

## PA #24 BioRural success stories: Olive pomace gasification by Aceites Guadalentin & Bioliza

Aceites Guadalentin, is an olive oil producer based in a remote area in Jaén (Andalusia, Spain), a family business funded in 1926 and focused on producing high-quality olive. They started to look for solutions for managing olive pomace already in the 90s, given the costs to transport it to olive pomace mills (extractors) sited far away. They explored several paths to valorise it: direct addition to soils, composting, and the potential extraction of valuable fractions. In 2010 they established their own olive pomace oil extraction plant as a solution, but then the energy costs became a burden.



Figure 1: Raw moist olive pomace (left) and sun-dried olive pomace ready for gasification (right). New facility for gasification placed in the background.

Source: AVEBIOM

It was 2017 when they met BIOLIZA, a startup from the University of Jaén, founded 2014, which origin was a PhD on gasification to obtain energy and biochar, and an award to go into practice and set the startup. Even if the first years were difficult to engage technology providers and proceed with new projects to create their first plant, BIOLIZA persisted.

In 2018, they formed a crucial partnership with Aceites Guadalentín and took the decision to assume risks, and shift from consultant to Engineering, Procurement, and Construction (EPC) for the plant, which provided more confidence to the client, and allowed them to secure subsidies to this pilot and unique plant. Together, they implemented a cutting-edge gasification process to transform alpeorujo (olive pomace) into electricity and valuable bio-products. This technical innovation not only addressed energy needs sustainably but also created additional revenue streams through the sale of biochar and olive stones. The remaining non-gasified pomace is dried in open areas (solar drying) and then sold to other energy facilities. The company is actively exploring further innovations, like biogas generation and extracting mineral compounds, showing that the path to innovation is dynamic, and does not stop.

The gasification technology for olive by-products can be applied to other olive mills, especially those facing challenges in by-product management and energy costs. As a pioneering example, Aceites Guadalentín and Bioliza sets a benchmark for other olive mills aspiring to adopt sustainable and circular business practices.

Some key issues for this success story are: Bioliza key-persons awareness and interest to offer alternatives to olive oil sector. The continued search for solutions of Aceites Guadalentín from the 90s. The experience gained by BIOLIZA with the 2 previous projects that failed at the very last moment. Or the pivotal collaboration and mutual confidence of both protagonists.



Developing a visionary approach posed challenges in a field with limited biomass gasification knowledge, scepticism from potential customers. This led to several of BIOLIZA projects failing in the decision-making right at the moment to go for investment, from 2016 to 2018.

Therefore, practical viability and understanding energy consumption, and navigating potential customers' concerns is factor unfolds as a testament to resilience, innovation, and the pursuit of a greener, circular future.



*Figure 2: Aceites Guadalentín gasification plant to transform olive pomace into energy and biochar*

*Source: AVEBIOM*



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