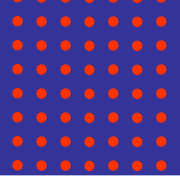


## **Fenice: the experience acquired in the field of energy management in Italy by a company of EDF Group**

**Marzia Nicita**  
FENICE - Gruppo EDF (Italy)



## Marzia Nicita

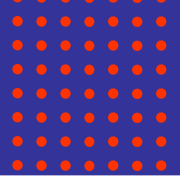
She received her M.Sc. in Electrical Engineering on 2006 at the University of Catania. She took a training course at ABB in Finland on “high voltage marine system”. On 2006 she joined Fenice Spa where is working as Electrical engineer in charge with the improvement of energetic power plants.

Her specific field of interest includes also renewable generation and electricity markets.

# FENICE: the experience acquired in the field of Energy Management in Italy by a company of EDF Group.

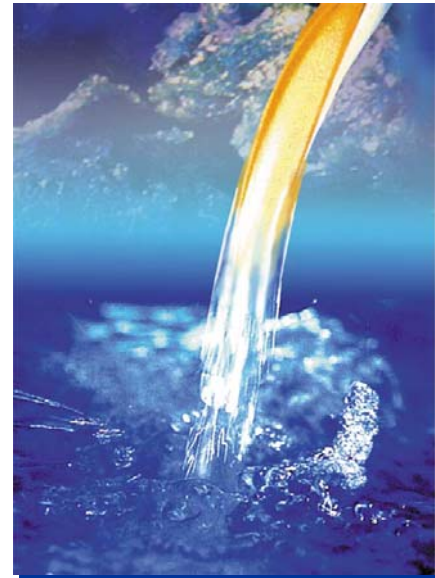
Torino, 25 May 2007



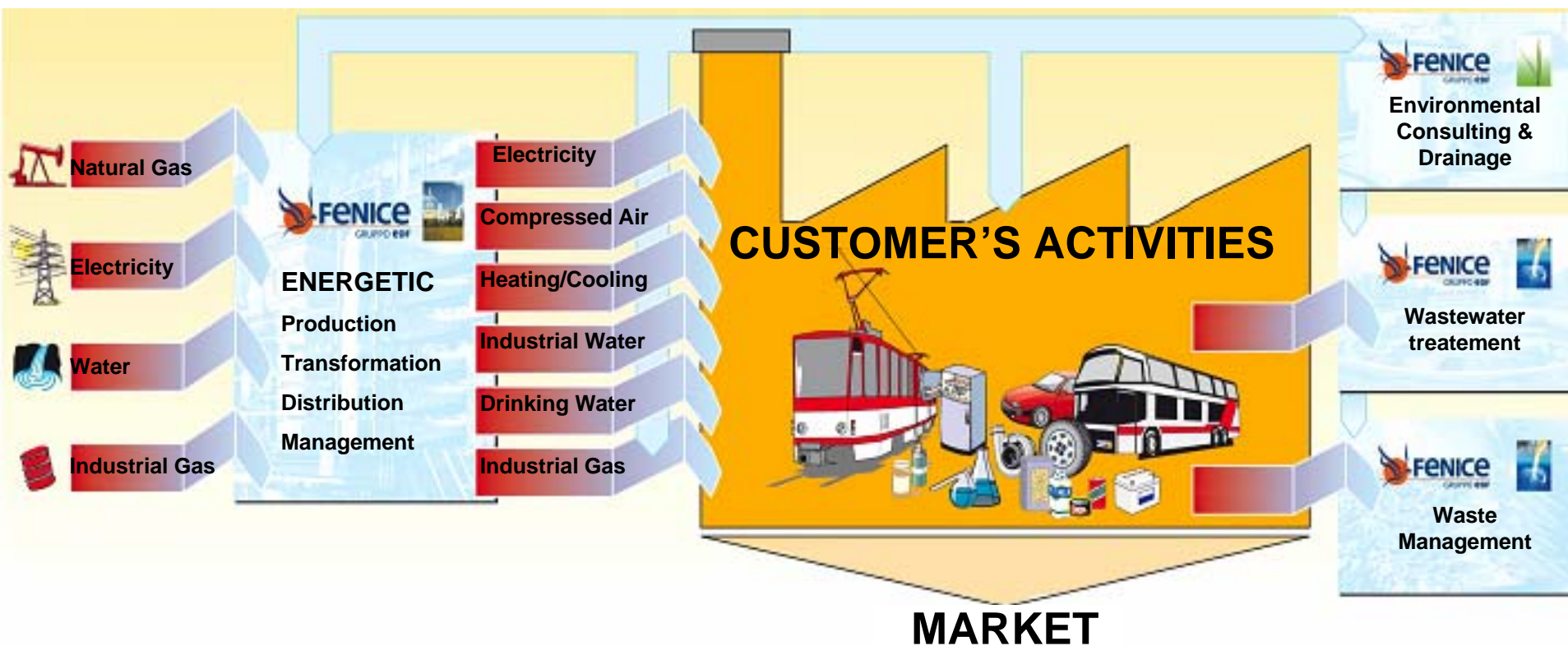
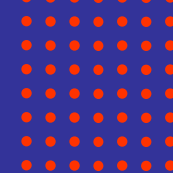


**Fenice is a multi utilities company which operates in the fields of :**

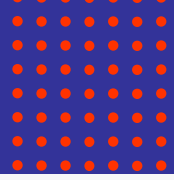
- **Energy Management**
- **Environmental Consulting**
- **Waste Management**



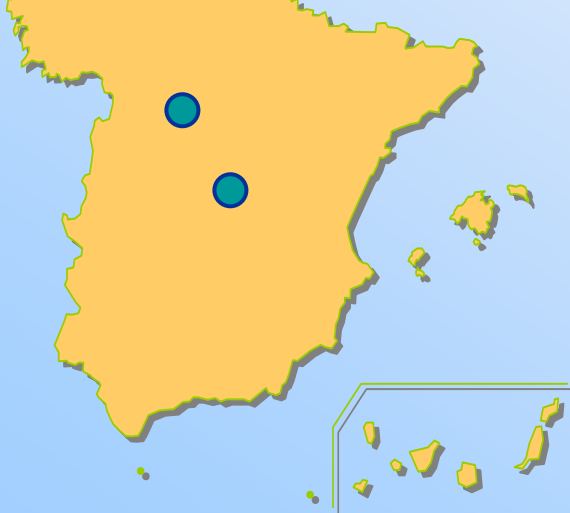
# A complete multi utilities company



# Location of the activities



**FENICE INSTALACIONES IBERICA**



**FENICE POLAND**

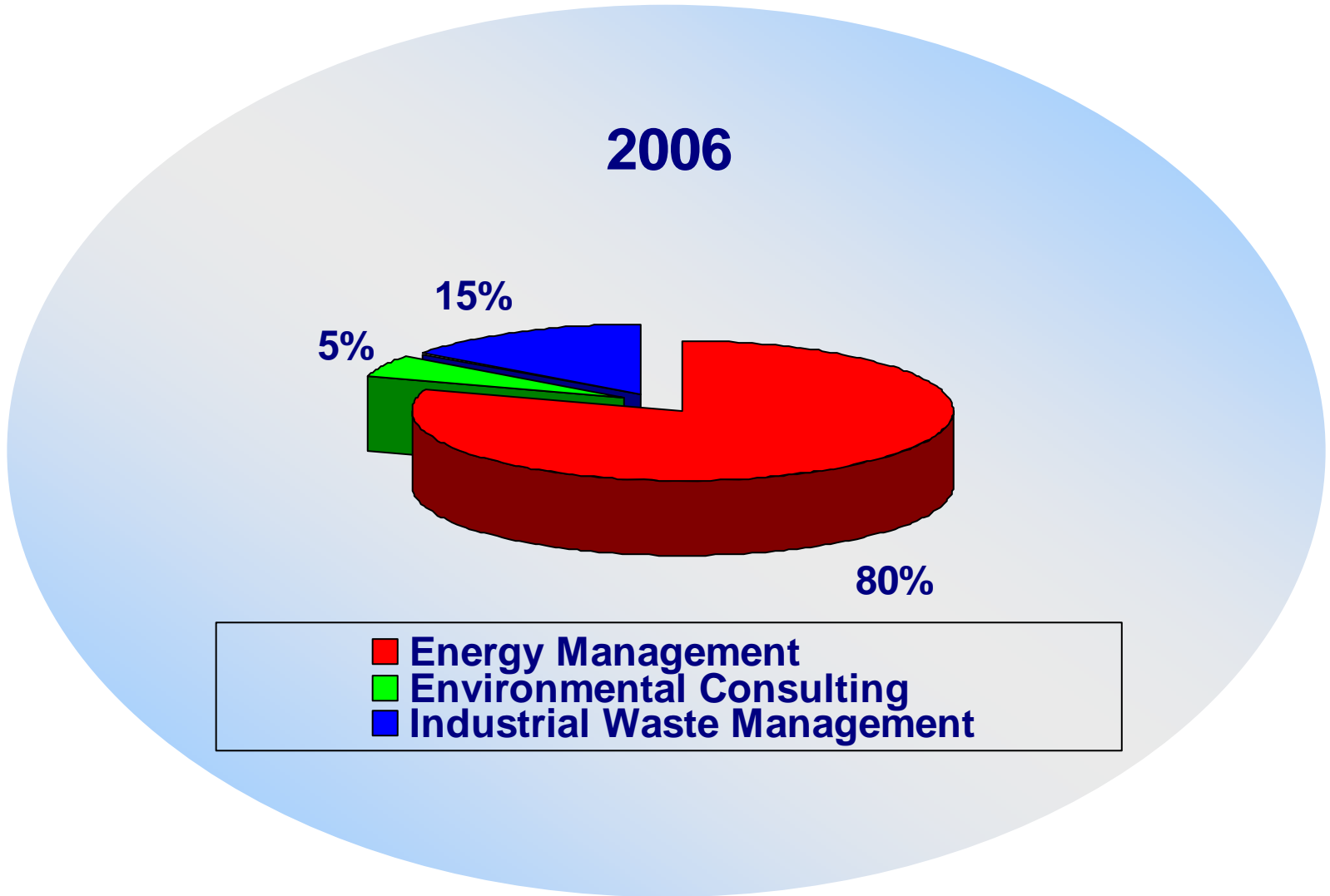
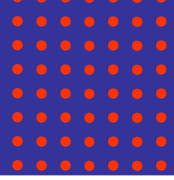


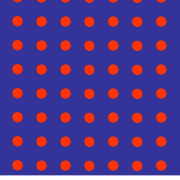
**45 sites in Italy**

**5 sites in Poland**

**3 sites in Spain**

# Break down of the activities



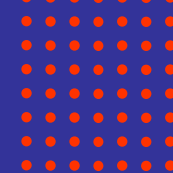


## Fenice provides:

- **Electrical Energy**
- **Thermal Energy**
- **Compressed air**
- **Technical gas distribution**
- **Industrial and drinking water**
- **Cooling for Buildings**



# Volume production

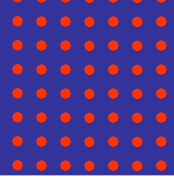


<b>ELECTRIC POWER INSTALLED</b> (MWe)	298		
	<i>From Natural Gas</i>	<i>Renewable Energy</i>	<i>Renewable Energy</i>
		(Incinerator)	(Hydroelectric)
	283	12	3
<b>ELECTRIC POWER MANAGED</b> (MWe)	600		
<b>ELECTRIC POWER PRODUCED</b> (GWe)	934		
	<i>From Natural Gas</i>	<i>Renewable Energy</i>	<i>Renewable Energy</i>
		(Incinerator)	(Hydroelectric)
	928	0	6
<b>ELECTRIC ENERGY SOLD</b> (GWe)	776		
<b>THERMAL POWER INSTALLED</b> (MWt)	2.627		
	<i>From Natural Gas</i>	<i>Renewable Energy</i>	<i>Renewable Energy</i>
		(Incinerator)	(Hydroelectric)
	2.627	0	0
<b>THERMAL ENERGY PRODUCED</b> (Tj)	8.687		
<b>COMPRESSED AIR PRODUCED</b> (m <sup>3</sup> )	2.650.000.000		

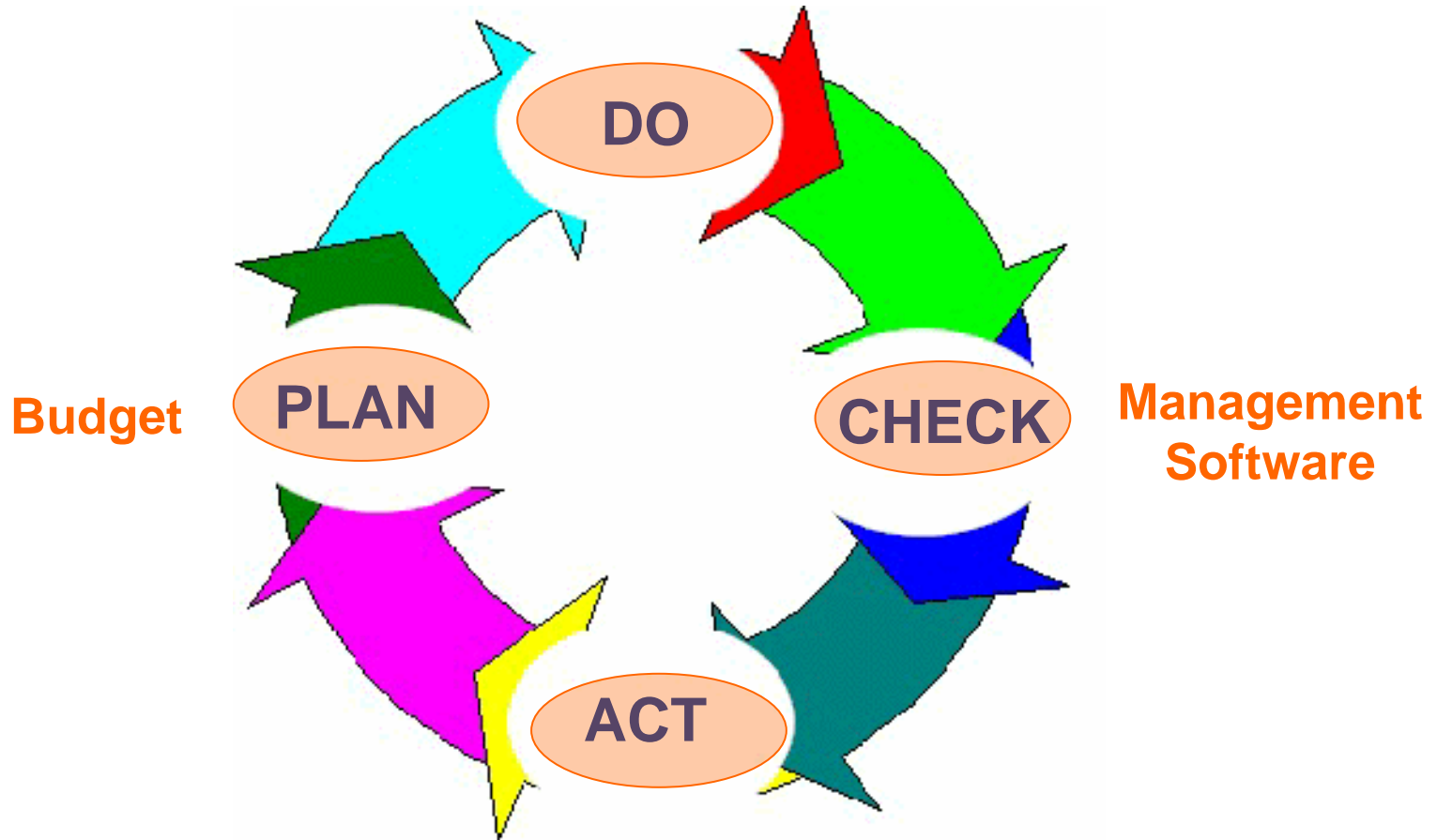
## Fenice participates to:

- **day ahead electricity market selling electric power**
- **Green Certificate Market**  
(most of thermoelectric production respect Ire index)
- **the system of promotion of energetic efficiency based on the exchange of TEE ( certificate attesting saving of energy consumptions)**

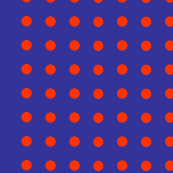
# Energy Management



In Operative Units

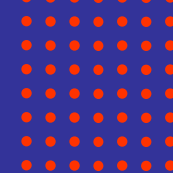


# Energy Management



**Fenice created a management software to:**

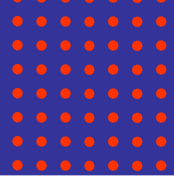
- **Supervise continuously consumption of each utility**
- **Detect possible gaps between actual and forecast**
- **Plan actions needed to minimize gaps detected**
- **Identify sites where improvement is needed**



**To rationalize energy use, Fenice employs statistic methods:**

- The most appropriate arrangement is chosen based on historical data and analysis of required loads**
  
- The production strategy is also decided taking into account market trends.**

# Energy management



For each utility Fenice implements an individual energy saving policy.

A specialized team is in charge of improving efficiency in power plants.

Analysis  Evaluation and models



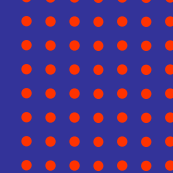
# Energy saving

**Fenice also offers its experience in energy management to external customers through energetic audits.**

**Fenice, as an Esco company , provides:**

- **energetic diagnosis**
- **feasibility studies**
- **planning of improvements**

**and realize the investment necessary to achieve the project.**



## Advantages for the Customer:

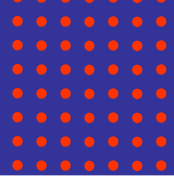
- Lack of financial risk
- Opportunity to improve the plants even in the case where no financial resource is available
- Removal of the problematic connected to maintenance and management of the system
- Sharing of the efficiencies achieved

## Advantages for Fenice:

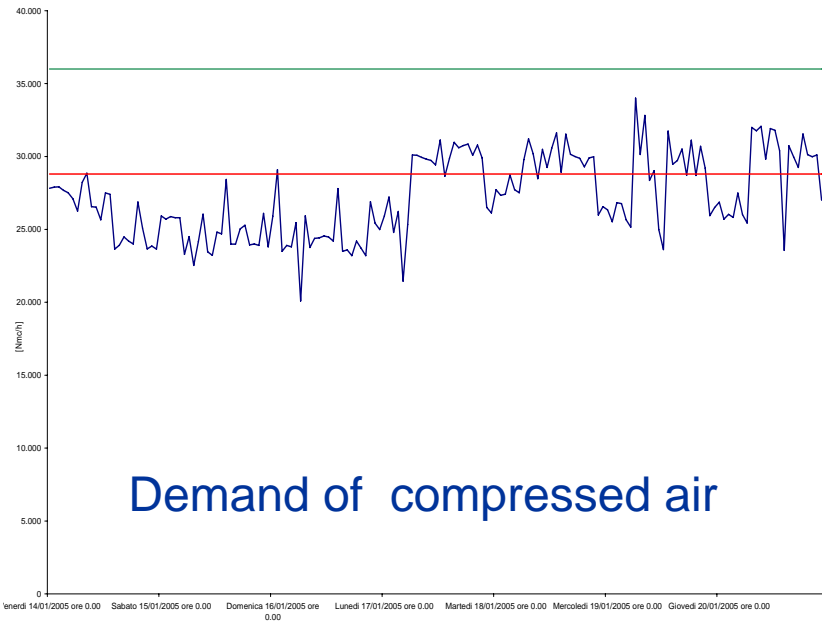
- Sharing of the efficiencies achieved
- Benefit of potential TEE



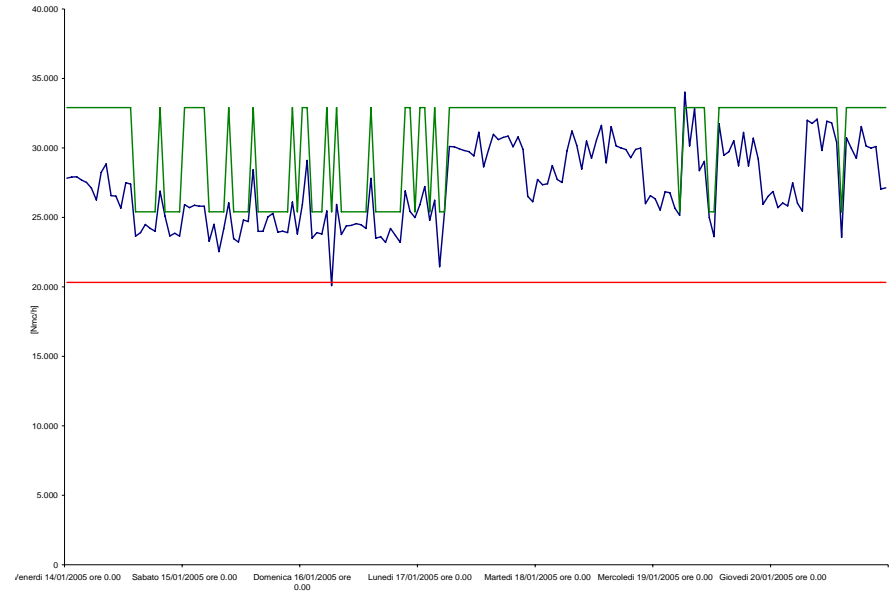
# Example



## Before



## After



**3 centrifugal compressors**

**2 centrifugal + Variable speed Compressor**

**$C_s=0,132$  [kWh/Nm<sup>3</sup>]**

**$C_s=0,118$  [kWh/Nm<sup>3</sup>]**

**E.S.= 3.284.736 kWh**



**723 TEP**

**UN MONDO DA REALIZZARE**



**Energia  
ed Ecologia  
al Servizio dell'Industria**

*Cogenerazione e Gestione Energetica  
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