APPLICATION FOR LICENSE FOR A MAJOR PROJECT – EXISTING DAM

FOR

MASON DAM HYDROELECTRIC PROJECT

FERC NO. 12686

BAKER COUNTY OREGON, APPLICANT

April 2013

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APPLICANT: BAKER COUNTY OREGON

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BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

APPLICATION FOR LICENSE FOR A MAJOR PROJECT
5 MEGAWATTS OR LESS – EXISTING DAM

INITIAL STATEMENT

1) Baker County applies to the Federal Energy Regulatory Commission for a new license for the Mason Dam Hydroelectric Power project, as described in the attached exhibits (FERC designation number P-12686 and previous original designation number of P-12058).

2) THE LOCATION OF THE PROJECT IS:

   State: Oregon
   County: Baker
   Nearby town: Baker City
   Inflow stream: Powder River
   Body of Water: Phillips Reservoir

3) THE NAME AND BUISINESS ADDRESS OF THE APPLICANT ARE:

   County of Baker
   1995 Third Street
   Baker City, OR 97814
   (541) 523-8200

4) THE NAME AND BUISNESS ADDRESS OF THE PERSON AUTHORIZED TO ACT AS AGENT FOR THE APPLICANT ARE:

   Baker County Board of Commissioners
   Commission Chair: Fred Warner Jr.
   Commissioner: Dr. Carl Stiff
   Commissioner: Tim Kerns
   1995 Third Street
   Baker City, OR 97814
   (541)523-8200

5) The applicant is a county in the state of Oregon and is claiming preference under section 7(a) of the Federal Power Act.

6) (i) The statutory or regulatory requirements of the state in which the project would be located and that affect the project as proposed with respect to bed and banks and to the appropriation, diversion, and use of water for power purposes, and with respect to the right to engage in the business of developing, transmitting, and distributing power and in any other business necessary to accomplish the purposes of the license under the Federal Power Act, are:

BED AND BANKS
The Department of State Lands (DSL) under Oregon state law (ORS 196.795-990) requires a permit for any project requiring the removal or fill of 50 cubic-yards or more of material in waters of the state. The Army Corps of Engineers requires a permit for any work within waters of the US. In Oregon, the U.S. Army Corps of Engineers (USACE) and DSL and USACE use the same wetland and waters delineation method and share a joint application form.

APPROPRIATION, DIVERSION, AND USE OF WATER FOR POWER PURPOSES
Oregon state law (ORS 543.050) empowers the Water Resource Commission to:

(1) Issue preliminary permits, as provided in ORS 543.210 to 543.250, to any person qualified to become a licensee.

(2) Issue licenses, as provided in ORS 543.260, to citizens of the United States, associations of citizens, or private corporations organized under the laws of the United States or any state of the United States, to appropriate, initiate, perfect, acquire and hold the right to the use of waters within the state, including waters over which the state has concurrent jurisdiction, and to construct, operate and maintain dams, reservoirs, power houses, conduits, transmission lines, and all other works and structures necessary or convenient for the use of the waters in the generation and utilization of electricity.

At the time of filing a license application with FERC, Baker County will also file a Water Right application along with the state portion of the total project fee required in ORS 543.280.

THE RIGHT TO ENGAGE IN THE BUISINESS OF DEVELOPING, TRANSMITTING AND DISTRIBUTING POWER:
Baker County is authorized to develop hydropower projects based on ORS 534.050(2) which empowers the Oregon Water Resources Commission:

to issue licenses, as provided in ORS 543.260, to … public corporations…to construct, operate and maintain dams, reservoirs, power houses, conduits, transmission lines, and all other works and structures necessary or convenient for the use of the waters in the generation and utilization of electricity.

And

ORS 536.007 that states the county is a “public corporation”

And

ORS 543.260(1) that provides that a "license may be issued by the Water Resources Commission to any qualifies person…"

And

ORS 536.007(6) states that a public corporation is a "person".

(ii) THE STEPS WHICH THE APPLICANT HAVE TAKEN OR PLAN TO TAKE TO COMPLY WITH EACH OF THE LAWS CITED ABOVE ARE:

BED AND BANKS
Baker County will file, if needed, a joint application as required by the State of Oregon with DSL and USACE with an attached FERC license application.

APPROPRIATION, DIVERSION AND USE OF WATER FOR POWER PURPOSES
Baker County will file its Water Right Application along with its FERC license application with the state of Oregon Water Resources Department.

7) BRIEF PROJECT DESCRIPTION:

(i) Proposed installed generating capacity 3.4 MW.

(ii) Located on existing Bureau of Reclamation dam:

Bureau of Reclamation
Pacific Northwest Region
1150 North Curtis Road, Suite 100
Boise, Idaho 83706-1234

8) AFFECTED SURVEY LANDS OF THE UNITED STATES:

Exhibit G shows the proposed FERC boundary. The FERC project boundary surrounds all project facilities and construction work areas and includes a buffer zone to assure that all project activities are contained within the boundary. All project facilities are located on federal lands as listed in Table 1. The Mason Dam facilities, which are owned by the Bureau of Reclamation, are not included within the project boundary except as required for the operation of the project. Table 2 lists federal acreages within the project boundary.

TABLE A: LAND OWNERSHIP FOR MASON DAM HYDROELECTRIC PROJECT.

PROJECT ELEMENT	**LOCATION**	**OWNER**
		FEDERAL AGENCY
Penstock, Powerhouse and Tailrace	SW¼ SE¼ S24 T10S R38E NW¼ NE¼ S25 T10S R38E	BuRec BuRec
Transmission Line	W½ NE¼ S25 T10S R38E SE¼ NW¼ S25 T10S R38E NE¼ SW¼ S25 T10S R38E	BuRec BuRec Forest Service

TABLE B: PROJECT ACREAGE.

PROJECT ELEMENT	TOTAL ACRES	FEDERAL ACRES
Penstock, Powerhouse and Tailrace	1.2	1.2
Transmission Line	5.2	5.2
Total Project Boundary	6.4	6.4

9) PROJECT CONSTRUCTION

The preliminary construction schedule for the proposed project is listed below in Table 3.

TABLE C: PRELIMINARY CONSTRUCTION SCHEDULE

ITEM	START DATE	FINISH DATE
Negotiate Construction Contract	Dec 2014	Jan 2015
Detailed Design and Design Review	Feb 2014	Jan 2015
Order Long-Lead Equipment	Dec 2013	Jan 2014
Turbine/Generator Manufacturing	Feb 2014	Jan 2015
Penstock Fabrication	Jun 2014	Sep 2014
Penstock Installation	Oct 2014	Dec 2014
Construct Powerhouse Foundation	Oct 2014	Dec 2014
Equipment Installation	Feb 2015	Mar 2015
Powerhouse Finish Work	Jan 2015	Mar 2015
Station Electrical	Jan 2015	Mar 2015
Site Grading and Cleanup	Mar 2015	Mar 2015
Construct Transmission Line	Jan 2015	Mar 2015
Start-up and Initial Operation (Testing)	Apr 2015	May 2015

This Application is executed in the State of Oregon by:

Fred Warner Jr. Commission Chair
Baker County
1995 Third Street
Baker City, OR 97814
(541) 523-8200

being duly sworn, deposes and says that the contents of this Application are true and correct to the best of his knowledge or belief. The undersigned has signed this Application this 30th day of April, 2013.

Respectfully submitted,

Fred Warner Jr.

Fred Warner Jr. Commission Chair

Subscribed to and sworn to before me, a Notary Public of the State of Oregon, this 30 day of April, 2013.

By: Karen Phillips

Printed Name: Karen Phillips

My commission expires: 11/1/2014

OFFICIAL SEAL
KAREN A PHILLIPS
NOTARY PUBLIC-OREGON
COMMISSION NO. 453134
MY COMMISSION EXPIRES NOVEMBER 01, 2014

I hereby certify that copies of this Application were served upon the following parties:

a. Audie Huber, CTUIR, Pendleton, OR
b. Denis Griffin, Oregon SHPO, Salem, OR
c. Mary Grainey, OWRD, Salem, OR
d. Mike Gerdes, USFS, Prinville, OR
e. Mike Hall, USFS, Baker City, OR
f. John Dadoly, ODEQ, Pendleton, OR
g. Rick Lusk, OWRD, Baker City, OR
h. Robert Ross, USBOR, Boise, ID
i. Ken Homolka, ODF&W, Salem, OR
j. Elizabeth OsierMoats, ODF&W, LaGrande, OR
k. Jeff Tomac, USFS, Baker City, OR
l. Shawn Steinmetz, CTUIR, Pendleton, OR
m. Carl Merkle, CTUIR, Pendleton, OR
n. Gary Miller, USF&W, LaGrande, OR

Fred Warner Jr.

Fred Warner Jr. Commission Chair

Subscribed to and sworn to before me, a Notary Public of the State of Oregon, this 30 day of April, 2013.

By: Karen Phillips

Printed Name: Karen Phillips

My commission expires: 11/1/2014

OFFICIAL SEAL
KAREN A PHILLIPS
NOTARY PUBLIC-OREGON
COMMISSION NO. 453134
MY COMMISSION EXPIRES NOVEMBER 01, 2014

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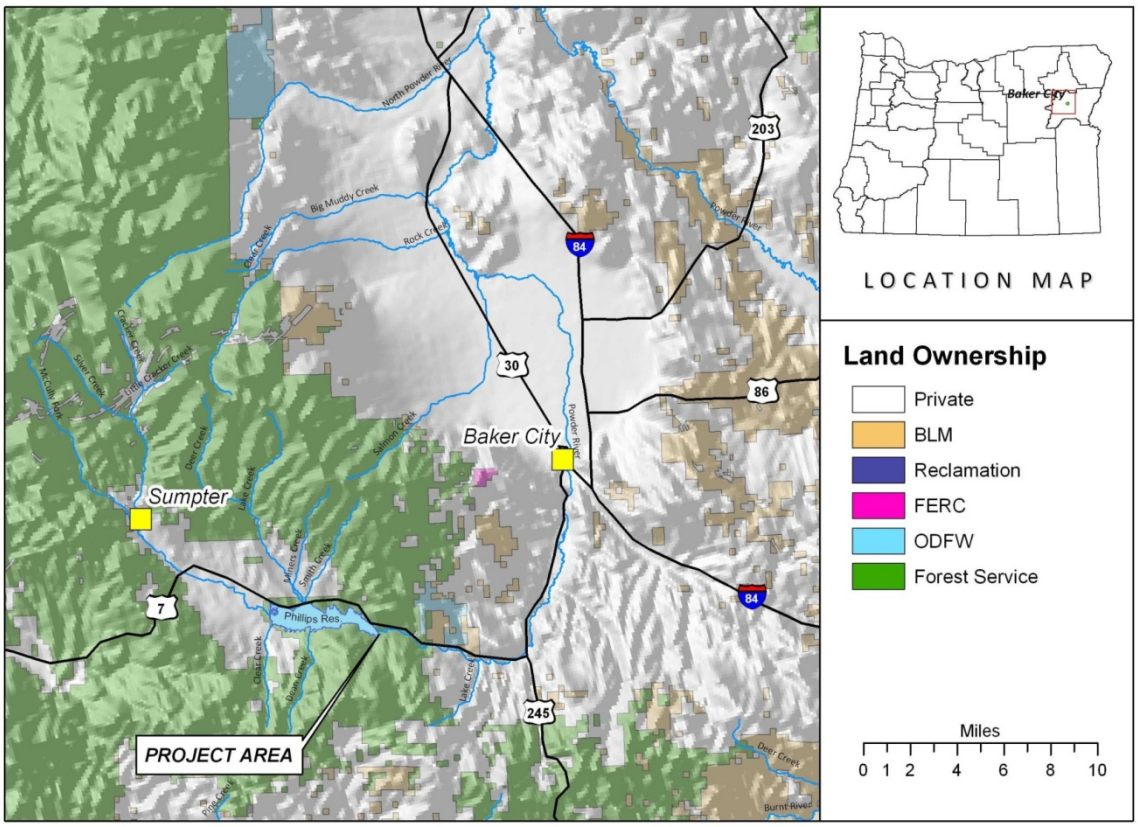
EXHIBIT A: PROJECT DESCRIPTION

INTRODUCTION

EXISTING PROJECT

The Mason Dam Hydroelectric Project (FERC No. P-12686) would be located in Baker County, Oregon approximately 11 miles southwest of Baker City off of State Highway 7. Mason Dam was built by the US Bureau of Reclamation (Reclamation) on the Powder River for irrigation, water delivery and flood control. The water stored behind Mason Dam in Phillips Reservoir is released by Baker Valley Irrigation District (BVID). The project is located in the Wallowa-Whitman National Forest (WWNF) (Figure 1).

FIGURE 1: PROJECT VICINITY MAP



MASON DAM

Mason Dam was constructed by the Bureau of Reclamation (Reclamation) from 1965-1968. It is an earth-fill type dam with a structural height of 173 feet and a crest elevation of 4,082 feet. The dam has a hydraulic height of 159 feet and a maximum release through the outlet works of 875 cubic feet per second (cfs). There is an un-gated spillway with an OG crest at elevation 4,076 and a concrete channel down the left abutment, ending in a pool (stilling basin) below the outlet works. The intake structure of the outlet works is composed of a structure 17 feet 4 inches square and 13 feet 3 inches high, containing four vertical trashracks (one on each side) and a hinged horizontal trashrack located on top of the structure. The trashrack structure is merged onto a vertical shaft that drops 34 feet to an elbow which is the beginning of the inlet tunnel. The

inlet tunnel is a 6 foot 6 inch diameter, 325-foot long concrete lined tunnel from the intake to the centerline of the dam, where there is a hydraulically operated 4 foot by 4 foot guard gate in the center of the dam in the concrete chamber. Then it connects to a 350-foot long, 56-inch discharge conduit with a Y that splits into two branches each fitted with a 2 ft 9 in high pressure slide gate. The gates are mounted in a downward sloping conduit that discharges into the tailrace. The valve house contains a gate control structure equipped with a hydraulic power unit (HPU) and a blower. The HPU is used to operate the slide gates and the guard gate. The blower is used to provide air to the concrete chamber through a 9-inch diameter ventilation pipe. The ventilation pipe as well as the 12-inch diameter pipe that is used to discharge low flows during the non-irrigation season are both mounted below the ceiling of the tunnel.

Mason Dam Tailrace

The tailrace includes reinforced concrete training walls below the gate control structure that feeds discharges from the two high-pressure control slide gates. From the seat of the high-pressure slide gates the water travels down a 2:1 slope that drops 11 feet in elevation to the floor of the tailrace. Due to the turbulent nature of the water released, a baffle was installed at the end of the tailrace to prevent damage to the floor.

Access Road

The portion of the old State Highway remaining below the dam serves as an access road to the dam valve house, the dam operator's house and garage, and a recreational area below the dam along the Powder River. The Bureau assumes full responsibility for this road from a point opposite the most westerly end of the recreation area on the north side of Powder River to the dam control house, and provides a locked gate at this point to deny access to unauthorized personnel. The Forest Service has responsibility for the road from the point opposite the westerly end of the recreation area eastward to the junction with the State Highway.
The gravel-surfaced access road turns left near the base of the dam and continues across two bridges over the spillway and tailrace training walls. There is a triangular shaped flat area and an unimproved road that continues up the hill along the right abutment. The proposed powerhouse would be located in the triangular flat area, and the proposed overhead transmission line would follow the road up the right abutment.

1 Proposed Project

i. Plant Size

The number of generating units at the Mason Dam Hydroelectric Project is: 1
The capacity of this unit is: 3.4MW (See Table 3)
At this time there is no plan for future units.

ii. Turbine and Generator Characteristics

The powerhouse would contain a single horizontal shaft Francis turbine with a hydraulic capacity of 300 cfs. It would be connected to a 3.4 MW 60 hertz, 12,640 volt generator. The generation system would operate efficiently over a head range of 110 to 150 feet, and flows from 120 to 300 cfs. The turbine shaft would be 3.3 feet above minimum tailwater. An extended downward tilted draft tube would discharge into the tailrace. The draft tube would be fitted with aeration fittings to provide aspiration of air to increase dissolved oxygen in the river.

iii. Plant Operation

The operation of the proposed power plant would be manual. Irrigation operators, in conjunction with Reclamation, would set the release on a daily basis according to the practice currently employed for Mason Dam. The hydroelectric plant would operate in a "run of release" mode using flows determined by Reclamation and BVID for established purposes. The project would be operated the same during all water conditions including adverse, mean and high water years. Flows would not be modified to accommodate the power plant. Baker County would work with Reclamation and BVID to develop a formal operation and management plan prior to startup of hydropower operations.

The estimated annual plant factor for the hydroelectric facility would be 27%, based on historical flow data and reservoir elevations for the period from 1968 – 2008.

The plant will not be used for peaking.

iv. Annual Generation

Generation was estimated to be at 7,510,000 kilowatt-hours based on historical Mason Dam flow releases and Phillips Reservoir elevations that were obtained from Reclamation records for the period from 1968 - 2008. Average monthly flows for the period of record are presented in Table 1.

TABLE 1: AVERAGE MONTHLY FLOWS

Month	**Average Flow (CFS)**
January	12.9
February	18.8
March	53.5
April	125.1
May	276.8
June	256.9
July	197.5
August	210.1
September	79.6
October	11.3
November	9.4
December	9.2

v. Plant Capacities

The dependable capacity was calculated based on the 90 percent exceedance flow during the typical irrigation season (April 15 to September 30). This value, 130 cfs, together with an

average value of 136 ft for head, results in a dependable capacity of about 1.2 MW. Table 2 gives a summary of power generation and capacity parameters for the Mason Dam Hydroelectric Project.

TABLE 2: CAPACITY AND GENERATION SUMMARY.

PARAMETER	**VALUE**
Flow, operating range	120 - 300 cfs
Head, operating range	110 – 150 ft
Generating capacity	3.4 MW
Dependable Capacity	1.2 MW
Annual generation	7,510 MWH
Plant factor	0.27

vi. Reservoir Characteristics

Phillips Reservoir has a normal maximum surface elevation of 4,070.5 feet above mean sea level. The normal maximum surface area is 2,235 acres. The gross storage capacity of the reservoir is 95,500 acre-feet and the usable capacity is 90,500 acre-feet.

Vii. Hydraulic Capacity

The estimated minimum hydraulic capacity of the plant is 120 cubic feet per second.
The estimated maximum hydraulic capacity of the plant is 300 cubic feet per second.
The estimated average flow of the stream or water body at the plant or point of diversion varies though out the year. From October to January releases average approximately 10 cubic feet per second and increase to an average of 20 to 50 cubic feet per second from February and March and generally remain above 100 to 200 cubic feet per second through the remainder of the year with maximum releases around 350 cubic feet per second during this time.

vii. Proposed Construction Project Facilities

The proposed project is a 3.4 MW hydroelectric generating plant integrated with the Mason Dam outlet works. The principal project facilities are:

1. *Intake bifurcation* – approximately 30 ft from the downstream end of the existing 56" penstock through Mason Dam, the penstock will be bifurcated to route water into the powerhouse

2. *Penstock* – a new 6-ft diameter, 105-ft long steel penstock would convey water from the bifurcation to the powerhouse

3. *Powerhouse* – Metal building containing the turbine, generator, and ancillary equipment

4. *Tailrace* – Piping and flow control structures/earthworks to route discharge from the powerhouse back into the Powder River

5. *Transmission line* – 12.47 kV overhead transmission line from the powerhouse to the point of interconnect with an existing Idaho Power 138 kV line

6. *Substation* – Electrical facility at the point of interconnect

Preliminary design drawings of the principal project features are presented in Exhibit F.

Intake Bifurcation and Penstock

A 56-inch by 56-inch by 72-inch steel bifurcation would be installed just upstream from the Y branch in the existing conduit. A thrust block would be tied into the existing mass concrete around the Y branch. A new portal structure would be constructed to provide access to the tunnel upstream of the bifurcation. A new 72-inch diameter, ½ inch wall penstock, approximately 105 feet long would extend to the powerhouse and feed a horizontal shaft Francis Turbine. A 72-inch diameter turbine shut off valve (TSV) located in the powerhouse would be provided to isolate the turbine from the Reclamation outlet works.

Water Bypass During Construction

Mason Dam currently contains a 12-inch bypass pipe with a 25 cfs maximum capacity. The pipe is used to handle the flows during the non-irrigation season as well as when maintenance is necessary on the main conduits. During construction on the proposed project, this pipe would be used as the temporary water bypass. The outlet of the pipe would be extended to release flows into the Powder River downstream of the construction area. Release flows through the bypass pipe would be measured using the existing discharge rating chart for the bypass pipe. If necessary, a cofferdam would be used to de-water the immediate construction area. A full description of water bypass measures is included in the Bypass Plan in Appendix B.

Permanent Water Bypass

Plant controls would include a synchronous bypass to initiate the operation of the Reclamation high pressure slide gates during turbine shut down. A new hydraulic power unit (HPU) would be provided to increase the rate of the slide gates opening to more closely match the rate of flow lost when the turbine shuts down. During hydroelectric operations, if the turbine or system goes off line the upgraded HPU would automatically open the existing high-pressure slide gate valves. This system would be checked during the yearly maintenance and during routine testing procedures. A full description of water bypass measures is included in the Bypass Plan in Appendix B.

Powerhouse

A 40-foot by 28-foot powerhouse with a metal building above grade level would be located in the flat area on the right side of the training walls and the valve house facing downstream. The powerhouse would contain a single turbine/generator, switchgear and appurtenant equipment. Water would discharge from the powerhouse through a steel draft tube embedded in the powerhouse foundation.

Tailrace

The existing tailrace would be added to, to accommodate discharge from the powerhouse without affecting the existing high pressure slide gate valves discharge area. The tailrace would use the existing stilling basin. Rip-rap would be placed on the slopes of the pool on the right side (looking downstream) to protect against any erosion, and a new concrete wall that ties into the existing training wall would form the left side.

Construction Staging Area

The recreational parking area located approximately 600 ft downstream of the tailrace pool would be utilized as a construction staging area. Sections of this area will still be accessible to the public for recreational activities.

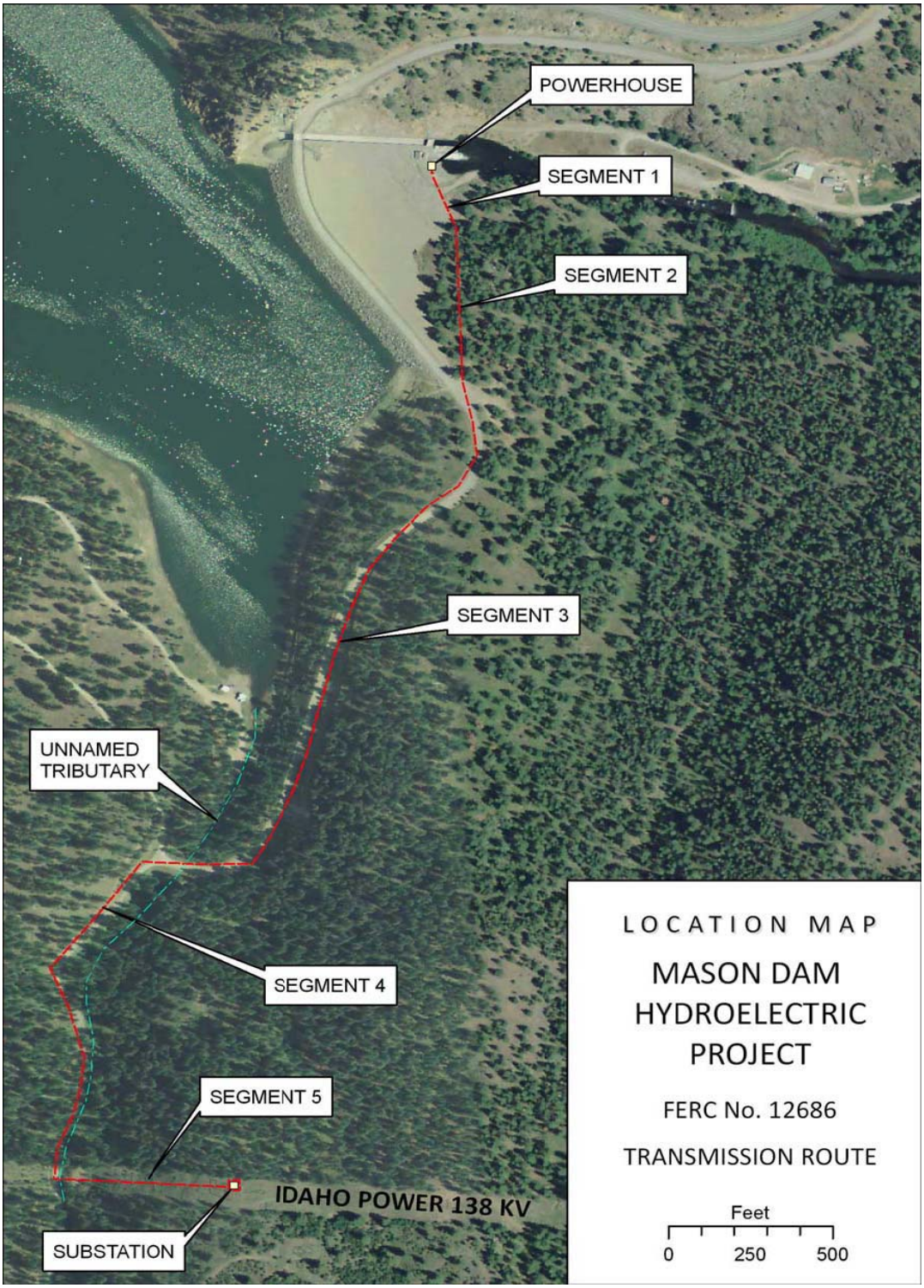
Transmission Line and Substation

An overhead transmission line would be built on 40-foot poles, be approximately 0.8 miles long, and would have a voltage of 12.47kV. The route would follow Black Mountain Road and interconnect with an existing Idaho Power 138 kV transmission line (Figure 2). A new substation occupying less than .2 acre would be built at the interconnection point and would include a 12.47 kV by 138 kV, 4 to 5 MVA transformer, and necessary circuit breakers and disconnects. A disconnect would also be provided at the powerhouse.

Additional Equipment and Facilities

The powerhouse would contain utility grade switchgear and plant controls. Plant controls would include a synchronous bypass signal to initiate operation of the Reclamation high pressure slide gates during turbine shut down. A new HPU would be provided to increase the rate of the high pressure slide gates opening to more closely match the rate of flow lost when the turbine shuts down. All other necessary and usual plant mechanical and electrical auxiliaries including an HPU for operation of the turbine, TSV, and DC controls would be provided.

FIGURE 2: PROPOSED TRANSMISSION ROUTE



viii. ESTIMATED PROJECT COST

The 2013 estimation of project costs includes $3,100,000 in major construction works, $100,000 for mitigation measures, $150,000 for review and inspection, $375,000 in engineering/permitting and legal, a 15% contingency on the major construction works of $465,000. This results in a total estimated project cost of $4,190,000.

TABLE 3: TOTAL ESTIMATED PROJECT COST

Item	**Cost**
Major Construction Works	$3,100,000.00
Mitigation Measures	$100,000.00
Review and Inspection	$150,000.00
Engineering, Permitting, and Legal	$375,000.00
Contingency @ 15% of Major Construction Works	$465,000.00
Total Estimated Cost of Project	$4,190,000.00

Project construction costs could increase or decrease, depending upon inflation, detailed design, and contractor bids. The costs estimated in Table 3 are, however, considered relatively conservative and a contingency is included.

ix. CAPITAL COSTS

The total construction cost of the Mason Dam Hydroelectric Project is estimated to be $4,190,000 in 2014 dollars. Financing this amount would result in the following projected costs (see Table 4):

TABLE 4: MASON DAM POWER PROJECT CONSTRUCTION COST ESTIMATE

Item	**Cost**
Inflation	$100,000.00
Interest	$125,000.00
Financing Fees	$125,000.00
Total	$350,000.00

The estimated project cost was escalated to a 2014 bid date, assuming $100,000 of increased costs resulting from inflation. Interest during construction, totaling $125,000 was assumed capitalized, as was $125,000 for assorted financing fees. The total project cost, including all items discussed above, is thus estimated to be $4,540,000.

2. Purpose of Project

The purpose of this project is to use an existing resource (Mason Dam) to provide another renewable energy source. The funds collected will benefit all Baker County residents.

The Bureau of Reclamation is responsible for overall management of Mason Dam. The dam is operated for both irrigation and flood control purposes. Baker Valley Irrigation District (BVID) provides day-to-day operation and maintenance of the facilities under an agreement with Reclamation. Hydroelectric generation would not change the current day-to-day operation of the dam, but would only change the point of release. Reclamation determines releases for flood control, if needed, during late winter and early spring when snow melt runoff and precipitation are most likely to exceed reservoir capacity. When the reservoir water surface is within the flood control pool, elevation 4,062.40 to elevation 4,070.50, discharges from the reservoir are made in accordance with the flood control approved by the Corps of Engineers entitled "Flood Control Regulations, Mason Dam and Reservoir". If the water surface in the reservoir exceeds the top of the flood control pool at elevation 4,070.50, water is released simultaneously through the spillway and the outlet works with all high-pressure gates fully open. Use of the spillway is avoided and to date has never been utilized with all releases through the high-pressure slide gates.

The irrigation season officially begins on March 1 and ends November 1, but in practice the season usually runs between April 15 and September 30. During the irrigation season, releases generally remain above 100 to 200 cfs and can go up to 350 cfs. The BVID has an agreement with the Oregon Department of Fish and Wildlife to release a 10 cfs minimum instream flow at Smith Dam, which is about 10 miles below Mason Dam. As a result of this requirement and the need to release water for flood storage during the spring, flow releases average approximately 10 cubic feet per second (cfs) between October and January and increase to an average of 20 to 50 cfs during February and March. The proposed project would not change any existing flow agreements but would merely utilize flows released for flood control, irrigation and instream flow purposes.

All of the power generated by the proposed project would be sold to Idaho Power and utilized by their customers.

3. License Development Costs

Costs incurred by Baker County to develop an application to FERC for a Power Generating License for Mason Dam are currently estimated at $250,000.

4. Power Value

All electricity generated by the Mason Dam Hydropower Project would be sold to Idaho Power utilizing a standard agreement according to the Public Utility Regulatory Policy Act (PURPA). PURPA provides a pre-determined rate sheet for small power generators under 10MW.

The following is an estimate of the on-peak and off-peak values of the project power, and are derived from the following equations from the Idaho Power schedule 85, which is the rate sheet designated by PURPA for use in this application.

The project will utilize the Fixed Price Method, which determines the purchase price utilizing the following formulas:

On-peak (66% of operating hours)= (Fuel Cost + Capacity Cost) X Seasonality Factor
Off-peak (33% of operating hours)= Fuel Cost X Seasonality Factor

The Seasonality Factor is defined as follows:

73.50% for Season 1 (March, April, May)
120.00% for Season 2 (July, August, November, December)
100.00% for Season 3 (June, September, October, January, February)

The Avoided Cost Components are detailed below in Table 5:

TABLE 5: SCHEDULE 85 AVOIDED COST COMPONENTS

Year	Capacity Cost (mills/kWh)	Fuel Cost (mills/kWh)
2015	0	40
2016	13.56	44.41
2017	13.97	46.73
2018	14.39	49.33
2019	14.82	51.93
2020	15.26	54.68
2021	15.72	57.64
2022	16.2	60.81
2023	16.68	64.05
2024	17.18	67.5
2025	17.7	71.25
2026	18.23	74.99
2027	18.77	79.08
2028	19.34	83.38
2029	19.92	87.89
2030	20.52	92.62
2031	21.13	96.93
2032	21.77	101.74
2033	22.42	106.72
2034	23.09	111.87
2035	23.79	117.17

Using Table 5, we can project the monthly power output of the project in the following table:

TABLE 6: PROJECT MONTHLY POWER OUTPUT

Month	**Project kWh**
January	0
February	0
March	0
April	670000
May	1740000
June	1600000
July	1500000
August	1550000
September	450000
October	0
November	0
December	0

This results in the following projected annual incomes in Table 7.

TABLE 7: PROJECTED ANNUAL INCOME

Year	Gross Annual Income
2015	$296,261.00
2016	$395,879.00
2017	$415,087.00
2018	$436,418.00
2019	$457,798.00
2020	$480,339.00
2021	$504,533.00
2022	$530,382.00
2023	$556,749.00
2024	$584,771.00
2025	$615,113.00
2026	$645,430.00
2027	$678,389.00
2028	$713,052.00
2029	$749,319.00
2030	$787,315.00
2031	$822,249.00
2032	$861,035.00
2033	$901,129.00
2034	$942,581.00
2035	$985,292.00

5. Estimated average annual increase or decrease in project generation

Projected income is based on average flow through Mason Dam into the Powder River. In dry years cfs is approximately 60% of average, and in wet years cfs is approximately 170% of average. This directly influences production and income by the same percentage. See Table 8 for calculations.

TABLE 8: POSSIBLE INCOME RANGE

Year	Average	Dry	Wet
2015	$296,261	$177,757	$503,644
2016	$395,879	$237,528	$672,995
2017	$415,087	$249,052	$705,648
2018	$436,418	$261,851	$741,910
2019	$457,798	$274,679	$778,257
2020	$480,339	$288,203	$816,576
2021	$504,533	$302,720	$857,707
2022	$530,382	$318,229	$901,650
2023	$556,749	$334,050	$946,474
2024	$584,771	$350,862	$994,110
2025	$615,113	$369,068	$1,045,692
2026	$645,430	$387,258	$1,097,231
2027	$678,389	$407,034	$1,153,262
2028	$713,052	$427,831	$1,212,188
2029	$749,319	$449,592	$1,273,843
2030	$787,315	$472,389	$1,338,435
2031	$822,249	$493,349	$1,397,823
2032	$861,035	$516,621	$1,463,759
2033	$901,129	$540,677	$1,531,919
2034	$942,581	$565,548	$1,602,387
2035	$985,292	$591,175	$1,674,996

6. The remaining undepreciated net investment, or book value of the project:

The book value of the project is the same as the build cost of $4,540,000.

7. Annual Operations and Maintenance Costs

Annual Costs

The annual costs of the project would be composed of debt service, operations and maintenance costs, and insurance premiums (see Table 9). These cost components are discussed in detail below.

TABLE 9: PROJECT ANNUAL COSTS

PROJECT COSTS	
Financed Capital	$4,540,000.00
Term (years)	30
Annual interest rate	2.67%
Annual debt service	$221,857.00
Operations and maintenance	$50,000.00
Insurance	$25,000.00
Total Annual Costs	$296,857.00

Debt service

Project debt would be placed with the United States Department of Agriculture (USDA) through their Electric Program. Interest rates are based on the Treasury rate plus 1/8 of a percent. This program is available to municipalities for new electricity generation facilities, with up to a 35 year term. A 30 year term and an interest rate of 2.67% is used for project cost estimates at this time.

Operations and maintenance

These recurring costs represent the annual expenditures necessary to keep the project in operating condition. These costs are comprised of four major components: labor, materials, interim replacements, and project administration. The costs do not include any costs related to the operation and maintenance of Mason Dam, which would be performed separately by the Baker Valley Irrigation District as part of its normal system maintenance. O&M costs for the hydroelectric project are estimated to be $50,000 for the first full year of operation (2014). This value would increase annually due to inflation, which, for this Application, has been estimated to be 2.5% per year.

Insurance costs

Successful operation of the project would require insurance policies for property, liability, and boiler & machine. The combined annual cost of these policies is $25,000. This value would increase annually due to inflation, which, for this Application, has been estimated to be 2.5% per year.

8. Detailed Single Line Electrical Diagram

See Appendix I for a detailed single line electrical diagram.

9. Statement of Safe Management, Operation, and Maintenance

Baker County's Mason Dam Hydroelectric Project will continue to utilize the Bureau of Reclamation's Standard Operation Procedures: Mason Dam (revision 17, April 2004), in order to maintain safe management, operations, and maintenance of the project. Baker County will develop a hydroelectric specific SOP document in coordination with the equipment manufacturer and Bureau of Reclamation in order to address equipment-specific management, operation, and maintenance needs as well as potential hazards and emergency measures.