Rice Husk Power Generation Project (3.4MW) in the Maule Region.

La Gloria Mini Biomass Power Plant

Developed by:
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Developer Company

Agricultural Waste Treatment

Revaluation of Waste R&D

Treatment of Industrial Waste and RSD.

Circular Economy, ERNC, High technology Foundation.
La Gloria Biomass Mini Power Plant, uses the AGRICULTURAL WASTE generated intensively in the rice husk and wheat straw area, treating them sustainably to produce **Renewable Electric Energy or Bioenergy**.

In addition to producing energy, it supports the treatment of waste for a Sustainable Agricultural Industry with environmental awareness, avoiding the emission of polluting gases into the atmosphere as a result of the accumulation of waste in dumps or illegal burning.

The plant will have a capacity of 3.4 MW.

- “Non-Conventional Renewable Energy Plant” (ERNC) as determined by Law 20,257;
- It has 2 top-of-the-line equipment manufactured in Europe, a very robust gas abatement and emission control system. Low emissions are not great for 41 wood-burning stoves.

- Project does not use water for power generation - Optimized design during 2021;
- It uses biomass from Agricultural Residues from the Area (Wheat Straw, Rice Husk). It cannot use coal, oil or fossil fuels;
- A reception of 8 trucks per day is estimated.
Project Lay-out

Turboden's first biomass ORC project in South America Uniconfort has extensive experiences for combustion of rice husks.
Location

• The waste that will be used by the project is generated in the same radius as it is essentially an AGRICULTURAL ZONE.
• It is located 10 kilometers from Parral and close to Talquita, an area where the community closest to the project lives and is approximately 1.5 km away.
• The connection is made to the electrical distribution system in the same sector.
• The project uses approximately 0.5 hectares on a plot of approximately 5.4 hectares in area.

Project Justification

• Surface cultivated with rice and wheat is 27.885 and 24.037 hectares, respectively (2017/2018 season according to data from the National Institute of Statistics). Waste is generated, between rice husks and wheat straw, for more than 140,000 tons per year.
• Closest landfills 80 kilometers south and 120 kilometers north of Parral. Proliferation of illegal landfills and unauthorized open burning that contribute to the increase of the greenhouse effect.
• The La Gloria Mini Biomass Plant will use 37,000 tons of this waste each year to generate renewable energy and contribute to a SUSTAINABLE AGRICULTURAL INDUSTRY, there is currently a waste problem.
1. Rice husks are used for different uses, but due to the large quantity, they end up accumulating without having the environmental permits, causing a Public Health problem (focus of infections, fires, among others).
Environmental Process

• Entry to the Environmental Assessment Service in Oct 2014;
• Citizen Participation between Nov 2014 and January 2015;
• Environmental qualification resolution 2016;
• Superintendence of the Environment accredited the non-expiration on May 13, 2021;
• Optimization of the project through Environmental Relevance entered in November 2021.
• Sector permits 138/140/160/142
• Preliminary Works Permit
• Building Permit (in process)
For a better representativeness of the baseline, a monitoring station was installed in the sector, 790 m from the project.

### Regulatory Compliance

<table>
<thead>
<tr>
<th>Tipo</th>
<th>Contaminante</th>
<th>Estadígrafo</th>
<th>Estación Talquita</th>
<th>Límite ug/m3</th>
<th>Línea Base ug/m3</th>
<th>Aporte Proyecto ug/m3</th>
<th>Línea base + Aporte Proyecto ug/m3</th>
<th>Cumple Norma</th>
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<tbody>
<tr>
<td>Norma Primaria de Calidad del Aire</td>
<td>MP10</td>
<td>Anual</td>
<td>50 ug/m3</td>
<td>24,9 ug/m3</td>
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<td>4,70%</td>
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<td>SO2</td>
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<td>0,20%</td>
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<tr>
<td></td>
<td>CO (3)</td>
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<td>10,000 ug/m3</td>
<td>3,722 ug/m3</td>
<td>37,20%</td>
<td>35 ug/m3</td>
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<td>0,9 ug/m3</td>
<td>1,40%</td>
<td>0,2 ug/m3</td>
<td>0,30%</td>
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<th>Límite ug/m3</th>
<th>Línea Base ug/m3</th>
<th>Aporte Proyecto ug/m3</th>
<th>Línea base + Aporte Proyecto ug/m3</th>
<th>Cumple Norma</th>
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<td>2 3%</td>
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<td>5%</td>
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<tr>
<td>Norma secundaria (Zona Sur)</td>
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<td>3%</td>
<td>0 ug/m3</td>
<td>0,00%</td>
<td>Cumple</td>
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JCM Model Project

CONSORTIUM BETWEEN THE CHILEAN COMPANY THAT INTENDS TO APPLY FOR THE SUBSIDY AND A JAPANESE COMPANY THAT IS GUARANTOR AND SUBMITS THE PROJECT TO THE JAPANESE AUTHORITY

APPLICANT COMPANY CHILE

COMPANY REPRESENTATIVE JAPAN
La Gloria Mini Biomass Power Plant, being a NCRE and Clean Development Mechanism project, was selected internationally among projects from 17 countries, accrediting Carbon Bonds for 8,576 tCO2/year with the Japanese government program Joint Crediting Mechanism (JCM) 128,500 t/CO2, favoring the development of this type of sustainable initiatives for the mitigation of Climate Change.
Positive externalities of La Gloria

1. Current management of agricultural waste generates greater environmental impacts:
   • Agricultural burning, legal or illegal, as indicated by CONAF;
   • Disposal in landfills or landfills, using land and emitting greenhouse gases when decomposing;

2. Reduction of polluting emissions and fire risks not controlled by previous burning.

3. Contribution to the supply of renewable electricity for the country. In other words, the need to produce polluting energy/fossil fuels (oil, coal) is reduced.

4. Water care when using a closed circuit of thermal fluid (in a closed circuit without the possibility of contaminating the environment) and NO WATER from natural sources.

Collaborative entities that support the project
Example in countries with the same technology

**PLANTA UBICADA EN PRINCE GEORGE**
**CANADÁ**

- Combustible: Biomasa.
- Capacidad: 3 MW.
- País: CANADÁ.
- Ciudad: Prince George, norte de Columbia Británica.
- Distancia hasta el área más poblada: 1000 metros aproximadamente.
- Cantidad de gente vive empresa ciudad: 72,000 habitantes área urbana y rural.

**PLANTA UBICADA EN WILLIAMS, CALIFORNIA**
**ESTADOS UNIDOS**

- Combustible: Biomasa.
- Capacidad: 3 MW.
- Empresa: ACC Renewable Resources LLC.
- Distancia hasta el área más poblada: 1000 metros aprox.
- Población que habita cerca a la planta: 3,700 personas.
- Central en etapa de construcción.
Example in countries with the same technology

Company: Azienda Publiservizi Brunico;

Distance to the most populated area: approximately 1000 meters;

Number of people living in the city: 17,050 inhabitants in urban and rural areas;

Year of start of operation: Operation
In November 2021, our company C&E has been selected in the Mission Innovation of COP-26 among the 20 companies worldwide that can contribute by 2030 to lowering the earth's temperature by 1.5°C.

Thanks to the initiatives indicated in the previous sheet, through the different solutions for capturing or mitigating CO2 through the use of nanotechnology, they could reduce 10 Mt CO2e/year if this type of project were replicated worldwide.

Link.
https://www.misolutionframework.net/AssessmentDetail/24
Without Innovation there is no Sustainability and without Sustainability there is no Future...