August 25, 2020

Timothy Konnert, Chief
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: Premium Energy Holdings’ First Amendment of the Application for Preliminary Permit for the Isabella Pumped Storage Project, FERC Project No. P-15035

Dear Chief Konnert:

Pursuant to 18 C.F.R. §§ 4.82 of the Federal Energy Regulatory Commission’s (“FERC”) regulations, enclosed for filing is Premium Energy Holdings, LLC’s (“Premium Energy”) Amendment to its Application for Preliminary Permit of the Isabella Pumped Storage Project under P-15035.

This amendment reflects the following changes:

(1) Corrections to the maps in exhibit 3 and the tables in exhibit 1, to address the deficiencies identified in Schedules A and B on FERC’s letter dated August 3, 2020.
(2) New alternatives for the Project’s electric power transmission, including interconnection with the existing Windhub Substation, Midway Substation, Antelope Substation, or Magunden Substation.

The required amendment of the application was prepared to address deficiencies identified by FERC, as well as propose new conceptual power transmission alternatives. If you have any questions or require additional information regarding this submittal, please contact me at (909) 595-5314 or email me at maria.hernandez@pehlcc.net.

Sincerely,

Victor M. Rojías
Managing Director at Premium Energy Holdings, LLC

Enclosures
cc:
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

AMENDED APPLICATION FOR PRELIMINARY PERMIT FOR THE ISABELLA PUMPED STORAGE PROJECT

FERC Project No. 15035

Prepared by
Premium Energy Holdings, LLC
August 25, 2020
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INITIAL STATEMENT

BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Amended Application for Preliminary Permit
for the Isabella Pumped Storage Project

Premium Energy Holdings, LLC ("Premium Energy"), a California based limited liability corporation, applies to the Federal Energy Regulatory Commission for a preliminary permit for the Isabella Pumped Storage 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 the 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.

1. The location of the proposed project is:

   State or territory: California
   Counties: Kern County
   Township or nearby town: Lake Isabella
   Streams: Kern River

2. The exact name, business address, and telephone number of the applicant are:

   Premium Energy Holdings, LLC
   355 South Lemon Ave, Suite A
   Walnut, CA 91789
   Telephone: (909) 595-5314

3. The name, business address, and telephone number of the persons authorized to act as agent for the applicant in this application are:

   Victor M. Rojas
   Managing Director at Premium Energy Holdings, LLC
   355 South Lemon Ave, Suite A
   Walnut, CA 91789
   Telephone: (909) 595-5314
   Email: victor.rojas@pehllc.net

   Maria Hernandez
   Project Manager at Premium Energy Holdings, LLC
   355 South Lemon Ave, Suite A
   Walnut, CA 91789
   Telephone: (909) 595-5314
   Email: maria.hernandez@pehllc.net
4. Preference under Section 7(a) of the Federal Power Act

5. Premium Energy is a corporation based in California and is not claiming preference under section 7(a) of the Federal Power Act. Premium Energy’s business primarily involves the retrofit and modernization of pumping plants, transmission planning and design, power system studies, testing and commissioning of power plants and substations.

6. Term of Permit:

The proposed term of the requested permit is twenty-four (24) months.

7. Existing Dams or Other Project Facilities:

The proposed project would make use of the existing Isabella reservoir and the existing Isabella Main Dam and Auxiliary Dam. The Isabella Pumped Storage Project would use the existing Isabella reservoir as a lower pool and proposes a new Reservoir in the Greenhorn Mountains, or the Piute Mountains, to serve as upper pool. The filling of these reservoirs would be done through the seasonal high flow of the existing Kern River.
ADDITIONAL INFORMATION REQUIRED BY 18 C.F.R. § 4.32(a)

1. Identification of persons, associations, domestic corporations, municipalities, or state that has or intends to obtain and will maintain any proprietary right necessary to construct, operate, or maintain the project:

   Premium Energy Holdings, LLC
   355 South Lemon Ave, Suite A
   Walnut, CA 91789
   Telephone: (909) 595-5314

2. Identify (names and mailing addresses):

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

   Kern Civil Service Commission
   1115 Truxtun Avenue, First Floor
   Bakersfield, CA 93301
   Telephone: (661) 868-3480

   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:

      None.

      (B) That has a population of 5,000 or more people and is located within 15 miles of the project dam:

      None.

   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:

      Kern County Water Agency
      3200 Rio Mirada Drive
      Bakersfield, CA 93308
      Telephone: (661) 634-1400

      California Department of Water Resources
      1416 9th Street
      Sacramento, CA 95814
      P.O. Box 942836
Telephone: (916) 653-5791

California Water Resources Control Board
1001 Street, 24th Floor
P.O. Box 100,
Sacramento, CA 95814
Telephone: (916) 341-5127

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

US Army Corps of Engineers
915 Wilshire Blvd, Suite 1101
Los Angeles, CA 90017
Telephone: (213) 452-3333

South California Edison (SCE)
2244 Walnut Grove Ave
Rosemead, CA 91770
Telephone: (800) 655-4555

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, and interest:

California Department of Forestry and Fire Protection
1416 9th Street
Sacramento, CA 94244-2460
Telephone: (916) 653-5123

U.S. Department of Agriculture
1400 Independence Ave., S.W.
Washington, DC 20250
Telephone: (202) 720-2791

Kern River Valley Chamber of Commerce
6416 Lake Isabella Blvd #D
Lake Isabella, CA 93240
Telephone: (760) 379-5236

Mojave Desert Land Trust
P.O. Box 1544
60124 29 Palms Hwy
Joshua Tree, CA 92252
Telephone: (760) 366-5440
California Wilderness Coalition
520 Third Street, Suite 208
Oakland, CA 94607
Telephone: (510) 451-1450

Defenders of Wildlife
1130 17th Street NW
Washington, DC 20036
Telephone: 1-800-385-9712

Center for Biological Diversity
P.O. Box 710
Tucson, AZ 85702-0710
Telephone: (520) 623-5252

Owens Valley Career Development Center
6404 Lake Isabella Blvd
Lake Isabella, CA 93240
Telephone: (760) 379-4770 x129

Sierra Club California
909 12th Street, Suite 202
Sacramento, CA 95814
Telephone: (916) 557-1100

California Department of Conservation, Division of Land Resource Protection
801 K Street, MS 14-15
Sacramento, CA 95814
Telephone: (916) 324-0850

California Department of Fish and Game
Inland Deserts Region
3602 Inland Empire Boulevard
Suite C-220
Ontario, CA 91764

Sequoia National Forest
Supervisors Office
1839 S. Newcomb
Porterville, CA 93257
(559) 920-1588

U.S. Forest Service
Inyo National Forest
351 Pacu Lane, Suite 200
Bishop, CA 93514
Telephone: (760) 873-2400

Bureau of Land Management
California State Office
2800 Cottage Way Suite W1623
Sacramento, CA 95825
Telephone: (916) 978-4400

Los Angeles Department Water and Power
JFB Lobby CSC
111 N. Hope Street
Los Angeles, CA 90012
Telephone: (213) 367-0112

v. All Indian tribes that may be affected by the project:

Chairperson
Tubatulabal Indian Tribe of Kern Valley
P.O. Box 226
Lake Isabella, CA 93240
Telephone: (760) 223-3918

Chairperson
Tejon Indian Tribe
4941 David Rd.
Bakersfield, CA 93307
(661) 834-8566

Chairperson
Lone Pine Paiute Shoshone Reservation
P.O. Box 747
Lone Pine, CA 93545
Telephone: (760) 8761034
VERIFICATION STATEMENT

This application for a preliminary permit for the proposed Isabella Pumped Storage Project is executed in the state of California, county of Los Angeles.

By: Victor M. Rojas
   Premium Energy Holdings, LLC
   355 South Lemon Ave, Suite A
   Walnut, CA 91789

Being duly sworn, deposes, and says that the contents of this application for a preliminary permit are true to the best of his knowledge or belief. The undersigned applicant has signed the application on this 24th day of August of 2020.

Victor Rojas
Managing Director at Premium Energy Holdings, LLC

Subscribed and sworn before me, a Notary Public of the State of California, County of Los Angeles, this day of August 25, 2020.

[Signature]
NOTARY PUBLIC
EXHIBIT 1 – DESCRIPTION OF THE PROPOSED PROJECT

1. GENERAL CONFIGURATION

The proposed Isabella Pumped Storage Project would be located 40 miles northeast of Bakersfield, California in the Kern County. The project concept envisions the construction of a pumped storage power plant facility with capacity of 2,000 MW. The project proposes to use the existing Isabella reservoir as a lower pool and a new reservoir in the Southern Sierra Nevada Mountains to serve as the upper pool. The proposed Project would operate in a closed loop. Aside from evaporation and percolation losses, the project’s water would stay within the system.

1.1. Physical composition, dimensions, general configuration, age, and condition of the existing Isabella Reservoir and its appurtenant facilities

Table 1. Existing Reservoirs’ Embankment Dimension

<table>
<thead>
<tr>
<th>Description</th>
<th>Reservoir Dam</th>
<th>Dam Crest Elev. [ft]</th>
<th>Dam Height [ft]</th>
<th>Dam Length at Crest [ft]</th>
<th>Year Completed</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isabella Reservoir</td>
<td>Main Dam</td>
<td>2,633</td>
<td>185</td>
<td>1,695</td>
<td>1,953</td>
<td>Earthen</td>
</tr>
<tr>
<td>(Existing)</td>
<td>Auxiliary Dam</td>
<td>2,635</td>
<td>100</td>
<td>3,160</td>
<td>1,953</td>
<td>Earthen</td>
</tr>
</tbody>
</table>

The existing Isabella Reservoir complex was completed in 1953 by the U.S. Army Corps of Engineers (USACE). It is 67 years old. The reservoir is Kern County’s largest body of water. It was originally designed for water storage for agricultural use in the Bakersfield area; however, the lake site has also been used for fishing, water skiing, camping, and other outdoor activities. The USACE built earthen dams across the north and south forks of the Kern River to create the Isabella Reservoir.

Isabella Dam consists of two dams, a main dam and an auxiliary dam. The main dam is of earthen build, 1695 feet long and 185 feet tall. The existing spillway is an ungated concrete overflow structure with a 49,000 cubic feet/s capacity, the existing installed Power Station downstream the main dam has a generation of 12 MW. Because the Main Dam was designed under 1950’s-era standards, the USACE began a dam safety modification study in 2006 to address seismic, hydrologic and seepage issues at the dams. Because of the complex’s vintage condition, the reservoir presently operates at 2/3 of its designed capacity to mitigate the risk for people living near reservoir.

The USACE studies was divided into two phases. Phase 1 implemented increased surveillance and monitoring; stockpiling of emergency materials; warning sirens in the town of Lake Isabella; installation of additional instrumentation for monitoring; and continued public outreach with Kern County and the local public. Phase 2 will include excavation of a new emergency spillway, modifications to the existing service spillway,
a 16-foot raise of the main and auxiliary dam, modifications to California State Route 155 at the main dam’s right abutment. Phase 1 was completed in 2017 and phase 2 is expected to be completed in 2022.

The Isabella auxiliary dam is an earthen composition dam, which was part of the Borel Hydroelectric project, decommissioned in 2018. It is 3,160 feet long and 100 feet tall. The Borel project was built to provide power for the growing Red Electric Streetcar transportation system in Los Angeles, resulting in a 10-MW plant completed in 1904. The U.S. Army Corps of Engineers built the Isabella Dam just 6 miles upstream of Borel to provide flood control.

When USACE constructed the Isabella Dam across the valley through which the Borel Canal flowed, the portion of the canal upstream of the Auxiliary Dam was rebuilt in concrete so that it would hold up better during periods of inundation. The 12-mile-long Borel flowline transported water from the north fork of the Kern River to the Borel powerhouse. This flowline consisted of a 50-foot-wide by 10-foot deep unlined (dirt) canal and several flumes. The water conduit at Borel had an unusually low grade of only 1.9%. After the decommission of the Borel project, the Borel conduit through the Auxiliary Dam was sealed with concrete in February 2019.

![Figure 1. Borel Canal Conduit through the Isabella Auxiliary Dam](image)

1.2. **Physical composition, dimensions, and general configuration of any proposed dams, penstocks, and powerhouses**

Alternatives for an upper reservoir to operate the Isabella Pumped Storage Power Plant would require the construction of a new embankment to create a new reservoir in the Sierra Nevada Mountains surrounding the Isabella Reservoir. The new upper reservoir alternatives are listed below and are depicted in Exhibit 3.
- Upper Reservoir Alternative 1: A new Fay Reservoir at 5,960 ft el.
- Upper Reservoir Alternative 2: A new Cane Reservoir at 4,740 ft el.
- Upper Reservoir Alternative 3: A new Erskine Reservoir at 4,500 ft el.

The embankments for the proposed upper reservoir alternatives would consist of roller compacted concrete dams. Aside from the construction of the new embankment for the selected upper reservoir alternative—a tunnel system of steel penstocks and concrete pressurized tunnels will be required to connect the upper and lower reservoirs to the powerhouse. Conceptual dimensions for the project’s upper reservoir dam alternatives are detailed in table 2. The tunnel system element dimensions for each alternative are detailed in tables 3 through 5.

### Table 2. New Reservoirs’ Embankment Dimensions

<table>
<thead>
<tr>
<th>Description</th>
<th>Proposed Reservoir</th>
<th>Dam Crest Elev. [ft]</th>
<th>Dam Height [ft]</th>
<th>Dam Length at Crest [ft]</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Reservoir Alternatives</td>
<td>Fay Reservoir</td>
<td>5,970</td>
<td>650</td>
<td>1,814</td>
<td>Waterproof roller compacted concrete (RCC)</td>
</tr>
<tr>
<td></td>
<td>Cane Reservoir</td>
<td>4,750</td>
<td>470</td>
<td>3,167</td>
<td>Waterproof roller compacted concrete (RCC)</td>
</tr>
<tr>
<td></td>
<td>Erskine Reservoir</td>
<td>4,510</td>
<td>370</td>
<td>2,685</td>
<td>Waterproof roller compacted concrete (RCC)</td>
</tr>
</tbody>
</table>

### Table 3. Fay Reservoir Tunnel Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Tunnel Diameter [ft]</th>
<th>Tunnel Length [mi]</th>
<th>Composition/Lining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headrace Tunnel</td>
<td>26</td>
<td>0.99</td>
<td>Concrete-lined</td>
</tr>
<tr>
<td>Vertical Shaft</td>
<td>23</td>
<td>0.18</td>
<td>Concrete-lined</td>
</tr>
<tr>
<td>Horizontal Tunnel</td>
<td>23</td>
<td>6.91</td>
<td>Concrete-lined</td>
</tr>
<tr>
<td>Penstocks (5)</td>
<td>15</td>
<td>0.10</td>
<td>High Strength Steel</td>
</tr>
<tr>
<td>Tailrace Tunnel</td>
<td>28</td>
<td>1.43</td>
<td>Concrete-lined</td>
</tr>
</tbody>
</table>

### Table 4. Cane Reservoir Tunnel Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Tunnel Diameter [ft]</th>
<th>Tunnel Length [mi]</th>
<th>Composition/Lining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headrace Tunnel</td>
<td>32</td>
<td>0.56</td>
<td>Concrete-lined</td>
</tr>
<tr>
<td>Vertical Shaft</td>
<td>29</td>
<td>0.10</td>
<td>Concrete-lined</td>
</tr>
<tr>
<td>Horizontal Tunnel</td>
<td>29</td>
<td>3.92</td>
<td>Concrete-lined</td>
</tr>
<tr>
<td>Penstocks (5)</td>
<td>18</td>
<td>0.06</td>
<td>High Strength Steel</td>
</tr>
<tr>
<td>Tailrace Tunnel</td>
<td>34</td>
<td>0.81</td>
<td>Concrete-lined</td>
</tr>
</tbody>
</table>
Table 5. Erskine Reservoir Tunnel Dimensions

<table>
<thead>
<tr>
<th>Type</th>
<th>Tunnel Diameter [ft]</th>
<th>Tunnel Length [mi]</th>
<th>Composition/Lining</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headrace Tunnel</td>
<td>34</td>
<td>0.81</td>
<td>Concrete-lined</td>
</tr>
<tr>
<td>Vertical Shaft</td>
<td>30</td>
<td>0.15</td>
<td>Concrete-lined</td>
</tr>
<tr>
<td>Horizontal Tunnel</td>
<td>30</td>
<td>5.64</td>
<td>Concrete-lined</td>
</tr>
<tr>
<td>Penstocks (5)</td>
<td>19</td>
<td>0.08</td>
<td>High Strength Steel</td>
</tr>
<tr>
<td>Tailrace Tunnel</td>
<td>36</td>
<td>1.17</td>
<td>Concrete-lined</td>
</tr>
</tbody>
</table>

The powerhouse location will depend on the upper reservoir alternative, as shown in exhibit 3. The approximate floor level would be between 200 ft and 300 ft below ground level. The cavern will be stabilized with high strength projected concrete (shotcrete) and the powerhouse will include steel formwork and concrete, as necessary. The tentative dimensions for powerhouse are 500 ft long, 125 ft wide, and 150 ft high. Adjacent to the powerhouse will be the cavern of the transformers chamber, which will also be stabilized with high strength shotcrete. This chamber will possess tentative dimensions of 165 ft long, 60 ft wide, and 50 ft high. The generating/pumping units, electrical switchyards, interconnecting transmission lines, and other appurtenant facilities would complete the project.

The proposed Isabella Pumped Storage Project is expected to have a rated capacity at 2,000 MW. It would interconnect with the existing Southern California Edison (SCE) or Pacific Gas and Electric (PG&E) transmission grid to provide energy storage to renewable resources. Additionally, other electrical utilities in California are expected to be interested in the project as a resource for storing and maximizing renewable energy use.

2. RESERVOIRS

The upper reservoirs configuration would be determined by evaluating the best suited alternative to maximize the available hydraulic head and minimize the penstock layout to reduce energy losses, while staying within environmental constraints. The proposed reservoir sites within this application are the result of conceptual engineering completed by Premium Energy and its consultants. During the term of the preliminary permit, Premium Energy will further investigate on the pumped storage reservoirs configuration and select the best suited location for energy, economic and environmental considerations.

The project concept includes three alternatives for an upper reservoir located in the subranges of the Southern Sierra Nevada bordering the Isabella Lake. A hydraulic head of up to 3,210 ft would exist between the new upper reservoir and the existing lower reservoir, which would be exploited for hydro power generation.
A. Lower Reservoir Configuration

The project will use the existing Isabella Reservoir, which will be used as lower pool for pumped storage operation. The existing Isabella Reservoir maximum surface elevation is 2,580 ft. The existing reservoir’s water surface covers an area of 11,400 acres, with a 568,000 acre-ft storage capacity. Because of the size of the reservoir, pumped storage operation would be possible at 2,000 MW for 12 hours of continuous output, with backup for 24 hours of power generation.

B. Upper Reservoir Configuration

The upper reservoir alternatives are located in the vicinity of the Greenhorn Mountains, the Burnt Canyon, and the Piute Mountains surrounding Isabella Reservoir. The proposed project’s upper reservoir would be created in either the Fay Creek (Fay Reservoir), the Cane Creek (Cane Reservoir) or the Erskine Creek (Erskine Reservoir). The Fay Reservoir would be located in the Burnt Canyon, the Cane Reservoir would be located in the vicinity of the Black Mountain Peak (Greenhorn Mountains), and the Erskine Reservoir would be located in the Spring Gulch (Piute Mountains). The new upper reservoir alternatives’ physical characteristics are detailed in table 6. Moreover, the selected new upper reservoir would be filled by pumping water from the Isabella Reservoir during the high flow season of the Kern River.

Table 6. Upper Reservoir Alternatives Characteristics

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fay Reservoir</td>
<td>135</td>
<td>19,073</td>
<td>5,960</td>
<td>3,380</td>
</tr>
<tr>
<td>Cane Reservoir</td>
<td>185</td>
<td>29,770</td>
<td>4,740</td>
<td>2,160</td>
</tr>
<tr>
<td>Erskine Reservoir</td>
<td>400</td>
<td>34,459</td>
<td>4,500</td>
<td>1,920</td>
</tr>
</tbody>
</table>

The new reservoirs will have an intake-outlet structure with a submerged intake elevation at an adequate height to enable pumped storage operation. Below this elevation, a permanent reserve of water will remain within the reservoirs. From the intake-outlet structures, a pressure tunnel will unfold to connect to the new Isabella Pumped Storage Power Plant, and then continue with a tail race tunnel to the existing Isabella Reservoir. The proposed upper reservoir alternatives would have enough stored water for the Isabella Pumped Storage Power Plant to generate 2,000 MW for 12 hours, with a back-up reserve to allow 24 hours of operation during emergency conditions.

The new upper reservoir alternatives site would naturally discharge runoff water to the existing streams which would be impounded. During high water level season, excess water from the proposed upper reservoirs would be discharged to the Fay Creek, the Cane Creek, or the Erskine Creek, respectively.
3. **TRANSMISSION LINES**

The Isabella P.S. Switchyard location is proposed for each layout alternative of the powerhouse, as shown in exhibit 3. The switchyard would be located directly above the underground powerhouse and transformer caverns.

The Project proposes connection of the proposed Isabella P.S. Switchyard to the existing SCE 66 kV transmission system. The proposed switchyard would be connected to the existing SCE 66 kV AC Kernville-Isabella or Isabella-Weldon transmission line, as depicted in Exhibit 3. The existing lines will require to be upgraded to 500 kV to support the project’s capacity. In order to provide energy storage/power delivery services to the regional electrical utility network, the following transmission paths are proposed:

- **Alternative 1:** A new 500 kV corridor of approximately 28 miles to connect the existing Weldon Substation to a new 230kV/500 kV Freeman Substation, which would then connect to the existing LADWP 230 kV AC transmission line, upstream the existing Barren Ridge Substation. The LADWP’s 230 kV AC transmission lines, downstream the new Freeman Substation, would also require capacity upgrades to support the Project’s operation.

- **Alternative 2:** A new 500 kV corridor of approximately 28 miles to connect the existing Weldon Substation to a new 500 kV Converter Station which would connect to the existing Pacific DC Intertie (PDCI). Similarly, the subsequent section of the PDCI would require capacity upgrades to support the Project’s operation.

- **Alternative 3:** A new 500 kV corridor of approximately 28 miles to connect the existing Isabella Substation to the existing Kern Canyon Substation which would then connect to the existing Midway Substation through the path shown in exhibit 3. Similarly, the existing path from Kern Canyon until Midway Substation would require capacity upgrades to support the Project’s operation.

- **Alternative 4:** Upgrade of the existing SCE 66 kV transmission line section starting from the existing Isabella Substation until the proposed tap, which would connect to the Highwind Substation through a new 500kV corridor of approximately 1 mile. The path would then continue to the existing SCE 220kV transmission line until reaching the existing Windhub Substation.

- **Alternative 5:** A new 500 kV corridor of approximately 26 miles to connect the existing Isabella Substation to the existing Kern River 1 Substation which would then connect to the existing Antelope Substation considering a proposed tap in the path shown in exhibit 3. Similarly, the existing path from Kern River 1...
Substation until the Antelope Substation would require capacity upgrades to support the Project’s operation.

- **Alternative 6:** Upgrade of the existing SCE 66 kV transmission line from the existing Isabella Substation until a proposed tap which would connect to the existing SCE 220kV transmission line to reach to the Magunden Substation, as shown in exhibit 3.

Further studies of the project’s new 500 kV or 220 kV transmission line location/alignment, type of towers, number of circuits, conductor selection and number of bundle conductors per phase, as well as interconnection alternatives, will be carried out during the term of this preliminary permit, to select the most preferable line design and configuration.

4. **PROJECT CAPACITY**

Based on preliminary analysis, the planned total installed capacity of the Isabella Pumped Storage Power Plant would be 2,000 MW. However, the project’s rating may vary as studies proceed. The project would store excess renewable energy, helping to integrate renewables onto the grid, and to supply firm peaking power generation with primary load following capability. Premium Energy plans to conduct a system impact study and power market investigations to help further refine the range of suitable generation capabilities.

The Isabella Pumped Storage Power Plant would be rated at 2,000 MW. Assuming a plant capacity factor of 40%, the plant would produce a total of 6,900 GWh of annual energy production. On a preliminary analysis, the maximum gross head may be up to 3,380 feet depending on the selected upper reservoir alternative. The proposed project currently envisions procurement of five new pump-turbine generator-motor sets for the pumped storage power plant. Each unit would have a nominal rating at 560 MW.

5. **FEDERAL LANDS**

The project layout study boundary, as shown on Exhibit 3, encompasses both federal and private lands. The proposed Isabella Pumped Storage Project would occupy Bureau of Land Management (BLM) lands and USDA Forest Service lands.

The proposed upper reservoir alternatives: Fay Reservoir, Cane Reservoir, or Erskine Reservoir, would be created in the Sequoia National Forest lands. The pressure tunnels or penstocks would go through part of the Sequoia National Forest and the Bureau of Land Management lands.

The interconnection of the project will require transmission line upgrades and a new transmission line interconnecting the proposed Isabella Switchyard to the new Freeman Substation or Converter Station. The transmission corridor for the new line from existing Weldon Substation to the new Freeman Substation/Converter Station will occupy BLM lands adjacent to the USDA Forest Services land.
**LAND DESCRIPTION**

Public Land States  
(Rectangular Survey System Lands)

1. STATE CALIFORNIA  
2. FERC PROJECT NO. Not applicable  
3. TOWNSHIP 25S RANGE 32E MERIDIAN Mount Diablo  
   4. Check one:  
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      - Preliminary Permit  
      X Pending  
      Issued  
   If preliminary permit is issued, give expiration date: Not applicable  
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   Telephone no. ( 909-595-5314  )  
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LAND DESCRIPTION

Public Land States
(Rectangular Survey System Lands)

1. STATE CALIFORNIA

2. FERC PROJECT NO. Not applicable

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Exhibit 3

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3. TOWNSHIP _______26S_________ RANGE____32E______ MERIDIAN Mount Diablo

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EXHIBIT 2 – DESCRIPTION OF THE PROPOSED STUDIES

1. GENERAL REQUIREMENT

Premium Energy proposes to carry out an extensive feasibility study to evaluate the proposed reservoirs configuration alternatives, as well as the power transmission alternatives. The primary aspects to be studied are the geological, environmental and water resources, and electrical engineering of the project. The studies would also include the economic viability and financing of the project. The complete feasibility study will include:

- Project site land investigation.
- Geological and seismic investigation.
- Soil surveys, test pits, bore holes and topographical surveying.
- Hydrological studies including runoff, rain, evaporation and groundwater flow.
- Evaluation of upper reservoir configuration alternatives.
- Devising of the project’s water supply plan, including legal and water rights matters.
- Environmental and cultural impact study comprising environmental surveys, impact identification, evaluation and mitigation measures.
- Engineering studies to optimize the project’s physical configuration.
- Energy market studies and determination of preliminary power sales and supply expectations.
- Evaluation of transmission interconnection alternatives including electrical system impact studies.
- Determination of size and specifications of the required electromechanical equipment.
- Cost estimates, economic feasibility and financing options investigation.

Based on the results and findings of the initial stages of the feasibility study, the applicant will prepare a Notice of Intent and Pre-Application Document as detailed in 18 C.F.R. §§5.5 and 5.6.

Temporary access roads will not be required to reach the project’s proposed features site. The existing roads would be enough to perform the required studies. Accessing the existing Isabella Reservoir will be possible through the existing Wofford Heights Blvd. Likewise, the existing Fay Ranch Road will be sufficient to reach the proposed Fay Reservoir site. The existing Earl Pascoe Rd will allow access to the proposed Cane Reservoir site. Finally, the existing Erskine Creek Road will allow access to the proposed Erskine Reservoir site. If necessary, Premium Energy will continue to study the proposed project area off road.

2. WORK PLAN FOR NEW DAMS CONSTRUCTION

The new upper reservoir dam construction will require subsurface investigations in the Greenhorn Mountains, Burnt Canyon, and Piute Mountains surrounding the Isabella Reservoir, in the Southern Sierra Nevada. The investigations would be done at the
proposed upper reservoirs site, as depicted in exhibit 3. Soil and rock borings will be necessary to determine the rock/soil structure and stability for the proposed dams and power plants foundations. Soil and rock samples shall be extracted to conduct studies and determine the soil mechanical properties. Therefore, assessing the project site’s suitability for construction of the new dams. Furthermore, seismic surveys will also be required.

The schedule of activities will be completed by the applicant during the permit period as shown in the table below:

<table>
<thead>
<tr>
<th>Schedule</th>
<th>Activity</th>
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<tbody>
<tr>
<td>Beginning in Month 1 to the end of Month 4</td>
<td>Conceptual engineering and evaluation of the alternative reservoir configurations</td>
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<td>Beginning in Month 1 to the end of Month 6</td>
<td>Initial scoping and consultation</td>
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<td>Beginning in Month 5 to the end of Month 10</td>
<td>Geotechnical and hydrological studies</td>
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<tr>
<td>Beginning in Month 7 to the end of Month 12</td>
<td>Soil and topographical surveying</td>
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<td>Beginning in Month 1 to the end of Month 16</td>
<td>Environmental and cultural impact study</td>
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<td>Beginning in Month 1 to the end of Month 14</td>
<td>Engineering studies to optimize the project’s physical configuration</td>
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<tr>
<td>Beginning in Month 4 to the end of Month 16</td>
<td>Planning and evaluation of transmission interconnection alternatives</td>
</tr>
<tr>
<td>Beginning in Month 1 to the end of Month 12</td>
<td>Devising of water supply plan</td>
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<td>Beginning in Month 12 to the end of Month 18</td>
<td>Legal and water rights matters</td>
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<td>Beginning in Month 14 to the end of Month 24</td>
<td>Determination of size and specifications of the required equipment</td>
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<td>Beginning in Month 10 to the end of Month 16</td>
<td>Energy market assessment</td>
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<tr>
<td>Beginning in Month 6 to the end of Month 16</td>
<td>Economic study for feasibility &amp; financial planning investigation</td>
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<tr>
<td>Beginning in Month 10 to the end of Month 16</td>
<td>Preliminary licensing proposal, consultation, and documentation</td>
</tr>
<tr>
<td>Beginning in Month 16 to the end of Month 24</td>
<td>Preparation, review and filing of the FERC license application</td>
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Within the proposed studies, one of the most important is the seismic study, to analyze the impact of an earthquake on the existing dams due to the aging condition of the civil infrastructure. It is expected that the Isabella Dam Safety modification project developed by USACE will solve or greatly reduce the present risky situation in the dams.
Based on the proposed work plan, the sole activities that may alter or disturb lands or waters in the vicinity of the proposed project are the test pits and core holes, required for the soil surveys. Other field activities including topographical surveying, hydrological studies, and environmental surveys, will not cause alterations or disturbances to the lands or waters in the vicinity of the proposed project. The rest of activities are expected to be engineering studies with occasional site visits.

The test pits and core holes test will be done in the surrounding areas where the proposed project features would be located, such as the powerhouse, tunnels, and upper reservoir alternatives. The location for the studies are shown in the figures 2 and 3. The same limits will be used to study species of wild flora and fauna in and around them, to identify potential impacts of the Project.

The schedule of activities may deviate from its initial formulation. Activities may be adjusted or supplemented depending upon circumstances which may develop as the studies proceed. Remedial actions to the possible disturbance of the proposed studies include the implementation of an erosion and material disposal plan, backfilling of core borings and test pits, and replanting any disturbed vegetation.

Figure 2. Study Location for the proposed Alternatives 1 & 2
Figure 3. Study Location for the proposed Alternatives 3
3. **STATEMENT OF COSTS AND FINANCING**

The total estimated cost of carrying out or preparing the studies, investigations, tests, surveys, maps, plans, or specifications described above is $5 Million.

The expected sources of financing available to carry out the activities of the described feasibility study are:

- Premium Energy’s available funds.
- Balance raising through investors.

The proposed market for the energy storage and production covers the electric markets in California. Power purchasing entities and other potential off-takers will be identified in further investigations during the term of the preliminary permit.
EXHIBIT 3 – ISABELLA PUMPED STORAGE PROJECT MAP

Isabella Pumped Storage Project Study Area Boundary

Project Layout

Legend
- Project Boundary
- Proposed Tunnel/Penstock
- Proposed 500 kV AC T/L
- Existing 66 kV AC T/L
- Proposed 500 kV AC T/L
- Existing 66 kV AC T/L (Upgrade)
- Proposed Isabella P.S. Switchyard
- Intake Structure

Electrical Interconnection

Legend
- Project Boundary
- Proposed Tunnel/Penstock
- Proposed 500 kV AC T/L
- Existing SCE 66 kV AC T/L
- Existing SCE 66 kV AC T/L (Upgrade)
- Proposed Isabella P.S. Switchyard
Section View Alternative 3 (Erskine Reservoir)
Transmission Alternative 1

Legend
- Existing SCE 66 kV AC T/L (Upgrade to 500 kV)
- Existing SCE 66 kV AC T/L
- Proposed 500 kV AC T/L
- Proposed 500 kV AC T/L
- Existing Substation
- Proposed Substation

Transmission Alternative 2

Legend
- Existing SCE 66 kV AC T/L (Upgrade to 500 kV)
- Existing SCE 66 kV AC T/L
- Proposed 500 kV AC T/L
- Existing LADWP 230 kV AC T/L (Upgrade)
- Existing Substation
- Proposed Substation