

Issues & Answers

Energy from Forest Biomass: A Bright Spot for the Future

As a world leader in certified, sustainable forestry and a responsible manufacturer of pulp and wood products, Arauco (Celulosa Arauco y Constitución, S.A.), maintains a longstanding commitment to respecting the full range of values found in its forest resources. This commitment manifests itself in many ways throughout the operations of Chile's largest forest products company.

One of these manifestations can be seen in Arauco's delivery of benefits to the people of Chile, to the global environment, and to its shareholders from its reliance on forest biomass, instead of fossil fuels, to power its manufacturing operations.

The development of electrical-generation projects using renewable resources is an integral part of Arauco's environmental policy. This policy calls for the comprehensive and efficient use of all forest resources, energy independence through reliance on self-generated electricity from renewable sources, and the provision of surplus electricity to Chile's power grid.

An abundant, renewable alternative fuel source

Forest biomass is a mix of tree bark, sawdust and other downfall from forest-products manufacturing. By debarking logs at its mill sites (rather than in the field), and using the bark as fuel, Arauco is able to realize a number of environmental advantages, including:

Arauco generates enough surplus green energy to supply 500,000 residential users

- a reduction in the fuel load on its plantations, minimizing both the incidence and intensity of forest fires;
- a substantial reduction in green house gas (GHG) emissions caused by the anaerobic decomposition of forest biomass in the field; and
- the reduced potential for contamination of rivers and streams resulting from drainage of water over bark-covered land.

Arauco utilizes its forest biomass as a renewable fuel for the power boilers that cogenerate the steam and electricity required for its manufacturing operations. Biomass cogeneration allows for a high thermal efficiency, approaching 80% in some cases.

Environmental and societal benefits from biomass

Arauco's use of renewable forest biomass has greatly reduced its dependency on fossil fuels for its pulp and forest-products manufacturing operations. In addition to

meeting its own energy needs, Arauco generates a significant amount of surplus green energy and delivers it to the Chilean power grid (the Central Inter-connect System), helping to reduce the country's dependence on coal and imported fossil fuels.

Currently, Arauco has a total installed generating capacity of 504 Megawatts (MW) of electricity, including a surplus of up to 134 MW from forest biomass that Arauco can send to the grid, helping to meet the needs of one-half million residential customers.

Three of Arauco's cogeneration power plants in Chile's Bio Bio region – one at its Trupan facility and two at its Nueva Aldea complex – are registered as emission reduction projects within the Clean Development Mechanism (CDM) of the Kyoto Protocol.

Besides supplying power to meet Chile's increasing demand for energy, Arauco's three CDM-registered biomass cogeneration plants eliminate approximately 350,000 annual tonnes of equivalent CO₂ emissions that would have occurred if these plants had burned fossil fuels instead of biomass. In this way, these projects help combat global climate change, which is the intent of the Kyoto Protocol.

Arauco also has three additional biomass cogeneration projects in different development stages

within the CDM registration process that would allow Arauco to increase its reduction of greenhouse gas emissions (GHG) to approximately 850,000 tonnes of equivalent CO₂ a year.

Bottom-line benefits

Arauco's low-emission, forest-biomass power generation also delivers a financial dividend. Because the power plants are registered as emission reduction projects within the Clean Development Mechanism (CDM) of the Kyoto Protocol, Arauco is able to sell Certified Emission Reduction credits (CERs, or "carbon credits") in the international market, based on the GHG reductions realized through the generation of power from biomass instead of from fossil fuels.

In 2008, Arauco was able to offer 255,592 CERs (equivalent to 255,592 annual tonnes of offset CO₂). The offer was made through London-based CantorCO₂e, a lead-

The use of forest biomass to generate electricity is a sustainable solution.

ing carbon-trading broker, and was the world's first online carbon-credit auction. (The use of an electronic auction platform did not limit the number of interested parties that could bid for and purchase carbon credits. Under conventional trading systems, a limited number of potential buyers are invited to an offering, and the credits are sold as a block to one buyer.)

In 2007, Arauco offered 482,192 CERs through a conventional car-

bon-credit offering.

"For Arauco, being a global leader in sustainable forest product development means that we need to rely on clean technologies, employ best practices, and support mechanisms such as those of the Kyoto Protocol to address issues that challenge us all, such as global warming," said Charles Kimber, Arauco's Director of Corporate Affairs and Marketing. "In the use of forest biomass to generate electricity, we have a sustainable solution, that delivers tangible benefits to the company, to the people of Chile, and to the global environment we all share."

Additional information is available from Arauco sales representatives or by email to info@arauco.cl.

About the CDM and Carbon Credits

The Clean Development Mechanism (CDM) is one of the three flexible market mechanisms established by the Kyoto Protocol to incentivize the reduced emission of greenhouse gasses (GHG) in an effort to combat global climate change. The CDM allows industrialized countries to finance GHG reduction projects in other nations (typically developing countries) and to use the emissions reductions associated with these projects toward the fulfillment of their own emission-reduction goals.

For a project to be registered under the CDM, there must be evidence that the planned reductions would not occur without the additional incentive provided by emission reductions credits. This concept is known as "additionality."

Certified Emission Reduction credits (CERs or "carbon credits") are issued to operators of CDM-registered projects based on the amount of GHG reductions achieved. Each credit represents a reduction in emissions of one metric ton of CO₂ or CO₂ equivalent.

Operators of CDM-registered projects realize the financial incentive for GHG reductions by selling their CER credits in the global market. The purchase of CERs is viewed by some companies as an economically and strategically attractive option when they are unable to reduce their own GHG emissions through process improvements.