24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

RIZZO Associates has undertaken development of small hydroelectric power projects in a programmatic manner in Chile. The lead Project is the Mapocho & Molina Hydroelectric Project, located about 100 km east of Santiago in the lower elevations of the Andes. It is a two-plant Project designed to operate in tandem with flow from the up-river Molina Plant, feeding the down-river Mapocho Plant. The Project will supply up to 26.5 MWe. The Mapocho Powerhouse will be located on the north shore of the Mapocho River about three km east of El Arrayan. The intake point is located downstream of the junction of the San Francisco and Molina rivers. The Molina Plant facilities are located along the Molina River with the Powerhouse located upstream of the Mapocho Intake. The Intake feeds an off-river reservoir or Daily Storage Pond (DSP) constructed as part of the Project with a 1.5 million m³ live storage capacity. Water flows from the DSP to the 14.5-km long Molina Canal, and thence to the Forebay, Penstock and Powerhouse. The approximate 19-km of PVC lined canals for the two plants are to be constructed over soil and rock slopes, and protected against landslides.

The DSP is one of several improvements added to the Project in response to changes in energy pricing regulations in Chile and findings of the Environmental Assessment. The Project is designed to operate at rated capacity on peak electricity demand hours of each week by use of the DSP, which are refilled in off-peak and weekend hours. The flow over a weekly period is only regulated to better match flow rates with electricity demand. When excess water is available, such as in the wet season, the plant operates at maximum practical capacity during off-peak hours. This approach maximizes the revenue that the Project generates by obtaining the maximum available energy prices combined with the maximum practical capacity payments, while maintaining the “run-of-the-river” philosophy and designation.

RIZZO has completed the general layout and the design of the DSP, civil works including intake structures, canals, forebays, Penstocks, Powerhouse, specification of hydromachinery, electrical equipment and switchyard. Preliminary specifications have been prepared to support cost estimates.

This water resource-planning project evaluated the water resources of three river basins east of Santiago, Chile, for a hydroelectric development project. Particular issues included the effects on the amount and air quality of renewable natural resources including soil, water, and air; alteration of systems of life and customs of human groups; environmental values of the territory; size or duration of scenic or tourist values; fish migration; Flora and Fauna assessments; monuments, anthropological, archeological, and historical values; cultural heritage and public use of the lands. The Project has been carried through the planning stages to conceptual drawings, financial planning and economic analysis plus a major environmental impact study is scheduled.