

# RECLAMATION

*Managing Water in the West*

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

**Fiscal Year 2014, Q4**



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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 have 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, Jeffrey Ticknor, James Bough, and James Stauffer were instrumental in developing this document.

## Renewable Activities

### Lease of Power Privilege (LOPP) Directive and Standard

A revised LOPP Directive and Standard (D&S) was published in September 2014. The D&S is available on the Reclamation Directives and Standards website (<http://www.usbr.gov/recman/DandS.html#fac>). The D&S is also available on the Reclamation LOPP website (<http://www.usbr.gov/power/LOPP/>); the LOPP website has been updated to reflect the revised D&S.

The Lease of Power Privilege (LOPP) Processes, Responsibilities, Timelines, and Charges Directive and Standard (D&S) (FAC 04-08) was first published in September 2012 and later revised in February 2014 to incorporate Bureau of Reclamation Small Conduit Hydropower Development and Rural Jobs Act (Pub. L. 113-24) process requirements.<sup>1</sup> The February 2014 revision was released as a Temporary Reclamation Manual Release with a concurrent public comment period. The comment disposition is available on the Reclamation Manual website (<http://www.usbr.gov/recman/>).

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<sup>1</sup> The Act amends Section 9(c) of the Reclamation Project Act of 1939 (Pub. L. 76-260) to authorize all Reclamation conduit facilities for federal hydropower development and non-federal hydropower development through a LOPP. The Act also establishes new LOPP process requirements, namely that LOPPs be offered first to the irrigation district(s) or water users association(s) operating or receiving water from the Reclamation conduit.

# Reclamation Renewable Energy Summary

## Online Renewable Energy Projects

### Hydropower

Reclamation Owned and Operated	53	Plants	14,725	MW <sup>2</sup>
Reclamation Owned and Operated by Others <sup>3</sup>	23	Plants	790	MW
Other Plants on Reclamation Facilities	7	Plants	85	MW
FERC Plants on Reclamation Facilities <sup>4</sup>	50	Plants	460	MW
LOPP Plants <sup>5</sup>	9	Plants	35	MW
<b>Total</b>	<b>142</b>	<b>Plants</b>	<b>16,095</b>	<b>MW</b>

### Other Renewables

#### Solar

Alamosa (UC, New Mexico)	10	kW <sup>6</sup>
Grand Coulee Warehouse (PN, Washington)	5	kW
Boulder City Regional Office Building (LC, Nevada)	276	kW
Boulder City Regional Office Building (Parking) (LC, Nevada)	6	kW
Hoover Spillway House Renovation (LC, Nevada)	48	kW
<b>Total</b>	<b>345</b>	<b>kW</b>

## In-Progress Renewable Energy Projects

### Reclamation Hydropower

Generator Rewinds/Uprates <sup>7</sup>	2	Plants
Turbine Refurbishments/Replacements <sup>8</sup>	2	Plants
Optimization	0	Plants
<b>Total</b>	<b>4</b>	<b>Plants</b>

### FERC Licenses on Reclamation Facilities

FERC Licenses	4	Plants	28	MW
FERC Exemptions	6	Plants	8	MW
FERC Preliminary Permits (Conventional)	17	Plants	46	MW
FERC Preliminary Permits (Pumped-storage)	11	Plants	8,827	MW
<b>Total</b>	<b>38</b>	<b>Plants</b>	<b>8,909</b>	<b>MW</b>

<sup>2</sup> Megawatt (MW).

<sup>3</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>4</sup> Non-federal hydropower facilities developed on Reclamation facilities, licensed by the Federal Energy Regulatory Commission (FERC).

<sup>5</sup> Non-federal hydropower facilities developed on Reclamation facilities, authorized through a LOPP contract. Reclamation holds title to the Grand Valley Powerplant LOPP.

<sup>6</sup> Kilowatt (kW).

<sup>7</sup> A major generator overhaul is in progress at San Luis (G1) and Yellowtail (G3).

<sup>8</sup> Turbine refurbishment/replacement projects are in progress at Palisades (G4) and Glen Canyon (G3).

<b>Lease of Power Privilege</b>				
LOPP Contracts	2	Plants	3	MW
LOPP Preliminary Leases	5	Plants	27	MW
LOPP Posted Public Solicitations	1	Plant	0.1	MW
LOPP Requests for Development	11	Plants	21	MW
<b>Total</b>	<b>19</b>	<b>Plants</b>	<b>51</b>	<b>MW</b>

<b>Other Renewables</b>				
<b>Wind</b>				
Mohave Wind Farm (LC, Arizona)			500	MW
<b>Total</b>			<b>500</b>	<b>MW</b>

**Solar**

First Solar (LC, Nevada)			50	MW
San Luis Facility (MP, California) <sup>9</sup>			9-25	MW
<b>Total</b>			<b>59-75</b>	<b>MW</b>

**Pilot Projects**

Hydrokinetic Installation on Roza Canal (Instream Energy)			10	kW
Low-head Technology Installation on Monroe Drop <sup>10</sup>			300	kW
Low-head Technology Installation on North Unit Irrigation Canal, Mile 45 <sup>11</sup>			5,000	kW
Hydrodynamic Screw Technology Installation on South Canal, Drop 2 <sup>12</sup>			987	kW
<b>Total</b>			<b>6,297</b>	<b>kW</b>

**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 regarding WaterSMART, visit: <http://www.usbr.gov/WaterSMART/index.cfm>.

On June 6, 2014, Reclamation awarded (in total) \$17.8 million in water and energy efficiency grants to 36 projects. In aggregate, the 36 projects are expected

<sup>9</sup> Capacity is dependent upon the amount of land available to be leased.  
<sup>10</sup> The low-head technology installation on Monroe Drop has received a FERC Preliminary Permit and is included in the FERC Preliminary Permits (Conventional) statistic.  
<sup>11</sup> The low-head technology installation on North Unit Irrigation Canal, Mile 45, has received a FERC Exemption and is included in the FERC Exemptions statistic.  
<sup>12</sup> This pilot project has received a LOPP Preliminary Lease and is included in the LOPP Preliminary Leases statistic.

to conserve more than 67,000 acre-feet of water and 22.9 million kilowatt-hours (kWh) of electricity, annually.

## WaterSMART Updates

The Three Sisters Irrigation District was selected for a WaterSMART Grant in FY2011. The grant supported an ongoing collaborative effort with the Deschutes River Conservancy to improve the District’s water delivery system. The proposed project involved the conversion of nearly four miles of open, unlined canals with buried pipe and the installation of a 950 kW turbine generator. The project was completed in August 2014 and is expected to conserve 750 acre-feet of water and generate 3.1 million kilowatt-hours of electricity per year.

All active, FY 2011-2014 WaterSMART Grant projects that have a renewable energy component are listed below. Full project summaries are available on the WaterSMART website (<http://www.usbr.gov/WaterSMART/index.cfm>).

WaterSMART		
FY	Recipient	Status
2011	Three Sisters Irrigation District	Online (8/2014)
2011	Pershing County Water Conservation District	In development, FERC License
2011	Boise Project Board of Control	Online (4/2013)
2012	Consolidated Irrigation Company	In development
2013	Cub River Irrigation Company	In development
2014	Nevada Irrigation District	In development
2014	Rosedale-Rio Bravo Water Storage District	In development
2014	Uncompahgre Valley Water Users Association	In development, LOPP Contract
2014	Oxford Reservoir and Irrigation Company	In development
2014	Elephant Butte Irrigation District	In development
2014	Davis and Weber Counties Canal Company	In development
2014	Fremont Irrigation Company	In development
2014	Holmes Creek Irrigation Company	In development
2014	Richmond Irrigation District	In development

## Great Plains Renewable Energy Summary

### Online Renewable Energy Projects

Hydropower					
Reclamation Owned and Operated	21	Plants	1,008	MW	
Reclamation Owned and Operated by Others	0	Plants	0	MW	
Other Plants on Reclamation Facilities	0	Plants	0	MW	
FERC Plants on Reclamation Facilities	7	Plants	29	MW	
LOPP Plants	1	Plant	3	MW	
<b>Total</b>	<b>29</b>	<b>Plants</b>	<b>1,040</b>	<b>MW</b>	

**Other Renewables**

**Solar**

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**Total** **0 kW**

**In-Progress Renewable Energy Projects**

**Reclamation Hydropower**

Generator Rewinds/Uprates <sup>13</sup>	1	Plant	
Turbine Refurbishments/Replacements	0	Plants	
Optimization	0	Plants	
<b>Total</b>	<b>1</b>	<b>Plant</b>	

**FERC Licenses on Reclamation Facilities**

FERC Licenses	2	Plants	20	MW
FERC Exemptions	1	Plant	1	MW
FERC Preliminary Permits (Conventional)	3	Plants	4	MW
FERC Preliminary Permits (Pumped-storage)	3	Plants	2,132	MW
<b>Total</b>	<b>9</b>	<b>Plants</b>	<b>2,157</b>	<b>MW</b>

**Lease of Power Privilege**

LOPP Contracts	0	Plants	0	MW
LOPP Preliminary Leases	2	Plants	8	MW
LOPP Posted Public Solicitations	0	Plants	0	MW
LOPP Requests for Development	5	Plants	16	MW
<b>Total</b>	<b>7</b>	<b>Plants</b>	<b>24</b>	<b>MW</b>

**Other Renewables**

**Wind**

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**Total** **0 MW**

**Solar**

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**Total** **0 MW**

**Pilot Projects**

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**Total** **0 kW**

**Great Plains Project Updates**

**Federal Energy Regulatory Commission Projects**

**Project:** Black Canyon Pumped Storage Project

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<sup>13</sup> A major generator overhaul is in progress at Yellowtail (G3).

**Developer:** Black Canyon Hydro, LLC  
**Status:** Preliminary Permit (P-14087)

FERC issued a Preliminary Permit to Black Canyon Hydro, LLC, on July 15, 2011, to study the feasibility of the proposed Black Canyon Pumped Storage Project in Carbon County, Wyoming. The proposed project would involve the construction of a new reservoir and utilize an existing Reclamation reservoir (either Kortez or Seminoe) for pump storage.

On July 1, 2014, Black Canyon Hydro, LLC, filed a successive permit application for the proposed project. On August 26, 2014, FERC accepted the preliminary permit application for filing and solicited comments, motions to intervene, and competing applications.

**Project:** Clark Canyon Dam  
**Developer:** Clark Canyon Hydro, LLC  
**Status:** License (P-12429)

On June 27, 2014, FERC issued a “Notice of Probable Termination of Project License” due to several missing license requirements including start of construction, contract plans and specifications, cofferdam construction and project financing plan.

Clark Canyon Hydro, LLC (Clark Canyon) submitted a “Response in Opposition to Notice of Probable Termination and Request for Stay” on July 28, 2014, requesting FERC rescind the notice and either (1) confirm that Clark Canyon has met the commencement of construction standard, or in the alternative (2) retroactively stay the commencement of construction deadline on account of delays outside of Clark Canyon’s control – specifically “delays associated with USBR reviews.” The Reclamation Montana Area Office has communicated with Clark Canyon, rebutting these claims. FERC has not yet responded to Clark Canyon.

Clark Canyon submitted a completed design package to Reclamation on June 4, 2014. Reclamation provided comments on July 31, 2014. Clark Canyon is currently resolving comments and preparing a final design package.

## **Lease of Power Privilege Projects**

**Project:** Granby Dam  
**Developer:** Northern Water Conservancy District  
**Status:** Preliminary Lease

The Reclamation Technical Service Center (TSC) completed review of a 60 percent design package submitted by the Northern Water Conservancy District

(Northern) and CH2M Hill on July 30, 2014. TSC comments were transmitted to Northern and a response is expected in the near future.

Northern's application for a special use permit to conduct test drilling was approved by the Reclamation Eastern Colorado Area Office (ECAO) on July 31, 2014. Drilling was conducted on August 27, 2014, with ECAO and TSC dam safety personnel in attendance. The Great Plains Region, Reclamation Dam Safety, and ECAO are currently working with Northern to complete all outstanding items before issuance of a LOPP contract.

**Project:** Pueblo Dam

**Developer:** Southeastern Colorado Water Conservancy District, Colorado Springs Utilities, and Board of Water Works of Pueblo, Colorado

**Status:** Preliminary Lease

On August 6, 2014, the Southeastern Colorado Water Conservancy District (Southeastern) contacted Reclamation, requesting an extension to the existing Preliminary Lease. The extension was approved by Reclamation on August 25, 2014. Southeastern is currently coordinating with local utilities to secure a power purchase agreement and the State of Colorado to secure a 1041 Permit.

**Project:** Yellowtail Afterbay

**Developer:** Crow Tribe

**Status:** Request for Development

The Tribe's legal counsel has questioned the "Initial Yellowtail Afterbay Hydropower Agreement" provision requiring the Tribe to reimburse Reclamation for costs incurred by Reclamation related to the project. In response, Reclamation has submitted a revised agreement which provides non-reimbursable funding for certain project tasks completed by Reclamation. The revised draft has been forwarded to the Tribe's legal counsel for consideration.

The Tribe has completed a topographic survey for the site and will be allowed to conduct additional, limited site surveys in the future. Additional surveys may include a wetland determination and a cultural resource investigation. The Tribe's request to conduct geotechnical investigations prior to the execution of the agreement has been rejected.

## **Lower Colorado Renewable Energy Summary**

### **Online Renewable Energy Projects**

Reclamation Renewable Energy Update

<b>Hydropower</b>				
Reclamation Owned and Operated	3	Plants	2,454	MW
Reclamation Owned and Operated by Others	10	Plants	297	MW
Other Plants on Reclamation Facilities	7	Plants	85	MW
FERC Plants on Reclamation Facilities	0	Plants	0	MW
LOPP Plants	0	Plants	0	MW
<b>Total</b>	<b>20</b>	<b>Plants</b>	<b>2,836</b>	<b>MW</b>

<b>Other Renewables</b>				
<b>Solar</b>				
Boulder City Regional Office Building (LC, Nevada)			276	kW
Boulder City Regional Office Building (Parking) (LC, Nevada)			6	kW
Hoover Spillway House Renovation (LC, Nevada)			48	kW
<b>Total</b>			<b>330</b>	<b>kW</b>

## In-Progress Renewable Energy Projects

<b>Reclamation Hydropower</b>				
Generator Rewinds/Uprates	0	Plants		
Turbine Refurbishments/Replacements	0	Plants		
Optimization	0	Plants		
<b>Total</b>	<b>0</b>	<b>Plants</b>		

<b>FERC Licenses on Reclamation Facilities</b>				
FERC Licenses	0	Plants	0	MW
FERC Exemptions	0	Plants	0	MW
FERC Preliminary Permits (Conventional)	0	Plants	0	MW
FERC Preliminary Permits (Pumped-storage)	4	Plants	3,645	MW
<b>Total</b>	<b>4</b>	<b>Plants</b>	<b>3,645</b>	<b>MW</b>

<b>Lease of Power Privilege</b>				
LOPP Contracts	0	Plants	0	MW
LOPP Preliminary Leases	0	Plants	0	MW
LOPP Posted Public Solicitations	0	Plants	0	MW
LOPP Requests for Development	2	Plants	3	MW
<b>Total</b>	<b>2</b>	<b>Plants</b>	<b>3</b>	<b>MW</b>

<b>Other Renewables</b>				
<b>Wind</b>				
Mohave Wind Farm (LC, Arizona)			500	MW
<b>Total</b>			<b>500</b>	<b>MW</b>

<b>Solar</b>				
First Solar (LC, Nevada)			50	MW
<b>Total</b>			<b>50</b>	<b>MW</b>

## Pilot Projects

<b>Total</b>			<b>0</b>	<b>kW</b>
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## Lower Colorado Project Updates

No updates available for this quarter.

## Mid-Pacific Renewable Energy Summary

### Online Renewable Energy Projects

Hydropower				
Reclamation Owned and Operated	10	Plants	1,910	MW
Reclamation Owned and Operated by Others <sup>14</sup>	3	Plants	452	MW
Other Plants on Reclamation Facilities	0	Plants	0	MW
FERC Plants on Reclamation Facilities	13	Plants	60	MW
LOPP Plants	1	Plant	1	MW
<b>Total</b>	<b>27</b>	<b>Plants</b>	<b>2,423</b>	<b>MW</b>

### Other Renewables

#### Solar

<b>Total</b>	<b>0</b>	<b>kW</b>
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### In-Progress Renewable Energy Projects

Reclamation Hydropower				
Generator Rewinds/Uprates <sup>15</sup>	1	Plant		
Turbine Refurbishments/Replacements	0	Plants		
Optimization	0	Plants		
<b>Total</b>	<b>1</b>	<b>Plant</b>		

### FERC Licenses on Reclamation Facilities

FERC Licenses	2	Plants	8	MW
FERC Exemptions	0	Plants	0	MW
FERC Preliminary Permits (Conventional)	0	Plants	0	MW
FERC Preliminary Permits (Pumped-storage)	1	Plant	1,250	MW
<b>Total</b>	<b>3</b>	<b>Plants</b>	<b>1,258</b>	<b>MW</b>

### Lease of Power Privilege

LOPP Contracts	0	Plants	0	MW
LOPP Preliminary Leases	0	Plants	0	MW
LOPP Posted Public Solicitations	0	Plants	0	MW
LOPP Requests for Development	2	Plants	.4	MW
<b>Total</b>	<b>2</b>	<b>Plants</b>	<b>.4</b>	<b>MW</b>

<sup>14</sup> Power from two of the three plants is marketed by Western: O'Neill and San Luis.

<sup>15</sup> A major generator overhaul is in progress at San Luis (G1).

**Other Renewables**

<b>Wind</b>		
<b>Total</b>		<b>0 MW</b>
<b>Solar</b>		
San Luis Facility (MP, California) <sup>16</sup>		9-25 MW
<b>Total</b>		<b>9-25 MW</b>

**Pilot Projects**

<b>Total</b>		<b>0 kW</b>
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**Mid-Pacific Project Updates**

No updates available for this quarter.

**Pacific Northwest Renewable Energy Summary**

**Online Renewable Energy Projects**

**Hydropower**

Reclamation Owned and Operated	10	Plants	7,537	MW
Reclamation Owned and Operated by Others	0	Plants	0	MW
Other Plants on Reclamation Facilities	0	Plants	0	MW
FERC Plants on Reclamation Facilities	25	Plants	321	MW
LOPP Plants	0	Plants	0	MW
<b>Total</b>	<b>35</b>	<b>Plants</b>	<b>7,858</b>	<b>MW</b>

**Other Renewables**

<b>Solar</b>		
Grand Coulee Warehouse (PN, Washington)		5 kW
<b>Total</b>		<b>5 kW</b>

**In-Progress Renewable Energy Projects**

**Reclamation Hydropower**

Generator Rewinds/Uprates	0	Plants
Turbine Refurbishments/Replacements <sup>17</sup>	1	Plant

<sup>16</sup> Capacity is dependent upon the amount of land available to be leased.

Optimization	0	Plants	
<b>Total</b>	<b>1</b>	<b>Plant</b>	

**FERC Licenses on Reclamation Facilities**

FERC Licenses	0	Plants	0	MW
FERC Exemptions	5	Plants	7	MW
FERC Preliminary Permits (Conventional)	14	Plants	42	MW
FERC Preliminary Permits (Pumped-storage)	1	Plant	1,000	MW
<b>Total</b>	<b>20</b>	<b>Plants</b>	<b>1,049</b>	<b>MW</b>

**Lease of Power Privilege**

LOPP Contracts	0	Plants	0	MW
LOPP Preliminary Leases	0	Plants	0	MW
LOPP Posted Public Solicitations	0	Plants	0	MW
LOPP Requests for Development	0	Plants	0	MW
<b>Total</b>	<b>0</b>	<b>Plants</b>	<b>0</b>	<b>MW</b>

**Other Renewables**

**Wind**

<b>Total</b>	<b>0</b>	<b>MW</b>
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**Solar**

<b>Total</b>	<b>0</b>	<b>MW</b>
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**Pilot Projects**

Hydrokinetic Installation on Roza Canal (Instream Energy)	10	kW
Low-head Technology Installation on Monroe Drop <sup>18</sup>	300	kW
Low-head Technology Installation on North Unit Irrigation Canal, Mile 45 <sup>19</sup>	5,000	kW
<b>Total</b>	<b>5,310</b>	<b>kW</b>

**Pacific Northwest Project Updates**

No updates available for this quarter.

<sup>17</sup> A turbine refurbishment/replacement project is in progress at Palisades (G4).

<sup>18</sup> The low-head technology installation on Monroe Drop has received a FERC Preliminary Permit and is included in the FERC Preliminary Permits (Conventional) statistic.

<sup>19</sup> The low-head technology installation on North Unit Irrigation Canal, Mile 45, has received a FERC Exemption and is included in the FERC Exemptions statistic.

# Upper Colorado Renewable Energy Summary

## Online Renewable Energy Projects

Hydropower				
Reclamation Owned and Operated	9	Plants	1,816	MW
Reclamation Owned and Operated by Others <sup>20</sup>	10	Plants	41	MW
Other Plants on Reclamation Facilities	0	Plants	0	MW
FERC Plants on Reclamation Facilities	5	Plants	50	MW
LOPP Plants <sup>21</sup>	7	Plants	31	MW
<b>Total</b>	<b>31</b>	<b>Plants</b>	<b>1,938</b>	<b>MW</b>

Other Renewables				
<b>Solar</b>				
Alamosa (UC, New Mexico)			10	kW
<b>Total</b>			<b>10</b>	<b>kW</b>

## In-Progress Renewable Energy Projects

Reclamation Hydropower				
Generator Rewinds/Uprates	0	Plants		
Turbine Refurbishments/Replacements <sup>22</sup>	2	Plants		
Optimization	0	Plants		
<b>Total</b>	<b>2</b>	<b>Plants</b>		

FERC Licenses on Reclamation Facilities				
FERC Licenses	0	Plants	0	MW
FERC Exemptions	0	Plants	0	MW
FERC Preliminary Permits (Conventional)	0	Plants	0	MW
FERC Preliminary Permits (Pumped-storage)	2	Plants	800	MW
<b>Total</b>	<b>2</b>	<b>Plants</b>	<b>800</b>	<b>MW</b>

Lease of Power Privilege				
LOPP Contracts	2	Plants	8	MW
LOPP Preliminary Leases	3	Plants	15	MW
LOPP Posted Public Solicitations	1	Plant	0.1	MW
LOPP Requests for Development	2	Plants	1	MW
<b>Total</b>	<b>8</b>	<b>Plants</b>	<b>24.1</b>	<b>MW</b>

Other Renewables				
<b>Wind</b>				
<b>Total</b>			<b>0</b>	<b>MW</b>

### Solar

<sup>20</sup> Power from three of the 10 plants is marketed by Western: Deer Creek, Towaoc, and McPhee.

<sup>21</sup> Reclamation holds title to the Grand Valley Powerplant LOPP.

<sup>22</sup> A turbine refurbishments/replacements project is in progress at Glen Canyon (G3).

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<b>Total</b>	<b>0 MW</b>
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## Pilot Projects

Hydrodynamic Screw Technology Installation on South Canal, Drop 2 <sup>23</sup>	987 kW
<b>Total</b>	<b>987 kW</b>

# Upper Colorado Project Updates

## Lease of Power Privilege Projects

**Project:** San Juan Chama Project

**Developer:** N/A

**Status:** Posted Public Solicitation

A notice of intent to accept proposals, select lessee, and contract for hydroelectric power development on the Reclamation San Juan-Chama Project was posted to the Federal Register on August 7, 2013. Written proposals were due January 6, 2014 (150 days removed from the posting).

One proposal was received from the Albuquerque Bernalillo County Water Utility Authority. The Authority qualifies as a preference entity pursuant to Pub. L. 113-24. Following review of the proposal, Reclamation requested clarification and additional information from the Authority. The Authority has provided the requested information and Reclamation is currently working on a draft Preliminary Lease and Funding Agreement with the Authority.

At this time, the Authority is coordinating funding and project logistics.

**Project:** South Canal (Drop 4)

**Developer:** Uncompahgre Valley Water Users Association

**Status:** LOPP Contract

NEPA activities are complete and a Finding of No Significant Impact has been signed. A LOPP contract was executed on September 8, 2014. Pre-construction requirements have been satisfied and the Association has been given permission to commence project construction on September 17, 2014.

**Project:** South Canal (Drop 2)

**Developer:** Percheron Power, LLC, and the Uncompahgre Valley Water Users Association

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<sup>23</sup> This pilot project is included in the LOPP Requests for Development statistic.

**Status:** Preliminary Lease

On April 21, 2014, Percheron Power, LLC, and the Association entered into a Memorandum of Agreement that defined a collaborative, partnership arrangement between the parties to develop a demonstration powerplant featuring an Archimedes screw generator system. On May 27, 2014, Reclamation received a formal request to develop South Canal (Drop 2) along with information described in FAC TRMR-61, *Lease of Power Privilege (LOPP) Processes, Responsibilities, Timelines, and Charges*, necessary to develop a Preliminary Lease and Funding Agreement.

Reclamation executed a preliminary lease and funding agreement with the parties on July 29, 2014. LOPP contract negotiations are ongoing.

## **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	98,500.00					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 FS		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	250,000.00					1966
<b>FEDERAL ENERGY REGULATORY COMMISSION PROJECTS</b>												
WY	Online	Garland Canal	3031	Wyoming	Shoshone ID.	Conventional	2,610.00					1980
MT	Online	Lower Turnbull Drop	12597	Montana	Turnbull Hydro, LLC	Conventional	7,700.00	6/21/2005				10/9/1981
OK	Online	McGehee Creek Dam	8492	Oklahoma Texas	McGehee Creek Authority	Conventional	175.00	7/26/1984				7/28/2006
CO	Online	Ruedi Dam	3603	Western Colorado	City of Aspen	Conventional	3,200.00					6/23/1986
CO	Online	Sugarloaf Dam	3819	Eastern Colorado	SFS Hydropower Ltd.	Conventional	2,800.00					9/8/1983
MO	Online	Tiber Dam	3574	Montana	Tiber Montana LLC	Conventional	7,500.00					11/18/1982
MT	Online	Upper Turnbull Drop	12598	Montana	Turnbull Hydro, LLC	Conventional	5,300.00	6/24/2005				6/28/2012
MT	License	Clark Canyon Dam	12429	Montana	Clark Canyon Hydro, LLC	Conventional	4,700.00	1/1/2003				8/15/2003
MT	License	Gibson Dam	12478	Montana	Gibson Dam Hydroelectric Company, LLC	Conventional	15,000.00	10/28/2003				4/20/2004
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
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
WY	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	Garter Lake Outlet		Eastern Colorado	Northern Water Conservancy District	Conventional	2,600.00	5/7/2009				11/24/2009
CO	Preliminary	Granby Dam		Eastern Colorado	Northern Water Conservancy District	Conventional	700.00	4/20/2011				6/26/2012
CO	Preliminary	Pueblo Dam		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	Request for Development	Helena Valley Pumping Plant		Montana	Helena Valley Irrigation District	Conventional	4,800.00	9/13/2013				
MT	Request for Development	Yellowtail Afterbay		Montana	Crow Tribe	Conventional	9,000.00	1/11/2012				
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				

### 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	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		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. Craiglin 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	Iaguna Dam		Yuma		Conventional	2,200.00	1/28/2013				
AZ	Request for Development	Santa Rosa Canal		Phoenix	Martocpa-Stanfield Irrigation and Drainage District	Conventional	375.00	9/4/2012				
<b>SOLAR PROJECTS</b>												
NV	Online	Boulder City Regional Office Building		Regional Office	Boulder City Regional Office Building		276.36					
NV	Online	Boulder City Regional Office Building (parking)		Regional Office	Boulder City Regional Office Building		5.97					
NV	Online	Hoover Spillway House Renovation		Regional Office	Boulder City Regional Office Building		48.00					Aug-13
NV	In Development	First Solar		Regional Office	First Solar Development, LLC		50,000.00	Jun-14				
<b>WIND PROJECTS</b>												
AZ	In Development	Mohave County Wind Farm		Regional Office	Mohave County		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/Garnett 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	Frant Fishwater Release	11068	South Central California	Orange County Irrigation District	Conventional	510.00					5/16/1991
CA	Online	Frant Power	2892	South Central California	Frant Power Authority	Conventional	27,360.00					9/30/1982
CA	Online	High Line Canal	7252	Northern California	Santa Clara	Conventional	530.00					7/17/1984
CA	Online	Madera Canal	5755	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
NV	Online	New Lahontan	7828	Lahontan Basin	Truckee-Carson I.D.	Conventional	4,000.00					12/26/1985
CA	Online	Stony Gorge Hydroelectric	3193	Northern California	Santa Clara, City of	Conventional	4,900.00					8/31/1982
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	3,350.00	2/17/1982				3/10/1983
CA	License	Frant Fishwater Release	11068	South Central California	Orange County Irrigation District	Conventional	7,000.00					5/16/1991
CA	License	Humboldt River Hydropower Project (Rye Patch)	14327	Lahontan Basin	Pershing County Water Conservation District	Conventional	750.00	1/22/2011				1/31/2014
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
CA	Request for Development	A-C3 (Pantker Drop)		Lahontan Basin	Truckee Carson Irrigation District	Conventional	125.00	2014				5/9/2012

### 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	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			9,000.00 - 25,000.00	8/5/2011	12/13/2011			

## 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>												
WA	Online	Anderson Ranch		Snake River	USBR	Conventional	40,000.00					1950
WA	Online	Black Canyon		Snake River	USBR	Conventional	10,200.00					1925
WA	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
WA	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>												
WA	Online	American Falls	2736	Snake River	Idaho Power Co	Conventional	92,400.00					1975
ID	Online	ARROWROCK DAM	4656	Snake River	Big Bend Irrigation District, et al.	Conventional	15,000.00		8/15/1983			3/27/1989
ID	Online	CASCADE	2848	Snake River	Idaho Power Co.	Conventional	12,420.00					3/4/1985
WA	Online	COWICHE	7337	Columbia Cascades	Yakima-Tieton ID	Conventional	1,470.00					7/6/1984
ID	Online	Dietrich Drop	8909	Snake River	Big Wood Canal Company	Conventional	4,770.00	3/7/1985				5/22/1987
WA	Online	ELTOPIA BRANCH CANAL	3842	Columbia Cascades	East, Quincy, & South, Columbia Basin ID's	Conventional	2,200.00					12/9/1981
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
ID	Online	Little Wood Reservoir	7427	Snake River	Little Wood Irrigation District	Conventional	3,000.00				4/13/1984	1982
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
ID	Online	MIle 28	10552	Snake River	Contractor's Power Group	Conventional	1,500.00	12/2/1987				8/12/1992
OR	Online	MITCHELL BUTTE LATERAL	5357	Snake River	Owyhee ID et. al.	Conventional	1,880.00		2/26/1982			12/14/1984
WA	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	6/11/1983
WA	Online	POTHOLE'S EAST CANAL	3843	Snake River	East, Quincy, & South, Columbia Basin ID's	Conventional	2,400.00				12/9/1981	1982
WA	Online	POTHOLE'S EAST CANAL HEADWORKS	2840	Columbia Cascades	Grand Coulee Project Hydroelectric Authority	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	RUSSELL D SMITH PEC 2.2.7	2936	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	TETON DAM	3701	Columbia Cascades	Yakima-Tieton Irrigation District	Conventional	13,600.00				6/27/1991	2007
OR	Exemption	45-Mile	13817	Columbia Cascades	Earth by Design	Conventional	5,000.00	7/16/2010			12/17/2010	
ID	Exemption	FARGO DROP NO. 2	5040	Snake River	Boise Project Board of Control	Conventional	175.00				10/23/1981	



## 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
CO	Online	Elephant Butte		Abuquerque	USBR	Conventional	27,945.00					1940
NM	Online	Flaming Gorge		Provo	USBR	Conventional	151,500.00					1963
UT	Online	Fontenelle		Provo	USBR	Conventional	10,000.00					1968
WY	Online	Glen Canyon		Western Colorado	USBR	Conventional	1,320,000.00					1965
AZ	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	Gausey 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 PacificCorp in 1990	Conventional	10,300.00					1904
UT	Online	Payson Powerplant		Provo	Strawberry Water User's Association	Conventional	400.00					1941
CO	Online	Towaco 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			6/9/1905
NM	Online	El Vado Dam	5226	Abuquerque	County of Los Alamos	Conventional	8,000.00		1/4/1982			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			6/13/1905
CO	Online	Vallecito Dam	3174	Western Colorado	Parramigan 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				1955	1955
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	Lemmon Dam		Western Colorado	Florida Water Conservancy District	Conventional	120.00				1989	9/1/1988
CO	Online	South Canal (Drop 1)		Western Colorado	Uncompahgre Valley Water Users and the Delta-Morrise Electric Association	Conventional	4,000.00	8/26/2009			3/16/2012	6/9/2013
CO	Online	South Canal (Drop 3)		Western Colorado	Uncompahgre Valley Water Users and the Delta-Morrise Electric Association	Conventional	3,500.00	8/26/2009			3/16/2012	8/1/2013
CO	Online	Ridgeway Dam		Western Colorado	Tri-County Water Conservancy District	Conventional	7,000.00	6/2/2010			2/6/2012	4/3/2014
CO	License	Shavano Falls		Western Colorado	Uncompahgre Valley Water Users Association	Conventional	2,800.00	8/21/2013	1/27/2014		6/18/2014	
CO	License	South Canal (Drop 4)		Western Colorado	Uncompahgre Valley Water Users Association	Conventional	4,800.00	8/21/2013	5/14/2014		9/8/2014	
NM	Preliminary	Caballo Dam		Abuquerque	HydroPower Capital	Conventional	5,900.00	9/22/2011	12/4/2012			
UT	Preliminary	Spanish Fork Flow Control Structure		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	Abuquerque	Abuquerque 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				

## 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	Request for Development	South Canal (Drop 5)		Western Colorado	Uncompahgre Valley Water Users Association	Conventional	291.00	8/21/2013				
<b>PILOT PROJECTS</b>												
CO	Preliminary	South Canal (Drop 2)		Western Colorado	Percheron Power, LLC, Delta-Montrose Electric Association, Uncompahgre Valley Water Users Association	Hydrodynamic Screw	987.00	5/27/2014	7/29/2014			