Environment and competitiveness : the point of view of an operator of environmental services

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ENVIRONNEMENT

THE REFERENCE IN ENVIRONMENTAL SOLUTIONS

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In 2012
€29.4 billion revenue
220,000 employees

WATER
The global benchmark
for water services
€12.1 billion

WASTE MANAGEMENT
The global benchmark
for waste management
and resource recovery
€9.1 billion

ENERGY SERVICES
The global benchmark
for energy optimization
€7.7 billion

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Bio-plastics recovered from wastewater at Aquiris wastewater treatment plant (North Brussels)

- **Wastewater is normally seen as waste, whose pollutants are extracted in consecutive steps**

but

Wastewater can instead be looked at as a resource

- **Wastewater sludges contain green carbon** which can be converted into PHA (*), an ingredient of **bioplastics**
- PHA is already industrially produced from sugar or starch, and is biodegradable
- R&D has been carried out for 10 years by Veolia to produce PHA from wastewater sludge

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(*) Polyhydroxyalkanoate

Bio-plastics recovered from wastewater at Aquiris wastewater treatment plant (North Brussels)

- This research led to a **pilot installation, set up in the Aquiris plant**

- **The process is based on naturally present bacteria, which convert into polymer the polluted sludge they feed on**

- **The needs of the outlet (plastics industry)** were taken into account from the beginning

- **The obtained bio-plastic is "greener" than those usually produced from croplands**

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Energy recovered from data centers at Val d'Europe (France)

- Data (treatment) centers are made of computer systems which need to be constantly cooled
- They generate an important heat flow, that is usually wasted at the cooling system outflow
- In Val d'Europe the heat recovered by the cooling system is transferred, via a heat exchanger, to a district heating network

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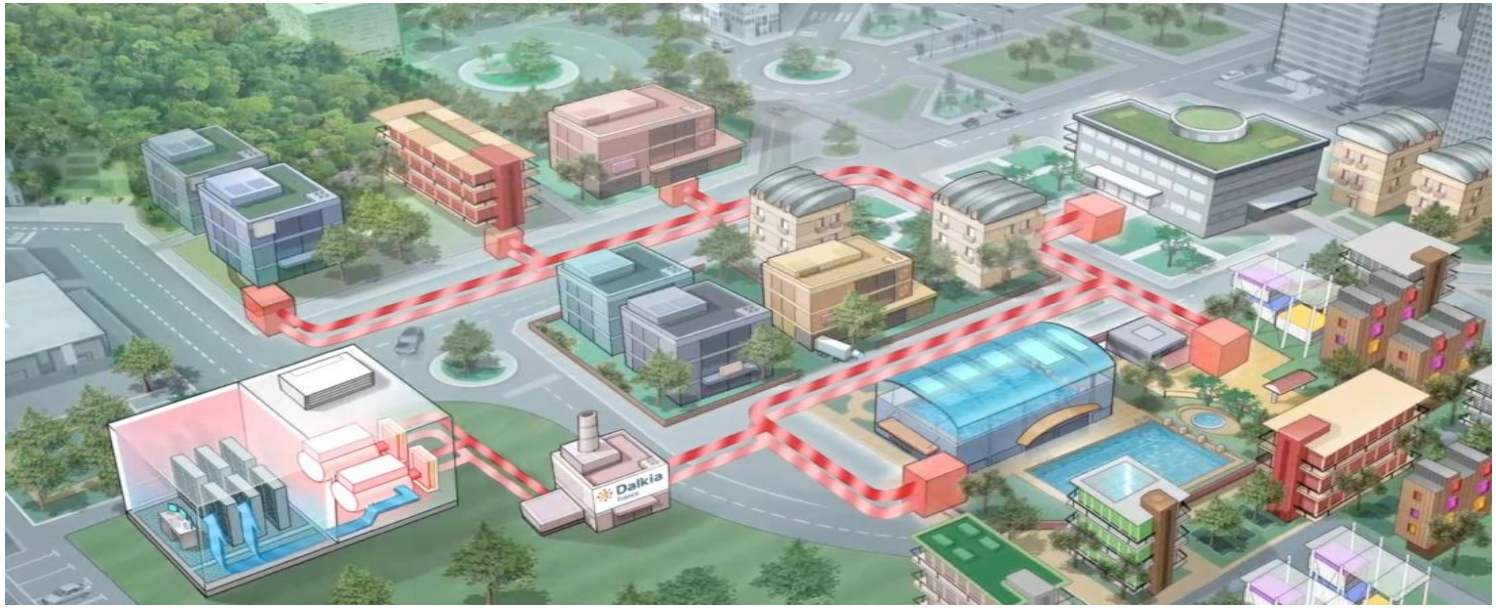
Energy recovered from data centers at Val d'Europe (France)

- When completed this network will ensure **the heating needs and hot water supply of the neighbouring district: 600.000 m² of (offices, shops, hotels…) buildings**
- This recovered energy will substitute fossil fuels, thus **allowing primary energy savings and reduction of CO_2 emissions**
- **Avoidance of 5.400 ton CO_2 / year** (i.e. 2.600 equivalent avoided cars / year)



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Used cooking oil converted into biodiesel at the Limay plant (France)

- **Used oils**
  - **A waste generated by agro-food industry, restaurants, households**
  - **An under-tapped resource : a high proportion of these oils is still not properly collected or treated**
- **The Sarp Industries (Veolia group) Limay plant converts used oils into 2nd generation (not competing with food-crop sourced) biodiesel**
- **Biodiesel is further incorporated (in 30% or 7% proportion) to diesel oil**
  - B30 (contains 30% biodiesel): for town/business fleets
  - B7 (contains 7% biodiesel): for distribution networks
- **Plant capacity: 45.000 ton/year**

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Used cooking oil converted into biodiesel at the Limay plant (France)

- **Combined benefits of this resource recovery process**
  - 100% recovery of used oils
  - Production of a renewable resource
  - 92% reduction of greenhouse gas
  - The plant is “zero waste”
- **Adjacent hazardous waste treatment plant provides for**
  - **100% of used oil plant energy needs** (through recovered heat from hazardous waste incineration)
  - **Treatment/recycling of effluents → no waste**

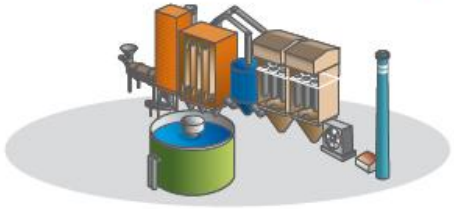
Used cooking oil converted into biodiesel at the Limay plant (France)

1.000 ton used cooking oils
= 15 million km by truck

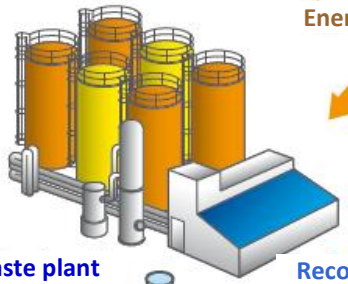
Food waste
(oil & fat)

Hazardous waste

Sarp Industries plant
Hazardous waste treatment & recovery



Limay 2nd generation
Biodiesel plant



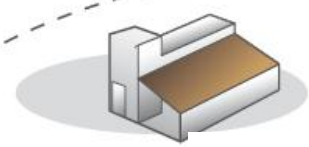
Energy

Water recycling

Energy
120.000 ton
steam / year

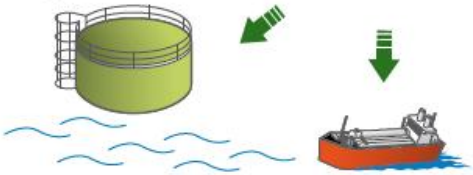
Zero waste plant
45.000ton
biodiesel/yesar

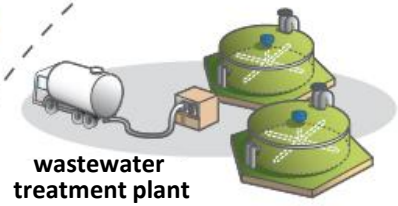
Recovered by-products
(glycerin, salts)



Other industries

2nd generation Biodiesel
assembling at 30%





wastewater
treatment plant

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