

### Zirl, Tyrol

#### Wastewater treatment plant

The wastewater treatment plant in Zirl is designed for 61,500 population equivalent and has an anaerobic digester with 1,350 m<sup>3</sup>. In Austria on average wastewater treatment plants can cover 43% of their energy demand by anaerobic digestion of sewage sludge.

By using organic waste as co-substrate the plant in Zirl reached to cover the whole electricity demand. They use co-substrates like faulty batches, expired bread, grease separation material and coffee grounds from Nespresso-taps. From a Truck-Load with 23 tons of Nespresso-taps biogas with an energy equivalent of 23.500 liters of fuel oil can be produced. All in all approximately 3,000 tons/year of organic waste is used as substrate additionally to the arising sewage sludge. The waste like Nespresso-taps is pre-treated by a private waste management company using a hammer mill.

The wastewater association in Zirl is cooperating with different partners from industry and science to further optimize the use of digester volume of wastewater treatment plants.

#### Technology at a glance

- Biogas production: 700,000 m<sup>3</sup>/year
- Installed power: 175 kWel
- Digester: 1x1,350 m<sup>3</sup>
- Substrates: expired food, faulty batches, grease separation material, coffee grounds,...
- Input waste/substrate: 3,000 tons/year (68% sewage sludge, 32% organic waste)
- Operating hours: 8,000 h/ year



#### Information on financing

- Year of realisation: 2005 – start digester
- Feed-in tariff electricity: no green power plant; only covering of own electricity demand
- High disposal costs for dewatered sludge: biogas production could be doubled – increase of dewatered sludge only 10%-15%

#### Special features of the project

The biogas plant in the village of Zirl is a good practice example because already existing infrastructure is used to produce biogas out of alternative substrates (e.g. Nespresso-taps) efficiently. Wastewater treatment plants are often the most expensive expenditure items of communities.

The existing digester of the wastewater treatment plant is perfectly used by adding additional organic residues as co-substrates to produce biogas. So the energy demand of the plant can be covered and so civil taxes are saved.

Moreover, the recycling of coffee taps by separating the aluminium from the coffee ground is a promising technology to use receive a new, previously unused substrate for biogas production.

# BEST-PRACTICE

## BIOGAS ZIRL, TYROL



Hammer mill and storage tanks (picture Abwasserverband Zirl)

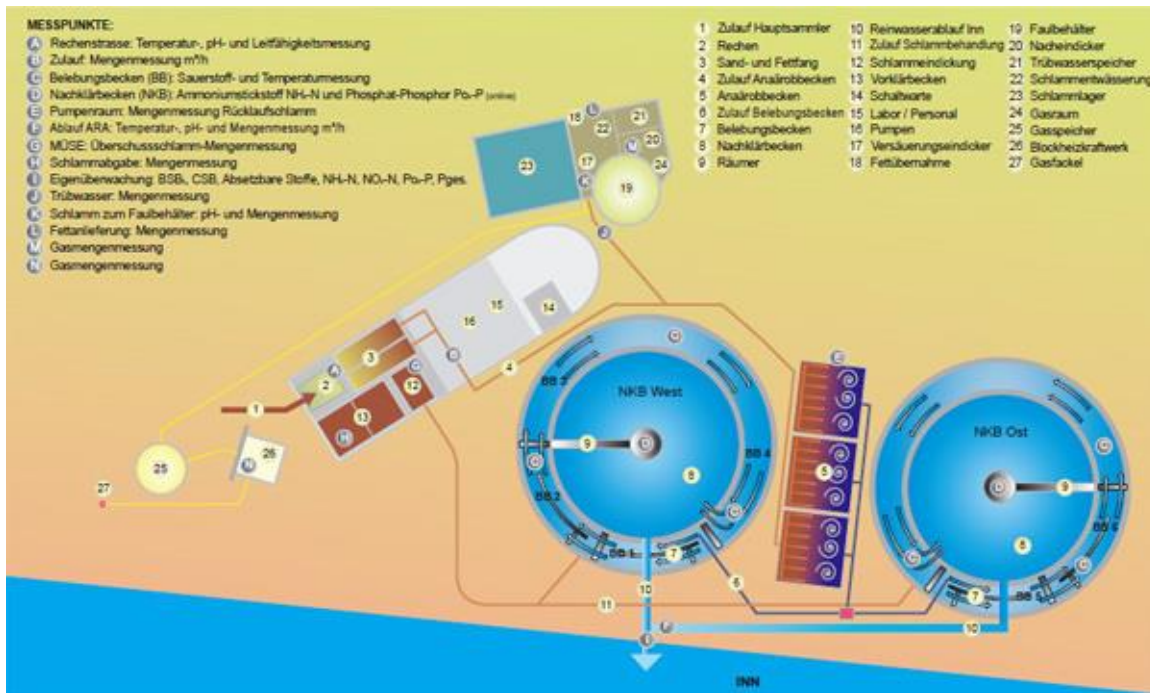
### More information

University of Natural Resources and Applied Life Sciences, Vienna  
 IFA-Tulln, Institute for Environmental Biotechnology  
 Konrad Lorenz Str. 20, 3430 Tulln  
 Tel.: +43/(0)2272/66280-502  
 E-Mail: [wolfgang.gabauer@boku.ac.at](mailto:wolfgang.gabauer@boku.ac.at)



### Plant operator

Abwasserverband Zirl und Umgebung  
 Meilbrunnen 5  
 6170 Zirl  
 E-Mail: [betrieb@avzirl.at](mailto:betrieb@avzirl.at)



Process design of wastewater treatment plant Zirl (picture Abwasserverband Zirl)