



+ Biomass Power



Sustainable energy that doesn't sacrifice reliability



Although it has been used for thousands of years, biomass power has recently been recognized as a solution that provides sustainable and reliable energy generation. Unlike solar or wind, biomass power has the ability to deliver power on demand, filling the generation gap created when the sun stops shining and the wind stops blowing. And investors are noticing.

Over the past 20 years, the adoption of wind and solar photovoltaic power has helped to establish renewables as a force in the global energy system. As these resources continue to deliver an increasing amount of power, their intermittent nature is becoming more of a challenge to manage. Consequentially, there is an opportunity for sustainable base load power to counterbalance these impacts.

That's where biomass comes in.

Due to its similarity to thermal power generation, biomass power is not encumbered by the uncertainties often associated with emerging technologies like energy storage. Through leveraging existing expertise, biomass power projects can be delivered on schedule and within budget with greater ease, giving clients better peace of mind and reducing risks to their balance sheet.

Although biomass power is an extension of existing technology, it faces several unique challenges. As a whole, biomass tends to have

a higher moisture content and lower energy density than fossil fuels making fuel handling and processing key considerations for any biomass plant. Feedstock selection, sourcing and storage are also crucial due to the geographical and seasonal constraints affecting biomass feedstock production.

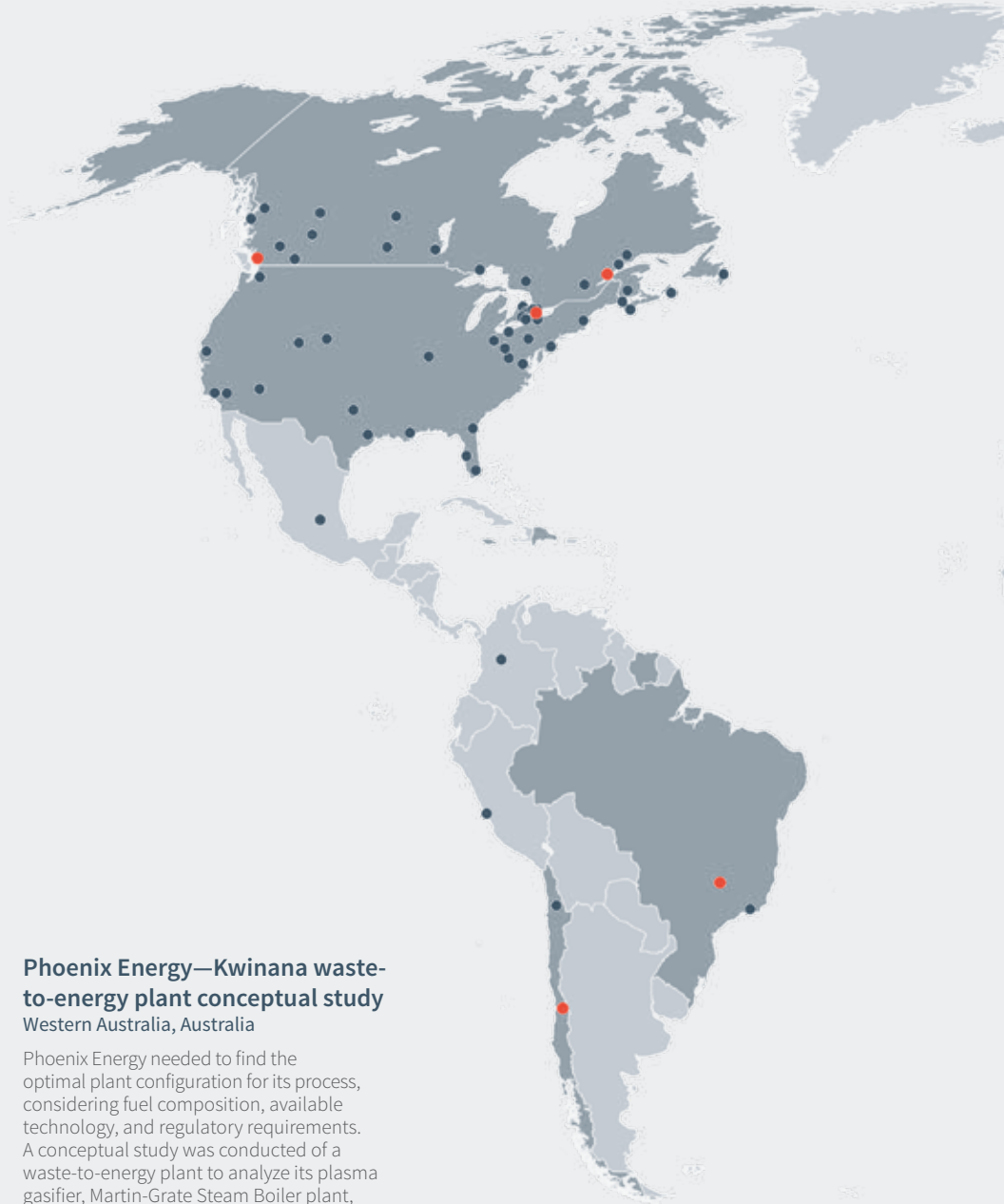
All over the world, social and regulatory pressures to control emissions are increasing. So, it follows that strategies to monitor and treat flue gas must be bolstered and re-envisioned. The variability and distinctiveness of biomass feedstocks call for case-by-case analyses to develop solutions that will ensure biomass power plants are operating within emissions guidelines while minimizing the cost to their stakeholders.

Financiers, developers, operators, utilities and off-the-grid communities all strive to achieve the best outcomes for their projects, both technically and commercially.

We've done it before, so we can help.

Global presence, local focus

- Hatch offices
- Hatch Global Delivery Centers
- Countries we have worked in



Primrose Lake Economic Development Corporation (PLEDCO)—Technology options for heat and power from biomass Saskatchewan, Canada

This cogeneration heat-and-power-technology-option study involved four communities in Northwest Saskatchewan. The study included an overview of the transmission-system availability in the area and its related constraints. Its conclusions enabled us to identify the feasibility of biomass power in the region and chart the path forward for PLEDCO.

Confidential—Wood-fired power station independent engineering review Ontario, Canada

To facilitate funding for the expansion an 18 MW wood-fired biomass power plant in Ontario, we conducted an independent engineer review. It included an evaluation of the current facility's balance-of-plant capability to support the installation of an additional combustor train.

Gemini Power—Waste-to-energy technical due diligence Ontario, Canada

Hatch reviewed the basis of Gemini Power's waste-to-energy technology and the path forward to commercialization, including process chemistry, mechanical systems, and early capital cost projections.

Phoenix Energy—Kwinana waste-to-energy plant conceptual study Western Australia, Australia

Phoenix Energy needed to find the optimal plant configuration for its process, considering fuel composition, available technology, and regulatory requirements. A conceptual study was conducted of a waste-to-energy plant to analyze its plasma gasifier, Martin-Grate Steam Boiler plant, and associated gas-cleaning system. The scope included syngas treatment, plant configuration, design criteria, energy and mass balance, layout development, and capital and operating cost estimates.

Confidential—Poultry-litter-fired power plant conceptual study Bolu, Turkey

A conceptual study of a 14.5 MW poultry-litter-fired power plant with a scope that involved technology selection, power plant configuration, plant performance, project schedule, environmental performance, and capital cost estimation. Contract and work packaging strategy recommendations were also provided. In the study, we were able to identify an equipment configuration that could provide USD\$4M in savings by reducing the need for costly emission control equipment.

Jones Lang LaSalle—Biomass power plant feasibility study North Dakota, USA

A due diligence study was conducted examining the economic feasibility of supplying biomass from agricultural residuals to power plant and hybrid-biofuel facilities. Biodiesel, pelletization and cellulosic ethanol conversion were all considered. The study also identified market conditions that are limiting the development of a biomass power plant at the location.



City of Summerside—Combined heat and power from biomass feasibility study

Prince Edward Island, Canada

Our work examined using biomass available in the region to generate electrical power and provide thermal energy to commercial and industrial consumers. We helped the City of Summerside determine the most economical source of biomass on the island and the size of the power plant that could be supported.

Confidential—Bagasse and eucalyptus power plant technical due diligence

Brazil

Our services involved a technical due diligence assessment of a 16 MW eucalyptus biomass power plant and a 40 MW sugar cane biomass power plant to identify the risk of failure and redefine the capital investment plan.

Edison Eternal Energy—Obedjiwan biomass cogeneration plant feasibility study

Quebec, Canada

This study related to building a 3 MW biomass cogeneration plant in a remote, off-grid community. Detailed simulations were conducted to integrate a cogeneration plant, power battery, and diesel generators on the microgrid in order to determine the optimal sizing of the components. We helped Edison Eternal Energy realize the substantial cost savings that a biomass cogeneration microgrid can provide through the mitigation of diesel consumption.

Kruger Energy—Anticosti biomass cogeneration plant feasibility study

Quebec, Canada

To build a 1.5 MW biomass cogeneration plant in a remote off-grid community, we provided a feasibility study that included detailed simulations to integrate a cogeneration plant, power battery, and diesel generators together on the microgrid. The study helped determine how diesel consumption could be reduced by implementing a wood biomass-powered microgrid.



Comprehensive services, customized solutions

Every project carries a measure of uncertainty. Your best defense is experience and expertise. With global teams and cross-disciplinary experience, we can reduce the risk of budget overruns and project delays.

Unique solutions for unique fuels

Biomass power has challenges as well as benefits. First is the uniqueness of the fuel. We can help you determine which biomass feedstock is best for your geography. You'll get a full consideration of the logistical barriers to sourcing and storing the material, and the information you need about the technical challenges of processing and combusting the fuel.

One such challenge is the moisture content of biomass feedstock which can significantly limit its ability to become usable energy. We help you develop procedures for preprocessing the feedstock to improve its efficiency.

Additionally, biomass is an attractive fuel for combined heat & power (CHP) applications. Our engineers are highly experienced in developing these types of facilities and can assess the value of waste heat for your plant.

Some feedstocks, like poultry litter, produce harmful pollutants that must be captured

and controlled. Our gas-handling specialists can leverage their experience in designing flue gas desulfurization (FGD), NOx-selective catalytic reduction (SCR), particulate matter control, acid mist reduction, mercury control, and carbon-capture-and-sequestration (CCS) systems to reduce the emission of harmful pollutants and ensure that your facility meets emissions regulations.

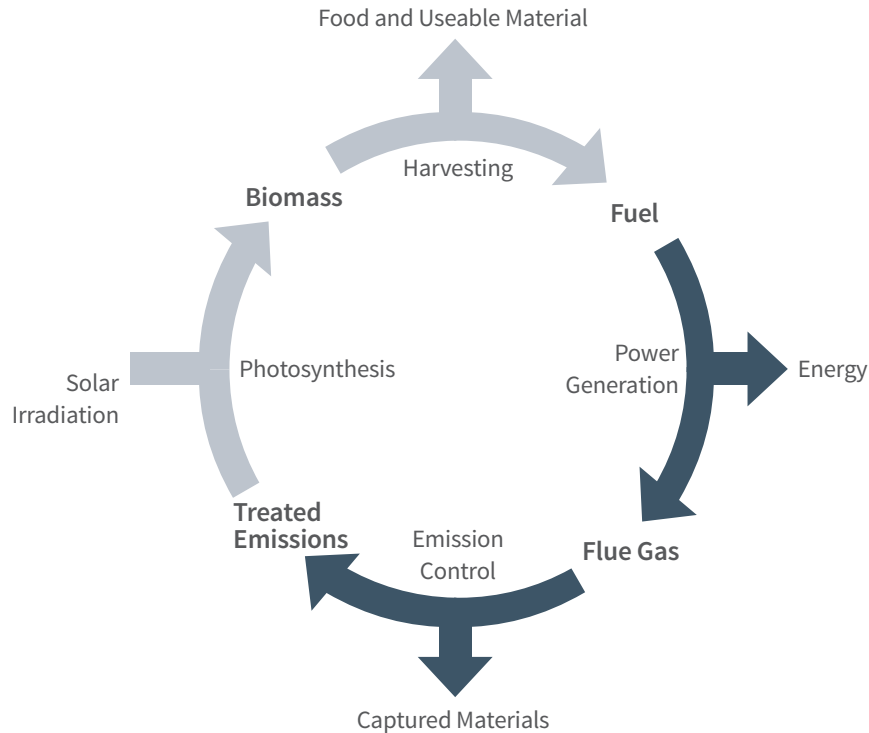
Your trusted resource and partner

In addition to emissions regulation compliance, our environmental specialists conduct environmental impact assessments (EIAs), complete permits, and represent you at hearings and information sessions.

We know what needs to be done. Our in-depth global expertise in environmental and permitting regulations alerts us to problems early in project development. That way, we can take action to eliminate roadblocks and avoid costly delays when we're executing later phases of the project.

Closing the loop with biomass

Mirroring the carbon cycle, biomass fuel allows for sustainable power generation.



Technical and management services

Drawing on our industry expertise, we help you through the entire project life cycle, from concept development to decommissioning. Our team will work with you to develop strategies and programs that optimize the reliability and efficiency of your facility, while minimizing costs and risks at the same time. We're experienced professionals, providing smart solutions that drive quality and value, helping you to minimize risks and life cycle costs.

From buyers to financiers, we've worked with all types of stakeholders to assess the conditions, performance, and overall value of energy assets. The technical mindset we apply to these assessments has saved our biomass power clients millions of dollars. We look at the big picture, considering not just the optimal component for a portion of the system, but the entire process.

Ensuring that projects are delivered on budget and on schedule requires thorough oversight and management. As an owner's engineer or the engineering, procurement, and construction management (EPCM) contractor, our job is to improve the value of your plant. We do that by managing onsite activities and identifying opportunities for improvement.

Following the development of a project using the EPCM model, we are also able to provide transitional operation and maintenance services to help bridge the gap between the construction team and the operational staff.

Regardless of where you are in the project life cycle, you can count on our professionals to carefully listen to and wholly understand your needs and challenges. It's how we help you obtain the best outcomes.



About Hatch

Whatever our clients envision, our engineers can design and build. With over six decades of business and technical experience in the mining, energy, and infrastructure sectors, we know your business and understand that your challenges are changing rapidly.

We respond quickly with solutions that are smarter, more efficient, and innovative. We draw upon our 9,000 staff with experience in over 150 countries to challenge the status quo and create positive change for our clients, our employees, and the communities we serve.

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