

Public Project Summary: Alto Maipo, Chile

Screening: The Project has been reviewed against OPIC's categorical prohibitions and determined to be categorically eligible. The Project has been screened as Category A because potential impacts are diverse and potentially irreversible. In addition to impacts and risks associated with any large construction and civil works (e.g., noise, dust, traffic, vehicle and equipment emissions, solid and hazardous waste management, and occupational health and safety), the main environmental concerns are related to tunneling activities such as noise, vibration and waste rock disposal; impacts on water quality due to construction works in river channels and contaminated run-off from waste rock piles; and potential impacts on terrestrial and aquatic biodiversity during construction and on aquatic biodiversity during operation as a result of reduced or diverted flow. The main social concerns are potential impacts on tourism including altered view sheds and reduced flow for rafting and impacts on current water users as a result of changes in in-stream sedimentation patterns. Other key issues include the need for continued engagement with stakeholders, cumulative impacts, climate change, and occupational health and safety risks unique to this project and associated with tunneling, such as the potential for cave-ins and collapse, and degraded air quality.

Applicable Standards: OPIC's environmental and social due diligence indicates that the Project will have impacts that must be managed in a manner consistent with the following Performance Standards:

- P.S. 1: Social and Environmental Assessment and Management Systems;
- P.S. 2: Labor and Working Conditions;
- P.S. 3: Resource Efficiency and Pollution Prevention;
- P.S. 4: Community Health, Safety and Security;
- P.S. 5: Land Acquisition and Involuntary Resettlement; and
- P.S. 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

The Project does not require any physical resettlement but does require the physical relocation of a community soccer field and a privately operated campground located on government-owned property. No Indigenous People or ethnic minorities or clans were identified during due diligence in the area of influence of the Project. No known archaeological, cultural heritage, or paleontological sites were identified in the Project's area of influence, and the Project has established a chance finds procedure in collaboration with local authorities. Therefore, P.S. 7 and 8 are not triggered by the Project at this time. Consistent with P.S. 3, applicable provisions of the 2007 International Finance Corporation's (IFC) Environmental, Health, and Safety General Guidelines, specifically applicable sections of the IFC Environmental, Health and Safety Guidelines for Electric Power Transmission and Distribution also apply.

OPIC Site Visit: OPIC's environmental and social due diligence included a site visit the week of April 16, 2012. Meetings were held with the Company and the consultants who prepared the 2008 ESIA and subsequent revisions for the Project; local authorities including the Environmental Assessment Service, General Water Authority, Direction of Hydraulic Works, Municipality of San Jose de Maipo and Municipal Tourism and Economy Office of San Jose de Maipo; and stakeholders (Coordinadora Ciudadana Rios del Maipo, Asociación de Canalistas del

Rio Maipo, Comunidad de Agua de Riego from the Community of Manzano, Junta de Vigilancia del Rio Maipo, and Directiva Unión Communal de Juntas de Vecinos).

Environmental and Social Risks and Mitigation: An Environmental and Social Impact Assessment (ESIA) was completed in May 2008 and was subsequently amended in November 2008, January 2009 and March 2009 in response to comments from public authorities and members of the public. The Project was issued an environmental permit in March 2009 by the Chilean authorities. The ESIA for the transmission line was submitted in September 2009 and was granted an environmental permit in July 2010. The ESIA's identified potential environmental and social impacts during construction and operation and mitigation and management measures corresponding to each of the identified impacts were incorporated into the Project's design and construction phase environmental and social management plans as well as in contractors' contracts.

Following the review of the ESIA's and management plans, as well as extensive information provided by the company and stakeholders, OPIC determined that there were key issues that required further in-depth analysis. These included: (1) Potential impacts on existing water users with respect to future availability of water for irrigation, drinking water, and recreational use; (2) Potential impacts associated with changes in sedimentation patterns and the potential for clogging of water intakes, scouring of bridge abutments and river bank erosion, including impacts anticipated as a result of climate change; (3) Confirmation of ecological flow necessary to support aquatic biodiversity in dewatered river reaches receiving reduced flow; (4) Confirmation that the land acquisition process followed international best practice; (5) Evaluation of potential impact on three internationally recognized protected areas, including two privately owned and managed reserves; (6) Cumulative impact analysis; (7) Alternatives Analysis; and (8) Effectiveness of the Project's formal plan for continuing disclosure and engagement with Project-affected communities. Between May 2012 and June 2013, the Project prepared a series of complementary studies designed to clarify these key issues.

The Project hired a third-party consulting company to conduct the complementary study on potential impacts to existing water users and uses. The report, "Identification and Assessment of Potential Impacts on Water Uses and Establishment of a Management/Compensation Plan," concluded that water flow during Project operation will be sufficient to meet all current water rights and water uses within the intervened reaches and that under the most conservative climate change predictions will be sufficient to meet all existing water rights within the dewatered reaches, with the exception of a hydroelectric plant during extremely dry conditions whose rights are contingent on available water. Regarding recreational use, OPIC will require that the Project conduct a quantitative assessment for recreational use in affected rivers, and flow requirements for a quality recreational experience in consultation with commercial and private recreational boaters and other stakeholders.

With respect to changes in sedimentation, the Project has identified structures in the river that are located up to 5 km downstream of the discharge point. Per the environmental permit, the Project is in the process of conducting an Advanced Sediment Transport Study, which will provide more detailed information regarding potential impacts of sediment/scour. Based on the assessment

from the study, the Project will develop and implement monitoring programs, mitigation measures, and compensation plans, as applicable.

An Ecological Flow Study prepared for the Project as part of the 2009 ESIA was approved by the Chilean environmental authorities. The Chilean water authority imposed ecological flows (based on the 10% average annual flow of the hydrologic data) that are even more conservative than the environmental authorities', requiring the Project to meet higher flows. To validate the Ecological Flow Study and provide more robust basis for the conclusions reached, OPIC required additional data and analysis. The Project conducted additional surveys in the Project area of influence. Results from the final ecological flow study using the additional data indicate that the operation of the Project does not significantly convert or degrade the aquatic habitat of the average hydrologic condition and the mitigation and adaptive management measures provide a level of control for reassessing the impacts and adjusting the flow requirements as necessary. In addition to implementing the Ecological Flow Monitoring Plan developed by the Project, OPIC will require that the Project continue to conduct long term aquatic monitoring to ensure that the conservatively estimated ecological flow remains sufficient to support aquatic habitats; implement mitigation measures for habitat conservation, compensation and adaptive management measures; and conduct participatory monitoring with local communities and other interested stakeholders.

Because 90% of the Project's infrastructure will be underground, the Project design has minimized land acquisition and has avoided the need for physical displacement of the local population. In addition, the Company prepared a complementary study, "Identification of Impacts from Land and Right-of-Way Acquisition and Establishment of a Land and Right-of-Way Acquisition Report," which supports the conclusion that the Project followed international best practices with respect to land and right of way acquisition.

There are three legally protected areas that are within the Project's area of influence, all of which are IUCN designated. Project tunnels pass underground through two of the protected areas, *Monumento Natural El Morado* and the *Santuario de la Naturaleza San Francisco de Lagunillas y Quillayal*. Although the third protected area, *Santuario de la Naturaleza Cascada de las Animas* ("Sanctuary"), abuts 6.7 km of the Maipo River, the Sanctuary's boundary does not actually include the river and therefore no direct impacts would result on the Sanctuary. The Company conducted complementary technical studies and analysis of potential impacts to the protected areas, which conclude that the Project will not degrade or significantly convert the habitats and biodiversity values under protection and no measureable adverse impacts are foreseen. The environmental permit requires ongoing environmental monitoring for the entire Project, continuous monitoring of *Monumento Natural El Morado* and monitoring of hydrology and biology in Maipo River along the *Santuario de la Naturaleza Cascada de Animas*.

The Company hired a third-party independent consultant with expertise in the development of cumulative impact assessments to develop a Cumulative Impact Assessment. The final Cumulative Impact Assessment report is comprehensive and meets international standards. The Cumulative Impact Assessment includes identification of valued ecosystem components and assessment of potential cumulative impacts with respect to other water users, increased demand on basic services in the local communities, erosion, etc. Potential cumulative impacts are

manageable and will require monitoring. OPIC will require that the Company conduct a complementary assessment of potential environmental and social impacts for any future expansions and develop and implement an Ecosystem Services Management Program, which will include plans for outreach and engagement with relevant stakeholders to discuss joint regional approaches for management of identified impacts.

Over the 22 year development phase for the Project, five Project design alternatives have been considered along with seven alternatives for the transmission line. The Company prepared an Alternatives Analysis report that meets international standards.

The Company has established a Social Management System, Stakeholder Engagement Strategy, Disclosure, Consultation and Dialogue Plan, and Stakeholder Mapping and Disclosure Plan, which provide an adequate framework for action. OPIC will require that the Company detail implementation strategies for the Plans, document consultations and disclosure events, conduct participatory monitoring, implement the social indicators monitoring program, and initiate the recreational uses consultation process and monitoring.

In addition to the eight issues described above, a key issue raised by stakeholders was related to “blackouts” (potential temporary interruption of water flow downstream in the event of general electricity grid blackout requiring the Project to suddenly shutdown) and potential generation of a surge wave due to the abrupt return of water into the streams and rivers in the event of a facility shutdown. This situation would require a generalized facility shutdown lasting nearly seven hours. Only seven blackout events have occurred within Chile’s Central Interconnected System during the last twelve years, all of them lasting approximately two hours. The Borrower has developed a “Blackout” Contingency Plan. OPIC will require that the Borrower include a communication and warning system for communities downstream as part of their emergency preparedness and response plans.

Environmental and Social Management System. The Project has established an environmental and social management system that is consistent with the requirements of the IFC Performance Standards. AES Gener’s Integrated Environmental, Health, Safety and Quality Policy is ISO 14001 and OHSAS 18001 certified. In addition to an overall Environmental Management Plan which was developed as part of the 2009 ESIA for the Project, the Project has developed detailed plans and programs to strengthen the management system for the following: Air Quality Monitoring; Noise and Vibration Monitoring; Traffic Monitoring and Control; Vegetation Monitoring; Water Quality Monitoring; Effluent Monitoring and Control; Ecological Flow Monitoring; Limnological Monitoring; Flora and Fauna Monitoring; and Social Indicators Monitoring. OPIC will have a third-party consultant monitor the Project, and monitoring reports will be submitted to OPIC on a quarterly basis during construction, semi-annually during the first three years of operation, and annually thereafter.

In 2012 and early 2013, the Company appointed a dedicated Environmental Manager and a dedicated Community Relations Manager who both report directly to the Project Director. The Project also has a dedicated Safety Manager. The Environmental Manager is supported by a team of 8 professionals. An environmental submanager for construction and environmental compliance assisted by two supervisors in field, and a submanager dedicated to implementing the

EHSQ Management System, regulation, reporting and permit issues assisted by two Environmental Specialists and two Environmental Engineers . The Community Relations Manager includes three Contractor Monitors responsible for coordinating and monitoring all contractor activities to each of the principal construction areas.

Community Consultations: The Social and Environmental Impact Assessment was posted on OPIC's web site for a 60 day public comment period, from September 21 to November 20, 2012. No comments were received.

Preliminary Project consultation and disclosure activities began in 2006 prior to development and submission of the 2007 ESIA and included 40 meetings with government authorities, 70 meetings with communities and community representatives within the area of influence, and meetings with key civil society stakeholders. The original Project ESIA was publicly disclosed locally and on the regulatory agency's website in 2007 and the revised ESIA was disclosed in 2008. In compliance with Chilean public consultation procedures, eight formal public participation meetings were held during the ESIA process. The Project established a Community Relations Office in San Jose de Maipo in 2008 to serve as the primary point of contact between the Project and stakeholders. A Social Collaboration Agreement with the Municipality of San José de Maipo, the Union Communal of San José de Maipo, and several other community organizations was signed in March 2009. The Community Relations office is currently conducting additional disclosure and consultation with key stakeholders based on the complementary studies mentioned above.