

RECLAMATION

Managing Water in the West

Bureau of Reclamation - Hydropower Generation Summary

Fiscal Year 2019, Q3



Summary

The Bureau of Reclamation’s hydropower program supports Administration and Department of the Interior domestic energy security initiatives – facilitating the development of untapped hydropower potential on federal water resource projects through a number of activities, including collaborative regulatory reform; operational and technological innovation; and stakeholder outreach. Collectively, these activities derive additional value and revenue from existing public infrastructure.

This summary report identifies federal and non-federal hydropower facilities and associated generating capacity currently online or in development on Reclamation projects – and reports on incremental hydropower capability installed within the quarter, as applicable.

Incremental Hydropower Capability

The Department of the Interior has identified incremental hydropower capability as a key performance indicator in the Fiscal Year (FY) 2018-2022 Strategic Plan.¹ Incremental capability performance is reported in megawatts (MW) – consisting of MW derived from generator uprates and non-federal development;² and MW equivalents derived from turbine replacements and optimization installations, calculated by multiplying the resulting efficiency improvement by the MW capacity of the affected unit(s).

Annual targets have been established for incremental hydropower capability performance, representing *cumulative* MW totals:

Performance Year	Annual Target
FY2018	10 MW of incremental hydropower capability added in FY2018.
FY2019	20 MW of cumulative capability added in FY2018 through FY2019.
FY2020	30 MW of cumulative capability added in FY2018 through FY2020.
FY2021	40 MW of cumulative capability added in FY2018 through FY2021.
FY2022	50 MW of cumulative capability added in FY2018 through FY2020.

¹ Available at: <https://www.doi.gov/sites/doi.gov/files/uploads/fy2018-2022-strategic-plan.pdf>.

² Non-federal hydropower developed on Reclamation projects in accordance with a Federal Energy Regulatory Commission (FERC) License or Reclamation Lease of Power Privilege. For additional information see: <https://www.usbr.gov/power/LOPP>.

Within FY2019 Q3, an additional **7.01 MW** of incremental hydropower capability was installed at Reclamation projects – resulting from non-federal development at the Great Plains Pueblo Dam authorized via a Reclamation Lease of Power Privilege (LOPP), completed in May 2019.

As of FY2019 Q3, a cumulative total of **43.80 MW** of incremental hydropower capability has been installed at Reclamation projects since FY2018, surpassing the FY2019 20 MW target.

Region	Facility	Activity	Completion Date	Incremental Capability (MW)
Upper Colorado	Glen Canyon Control Center	HydrOS Installation	October 2017	17.31
Great Plains	Casper Control Center	HydrOS Installation	January 2018	6.73
Great Plains	Yellowtail - Unit 1	Generator Uprate	July 2018	9.40
Pacific Northwest	Palisades - Unit 2	Turbine Runner Replacement	April 2018	1.92
Upper Colorado	Olmsted	Generator Uprate	July 2018	1.43
Great Plains	Pueblo Dam	LOPP	May 2019	7.01
Total				43.80

Reclamation Hydropower Summary

Summary tables identify federal (reserved and transferred works³) and non-federal hydropower facilities and associated generating capacity currently online or in development on Reclamation projects. Quarterly table updates, if any, are noted. Facility details are provided in attached Appendix – Regional Hydropower Generating Capacity Portfolios. Note that table components may not sum to totals due to rounding.

Online Hydropower Facilities

Table updates for this quarter are as follows: The Great Plains Pueblo Dam LOPP facility came online in May 2019. The site has been moved from the *In Development – Conventional Hydropower (LOPP) Contract* statistic to the *Online – LOPP Facilities* statistic.

³ For the purposes of this summary, reserved works (“Reserved”) are those power facilities owned by Reclamation wherein Reclamation has retained responsibility for carrying out facility operation and maintenance activities. Transferred works (“Transferred”) are those power facilities owned by Reclamation wherein Reclamation has transferred responsibility for carrying out facility operation and maintenance activities to a non-federal entity under the provisions of a formal operations and maintenance transfer contract.

Bureau of Reclamation - Hydropower Generation Summary (FY 2019 Q3)

	Great Plains		Lower Colorado		Mid-Pacific		Pacific Northwest		Upper Colorado		Bureau of Reclamation	
	#	MW	#	MW	#	MW	#	MW	#	MW	#	MW
Reserved	21	1023	3	2454	10	1910	10	7537	9	1816	53	14740
Transferred	-	-	11	300	3	452	-	-	10	42	24	794
Other ⁴	-	-	6	82	-	-	-	-	-	-	6	82
FERC Facilities	6	29	-	-	13	60	27	326	5	50	51	466
LOPP Facilities	3	11	-	-	1	1	-	-	10 ⁵	41	14	53
Total	30	1063	20	2836	27	2423	37	7863	34	1949	148	16134

In Development – Conventional Hydropower (FERC)

No table updates for this quarter.

	Great Plains		Lower Colorado		Mid-Pacific		Pacific Northwest		Upper Colorado		Bureau of Reclamation	
	#	MW	#	MW	#	MW	#	MW	#	MW	#	MW
License	2	20	-	-	1	7	1	3	-	-	4	30
Exemption	1	1	-	-	-	-	4	2	-	-	5	3
Preliminary Permit	2	2	-	-	2	5	8	21	-	-	12	28
Total	5	23	-	-	3	12	13	26	-	-	21	61

In Development – Conventional Hydropower (LOPP)

Table updates for this quarter are as follows: The Great Plains Pueblo Dam LOPP facility came online in May 2019. The site has been moved from the *In Development – Conventional Hydropower (LOPP) Contract* statistic to the *Online – LOPP Facilities* statistic.

	Great Plains		Lower Colorado		Mid-Pacific		Pacific Northwest		Upper Colorado		Bureau of Reclamation	
	#	MW	#	MW	#	MW	#	MW	#	MW	#	W
Contract	-	-	-	-	-	-	-	-	-	-	-	-
Preliminary Lease	1	9	-	-	-	-	-	-	-	-	1	9
Posted Solicitation	-	-	-	-	-	-	12	6	1	0.03	13	6
Request for Development	1	3	-	-	-	-	-	-	1	0.4	2	3
Total	2	12	-	-	-	-	12	6	2	0.4	16	18

⁴ For the purposes of this update, “Other” refers to those non-federal power facilities developed on Reclamation projects authorized via means other than a FERC License or LOPP.

⁵ Reclamation holds title to the Upper Colorado Grand Valley power facility LOPP.

In Development – Pump Storage (PS) (FERC and LOPP)

Non-federal pump storage development at Reclamation projects may require both a FERC License and Reclamation LOPP if the proposed project utilizes a Reclamation reservoir within Reclamation’s permitting jurisdiction and any second reservoir outside Reclamation’s permitting jurisdiction (i.e., FERC jurisdiction), as defined by the 1992 Memorandum of Understanding between Reclamation and FERC.⁶ Additional information regarding non-federal pump storage development and split jurisdiction is available on the LOPP website.⁷

Projects subject to dual FERC/LOPP jurisdiction are identified as *Dual LOPP/FERC PS* projects in the table below.

No table updates for this quarter.

	Great Plains		Lower Colorado		Mid-Pacific		Pacific Northwest		Upper Colorado		Bureau of Reclamation	
	#	MW	#	MW	#	MW	#	MW	#	MW	#	MW
FERC PS												
License	-	-	-	-	-	-	-	-	-	-	-	-
Preliminary Permit	2	1732	1	2000	1	1250	2	1200	1	345 ⁸	7	6527
LOPP PS												
Contract	-	-	-	-	-	-	-	-	-	-	-	-
Preliminary Lease	-	-	-	-	-	-	-	-	-	-	-	-
Dual LOPP/FERC PS⁹												
Preliminary Permit	1	133	-	-	-	-	2	900	1	750	4	1783
Preliminary Lease	-	-	-	-	-	-	-	-	-	-	-	-
Preliminary Lease and Permit	-	-	-	-	-	-	-	-	-	-	-	-
Total	3	1865	1	2000	1	1250	4	2100	2	1095	11	8310

⁶ Available at: <https://www.usbr.gov/recman/fac/fac04-08-AppA.pdf>.

⁷ Available at: <https://www.usbr.gov/power/LOPP>.

⁸ The proposed Lake Powell Pipeline Project (Upper Colorado) comprises 345.4 MW of capacity (45.4 MW conventional and 300 MW pump storage) – project capacity (in entirety) is shown in summary table.

⁹ The proposed Seminole Pumped Storage Project (Great Plains), Anderson Ranch Pumped Storage Project (Pacific Northwest), Banks Lake (Pacific Northwest), and Ute Pumped Storage Project (Upper Colorado) have each received a FERC Preliminary Permit for upper reservoir development, however no project has received a Reclamation Preliminary Lease or LOPP Contract for lower reservoir development.

Appendix – Regional Hydropower Generating Capacity Portfolios

Regional Hydropower Generating Capacity Portfolios

Project updates noted in italics (e.g. new projects, capacity updates, or permitting status updates from previous reported quarter).

Projects terminated within the reported quarter(s) are noted in strikethrough.

Region	State	Facility	Status	Permitting Status	Hydropower Type	FERC Project Docket	Reclamation Area Office	Operating Entity	Capacity (MW)
Reclamation Reserved Works									
GP	WY	Alcova	Online		Conventional		Wyoming	Reclamation	41.40
	CO	Big Thompson	Online		Conventional		Eastern Colorado	Reclamation	4.50
	WY	Boysen	Online		Conventional		Wyoming	Reclamation	15.00
	WY	Buffalo Bill	Online		Conventional		Wyoming	Reclamation	18.00
	MT	Canyon Ferry	Online		Conventional		Montana	Reclamation	50.00
	CO	Estes	Online		Conventional		Eastern Colorado	Reclamation	45.00
	CO	Flatiron	Online		Conventional/Pump Storage		Eastern Colorado	Reclamation	94.50
	WY	Fremont Canyon	Online		Conventional		Wyoming	Reclamation	66.80
	WY	Glendo	Online		Conventional		Wyoming	Reclamation	38.00
	CO	Green Mountain	Online		Conventional		Eastern Colorado	Reclamation	26.00
	WY	Guernsey	Online		Conventional		Wyoming	Reclamation	6.40
	WY	Heart Mountain	Online		Conventional		Wyoming	Reclamation	5.00
	WY	Kortes	Online		Conventional		Wyoming	Reclamation	36.00
	CO	Marys Lake	Online		Conventional		Eastern Colorado	Reclamation	8.10
	CO	Mt. Elbert PS	Online		Pump Storage		Eastern Colorado	Reclamation	200.00
	WY	Pilot Butte	Online		Conventional		Wyoming	Reclamation	1.60
	CO	Pole Hill	Online		Conventional		Eastern Colorado	Reclamation	38.24
	WY	Seminole	Online		Conventional		Wyoming	Reclamation	51.75
	WY	Shoshone	Online		Conventional		Wyoming	Reclamation	3.00
	WY	Spirit Mountain	Online		Conventional		Wyoming	Reclamation	4.50
MT	Yellowtail	Online		Conventional		Montana	Reclamation	268.75	
LC	AZ	Davis	Online		Conventional		Lower Colorado	Reclamation	255.00
	AZ/NV	Hoover	Online		Conventional		Lower Colorado	Reclamation	2,078.80
	AZ	Parker	Online		Conventional		Lower Colorado	Reclamation	120.00
MP	CA	Folsom	Online		Conventional		Central California	Reclamation	207.00
	CA	Judge Francis Carr	Online		Conventional		Northern California	Reclamation	154.40
	CA	Keswick	Online		Conventional		Northern California	Reclamation	117.00
	CA	Lewiston	Online		Conventional		Northern California	Reclamation	0.35
	CA	New Melones	Online		Conventional		Central California	Reclamation	380.00
	CA	Nimbus	Online		Conventional		Central California	Reclamation	13.50
	CA	Shasta	Online		Conventional		Northern California	Reclamation	714.00
	CA	Spring Creek	Online		Conventional		Northern California	Reclamation	180.00
	CA	Stampede	Online		Conventional		Lahontan Basin	Reclamation	3.65
CA	Trinity	Online		Conventional		Northern California	Reclamation	140.00	
PN	ID	Anderson Ranch	Online		Conventional		Snake River	Reclamation	40.00
	ID	Black Canyon	Online		Conventional		Snake River	Reclamation	10.20
	ID	Boise River Diversion	Online		Conventional		Snake River	Reclamation	3.45
	WA	Chandler	Online		Conventional		Columbia Cascades	Reclamation	12.00
	WA	Grand Coulee	Online		Conventional/Pump Storage		Columbia Cascades	Reclamation	6,809.00
	OR	Green Springs	Online		Conventional		Columbia Cascades	Reclamation	17.29
	MT	Hungry Horse	Online		Conventional		Columbia Cascades	Reclamation	428.00
	ID	Minidoka	Online		Conventional		Snake River	Reclamation	27.70
	ID	Palisades	Online		Conventional		Snake River	Reclamation	176.56
WA	Roza	Online		Conventional		Columbia Cascades	Reclamation	12.94	
UC	CO	Blue Mesa	Online		Conventional		UC Power Office	Reclamation	86.40
	CO	Crystal	Online		Conventional		UC Power Office	Reclamation	31.50
	NM	Elephant Butte	Online		Conventional		UC Power Office	Reclamation	27.95
	UT	Flaming Gorge	Online		Conventional		UC Power Office	Reclamation	151.50
	WY	Fontenelle	Online		Conventional		UC Power Office	Reclamation	10.00
	AZ	Glen Canyon	Online		Conventional		UC Power Office	Reclamation	1,320.00

Regional Hydropower Generating Capacity Portfolios

Project updates noted in italics (e.g. new projects, capacity updates, or permitting status updates from previous reported quarter).

Projects terminated within the reported quarter(s) are noted in strikethrough.

Region	State	Facility	Status	Permitting Status	Hydropower Type	FERC Project Docket	Reclamation Area Office	Operating Entity	Capacity (MW)
	CO	Lower Molina	Online		Conventional		UC Power Office	Reclamation	5.59
	CO	Morrow Point	Online		Conventional		UC Power Office	Reclamation	173.33
	CO	Upper Molina	Online		Conventional		UC Power Office	Reclamation	9.94

Reclamation Transferred Works

LC	AZ	Arizona Falls Powerplant	Online		Conventional		Phoenix	Salt River Valley Water User's Association	0.75
	AZ	C.C. Craigin Dam and Powerplant	Online		Conventional	2304	Phoenix	Salt River Project	3.00
	AZ	Cross Cut Powerplant	Online		Conventional		Phoenix	Salt River Valley Water User's Association	3.00
	AZ	Horse Mesa Powerplant	Online		Conventional/Pump Storage		Phoenix	Salt River Valley Water User's Association	129.00
	AZ	Mormon Flat Powerplant	Online		Conventional/Pump Storage		Phoenix	Salt River Valley Water User's Association	60.00
	AZ	New Waddell Pump/Generating Plant	Online		Pump Storage		Phoenix	Central Arizona Water Conservation District	45.00
	CA	Senator Wash Pump/Generating Plant	Online		Pump Storage		Yuma	Imperial Irrigation District	7.20
	AZ	Siphon Drop Powerplant	Online		Conventional		Yuma	Yuma County Water User's Association	4.60
	AZ	South Consolidated Powerplant	Online		Conventional		Phoenix	Salt River Valley Water User's Association	1.40
	AZ	Stewart Mountain Powerplant	Online		Conventional		Phoenix	Salt River Valley Water User's Association	10.40
AZ	Theodore Roosevelt Powerplant	Online		Conventional		Phoenix	Salt River Valley Water User's Association	36.02	
MP	NV	Lahontan Powerplant	Online		Conventional		Lahontan Basin	Truckee-Carson Irrigation District	2.40
	CA	San Luis Pumping-Generating Plant	Online		Pump Storage		South Central California	California Department of Water Resources	424.00
	CA	O'Neill Pumping-Generating Plant	Online		Pump Storage		South Central California	San Luis Delta-Mendota Water Authority	25.20
UC	UT	Causey Powerplant	Online		Conventional		Provo	Weber Basin Water Conservancy District	1.90
	UT	Gateway Powerplant	Online		Conventional		Provo	Weber Basin Water Conservancy District	4.28
	UT	Lower Spanish Fork Powerplant	Online		Conventional		Provo	Strawberry Water User's Association	0.25
	UT	Olmsted Powerplant	Online		Conventional		Provo	Central Utah Water Conservancy District	11.73
	UT	Payson Powerplant	Online		Conventional		Provo	Strawberry Water User's Association	0.40
	UT	Upper Spanish Fork	Online		Conventional		Provo	Strawberry Water User's Association	3.90
	UT	Wanship Powerplant	Online		Conventional		Provo	Weber Basin Water Conservancy District	1.90
	UT	Deer Creek Powerplant	Online		Conventional		Provo	Provo River Water Users Association	4.95
	CO	McPhee Powerplant	Online		Conventional		Western Colorado	Dolores Water Conservancy District	1.28
	CO	Towaoc Powerplant	Online		Conventional		Western Colorado	Dolores Water Conservancy District	11.50

Other Non-Federal Facilities Operating on Reclamation Projects

LC	AZ	Drop Five Powerplant	Online		Conventional		Yuma	Imperial Irrigation District	4.00
	AZ	Drop Four Powerplant	Online		Conventional		Yuma	Imperial Irrigation District	19.60
	AZ	Drop One Powerplant	Online		Conventional		Yuma	Imperial Irrigation District	6.00
	AZ	Drop Three Powerplant	Online		Conventional		Yuma	Imperial Irrigation District	9.80
	AZ	Drop Two Powerplant	Online		Conventional		Yuma	Imperial Irrigation District	10.00
	AZ	Pilot Knob Powerplant	Online		Conventional		Yuma	Imperial Irrigation District	33.00

Federal Energy Regulatory Commission (FERC)

GP	WY	Garland Canal	Online		Conventional	3031	Wyoming	Shoshone Irrigation District	2.61
	MT	Lower Turnbull Drop	Online		Conventional	12597	Montana	Turnbull Hydro, LLC	7.70
	CO	Ruedi Dam	Online		Conventional	3603	Western Colorado	City of Aspen	3.20
	CO	Sugarloaf Dam	Online		Conventional	3819	Eastern Colorado	STS Hydropower Ltd.	2.80
	MO	Tiber Dam	Online		Conventional	3574	Montana	Tiber Montana, LLC	7.50
	MT	Upper Turnbull Drop	Online		Conventional	12598	Montana	Turnbull Hydro, LLC	5.30
MP	OR	East Side	Online		Conventional	2082	Klamath Basin	Scottish Power (PacifiCorp)	3.20
	CA	Friant Fishwater Release	Online		Conventional	11068	South Central California	Orange County Irrigation District	0.51
	CA	Friant Power	Online		Conventional	2892	South Central California	Friant Power Authority	27.36

Regional Hydropower Generating Capacity Portfolios

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Projects terminated within the reported quarter(s) are noted in ~~strikethrough~~.

Region	State	Facility	Status	Permitting Status	Hydropower Type	FERC Project Docket	Reclamation Area Office	Operating Entity	Capacity (MW)
	CA	High Line Canal	Online		Conventional	7252	Northern California	Santa Clara	0.53
	CA	Madera Canal	Online		Conventional	5765	South Central California	Madera-Chowchilla Water and Power Authority	0.44
	CA	Madera Canal Water Power STA 1174+84	Online		Conventional	2958	South Central California	Madera-Chowchilla Water and Power Authority	0.56
	CA	Madera Canal Water Power STA 1923+10	Online		Conventional	2958	South Central California	Madera-Chowchilla Water and Power Authority	0.92
	CA	Madera Canal Water Power STA 980+65	Online		Conventional	2958	South Central California	Madera-Chowchilla Water and Power Authority	2.13
	CA	Monticello	Online		Conventional	2780	Central California	Solano Irrigation District	11.50
	NV	New Lahontan	Online		Conventional	7828	Lahontan Basin	Truckee-Carson Irrigation District	4.00
	CA	Stony Gorge Hydroelectric	Online		Conventional	3193	Northern California	Santa Clara, City of	4.90
	OR	West Side	Online		Conventional	2082	Klamath Basin	Scottish Power (PacifiCorp)	0.60
	CA	Whiskey Dam Power Project	Online		Conventional	2888	Northern California	City of Redding	3.53
PN	OR	45-Mile	Online		Conventional	13817	Columbia Cascades	Apple, Inc.	5.00
	ID	American Falls	Online		Conventional	2736	Snake River	Idaho Power Co	92.40
	ID	Arrowrock Dam	Online		Conventional	4656	Snake River	Boise-Kuna Irrigation District, Nampa and Meridian Irrigation District, New York Irrigation District, Wilder Irrigation District, and Big Bend Irrigation District	15.00
	ID	Cascade	Online		Conventional	2848	Snake River	Idaho Power Company	12.42
	WA	Cowiche	Online		Conventional	7337	Columbia Cascades	Yakima-Tieton Irrigation District	1.47
	ID	Dietrich Drop	Online		Conventional	8909	Snake River	Big Wood Canal Company	4.77
	WA	Eltopia Branch Canal	Online		Conventional	3842	Columbia Cascades	Columbia Basin Hydropower	2.20
	WA	Esquatzel Power	Online		Conventional	12638	Columbia Cascades	Green Energy Today, LLC	0.90
	ID	Fargo Drop No. 1	Online		Conventional	5042	Snake River	Boise Project Board of Control	1.10
	ID	Felt Hydro	Online		Conventional	5089	Snake River	Fall River Rural Cooperative	7.45
	ID	Island Park	Online		Conventional	2973	Snake River	Fall River Rural Electric	4.80
	ID	Little Wood Reservoir	Online		Conventional	7427	Snake River	Little Wood Irrigation District	3.00
	ID	Low Line No. 8 Arena Drop	Online		Conventional	5056	Snake River	Boise Project Board of Control	0.39
	WA	Main Canal Headworks	Online		Conventional	2849	Columbia Cascades	Columbia Basin Hydropower	26.00
	ID	Mile 28	Online		Conventional	10552	Snake River	Contractor's Power Group	1.50
	OR	Mitchell Butte Lateral	Online		Conventional	5357	Snake River	Owyhee Irrigation District	1.88
	OR	Monroe Drop	Online		Conventional	14430	Columbia Cascades	Apple, Inc.	0.30
	ID	Mora Drop Hydro	Online		Conventional	3403	Snake River	Boise-Kuna Irrigation District, Nampa and Meridian Irrigation District, New York Irrigation District, Wilder Irrigation District, Big Bend Irrigation District, and Boise Project Board of Control	1.90
	WA	Orchard Avenue	Online		Conventional	7338	Columbia Cascades	Yakima-Tieton Irrigation District Gem Irrigation District, Owyhee Irrigation District, and Ridgeview Irrigation District	1.44
	OR	Owyhee Dam	Online		Conventional	4354	Snake River	Owyhee Irrigation District and Hydro	4.34
	OR	Owyhee Tunnel No. 1	Online		Conventional	4359	Snake River	Owyhee Irrigation District and Hydro	8.12
	WA	Potholes East Canal	Online		Conventional	3843	Snake River	Columbia Basin Hydropower	2.40
	WA	Potholes East Canal Headworks	Online		Conventional	2840	Columbia Cascades	Columbia Basin Hydropower	6.50
	WA	Quincy Chute	Online		Conventional	2937	Columbia Cascades	Columbia Basin Hydropower	9.37
	WA	Russel D Smith Pec 22.7	Online		Conventional	2926	Columbia Cascades	Columbia Basin Hydropower	6.10
	WA	Summer Falls	Online		Conventional	3295	Columbia Cascades	Columbia Basin Hydropower	92.00
	WA	Tieton Dam	Online		Conventional	3701	Columbia Cascades	Yakima-Tieton Irrigation District	13.60
UC	UT	Echo Dam	Online		Conventional	3755	Provo	City of Bountiful	4.50
	NM	El Vado Dam	Online		Conventional	5226	Albuquerque	County of Los Alamos	8.00
	NM	Navajo Dam	Online		Conventional	4720	Western Colorado	City of Farmington	30.00
	UT	Pineview Dam	Online		Conventional	4597	Provo	Weber-Box Elder Conservancy District	1.80
	CO	Vallecito Dam	Online		Conventional	3174	Western Colorado	Ptarmigan Resources and Energy, Inc.	5.88
GP	MT	Mary Taylor Drop	In Development	Exemption	Conventional	14294	Montana	Turnbull Hydro, LLC	0.89
	MT	Clark Canyon Dam	In Development	License	Conventional	14677	Montana	Clark Canyon Hydro, LLC	4.70
	MT	Gibson Dam	In Development	License	Conventional	12478	Montana	Gibson Dam Hydroelectric Company, LLC.	15.00
	MT	Fresno Dam	In Development	Preliminary Permit	Conventional	14751	Milk River Project	Alpine Pacific Utilities Hydro, LLC	1.35
	NE	Medicine Creek Dam	In Development	Preliminary Permit	Conventional	13648	Nebraska-Kansas	Twin Valleys Public Power District	0.80

Regional Hydropower Generating Capacity Portfolios

Project updates noted in italics (e.g. new projects, capacity updates, or permitting status updates from previous reported quarter).

Projects terminated within the reported quarter(s) are noted in strikethrough.

Region	State	Facility	Status	Permitting Status	Hydropower Type	FERC Project Docket	Reclamation Area Office	Operating Entity	Capacity (MW)
	WY	Black Canyon Pumped Storage Project	In Development	Preliminary Permit	Pump Storage	14087	Wyoming	Black Canyon Hydro, LLC	700.00
	MT	Square Butte Pumped Storage	In Development	Preliminary Permit	Pump Storage	13349	Montana	Square Butte Hydro, LLC	1,032.00
LC	AZ	Big Chino Valley Pumped Storage Project	In Development	Preliminary Permit	Pump Storage	14859	Regional Office	Big Chino Valley Pumped Storage, LLC	2,000.00
MP	CA	Friant Fishwater Release	In Development	License	Conventional	11068	South Central California	Orange County Irrigation District	7.00
	CA	Boca	In Development	Preliminary Permit	Conventional	14728	Lahontan Basin	Pyramid Lake Paiute Tribe	1.40
	CA	Prosser Creek	In Development	Preliminary Permit	Conventional	14726	Lahontan Basin	Pyramid Lake Paiute Tribe	3.45
	OR	Bryant Mountain (Pumped Storage)	In Development	Preliminary Permit	Pump Storage	13680	Klamath Basin	Bryant Mountain, LLC	1,250.00
PN	ID	Fargo Drop No. 2	In Development	Exemption	Conventional	5040	Snake River	Boise Project Board of Control	0.18
	ID	Main Canal No. 10	In Development	Exemption	Conventional	5041	Snake River	Boise Project Board of Control	0.50
	ID	Main Canal No. 6	In Development	Exemption	Conventional	5038	Snake River	Boise Project Board of Control	1.06
	ID	Waldvogel Bluff	In Development	Exemption	Conventional	5043	Snake River	Boise Project Board of Control	0.30
	ID	Mason Dam Hydro	In Development	License	Conventional	12686	Snake River	Baker County	3.40
	WA	16.4 Wasteway	In Development	Preliminary Permit	Conventional	14349	Columbia Cascades	Columbia Basin Hydropower	1.75
	WA	46A Wasteway	In Development	Preliminary Permit	Conventional	14351	Columbia Cascades	Columbia Basin Hydropower	1.60
	WA	McKay Dam	In Development	Preliminary Permit	Conventional	14546	Columbia Cascades	Houtama Hydropower, LLC	2.30
	WA	PEC 1973 Drop	In Development	Preliminary Permit	Conventional	14316	Columbia Cascades	Columbia Basin Hydropower	2.20
	WA	Pinto Dam	In Development	Preliminary Permit	Conventional	14380	Columbia Cascades	Columbia Basin Hydropower	3.40
	WA	Scootney Inlet Drop	In Development	Preliminary Permit	Conventional	14318	Columbia Cascades	Columbia Basin Hydropower	1.70
	OR	Unity Dam by Warm Springs Hydro	In Development	Preliminary Permit	Conventional	14576	Snake River	Warm Springs Hydro, LLC	0.80
	WA	Wickiup Dam Hydro	In Development	Preliminary Permit	Conventional	12965	Columbia Cascades	Symbiotics	7.15
	WA	Banks Lake Pumped Storage Project	In Development	Preliminary Permit	Pump Storage	14329	Columbia Cascades	Columbia Basin Hydropower	1,000.00
	OR	Prineville Pump Storage Project	In Development	Preliminary Permit	Pump Storage	14453	Columbia Cascades	Prineville Energy Storage, LLC	200.00
UC	UT	Lake Powell Pipeline	In Development	Preliminary Permit	Conventional/Pump Storage	12966	Power Office	State of Utah	345.40
Lease of Power Privilege									
GP	CO	Carter Lake Outlet	Online		Conventional		Eastern Colorado	Northern Water Conservancy District	2.60
	CO	<i>Pueblo Dam</i>	<i>Online</i>		<i>Conventional</i>	<i>LP11-4</i>	<i>Eastern Colorado</i>	<i>Southeastern Colorado Water Conservancy District</i>	<i>7.01</i>
		<i>The Pueblo Dam facility commenced commercial operations in May 2019.</i>							
	CO	Granby Dam	Online		Conventional	LP11-3	Eastern Colorado	Northern Water Conservancy District	1.20
MP	OR	Klamath Canal Drop C	Online		Conventional		Klamath Basin	Klamath Irrigation District	0.90
UC	CO	Grand Valley Project	Online		Conventional		Western Colorado	Grand Valley Water Users Association and the Orchard Mesa Irrigation District	3.00
	CO	Jackson Gulch Dam	Online		Conventional		Western Colorado	Mancos Water Conservancy District	0.26
	UT	Jordanella Dam	Online		Conventional		Provo	Central Utah Water Conservancy District and Heber Light and Power	13.00
	CO	Lemon Dam	Online		Conventional		Western Colorado	Florida Water Conservancy District	0.12
	CO	Ridgway Dam	Online		Conventional		Western Colorado	Tri-County Water Conservancy District	7.00
	CO	Shavano Falls (Drop 6)	Online		Conventional		Western Colorado	Uncompahgre Valley Water Users Association	2.80
	CO	South Canal (Drop 1)	Online		Conventional		Western Colorado	Uncompahgre Valley Water Users and the Delta-Montrose Electric Association	4.00
	CO	South Canal (Drop 3)	Online		Conventional		Western Colorado	Uncompahgre Valley Water Users and the Delta-Montrose Electric Association	3.50
	CO	South Canal (Drop 4)	Online		Conventional		Western Colorado	Uncompahgre Valley Water Users Association	4.80
	CO	South Canal (Drop 5)	Online		Conventional		Western Colorado	Uncompahgre Valley Water Users Association	2.40
GP	MT	Yellowtail Afterbay	In Development	Preliminary Lease	Conventional		Montana	Crow Tribe	9.00
	MT	Arnold Coulee Drop	In Development	Request for Development	Conventional		Montana	TBD (project initiated by Alpine Pacific Utilities, LLC)	2.50
PN	OR	North Unit (50 East)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.13
	OR	North Unit (50 West)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.14
	OR	North Unit (52 North)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.13
	OR	North Unit (52 South)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.13

Regional Hydropower Generating Capacity Portfolios

Project updates noted in italics (e.g. new projects, capacity updates, or permitting status updates from previous reported quarter).

Projects terminated within the reported quarter(s) are noted in strikethrough.

Region	State	Facility	Status	Permitting Status	Hydropower Type	FERC Project Docket	Reclamation Area Office	Operating Entity	Capacity (MW)
	OR	North Unit (Mile 18)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.80
	OR	North Unit (Mile 19)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.49
	OR	North Unit (Mile 2 North)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.72
	OR	North Unit (Mile 20)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.66
	OR	North Unit (Mile 3)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.79
	OR	North Unit (Mile 43)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.91
	OR	North Unit (Mile 48)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.13
	OR	North Unit Canal (Mile 2 South)	In Development	Public Solicitation Posted	Conventional		Columbia Cascades	TBD (project initiated by Kinet Inc.)	0.72
UC	CO	Mancos Project Outlet Canal	In Development	Request for Development	Conventional		Western Colorado	Mancos Water Conservancy District	0.42
	CO	Silver Jack Dam Project	In Development	Public Solicitation Posted	Conventional	LP18-1	Western Colorado	TBD (project initiated by Bostwick Park Water Conservancy District)	0.03

Dual Federal Energy Regulatory Commission and Lease of Power Privilege - Pumped Storage

GP	WY	Seminole Pumped Storage Project	In Development	FERC Preliminary Permit	Pump Storage	14787	Wyoming	Black Canyon Hydro, LLC	133.30
PN	ID	Anderson Ranch*	In Development	FERC Preliminary Permit	Pump Storage	14655	Columbia Cascades	Cat Creek Energy, LLC	400.00
	ID	Anderson Ranch*	In Development	Public Solicitation Posted	Pump Storage		Columbia Cascades	Cat Creek Energy, LLC	400.00
	WA	Banks Lake Project	In Development	FERC Preliminary Permit	Pump Storage	14329	Columbia Cascades	Columbia Basin Hydropower	500.00
UC	UT	Ute Pumped Storage	In Development	FERC Preliminary Permit	Pump Storage	14742	Provo	Ute Tribe	750.00

* Permitting tracks for the same Anderson Ranch pumped storage project