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BEFORE THE PUBLIC UTILITIES COMMISSION OF NEVADA

In the Matter of the Application of TGP Dixie)
Development Company, LLC, for a permit to)
construct the Coyote Canyon Geothermal)
Electric Generating project pursuant to the)
Nevada Utility Environmental Protection Act.)
_____)

DOCKET NO. _____

APPLICATION OF TGP DIXIE DEVELOPMENT COMPANY, LLC
FOR A PERMIT TO CONSTRUCT
THE COYOTE CANYON GEOTHERMAL ELECTRIC GENERATION PROJECT

COMES NOW, TGP Dixie Development Company, LLC, (“TGP”) by and through its attorneys, ALLISON, MacKENZIE, PAVLAKIS, WRIGHT, & FAGAN, LTD., and submits herewith its application to the Nevada Public Utilities Commission (“Commission”) for a permit to construct utility facilities to be known as the TGP Coyote Canyon Geothermal Project (referred to as the “Coyote Canyon Project” “CC” and the “Project”). The Coyote Canyon Project will be located in Dixie Valley, Churchill County, Nevada. The utility facilities will include a 70 MW geothermal power plant and associated production/injection wells, pipelines, and support facilities. The Project will also include a 0.4 mile long 230 kV transmission line which will connect to an existing 211 mile 230 kV transmission line which extends from Terra-Gen Power, LLC’s existing Dixie Valley geothermal power plant to the Control Substation located near Bishop, California. The project area is comprised of federal leases issued to the Coyote Canyon Project by the U.S. Department of Interior, Bureau of Land Management (“BLM”).

This application is filed pursuant to the Utility Environmental Protection Act (“UEPA”), NRS 704.820 et seq. and NAC 703.421 and NAC 703.423.

A. BACKGROUND AND AUTHORIZED REPRESENTATIVES

1. TGP is a Delaware limited liability company authorized to conduct business in the state of Nevada.

2. TGP is a wholly owned subsidiary of Terra-Gen Power Company (“Terra-Gen”). Terra-Gen owns and operates geothermal, wind and solar electric generating facilities in the western states. Terra-Gen currently owns and operates the 60 MW Dixie Valley geothermal electric generating station in Churchill County, Nevada.

3. TGP’s principal place of business mailing address and telephone number are: 11512 El Camino Real, Suite 100, San Diego, CA 92130. (858) 764-3736.

4. All correspondence related to this application should be sent to the following:

Vincent J. Signorotti
Vice President, Land Management
Terra-Gen Power, LLC
11512 El Camio Real, Suite 100
San Diego, CA 92130

and

Patrick V. Fagan, Esq.
Allison, MacKenzie, Pavlakis,
Wright & Fagan, Ltd.
P. O. Box 646
Carson City, NV 89702

B. INFORMATION REQUIRED BY NAC 703.423 AND NRS 704.870

TGP in support of its application, submits the following:¹

1. **A description of the location of the proposed utility facility as required by subsection 1 of NRS 704.870 including:**

¹ All references to sections in the application conform to NAC 703.423(1)-(12)

- (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.**

TGP proposes to construct and operate a nominal 70 MW, utility grade geothermal power plant in Dixie Valley, Churchill County, Nevada. To allow for flexibility, four potential locations for the project have been selected for proposed power plant facilities. Only one of the four locations would be constructed. A map which identifies the location of the proposed utility facility is attached hereto as Exhibit "1." The project includes a 0.4 mile, 230 kilovolt (kV) transmission line ("Gen-Tie" line). The Gen-Tie line will interconnect with the existing 211 mile, 230 kV transmission line which runs between Terra-Gen's Dixie Valley electric generating facility in Churchill County, NV and the Control Substation located in California near Bishop, CA.

The proposed project will utilize five BLM leases. The Coyote Canyon project is entirely on federal leases managed by the BLM Carson City Stillwater Field Office.

- (b) A legal description of the site of the proposed utility facility with the exception of electric lines, gas transmission lines, and water and wastewater lines, for which only a detailed description of the site is required.**

The proposed electrical generating facility will be located within the boundaries of the Coyote Canyon Exploration Unit, which was approved by the Bureau of Land Management effective May 1, 2011 (Serial No. NVN-89020X). The Coyote Canyon Unit encompasses approximately 15,313.14 acres of land of which all but 87.63 acres consists of land leased to TGP Coyote Canyon, LLC (and certain TGP affiliates) from the Department of the Interior, Bureau of Land Management. The legal description of the four proposed plant sites is as follows:

Site 1: A parcel approximately 40 acres in size located within the Northwest Quarter of Section 13, Township 24 North, Range 36 East, M.D.B.&M. on Federal Geothermal Resources Lease N-61707.

Site 2: A parcel approximately 40 acres in size located within the Southwest Quarter of Section 14 and the Southeast Quarter of Section 15, Township 24 North, Range 36 East, M.D.B.&M. on Federal Geothermal Resources Lease N-17282.

Site 3: A parcel approximately 40 acres in size located within the East Half of the Northwest Quarter and the West Half of the Northeast Quarter of Section 22, Township 24 North, Range 36 East, M.D.B.&M. on Federal Geothermal Resources Lease N-17283A.

Site 4: A parcel approximately 40 acres in size located within the South Half of the Northeast Quarter and the North Half of the Southeast Quarter of Section 21, Township 24 North, Range 36 East, M.D.B.&M. on Federal Geothermal Resources Lease N-86892.

(c) Appropriately scaled site plan drawings of the proposed utility facility, vicinity maps and routing maps.

Appropriately scaled site plans drawings of the proposed utility facility, vicinity maps and routing maps, specifically Figure 2-1, TGP Coyote Canyon Proposed Action Map and General

Plan Arrangement, are attached hereto as Exhibit "2" and incorporated herein by this reference.

2. A description of the proposed utility facility, including:

(a) The size and nature of the proposed utility facility.

The proposed facility will consist of a 70 Mw flash electric generating unit. The geothermal fluid to be utilized in production will include approximately 5.9 million pounds of fluid per hour (19,050 acre feet per year (afy)). The geothermal fluid will be received from production wells located at the site and will enter the plant and move through a series of high and low pressure separators where steam is separated from the geothermal fluid. The spent geothermal fluid is injected back into the geothermal resource. The steam is sent to a steam turbine generator where the thermal energy in the steam is converted into mechanical energy by rotating the steam turbine roter, which turns a generator to produce electrical energy. The steam is then condensed back to a liquid state for reuse in the process and ultimately injected back into the geothermal resource.

The cooling process used to condense the steam would be either a dry cooling system or a hybrid cooling system. The hybrid cooling system is being evaluated for possible use when ambient air temperatures are too high to efficiently condense steam. The hybrid cooling system uses a combination of water cooling and dry cooling technologies to accomplish the cooling process required. This hybrid cooling technology results in a significant reduction in water consumption over a traditional wet cooling system. The process water would be obtained by drilling and permitting a non-potable source of water with the Nevada Division of Water Resources ("NDWR").

The power plant facility would connect to TGP's existing 230 kV line via a 0.4 mile long 230 kV Gen-Tie. The proposed Gen-Tie routes are shown on Figure 2-1 attached hereto as Exhibit "2." Only one route will be selected based on the final location of the power plant. The Gen-

Tie would consist of a single 230 kV circuit on H-frame or 3-pole wooden structures that would be approximately 85 feet tall. Examples of the H-frame and 3-pole structures are shown in Exhibit "3" attached hereto. Construction of each Gen-Tie pole would require a temporary disturbance of 0.5 acre and an approximately 30 x 40 foot area for installing the electrical conductors or line. Installation of each wooden pole would require a permanent disturbance of approximately 6-8 square feet per pole.

The power plant would include an electrical substation that would convert the electric power generated to a voltage of 230 kV. A main control building would contain instrumentation and telecommunications equipment. The substation would measure up to 250 x 175 feet and would be surrounded by an 8-foot-tall chain link fence with a vehicle and personnel access gates.

(b) The natural resources that will be used during the construction and operation of the proposed utility facility.

The project has received a decision record and finding of no significant impact (FONSI) from BLM both dated March 7, 2011. Both the decision record and FONSI approve the proposed construction of the Coyote Canyon Project. The FONSI states that the project will not have a significant effect on the human environment nor the natural resources located in the project area. Natural resources that will be used during the construction and operation of the proposed facility include geothermal fluid (brine), water, and resources contained in building materials and machinery required for the construction of the project. The decision record and FONSI are attached hereto as Exhibit "8".

(c) Layout diagrams of the proposed utility facility and its associated equipment.

See Attached Exhibit "2."

- (d) Scaled diagrams of the structures at the proposed utility facility.**

See Attached Exhibit "2."

- (e) A statement concerning whether the proposed utility facility is an electric generating plant or the associated facilities of an electric generating plant that uses renewable energy as its primary source of energy to generate electricity.**

The Coyote Canyon Project will be an electric generating plant that uses geothermal brine which is defined as a renewable energy resource pursuant to NRS 704.7811.

- 3. A copy and summary of any studies which have been made of the environmental impact of the proposed utility facility as required by subsection 1 of NRS 704.870.**

Environmental studies conducted for the Coyote Canyon Project include:

- (a) Environmental Assessment, TGP Dixie Development Company, LLC Coyote Canyon and Dixie Meadows Geothermal Exploration dated April, 2010. (Exhibit "7").
- (b) Environmental Assessment, TGP Dixie Development Company, LLC Coyote Canyon Geothermal Utilization dated November, 2010. (Exhibit "8").

The proposed action area is 55 miles northeast of Fallon, Churchill County, NV at elevations ranging from approximately 3,400 to 3,600 feet in the northern part of Dixie Valley. The proposed project will be located on the eastern slope of the Stillwater range in an area dominated by mild salt desert scrub vegetation. Terrains within the project area are gently sloping alluvial fans and valley bottom. The environmental assessment prepared by the BLM evaluated the impacts on the natural and human environment that could result from construction of the Coyote Canyon Project. The impact analysis in the environmental assessment characterizes the potential for impacts for each resource identified in the environmental assessment in the project area. Resources

examined included, but were not limited to, air quality, cultural resources, invasive, non-native and noxious species, migratory birds, wildlife, water and paleontological resources. The conclusion of the BLM as set forth in its FONSI was that the proposed project will not have a significant effect on the human and natural environment of the proposed project.

4. A description of any reasonable alternate locations for the proposed utility facility, a description of the comparative merits or detriments of each location submitted, and a statement of the reasons why the location is best suited for the proposed utility facility, as required by subsection 1 of NRS 704.870.

The environmental assessment has approved the construction of the project within the resource area defined by five BLM leases described in Exhibit "4." As referenced in the environmental assessment, before starting to prepare the electric generating facility site, TGP must obtain from BLM a BLM geothermal site license agreement and construction permit. Also, an approved commercial use permit must be obtained prior to commencing commercial operations from the facility. No alternatives to the current sites defined by the five BLM leases have been considered.

The Dixie Valley area is located on an alluvial plane near the foot of the Stillwater Range in Churchill County, Nevada. The project area lies with the Great Basin which is characterized by low lying alluvial filled valleys, beach gravels, dune deposits and north or northeast trending fault-bounded mountain ranges. The plant sites for the proposed Coyote Canyon electrical generating facility were selected based on a variety of criteria. One of the major considerations in selecting a power plant location was to avoid the valley playa, which extends in a southeasterly orientation from the foot of the Stillwater Range, in order to take advantage of the natural stability that is found on land that is located nearer to the range front. Each of the four proposed plant sites being considered represents the minimum adverse effect on the environment within the area expected to contain geothermal fluids in commercial quantities. The selected sites were designed to avoid

environmentally sensitive areas including wetlands, wildlife habitat, areas of cultural significance and native vegetation.

The development of geothermal energy facilities is unlike a fossil fuel plant because the facility must be located near the location where the geothermal fluids are produced. In most instances and depending on the temperature and pressure of the resource once it reaches the surface, there is a limitation on the distance geothermal fluids can travel in insulated above-ground pipelines while still retaining its heat value as the fuel for a power plant. Accordingly, as a means of conserving the resource and to maximize efficiency, geothermal power plants are typically located within a distance of not more than one mile from the well head of the production wells supplying the fuel for the plant.

5. **A copy of the public notice of the application or amended application and proof of the publication of the public notice, as required by subsection 4 of NRS 704.870.**

See Exhibit "5."

6. **Proof that a copy of the application or amended application has been submitted to the Nevada State Clearinghouse within the Department of Administration to enable agency review and comment.**

See Exhibit "6."

7. **An explanation of the nature of the probable effect on the environment, including:**

- (a) **A reference to any studies described in subsection 3, if applicable.**

See, the Environmental Assessment for Geothermal Exploration dated April, 2010 and the Environmental Assessment for Geothermal Utilization dated November, 2010 attached hereto as Exhibits "7" and "8," respectively.

- (b) **An environmental statement that includes:**

- (1) The name, qualifications, professions and contact information of each person with primary responsibility for the preparation of the environmental statement.**

See, Section 5 of the Exhibit "8" Environmental Assessment dated November, 2010.

- (2) The name, qualifications, professions and contact information of each person who has provided comments or input in the preparation of the environmental statement.**

See, Section 5 of the Exhibit "8" Environmental Assessment dated November, 2010.

- (3) A bibliography of materials used in the preparation of the environmental statement.**

See, Section 6 of the Exhibit "8" Environmental Assessment dated November, 2010.

- (4) A description of:**

- (i) The environmental characteristics of the project area existing at the time the application or amended application is filed with the Commission.**

Air Quality

The CC project area is located in a rural area with minimal industrial sources or potential contribution to emissions to the airshed from vehicle traffic. Activities associated with the Proposed Actions would occur in Groundwater Basin 128 in Churchill County, Nevada. Groundwater basins in the state of Nevada correspond to airsheds and, therefore, Groundwater Basin 128 is the analysis area for air quality. This basin is in attainment for all National Ambient Air Quality Standards (NAAQS) and Nevada air quality standards. In addition, the area is not a maintenance area for any criteria pollutants.

Regulatory Environment

The U.S. Environmental Protection Agency (EPA) Office of Air Quality Planning and

Standards and NDEP have set NAAQS and Nevada ambient air quality standards for the following criteria pollutants: nitrogen dioxide, sulfur dioxide, carbon monoxide, and particulate matter smaller than 10 microns in aerodynamic diameter (PM10), particulate matter smaller than 2.5 microns in aerodynamic diameter (PM2.5), ozone, and lead. In addition to the above-listed criteria pollutants, NDEP has established an ambient air quality standard of 0.08 parts per million (ppm) or 112 micrograms per cubic meter for hydrogen sulfide (H2S). Nevada Administrative Code 445B.22097 provides the minimum standards of quality for Nevada ambient air.

Attainment is achieved when the existing background concentrations for criteria air pollutants are less than the maximum allowable ambient concentrations defined in the NAAQS. The attainment status, with respect to the NAAQS, of the air shed in which the Proposed Actions are located precludes the requirement for an air quality conformity analysis.

The Final Mandatory Reporting of Greenhouse Gases Rule issued by the EPA, as signed on September 22, 2009, requires suppliers of fossil fuels or industrial greenhouse gases (GHG), manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to the EPA. The Nevada Division of Environmental Protection (NDEP) also requires GHG emissions reporting. However, NDEP has exempted geothermal projects from GHG reporting.

Cultural Resources

Cultural resources include historic and prehistoric sites of interest and may include structures, archaeological sites, or religious sites of importance to Native American cultures. Section 106 of the National Historic Preservation Act as amended (16 USC 40 et seq.) requires federal agencies to take into account the effects of their actions on properties listed or eligible for listing on

the National Register of Historic Places (NRHP). The National Park Service (NPS) defines archaeological and historic resources as "the physical evidences of past human activity, including evidences of the effects of that activity on the environment. What makes a cultural resource significant is its identity, age, location, and context in conjunction with its capacity to reveal information through the investigatory research designs, methods, and techniques used by archeologists." Ethnographic resources are defined as any "site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it" (NPS, 1998).

The basic cultural chronology of the western Great Basin includes the Pre-Archaic and Archaic Periods (Elston, 1986). A more thorough background of the prehistoric, historic, and ethnographic resources found in the area can be found in the inventory report conducted for this project (Young and Garner 2009). Below is a very brief summary of this 12,000 years of human occupation in western Nevada.

The Pre-Archaic period is defined by artifacts including Clovis and Folsom fluted lanceolate projectile points and Lake Mojave lanceolate projectile points. Reliance on big game hunting dominated the Pre-Archaic subsistence strategy. The main indicator of the shift to the Archaic period is a change to a broader strategy focused on hunting and gathering of resources. The projectile points became smaller and more suited for hunting smaller game, although they were still mounted on the ends of a dart or spear, and there was an increase in the number and type of stone grinding implements used for plant and seed processing.

The material culture diversified greatly with the contemporaneous introduction of pottery and the bow and arrow with smaller projectile points. By around A.D. 1200, an expansion

