

Environmental and Social Strategy
Energia Pacifico (CH-L1056)

A. Project Description.

1. The Bank has been mandated by *Empresas Coipsa S.A. (Coipsa)*, *Compania Papelera del Pacifico (CPP)* to evaluate potential IDB financing for the development, construction and operation of a 15.6 MW biomass cogeneration plant located in San Francisco de Mostazal, in Chile's VI Region, approximately 60km south of Santiago (the "Project"). The proposed loan would complement an US\$8 million loan to Energia Pacifico S.A. (EP or the "Company") by the Inter-American Investment Corporation's (IIC) which was approved in October 2008. EP is a subsidiary of Empresas Coipsa S.A. (Coipsa), a Chilean firm founded in 1985 that is the parent of a group of companies that recover, recycle, process and manufacture paper, cardboard and other related products. EP's shareholders are Empresas Coipsa S.A. (62%) and its subsidiary CPP (38%).
2. The plant will have a power generation capacity of 15.6 MW and will produce 297,500 tons of steam annually for industrial purposes. The Project is designed to operate either as a co-generation facility or in a contingency mode as an electricity only facility. EP will sell approximately 45% of its net electricity output and 100% of its steam output to Compania Papelera del Pacifico S.A. (CPP), the largest company within the Coipsa group, through a long-term take-or-pay power purchase agreement. The remaining electricity will be sold on the wholesale electricity market (the Central Integrated System, "SIC") through the electric substation at San Francisco de Mostazal.
3. The boiler is a staged-combustion system (inclined moving grate) employing a water-cooled gasification reactor under a conventionally designed water-tube boiler. It is equipped with a No. 2 fuel oil burner to provide rapid response to changes in flame zone temperature to assure stable operations when using a variety of biomass fuels. The boiler gas exhaust flow is directed through a multi-clone cyclonic separator and then through an electrostatic precipitator for abatement of particulate matters emissions. The staged combustion minimizes the formation of NOx.
4. The boiler is multi-biomass fuel capable. The base fuel supply scenario consists in a combination of sawmill wastes and maize cobs collected from medium -size sawmills and corn plantations, The Project also plans to use highest moisture content fuels such as forestry operations residues (branches left in the forest after harvesting) and agricultural residues (vineyard pruning residues) as secondary fuel. The Project is not considering however using as fuel wood or other biomass that would not be a by-product or waste from an existing activity.
5. The Project is adjacent to the existing pulp and paper plant of CPP and will be using some of its facilities. Water will be sourced from deep wells. Wastewater

from the Project (typically boiler blow down and sanitary wastewater) will be treated in CPP's wastewater treatment plant.

6. The land on which the Project will be built was acquired by CPP on June 7, 1996. This property is included in the regional plan and is located in a zone classified for industrial use as per resolutions in 1981 and 2001. This property was previously converted land and impacts on natural habitat are unlikely. The project requires a total of 3.5 hectares for the installation of the cogeneration plant and the storage of biomass for use by the project. There is one house located 340 m from the project site. The impacts on this house will be assessed during due diligence.
7. Construction has started (mostly site preparation activities such as grading) and is expected to be completed in fifteen months. Start-up of operations should take place in mid-2010. The expected number of workers during construction is 90 and during operation is 12. Current status of construction activities will be further assessed during the due diligence...
8. Little information is currently available on the associated facilities, such as the need for a new or improved substation or transmission line. Identification of the Projects associated facilities and assessment their environmental and social impacts will be further carried out during due diligence.

B. Project Status and Compliance.

9. The Law No. 19,300 on the General Provisions on the Environment ("Ley sobre Bases Generales del Medio Ambiente"), which was published in the Official Journal on 9 March 1994, includes the introduction of environmental management tools, one of which is the EIA process, responsibility for environmental damages, and the creation of CONAMA and COREMA. The provisions of this law are being enacted through a series of enabling regulations, such as the Regulation on the Environmental Impact Assessment System, published in the Official Journal on 3 April 1997.
10. According to this Regulation, parties undertaking or modifying projects must submit an environmental impact statement (the "EIS") or an environmental impact declaration (the "EID") to CONAMA or the corresponding COREMA. An EIS is a detailed assessment of a project's environmental impacts, while the EID is a more concise document which includes a brief description of the project, some background information indicating that the project complies with environmental laws, and a statement that the project will not produce any environmental impact that would require the submission and approval of an EIS.
11. The Project submitted an Environmental Impact Declaration on September 12, 2007 to CONAMA VI, Región del General Libertador Bernardo O'Higgins and the EID was approved on June 17, 2008.

C. Potential Significant Environmental, Social and Health and Safety Issues.

12. The key environmental and social impacts related to biomass plant projects are associated with construction and operation, and also with the indirect and

- cumulative impacts of feedstock production. The plant will be located on land acquired in 1996 by CPP and will not require resettlement. During construction, there will be typical temporary construction impacts (i.e. noise, dust, and increased traffic); these impacts are typically temporary, localized, and controllable through implementation of good management systems and technology. During plant operations, key potential impacts include waste water, solid waste, noise, and air emissions. Air emissions from the plant include particulate matter and NOx.
13. Air emissions including particulate matter, SO₂, and NOx are some of the main environmental impacts of the biomass plant project. The current air emissions included in the performance guarantee for the boiler are the following: particulate matter 50 mg/Nm³ at 7% dry gas O₂ and NOx 650 mg/Nm³ at 8% dry gas O₂. The World Bank Group Environmental, Health, and Safety Guidelines for Thermal Power Plants (December 2008) define emissions guidelines for solid fuel plants in non-degraded and degraded airsheds¹. The ambient air quality in the area will be further assessed and confirmed during due diligence. The Project compliance with World Bank Group emissions guidelines will be analyzed and confirmed during due diligence.
 14. Dioxins are formed in any combustion process where carbon, oxygen and chlorine are present. While reliable data on dioxin emissions from biomass combustion plants are somewhat lacking, these emissions might not be insignificant, especially when due to the combustion of treated, varnished or PVC-coated wood. The Project will burn untreated biomass, and particulate matters will be collected in a two stage process (multi-clone cyclonic separator and electrostatic precipitator) so it is unlikely that the Project will emit significant quantities of dioxins. This potential impact will however be further assessed during due diligence.
 15. The main solid waste from plant operations is biomass combustion ash. According to the Resolution of Environmental Qualification (Resolución de Calificación Ambiental, RCD) all solid waste residues will be stored provisionally in hermetic containers and then deposited in an authorized location. The ash disposal will be further analyzed and confirmed during due diligence.
 16. The noise from the equipment will be attenuated to reduce emissions to below 85 DB as established by a purchase requirement and emission guarantee. This noise level will be analyzed during due diligence to confirm compliance with World Bank guidelines.
 17. Given the impacts can be evaluated and mitigated with readily available practices, the team classified this project as a Category B operation as defined in the Bank's Environmental and Safeguard Compliance Policy. Per Bank policy the Project triggers B.12 since it is currently under construction. The team will work to

¹ World Bank Group emissions guidelines at 6% dry gas excess O₂ content in a non-degraded airshed are particulate matter 50 mg/Nm³, SO₂ 900-1500 mg/Nm³, and NOx 510 mg/Nm³ and in a degraded airshed are particulate matter 30 mg/Nm³, SO₂ 400 mg/Nm³, and NOx 200 mg/Nm³.

ensure that all environmental and social risks during construction and operation are mitigated in accordance with Bank guidelines.

D. Environmental and Social Strategy for the Due Diligence.

18. The Bank, as part of the due diligence process, will analyze the following environmental and social aspects of the Project:
 - a. The status of on-going construction activities;
 - b. Any associated facilities including substations;
 - c. The status of ambient air quality (degraded or non-degraded airshed) and air emissions;
 - d. The management of solid waste residues including ash;
 - e. The management of noise.
19. The Bank will prepare an Environmental and Social Management Report (ESMR) for review and approval by the Bank's Environmental and Social Impact Review (ESR) which will include the following:
 - a. An assessment of project compliance status with the applicable country (national, state, municipal) environmental, social, and, health and safety regulatory requirements (e.g., laws, regulations, standards, permits, authorizations, applicable international treaties/conventions, etc.) including the environmental impact declaration (EID), Project-specific legal requirements, and any applicable Bank environmental and social policy. In particular, the environmental impact declaration (EID) will be reviewed as a part of the due diligence.
 - b. An evaluation of the company's environmental, health and safety management systems, including plans and procedures, responsibilities and resources, training, auditing, and reporting, and in particular all the system components necessary to ensure future projects and works which will be implemented will not generate negative impacts.
 - c. An evaluation of the proposed Project to confirm that the Project's direct and indirect environmental and social impacts have been properly identified and evaluated.
 - d. A determination of key indicators and requirements for the project execution.
 - e. An evaluation to confirm an acceptable corrective action plan, as necessary, in order to correct or mitigate any existing environmental, social, or health and safety non-compliance or liability associated with the existing project and company assets.
 - f. An evaluation to confirm adequate contingency plans (i.e., emergency response program and spill plans), including confirmation that all relevant Project-specific environmental risks have been identified, proper procedures have been developed, and sufficient resources will be made available to ensure adequate implementation.

- g. An evaluation of Project-related information disclosure and public consultation activities that have been performed, as well as of the proposed future actions to provide adequate ongoing information disclosure and public consultation with the local population.
- h. An evaluation of environmental, social and health and safety terms and conditions in relevant project legal documents (e.g. concession contract, construction contract, operations and maintenance contract, etc.), in terms of sufficiency, potential risks or liabilities, or issues.

Figure 1 – Project Location and Influence Area



Figure 2 – Project Area of Influence (km 63, Ruta 5 Sur)

