BIOREGIO

Interreg Europe

European Union
European Regional
Development Fund

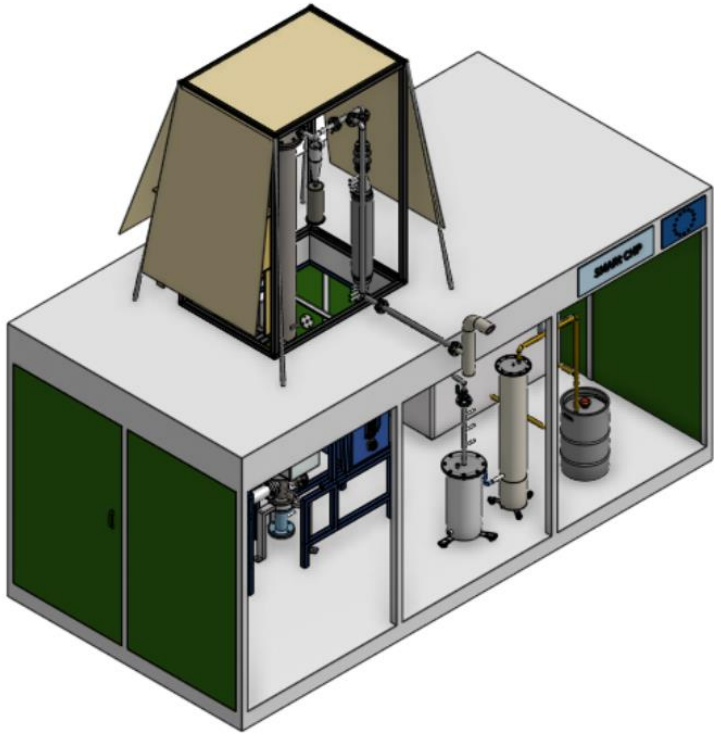
The use of organic residues for energy production

Apostolos Malamakis
AUT Project Manager
Laboratory of Heat Transfer and Environmental Engineering,
Aristotle University Thessaloniki
amalama@auth.gr

Focus of the Good Practice

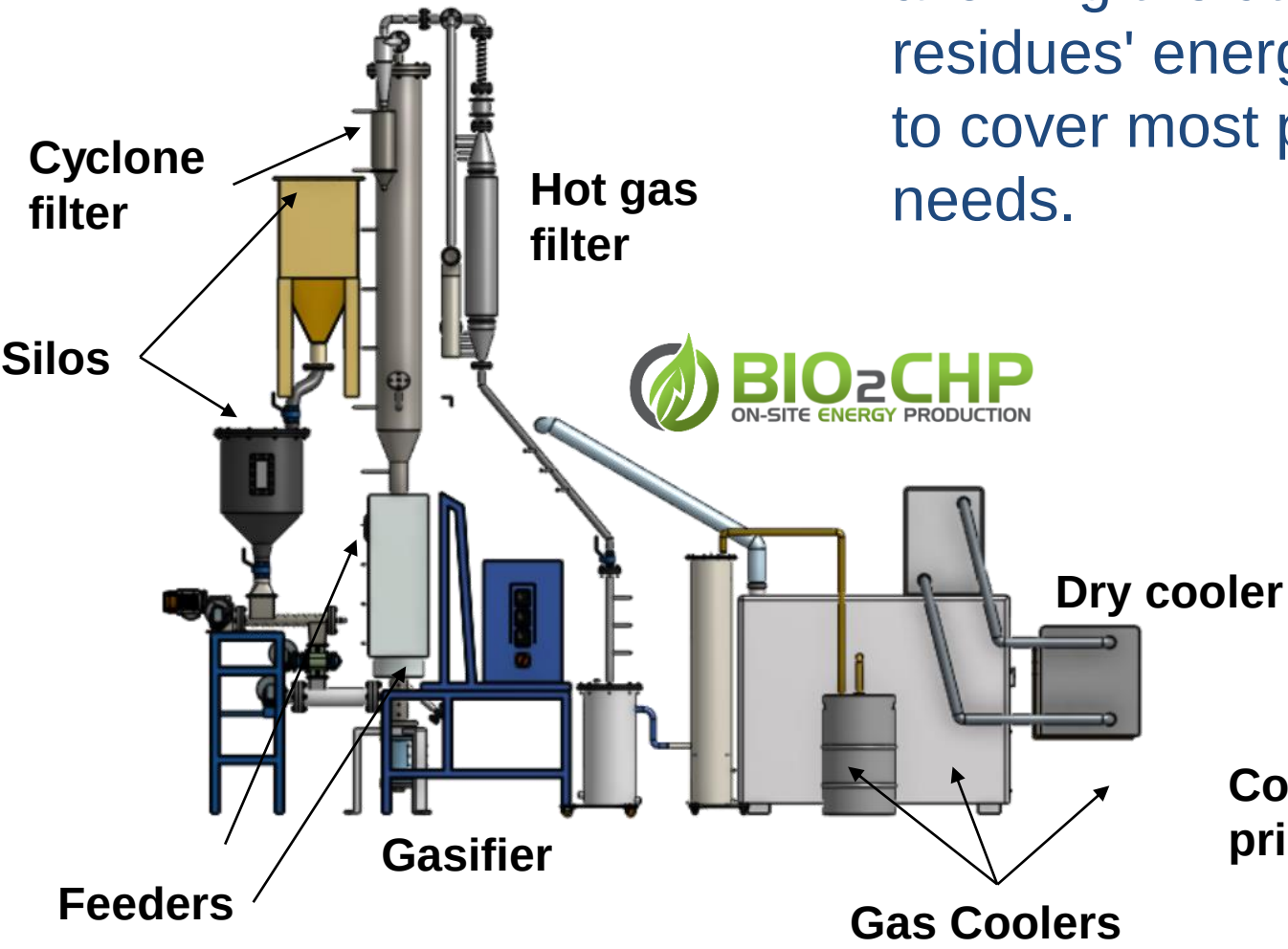
- Modern agro-food industries consume huge amounts of energy and produce large quantities of residues, which are now disposed as waste.

- Feedstocks that are usually applied include solid agricultural residues, food industries residues, sewage sludge.



Advantages of the good practice

The Prototype



Innovative, bio-based solution allowing the utilization of the residues' energy content **on-site**, to cover most part of the energy needs.

Industrial Symbiosis aspects of the Good Practice

All produced within the same effective range!

Impact and success factors

- Working prototype, operating both in lab & in fully operational environments, using various types of feedstock.
- Developed under EU LIFE+ financing and operated for more than 3,000 hours, using:
  - grape pomace,
  - olive & peach kernels,
  - almond shells, etc.,.
- For every 50kWel unit, 156 tnCO_{2eq} per year can be saved which is equivalent to the electrification of 22 households.

Limitations of the good practice

- Current working unit is relatively small scale (20kWel).
- New funded project is developed (50kWel) through national funds.
- Scaling-up is needed.
- Humidity of the feedstock must be low.
- More work needed on syngas cleaning prior to energy utilization

For whom is this good practice useful

- Focus to small/medium agro-food industries.
  - Wineries
  - Fruit and beverage production
- No efficient alternatives in the market in such scales.

Where to get more information from?

www.bio2chp.com
contact@bio2chp.com

Bio-based Energy Technologies P.C. (BIO2CHP) is a university spin-off company, established in 2017, with the main purpose of bringing to the market a technology which enables the use of raw residual biomass for the small-scale & on-site energy production.

The BIOREGIO project

‘BIOREGIO boosts bio-based circular economy through transfer of expertise about best available technologies and cooperation models’

Duration

- **Phase I: 1.1.2017-31.12.2019**
- **Phase II: 1.1.2020-31.12.2021**

Budget

- **In total 1.55 M€**
- **Funding through European Regional Development Fund: 85%**

Project Partners

BIOREGIO
Interreg Europe

- Lahti University of Applied Sciences (FI)
- Regional Council of Päijät-Häme (FI)
- Deputy Regional Ministry of Environment (ES)
- Slovak University of Agriculture in Nitra (SK)
- Aristotle University of Thessaloniki (EL)
- Regional Development Fund of Central Macedonia on behalf of the Region of Central Macedonia (EL)
- National Research and Development Institute for Chemistry and Petrochemistry ICECHIM, Calarasi Subsidiary (RO)
- Association of the Chambers of Agriculture of the Atlantic Area (FR)

BIOREGIO

Interreg Europe

European Union
European Regional
Development Fund

Thank you!

Questions welcome!