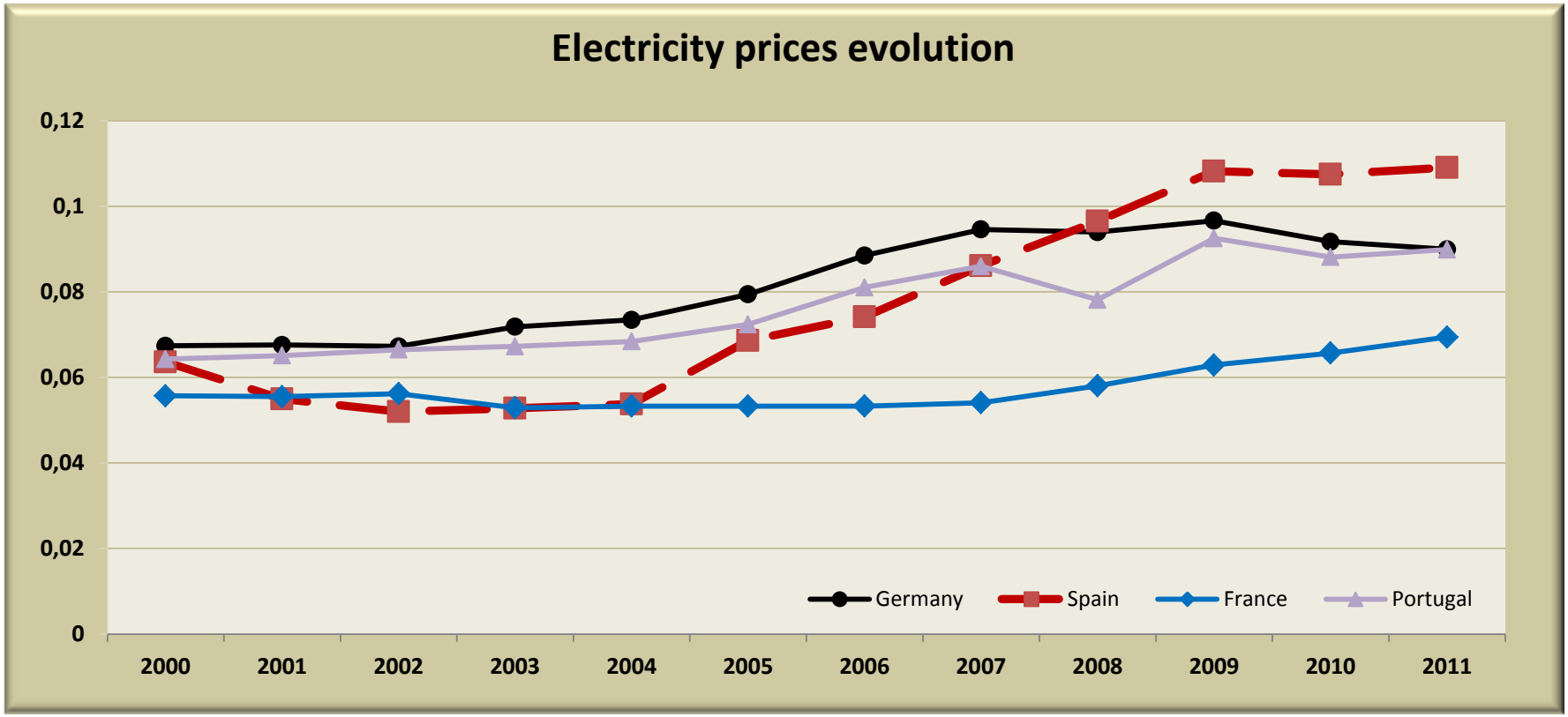
TWO DAYS TRAINING ON THE OPERATION AND MANAGEMENT OF WWTPS

9-10 September, Murcia

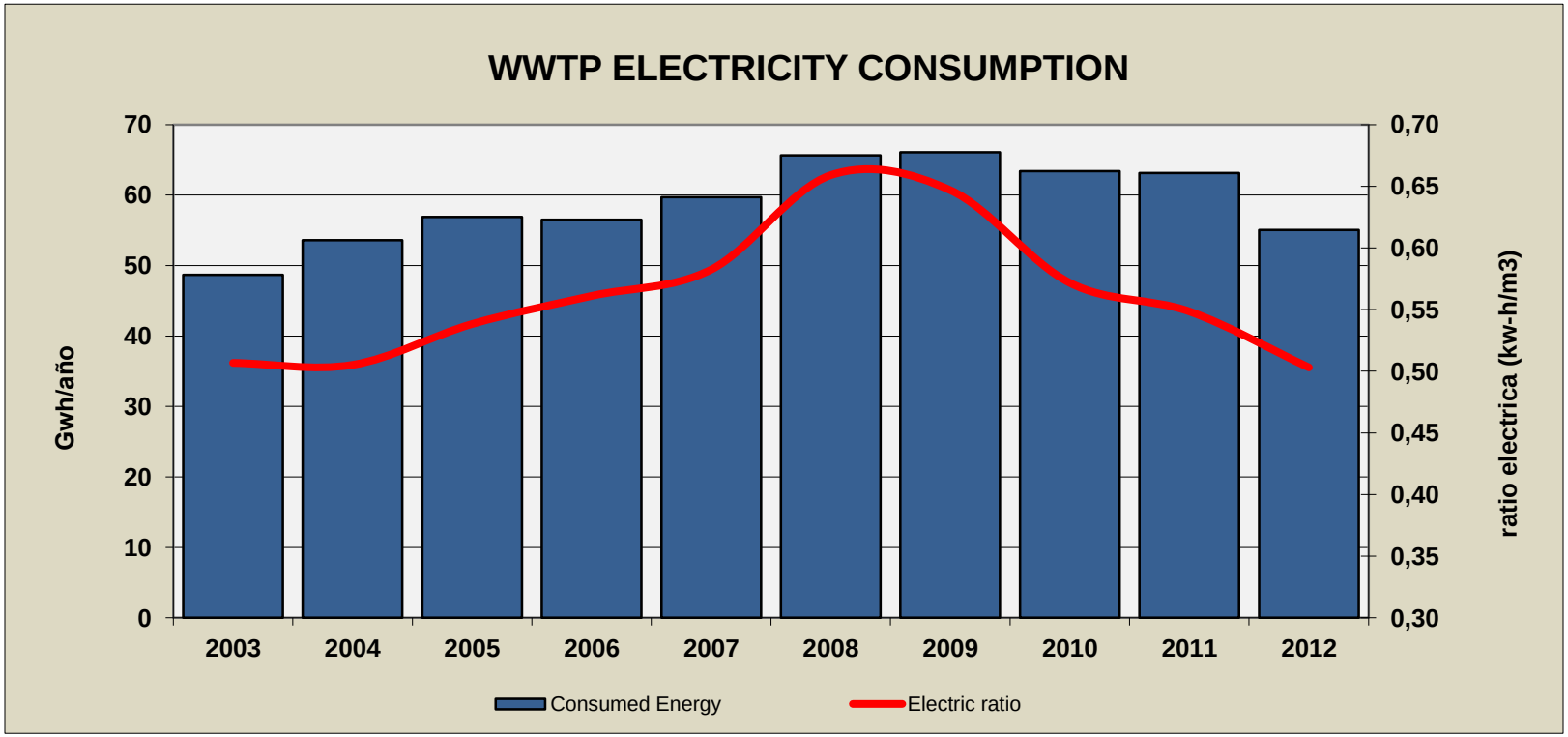
Energy Efficiency in Wastewater Treatment

Presented by: Pedro Simon Andreu

Energy efficiency on treatment processes



Energy efficiency on treatment processes



Historical evolution of electricity consumption

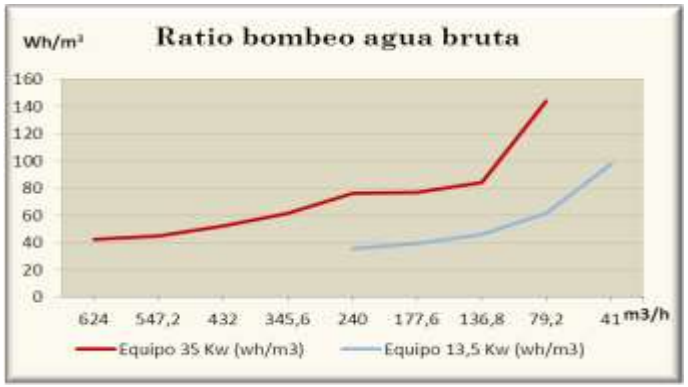
Energy efficiency on treatment processes

Recommendations for saving energy:

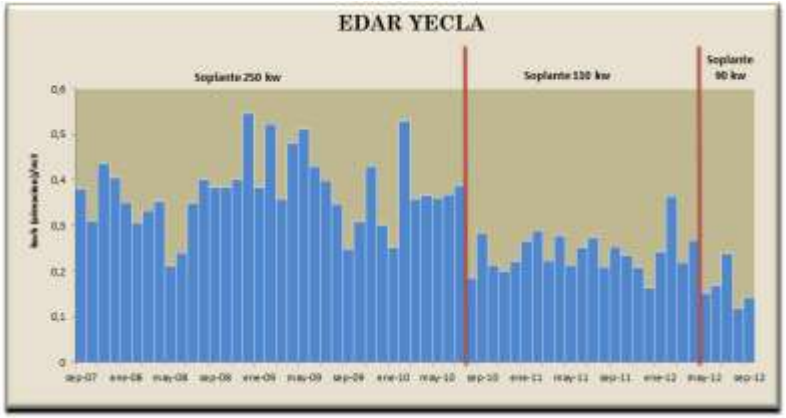
- Design of the facilities
- Operational changes
- Maintenance of equipments
- System controls in aeration tanks
- Retrofitting equipments
- Improving sludge digestion and co-digestion
- Renewable energies
- Install electric load monitoring devices and change selected operations to off-peak periods

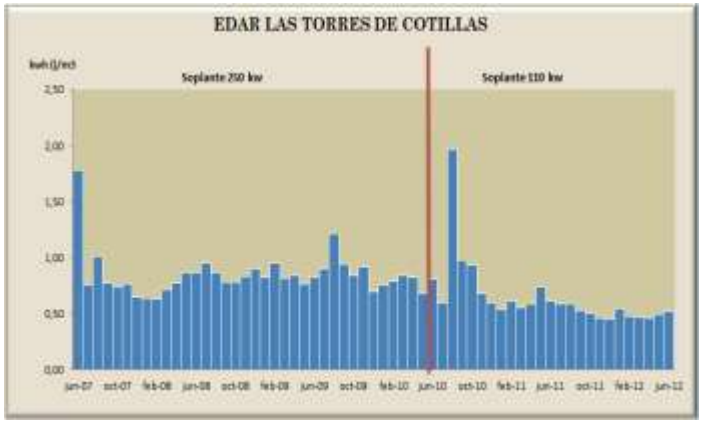
Energy efficiency on treatment processes

Design of the facilities



Changing raw pump size





Changing blowers

Energy efficiency on treatment processes

Modulate facilities for variable loads (seasonal plants)

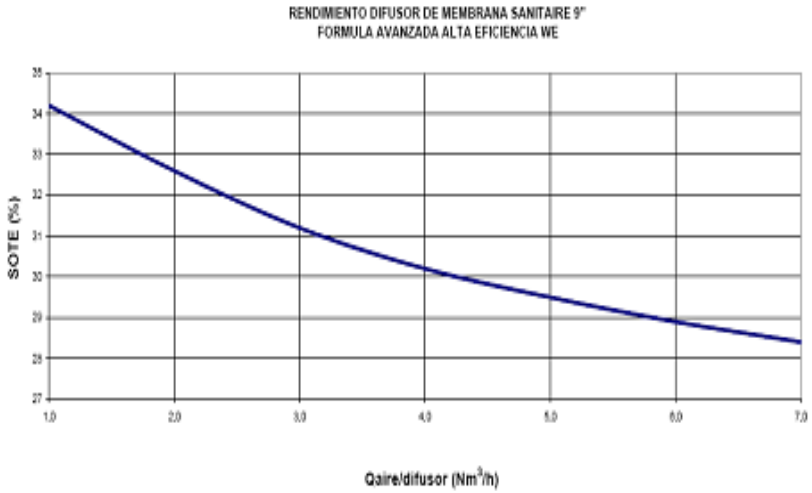
Design of the facilities

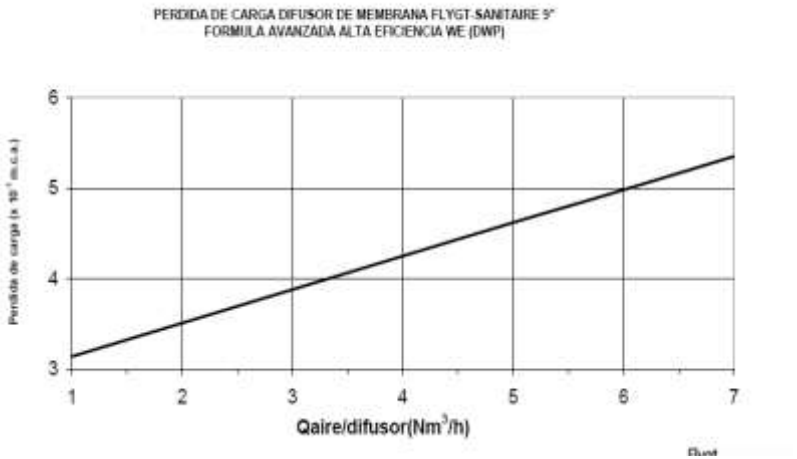
Blowers

Energy efficiency on treatment processes

Fine pore diffusers number

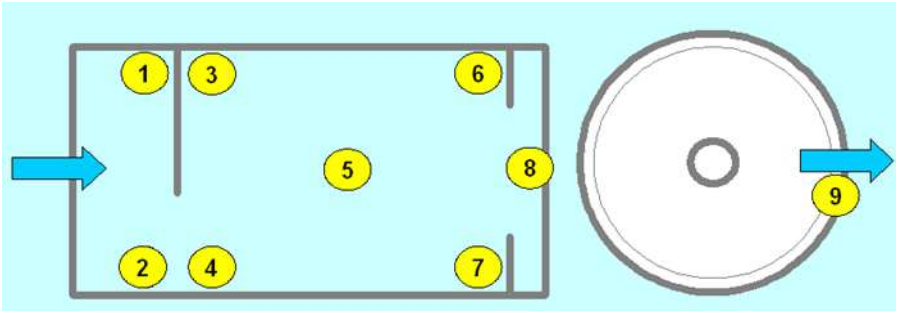
Design of the facilities

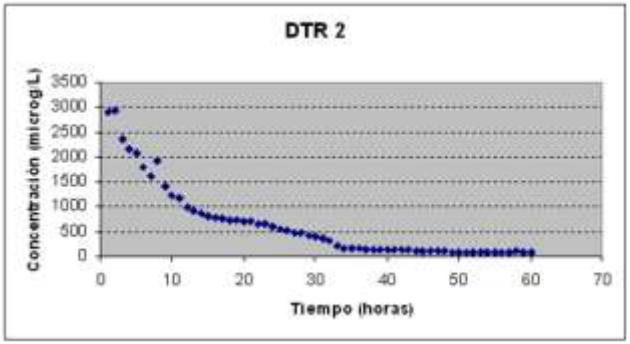


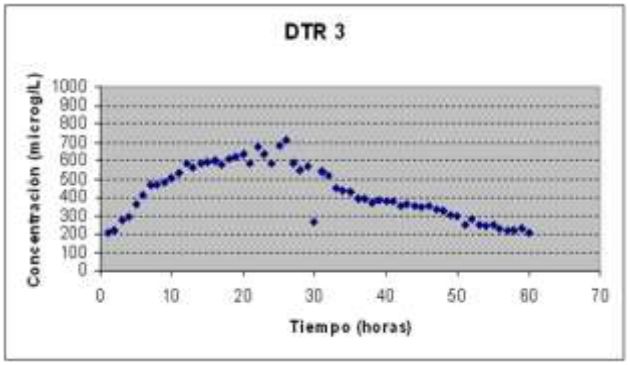


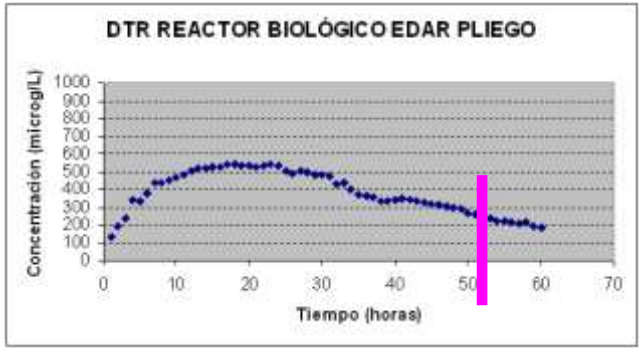
Energy efficiency on treatment processes

Hydraulic of the system : Short circuiting, bottlenecks and unbalanced reactor load





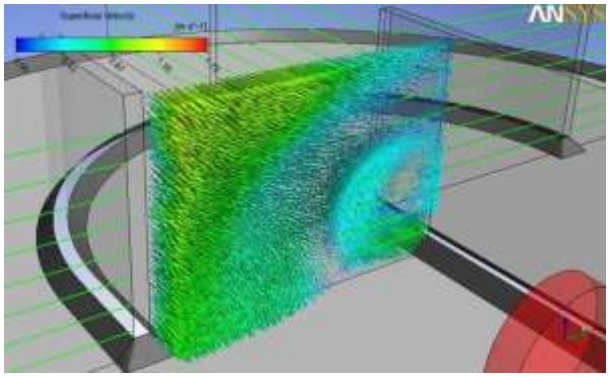


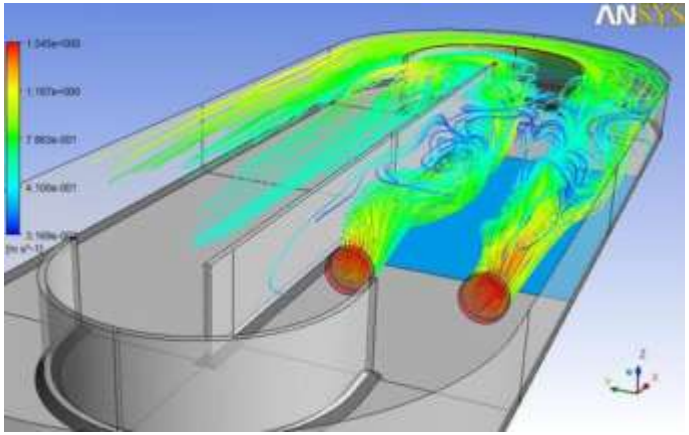


Design of the facilities

Energy efficiency on treatment processes

Hydraulic of the system : Short circuiting, bottlenecks and unbalanced reactor load





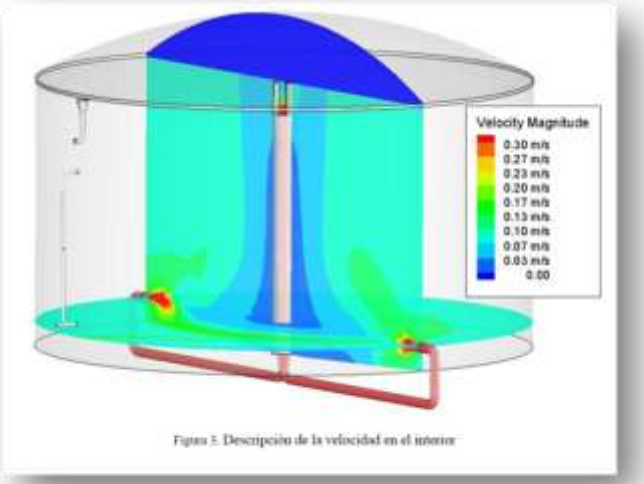
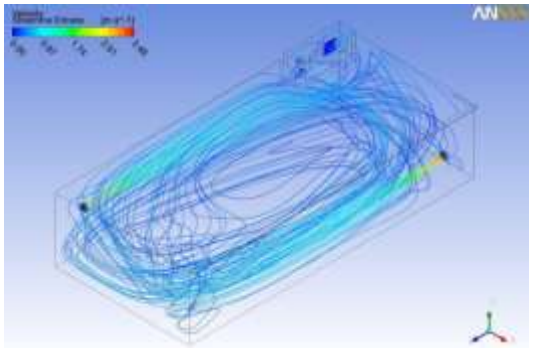
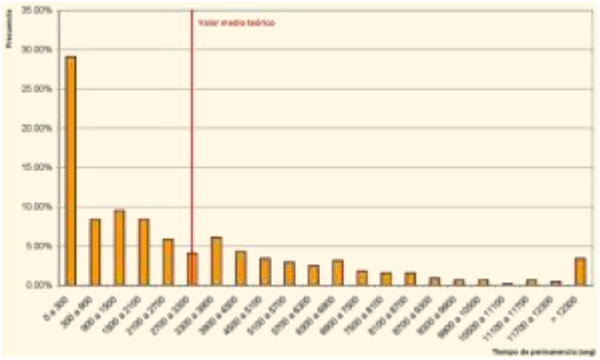


Figura 5. Descripción de la velocidad en el interior





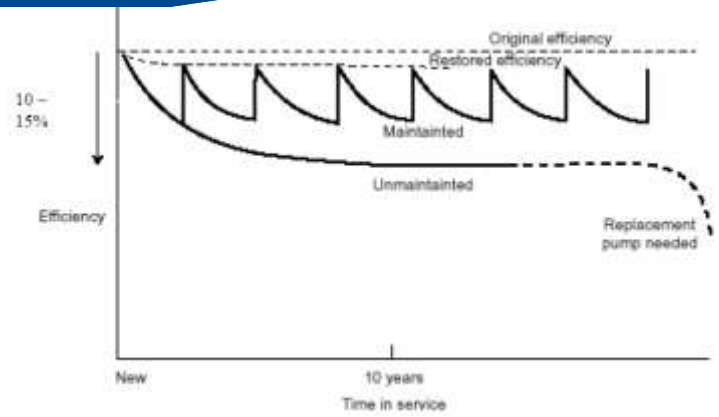
Design of the facilities

Energy efficiency on treatment processes

Operational changes

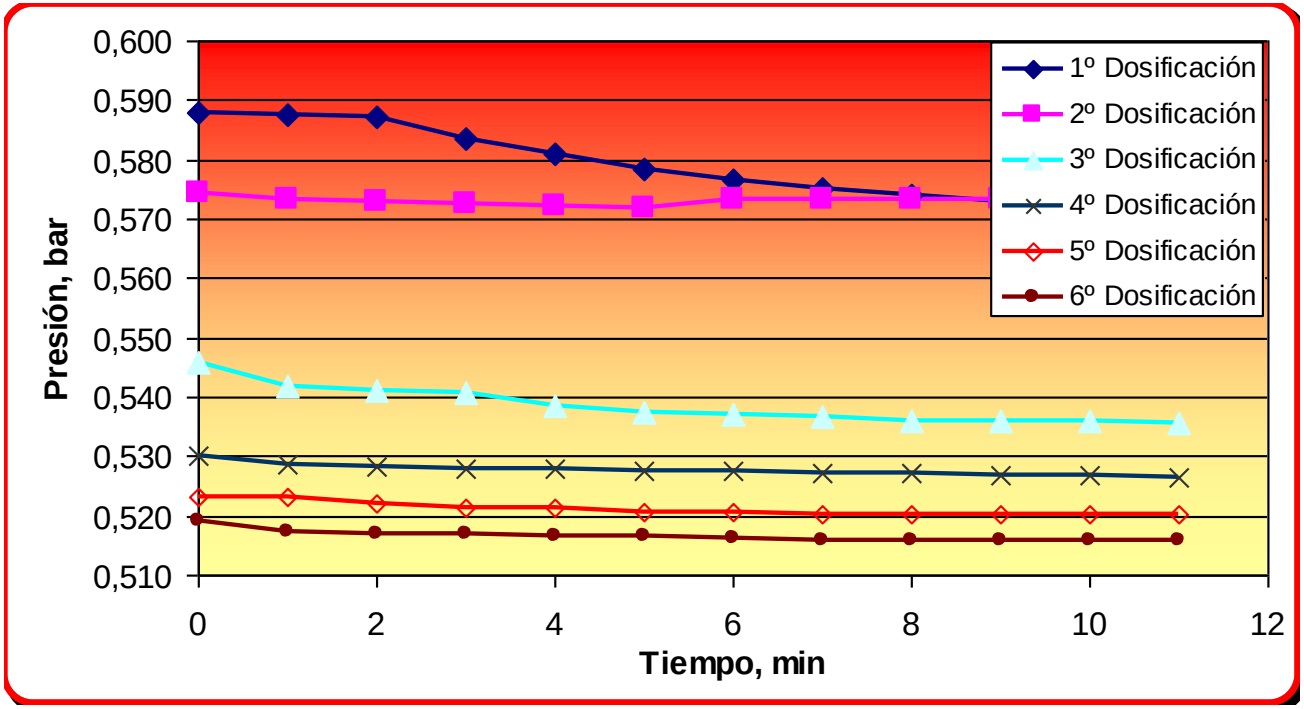
- MLSS
- Sludge Age
- Biological reactors in operation

Energy efficiency on treatment processes



Maintenance of equipments

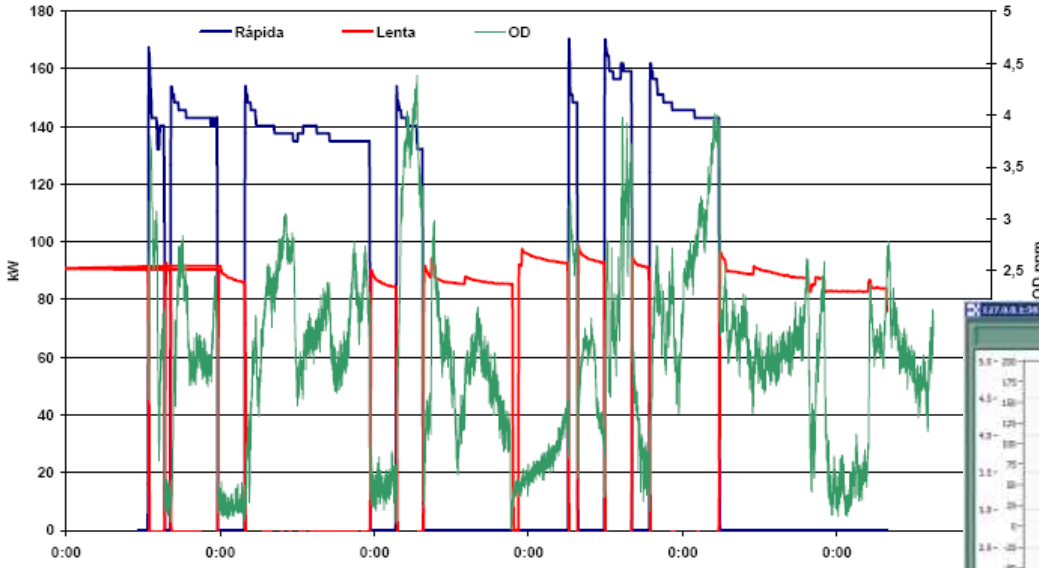
Energy efficiency on treatment processes



Cleaning with formic acid : Energy saving 7 – 12 %

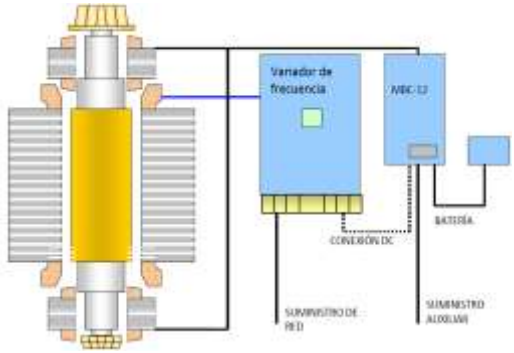
Maintenance of equipments

Energy efficiency on treatment processes



Install DO and nutrients monitoring and control in aeration tanks

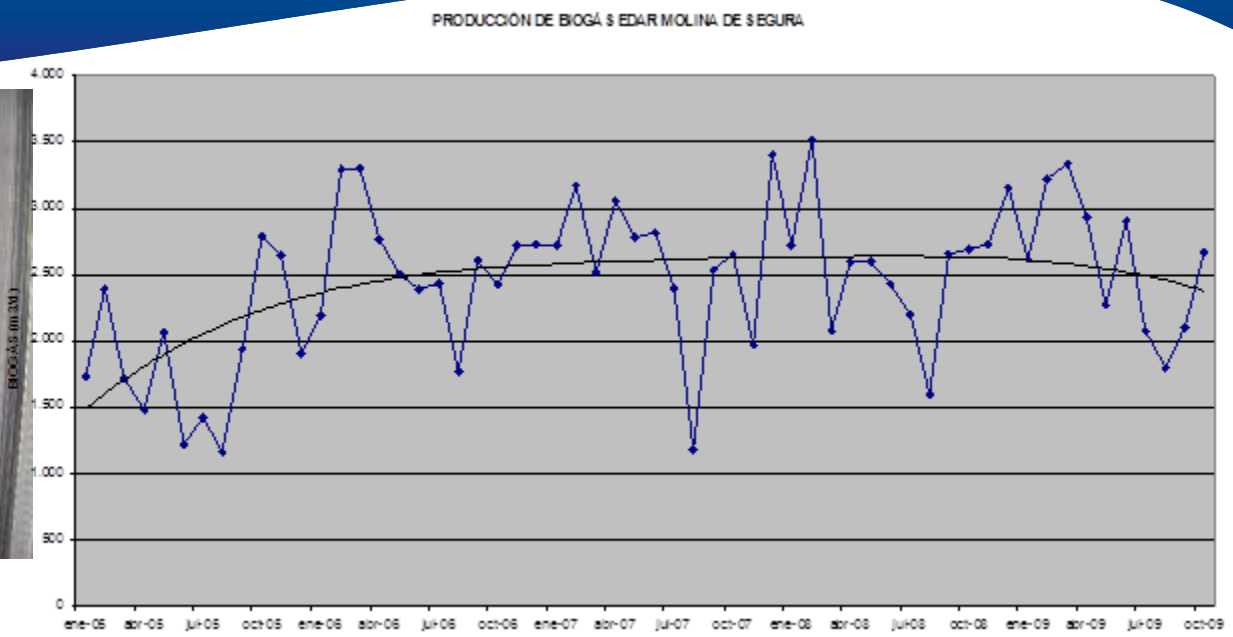
Energy efficiency on treatment processes



Retrofitting equipments

Energy efficiency on treatment processes

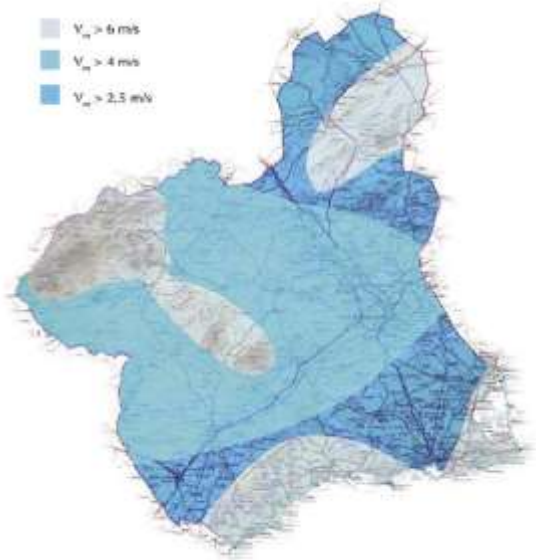
Ultrasounds equipment



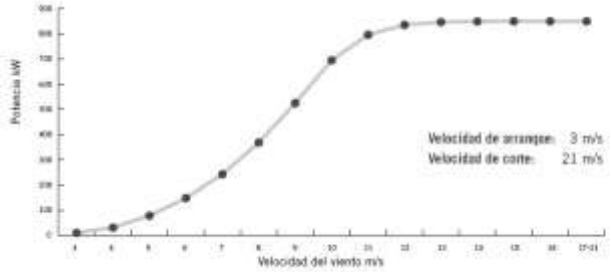
Improving sludge digestion and co-digestion

Co-digestion

Energy efficiency on treatment processes



Curva de Potencia Gamesa G58-850kW
(para una densidad del aire
de 1,225 kg/m³)



Velocidad (m/s)	Potencia (kW)
3	9,7
4	31,2
5	78,4
6	148,2
7	242,7
8	368,8
9	525,3
10	695,0
11	796,6
12	835,9
13	846,8
14	849,3
15	849,9
16	850,0
17-21	850,0

Renewable energies

مع خالص شكري
وامتناني

Thank you
for your attention

Merci pour
votre attention

For additional information please contact:
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Website: www.swim-sm.eu