

# RECLAMATION

*Managing Water in the West*

## **Bureau of Reclamation Renewable Energy Update**

**Fiscal Year 2016, Q3**



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## Executive Summary

The Bureau of Reclamation Renewable Energy Update identifies federal and non-federal renewable energy projects currently online or in development on Reclamation land, facilities, and water bodies and highlights current Reclamation renewable activities. The update provides Reclamation-wide and regional summaries, renewable energy portfolios, and project updates as well as a listing of WaterSMART Grant projects that feature a renewable energy component.

The quarterly update is a compilation of monthly updates submitted by regional offices, with input received from area offices. Reclamation personnel, including Daniel Vallejo, Rick Clayton, Robert Ross, Dale Lentz, and James Stauffer were instrumental in developing this document.

## Renewable Activities

### Department of Energy *Hydropower Vision Report*

The Department of Energy's Wind and Water Power Technologies Office has released the *Hydropower Vision Report*, evaluating "future pathways for low-carbon, renewable hydropower, focused on continued technical evolution, increased energy market value, and environmental sustainability."

The Report was developed in collaboration with stakeholders groups, including Reclamation and fellow Interior resource agencies, industry, environmental organizations, research institutions and laboratories, and many others.

The Report find that "with continued technology advancements, innovative market mechanisms, and a focus on environmental sustainability, U.S. hydropower could grow from its current 101 gigawatts to nearly 150 GW of combined electricity generating and storage capacity by 2050."

The full Report is available on the Department of Energy's Website: <http://energy.gov/eere/water/water-power-program>.

# Reclamation Renewable Energy Summary

Online Hydropower Facilities	GP		LC		MP		PN		UC		USBR	
	#	MW	#	MW	#	MW	#	MW	#	MW	#	MW
Reserved Facilities	21	1013	3	2454	10	1910	10	7537	9	1816	53	14730
Transferred Facilities <sup>1</sup>	0	0	10	297	3	452	0	0	10	41	23	790
Other Plants on USBR Facilities	0	0	7	85	0	0	0	0	0	0	7	85
FERC Facilities <sup>2</sup>	7	29	0	0	13	60	27	326	5	50	52	466
LOPP Facilities <sup>3</sup>	2	4	0	0	1	1	0	0	9	38	12	43
<b>Total</b>	<b>30</b>	<b>1046</b>	<b>20</b>	<b>2836</b>	<b>27</b>	<b>2423</b>	<b>37</b>	<b>7863</b>	<b>33</b>	<b>1945</b>	<b>147</b>	<b>16114</b>

In Development FERC Facilities	GP		LC		MP		PN		UC		USBR	
	#	MW	#	MW	#	MW	#	MW	#	MW	#	MW
Licenses	1	15	0	0	1	7	0	0	0	0	2	22
Exemptions	1	1	0	0	0	0	4	2	0	0	5	3
Preliminary Permits (C) <sup>4</sup>	5	10	0	0	0	0	9	24	0	0	14	34
Preliminary Permits (PS) <sup>5</sup>	3	2132	4	3645	1	1250	2	1200	2	800	12	9027
<b>Total</b>	<b>10</b>	<b>2158</b>	<b>4</b>	<b>3645</b>	<b>2</b>	<b>1257</b>	<b>15</b>	<b>1226</b>	<b>2</b>	<b>800</b>	<b>33</b>	<b>9086</b>

In Development LOPP Facilities	GP		LC		MP		PN		UC		USBR	
	#	MW	#	MW	#	MW	#	MW	#	MW	#	MW
Contracts	0	0	0	0	0	0	0	0	2	3	2	3
Preliminary Leases	3	21	0	0	0	0	0	0	1	8	4	29
Posted Solicitations (C)	0	0	0	0	0	0	0	0	1	0.1	1	0.1
Posted Solicitations (PS)	0	0	0	0	0	0	1	TBD <sup>6</sup>	0	0	1	TBD
Requests for Development	3	3	2	3	2	0.4	0	0	3	13	10	19
<b>Total</b>	<b>6</b>	<b>24</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>0.4</b>	<b>1</b>	<b>TBD</b>	<b>7</b>	<b>24</b>	<b>18</b>	<b>51+</b>

<sup>1</sup> Power from five of the 23 plants is marketed by the Western Area Power Administration (Western): Deer Creek, Towaoc, McPhee, O'Neill, and San Luis.

<sup>2</sup> Non-federal hydropower facilities developed on Reclamation infrastructure, licensed by the Federal Energy Regulatory Commission (FERC).

<sup>3</sup> Non-federal hydropower facilities developed on Reclamation infrastructure, authorized through a Lease of Power Privilege (LOPP) Contract. Reclamation holds title to the Grand Valley Powerplant LOPP.

<sup>4</sup> Conventional hydropower facilities.

<sup>5</sup> Pump storage hydropower facilities.

<sup>6</sup> Capacity to be determined by successful project proposal.

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In Progress Capital Improvements	GP	LC	MP	PN	UC	USBR
Generator Rewinds	1	0	0	0	0	1 <sup>7</sup>
Turbine Replacements	0	0	0	2	0	2 <sup>8</sup>
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>3</b>

Region	Online Solar Facilities	Operator	MW
UC	Alamosa	USBR	.01
UC	Provo Area Office Solar	USBR	.025
PN	Grand Coulee Solar	USBR	.005
LC	Boulder City Regional Office Building	USBR	.276
LC	Boulder City Regional Office Building (Parking)	USBR	.006
LC	Hoover Spillway House Renovation	USBR	.048
LC	River Mountains	Southern Nevada Water Authority	14
	<b>Total</b>		<b>14.37</b>

Region	In Development Solar Facilities	Operator	MW
LC	First Solar	First Solar Development, LLC	50
LC	Blythe Office	USBR	0.02
MP	San Luis Facility	San Luis Renewables, LLC	26
	<b>Total</b>		<b>76.02</b>

Region	In Development Wind Facilities	Operator	MW
LC	Mohave County Wind Farm	BP Wind Energy North America	500
	<b>Total</b>		<b>500</b>

Region	Hydropower Pilot Projects	Operator	MW
PN	Hydrokinetic Installation on Roza Canal (Instream Energy)	Instream Energy	.01
PN	Low-head Technology Installation on Monroe Drop <sup>9</sup>	Apple, Inc.	.3
PN	Low-head Technology Installation on North Unit Irrigation Canal, Mile 45 <sup>10</sup>	Apple, Inc.	5
UC	Hydrodynamic Screw Technology Installation on South Canal, Drop 2 <sup>11</sup>	Uncompahgre Valley Water Users Association and Percheron Power, LLC	1
	<b>Total</b>		<b>6.04</b>

<sup>7</sup> A rewind is in progress at Yellowtail (G1). Rewind work was completed at Glen Canyon (G5) in May 2016.

<sup>8</sup> Turbine replacements are in progress at Palisades (G2) and Minidoka (G9). A turbine replacement was completed at Trinity (G1) in April 2016.

<sup>9</sup> Monroe Drop began commercial operation October 2015 and is included in the Online FERC Facilities statistic.

<sup>10</sup> Mile 45 began commercial operation May 2015 and is included in the Online FERC Facilities statistic.

<sup>11</sup> South Canal, Drop 2 has a LOPP Contract and is included in the LOPP Contracts statistic.

## WaterSMART

Through WaterSMART Grants (formerly Challenge Grants), Reclamation provides 50/50 cost share funding to irrigation and water districts, tribes, states, and other entities with water or power delivery authority. Projects should seek to conserve and use water more efficiently, increase the use of renewable energy, protect endangered species, or facilitate water markets. Projects are selected through a competitive process and the focus is on projects that can be completed within 24 to 36 months that will help sustainable water supplies in the Western United States. For additional information see the WaterSMART Web site at: <http://www.usbr.gov/watersmart/>.

### WaterSMART Updates

On June 23, 2016, Reclamation awarded a total of \$25.6 million to 53 WaterSMART Water and Energy Efficiency Grant (WEEG) projects. 5 of the 53 FY2016 projects feature a renewable energy component, detailed below:

**Recipient:** Uncompahgre Valley Water Users Association

**Project Title:** South Canal Hydropower Development Project: Drop 5

The Uncompahgre Valley Water Users Association in Montrose, Colorado, will install a 2.4 megawatt (MW) hydroelectric facility on the existing “Drop 5” irrigation canal drop structure located on the South Canal. The Association expects to generate 8,623 megawatt-hours (MWh) annually, which will be provided locally to the Delta Montrose Electric Association. The project implements adaptation strategies that were identified in the completed 2012 WaterSMART Colorado River Basin Water Supply and Demand Study, which the Association participated in as a stakeholder.

**Recipient:** Davis and Weber Counties Canal Company

**Project Title:** Piping and Hydro Project

The Davis and Weber Counties Canal Company in northern Utah will pipe 950 feet of canal liner with an 8-foot wide by 7-foot tall reinforced concrete box culvert. The proposed project will reduce seepage and is expected to result in annual water savings of 144 acre-feet. Conserved water will provide a more secure water right, alleviate the impacts of drought, and provide irrigation, residential, and environmental benefits. In addition, the Company will install a 5 kilowatt (kW) small hydropower generation turbine along the main canal, which is expected to generate 21,600 kilowatt-hours (kWh) of power per year. The turbine will power the Company’s main river diversion gates and other high energy demands such as pumping; excess power will be sold back to the local utility, providing renewable energy along the Wasatch Front. The project

implements work identified in the Davis and Weber Canal Master Plan, which was completed in 2013 as part of a 2011 WaterSMART System Optimization Review grant.

**Recipient:** Hights Creek Irrigation Company

**Project Title:** Green Road Piping, Metering, and Small Hydro Project

The Hights Creek Irrigation Company near Salt Lake City, Utah will replace 1,665 feet of asbestos concrete pipe with polyvinyl chloride pipe, install a 12-inch pressure reducing valve at the Green Road Reservoir, and, install 75 secondary flow meters. In addition, the Company will install a 125 kW small hydropower turbine at the Green Road Reservoir, which is expected to generate 183,000 kWh of power per year. The project is expected to result in annual water savings of 159 acre-feet. Conserved water will be stored in Echo and Rockport Reservoirs, providing a more secure water right and alleviating the impacts of drought.

**Recipient:** Weber Basin Water Conservancy District

**Project Title:** Uintah Bench Secondary Water Metering & Small Hydro Project

The Weber Basin Water Conservancy District in Layton, Utah, will install 2,956 secondary meters on unmetered residential connections in an area with high water demand. The project is expected to conserve approximately 1,360 acre-feet annually, which will be used to support future growth within the Uintah Bench area. In addition, the District will also install a small-scale, 20 kW capacity hydropower unit on the Causey Reservoir outlet, which is expected to generate 68,000 kWh of power each year, offsetting the District's electricity requirement. The project builds off of work identified in the plan developed through the District's 2008 WaterSMART System Optimization Review grant.

**Recipient:** Woodruff Irrigation Company

**Project Title:** Woodruff Hydroelectric Project

The Woodruff Irrigating Company in northern Utah will convert approximately four miles of open ditch conveyance to high density polyethylene and steel pipeline. The project is expected to result in annual water savings of 1,700 acre-feet currently lost to seepage. Conserved water will be used provide a more secure water right and will otherwise remain in the Bear River system. As part of the project, the Company will also install a 1 MW hydropower plant along the pipeline, which is expected to generate 2,160 MWh of power each year.

In addition to the FY2016 grant recipient announcement, the Rosedale-Rio Bravo Water Storage District's *Water Conservation, Energy Efficiency, and Solar Power Project* was brought online in June 2016. The project was awarded a WaterSMART WEEG in FY2014. See project description below:

The Rosedale-Rio Bravo Water Storage District in Bakersfield, California will line one mile of the earthen West Intake Canal. The District will also retrofit three existing wells and one existing pumping plant with variable frequency drives and will install acoustic flow meters and three solar-powered pumping units in active irrigation wells. The project is expected to result in annual water savings of 2,867 acre-feet of water and will generate 250 kWh of solar energy annually. The conserved water will reduce groundwater pumping and will increase instream flow in the South Fork of the Kern River to benefit fish and wildlife habitat in the region.

## WaterSMART Summary

All active, FY 2011-2016 WaterSMART WEEG projects that feature a renewable energy component are listed in the table below. Full project summaries are available on the WaterSMART Web site at:

<http://www.usbr.gov/watersmart/weeg/prev.html>

	<b>Fiscal Year</b>	<b>Recipient and <i>Project Title</i></b>	<b>Renewable Component Status</b>
1	2011	Three Sisters Irrigation District <i>Main Canal Pipeline Penstock Hydro Project</i>	Online (8/2014)
2	2011	Pershing County Water Conservation District <i>Humboldt River Automation Metering and Hydropower Project</i>	In development, FERC License
3	2011	Boise Project Board of Control <i>Hydroelectric Project</i>	Online (4/2013)
4	2012	Consolidated Irrigation Company <i>Improve Irrigation Efficiencies and Provide Sustainability</i>	Online (9/2015)
5	2013	Cub River Irrigation Company <i>Middle Ditch Water Conservation &amp; Renewable Energy Piping Project</i>	In development
6	2014	Nevada Irrigation District <i>Hydroelectric Project</i>	In development
7	2014	Rosedale-Rio Bravo Water Storage District <i>Water Conservation, Energy Efficiency, and Solar Power Project</i>	Online (6/2016)
8	2014	Uncompahgre Valley Water Users Association <i>Shavano Falls Hydropower Development</i>	Online (5/2015)
9	2014	Oxford Reservoir and Irrigation Company <i>Innovative Energy Production and Irrigation Efficiencies</i>	In development
10	2014	Elephant Butte Irrigation District <i>Water-Habitat-Energy-Nexus</i>	In development
11	2014	Davis and Weber Counties Canal Company <i>Main Piping and Small Hydro Project</i>	In development
12	2014	Fremont Irrigation Company <i>Extension to Improve Irrigation Efficiency and Provide Sustainability</i>	In development
13	2014	Richmond Irrigation District <i>Upper High Creek Canal Enclosure and Hydropower Development Project</i>	In development



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	<b>Fiscal Year</b>	<b>Recipient and Project Title</b>	<b>Renewable Component Status</b>
14	2015	Bella Vista Water District <i>Renewable Energy, Advanced Metering Infrastructure, and Water Conservation Improvements</i>	In development
15	2015	Uncompahgre Valley Water Users Association <i>South Canal Drop 4 Hydropower Development</i>	Online (6/2015)
16	2015	Navajo Agricultural Product Industry <i>Create and Implement a Comprehensive Water Management Web-Based Tool for Ordering and Delivering Irrigation Water</i>	In development
17	2015	Three Sisters Irrigation District <i>Main Canal Pipeline and Micro Hydro Generation Project</i>	In development
18	2015	Cameron County Irrigation District No. 6 <i>Conversion of the Saldana Canal into Pipeline, Elimination of the Saldana Pump by Construction of Aerial Crossing and Solar Powered Second Lift Pump</i>	In development
19	2015	Santa Cruz Irrigation District No. 15 <i>Shotcrete Lining of the N-Canal, Installation of a VFD at Pump-15, and Wind Powered Alternative at Pump 15</i>	In development
20	2015	Davis and Weber Counties Canal Company <i>Canal Piping and Hydro Project</i>	In development
21	2015	Davis and Weber Counties Canal Company <i>Secondary Water Irrigation Metering and Hydro Project</i>	In development
22	2015	Marion Upper Ditch Company <i>Main Canal Pipeline and Micro Hydro Generation Project</i>	In development
23	2016	Uncompahgre Valley Water Users Association <i>South Canal Hydropower Development Project: Drop 5</i>	In development, LOPP Contract
24	2016	Davis and Weber Counties Canal Company <i>Piping and Hydro Project</i>	In development
25	2016	Hights Creek Irrigation Company <i>Green Road Piping, Metering, and Small Hydro Project</i>	In development
26	2016	Weber Basin Water Conservancy District <i>Uintah Bench Secondary Water Metering &amp; Small Hydro Project</i>	In development
27	2016	Woodruff Irrigation Company <i>Woodruff Hydroelectric Project</i>	In development

# Great Plains Renewable Energy Updates

## FERC Projects

**Project:** Clark Canyon Dam  
**Developer:** Clark Canyon Hydro, LLC  
**Status:** Preliminary Permit (P-14677)

FERC has prepared an environmental assessment analyzing potential environmental impacts, concluding that “with appropriate environmental protective measures, (Clark Canyon Dam) would not constitute a major federal action that would significantly affect the quality of the human environment.” The assessment is available on FERC’s eLibrary website: <http://www.ferc.gov/docs-filing/elibrary.asp>.

Concurrently, Senate Bill 1103, which, in part, reinstates the terminated Clark Canyon Dam FERC License (P-12429), was reported to the Senate Committee on Energy and Natural Resources on September 9, 2015. Companion Bill, House Resolution 2080 passed the House on March 14, 2016 and was received in the Senate on March 15, 2016. No further activity has occurred as of July 2016.

**Project:** Fresno Dam  
**Developer:** Alpine Pacific Utilities, LLC  
**Status:** Preliminary Permit (P-14751)

FERC published an “Order Issuing Preliminary Permit and Granting Priority to File License Application” to Alpine Pacific Utilities, LCC on April 29, 2016. Per the Order:

“The proposed project would utilize the existing outlet structure on Fresno Dam. The proposed project would consist of the following new facilities: (1) a 48-inch-diameter, 100-foot-long bifurcated penstock leading from the existing outlet works; (2) a powerhouse containing two turbines/generating units with a combined installed capacity of 1.348 megawatts; (3) a tailrace discharging flows into the existing dam spillway; (4) a transformer in a 25-square-foot switchyard; (5) an approximately 1-mile-long, 12.74-kilovolt overhead transmission line connecting to existing Hill County Electric and Northwest Electric transmission systems; and (6) appurtenant facilities. The proposed project would have an average annual generation of 4,700 megawatt-hours.”

The Preliminary Permit is valid for 36 months.

## LOPP Projects

**Project:** Granby Dam  
**Developer:** Northern Water Conservancy District  
**Status:** Online

Commercial power production began May 19, 2016. A dedication ceremony was held on June 3, 2016. The 1.2 MW facility is expected to generate approximately 5,000 MWh, annually.

**Project:** Pueblo Dam  
**Developer:** Southeastern Colorado Water Conservancy District, Colorado Springs Utilities, and Board of Water Works of Pueblo, Colorado  
**Status:** Preliminary Lease

Southeastern Colorado Water Conservancy District requested a six-month Preliminary Lease extension. Reclamation has amended the Preliminary Lease, extending the Lease through August 27, 2016.

**Project:** Yellowtail Afterbay  
**Developer:** Crow Tribe  
**Status:** Preliminary Lease

National Environmental Policy Act compliance efforts are ongoing, with a Finding of No Significant Impact anticipated spring, 2017.

Reclamation has drafted a position paper documenting Yellowtail Afterbay Dam operations and constraints. This paper will help Reclamation, Western, and the Tribe develop Yellowtail Afterbay operating criteria.

**Project:** Helena Valley Pumping Plant  
**Developer:** Helena Valley Irrigation District  
**Status:** Preliminary Lease

The District has voluntarily terminated their Power Purchase Agreement with NorthWestern Energy. On May 2, 2016 the District requested all remaining cost recovery agreement funds be returned. Funds were returned by Reclamation to the District on May 19, 2016.

## Lower Colorado Renewable Energy Updates

### Solar Projects

**Project:** Mohave Country Wind Farm  
**Developer:** BP Wind Energy North America  
**Status:** In Development

The proposed project would erect up to 242 wind turbines on federal lands located in northwestern Arizona. A Record of Decision (ROD) was signed on June 28, 2013. The ROD approves use of 35,329 acres of Bureau of Land Management (BLM) managed land and 2,781 acres of Reclamation managed land. Additional information regarding this project is available on the BLM website: <http://www.blm.gov/az/st/en/prog/energy/wind/mohave.html>

## Mid-Pacific Renewable Energy Updates

No updates available for this quarter.

## Pacific Northwest Renewable Energy Updates

### FERC Projects

**Project:** Prineville Pump Storage Project  
**Developer:** Prineville Energy Storage, LLC  
**Status:** Preliminary Permit (P-14453)

The Prineville Pump Storage Project was issued a Preliminary Permit on July 19, 2013. A successive application for Preliminary Permit was submitted by Gridflex Energy, LLC on behalf of Prineville Energy Storage, LLC to FERC on July 2, 2016. Noted within the application, the project concept has been revised to reflect a larger upper reservoir and increased capacity (200 MW).

# Upper Colorado Renewable Energy Updates

## LOPP Projects

**Project:** South Canal (Drop 5)  
**Developer:** Uncompahgre Valley Water Users Association  
**Status:** LOPP Contract

Facility construction is near complete and awaiting testing. Commercial power production is expected to begin late summer/early fall, 2016.

**Project:** Mancos Project Outlet Canal  
**Developer:** Mancos Water Conservancy District  
**Status:** Request for Development

The District submitted to Reclamation a Formal Request for Development and project proposal on March 22, 2016. The Reclamation selection team has reviewed the District's proposal and has made a recommendation to the Upper Colorado Regional Director.

## **Appendix – Regional Renewable Energy Portfolios**

## Great Plains Renewable Portfolio

State	Project Status	Project Name	FERC ID	Area Office	Operating Entity	Hydropower Type	Capacity (kW)	Project Initiation Date	Preliminary Permit or Lease Date	Exemption or CE Date	License or Lease Date	Online Date
<b>RECLAMATION OWNED AND OPERATED</b>												
WY	Online	Alcova		Wyoming	USBR	Conventional	41,400.00					1955
CO	Online	Big Thompson		Eastern Colorado	USBR	Conventional	4,500.00					1959
WY	Online	Boysen		Wyoming	USBR	Conventional	15,000.00					1952
WY	Online	Buffalo Bill		Wyoming	USBR	Conventional	18,000.00					1992
MT	Online	Canyon Ferry		Montana	USBR	Conventional	50,001.00					1953
CO	Online	Estes		Eastern Colorado	USBR	Conventional	45,000.00					1950
CO	Online	Flatiron (Unit 1, 2, 3)		Eastern Colorado	USBR	Conventional/Pump Storage	94,500.00					1954
WY	Online	Fremont Canyon		Wyoming	USBR	Conventional	66,800.00					1960
WY	Online	Glendo		Wyoming	USBR	Conventional	38,000.00					1959
CO	Online	Green Mountain		Eastern Colorado	USBR	Conventional	26,000.00					1943
WY	Online	Guernsey		Wyoming	USBR	Conventional	6,400.00					1928
WY	Online	Heart Mountain		Wyoming	USBR	Conventional	5,000.00					1948
WY	Online	Kortes		Wyoming	USBR	Conventional	36,000.00					1950
CO	Online	Marys Lake		Eastern Colorado	USBR	Conventional	8,100.00					1951
CO	Online	Mt. Elbert PS		Eastern Colorado	USBR	Pump Storage	200,000.00					1981
WY	Online	Pilot Butte		Wyoming	USBR	Conventional	1,600.00					1929
CO	Online	Pole Hill		Eastern Colorado	USBR	Conventional	38,238.00					1954
WY	Online	Seminole		Wyoming	USBR	Conventional	51,750.00					1939
WY	Online	Shoshone		Wyoming	USBR	Conventional	3,000.00					1992
WY	Online	Spirit Mountain		Wyoming	USBR	Conventional	4,500.00					1994
MT	Online	Yellowtail		Montana	USBR	Conventional	259,374.00					1966
<b>FEDERAL ENERGY REGULATORY COMMISSION PROJECTS</b>												
WY	Online	Garland Canal	3031	Wyoming	Shoshone I.D.	Conventional	2,610.00				10/9/1981	1980
MT	Online	Lower Turnbull Drop	12597	Montana	Turnbull Hydro, LLC	Conventional	7,700.00	6/21/2005			7/28/2006	6/22/2011
OK	Online	McGee Creek Dam	8492	Oklahoma Texas	McGee Creek Authority	Conventional	175.00	7/26/1984	3/14/1985		6/23/1986	1980
CO	Online	Ruedi Dam	3603	Western Colorado	City of Aspen	Conventional	3,200.00				9/8/1983	1980
CO	Online	Sugarloaf Dam	3819	Eastern Colorado	STS Hydropower Ltd.	Conventional	2,800.00				11/18/1982	1980
MO	Online	Tiber Dam	3574	Montana	Tiber Montana LLC	Conventional	7,500.00		11/20/1990		6/2/1997	6/14/2004
MT	Online	Upper Turnbull Drop	12598	Montana	Turnbull Hydro, LLC	Conventional	5,300.00	6/24/2005			7/28/2006	6/24/2011
MT	License	Gibson Dam	12478	Montana	Gibson Dam Hydroelectric Company, LLC.	Conventional	15,000.00	10/28/2003	4/20/2004		1/12/2012	
MT	Exemption	Mary Taylor Drop	14294	Montana	Turnbull Hydro, LLC	Conventional	890.00	9/23/2011		6/28/2012		
WY	Preliminary	Deer Creek Drop	14370	Wyoming	Willwood Irrigation District	Conventional	780.00	3/6/2012	9/19/2012			
NE	Preliminary	Medicine Creek Dam	13648	Nebraska-Kansas	Twin Valleys Public Power District	Conventional	800.00	12/30/2009	6/15/2010			
WY	Preliminary	Willwood Diversion Dam	13423	Wyoming	Willwood Irrigation District	Conventional	2,000.00	4/6/2009	7/7/2009			
MT	Preliminary	Clark Canyon Dam	14677	Montana	Clark Canyon Hydro, LLC	Conventional	4,700.00	4/20/2015	9/18/2015			
MT	Preliminary	Fresno Dam	14751	Montana	Alpine Pacific Utilities Hydro, LLC	Conventional	1,348.00	1/21/2016	4/29/2016			
WY	Preliminary	Black Canyon Pumped Storage Project	14087	Wyoming	Black Canyon Hydro, LLC	Pump Storage	700,000.00	1/25/2011	7/15/2011			
WY	Preliminary	Medicine Bow Pumped Storage	13836	Wyoming	Medicine Bow Hydro, LLC	Pump Storage	400,000.00	8/30/2010	12/3/2010			
MT	Preliminary	Square Butte Pumped Storage	13349	Montana	Square Butte Hydro LLC	Pump Storage	1,032,000.00	12/23/2008	7/23/2012			
<b>LEASE OF POWER PRIVILEGE PROJECTS</b>												
CO	Online	Carter Lake Outlet		Eastern Colorado	Northern Water Conservancy District	Conventional	2,600.00	5/7/2009	11/24/2009		4/22/2011	5/18/2012
CO	Online	Granby Dam	LP11-3	Eastern Colorado	Northern Water Conservancy District	Conventional	1,200.00	4/20/2011	6/26/2012		3/31/2015	5/19/2016
CO	Preliminary	Pueblo Dam	LP11-4	Eastern Colorado	Southeastern Colorado Water Conservancy District, Colorado Springs Utilities, and Board of Water Works of Pueblo, Colorado	Conventional	7,010.00	4/20/2011	2/27/2012			
MT	Preliminary	Yellowtail Afterbay		Montana	Crow Tribe	Conventional	9,000.00	1/11/2012	3/6/2015			
MT	Preliminary	Helena Valley Pumping Plant		Montana	Helena Valley Irrigation District	Conventional	4,800.00	9/13/2013	8/20/2015			

## Great Plains Renewable Portfolio

State	Project Status	Project Name	FERC ID	Area Office	Operating Entity	Hydropower Type	Capacity (kW)	Project Initiation Date	Preliminary Permit or Lease Date	Exemption or CE Date	License or Lease Date	Online Date
MT	Request for Development	A Drop		Montana	Turnbull Hydro, LLC	Conventional	1,000.00	6/1/2014				
MT	Request for Development	Johnson Drop		Montana	Turnbull Hydro, LLC	Conventional	700.00	6/1/2014				
MT	Request for Development	Woods Drop		Montana	Turnbull Hydro, LLC	Conventional	900.00	6/1/2014				



## Lower Colorado Renewable Portfolio

State	Project Status	Project Name	FERC ID	Area Office	Operating Entity	Hydropower Type	Capacity (kW)	Project Initiation Date	Preliminary Permit or Lease Date	Exemption or CE Date	License or Lease Date	Online Date
<b>RECLAMATION OWNED AND OPERATED</b>												
AZ	Online	Davis		Yuma	USBR	Conventional	255,000.00					1951
AZ/NV	Online	Hoover		Lower Colorado	USBR	Conventional	2,078,800.00					1936
AZ	Online	Parker		Yuma	USBR	Conventional	120,000.00					1943
<b>RECLAMATION OWNED AND OPERATED BY OTHERS</b>												
AZ	Online	Arizona Falls Powerplant		Phoenix	Salt River Valley Water User's Association	Conventional	750.00					1902
AZ	Online	Cross Cut Powerplant		Phoenix	Salt River Valley Water User's Association	Conventional	3,000.00					1914
AZ	Online	Horse Mesa Powerplant		Phoenix	Salt River Valley Water User's Association	Conventional/Pump Storage	129,000.00					1927
AZ	Online	Mormon Flat Powerplant		Phoenix	Salt River Valley Water User's Association	Conventional/Pump Storage	60,000.00					1926
AZ	Online	New Waddell Pump/Generating Plant		Phoenix	Central Arizona Water Conservation District	Pump Storage	45,000.00					1993
CA	Online	Senator Wash Pump/Generating Plant		Yuma	Imperial Irrigation District	Pump Storage	7,200.00					1966
AZ	Online	Siphon Drop Powerplant		Yuma	Yuma County Water User's Association	Conventional	4,600.00					1926
AZ	Online	South Consolidated Powerplant		Phoenix	Salt River Valley Water User's Association	Conventional	1,400.00					1912
AZ	Online	Stewart Mountain Powerplant		Phoenix	Salt River Valley Water User's Association	Conventional	10,400.00					1930
AZ	Online	Theodore Roosevelt Powerplant		Phoenix	Salt River Valley Water User's Association	Conventional	36,020.00					1973
<b>OTHER PLANTS ON RECLAMATION FACILITIES</b>												
AZ	Online	C.C. Craigin Dam and Powerplant	2304	Phoenix	Salt River Project	Conventional	3,000.00					1965
AZ	Online	Drop Five Powerplant		Yuma	Imperial Irrigation District	Conventional	4,000.00					1982
AZ	Online	Drop Four Powerplant		Yuma	Imperial Irrigation District	Conventional	19,600.00					1941
AZ	Online	Drop One Powerplant		Yuma	Imperial Irrigation District	Conventional	6,000.00					1984
AZ	Online	Drop Three Powerplant		Yuma	Imperial Irrigation District	Conventional	9,800.00					1941
AZ	Online	Drop Two Powerplant		Yuma	Imperial Irrigation District	Conventional	10,000.00					1953
AZ	Online	Pilot Knob Powerplant		Yuma	Imperial Irrigation District	Conventional	33,000.00					1961
<b>FEDERAL ENERGY REGULATORY COMMISSION PROJECTS</b>												
NV	Preliminary	Blue Diamond Pumped Storage Project	14344	Regional Office	The International Consortium of Energy Managers	Pump Storage	450,000.00	1/6/2012	7/11/2012			
NV	Preliminary	Eldorado Pumped Storage Project	13861	Regional Office	Eldorado Pumped Storage, LLC	Pump Storage	400,000.00	10/13/2010	2/3/2012			
AZ	Preliminary	Longview Pumped Storage Project	14341	Regional Office	Longview Energy Exchange, LLC	Pump Storage	2,000,000.00	1/3/2012	5/4/2012			
AZ	Preliminary	Verde Pumped Storage Project	14061	Phoenix	Arizona Independent Power	Pump Storage	795,000.00	1/12/2011	8/15/2011			
<b>LEASE OF POWER PRIVILEGE PROJECTS</b>												
AZ	Request for Development	Laguna Dam		Yuma		Conventional	2,200.00	1/28/2013				
AZ	Request for Development	Santa Rosa Canal		Phoenix	Maricopa-Stanfield Irrigation and Drainage District	Conventional	375.00	9/4/2012				
<b>SOLAR PROJECTS</b>												
NV	Online	Boulder City Regional Office Building		Regional Office	USBR		276.36					
NV	Online	Boulder City Regional Office Building (parking)		Regional Office	USBR		5.97					
NV	Online	Hoover Spillway House Renovation		Regional Office	USBR		48.00					Aug-13

## Lower Colorado Renewable Portfolio

State	Project Status	Project Name	FERC ID	Area Office	Operating Entity	Hydropower Type	Capacity (kW)	Project Initiation Date	Preliminary Permit or Lease Date	Exemption or CE Date	License or Lease Date	Online Date
NV	Online	River Mountains		Regional Office	Southern Nevada Water Authority and SunEdison		14,000.00					Jan-16
NV	In Development	First Solar		Regional Office	First Solar Development, LLC		50,000.00	Jun-14				
CA	In Development	Blythe Office Solar Installation		Regional Office	USBR		19.00					
<b>WIND PROJECTS</b>												
AZ	In Development	Mohave County Wind Farm		Regional Office	BP Wind Energy North America		500,000.00					

## Mid-Pacific Renewable Portfolio

State	Project Status	Project Name	FERC ID	Area Office	Operating Entity	Hydropower Type	Capacity (kW)	Project Initiation Date	Preliminary Permit or Lease Date	Exemption or CE Date	License or Lease Date	Online Date
<b>RECLAMATION OWNED AND OPERATED</b>												
CA	Online	Folsom		Central California	USBR	Conventional	207,000.00					1955
CA	Online	Judge Francis Carr		Northern California	USBR	Conventional	154,400.00					1963
CA	Online	Keswick		Northern California	USBR	Conventional	117,000.00					1950
CA	Online	Lewiston		Northern California	USBR	Conventional	350.00					1964
CA	Online	New Melones		Central California	USBR	Conventional	380,000.00					1979
CA	Online	Nimbus		Central California	USBR	Conventional	13,500.00					1955
CA	Online	Shasta		Northern California	USBR	Conventional	714,000.00					1944
CA	Online	Spring Creek		Northern California	USBR	Conventional	180,000.00					1964
CA	Online	Stampede		Lahontan Basin	USBR	Conventional	3,650.00					1988
CA	Online	Trinity		Northern California	USBR	Conventional	140,000.00					1964
<b>RECLAMATION OWNED AND OPERATED BY OTHERS</b>												
CA	Online	San Luis/Gianelli Pumping-Generating Plant		South Central California	California Department of Water Resources	Pump Storage	424,000.00					1968
NV	Online	Lahontan Powerplant		Lahontan Basin	Truckee-Carson Irrigation District	Conventional	2,400.00					1911
CA	Online	O'Neill Pumping-Generating Plant		South Central California	San Luis Delta-Mendota Water Authority	Pump Storage	25,200.00					1967
<b>FEDERAL ENERGY REGULATORY COMMISSION PROJECTS</b>												
OR	Online	East Side	2082	Klamath Basin	Scottish Power (PacifiCorp)	Conventional	3,200.00					
CA	Online	Friant Fishwater Release	11068	South Central California	Orange County Irrigation District	Conventional	510.00				5/16/1991	
CA	Online	Friant Power	2892	South Central California	Friant Power Authority	Conventional	27,360.00				9/30/1982	1991
CA	Online	High Line Canal	7252	Northern California	Santa Clara	Conventional	530.00				7/17/1984	
CA	Online	Madera Canal	5765	South Central California	Madera-Chowchilla Water & Power Authority	Conventional	440.00	11/16/1981	4/27/1982		9/8/1983	
CA	Online	Madera Canal Water Power STA 1174+84	2958	South Central California	Madera-Chowchilla Water & Power Authority	Conventional	563.00	11/23/1981			6/8/1982	
CA	Online	Madera Canal Water Power STA 1923+10	2958	South Central California	Madera-Chowchilla Water & Power Authority	Conventional	916.00	11/23/1981			6/8/1982	
CA	Online	Madera Canal Water Power STA 980+65	2958	South Central California	Madera-Chowchilla Water & Power Authority	Conventional	2,125.00	11/23/1981			6/8/1982	
CA	Online	Monticello	2780	Central California	Solano I.D.	Conventional	11,500.00				1/29/1981	Jun-83
NV	Online	New Lahontan	7828	Lahontan Basin	Truckee-Carson I.D.	Conventional	4,000.00				12/26/1985	6/12/1989
CA	Online	Stony Gorge Hydroelectric	3193	Northern California	Santa Clara, City of	Conventional	4,900.00				8/31/1982	Apr-86
OR	Online	West Side	2082	Klamath Basin	Scottish Power (PacifiCorp)	Conventional	600.00					
CA	Online	Whiskey Dam Power Project	2888	Northern California	City of Redding	Conventional	3,530.00	2/17/1982			3/10/1983	1986
CA	License	Friant Fishwater Release	11068	South Central California	Orange County Irrigation District	Conventional	7,000.00				5/16/1991	
OR	Preliminary	Bryant Mountain (Pumped Storage)	13680	Klamath Basin	Bryant Mountain LLC	Pump Storage	1,250,000.00	3/1/2010	9/24/2010			
<b>LEASE OF POWER PRIVILEGE PROJECTS</b>												
OR	Online	Klamath Canal Drop C		Klamath Basin	Klamath Irrigation District	Conventional	900.00	2/8/2011			11/8/2011	5/3/2012

## Mid-Pacific Renewable Portfolio

State	Project Status	Project Name	FERC ID	Area Office	Operating Entity	Hydropower Type	Capacity (kW)	Project Initiation Date	Preliminary Permit or Lease Date	Exemption or CE Date	License or Lease Date	Online Date
CA	Request for Development	A-C3 (Panicker Drop)		Lahontan Basin	Truckee Carson Irrigation District	Conventional	125.00	2014				
CA	Request for Development	V-C2 (Lewis Wasteway)		Lahontan Basin	Truckee Carson Irrigation District	Conventional	250.00	2014				
<b>SOLAR PROJECTS</b>												
CA	In Development	San Luis Facility		South Central California	San Luis Renewables, LLC		26,000.00	8/5/2011				

## Pacific Northwest Renewable Portfolio

State	Project Status	Project Name	FERC ID	Area Office	Operating Entity	Hydropower Type	Capacity (kW)	Project Initiation Date	Preliminary Permit or Lease Date	Exemption or CE Date	License or Lease Date	Online Date
<b>RECLAMATION OWNED AND OPERATED</b>												
ID	Online	Anderson Ranch		Snake River	USBR	Conventional	40,000.00					1950
ID	Online	Black Canyon		Snake River	USBR	Conventional	10,200.00					1925
ID	Online	Boise River Diversion		Snake River	USBR	Conventional	3,450.00					1912
WA	Online	Chandler		Columbia Cascades	USBR	Conventional	12,000.00					1956
WA	Online	Grand Coulee		Columbia Cascades	USBR	Conventional/Pump Storage	6,809,000.00					1941
OR	Online	Green Springs		Columbia Cascades	USBR	Conventional	17,290.00					1960
MT	Online	Hungry Horse		Columbia Cascades	USBR	Conventional	428,000.00					1952
ID	Online	Minidoka		Snake River	USBR	Conventional	27,700.00					1942
ID	Online	Palisades		Snake River	USBR	Conventional	176,564.00					1957
WA	Online	Roza		Columbia Cascades	USBR	Conventional	12,937.00					1958
<b>FEDERAL ENERGY REGULATORY COMMISSION PROJECTS</b>												
ID	Online	American Falls	2736	Snake River	Idaho Power Co	Conventional	92,400.00				3/31/1975	1975
ID	Online	ARROWROCK DAM	4656	Snake River	Big Bend Irrigation District, et. al.	Conventional	15,000.00		8/15/1983		3/27/1989	Mar-10
ID	Online	CASCADE	2848	Snake River	Idaho Power Co.	Conventional	12,420.00				2/17/1981	3/4/1985
WA	Online	COWICHE	7337	Columbia Cascades	Yakima-Tieton ID	Conventional	1,470.00				7/6/1984	1986
ID	Online	Dietrich Drop	8909	Snake River	Big Wood Canal Company	Conventional	4,770.00	3/7/1985			5/22/1987	1989
WA	Online	ELTOPIA BRANCH CANAL	3842	Columbia Cascades	East, Quincy, & South, Columbia Basin ID's	Conventional	2,200.00				12/9/1981	1982
WA	Online	ESQUATZEL POWER	12638	Columbia Cascades	Green Energy Today LLC	Conventional	900.00	1/4/2006		6/6/2008		Apr-12
ID	Online	FARGO DROP NO. 1	5042	Snake River	Boise Project Board of Control	Conventional	1,100.00			10/23/1981		Jun-13
ID	Online	FELT HYDRO	5089	Snake River	Fall River Rural Cooperative	Conventional	7,450.00				9/9/1983	1985
ID	Online	ISLAND PARK	2973	Snake River	Fall River Rural Electric	Conventional	4,800.00		7/8/1983		10/19/1988	1982
ID	Online	Little Wood Reservoir	7427	Snake River	Little Wood Irrigation District	Conventional	3,000.00			4/13/1984		1989
ID	Online	LOW LINE NO. 8 ARENA DROP	5056	Snake River	Boise Project Board of Control	Conventional	385.00	6/10/1981		10/23/1981		Apr-12
WA	Online	MAIN CANAL HEADWORKS	2849	Columbia Cascades	East, Quincy, & South, Columbia Basin I.D.'s	Conventional	26,000.00				11/16/1981	1987
ID	Online	Mile 28	10552	Snake River	Contractor's Power Group	Conventional	1,500.00	12/2/1987	9/15/1988		8/12/1992	1996
OR	Online	MITCHELL BUTTE LATERAL	5357	Snake River	Owyhee ID et. al.	Conventional	1,880.00		2/26/1982		12/14/1984	1990
ID	Online	Mora Drop Hydro	3403	Snake River	Boise Kuna Irrigation District et. Al	Conventional	1,900.00			12/18/1980		9/15/2006
WA	Online	ORCHARD AVENUE	7338	Columbia Cascades	Yakima-Tieton ID	Conventional	1,441.00				7/6/1984	1986
OR	Online	OWYHEE DAM	4354	Snake River	Gem I.D., Owyhee I.D., & Ridgeview I.D	Conventional	4,340.00				5/9/1984	1985
OR	Online	OWYHEE TUNNEL NO. 1	4359	Snake River	Gem ID et. al.	Conventional	8,120.00				2/28/1986	6/1/1983
WA	Online	POTHOLES EAST CANAL	3843	Snake River	East, Quincy, & South, Columbia Basin ID's	Conventional	2,400.00				12/9/1981	1982
WA	Online	POTHOLES EAST CANAL HEADWORKS	2840	Columbia Cascades	Columbia Basin Hydropower	Conventional	6,500.00				9/21/1982	1991
WA	Online	QUINCY CHUTE	2937	Columbia Cascades	East, Quincy, & South, Columbia Basin I.D.'s	Conventional	9,367.00				8/20/1982	1983
WA	Online	RUSSEL D SMITH PEC 22.7	2926	Columbia Cascades	East, Quincy, & South, Columbia Basin I.D.'s	Conventional	6,100.00				3/27/1980	1982
WA	Online	SUMMER FALLS	3295	Columbia Cascades	East, Quincy, & South, Columbia Basin I.D.'s	Conventional	92,000.00				8/14/1981	1983
WA	Online	TIETON DAM	3701	Columbia Cascades	Yakima-Tieton Irrigation District	Conventional	13,600.00				6/27/1991	2007
OR	Online	45-Mile	13817	Columbia Cascades	Apple, Inc.	Conventional	5,000.00	7/16/2010		12/17/2010		5/13/2015

## Pacific Northwest Renewable Portfolio

State	Project Status	Project Name	FERC ID	Area Office	Operating Entity	Hydropower Type	Capacity (kW)	Project Initiation Date	Preliminary Permit or Lease Date	Exemption or CE Date	License or Lease Date	Online Date
OR	Online	Monroe Drop	14430	Columbia Cascades	Apple, Inc.	Conventional	300.00	7/2/2012	3/28/2013	2/18/2015		10/29/2015
ID	Exemption	FARGO DROP NO. 2	5040	Snake River	Boise Project Board of Control	Conventional	175.00			10/23/1981		
ID	Exemption	MAIN CANAL NO. 10	5041	Snake River	East, Quincy, & South, Columbia Basin I.D.'s	Conventional	500.00			10/23/1981		
ID	Exemption	MAIN CANAL NO. 6	5038	Snake River	East, Quincy, & South, Columbia Basin I.D.'s	Conventional	1,055.00			10/23/1981		
ID	Exemption	WALDVOGEL BLUFF	5043	Snake River	Boise Project Board of Control	Conventional	300.00	6/30/1981		12/23/1981		
WA	Preliminary	16.4 Wasteway	14349	Columbia Cascades	Columbia Basin Hydropower	Conventional	1,750.00	7/29/2011	3/26/2013			
WA	Preliminary	46A Wasteway	14351	Columbia Cascades	Columbia Basin Hydropower	Conventional	1,600.00	7/29/2011	3/26/2013			
ID	Preliminary	Mason Dam Hydro	12686	Snake River	Baker County	Conventional	3,400.00	4/25/2006	5/26/2010			
WA	Preliminary	McKay Dam	14546	Columbia Cascades	Houtama Hydropower, LLC	Conventional	2,300.00	8/13/2013	2/6/2014			
WA	Preliminary	PEC 1973 Drop	14316	Columbia Cascades	Columbia Basin Hydropower	Conventional	2,200.00	11/8/2011	3/26/2013			
WA	Preliminary	Pinto Dam	14380	Columbia Cascades	Columbia Basin Hydropower	Conventional	3,400.00	4/4/2012	10/10/2012			
WA	Preliminary	Scooteny Inlet Drop	14318	Columbia Cascades	Columbia Basin Hydropower	Conventional	1,700.00	5/31/2011	3/26/2013			
OR	Preliminary	Unity Dam by Warm Springs Hydro	14576	Snake River	Warm Springs Hydro, LLC	Conventional	800.00	1/13/2014	6/16/2014			
WA	Preliminary	Wickiup Dam Hydro	12965	Columbia Cascades	Symbiotics	Conventional	7,150.00	8/17/2007	5/15/2008			
WA	Preliminary	Banks Lake Pumped Storage Project	14329	Columbia Cascades	Columbia Basin Hydropower	Pump Storage	1,000,000.00	11/30/2011	8/22/2013			
OR	Preliminary	Prineville Pumped Storage Project	14553	Columbia Cascades	Prineville Energy Storage, LLC	Pump Storage	200,000.00	8/31/2012	7/19/2013			
<b>LEASE OF POWER PRIVILEGE PROJECTS</b>												
ID	Posted Solicitation	Anderson Ranch Pump Storage		Snake River	TBD	Pump Storage	TBD	4/11/2016				
<b>SOLAR PROJECTS</b>												
WA	Online	Grand Coulee Solar		Columbia Cascades	USBR		4.70					Oct-12
<b>PILOT PROJECTS</b>												
WA	Testing	Instream Energy Roza Division Hydrokinetics		Columbia Cascades	Instream Energy	Hydrokinetics	10.00					Aug-13

## Upper Colorado Renewable Portfolio

State	Project Status	Project Name	FERC ID	Area Office	Operating Entity	Hydropower Type	Capacity (kW)	Project Initiation Date	Preliminary Permit or Lease Date	Exemption or CE Date	License or Lease Date	Online Date
<b>RECLAMATION OWNED AND OPERATED</b>												
CO	Online	Blue Mesa		Western Colorado	USBR	Conventional	86,400.00					1967
CO	Online	Crystal		Western Colorado	USBR	Conventional	31,500.00					1978
NM	Online	Elephant Butte		Albuquerque	USBR	Conventional	27,945.00					1940
UT	Online	Flaming Gorge		Provo	USBR	Conventional	151,500.00					1963
WY	Online	Fontenelle		Provo	USBR	Conventional	10,000.00					1968
AZ	Online	Glen Canyon		Western Colorado	USBR	Conventional	1,320,000.00					1965
CO	Online	Lower Molina		Western Colorado	USBR	Conventional	5,589.00					1962
CO	Online	Morrow Point		Western Colorado	USBR	Conventional	173,334.00					1971
CO	Online	Upper Molina		Western Colorado	USBR	Conventional	9,936.00					1962
<b>RECLAMATION OWNED AND OPERATED BY OTHERS</b>												
UT	Online	Causey Powerplant		Provo	Weber Basin Water Conservancy District	Conventional	1,900.00					1999
UT	Online	Deer Creek Powerplant		Provo	Provo River Water Users Association	Conventional	4,950.00					1958
UT	Online	Gateway Powerplant		Provo	Weber Basin Water Conservancy District	Conventional	4,275.00					1958
UT	Online	Lower Spanish Fork Powerplant		Provo	Strawberry Water User's Association	Conventional	250.00					1937
CO	Online	McPhee Powerplant		Western Colorado	Dolores Water Conservancy District	Conventional	1,283.00					1992
UT	Online	Olmsted Powerplant		Provo	Purchased from PacifiCorp in 1990	Conventional	10,300.00					1904
UT	Online	Payson Powerplant		Provo	Strawberry Water User's Association	Conventional	400.00					1941
CO	Online	Towaoc Powerplant		Western Colorado	Dolores Water Conservancy District	Conventional	11,495.00					1994
UT	Online	Upper Spanish Fork		Provo	Strawberry Water User's Association	Conventional	3,900.00					1909
UT	Online	Wanship Powerplant		Provo	Weber Basin Water Conservancy District	Conventional	1,900.00					1958
<b>FEDERAL ENERGY REGULATORY COMMISSION PROJECTS</b>												
UT	Online	Echo Dam	3755	Provo	City of Bountiful	Conventional	4,500.00		11/30/1981		12/7/1984	1987
NM	Online	El Vado Dam	5226	Albuquerque	County of Los Alamos	Conventional	8,000.00		1/4/1982		10/31/1985	7/1/1988
CO	Online	Navajo Dam	4720	Western Colorado	City of Farmington	Conventional	30,000.00				10/15/1985	2/1/1988
UT	Online	Pineview Dam	4597	Provo	Weber-Box Elder Conservancy District	Conventional	1,800.00				3/16/1984	1991
CO	Online	Vallecito Dam	3174	Western Colorado	Ptarmigan Resources & Energy, Inc.	Conventional	5,880.00				10/5/1983	5/1/1989
UT	Preliminary	Lake Powell Hurricane Cliffs Pumping Plant	12966	Regional Office	State of Utah	Pump Storage	300,000.00	8/21/2007	5/20/2011			
CO	Preliminary	Plateau Creek Pumped Storage	14426	Western Colorado	Dolores Water Conservancy District	Pump Storage	500,000.00	5/10/2012	10/1/2012			
<b>LEASE OF POWER PRIVILEGE PROJECTS</b>												
CO	Online	Grand Valley Project		Western Colorado	Grand Valley Water Users Assoc., Orchard Mesa Irrigation Dist., PSCO	Conventional	3,000.00				1933	1938
CO	Online	Jackson Gulch Dam		Western Colorado	Mancos Water Conservancy Dist.	Conventional	260.00				1995	1995
UT	Online	Jordanelle Dam		Provo	Central Utah Water Conservancy Dist., Heber Light and Power	Conventional	13,000.00	7/2/1999			2008	7/1/2008
CO	Online	Lemon Dam		Western Colorado	Florida Water Conservancy District	Conventional	120.00				1988	9/1/1988
CO	Online	South Canal (Drop 1)		Western Colorado	Uncompahgre Valley Water Users and the Delta-Montrose Electric Association	Conventional	4,000.00	8/26/2009			3/16/2012	6/3/2013
CO	Online	South Canal (Drop 3)		Western Colorado	Uncompahgre Valley Water Users and the Delta-Montrose Electric Association	Conventional	3,500.00	8/26/2009			3/16/2012	8/1/2013

## Upper Colorado Renewable Portfolio

State	Project Status	Project Name	FERC ID	Area Office	Operating Entity	Hydropower Type	Capacity (kW)	Project Initiation Date	Preliminary Permit or Lease Date	Exemption or CE Date	License or Lease Date	Online Date
CO	Online	Ridgway Dam		Western Colorado	Tri-County Water Conservancy District	Conventional	7,000.00	6/2/2010			2/6/2012	4/3/2014
CO	Online	Shavano Falls		Western Colorado	Uncompahgre Valley Water Users Association	Conventional	2,800.00	8/21/2013	1/27/2014		6/18/2014	6/24/2015
CO	Online	South Canal (Drop 4)		Western Colorado	Uncompahgre Valley Water Users Association	Conventional	4,800.00	8/21/2013	5/14/2014		9/8/2014	6/24/2015
CO	Contract	South Canal (Drop 5)		Western Colorado	Uncompahgre Valley Water Users Association	Conventional	2,400.00	3/3/2015	6/18/2015		11/5/2015	
UT	Preliminary	Spanish Fork Flow Control Structure	LP11-2	Provo	Central Utah Water Conservancy District, Strawberry Water users Association, and South Utah Valley Electric Service District	Conventional	8,000.00	5/11/2011	3/9/2012			
NM	Posted Solicitation	San Juan Chama Project	LP12-1-000	Albuquerque	Albuquerque Bernalillo County Water Utility Authority	Conventional	100.00	7/6/2012				
CO	Request for Development	Rifle Gap Dam		Western Colorado		Conventional	341.00	4/1/2013				
UT	Request for Development	Diamond Fork		Central Utah Project Completion Act Office	Central Utah Water Conservancy District	Conventional	12,214.00	Nov-14				
UT	Request for Development	Mancos Project Outlet Canal		Western Colorado	Mancos Water Conservancy District	Conventional	415.00	3/22/2016				
<b>SOLAR PROJECTS</b>												
UC	Online	Provo Area Office Solar		Provo	USBR		24.80					Jan-16
UC	Online	Alamosa Solar Project		Albuquerque	USBR		9.84					Jul-10
<b>PILOT PROJECTS</b>												
CO	Contract	South Canal (Drop 2)		Western Colorado	Percheron Power, LLC, Uncompahgre Valley Water Users Association	Hydrodynamic Screw	987.00	5/27/2014	7/29/2014	9/17/2014	12/17/2014	