

1 **BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA**

2 Amended Application of Tonopah Solar )  
3 Energy, LLC for authority under the provisions )  
4 of the Utility Environmental Protection Act for )  
5 a permit to construct the Crescent Dunes Solar )  
6 Energy Project consisting of a nominal 110 )  
7 megawatt solar thermal generating facility and )  
8 new 230 kV transmission line to be located in )  
9 Nye County, Nevada. )

Docket No. 09-07018

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UTILITIES COMMISSION  
OF NEVADA-CARSON CITY

7 **AMENDED APPLICATION OF TONOPAH SOLAR, LLC, FOR A**  
8 **PERMIT TO CONSTRUCT THE CRESCENT DUNES SOLAR ENERGY PROJECT**  
9 **UNDER THE UTILITY ENVIRONMENTAL PROTECTION ACT**

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Carson City, Nevada 89701

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8 **PERMIT TO CONSTRUCT THE CRESCENT DUNES SOLAR ENERGY PROJECT**  
9 **UNDER THE UTILITY ENVIRONMENTAL PROTECTION ACT**

10 Tonopah Solar Energy, LLC, (“Applicant”) hereby submits to the Public Utilities  
11 Commission of Nevada (“Commission”) its amended application for a permit to construct the  
12 Crescent Dunes Solar Energy Project under the Utility Environmental Protection Act (“Amended  
13 Application”). The Amended Application is made pursuant to Sections 704.820 to 704.900 of  
14 the Nevada Revised Statutes and Sections 703.415 to 703.427 of the Nevada Administrative  
15 Code. In support of the Amended Application, the Applicant hereby submits the following  
16 information and evidence.<sup>1</sup>

17 **I. Introduction**

18 The Applicant intends to construct, operate and maintain a solar thermal power plant  
19 located in the State of Nevada. More specifically, the proposed project will be a concentrating  
20 solar power plant on a site located in an area approximately 13 miles northwest of Tonopah,  
21 Nevada, within Nye County (the “Project”). The Project will be capable of producing  
22 approximately 485 gigawatt-hours (“GWh”) of renewable energy annually, with a nominal net  
23 generating capacity of 110 megawatts (“MW”).

24 The Project is based on concentrating solar power (“CSP”) technology which utilizes  
25 heliostats/reflecting mirrors to redirect sunlight on a receiver erected in the center of the solar  
26 field (the power tower or central receiver). A heat transfer fluid (“HTF”) is heated as it passes  
27 through the receiver and then circulated through a series of heat exchangers to generate high

28 <sup>1</sup> Where necessary, the Applicant has restated information from the Original Application (as defined below) in order to assist the Commission in its review of the Project.

1 pressure superheated steam. The steam is then used to power a conventional Rankine cycle steam  
2 turbine/generator, which produces electricity.

3 The proposed project will interconnect to the existing Anaconda-Moly Substation  
4 (“Substation”) owned by Sierra Pacific Power Company d/b/a NV Energy (“Sierra Pacific”) and  
5 located approximately five (5) miles northeast of the Project.<sup>2</sup> A new 230 kV transmission line  
6 will be constructed between the Project and the Substation. The goal of the Project is to produce  
7 and supply solar-generated renewable energy to Nevada Power Company (“NPC”).

8 Nevada has established the Utility Environmental Protection Act (“UEPA”) application  
9 procedure by which a utility facility, as defined under NRS 704.860, must apply for and receive  
10 a permit to construct permit prior to commencement of construction. The UEPA process is a  
11 two-step application procedure when a federal agency is required to conduct an environmental  
12 analysis. NRS 704.870.

13 On July 20, 2009, the Applicant filed its initial application with the Commission  
14 requesting authority under the provisions of the UEPA to construct a 100-180 MW solar thermal  
15 power plant and a new 230 kV transmission line to be located in Nye County, Nevada (“Original  
16 Application”). The Commission docketed the matter as Docket No. 09-07018. On September 3,  
17 2010, the Bureau of Land Management (“BLM”) released the Draft Environmental Impact  
18 Statement for the Project (“DEIS”). A copy of DEIS is attached hereto as Exhibit 1. On  
19 September 20, 2010, the Applicant filed a Status Report with the Commission to update the  
20 Commission on the progress of the project. On November 19, 2010 the BLM released the Final  
21 Environmental Impact Statement for the Project (“FEIS”) and the Notice of Availability of the  
22 FEIS was published on November 26, 2010. A copy of the FEIS is attached hereto as Exhibit 2.<sup>3</sup>

23 //

24 \_\_\_\_\_  
25 <sup>2</sup> Although included in the BLM’s environmental impact study of the Project, Applicant is not responsible for the  
26 improvements and expansion of the Anaconda-Moly Substation, which are needed to interconnect the Project into  
27 Sierra Pacific’s system, and therefore, that request is not included in the Amended Application. The improvements  
28 to the Anaconda-Moly Substation are being completed by Sierra Pacific and are described in more detail in Sierra  
Pacific’s amended UEPA application to expand the Anaconda-Moly Substation (Docket Number 10-09026).

<sup>3</sup> Generally, a final environmental impact statement issued by the BLM would be an inclusive document of all  
studies, findings, comments and conclusions. However, due to the BLM conducting a “fast track” review of the  
Project, the DEIS and FEIS must be read together and are therefore both attached to the Amended Application.

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Carson City, Nevada 89701

1 On December 20, 2010, the BLM released the Record of Decision for the Project  
2 (“ROD”). A copy of the ROD is attached hereto as Exhibit 3.

3 **II. Information Regarding the Applicant**

4 The Applicant is a Delaware limited liability company qualified to do business in  
5 Nevada. The Applicant’s corporate headquarters and principal place of business is 2425  
6 Olympic Blvd., Suite 500 East, Santa Monica, California 90404. The Applicant is a solely  
7 owned subsidiary of SolarReserve, Inc.

8 All communications or correspondence regarding the Amended Application should be  
9 addressed or directed to the following:

10 Tom Georgis  
11 Vice President, Development  
12 Solar Reserve  
13 2425 Olympic Blvd., Suite 500 East  
14 Santa Monica, California 90404  
15 Telephone: (310) 315-2230  
16 Email: [tom.georgis@solarreserve.com](mailto:tom.georgis@solarreserve.com)

17 and

18 Timothy M. Clausen  
19 Fred Schmidt  
20 Holland & Hart LLP  
21 777 E. William Street, Suite 200  
22 Carson City, Nevada 89701  
23 Telephone: (775) 684-6000  
24 Email: [tclausen@hollandhart.com](mailto:tclausen@hollandhart.com)

25 **III. Responses to Required Disclosures**

26 The information required by NAC 703.421 and NAC 703.423 is provided as follows.

27 A. NAC 703.423(1). Description of Location

- 28 1. **NAC 703.423(1)(a). A general description of the location of the proposed utility facility including a regional map that identifies the location of the proposed utility facility.**

The Project is located in south-central Nevada in the northern part of Nye County on lands administered by the BLM. The Project area (including the solar pant, the Substation expansion, the transmission line and an aggregate borrow site) encompasses approximately 2,674.27 acres, as shown on the Site Maps which are attached as Exhibits 4 through 6. The land

1 necessary for construction of the Project, including the heliostat array, power block, and  
2 associated facilities, consists of approximately 1,763 acres, located within the land boundaries  
3 described above. The Project boundaries were finalized and the area granted in the following  
4 Right-of-Ways ("ROW") issued by the BLM on December 20, 2010: Solar Plant (Serial Number  
5 N-86292), new 230 kV transmission line (Serial Number N-87933), Substation expansion (Serial  
6 Number N-89273). The BLM will later issue a Mineral Material Sale contract, currently  
7 referenced N-88328, which will allow the Applicant to extract aggregate from a borrow site.

8 **2. NAC 703.423(1)(b). A legal description of the site of the proposed utility**  
9 **facility, with the exception of electric lines, gas transmission lines, and**  
10 **water and wastewater lines, for which only a detailed description is**  
11 **required.**

The Project area is more specifically described as:

Township 4 North, Range 41 East:

**Section 2:** LOT 4, W $\frac{1}{2}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$

**Section 3:** N $\frac{1}{2}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ , N $\frac{1}{2}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ SE $\frac{1}{4}$ ,  
NW $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$

**Section 4:** NE $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ , NW $\frac{1}{4}$ SE $\frac{1}{4}$ SE $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ SE $\frac{1}{4}$ ,  
NE $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$  LOT 4, NE $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$

Township 5 North, Range 41 East:

**Section 33:** SE $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ ,  
NE $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ NE $\frac{1}{4}$

**Section 34:** W $\frac{1}{2}$ , SE $\frac{1}{4}$ , W $\frac{1}{2}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ NE $\frac{1}{4}$

**Section 35:** SW $\frac{1}{4}$ SW $\frac{1}{4}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ ,  
W $\frac{1}{2}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$

The Transmission Line area is more specifically described as:

Township 5 North, Range 41 East:

**Section 2:** SW $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$

**Section 11:** W $\frac{1}{2}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$

**Section 14:** NE $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ NW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$

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**Section 15:** E $\frac{1}{2}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$

**Section 22:** NE $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$  NE $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SW $\frac{1}{4}$ ;  
NW $\frac{1}{4}$ SE $\frac{1}{4}$

**Section 27:** NE $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ NW $\frac{1}{4}$

**Section 28:** SE $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$

**Section 33:** NW $\frac{1}{4}$ NE $\frac{1}{4}$

The Aggregate Borrow Pit area is more specifically described as:

Township 5 North, Range 41 East:

**Section 19:** NE $\frac{1}{4}$

**3. NAC 703.423(1)(c). Appropriately scaled site plan drawings of the proposed utility facility, vicinity maps and routing maps.**

Scaled site plan drawings of the Project and vicinity maps are attached hereto as Exhibits 7 through 9.

**B. NAC 703.423(2). Description of Facility**

**1. NAC 703.423(2)(a). The size and nature of the proposed utility facility.**

The Project includes the following components:

- Solar Array
- Solar Field
- Central Receiver/Tower
- Power Block
- Thermal Storage System
- 230 kV Transmission Line
- Borrow Pit

Each component of the Project is discussed in more detail below, with the exception of the borrow pit which will be temporarily used to extract aggregate for construction.

**Solar Array**

The solar array will be a circular field with a radius of approximately 4,500 feet where

1 the heliostats are located. The power block, a circle with a radius of about 400 feet which houses  
2 the central receiver tower, storage tanks, steam turbine, hybrid cooling system, transformers, heat  
3 exchangers, power block buildings, and other ancillary equipment. An administration building,  
4 warehouse, and evaporation ponds will be located along the outside perimeter of the solar array.  
5 Associated linear facilities, including transmission and an access road, will also be employed.

### 6 Solar Field

7 A solar power tower/central receiver system generates electric power from sunlight by  
8 focusing concentrated solar radiation on a tower-mounted receiver. The system uses thousands  
9 of sun-tracking mirrors, called heliostats, which are arranged concentrically around the central  
10 receiver tower and reflect the incident sunlight onto the receiver.

11 The Project will consist of up to approximately 17,500 heliostats occupying  
12 approximately 1,600 acres. Each heliostat will be approximately 670 square feet in size, yielding  
13 a total reflecting surface of about 12,000,000 ft<sup>2</sup> (1,100,000 m<sup>2</sup>). The arrangement of the  
14 heliostats within the array is optimized to maximize the amount of solar energy that can be  
15 collected by the field and arranged to avoid interference among heliostats as they track the sun  
16 during the day. The heliostats will be arranged in arcs around the solar receiver asymmetrically,  
17 as described below.

18 The first row or line of heliostats has a radius of approximately 420 feet. The longest  
19 arc/line of heliostats, with a radius of approximately 5,100 feet, is in the northern section of the  
20 heliostat array. This is due to the greater collection efficiency of heliostats located north of the  
21 receiver tower for sites in the northern hemisphere of the world. With the sun predominantly in  
22 the southern sky, the cosine effect of incidence and reflection angles are less in the northern  
23 heliostats than in the southern ones. The converse – lower collection efficiency in the southern  
24 section – is also true; therefore, the maximum southern arc radius is the shortest (3,580 feet) and  
25 the southern heliostat field is the smallest.

26 The eastern sector of the heliostat is more valuable than the western sector for energy  
27 collection because afternoon energy collection, during on-peak utility hours, is more valuable

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1 than morning energy collection, during part-peak or off-peak hours. The maximum eastern row  
2 arc radius may therefore be greater than the maximum western row arc radius.

3 **Central Receiver/Tower**

4 The tower is a concrete structure, approximately 538 feet high, which supports a  
5 cylindrical receiver, approximately 100 feet tall, mounted on the top of the tower. The receiver  
6 is composed of tube panels through which the liquid salt or HTF flows. Therefore, the top of the  
7 receiver will be at a height of approximately 638 feet. A maintenance crane will also be  
8 mounted on top of the receiver, which is expected to be 15 feet tall.

9 **Power Block**

10 The power block will include a steam turbine generator, multiple feedwater heaters,  
11 steam superheaters, lubricating oil system, hydraulic control system, valving, and feedwater  
12 pumps. Steam is generated at a temperature and pressure of 1,050°F and 1685 psia before  
13 entering the high-pressure section of the turbine. Steam exiting the high-pressure section of the  
14 turbine is reheated to increase its temperature before entering the intermediate-pressure section of  
15 the turbine. Exhaust steam from the turbine is directed to the hybrid condenser. The turbine  
16 drives a generator, which delivers electrical power via a main step-up transformer in the on-site  
17 substation to the utility grid. Extraction steam from the steam turbine is used to preheat the  
18 feedwater and for deaerating the feedwater.

19 This high-efficiency turbine is designed for reliable operation under conditions of daily  
20 start up and shutdown over the life of the plant. The solar field and power generation equipment  
21 may be started each morning after sunrise and insolation build-up. The solar field will shut  
22 down in the evening as the sun sets, though the integral thermal energy storage system will allow  
23 the steam turbine to continue operating if there is demand for electricity.

24 The primary components of the power block include:

- 25 • Steam Generator System – The steam generator is the core of the steam  
26 supply system for the power block. The steam generator system includes a  
27 pre-heater, evaporator, superheater, reheater, and steam drum. High pressure  
28 feedwater enters the steam generator from the preheaters and leaves as

1 saturated steam that subsequently flows to the superheaters.

- 2 • Preheater – The preheaters are of a shell and tube design. High pressure
- 3 feedwater enters the preheaters from the low pressure feedwater heaters and
- 4 leaves as high pressure feedwater.
- 5 • Evaporator – The evaporator receives heated, high pressure water from the
- 6 preheater and evaporates the water into saturated steam. The evaporator is of
- 7 a shell and tube design.
- 8 • Superheaters/Reheaters – The saturated steam flows to a shell and tube
- 9 superheater to reach the desired steam-turbine temperature and pressure-
- 10 operating conditions. The reheater receives “cold” outlet steam from the high-
- 11 pressure turbine stage and reheats the steam before being reintroduced into the
- 12 intermediate-pressure stage of the turbine.
- 13 • Steam turbine – Once the pressurized steam has reached the optimum
- 14 temperature in the superheater, it flows to the steam turbine, which extracts
- 15 thermal energy from the steam.
- 16 • Feedwater heaters – The feedwater is heated to the required conditions using
- 17 conventional turbine extraction steam in low pressure feedwater heaters.
- 18 • Deaerator – A direct contact steam deaerator will be included to eliminate
- 19 dissolved oxygen in the condensate and steam.
- 20 • Cooling System

21 **Thermal Storage System**

22 The thermal storage system utilizes hot and cold liquid salt tanks to store solar heat  
23 energy for later steam generation, as well as associated pumps and piping. Thermal storage  
24 provides the facility with several enhancements. The solar field is nominally sized to provide  
25 excess solar energy to the system during summer months, and such sizing intentionally results in  
26 collection of excess heat that cannot be utilized instantly by the power block. The thermal  
27 storage capability allows the excess heat to be stored until utilized for power generation.  
28 Thermal storage can also extend the generation day of the Project. The heated salt can be stored

1 in insulated tanks to provide a steam heating source after the sun sets, allowing the facility to  
2 more closely satisfy the load demands of the electricity grid system, which typically peak in the  
3 late afternoon and evening hours. The thermal storage system includes an auxiliary electric heat  
4 source to keep the salt in a molten state through protracted maintenance outages.

5 The thermal storage system contains two storage tanks -- one "cold" tank storing liquid  
6 salt at 550°F and one "hot" tank storing liquid salt at 1,050°F. As the sun rises, cold liquid salt  
7 (or HTF) is pumped from the cold liquid salt tank through the tubes inside the receiver. After  
8 absorbing energy from the concentrated sunlight, the temperature of the HTF is increased to the  
9 design outlet temperature of 1,050°F. Part of the heated HTF is then pumped to a hot liquid salt  
10 tank for storage and part to a steam generating system that produces superheated steam for use in  
11 the conventional Rankine cycle turbine/generator system. This arrangement allows for excess  
12 heat to be stored for power generation outside of the direct solar-heating period of the day. After  
13 exiting the steam generator, the HTF is returned to the cold tank where it is stored and eventually  
14 reheated in the receiver.

#### 15 Transmission Line

16 The Project will interconnect into Sierra Pacific's system at the Substation. The  
17 Substation is located approximately five (5) miles northeast of the Project. As a result, a new  
18 230 kV transmission line will be constructed between the Project and the Substation. The route  
19 for the transmission line will follow the site access road and head northwest to where the Millers  
20 to Anaconda transmission line is located, and then parallel the Millers to Anaconda transmission  
21 line to the Substation, where it will interconnect with Sierra Pacific's system.

#### 22 **2. NAC 703.423(2)(b). The natural resources that will be used during 23 construction and operation of the utility facility.**

24 An environmental analysis was conducted by the BLM during the EIS process. All the  
25 studies evaluating potential environmental impacts of the Project were included in the BLM's  
26 DEIS and FEIS, which describe the existing environmental characteristics of the region and site,  
27 including the identification of natural resources present that have the potential to be affected by

28 ////

1 the project in both construction and operation. See Sections 3 and 4 of the DEIS, as amended by  
2 Section 5 of the FEIS.

3 **3. NAC 703.423(2)(d). Scaled diagrams of the structures at the proposed**  
4 **utility facility.**

5 Scaled diagrams of the structures at the Project are attached hereto as Exhibits 7 and 8.

6 **C. NAC 703.423(3). Environmental Studies**

7 The BLM consulted with various agencies during the environmental review process, and  
8 all environmental consequences and studies were included in the DEIS and FEIS. The DEIS was  
9 released on September 3, 2010, the FEIS was released by the BLM on November 19, 2010, and  
10 the ROD was obtained on December 20, 2010.

11 **D. NAC 703.423(4). Reasonable Alternative Locations.**

12 Solar project sites are selected for meeting a specific set of criteria including:

- 13 • Sites receiving long periods of sustained sunshine without frequent
- 14 occurrences of inclement weather, cloud cover or dust;
- 15 • Sites with relatively level ground/surface;
- 16 • Large contiguous sites away from light interference caused by buildings and
- 17 forestation;
- 18 • Close proximity to an electric transmission line; and
- 19 • Sites with good access for construction, operation and maintenance activities.

20 In this case, alternate sites were analyzed for feasibility, but were eliminated. These sites  
21 were also located in Nye County. The other sites considered had similar site characteristics to  
22 the proposed site, but were not carried over for further evaluation in order to respond to concerns  
23 raised by Nellis Air Force base related to a potential to affect military operations.

24 According to the National Renewable Energy Laboratory United States Solar Atlas, the  
25 Project site maintains high insolation levels on a year-round basis, creating ideal conditions for  
26 solar energy generation. While many undeveloped parcels of land exist in Nevada, it can be  
27 difficult to acquire parcels from private parties and assemble the acreage needed for a CSP plant.  
28 If enough private land were acquired, permitting issues at a local level within a jurisdiction with

1 no policy on solar development can be difficult. BLM's general solar policy is to facilitate  
2 environmentally responsible commercial development of solar energy projects on public lands  
3 and to use solar energy systems on BLM facilities where feasible (BLM 2007). Given BLM's  
4 solar policy and the advantage of the BLM controlling large areas of land in the southwestern  
5 United States, the Proponent is proposing this project on BLM-administered lands as opposed to  
6 private lands.

7 E. NAC 703.423(5). Proof of Public Notice

8 A copy of the Proof of Public Notice is attached hereto as Exhibit 10.

9 F. NAC 703.423(6). Proof of Service to the Nevada State Clearinghouse.

10 A copy of the proof of service to the Nevada State Clearinghouse is attached hereto as  
11 Exhibit 11.

12 G. NAC 703.423(7). Probable Effect on Environment

13 1. **NAC 703.423(7)(a). A reference to any studies, if applicable.**

14 BLM, Draft Environmental Impact Statement for the Crescent Dunes Solar Energy  
15 Project (September 3, 2010).

16 BLM, Final Environmental Impact Statement for the Crescent Dunes Solar Energy  
17 Project (November 19, 2010).

18 2. **NAC 703.423(7)(b). An environmental statement that includes:**

- 19 *i. The name, qualifications, professions and contact information for each*  
20 *person with primary responsibility for the preparation of the*  
21 *environmental statement.*

22 A list of preparers and reviewers of the environmental statement can be found in Section  
23 6 of the DEIS, with an updated list found in the FEIS Appendix H Tables 6-1 and 6-2. The  
24 following is the contact information for the preparers and reviewers identified in the DEIS and

25 FEIS:

26 BLM  
27 Nevada State Office  
28 P.O. Box 12000  
1340 Financial Blvd.  
Reno, NV 89520  
Phone: (775) 861-6400

1 BLM  
Battle Mountain District Office  
2 50 Bastian Road  
Battle Mountain, NV 89820  
3 Phone: (775) 635-4034

4 BLM  
Tonopah Field Office  
5 1553 South Main Street  
Tonopah, NV 89049  
6 Phone: (775) 482-7810

7 HDR  
7180 Pollock Drive, Suite 200  
8 Las Vegas, NV 89119  
9 Phone: (702) 938-6000

10 Bengston Consulting  
440 South Rock Boulevard  
11 Sparks, NV 89431  
Phone: (775) 673-5755

12 WorleyParsons  
13 1687 Cole Blvd # 300  
Lakewood, CO 80401-3318  
14 Phone: (303) 271-0795

15  
16 *ii. The name, qualifications, professions and contact information for each*  
17 *person who has provided comments or input in the preparation of the*  
*environmental statement.*

18 A public scoping process was held before and after the release of the DEIS. The scoping  
19 process is described in detail in Section 5.1 of the DEIS. In total, 114 people attended the public  
20 scoping meetings. In addition, comments were received addressing a variety of topics of interest  
21 related to the Project. A summary of the comments and responses is found in Section 4 of the  
22 FEIS and attached to Appendix B of the FEIS. The Applicant does not have the name,  
23 qualifications, professions and contact information for each of the individuals that submitted  
24 comments beyond the information contained in Appendix B to the FEIS.

25 In addition, the BLM invited government entities to participate as cooperating agencies.  
26 The cooperating agencies that participated can be found in Section 2.0 of the FEIS, however, the  
27 Applicant does not have the name, qualifications, professions and contact information for each of  
28 these cooperating agencies.



1 consequences, as amended by Section 5 of the FEIS, and Appendices D, E, F and G in the FEIS  
2 for mitigation plans.

3 *vi. A description of the environmental impacts that the construction and*  
4 *operation of the proposed utility facility will have on the project area*  
*after mitigation.*

5 As part of BLM's environmental review of the Project, it provided mitigation factors and  
6 plans that Applicant must follow during construction and operation of the Project. The plans  
7 include a wildlife mitigation and monitoring plan, a groundwater monitoring plan and a weed  
8 management plan. The specific details of each plan can be found in Appendices E, F and G of  
9 the FEIS.

10 H. NAC 703.423(8)(a). An explanation of the extent to which the proposed utility  
11 facility is needed to ensure reliable utility service to customers in this state,  
12 including: if the proposed utility facility was approved in a resource plan, a  
reference to the previous approval by the Commission.

13 In NPC's triennial integrated resource plan filing with the Commission (Docket No. 10-  
14 02009), the Commission reviewed and approved a 25-year power purchase agreement between  
15 NPC and the Applicant for renewable energy and other associated benefits from the Project  
16 ("PPA"). The Commission reviewed the need and the costs and benefits of the PPA and the  
17 Project compared to other renewable energy projects. The Commission issued an order  
18 approving the PPA, however, the ultimate approval date occurred pursuant to the condition in the  
19 PPA related to the final approval of the 500 kV transmission line connecting Sierra Pacific's and  
20 NPC's systems ("ON-Line").

21 I. NAC 703.423(9). An explanation of how the need for the proposed utility  
22 facility as described in subsection eight balances any adverse effects on the  
environment as described in subsection 7.

23 The Project is needed for numerous reasons, but the two largest are for NPC to comply  
24 with Nevada's renewable portfolio standard ("RPS") and to reduce greenhouse gas emissions  
25 that are produced from conventional natural gas and coal fired power plants. The Nevada  
26 Legislature adopted an aggressive RPS that requires electric utilities to acquire or generate 25%  
27 of its energy sold to retail customers from renewable energy systems by 2025. In addition, of  
28 this percentage a set amount of renewable energy acquired or generated by the electric utility

1 must come from solar energy systems. As a result, not only does the Project assist NPC in  
2 reaching the overall RPS goal, but it also helps NPC satisfy the solar requirement of the RPS.

3 Development of solar resources reduces reliance on foreign sources of fuel, promotes  
4 national security, diversifies energy portfolios, and contributes to the reduction of greenhouse  
5 gas emissions. The Project is expected to generate approximately 485,00 MWh of renewable  
6 energy per year and displace the use of natural gas and associated carbon dioxide (CO<sub>2</sub> – a  
7 greenhouse gas) emissions produced by a natural-gas-fired and coal burning power plants . The  
8 Project will also contribute much needed “renewable” on-peak power due to the storage  
9 technology.

10 With regard to the potential adverse effects of the Project on the environment, the DEIS  
11 and FEIS found that to the extent that the recommended/stated mitigation measures are  
12 implemented, the Project will have no significant impact on the natural environment. See the  
13 ROD attached as Exhibit 3. As a result, based upon the benefits associated with the Project and  
14 minimal impact on the environment, the need of the Project clearly balances the adverse effects  
15 on the environment.

16 J. NAC 703.423(10). Explanation of Minimum Adverse Impact on Environment

17 An explanation of how the proposed utility facility represents the minimum adverse  
18 effect on the environment, including:

19 a. **NAC 703.423(10)(a). The state of available technology.**

20 The Project utilizes advanced technology that allows for storage of the energy produced.  
21 The benefits of this unique technology include:

- 22 • Salt in the liquid state has highly efficient heat transfer and storage properties.  
23 Because the salt is used as the heat transfer medium in the cycle, no natural gas is  
24 required for startup or to maintain steam cycle conditions during cloud cover, as  
25 with some other solar technologies.
- 26 • The salt stores energy, thereby allowing the stored energy to be extracted upon  
27 demand to produce electricity, even when there is no sunlight.

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- 1           • The storage capability also provides flexibility to generate electricity in large  
2 quantities for short periods of time, or in smaller quantities over longer periods of  
3 time, thereby offering the ability to match the seasonal and varying electricity  
4 demands of the state.

5           Although the impact on the environment is the same as similar sized solar projects, the  
6 technology being used at the Project allows for more efficient use of energy. As a result, the  
7 Project provides better overall benefits for the same impact on the environment due to the  
8 technology it is using.

9           **b. NAC 703.423(10)(b). The nature of various alternatives.**

10           Alternative sites were analyzed for the Project, but were eliminated. These sites were  
11 also located in Nye County and had similar site characteristics to the Project site, but were  
12 dismissed due to concerns raised by Nellis Air Force Base related to a potential to affect military  
13 operations. In addition, the Project site selected is located in an area within the state where  
14 excellent solar resources exist. According to the National Renewable Energy Laboratory United  
15 States Solar Atlas, the Project area maintains high insulation levels on a year-round basis,  
16 creating ideal conditions for solar energy generation.

17           **c. NAC 703.423(10)(c). The economics of various alternatives.**

18           See response above.

19           **K. NAC 703.423(11). Explanation on Location Conforming to State and Local**  
20           **Laws**

21           **a. NAC 703.423(11)(a). A list of all permits, licenses and approvals the**  
22           **applicant has obtained including copies thereof.**

23           Copies of all permits, licenses and approvals obtained by Applicant to date of the filing of  
24 this Amended Application are attached hereto as Exhibit 12.

25           **b. NAC 703.423(11)(b). A list of all permits, licenses and approvals the**  
26           **applicant is in the process of obtaining to commence construction of the**  
27           **proposed utility facility. The applicant must provide an estimated**  
28           **timeline for obtaining these permits, licenses and approvals.**

          A table of all permits, licenses and approvals that Applicant is in the process of obtaining  
as of the date of this Amended Application, is attached hereto as Exhibit 13.

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L. NAC 703.423(12). Explanation of Public Interest

a. **NAC 703.423(12)(a). An explanation of the economic benefits that the proposed utility facility will bring to the applicant and this State.**

Nevada has one of the highest unemployment rates in the United States, currently at 14.2%. Nye County, where the Project is located, has a higher unemployment rate, estimated at 17.2% in September 2010. The Project is expected to promote economic development by creating approximately 40-45 permanent jobs and up to 400-500 peak construction jobs. In addition, the Project will contribute to local and state taxes, as applicable, providing more revenue for Nye County and Nevada.

Further, the Nevada Legislature adopted a renewable portfolio standard, requiring electric utilities to acquire or generate increasing annual percentages of electricity sold to retail customers from renewable energy systems. Construction and operation of the Project will contribute to achieving Nevada's renewable portfolio standard goals.

b. **NAC 703.423(12)(b). An explanation of the nature of the probable effect on the environment in this State if the proposed utility facility is constructed.**

The Project is expected to generate approximately 485,00 MWh per year and displace carbon dioxide (CO<sub>2</sub> – a greenhouse gas) emissions produced by a modern high-efficiency natural-gas-fired and coal burning power plants to produce an equivalent amount of energy. The Project will assist Nevada in developing renewable sources of energy and displacing older conventional power generation.

The Project can provide flexibility for state renewable power supplies by being able to generate a large quantity of electricity for a short period of time or a smaller quantity of electricity over a longer period of time without changing the size of the solar array. Further, the project is designed to meet the increasing demand for clean, renewable electrical power. Development of solar resources reduces reliance on foreign sources of fuel, promotes national security, diversifies energy portfolios and contributes to the reduction of greenhouse gas emissions.

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**c. NAC 703.423(12)(c). An explanation of the nature of the probable effect on the public health, safety and welfare of the residents in this State if the proposed utility facility is constructed.**

The Project is not anticipated to have any adverse effects on the public health, safety or welfare of Nevada's residents. On the contrary, the Project will provide economic benefits, including jobs and revenue, to Nevada's residents, which should improve their overall welfare. In addition, as discussed above, the Project will displace the use of natural gas and associated carbon dioxide (CO<sub>2</sub> – a greenhouse gas) emissions produced by a modern high-efficiency natural-gas-fired and coal burning power plants. As result, the public health and welfare of Nevada's residents are further improved by the reduction of toxic emissions.

**d. NAC 703.423(12)(d). An explanation of the interstate benefits expected to be achieved by the proposed electric transmission facility in this State, if applicable.**

Components and equipment required for the construction of the Project are not available from local sources or within Nevada. As a result, these materials will need to be purchased outside of the State and transported through interstate commerce to the Project site.

**IV. CONCLUSION**

Based upon the Original Application and Amended Application, and any other amendment or supplement thereto, the Applicant respectfully requests the Commission approve and issue a permit to construct under UEPA for the Project. The Applicant reserves the right to amend and supplement this Amended Application as permitted and contemplated pursuant to NRS 704.820 to 704.900 and NAC 703.415 to 703.427.

DATED and respectfully submitted this 5<sup>th</sup> day of January, 2011.

HOLLAND & HART LLP



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**PROOF OF SERVICE**

I hereby certify that on January 6, 2011 pursuant to NRS 704.870.3 and 704.870.4(a), I caused to be served upon the following persons and/or agencies a copy of the Tonopah Solar Energy, LLC, AMENDED APPLICATION FOR A PERMIT TO CONSTRUCT UNDER THE UTILITY ENVIRONMENTAL PROTECTION ACT (UEPA).

Nevada State Clearinghouse  
Nevada Dept. of Administration  
209 E. Musser Street, Room 200  
Carson City, NV 89701

Tammy Cordova, Staff Counsel  
Regulatory Operations Staff  
Public Utilities Commission of Nevada  
9075 West Diablo Drive, Suite 250  
Las Vegas, NV 89148

Eric Witkoski, Chief Deputy Attorney General  
Office of the Attorney General  
Bureau of Consumer Protection  
555 E. Washington Avenue, Suite 3900  
Las Vegas, NV 89101

Nevada Department of Conservation and Nat. Resources  
901 S. Stewart Street, Ste. 5001  
Carson City, NV 89701

Nevada Division of Environmental Protection  
901 S. Stewart Street, Suite 4001  
Carson City, NV 89701

Susan Dudley, Administrative Supervisor  
Chris Mulkerns, Deputy Town Clerk  
Town of Tonopah  
P. O. Box 151901  
Tonopah, NV 89049

Sandra L. Merlino, County Clerk  
101 Radar Road  
P.O. Box 1031  
Tonopah, NV 89049-1031

  
Signature of person serving