

# Nevada Irrigation District's Yuba-Bear Hydroelectric Project Relicensing

## NEVADA IRRIGATION DISTRICT

Nevada Irrigation District (NID), located in Grass Valley, California, is a public agency formed in 1921 pursuant to California State law (Water Code § 20500 *et seq.*). NID has a service territory of 287,000 acres, and provides domestic water to homes and businesses, and irrigation water to farms in Nevada, Placer and Yuba counties. NID's articles of incorporation permit NID to generate, distribute and sell electricity.

## YUBA-BEAR HYDROELECTRIC PROJECT

Besides numerous water treatment plants and water delivery conduits, NID owns and operates the Yuba-Bear Hydroelectric Project. NID holds the initial Federal Energy Regulatory Commission (FERC) license for the Project, which was issued to NID by the Federal Power Commission, FERC's predecessor, on June 24, 1963. The initial license was effective on May 1, 1963 for a term ending April 30, 2013. The Project consists of four developments - Bowman, Dutch Flat, Chicago Park, and Rollins - which, in total, includes: 13 main dams with a combined gross storage capacity of about 207,865 acre-feet (ac-ft) of water; 4 water conduits; 4 powerhouses with associated switchyards with a combined authorized installed capacity of 79.32 megawatts (MW); one 9.0-mile-long, 60 kilovolt (kV) transmission line; and appurtenant facilities and structures, including recreation facilities. The FERC-jurisdictional facilities that comprise each of the developments are described below.

The information below is provided to facilitate interested parties obtain a better understanding of the Project. The information may be modified by NID without notice during the Relicensing proceeding if NID determines the information is incorrect or misleading.

- **BOWMAN DEVELOPMENT** consists of: (1) **Jackson Meadows Dam**, a zoned embankment structure with a core, filter zones, and rockfill shells located on the Middle Yuba River (MYR) 45.6 miles upstream of its confluence with the North Yuba River (NYR). The dam is 195 feet high with a crest length of 1,530 feet and a crest elevation of 6,044.5 feet, and a drainage area of 37.30 square miles. The dam includes two low-level outlets (El. 5,933.0 ft) with a combined maximum design capacity of about 760 cubic feet per second (cfs) at full pool; (2) **Jackson Meadows Dam Spillway**, a 3-bay, gated spillway composed of reinforced concrete. The ogee crest elevation of the spillway is 6,021 feet. A reinforced concrete chute carries spillway flow about 200 feet past the gates and discharges into a rock-lined channel. The maximum design capacity of the spillway is 40,000 cfs at zero freeboard; (3) **Jackson Meadows Reservoir**, a man-made storage reservoir on the MYR formed by Jackson Meadows Dam. At normal maximum water surface elevation (6,036.0 ft), Jackson Meadows Reservoir extends about 2.9 miles upstream, has an estimated usable storage capacity of 69,205 acre-feet (ac-ft), a surface area of 1,054 acres, and a shoreline of about 9.9 miles; (4) **Milton Main (Diversion) Dam**, a concrete arch dam located on the MYR about 42.2 miles upstream of its confluence with the North Yuba River (NYR). The dam is 37 feet high with a crest elevation of 5,690.0 feet, and a drainage area of 39.8 square miles. The dam includes one low-level outlet (El. 5,663.0 ft) with a maximum design capacity of about 113 cfs at full pool and one 8" valve for minimum instream releases with a capacity of 5 cfs; (5) **Milton South (Diversion) Dam**, a concrete arch dam located on the MYR about 42.2 miles upstream of its confluence with the NYR. The dam is 30 feet high with a crest elevation of 5,696.0 feet; (6) **Milton Diversion Dam Spillway**, the main concrete arch dam acts as an ungated, uncontrolled spillway with a maximum design capacity of 40,000 cfs; (7) **Milton Diversion Impoundment**, a man-made impoundment on the MYR formed by Milton Diversion Dam. At normal maximum water surface elevation (5,690.0 ft), Milton Reservoir extends 0.5-mile upstream, has a usable storage capacity of 295 ac-ft, a surface area of 103 acres, and a shoreline of about 1.3 miles; (8) **Milton-Bowman Diversion Conduit**, composed of both pipeline (a 3,315 ft-long, 84 inch-diameter, concrete pipeline) and tunnel (22,623 ft-long, 7.5 ft by 9.5 ft tunnel) sections carrying water from Milton Reservoir to Bowman Reservoir; (9) **Jackson Dam**, a homogeneous, compacted earth fill dam located on Jackson Creek, about 2.9 miles upstream of Bowman Lake on Jackson Creek. The dam is 28 feet high with a crest length of 772 feet and a crest elevation of 6,596.0 feet, and a drainage area of 0.70 square mile. The dam includes one low-level outlet (El. 6,570.0 ft) with a maximum design capacity of about 59 cfs at full pool; (10) **Jackson Dam Spillway**, a 50 foot long, uncontrolled, sharp-crested weir with rubble masonry training walls at a crest elevation of approximately 6,592 feet. The maximum design capacity of the spillway is 1,200 cfs; (11) **Jackson Lake**, a man-made storage reservoir formed by Jackson Dam on Jackson Creek. At normal maximum water surface elevation (6,592 ft), Jackson Lake extends 0.3-mile upstream, has a usable storage capacity of 1,330 ac-ft, a surface area of 58 acres, and a shoreline of about 1.1 miles; (12) **French Dam**, a rockfill dam with reinforced gunite and shotcrete on Canyon Creek, 1.3 miles upstream of Faucherie Lake. The dam is 70 feet high with a crest length of approximately 200 feet and a crest elevation of 6,665.5 feet, and a drainage area of 4.82 square miles. The dam includes one low-level outlet (El. 6,598.5 ft) with a maximum design capacity of about 657 cfs at full pool; (13) **French Dam Spillway**, an uncontrolled weir wall constructed of reinforced concrete. The crest of the spillway is 6,660 feet. A 100-foot long unlined rock channel carries spillway flow into the river channel. The maximum design capacity of the spillway is 4,300 cfs; (14) **French Lake**, a man-made storage reservoir on Canyon Creek formed by French Dam. At normal maximum water surface elevation (6,660.00 ft), French Lake Reservoir extends 1.3 miles upstream, has a usable storage capacity of 13,940 ac-ft, a surface area of 356 acres, and a shoreline of about 5.3 miles; (15) **Faucherie Dam**, a zoned embankment dam on Canyon Creek with sloping core and filter zones and riprap reinforcement, 1.5 miles upstream of Sawmill Lake. The dam is 65 feet high with a crest length of approximately 665 feet and a crest elevation of 6,131.0 feet, and a drainage area of 9.29 square miles. The dam includes two low-level outlets (El. 6,082.3 ft) with a combined maximum design capacity of about 289 cfs at full pool; (16) **Faucherie Dam Spillway**, an uncontrolled, 3 foot high sharp-crested concrete weir directing spillway discharge into an unlined rock channel that returns discharge to the creek downstream. The spillway is 150 feet long with a crest elevation of approximately 6,123 feet. The maximum design capacity of the spillway is 10,000 cfs; (17) **Faucherie Lake**, a man-made storage reservoir on Canyon Creek formed by Faucherie Dam. At normal maximum water surface elevation (6,123.0 ft), Faucherie Lake extends 0.4-mile upstream, has a usable storage capacity of 3,980 ac-ft, a surface area of approximately 143 acres, and a shoreline of about 2.4 miles; (18) **Sawmill Dam**, a rockfill dam on Canyon Creek, 0.8-mile upstream of Bowman Lake. The dam is 60 feet high with a crest length of approximately 384 feet and a crest elevation of 5,865.0 feet, and a drainage area of 17.0 square miles. The dam includes one low-level outlet with a maximum design capacity of about 160 cfs at full pool; (19) **Sawmill Dam Spillway**, an uncontrolled, flat slab and buttress that direct spillway discharge into an unlined rock channel that returns discharge to the creek downstream. The spillway is 230 feet long with a crest elevation of approximately 5,860.0 feet. The maximum design capacity of the spillway is 14,500 cfs at zero freeboard; (20) **Sawmill Lake**, a man-made storage reservoir on Canyon Creek formed by Sawmill Dam. At normal maximum water surface elevation (5,860.0 ft), Sawmill Lake extends 0.7-mile upstream, has a usable storage capacity of 3,030 ac-ft, a surface area of approximately 79.4 acres, and a shoreline of about 2.6 miles; (21) **Bowman North Dam**, a concrete-faced rockfill dam located on Canyon Creek, 10.3 miles upstream of its confluence with the SYR. The dam is 175 feet high with a crest length of approximately 700 feet and a crest elevation of 5,567.0 feet, and a drainage area of 28.5 square miles. The dam includes three low-level outlets (El. 5,400 ft) with a combined maximum design capacity of about 1,077 cfs at full pool; (22) **Bowman South Dam**, a constant radius arch dam constructed in nine monoliths, located on Canyon Creek. The dam is 135 feet high with a crest length of approximately 400 feet and a crest elevation of 5,563.6 feet; (23) **Bowman South Dam Spillway**, a reinforced concrete flat slab and buttress structure with 12 bays, 5 of which permit uncontrolled overflow and 7 of which are fitted with radial gates. The spillway is 175 feet long with a crest elevation of 5,563.6 feet for the 5 uncontrolled bays (85 feet in length) and 5,557.17 feet for the seven bays (90 feet in length) controlled by radial gates (144" wide by 70" high). The maximum design capacity of the combined spillway structures is 4,000 cfs at elevation 5,563 feet. In addition, the Bowman South Dam acts as an ungated, uncontrolled spillway with a maximum design capacity of 20,000 cfs; (24) **Bowman Lake**, a man-made storage reservoir on Canyon Creek formed by Bowman North and South dams. At normal maximum water surface elevation (5,562.0 ft), Bowman Lake extends 2.5 miles upstream, has a usable storage capacity of 68,510 ac-ft, a surface area of approximately 820 acres, and a shoreline of about 7.6 miles; (25) **Bowman Penstock**, a submerged, concrete encased, 60 inch-diameter penstock that diverts a maximum of 350 cfs to Bowman Powerhouse; (26) **Bowman Powerhouse**, an above-ground, indoor powerhouse constructed of reinforced concrete located near the base of Bowman North Dam, adjacent to Canyon Creek. The powerhouse consists of one horizontal Francis turbine with a nameplate rated capacity of 3.6 MW at a head of 135 feet and a flow of 313 cfs; (27) **Bowman Switchyard**, located adjacent to Bowman Powerhouse; (28) **Bowman Transmission Line**, an above-ground, 9.0-mile-long, 60 kV transmission line that connects the Bowman Powerhouse Switchyard to PG&E's Drum-Spaulding 60 kV line

approximately 1.5 miles west of PG&E's Spaulding No. 1 Powerhouse, which is part of PG&E's Drum-Spaulding Project (FERC Project No. 2310); (29) **Jackson Meadows Reservoir Recreation Area**, a recreation area that includes Findley Campground with 14 campsites, East Meadows Campground with 46 campsites, Fir Top Campground with 12 campsites Pass Creek Campground with 30 campsites, Woodcamp Campground with 20 campsites, Aspen Group Campground with a capacity for 100 people at one time (PAOT), Silvertip Group Campground with a capacity for 50 people at one time (PAOT), and Jackson Point boat-in campground with 10 sites; (30) **Faucherie Lake Recreation Area**, a recreation area that includes Faucherie Group Campground with 25 campsites, and a day use area; (31) **Bowman Campground** with 10 sites; (32) **Jackson Creek Campground** with 13 sites; and (33) all appurtenant facilities and features.

- **DUTCH FLAT DEVELOPMENT** consists of: (1) **Bowman-Spaulding Conduit** which diverts flows from Canyon Creek below Bowman Lake to Fuller Lake and Lake Spaulding (part of PG&E's Drum-Spaulding Project No. 2310) via 40,501 feet of canals and flumes and 16,192 feet of tunnels. Flow is diverted by the Bowman Spaulding Diversion Dam through a 12' wide radial head gate into the conduit. The diversion dam has a 30-inch-diameter corrugated iron pipe controlled by a 30 inch-diameter slide gate used as a low level outlet. Maximum design capacity of the conduit at the head gate is 300 cfs but increases to 325 cfs at its terminus into Fuller Lake; (2) **Texas Creek Diversion Dam**, a concrete reinforced diversion dam on Texas Creek, 0.6-mile upstream of its confluence with Canyon Creek, diverts a portion of flow into the Bowman-Spaulding Conduit. The dam has a drainage area of 5.44 square miles, is 10 feet tall with a crest length of 50 feet and a crest elevation of 5,385.75 feet.; (3) **Fall Creek Diversion Dam**, a concrete reinforced diversion dam on Fall Creek, 1.2 miles downstream of its confluence with Lake Creek, which diverts a portion of flow into the Bowman-Spaulding Conduit. The dam has a drainage area of 5.81 square miles, is 5.5 feet tall with a crest length of 74.5 feet and a crest elevation of 5,368.68 feet; (4) **Fall Creek Diversion Flume**, a 98 foot long, 14 foot-diameter steel flume that diverts water from Fall Creek Diversion Dam to the Bowman-Spaulding Conduit. Maximum design capacity of the flume is 100 cfs; (5) **Other Bowman-Spaulding Conduit Diversions**, including (in descending order) Clear Creek, Trap Creek and Rucker Creek Diversions, each of which divert their entire streamflow. These diversions consist of non-gated openings in the upstream wall or section of the Bowman-Spaulding Conduit and a slide gate (dimensions vary by diversion) in the downstream wall opposite the diversion which carries flow into the downstream channel; (6) **Dutch Flat No. 2 Conduit**, a 24,728 foot long combination of tunnel, flume, siphon and canal that diverts water from Drum Afterbay (part of PG&E's Drum-Spaulding Project) to Dutch Flat No. 2 Forebay at a maximum design capacity of 610 cfs; (7) **Dutch Flat Forebay Dam**, a zoned earthfill embankment dam located off-stream, adjacent to the Bear River, 0.4 mile north of Dutch Flat Afterbay. The dam is 77 feet high with a crest length of 440 feet and a crest elevation of 3,336.0 feet, and a drainage area of 0.1 square mile; (8) **Dutch Flat Forebay Dam Spillway**, an uncontrolled, concrete spillway 250 feet in length and a crest elevation of 3,331.75 feet. Discharge is routed through two 60 inch-diameter metal pipes down to a tributary of the Bear River. The maximum design capacity of the spillway is 5,000 cfs; (9) **Dutch Flat Forebay**, an off-stream man-made re-regulating reservoir adjacent the Bear River formed by Dutch Flat Forebay Dam. At normal maximum water surface elevation (3,331.6 feet), Dutch Flat Forebay has a usable storage capacity of 185 ac-ft, a surface area of 8 acres, and a shoreline of about 0.5-mile; (10) **Dutch Flat No. 2 Powerhouse Penstock**, a 2,100 foot-long, 8 foot-diameter, steel penstock that diverts water, at a maximum design capacity of approximately 610 cfs, from Dutch Flat Forebay to Dutch Flat No. 2 Powerhouse; (11) **Dutch Flat No. 2 Powerhouse**, an above-ground, outdoor powerhouse constructed of reinforced concrete and located adjacent to Dutch Flat Afterbay, part of the Bear River. The powerhouse consists of one vertical axis Francis turbine with a nameplate rated capacity of 24.57 MW at a flow of 600 cfs; (12) **Dutch Flat No. 2 Powerhouse Switchyard**, located adjacent to the Dutch Flat No. 2 Powerhouse; and (13) all appurtenant facilities and features.

- **CHICAGO PARK DEVELOPMENT** consists of: (1) **Dutch Flat Afterbay Dam**, a zoned embankment dam with rockfill shells located on the Bear River 6 miles upstream of its confluence with Rollins Reservoir. The dam is 165 feet high with a crest length of 495 feet and a crest elevation of 2,755.0 feet, and a drainage area of 21.2 square miles; (2) **Dutch Flat Afterbay Dam Spillway**, an uncontrolled, concrete-lined spillway 100 feet in length with a crest elevation of 2,741 feet. Discharge goes over an ogee crest and down a 405 foot-long concrete chute that discharges into the Bear River. The maximum design capacity of the spillway is 20,000 cfs; (3) **Dutch Flat Afterbay**, a man-made re-regulating reservoir located on the Bear River formed by Dutch Flat Afterbay Dam. At normal maximum water surface elevation (2,741.0 ft), Dutch Flat Afterbay Reservoir extends about 0.9-mile upstream, has a usable storage capacity of 2,037 ac-ft, a surface area of 140 acres, and a shoreline of about 1.9 miles. The dam includes two low-level outlets (El. 2,640.0 ft) with a combined maximum design capacity of about 760 cfs at full pool; (4) **Chicago Park Conduit**, which diverts water from Dutch Flat Afterbay Dam to Chicago Park Forebay via 21,700 feet of concrete flume (18 feet wide by 10 feet deep) and gunite-lined ditch (14-38 feet wide and 10 feet deep). Maximum design capacity of the conduit is 1,100 cfs; (5) **Chicago Park Forebay Dam**, an earthfill dam with gunite face located off-stream, adjacent to the Bear River approximately 0.3-mile east of the confluence of the Bear River and Steephollow Creek. The dam is 35 feet high with a crest length of 200 feet and a crest elevation of 2,720.0 feet, and no associated drainage area; (6) **Chicago Park Forebay Dam Spillway**, an uncontrolled side channel spillway 63 feet in length, with a crest elevation of 2,717.4 feet, located on the Chicago Park Conduit 0.5-mile above the Chicago Park Forebay. The maximum design capacity of the spillway is 1,100 cfs; (7) **Chicago Park Forebay**, a man-made re-regulating reservoir located adjacent to the Bear River formed by Chicago Park Forebay Dam. At normal maximum water surface elevation (2,717.3 ft), Chicago Park Forebay Reservoir has a usable storage capacity of 117 ac-ft, a surface area of 7 acres, and a shoreline of about 0.7-mile; (8) **Chicago Park Powerhouse Penstock**, an approximately 2,250 foot long 9.2-10.0 foot-diameter steel penstock that diverts water, at a maximum design capacity of approximately 1,070 cfs, from Chicago Park Forebay to Chicago Park Powerhouse; (9) **Chicago Park Powerhouse**, an above-ground, indoor powerhouse constructed of concrete and located adjacent the Bear River, approximately 800 feet southeast of the confluence of the Bear River and Steephollow Creek. The powerhouse consists of one vertical axis Francis turbine with a nameplate rated capacity of 39 MW at a head of 480 feet and a maximum flow of 1,100 cfs; (10) **Chicago Park Switchyard**, located adjacent to Chicago Park Powerhouse; and (11) all appurtenant facilities and features.

- **ROLLINS DEVELOPMENT** consists of: (1) **Rollins Dam**, a zoned embankment dam located on the Bear River approximately 12.1 river miles upstream of Combie Dam (non-project). The dam is 252.5 feet high with a crest length of 1,260 feet and a crest elevation of 2,187.5 feet, and a drainage area of 103.6 square miles. The dam includes one low-level outlet (El. 1,970.0 ft) with a maximum design capacity of about 2,008 cfs at full pool; (2) **Rollins Dam Spillway**, an uncontrolled concrete ogee crest spillway 620 feet in length, with a crest elevation of 2,171.0 feet and a maximum design capacity of 85,000 cfs; (3) **Rollins Reservoir**, a man-made storage reservoir located on the Bear River formed by Rollins Dam. At normal maximum water surface elevation (2,171.0 ft), Rollins Reservoir extends about 4.1 miles upstream, has a usable storage capacity of 65,989 ac-ft, a surface area of 825 acres, and a shoreline of about 19 miles; (4) **Rollins Powerhouse Penstock**, an approximately 484 foot-long, 8.5 foot-diameter, steel penstock encased in concrete that diverts water, at a maximum design capacity of approximately 866 cfs, from Rollins Dam to Rollins Powerhouse; (5) **Rollins Powerhouse**, an above-ground, outdoor powerhouse constructed of reinforced concrete and located at the toe of the dam. The powerhouse consists of one vertical axis Francis turbine with a nameplate rated capacity of 12.15 MW at a head of 208 feet and a maximum flow of 840 cfs; (6) **Rollins Switchyard**, located adjacent to the Rollins Powerhouse; and (7) four Project recreation facilities at Rollins Reservoir, which includes Peninsula Campground with 67 sites; Greenhorn Campground with 79 sites; Long Ravine Campground with 85 sites; and Orchard Springs Campground with 101 sites (each facility includes a boat launch); and (8) all appurtenant facilities and features.

## RELICENSING PROCESS

NID plans to file with FERC an application for new license in conformance with Title 18 of the Code of Federal Regulations, Chapter 1 (Federal Energy Regulatory Commission, Department of Energy), Subchapter B (Regulations under the Federal Power Act), Part 5 (Integrated License Application Process), commonly referred to as FERC's Integrated Licensing Process, or ILP.

For additional information regarding NID's Yuba-Bear Hydroelectric Project Relicensing, including a Relicensing Schedule, refer to NID's Yuba-Bear Hydroelectric Project Relicensing Website at [www.nid-relicensing.com](http://www.nid-relicensing.com) or contact Mr. Ron Nelson, General Manager, NID at (530) 273-3346.