

CASE STUDY

West Biofuels Contributes to the Circular Economy & Delivers Renewable Energy



BACKGROUND

About West Biofuels

West Biofuels converts organic byproducts that would otherwise be considered waste into other forms such as fuels, chemicals, and power. Their circular economy approach to waste and power generation enables their partners, including small businesses and local governments, to realize a more sustainable future.

About A-Gas

A-Gas is building a sustainable future through the supply of lower global warming refrigerants, fire protection gases, and hydrocarbon products, including next-generation blowing agents and cyclopentane. Beyond providing halocarbons and hydrocarbons, we responsibly manage the lifecycle of refrigerants and fire protection gases, capturing them for future reclamation or destruction through our first-class recovery, reclamation, and repurposing processes.

CHALLENGE

West Biofuels reached out to A-Gas when their incoming supply of cyclopentane was stuck at a port, which would have pushed their timeline to bring a rice-hull-fueled power plant in Northern California online months behind. Not only did they need cyclopentane fast, but they also needed it down-packed into drums. With only a couple of providers in the US able to down pack hazardous, flammable materials, this posed an additional challenge.

AT A GLANCE

Challenges

- Urgent cyclopentane need
- Need down packed cyclopentane
- Deliver biomass-fueled renewable energy
- Secure reliable future cyclopentane supply

Benefits

- Environmental: Use of a low global warming and zero ozone depleting working fluid (high purity cyclopentane); Reduced power consumption; Renewable energy generation
- Economic: Elimination of downtime in bringing a power plant online
- Other: Access to cyclopentane in smaller volumes than ISO tanks



A-Gas' ability to get us the cyclopentane we needed on a fast timeline allowed us to get our Organic Rankine Cycle turbines running, bringing biomass renewable energy to the California electricity grid. That's a win for the environment and Californians.

DR. MATTHEW SUMMERS

Chief Operating Officer, West Biofuels

SOLUTION

Experts in supply chain logistics, A-Gas' Performance Chemicals team had a stock of down-packed high purity cyclopentane ready for any time-sensitive customer needs. As such, the team was able to ship 18,200 pounds in 56 drums to the power plant within two weeks. Having the cyclopentane in drums versus ISO tanks allows West Biofuels to utilize a smaller volume to get their plant online while keeping a small stock for when the system needs to be topped off as part of regular operations and maintenance.

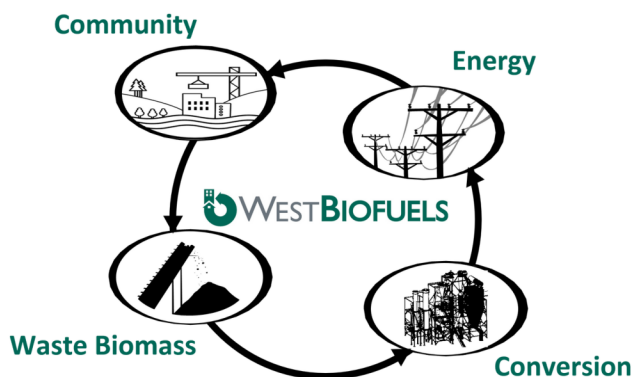
RESULTS

West Biofuels is now able to use the cyclopentane as a working fluid in the Northern California power plant's turbines. Built next to a rice mill, the power plant uses the mill's rice hull waste to produce renewable energy and electricity. Not only is the power plant fueled by waste, but the cyclopentane used in the turbines also makes for a more energy-efficient plant. Due to cyclopentane's chemical properties and low boiling point, it expands at the perfect temperature for the Organic Rankine Cycle turbine system. It requires less heat and pressure to generate renewable electricity, so the turbine equipment has very consistent and low maintenance operations compared with steam turbine systems. In addition, water consumption and wastewater generation are eliminated. As a result, the West Biofuels system delivers over 26,000 megawatt-hours (MWh) of clean, renewable electricity to California ratepayers annually.



CONCLUSION

Together, A-Gas and West Biofuels are solving a critical need in the world as we shift to a net zero future. West Biofuels' commitment to the circular economy matches A-Gas,' making this partnership an exciting example for others to follow. West Biofuels' leadership in biomass renewable energy applications makes it clear to others that effective and efficient biomass renewable energy generation is not only possible but is a key solution as the world takes a more sustainable approach to waste management and energy generation solutions.



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Over 18K pounds of cyclopentane provided, resulting in 26,000 MWh of clean, renewable electricity annually.