

# bioliza

ESTACIONES EN BIOENERGÍA



**Promoting the rural  
bio-economy through  
viable practices. The  
case of "Bioliza  
Pandalentis, S.L.",  
Spain**

**José A. La Cal, PhD**

**Bioenergy International Expert**

**Industrial Engineer | Executive MBA**

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## SUMMARY

- ▶ About myself and BIOLIZA
- ▶ The current context
- ▶ The opportunity
- ▶ The innovation
- ▶ The result
- ▶ Main conclusions

# José A. la cal, PhD

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Promoting the rural bioeconomy through viable practices: the case of Aceites Guadalentín, Spain

# About BIOLIZA



**BIOLIZA is a spin-off or EBC (Knowledge-Based Company) of the University of Jaén (Spain) established in 2014**



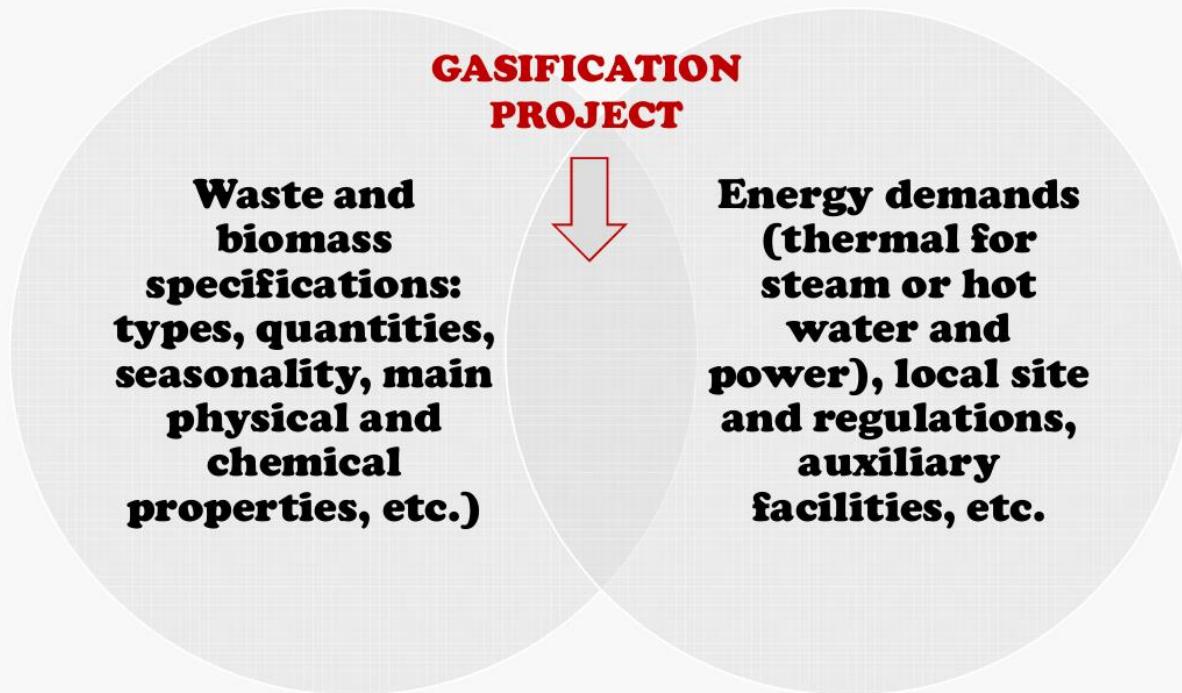
**We design, develop and implements solutions for biomass and waste recovery based on emerging technologies as gasification under circular economy models**



**We provides consulting, engineering and specific training services on bioenergy at a national and international level**

# How we work?

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# Our value proposal:

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**Cost reduction and income  
generation**

**COMPETITIVENESS**

**Total energy self-sufficiency  
STRATEGY**

**CIRCULAR BIO-  
ECONOMY**

**Energy efficiency and use of  
renewable energy**

**SUSTAINABILITY**

**Technology and know how  
INNOVATION**

# Current international context

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**Increase in energy costs (electricity, gas,...)**

**High consumption of fossil sources (climate change, dependency, etc.)**

**Regulatory pressure towards sustainability (and commercial pressure)**

**Need to reduce carbon footprint**

**Image and marketing**

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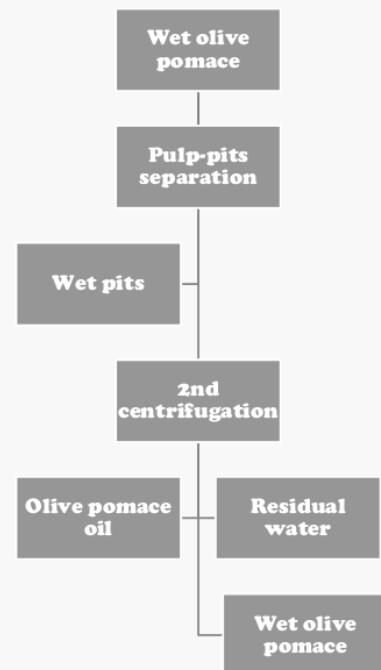
## The opportunity

**The current management of wet olive pomace, which is the most important by-product obtained from the olive oil production**

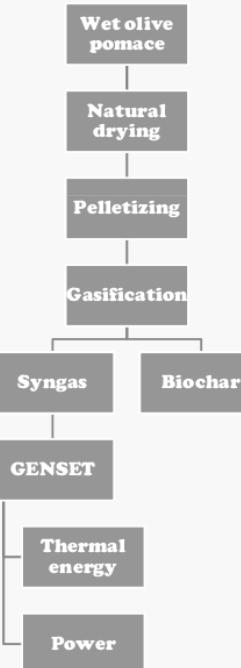
# Conceptual scheme:

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## Old scenario



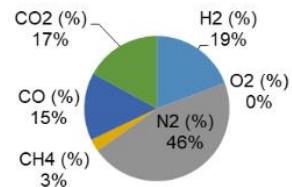
## Current scenario



# THE syngas

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**COMPOSICIÓN SYNGAS**



Gas Parameters	Unit	SAMPLE 1	SAMPLE 2
H <sub>2</sub>	%	19.28	19.81
O <sub>2</sub>	%	0.0	0.0
N <sub>2</sub>	%	45.91	48.67
CH <sub>4</sub>	%	2.74	2.42
CO	%	15.09	15.59
CO <sub>2</sub>	%	16.98	13.51
Calorific Value	(HHV) kcal/Nm <sup>3</sup>	1336.11	1338.12
Average Calorific Value	(HHV) kcal/Nm <sup>3</sup>	1337.11	



# BIOCHAR FROM GASIFICATION

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Type of biomass	Wet Olive Pomace Pellets Discharge
Moisture content on wet basis, %	38.38
Ash % on dry basis	26.49
Volatile % on dry basis	6.93
Fixed carbon, % on dry basis	66.58
Bulk density, kg/m <sup>3</sup>	675
Size (in mm)	05 to 20
Calorific Value, kcal/kg (HHV) (on dry basis)	5841
Ignition test	Burns easily
Flow ability test	Flows easily





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## The innovation

The “downdraft” gasification technology, which has a lot of advantages: economical and environmental

# **“Downdraft” gasification advantages**



**Wide range of biomasses and residues**



**Versatility (EE, TE, steam, green H<sub>2</sub>, ...)**



**Modularity and scalability. Easy to built, assembly and operate**



**High energy efficiency (> 65%)**

# Wide range of Biomass and waste





## The result

**First dry olive pomace  
gasification plant in Spain**

# Proyecto tipo

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**ACEITES GUADALENTÍN, S.L.**  
(Pozo Alcón, Jaén, Spain)



## FIGURES:

- **Input: 7.500 t/y**
- **Syngas thermal power: 4,3 MWt**
- **Gasification efficiency: 62,5 %**
- **Net electrical power: 0,8 MWe**
- **Net thermal power: 1,4 MWt**
- **Biochar production: 1.250 t/y**

<https://www.youtube.com/watch?v=4o7UfQ4Uz6Y>

# PICTURES

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## BIOMASS GASIFIER



## SYNGAS ENGINES



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# conclusions

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**many thanks  
for your  
attention!**

[direccion@bioliza.es](mailto:direccion@bioliza.es)

**T. 00 34 678 50 65 12**

<https://www.linkedin.com/in/joseantonioacal/>

[https://twitter.com/LaCal\\_BIOLIZA](https://twitter.com/LaCal_BIOLIZA)