Bonneville's program funding levels in the power and transmission ratemaking processes and the basis upon which Bonneville managers control their resources to provide products and services. Accrued expenditures relate period costs to period performance. Traditional budget obligation requirements for Bonneville's budget are assumed on the Program and Financing Summary Schedule prepared in accordance with Office of Management & Budget (OMB) Circular A-11.

The organization of Bonneville's FY 2024 Budget and these performance summaries reflect Bonneville's business services basis for its utility enterprise activities. Bonneville's major areas of activity on a consolidated budget and accounting basis include power and transmission, with administrative costs included. Power Services includes line items for fish and wildlife, energy efficiency, Residential Exchange Program, associated projects O&M costs, and the Northwest Power Council. Environmental activities are shown in the relevant Power Services and Transmission Services sections, as are reimbursable costs. Bonneville's interest expense, pension and post-retirement benefits, and capital transfers to the U.S. Treasury are shown by program.

The first section of performance summaries, **Capital Investments**, includes accrued expenditures for investments in electric utility and general plant associated with the FCRPS generation and transmission services, fish and wildlife, and capital equipment. These capital investments are estimated to require budget obligations and expected use of $929 million in bonds to be issued and sold to the U.S. Treasury in FY 2024.

The near-term forecast of capital funding levels has undergone an extensive internal review as a result of Bonneville's development of asset management plans. These plans encompass project cost management initiatives, capital investment assessments, and categorization of capital projects to be funded based on risk and other factors. Consistent with Bonneville's near-term asset planning process and Bonneville's standard operating budget process, this FY 2024 Budget includes updated capital investment levels for FY 2023 estimated at $785 million. Utilizing this review process helps Bonneville in its efforts as a participant in wholesale energy markets. Bonneville will continue to work with the Corps and Reclamation to optimize the mix of projects.

The second section of Bonneville's performance summaries, entitled **Annual Operating Expenses**, includes accrued expenditures for services and program activities financed by power sales revenues, transmission sales revenues, and projects funded in advance. For FY 2024, total budget expense and capital obligations are estimated at $3,854 million. The total program requirements of all Bonneville programs, including total obligations and $673 million of capital transfers, are estimated at $4,527 million for FY 2024.

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Evidence & Analysis in the Budget

Bonneville has undertaken several initiatives and processes to determine appropriate budget expenditures.

Through Bonneville's IPR process, the public is able to see all relevant FCRPS expense and capital forecast costs in the same forum. In addition, Bonneville's IPR process allows the public to review and comment on Bonneville's 10-year capital forecasts. The IPR occurs every two years, prior to each Bonneville rate case, and provides the public an opportunity to review and comment on Bonneville's forecast costs prior to being set for inclusion in rate cases.

Bonneville conducted the BP-24 IPR, which reviewed forecast costs for the FY 2024 rate period and FY 2025 during the summer of 2022. Bonneville was guided by the 2018 Strategic Direction goal to hold costs at or below the level of inflation through 2028, though Bonneville is experiencing greater cost pressures. Bonneville issued the closeout report for the BP-24 IPR in October 2022.

The forecast cost increases for Power Services are $96.5 million above BP-22. The primary drivers for the cost increase are adequately funding our generating partners; needed investments in core information technology (IT) systems and cybersecurity; supporting staffing levels in key areas; establishing the new Chief Workforce and Strategy Office; and meeting fish and wildlife program obligations.

Transmission Services is facing greater cost pressures and is projecting costs above BP-22 by $80 million. Projected cost increases include investments in core IT systems, the labor-related cost of Bonneville's current workforce, wildfire mitigation, cybersecurity, Grand Coulee Dam substation assets, and support for Bonneville's current workforce.

Judicial & Regulatory Activity

The Energy Policy Act of 2005 authorized the Federal Energy Regulatory Commission (FERC) to approve and enforce mandatory electric reliability standards with which users, owners, and operators of the bulk electric power system, including Bonneville, are required to comply. These standards became enforceable on June 18, 2007, and compliance is monitored by the North American Electric Regulatory Corporation (NERC) and the regional reliability organizations.

FCRPS Cost Allocations

The FY 2021 Energy and Water Development Appropriations Act included report language requesting that Bonneville, the Corps, and Reclamation provide quarterly reports on their work to resolve policy differences for the allocation of costs for multi-purpose projects of the FCRPS. This followed language in the House Committee on Appropriations report in the FY 2020 Energy and Water Development Appropriations Act, noting that the allocation of cost sharing among the authorized project purposes can be decades old and requesting that the three agencies return an outline of how cost allocations may be updated. The three agencies provided the subcommittee with an outline of cost allocation methods and authorities in June 2020, noting specific policy differences. Bonneville is continuing to provide the subcommittee with Quarterly reports of its progress.

BPA appreciates the OMB budget guidance to BPA indicating that Bonneville should work with the Corps of Engineers to determine if changes in cost allocation may be warranted and present a joint proposal to OMB for consideration for the FY 2025 Budget if both agencies agree changes may be warranted.

BPA agrees that a joint proposal to OMB would support the effort to determine whether or not project costs are being appropriately allocated to power, thus ensuring carbon free and reliable FCPRS hydropower costs are not inflated by non-joint, non-power costs. The joint effort also would support the federal interest determination portion of completing the directed studies on disposition of hydropower at the Willamette dams, authorized by the enacted into federal law on December 23, 2022 as Section 8220, Disposition Study of hydropower in the

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Willamette, Valley, Oregon (pp. 3162-6), of Division H. of Title LXXXI, the Water Resources Development Act of 2022 (WRDA), of the James M. Inhofe National Defense Authorization Act (NDAA), P.L. 117-263, and directed to be completed by June 2024. Thus, the timing for this joint effort is critical to assuring decarbonization goals and certain fish mitigation activities.

BPA appreciates OMB scheduling a joint meeting of OMB, the Corps and BPA to discuss cost allocation and potential development of a joint proposal. BPA intends to discuss with OMB and the Corps a proposed schedule for the BPA and the Corps joint report to OMB by August 1. And assuming the report will note reallocation is warranted, BPA intends to discuss with OMB and the Corps a joint proposal for commencing the cost allocation update process by September 15 for the FY 2025 Budget. BPA believes that the subcommittee continues to have an interest in expeditious commencement of these activities.

Strategic Direction

Bonneville's 2018-2023 Strategic Plan, released in 2018, describes how it will operate in a commercially successful manner while meeting its statutory obligations. Bonneville developed this strategic plan after listening to customers and constituents express their interests in Bonneville's commercial viability and ability to meet those obligations. The strategic plan was developed at the point when Bonneville was midway through 20-year firm power sales contracts with its preference power customers. Those customers continue to evaluate how Bonneville will be positioned to meet their needs beyond the terms of their current contracts.

The strategic plan is framed by these goals:

- Strengthen financial health
- Modernize assets and system operations
- Provide competitive power products and services
- Meet transmission customer needs efficiently and responsively

In 2020, Bonneville reassessed and reconfirmed its strategic goals and objectives. In its Strategic Plan Update, Bonneville added a fifth goal, "Value people and deliver results," which captures the agency's commitment to its workforce and the people it serves.

In calendar year 2023, Bonneville expects to complete a strategic planning refresh to prepare its 2024-2028 Strategic Plan.

The following provides more detail about the strategic plan's goals.

Strategic Goal: Strengthen Financial Health

Financial Plan

In 2018, Bonneville completed its Financial Plan to address the Strategic Plan's direction to maintain and enhance the agency's financial strength. The 2018 Financial Plan establishes a guiding framework for decision-making by defining the financial constraints within which Bonneville operates, and outlines Bonneville's financial health objectives. The plan contains Bonneville's statutory obligations and authorities, financial policies and established practices, and financial health objectives.

Bonneville adopted the Financial Reserves Policy (FRP), which guides the level of financial reserves Bonneville and each business line should hold, how to build financial reserves when they fall below a prescribed level, and a process to consider repurposing financial reserves when they exceed a prescribed level. The policy provides a framework to help ensure Bonneville maintains a minimum of 60 days cash on hand for each business line.

In FY 2022, Bonneville held a public process to refresh its Financial Plan. The objective of the Financial Plan Refresh was to ensure Bonneville's long-term financial goals are supported with the appropriate targets, metrics

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and policies. The scope of the project focused on debt management, debt capacity, and capital execution performance reporting. From September 2021 through March 2022, Bonneville engaged customers and constituents through a series of workshops to discuss proposals. Bonneville completed a Record of Decision in July 2022 to support a new Sustainable Capital Financing policy and issued the updated Financial Plan in September 2022.

The Sustainable Capital Financing Policy guides Bonneville's use of debt and revenue financing to finance its capital investments. The policy creates a default structure of 90 percent debt and 10 percent revenues for financing Bonneville's capital program. If a business unit is not on track to reach a debt-to-asset ratio of no more than 60 percent by 2040, the revenue financing will increase to the lower of 20 percent or an approximate 1 percent incremental rate impact per rate period.

Increase in Bonneville's Treasury Borrowing Authority

Section 40110 of Infrastructure Investment and Jobs Act of 2021, Public Law 117-58, enacted on November 15, 2021 (during FY 2022), provided the Bonneville Administrator with $10 billion in additional permanent borrowing authority" to assist in the financing, acquisition and replacement of the Federal Columbia Power System and to implement the authority of the Administrator of the Bonneville Power Administration . . . ." Section 40110 specifies that the "obligation" of the $10 billion in additional borrowing authority shall not exceed $6 billion by fiscal year 2028. With the new law, Bonneville is authorized by Congress to have outstanding at any time up to $13.7 billion of bonds through fiscal year 2027. Beginning in fiscal year 2028, an additional $4 billion will become available to have outstanding for a total of $17.7 billion. At the end of FY 2022, Bonneville had $8.02 billion of borrowing authority available against the current cap of $13.7 billion.

Strategic Goal: Modernize Assets and System Operations

Asset Management

The foundation of Bonneville's value is the base of the generating resources from which it markets electricity, and Federal transmission assets it owns and operates. Bonneville utilizes an Asset Management Program based on The Institute of Asset Management's (IAM's) conceptual model that aligns with the International Organization of Standardization (ISO) 55000 Series and Publically Available Specification (PAS) 55 standards. Investments are created, selected, and executed based on a strategy to apply best-practice industry standards to manage the lifecycle costs of Federal assets. This is central to maintaining the long-term value and reliability of the power and transmission systems. Achieving these objectives for power requires collaborative, long-term planning with Bonneville's Federal partners, the Corps, and Reclamation. Through the Asset Investment Excellence Initiative, the three agencies are establishing a long-term asset investment plan, applying prioritization tools to inform investment decisions to ensure the long-term affordability and reliability of the hydropower assets.

Bonneville operates within a complex environment that requires asset management tradeoffs. Bonneville's business decisions consider five dimensions of risk: financial, reliability, compliance, safety, and environmental. Reliability and safety remain Transmission Services' priorities. Transmission's asset management capability is continually maturing to maximize the value of its assets and help Bonneville maintain competitive advantage in the marketplace, enable industry change, and deliver on public responsibilities; as well as maintain financial strength through the management of lifecycle costs.

Infrastructure Investments

The FCRPS is one of the nation's largest nearly carbon-free power systems, and preserving and enhancing the value of the FCRPS for the future continues to be a major Bonneville focus. Bonneville's ongoing prioritization and execution of capital investment in transmission and FCRPS generation assets is the foundation for delivering clean, low-cost power to support the communities and economies of the region well into the future.

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Bonneville continues to assess needed infrastructure investments in the Pacific Northwest to meet transmission capacity and reliability needs.

In January 2022, Bonneville signed a non-binding term sheet to clarify its role in the Boardman-to-Hemingway transmission project that would connect from northeast Oregon to southwest Idaho. Bonneville's role would be to acquire transmission service on the line, allowing Bonneville to reliably and cost-effectively serve six southeast Idaho preference customers. Bonneville has been evaluating options to serve these customers following the termination of legacy transmission service agreements. Bonneville held a public review process in early 2022 to invite customer and public comment on this proposed participation.

Bonneville continues to evaluate additional transmission investments and alternative non-wires solutions across the Pacific Northwest to improve reliability and support both load and renewable generation needs. Bonneville makes use of certain alternative capital financing mechanisms, in addition to or in lieu of the use of its U.S. Treasury borrowing authority, to sustain funding for its infrastructure investment requirements. These approaches include revenue and financial reserves financing some amount of either or both power and transmission investments, or seeking, when feasible, third-party financing sources. See the BP-5 Potential Third-Party Financing Transparency table on page 101 of the Additional Tables section at the back of this document.

Bonneville plays a key role in advancing energy efficiency across the region consistent with its statutes, including developing and promoting related technologies, and exploring demand-side management opportunities.

Bonneville is also making disciplined technology innovation investments and looking to apply new operational and market mechanisms that enhance the reliability, efficiency, and flexibility of system operations.

Transmission Facilities Capital Projects

In 2021, Bonneville began construction of a new Technical Services Building to replace 80-year-old facilities at the Ross Complex in Vancouver, Washington. The facility includes lab space to support Bonneville's communication systems testing and diagnostics functions as well as one floor of general office space. The new facility offers long-term cost savings and supports Bonneville's ability to maintain system stability.

Bonneville is also continuing design and other activities related to its plans to replace the Dittmer Control Center, also located in the Ross Complex. After consultation with customers in the 2021 Integrated Program Review 2 process, Bonneville adjusted planned spending in Fiscal Year 2022 to just over $12 million and revised its proposed construction schedule.

Power Prepayment Program

Bonneville undertook a Power Prepayment Program in FY 2013 under which all Bonneville preference customers had an opportunity to submit formal offers to provide lump-sum payments to Bonneville as prepayments of a portion of their power purchases through September 30, 2028, the termination date of their current Long-Term Regional Dialogue Power Sales Contracts. Bonneville accepted power prepayments from four preference customers.

Upon Bonneville's receipt of the agreed-to, lump-sum prepayments, the selected preference customers became entitled to future portions of their electricity from Bonneville without further payment. The power prepayments are and will be recognized in the customers' future power bills from Bonneville as fixed, equal monthly prepayment credits. In effect, the amount of electricity that is prepaid may vary by month, depending on Bonneville's power rates and rate schedules that apply to electricity purchases by the prepaying customers in the related month. Because this is structured as a variable amount of prepayment and not as a fixed-price/fixed-amount type of prepayment, Bonneville maintains flexibility to establish rates for the electric power that is prepaid.

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As a result of the FY 2013 Prepayment solicitation, Bonneville received $340 million in prepayments, which Bonneville is using to fund needed FCRPS investments. The aggregate prepayment credits are set at $2.55 million per month through FY 2028.

Depending on a variety of factors it is possible that Bonneville may seek to implement later phases of the Power Prepayment Program in connection with future FCRPS hydroelectric investment needs.

Radio Spectrum Communications

Bonneville's wireless communication system is used to operate and control critical national transmission grid infrastructure in a reliable, secure, and safe manner. Bonneville's communication systems are designed to meet strict reliability/availability objectives required by NERC and Western Electricity Coordinating Council (WECC) standards. Concerning proper spectrum stewardship, Bonneville designs highly efficient radio systems that use minimal radio frequency (RF) channel bandwidths to meet critical mission needs. However, in certain circumstances, efficiently designed spectrum radio systems will require broad RF channels and/or lower state RF modulation schemes to meet existing and future requirements in order to meet operational and reliability/availability objectives.

To meet Bonneville's mission/operational requirements, RF communication equipment approved for system use goes through a rigorous evaluation and testing process. RF spectrum efficiency factors are considered during the evaluation/testing period. RF terminal equipment approved for use is normally purchased directly from vendors and is not typically supplied through a Request for Proposal process.

Bonneville's operational telecommunications and other capital equipment and systems are acquired using Bonneville's self-financing and procurement authorities. The Bonneville budget includes a systemwide electric reliability performance indicator, consistent with NERC rules, to track and evaluate performance.

Bonneville may share temporarily-available spare capacity on its RF communication system with other government agencies (both Federal and state), and with other electric utilities in the region whose power systems interconnect with Bonneville. Non-critical administrative traffic is typically supported by commercial carrier enterprises. However, to meet the NERC and WECC electrical bulk transmission requirements, Bonneville exclusively operates highly critical transmission control traffic over its private telecommunication system as Bonneville has no control over the reliability/availability of the commercial enterprise or on how quickly critical operational control circuits are restored to active service during an interruption.

For high-capacity communication system applications, Bonneville considers and operates non-spectrum dependent alternatives such as fiber optic cable infrastructure systems.

During FY 2014, Bonneville began upgrading the Very High Frequency (VHF) land mobile system and installing a number of digital Synchronous Optical Network (SONET) rings typically consisting of fiber segments in combination with point-to-point microwave hops operating in the 4 GHz and 7/8 GHz bands. These various telecommunication systems operate within Bonneville's approximate 300,000 square mile regional utility service territory (Oregon, Washington, Idaho, western Montana) with the majority of the RF infrastructure located in low-population rural areas.

The FCRPS hydroelectric projects, owned by the Corps and Reclamation, also utilize Federal radio spectrum to preserve very high operational telecommunications and power system reliability.

In FY 2014, Bonneville completed work costing approximately $40 million, funded through the Spectrum Relocation Fund (SRF), to relocate its operational telecommunication systems from the 1710-55 MHz radio spectrum bands to alternative Federal radio spectrum bands, part of the AWS-1 Federal Spectrum Relocation. In accordance with Federal law, Bonneville plans to return the approximately $8.2 million of excess funds to the U.S. Treasury, via the SRF, as soon as the National Telecommunications and Information Administration (NTIA) officially notifies the Federal Communications Commission (FCC) that the DOE relocation effort is complete.

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Bonneville began participating in a new spectrum relocation effort in FY 2015 to relocate its operational telecommunication systems from the 1755-80 MHz radio spectrum bands. The NTIA has approved and, in July 2014, web-posted Federal agency relocation plans, including the Bonneville relocation plan. The FCC held an auction of this spectrum on November 13, 2014. Bonneville received an additional $5.2 million from the SRF on July 29, 2015, to fully pay for this new relocation effort, including, as in the prior relocation, the purchase and installation of new digital radio equipment. Bonneville received obligational authority to proceed with this relocation effort by apportionment on July 24, 2015.

Bonneville has worked to complete its move off of 1755-80 MHz in two stages. First, Bonneville moved off of the old Federal frequencies and "retuned" to new alternate Federal frequencies in the band segment of 1780-1850 MHz, which is above the highest frequency involved in the auction. Three hops Federal frequency moves/retuning were completed as of June 7, 2017. The last remaining path, Happy Camp to Hilltop in northern California near the Oregon-California Border, was moved/retuned, and as of July 31, 2018, Bonneville was off AWS-3 radio frequencies, meeting the commitment date promised to the NTIA.

Bonneville still has additional work remaining to finish the construction related to the AWS-3 relocations. Bonneville will use the SRF relocation funds until the AWS-3 relocation work is completed and closed out. Bonneville will then complete its move of these four microwave hops to 7GHz-8GHz. This will take additional time because two of four hops require building construction to complete the work. AWS-3 funds will need to be retained by Bonneville at least through FY 2023 to complete construction of two communications buildings. This will accommodate the adjusted construction schedule with contingency for minor access issues due to weather or fire. Glass Butte was under construction during FY 2021 and is expected to be completed in FY 2023. Then, microwave installations can begin. Richland Franklin construction began in July of CY/FY 2021. The building construction occurred in FY 2021 with cutovers to the new radio equipment and retirement of old radio equipment likely concluding in FY 2023. Bonneville will assure that "comparable capability" has been achieved for these four AWS-3 relocated Bonneville operational telecommunication hops.

Strategic Goal: Provide Competitive Products and Services

Provider of Choice

With Bonneville's current power sales contracts set to expire in 2028, Bonneville is planning for successor agreements. Bonneville' Provider of Choice initiative is laying the foundation to deliver competitively priced power beyond 2028. The initiative seeks to develop the policies and contracts Bonneville will offer its customers to meet their evolving needs well into the future.

Bonneville released a Provider of Choice Concept Paper in July 2022. The concept paper includes a high-level framework for post 2028 contract policies, products, services, and rate structures. Bonneville will invite its customers and other interested regional parties to participate in regional policy discussions to complete a Provider of Choice policy. Bonneville expects to issue a draft policy in the spring of 2023 and complete a final policy and Record of Decision in January 2024. Bonneville would then seek to enter contract negotiations and drafting in 2025 to be able to offer and execute contracts for service after 2028.

Fiscal Year 2022 and 2023 Rates

Bonneville adopted its power and transmission rates for FY 2022 and 2023 in July 2021. FERC approved the rates in March 2022. The average BP-22 power rate decreased by 2.5 percent compared to BP-20 rates. For transmission rates, the weighted average is an increase of approximately 5.4 percent for the two-year rate period. The power rates and transmission rates will be in effect through September 30, 2023. In November, 2022, Bonneville proposed new power and transmission rates for FY 2024 and 2025 and begin formal rates proceedings. BPA has made its decision on the application of the FY 2022 Power Reserves Distribution Clause Amount. The Administrator's final decision was released on Nov. 16, 2022. Funds will be distributed in FY 2023, which includes to customers.

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Grid Modernization

Through FY 2023, Bonneville will continue a cross-agency Grid Modernization Initiative. Bonneville's reliance on legacy systems and non-standard commercial practices are costly to maintain and have led to Bonneville being conservative in its power and transmission operations, planning, and marketing. Bonneville's strategic objective is to modernize Federal power and transmission systems and their supporting technology. Bonneville's Grid Modernization Initiative includes 34 projects designed to increase automation, improve accuracy and enhance visibility into how the Federal power and transmission systems are functioning in real time, to ultimately enhance the optimization, resilience and reliability of the grid. The program includes upgrades to metering technology, outage management systems and other operational tools that improve visibility and accuracy in Bonneville's operations.

Bonneville's grid modernization effort included preparation for and successful initiation of participation in the Western Energy Imbalance Market (WEIM). The WEIM is operated by the California Independent System Operator and is a real-time wholesale electricity market with current participation of 17 western balancing authorities. Bonneville joined the WEIM after extensive consultations with its customers and constituents through regular public workshops. The rate and tariff issues for WEIM participation were included in the TC-22 and BP-22 cases, which were completed in July 2021. Bonneville continues to hold public workshops to report on WEIM performance and operational issues.

Regional Resource Adequacy

Bonneville continues to forecast that it has adequate power resources to meet its long-term contractual obligations to supply its regional firm power customers' demands in all foreseeable conditions. Recent regional forecasts, however, have shown that the Pacific Northwest as a whole is nearing periods of times of the year when regional power supplies may not be adequate to meet demand. Bonneville is joining other regional utilities through the Northwest Power Pool Western Resource Adequacy Program (WRAP) initiative to create a regional resource adequacy program. This effort seeks to develop a program that is based on voluntary participation with binding commitments to ensure that the region maintains a balance of supplies and demand in a very high percentage of likely conditions.

On September 29, 2021, Bonneville committed to participating in the non-binding forward-showing phase (Phase 3A) of the WRAP. The non-binding program participation is expected to run through the forward-showings for winter 2022-2023 and summer 2023. Bonneville continues to engage with its customers and regional leaders to gain more information about the binding program and to develop a better understanding of the business case and principles for Bonneville's potential participation. Bonneville expects to make a decision on participating in the binding program in late 2022. FERC approval is required before the WRAP can become fully binding.

The Columbia River System Operations Environmental Impact Statement and associated Endangered Species Act consultations

In 2020, the Corps, Reclamation, and Bonneville completed the Columbia River System Operations (CRSO) Environmental Impact Statement (EIS) and associated Endangered Species Act (ESA) consultations on the Columbia River System (CRS) operations, maintenance and configuration for 14 Federal projects in the interior Columbia Basin. These 14 CRS Federal projects are a subset of the FCRPS. In the CRSO EIS, the three agencies prepared a reasonable range of alternatives for long-term system operations and evaluated the potential environmental and socioeconomic impacts on a number of system purposes, including flood risk management, irrigation, power generation, navigation, fish and wildlife, cultural resources and recreation.

The on-going action that requires evaluation under the National Environmental Policy Act (NEPA) is the long-term coordinated management of CRS projects. An underlying need to which the co-lead agencies responded is reviewing and updating the management of these projects, including evaluating measures to avoid, offset, or minimize impacts to resources affected by the management of the CRS in the context of new information and

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changed conditions in the Columbia River basin. In addition, the co-lead agencies responded to the Opinion and Order issued by the U.S. District Court for the District of Oregon such that this EIS evaluated how to ensure that the prospective management of the system is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat, including evaluating mitigation measures to address impacts to listed species. The co-lead agencies released a final Record of Decision (ROD) in September 2020. Regional parties subsequently challenged the CRSO EIS ROD in court.

In October 2021, the Administration announced a short-term agreement on operations of the Federal CRS multiple purpose projects. The agreement paused litigation over the selected alternative in the CRSO EIS ROD and associated ESA consultations. On August 4, 2022 the Administration announced the pause in the litigation would be extended one year to August 31, 2023, in the District Court and September 8, 2023, in the Ninth Circuit.

Discretionary taxpayer funds requested or enacted for litigation stay-related activities must be non-reimbursable in Federal law in order to assure such activities are not in lieu of ongoing priorities and programmatic and financial responsibilities of the other Federal agencies (Corps, Reclamation, USFWS, etc.). Those discretionary, non-reimbursable funds may not be recovered in Bonneville's wholesale electric power rates. Other Federal agencies that are seeking to fund stay activities beyond existing Bonneville funding priorities and beyond statutory obligations or responsibilities must seek non-reimbursable appropriations for those activities.

Fish and Wildlife Program Overview

Bonneville remains committed to funding its share of the region's efforts to protect and mitigate Columbia River Basin fish and wildlife affected by the construction and operations of the FCRPS. To the extent possible, Bonneville integrates actions to protect species listed for protection under the ESA in response to relevant FCRPS Biological Opinions (BiOPs) with the Fish & Wildlife Program of the NPCC. Implementation of these efforts involve significant collaboration with Pacific Northwest states, Indian tribes, local communities and other Federal agencies.

Included in the Additional Tables section at the back of this document, on page 107, is the current tabulation of Bonneville's Fish & Wildlife costs from FY 2012 through FY 2022.

The Columbia River Treaty

The U.S. Government reached consensus on a high level position for negotiations of the post-2024 future of the Columbia River Treaty in June 2015, and received authorization to negotiate with Canada on the Columbia River Treaty in October 2016. Government Affairs Canada notified the U.S. State Department in December 2017 of Canada's mandate to negotiate the Columbia River Treaty with the United States. Negotiations began in spring 2018 and continue to date. Both the U.S. State Department and Canadian negotiators have discussed shared objectives and exchanged information on flood risk management, hydropower, and ecosystem considerations.

Strategic Goal: Meet Transmission Customer Needs Efficiently and Responsively

Revised Transmission Tariff

In 2019, Bonneville adopted a broad regional settlement of a new Transmission Tariff, which included terms and conditions that would apply to all of Bonneville's customers. The Tariff set forth the process Bonneville may use to make future modifications to it and positioned the region to take advantage of opportunities in the rapidly changing industry as well as further its objectives for improving the agency's commercial performance.

Bonneville will conduct a Terms and Conditions Tariff Proceeding beginning in fall of 2022 to set or modify the terms and conditions of the Transmission Tariff. The proceeding will run concurrently with the BP-24 rate case.

Integrating Regional Transmission Planning

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Bonneville participates in the NorthernGrid regional planning organization. Bonneville's 2018-2023 Strategic Plan included the objective of pursuing a single planning region in order to consolidate regional planning efforts and reduce duplication. In support of that objective, Bonneville worked together with other entities to scope and develop a new, single regional planning organization. The result of that effort is NorthernGrid. NorthernGrid is an association of member utilities that offers a forum for coordination of regional transmission planning activities. Participation in NorthernGrid facilitates Bonneville's efforts to meet transmission customer needs efficiently and responsibly through coordination of transmission planning across a broad spectrum of participants and a larger footprint. It includes participation by both FERC-jurisdictional and non-jurisdictional entities.

Wildfire Risk Mitigation

In 2020, Bonneville released its Wildfire Mitigation Plan to reduce the risk of Bonneville transmission lines and other assets from sparking wildfires, and to protect Bonneville's lines and assets from the threat of wildfires. The plan incorporated wildfire mitigation into Transmission Services' asset management planning strategy. In 2021, Bonneville updated the plan to add a public safety power shutoff (PSPS) procedure to further mitigate the risk of fire igniting from its transmission lines. PSPS is proactive de-energization of transmission lines and facilities based on a number of factors, including extreme weather like high winds, other environmental conditions, and asset condition.

Strategic Goal: Value People and Deliver Results

COVID-19 Response

Beginning in March 2020, Bonneville responded to the expanding COVID-19 pandemic by instructing all non-mission-critical operating personnel to telework for an indefinite period of time. Bonneville suspended transmission construction projects and limited field operations to critical work. As local health directives permitted, Bonneville resumed construction and maintenance activities. In June 2020, Bonneville completed an expedited rate proceeding to suspend its Financial Reserve Policy surcharge to provide its public power preference customers about $3 million per month of rate relief for the remainder of FY 2020 and a total of $30 million for FY 2021. Bonneville has since maintained a flexible telework policy that includes guidance from local health authorities in the communities where the agency has facilities. Bonneville has made a number of FCRPS self-financed expenditures to respond to the COVID-19 pandemic to keep employees safe and reliably continue power and transmission operations. The health and safety of Bonneville Federal and contract workers are of paramount importance and guides all actions to reenter agency facilities. Federal Centers for Disease Control (CDC) protocols as outlined in "Work Places and Businesses I COVID-19 I CDC" are being used, as practical and appropriate, to lower risk.

Educational Activities

Bonneville is a supporter of science, technology, engineering, and math (collectively known as "STEM") education programs. These programs provide support and encouragement to middle and high school students to study the sciences in school and to pursue careers in these fields. As a regional leader in STEM education, Bonneville proudly supports and organizes an award-winning Science Bowl. Bonneville also sponsors science fair competitions for students in Washington State, as well as a First Robotics tournament championship. Bonneville employees also serve as volunteer ambassadors, providing presentations, curricula, and activities to K-12 schools that enhance the learning experience for students and teachers, and extend awareness of the role of the region's hydroelectric system.

Justice40 Initiative

Recently the U.S. Department of Energy (DOE) announced its list of existing programs that provide Justice40 or Justice40-like benefits. While Bonneville is not a taxpayer-funded entity like other DOE elements, Bonneville does support the spirit of Justice40 through its business activities and statutory requirements that benefit the people of the Northwest. Bonneville listed five large categories of our activities that provide Justice40-like

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benefits: Fish and Wildlife Mitigation Program; energy efficiency; Tribal STEM Grant Program; AIESEC internship partnership; public processes, including rate cases; and carbon-free, flexible hydropower and nuclear capacity and energy.

The following pages provide more specifics on the primary budget categories and subcategories.

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Funding Schedule by Activity

Funding ($K)

Power Services - Capital	FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate	FY 2024 vs FY 2023 $	FY 2024 vs FY 2023 %
Associated Projects	$ 190,294	$ 281,260	$ 270,000	$ (11,260)	-4.0%
Fish & Wildlife	$ 16,119	$ 43,000	$ 41,335	$ (1,665)	-3.9%
Power Information Technology	$ 778				
Power Non-IT	$ 1,033				
Total, Power Services - Capital	**$ 208,224**	**$ 324,260**	**$ 311,335**	**$ (12,925)**	**-4.0%**

Outyears ($K)

Power Services - Capital	FY 2024 Estimate	FY 2025 Estimate	FY 2026 Estimate	FY 2027 Estimate	FY 2028 Estimate
Associated Projects	$ 270,000	$ 275,675	$ 281,620	$ 288,001	$ 294,794
Fish & Wildlife	$ 41,335	$ 41,300	$ 29,000	$ 15,700	$ 15,000
Total, Power Services - Capital	**$ 311,335**	**$ 316,975**	**$ 310,620**	**$ 303,701**	**$ 309,794**

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Power Services – Capital

Overview

Under the Power Services – Capital category, there are three subcategories. **Associated Project** costs provide for direct funding of additions, improvements, and replacements of existing the Corps and Reclamation hydroelectric projects in the Pacific Northwest. The FCRPS hydro projects produce a large portion of the electric power that is marketed by Bonneville.

Maintaining the availability and increasing the efficiency of the FCRPS is critical to ensuring that the region has an adequate, efficient, economic, and reliable power supply. The FCRPS represents about 80 percent of Bonneville's firm power supply and includes 31 operating Federal hydroelectric projects with over 200 generating units. These projects have an average age of about 50 years, with some that exceed 60 years of age. Through direct funding and the cooperation of the Corps and Reclamation, Bonneville uses its U.S. Treasury borrowing authority and other sources to make investments needed to restore generation availability and improve efficiency, reducing demand on Corps and Reclamation appropriations for power-related investments.

Since the beginning of direct funding in 1997, Bonneville has invested over $3 billion in direct capital in the FCRPS with the goal of maximizing system value for the region and its stakeholders. Ongoing analysis with its operating partners, the Corps and Reclamation, has identified ongoing investment needs for the foreseeable future to maintain the health of the hydro system.

These planned investments, included in the FY 2024 Budget estimates, will maintain the generation performance of the FCRPS. Moving forward with the cost-effective opportunities to preserve and enhance the capability of the FCRPS is a smart, economic, and environmentally beneficial decision for serving the growing Pacific Northwest electricity needs of Bonneville customers, particularly when compared to purchasing power from the wholesale power market.

Fish & Wildlife capital costs incurred by Bonneville are directed at activities that mitigate the impacts of the FCRPS on fish and wildlife resources. Bonneville uses a combination of capital and U.S. Treasury reimbursements to fund projects designed to increase juvenile and adult fish passage through the Federal hydrosystem, to increase fish production and survival through construction and operation of hatchery, acclimation and fish monitoring facilities, and to protect wildlife and resident fish populations through land acquisitions and associated habitat maintenance. These capital projects support both Northwest Power Act and ESA priorities and are integrated with the NPCC's Columbia Basin Fish and Wildlife Program (NPCC's Program) to efficiently meet Bonneville's responsibilities under the Northwest Power Act and other statutes to mitigate Federal hydrosystem impacts to Columbia River Basin fish and wildlife.

Under the Northwest Power Act, the NPCC must develop a program of measures designed to protect, mitigate, and enhance Columbia River Basin fish and wildlife affected by the Federal and non-federal hydroelectric projects in the basin while assuring the Pacific Northwest an adequate, efficient, economical, and reliable power supply. The NPCC Program, the Columbia River System BiOps, other BiOps, and Bonneville's long-term agreements include prioritized strategies for mitigation actions and projects to meet Bonneville's responsibilities under the Northwest Power Act, the ESA, the Federal Clean Water Act, and other laws. When issues arise that potentially trigger the in-lieu provision of the Northwest Power Act, which prohibits Bonneville from funding mitigation that other entities are authorized or required to undertake, Bonneville works with the NPCC and regional fish and wildlife managers, customers, and tribes, as appropriate, to ensure ratepayers fund only appropriate mitigation.

Most projects recommended by the NPCC also undergo independent scientific review as directed by the 1996 Energy and Water Development Appropriations Act, which added Section 4(h)(10)(D) to the Northwest Power

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Act. As a result, the Council appoints an Independent Scientific Review Panel (ISRP) "to review a sufficient number of projects" proposed to be funded through Bonneville's annual Fish & Wildlife budget "to adequately ensure that the list of prioritized projects recommended is consistent with the Program." The Northwest Power Act further states that "in making its recommendations to Bonneville, the Council shall consider the impact of ocean conditions on fish and wildlife populations and shall determine whether the projects employ cost-effective measures to achieve program objectives." Today, most mitigation projects funded by Bonneville receive ISRP review as part of the NPCC recommendation process. The NPCC uses a multi-year project review cycle during which the ISRP reviews categories of projects grouped together.

To comply with the ESA, Bonneville funds capital investment actions to avoid jeopardizing listed species. Guidance for those actions is found in the current BiOps issued by the National Oceanic and Atmospheric Administration (NOAA) and the USFWS.

Under these collective BiOps, the Action Agencies (Bonneville, Corps, Reclamation) have committed to implement hydro, habitat, hatchery, and other actions throughout the Columbia River Basin to address impacts stemming from the operation of the Federal hydro-electric dams on ESA-listed fish, and to ensure that operations of the Federal dams do not jeopardize the continued existence of the ESA-listed species or adversely modify their designated critical habitat.

The Action Agencies also signed the 2008 Columbia Basin Fish Accords (Fish Accords or Accords) with five Northwest Tribes and the states of Idaho and Montana. In 2009, an agreement was signed with the state of Washington and Federal agencies (the state of Washington Estuary agreement). And in 2012, the Action Agencies signed an agreement with the Kalispel Tribe of Indians covering Albeni Falls Dam and FCRPS operations. Wildlife settlement agreements have been signed with the states of Oregon and Idaho to help complete mitigation for the flooding and inundation caused by the construction of FCRPS dams operating in those states. These Fish Accords and settlements complement the BiOps and provide firm commitments to prioritize mitigation actions and secure funding over the life of the agreements.

As of September 30, 2022, BPA has long-term fish and wildlife agreements with estimated contractual commitments of $372.9 million, which are likely to result in future expenses or regulatory assets. These agreements will expire at various dates through fiscal year 2027 and do not include the Columbia Basin Fish Accords extension agreements. As of November 1, 2022, BPA, the Corps, and Reclamation are in the process of signing agreements to extend the Columbia Basin Fish Accords with current Accords partners, namely certain states and tribes. The Accords and associated BPA funding commitments facilitate implementation of projects that provide BPA with legal compliance actions under applicable laws, including the Northwest Power Act and Endangered Species Act, and that benefit Columbia River Basin fish and wildlife. The existing agreements expired September 30, 2022, and will be extended until September 30, 2025. The extension agreements are expected to commit approximately $409 million for fish and wildlife protection and mitigation, which will result in future expenses or regulatory assets.

As noted above, BiOps, Fish Accord extensions, and wildlife settlement commitments are integrated with other projects and implemented through the NPCC Program under the Northwest Power Act. They provide the basis for Bonneville's planned capital investment for fish and wildlife.

There are no anticipated expenditures under the third subcategory, **Projects Funded In Advance,** during this budget period.

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Accomplishments

Power Services – Capital expenditures over the past fiscal year resulted in the following:

- The BP-22 Draft ROD was issued in June 2021 and the final ROD was issued in late July
- 45,134 acre-feet/year of water protected and conserved
- 6,242 acres improved and protected in riparian areas
- 29,545 acres protected by purchase or lease
- 258 cubic-feet per second (cfs) of water flow protected and conserved
- 191 miles of stream improved and protected in riparian areas
- 129 miles of habitat accessed
- Completed switchyard modernization at Palisades
- Completed station service breaker replacement at Ice Harbor
- Completed intake gantry crane controls replacement at Ice Harbor
- Completed drainage system oil water separator at McNary
- Completed tailrace gantry crane rehabilitation at Dworshak
- Completed generator coolers replacement at Bonneville
- Completed transformers replacement at The Dalles
- Completed main unit breakers and station service upgrades at Bonneville
- Completed GDACS replacement at Chief Joseph
- Completed SCC board replacement at Chief Joseph

Explanation of Changes

Bonneville's budget includes $311.3 million in FY 2024 for Power Services – Capital, which is a 4.0 percent decrease from the FY 2023 forecasted level. The FY 2024 level allows additional work efforts while continuing to align with Bonneville's strategic asset management plans, which focus on the need for investment in hydroelectric system assets and investments necessary to implement the BiOps, Fish Accord extensions, and other Columbia Basin fish and wildlife activities.

The FY 2024 budget decreases the levels for Associated Projects by $11.2 million and decreases the funding level for Fish & Wildlife, by $1.67 million compared to FY 2023.

Strategic Management

Bonneville markets available electric power to meet requested load while supporting the achievement of its vital responsibilities for fish and wildlife, energy efficiency, renewable resources, and low-cost power in the Pacific Northwest region. Bonneville will continue to implement the following strategies to serve the region:

1. Bonneville coordinates its power operational activities with the Corps, Reclamation, NERC, regional electric reliability councils, its customers, and other stakeholders to provide the most efficient use of Federal assets.
2. Ongoing work with the Corps and Reclamation is focused on improving the reliability of the FCRPS, increasing its generation efficiency, and optimizing hydro facility operation.
3. Bonneville is committed to funding efforts to protect listed fish and wildlife species in the Columbia Basin under the ESA and working closely with the NPCC, regional fisheries managers, and other Federal agencies to prioritize and manage projects to mitigate fish and wildlife impacts by the FCRPS.
4. Bonneville's utility customers have been, and continue to be, a critical part of Bonneville's collaborative efforts to promote and foster the efficient use of energy.
5. Bonneville has assisted with a DOE Wind Power cross-cutting initiative to strengthen energy security.

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The following external factors present the most significant risk and impact to overall achievement of the strategies listed above:

1. Continually changing regional economic and institutional conditions;
2. Competitive dynamics; and
3. Ongoing changes in the electric industry.

The following pages discuss budget specifics under two of the three Power Services – Capital subcategories: Associated Projects and Fish & Wildlife Projects.

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Associated Projects – Capital

Overview

Bonneville will work with both the Corps and Reclamation to reach mutual agreement on budgeting and scheduling capital improvement projects that are cost-effective and provide system or site-specific enhancements, increase system reliability, or provide generation efficiencies.

The work is focused on improving the reliability of the FCRPS and on increasing its generation efficiency or capacity through turbine runner replacements, optimizing hydro facility operation, and new unit construction. Also, limited investments may be made in joint-use facilities that are beneficial to both the FCRPS operations and to other Corps and Reclamation project purposes.

The text below discusses Corps projects first, followed by Reclamation projects.

Corps of Engineers Projects
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$162,988	$229,286	$201,075

Bonneville Dam:

- FY 2022. Continued generator coolers replacement, control room fire protection upgrades, oil storage room fire protection upgrades, trashracks replacement, elevators rehabilitation, feeder boards replacement, and tailrace gantry crane replacement. Began Headgate repair pit rehabilitation.
- FY 2023. Complete feeder boards replacement and oil storage room fire protection upgrades. Continue elevators rehabilitation, trashracks replacement, tailrace gantry crane replacement and headgate repair pit rehabilitation. Begin digital governors replacement, main unit breakers replacement, and spillway gate repair.
- FY 2024. Complete headgate repair pit rehabilitation and tailrace gantry crane replacement. Continue digital governors replacement, main unit breakers replacement and spillway gate repair. Begin spillway rock mitigation and Bradford Island Service Building PRQ switchgear upgrade.

John Day Dam:

- FY 2022. Completed unwatering system condition intervention. Continued BLH turbine hub upgrades and fixed blade conversions, control room fire protection upgrades, and emergency gantry crane replacement. Began trashracks replacement, turbine pit pumps replacement, and submerged traveling screen (STS) crane replacement.
- FY 2023. Complete control room fire protection upgrades. Continue BLH turbine hub upgrades and fixed blade conversions, control room fire protection upgrades, emergency gantry crane replacement, trashracks replacement, turbine pit pumps replacement, and submerged traveling screen (STS) crane replacement.
- FY 2024. Continue BLH turbine hub upgrades and fixed blade conversions, emergency gantry crane replacement, trashracks replacement, turbine pit pumps replacement, and STS crane replacement. Begin generator cooling water system, and turbine runner replacement and generator rewinds.

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The Dalles Dam:

- FY 2022. Continued gate repair pit upgrades, intake and tailrace crane rails replacement, intake gantry crane replacement. Began oil accountability measures.
- FY 2023. Complete thrust bearing oil coolers. Continue intake gantry crane replacement, intake gantry crane rails replacement and oil accountability measures.
- FY 2024. Complete intake gantry crane replacement. Continue intake gantry crane rails replacement and oil accountability measures.

Willamette Plants:

- FY 2022. Completed powerhouse and transformer oil water separator at Foster. Continued GDACS installation at Cougar, spillway gate rehabilitation and wildfire debris boom at Detroit, butterfly valves project at Cougar, main unit breakers and electrical reliability upgrades at Foster and Hills Creek, and wildlife sediment and debris modeling and Big Cliff.
- FY 2023. Complete wildfire sediment and debris modeling at Big Cliff, wildfire debris boom at Detroit, and intake gantry crane at Dexter. Continue butterfly valves project, spillway gate rehabilitation and GDACS installation at Cougar, main unit breakers and electrical reliability upgrades at Foster and Hills Creek. Begin bridge crane replacement at Green Peter.
- FY 2024. Complete electrical reliability upgrades at Foster and butterfly valves at Cougar. Continue spillway gate rehabilitation and GDACS installation at Cougar, bridge crane replacement at Green Peter, and main unit breakers and electrical reliability upgrades at Hills Creek. Begin powerhouse and transformer oil water separator at Detroit.

Albeni Falls Dam:

- FY 2022. Continued main unit transformers replacement.
- FY 2023. Complete installation of main unit transformers.
- FY 2024. Begin bridge crane rehabilitation and emergency diesel generator Installation.

Libby Dam:

- FY 2022 Continued system control console replacement and DC boards and breakers replacement. Began powerhouse gantry crane rehabilitation.
- FY 2023. Continue powerhouse gantry crane rehabilitation, system control console replacement, and DC boards and breakers system replacement.
- FY 2024. Complete DC boards and breakers system replacement, powerhouse gantry crane rehabilitation and system control console replacement. Begin 6th unit installation.

Chief Joseph Dam:

- FY 2022. Continued intake gantry crane replacement. Began upgrades for station service units.
- FY 2023. Continue intake gantry crane rehabilitation and upgrades for station service units. Begin Units 1-16 generator rewinds, freight elevator rehabilitation, powerhouse elevator rehabilitation, powerhouse sump pump and controls replacement and Units 1-16 exciters replacement.
- FY 2024. Continue upgrades for station service units, Units 1-16 generator rewinds, freight elevator rehabilitation, powerhouse elevator rehabilitation, Units 1-16 exciters replacement, and powerhouse sump pump and controls replacement. Begin power bus replacement.

Dworshak Dam:

- FY 2022. Completed RO valve upgrade and tailrace gantry crane upgrade.
- FY 2023. No planned capital projects.
- FY 2024. No planned capital projects.

McNary Dam:

- FY 2022. Completed headgate repair pit upgrade and 230kv transformer purchase. Continued digital governors upgrade, exciters upgrade, headgate system rehabilitation, intake gantry crane rehabilitation,

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iso-phase and HV bus replacement, powerhouse control system upgrades, station service turbine rehabilitation, tailrace gantry crane 4 replacement, and turbine design and replacement.

- FY 2023. Complete tailrace gantry crane 4 replacement and intake gantry crane rehabilitation. Continue digital governors upgrade, exciters upgrade, governors rehabilitation, headgate system rehabilitation, , ISO-phase and HV bus replacement, powerhouse control system upgrades, station service turbine rehabilitation, and turbine design and replacement.
- FY 2024. Continue digital governors upgrade, exciters upgrade, headgate system rehabilitation, iso-phase and HV bus replacement, powerhouse control system upgrades, and turbine design and replacement. Complete station service turbine rehabilitation.

Ice Harbor Dam:

- FY 2022. Completed intake gantry crane controls upgrade. Continued Units 1-3 turbine runners replacement and Units 1-3 stator windings replacement.
- FY 2023. Continue Units 1-3 turbine runner replacements and stator winding replacements. Begin intake gate hydraulic system upgrades.
- FY 2024. Continue Units 1-3 turbine runner replacements, stator winding replacements, intake gate hydraulic system upgrades.

Little Goose Dam:

- FY 2022. Continued headgate repair pit upgrade, iso-phase bus upgrades, Unit 5 rotor frame and bracket repair, and powerhouse roof replacement. Began DC system and LV switchgear upgrades.
- FY 2023. Complete powerhouse roof replacement and Unit 5 rotor frame and bracket repair. Continue DC system and LV switchgear upgrades, headgate repair pit upgrade, and iso-phase bus upgrades. Begin intake gate rehabilitation.
- FY 2024. Continue DC system and LV switchgear upgrade, headgate repair pit upgrade, intake gate rehabilitation, and iso-phase bus upgrades.

Lower Granite Dam:

- FY 2022. Completed main Units 3-6 blade seal replacement and DC system and LV switchgear upgrade. Continued digital governors replacement, drainage system oil water separator, iso-phase bus and housing upgrade, and main Unit 2 blade sleeve upgrade and rehabilitation.
- FY 2023. Complete iso-phase bus and housing upgrade. Continue main Unit 2 blade sleeve upgrade and rehabilitation. Begin trashrake crane and rake replacement.
- FY 2024. Continue Trashrake Crane and Rake Upgrade and Main Unit 2 Blade Sleeve upgrade and rehabilitation. Begin Turbine Intake Gate Hydraulic System Upgrade.

Lower Monumental Dam:

- FY 2022. Completed station service compressed air system and main Units 2-6 blade seal repair. Continued headgate repair pit upgrades, iso-phase bus upgrades and trash rake crane and rake upgrades. Began DC system and LV switchgear upgrades.
- FY 2023. Complete headgate repair pit upgrades. Continue iso-phase bus upgrades, trashrake crane and rake upgrades, DC system and LV switchgear upgrades and intake gate rehabilitation.
- FY 2024. Complete iso-phase bus upgrades and trashrake crane and rake upgrades. Continue DC system and LV switchgear upgrades and intake gate rehabilitation.

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Bureau of Reclamation Projects
($K)

FY 2022 Actuals	FY 2023 Estimate	FY 2024 Estimate
$27,306	$51,974	$68,925

Grand Coulee Dam:

- FY 2022. Continued G11-18 transformers replacement, Block 31 elevator replacement, LPH/RPH bridge crane replacement, and TPP crane controls upgrade.
- FY 2023. Complete TPP crane control upgrades. Continue Block 31 elevator replacement, G11-18 transformers replacement, and LPH/RPH bridge crane replacement. Begin G1-18 iso-phase bus replacement, inclined elevator rehabilitation and radio system modernization.
- FY 2024. Continue LPH/RPH bridge crane replacement, station service compressed air system replacement, G11-18 transformers replacement, and TPP crane controls upgrade. Begin Inclined elevator rehabilitation, fire protection modernization and radio system modernization.

Keys Pump Generating Plant:

- FY 2022. Continued P1-P6 coaster gate replacement, P1-P6 exciters, relays and unit controls, PG7-12 governors, exciters, relays and unit controls and phase reversal switch replacement.
- FY 2023. Complete phase reversal switch replacement. Continue P1-P6 coaster gate replacement, P1-P6 exciters, relays and unit controls, PG7-12 governors, exciters, relays and unit controls and phase reversal switch replacement.
- FY 2024. Continue P1-P6 exciters, relays and unit controls, PG7-12 governors, exciters, and relays and unit controls.

Hungry Horse Dam:

- FY 2022. Completed SCADA replacement. Continued powerplant crane controls, disconnect switches replacement and main unit transformer fire protection system replacement. Begin radio system modernization.
- FY 2023. Complete main unit transformer fire protection system replacement and powerplant crane controls. Continue radio system modernization. Begin exciters replacement.
- FY 2024. Continue exciters replacement and radio system modernization.

Chandler Dam:

- FY 2022. No planned capital projects.
- FY 2023. No planned capital projects.
- FY 2024. No planned capital projects.

Palisades Dam:

- FY 2022. Completed switchyard modernization and microwave system backbone replacement. Continue hollow jet valve replacement.
- FY 2023. Complete hollow jet valve replacement.
- FY 2024. No planned capital projects.

Green Springs Dam:

- FY 2022. No planned capital projects.
- FY 2023. No planned capital projects.
- FY 2024. No planned capital projects.

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