

**Gridflex Energy, LLC**

424 Pueblo St., #A, Boise, ID 83702

(208) 246-9925 · [www.gridflexenergy.com](http://www.gridflexenergy.com)



August 20, 2020

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E.  
Washington, D.C. 20426

Preliminary Permit Application for the Craig-Hayden Pumped Storage Project

Dear Ms. Bose,

Please find attached an application for preliminary permit for the Craig-Hayden Pumped Storage Project. If you have any questions or need additional information, please contact me at (208) 246-9925 or e-mail at [mshapiro@gridflexenergy.com](mailto:mshapiro@gridflexenergy.com).

Sincerely,

A handwritten signature in blue ink that reads 'Matt Shapiro'. The signature is written in a cursive, flowing style.

Matthew Shapiro  
Chief Executive Officer  
Gridflex Energy, LLC

Preliminary Permit Application  
for the  
Craig-Hayden Pumped Storage Project

August 20, 2020

**VERIFICATION STATEMENT**

This application for a preliminary permit is executed in the

State of Idaho  
County of Ada

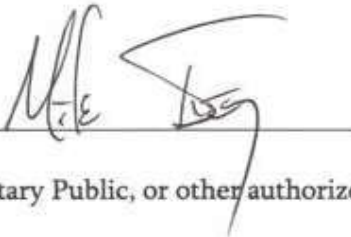
by: Matthew Shapiro  
Gridflex Energy, LLC  
424 W. Pueblo St., # A  
Boise, ID 83702

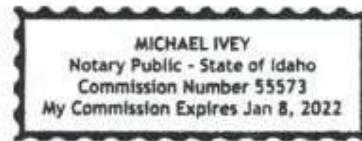
being duly sworn, depose(s) and say(s) that the contents of this Preliminary Permit Application are true to the best of (his or her) knowledge or belief. The undersigned Applicant has signed the application this 20<sup>th</sup> day of August 2020.

Applicant

By: 

Subscribed and sworn to before me, a Notary Public of the State of Idaho, this 20<sup>th</sup> day of August, 2020.

  
(Notary Public, or other authorized official)



**PRELIMINARY PERMIT APPLICATION  
FOR THE  
CRAIG-HAYDEN PUMPED STORAGE PROJECT**

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**§4.81 (a) Initial Statement**

(1) Craig-Hayden PS, LLC, an Idaho limited liability company (“Applicant”) applies to the Federal Energy Regulatory Commission (“FERC”) for a preliminary permit for the proposed Craig-Hayden Pumped Storage Project (“Project”), as described in the attached exhibits. This application is made in order that the Applicant may secure and maintain priority of application for a license for this project under Part I of the Federal Power Act while obtaining the data and performing the acts required to determine the feasibility of the project and to support an application for a license.

(2) The location of the proposed project is:

|                                |                    |
|--------------------------------|--------------------|
| State or Territory:            | Colorado           |
| County:                        | Moffat             |
| Township or nearby town:       | Craig              |
| Stream or other body of water: | None – Closed-Loop |

(3) The exact name, business address, and telephone number of the Applicant is:

Craig-Hayden PS, LLC  
800 W. Main St., Ste. 1220  
Boise, ID 83702  
Phone: (208) 246-9925

The exact name and business address of each person authorized to act as an agent for the Applicant in this application is:

Matthew Shapiro, CEO  
Gridflex Energy, LLC  
424 W. Pueblo St., #A  
Boise, ID 83702  
Phone: (208) 246-9925  
E-mail: [mshapiro@gridflexenergy.com](mailto:mshapiro@gridflexenergy.com)

(4) Craig-Hayden PS, LLC is a domestic corporation and is not claiming preference under section 7(a) of the Federal Power Act.

(5) The proposed term of the requested permit is 48 months.

(6) There are no existing dams associated with the proposed Project.

**§4.32. IDENTIFICATION**

(1). *For a preliminary permit or license, identify every person, citizen, association of citizens, domestic corporation, municipality, or state that has or intends to obtain and will maintain any proprietary right necessary to construct, operate, or maintain the project;*

Craig-Hayden PS, LLC  
800 W. Main St., Ste. 1220  
Boise, ID 83702

(2)(i). *Every county in which any part of the project, and any Federal facilities that would be used by the project, would be located:*

The Project will be located in Moffat County, Colorado.

Moffat County Clerk  
221 W. Victory Way #200  
Craig, CO 81625

No Federal facilities would be used by the Project.

(2)(ii). *Every city, town, or similar local political subdivision:*

(A) *In which any part of the project, and any Federal facilities that would be used by the project, would be located:*

The Project will not be located within the boundaries of any city, town, or similar local subdivision.

(B) *Cities, towns, or similar subdivision (5,000 people or more) within a 15-mile radius of the project dam:*

City of Craig  
300 W. 4<sup>th</sup> St.  
Craig, CO 81625

(iii) *Every irrigation district, drainage district, or similar special purpose political subdivision:*

(A) *In which any part of the project, and any Federal facilities that would be used by the project, would be located; or*

*(B) That owns, operates, maintains, or uses any project facilities or any Federal facilities that would be used by the project;*

None

*(iv) Every other political subdivision in the general area of the project that there is reason to believe would likely be interested in, or affected by, the application:*

Colorado Division of Water Resources  
Division 6  
P.O. Box 773450  
Steamboat Springs, CO 80477

*(v) All Indian tribes that may be affected by the project.*

Ute Mountain Tribe of the Uintah and Ouray Reservation  
P.O. Box 190  
Fort Duchesne, UT 84026

**§ 4.81 (b) Exhibits**

**EXHIBIT 1: DESCRIPTION OF THE PROPOSED PROJECT**

The Project will be a closed-loop pumped storage hydropower facility comprised of two new artificial reservoirs joined by conduits and tunnels, along with a powerhouse and associated generation, pumping, and transmission equipment. Maximum gross head would be 1,500 feet. Generating and pumping capacity would be 600 megawatts (MW). Annual gross energy production is estimated at 1,051,200 megawatt-hours (MWh). Details on project features are provided below.

**Dams**

|  | Height      | Length at Crest | Type                 |
|--|-------------|-----------------|----------------------|
| Upper Reservoir (Ring)<br>Lat. 40.437<br>Long. -107.451        | 10 to 60 ft | 8,000 ft        | Zoned earth/rockfill |
| Lower Reservoir Primary Dam<br>Lat. 40.478<br>Long. -107.433   | 65 ft       | 2,500 ft        | Earthen              |
| Lower Reservoir Secondary Dam<br>Lat. 40.472<br>Long. -107.429 | 25 ft       | 830 ft          | Earthen              |

**Reservoirs**

|  | MSL (ft) | Volume (AF) | Surface Area (ac) |
|--|----------|-------------|-------------------|
| Upper Reservoir<br>Lat. 40.437<br>Long. -107.451 | 7,920    | 4,800       | 60                |
| Lower Reservoir<br>Lat. 47.417<br>Long. -120.175 | 6,470    | 4,800       | 110               |

**Conduits: Alternative A: Buried Penstocks + Underground**

|                      | Length   | Inside Diameter | Composition/Lining        |
|----------------------|----------|-----------------|---------------------------|
| Buried Penstocks (2) | 6,930 ft | 13.5 ft each    | Steel                     |
| Vertical Shaft       | 1,050 ft | 19.5 ft         | Concrete- and steel-lined |
| Tailrace Tunnel      | 8,000 ft | 23 ft           | Concrete-lined            |



**Conduits: Alternative B: All Underground**

|                 | Length   | Inside Diameter | Lining                   |
|-----------------|----------|-----------------|--------------------------|
| Vertical Shaft  | 200      | 19.5 ft         | Concrete-lined           |
| Headrace Tunnel | 7,000 ft | 19.5 ft         | Concrete-and steel-lined |
| Tailrace Tunnel | 8,000 ft | 23 ft           | Concrete-lined           |

**Powerhouse**

The powerhouse would be located in an underground cavern at tentative elevation of 6,250’ MSL and tentative coordinates of 40.456, -107.445. Powerhouse dimensions are tentatively 350’ in length, 80’ in width, and 120’ in height. The powerhouse would be excavated from rock and include steel and concrete formwork.

**Equipment**

Primary equipment would consist of three variable-speed reversible pump-turbines and motor-generators, each with a generating and pumping capacity of 200 MW (total of 600 MW).

**Transmission Line / Interconnection**

The tentative point of interconnection for the facility would be the 345 kV Craig-Ault line operated by the Western Area Power Administration, located adjacent to the upper reservoir site. A new 345 kV line approximately 1.3 mile in length would run from the project switchyard above the powerhouse to a new loop-in substation on the existing line.

**Water Sourcing**

The tentative source of initial fill water and evaporation make-up water for the project would be existing wells, pumping stations, or other diversion points in the immediate vicinity of the project, which will be identified during the study phase of the project. Fill water would be purchased from existing water rights holders.

**Operation**

The project will be operated to provide firm capacity to the regional power grid and to support the integration of new renewable resources interconnected currently and in the future. These resources—predominantly photovoltaic solar energy and wind energy—are emissions-free and increase energy security, but are variable and intermittent in nature. The Project will use the dynamic capabilities of pumped storage to aid in the efficient integration of solar and wind resources from both an operational and economic standpoint.

**Federal Lands**

No federal lands are involved with the proposed project.

## **§4.81 (c) EXHIBIT 2: DESCRIPTION OF STUDIES**

### **(1) General**

#### (i) Study Plan

The Applicant plans to engage in the following studies in order to design the technical aspects of the project and to confirm its economic viability:

- Project land surveys
- Environmental impact studies
- Groundwater studies
- Energy production studies
- Water quality studies
- Water rights studies
- Engineering studies, including soil studies, test pits and core holes.
- Study on the energy market for the project
- Transmission interconnection studies
- Determination of equipment configuration and sizing
- Cost estimates

Additional studies may be required as the need arises.

#### (ii) New Roads

No new roads will be needed for the purpose of conducting the studies described in this exhibit.

### **(2) Work Plan for New Dam Construction**

#### (i) Description of field studies, tests, and other land disturbing activities

A subsurface investigation will be required to determine the rock structure and stability for the proposed dam sites. Samples shall be checked for rock structure as well as determine the suitability for project features for the dams and power tunnels. The Applicant proposes to use existing roads located within the project boundary to minimize or eliminate the potential for any land disturbing activities.

(ii) Studies Schedule

| Work Item  | Schedule        |              |
|--|-----------------|--------------|
|  | Month Beginning | Month Ending |
| <b>Engineering</b>   |                 |              |
| Conceptual refinement and evaluation of alternatives                         | 0               | 48           |
| Initial scoping and consultation   | 0               | 8            |
| Geological reconnaissance  | 2               | 6            |
| <b>Environmental</b>   |                 |              |
| Agency consultation  | 0               | 48           |
| Cultural resource review   | 0               | 12           |
| Environmental resource review  | 0               | 12           |
| Prepare Pre-Application Document   | 8               | 14           |
| Prepare draft application  | 24              | 36           |
| <b>Other</b>   |                 |              |
| Land & ROW   | 0               | 48           |
| Water rights & sourcing studies  | 0               | 48           |
| Transmission interconnection planning  | 6               | 36           |
| Cost estimating, economic feasibility, and financial planning investigations | 6               | 48           |
| Power sales marketing  | 12              | 48           |
| Additional stage consultation and documentation                              | 20              | 48           |

This schedule may be adjusted and supplemented depending on need and contingencies that may develop as studies proceed.

**(3) Request for Waiver**

It is anticipated that preliminary field studies, tests, and other activities to be conducted under the permit would not adversely affect cultural resources or endangered species and would cause only minor alterations or disturbances of lands and waters, and that any land altered or disturbed would be adequately restored. The Applicant therefore requests waiver of the full requirements of 18 CFR § 4.81 (c)(2).

#### **(4) Statement of Costs and Financing**

##### **i. Estimated cost of studies**

The estimated cost of carrying out and preparing the studies, investigations, tests, surveys, maps, plans and specifications described in this application is estimated to be between \$1.0 and \$1.5 million.

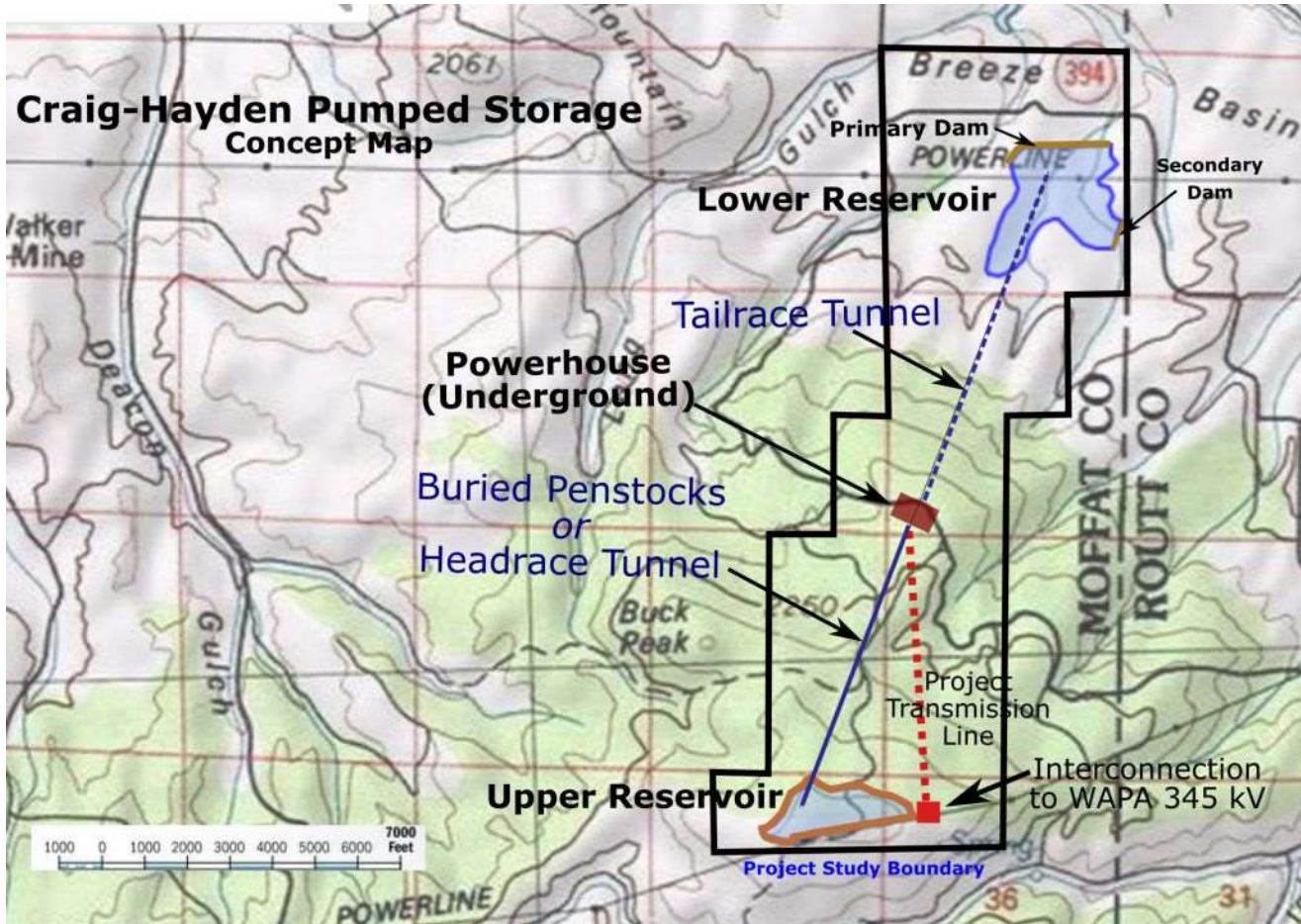
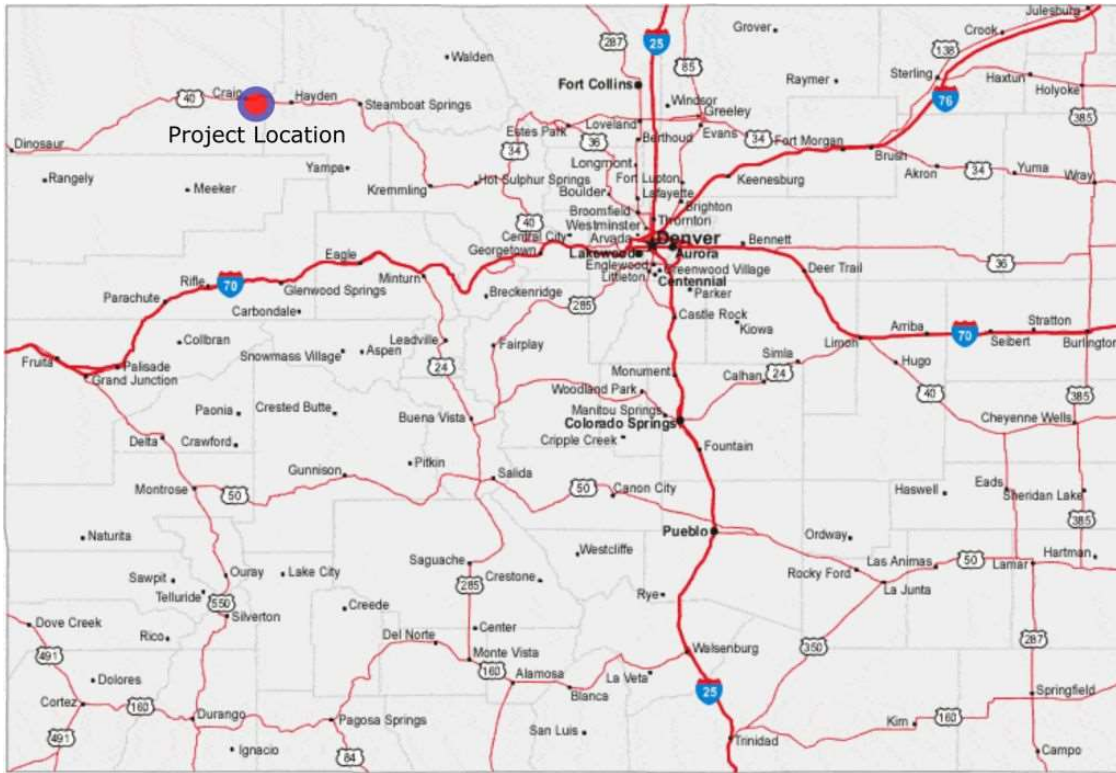
##### **ii. Expected sources of financing**

The expected sources of financing to conduct the studies described in this application are private investors and regional partners.

### **§4.81 (d) EXHIBIT 3: PROJECT MAPS**

Notes:

1. No areas within the study boundary are designated as wilderness area or wilderness study area, or recommended for designation as wilderness areas.
2. No areas within the study boundary are included in or have been designated for study for inclusion in the National Wild and Scenic Rivers System



Document Content(s)

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