

# AVVENIA

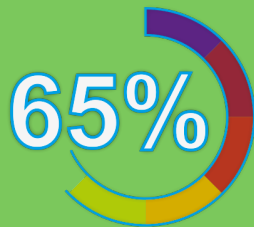
THE ENERGY INNOVATOR

ENERGY EFFICIENCY TO COMPLETE THE  
LOW CARBON ENERGY TRANSITION.

# 1,5 mln White Certificates

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Forecasted  
Generated  
Traded

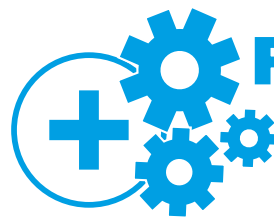


## Average Generated Savings

In the overall dimension we have been operating into.

## 23 Industrial Sectors

Starting from Automotive going to Siderurgy. We developed and tested our capabilities and skills in the most important and strategic industrial dimensions.



## Performance Index & Competitiveness

Projecting, developing, monitoring and financing set with the E.S.Co. Operative philosophy, to increase the customers competitiveness bringing funds for the growth.

## ENERGY EFFICIENCY TO COMPLETE THE LOW CARBON ENERGY TRANSITION.

### Switching to Low Carbon Energy.

**National and Regional Strategies and Plans should consider the possibility to reduce the PRIMARY ENERGY CONSUMPTION or define a more efficient mix of sources.**

**toe/ton**  
(consumption)

**ton/toe**  
(efficiency)

**AVERAGE  
or  
MARGINAL**

With that kind of informations we are able to understand which is the actual energy effort for the State to sustain a specific sector or how much will it cost to increase the production of one specific unit.

**Once the system is ready, how can we make it competitive?  
How can we guarantee the products to be competitive on the markets?**

**Energy transition is taking place globally and so globally markets are competing.**



# ENERGY EFFICIENCY TO COMPLETE THE LOW CARBON ENERGY TRANSITION.

## LONG & MID TERMS COMPETITIVITY

### ▶ NATIONAL (toe/ton)

- PRIMARY SOURCES MIX
- LOW CARBON SOURCES
- ENERGY SECURITY STRATEGY

**SUSTAINABLE  
SAFE**

Primary Consumption:  
**OPERATIONAL  
EFFICIENCY**

### ▶ REGIONAL (Kj/ton)

- COMMODITIES PRICE AND  
CONDITIONS
- SUSTAINABLE GROWTH

**AFFORDABLE  
TECHNOLOGIES  
& SOLUTIONS**

Final Consumption:  
**DELIVERY  
EFFICIENCY**

## SHORT TERMS COMPETITIVITY

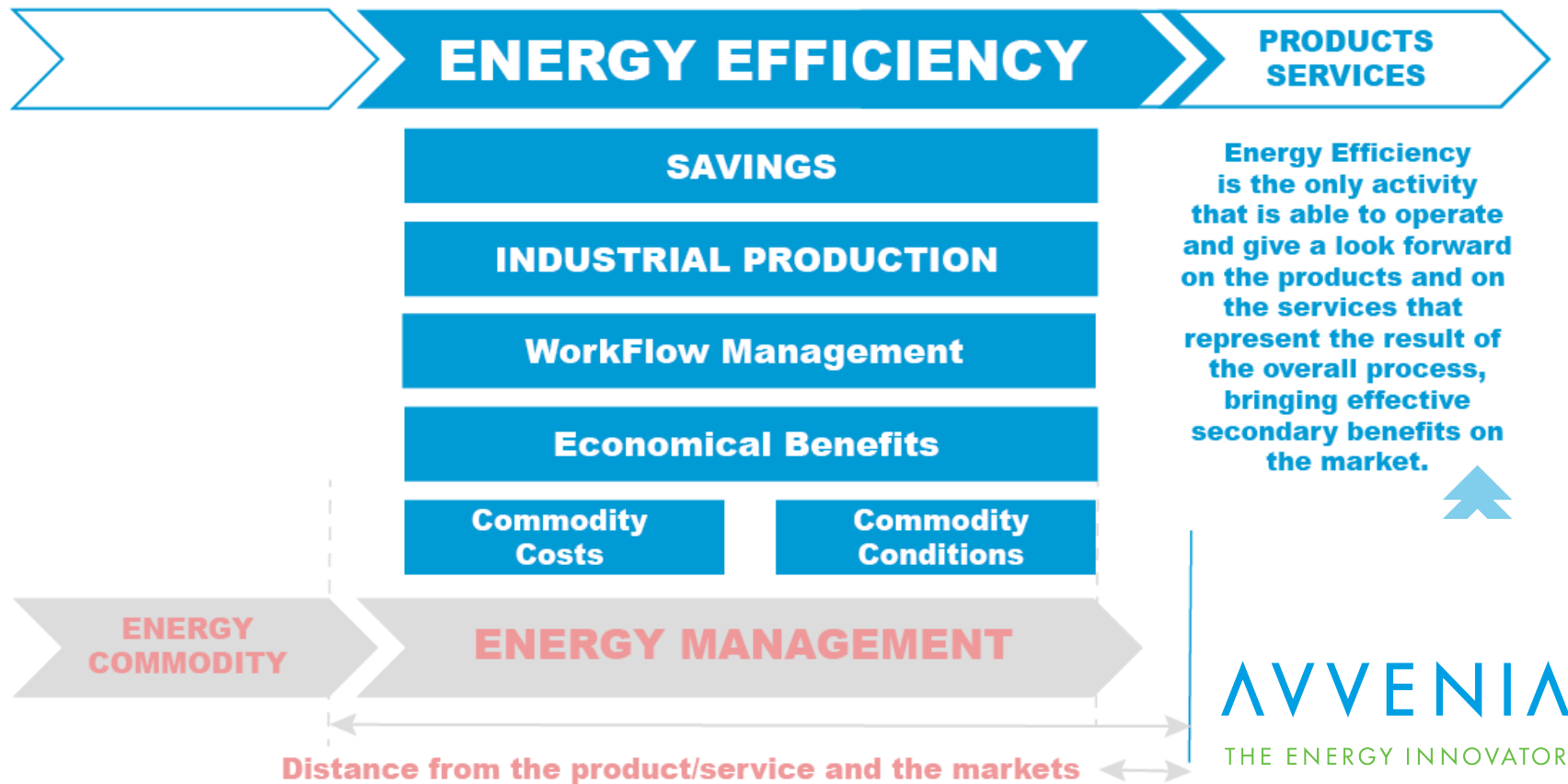
### ▶ DISTRICT & SECTORS (KPI)

- COMPETITIVITY ON THE  
MARKETS
- ECONOMICAL GROWTH

**ENGINEERING  
DRIVEN  
SOLUTIONS**

Final Destination:  
**ENERGY  
EFFICIENCY**

# ENERGY EFFICIENCY. Industrial Value Chain.



# ENERGY EFFICIENCY TO COMPLETE THE LOW CARBON ENERGY TRANSITION.

**Energy Efficiency has been considered to be the link between different crucial aspects for a Country social and economical development:**

- **ENERGY SECURITY STRATEGY**
- **COMMODITIES PRICE AND CONDITIONS**
- **SUSTAINABLE GROWTH**
- **COMPETITIVITY ON THE MARKETS**



## **Long & Mid Terms Competitiveness.**

**National and Regional Strategies and Plans.**



## **Short Terms Competitiveness.**

**Specific industrial sectors or districts strategies.**





## IDEAS & INFORMATIONS

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➤ **IDEA & DATA  
DRIVEN  
SOLUTIONS**

➤ **ENGINEERING  
DRIVEN  
SOLUTIONS**

## **PEOPLE ORIENTED EFFICIENCY**

**Real time informations & tools to act to lower.**

## **TECHNOLOGY ORIENTED EFFICIENCY**

**Hardware to give authomatic and optimized response.**

## **SERVICE ORIENTED EFFICIENCY**

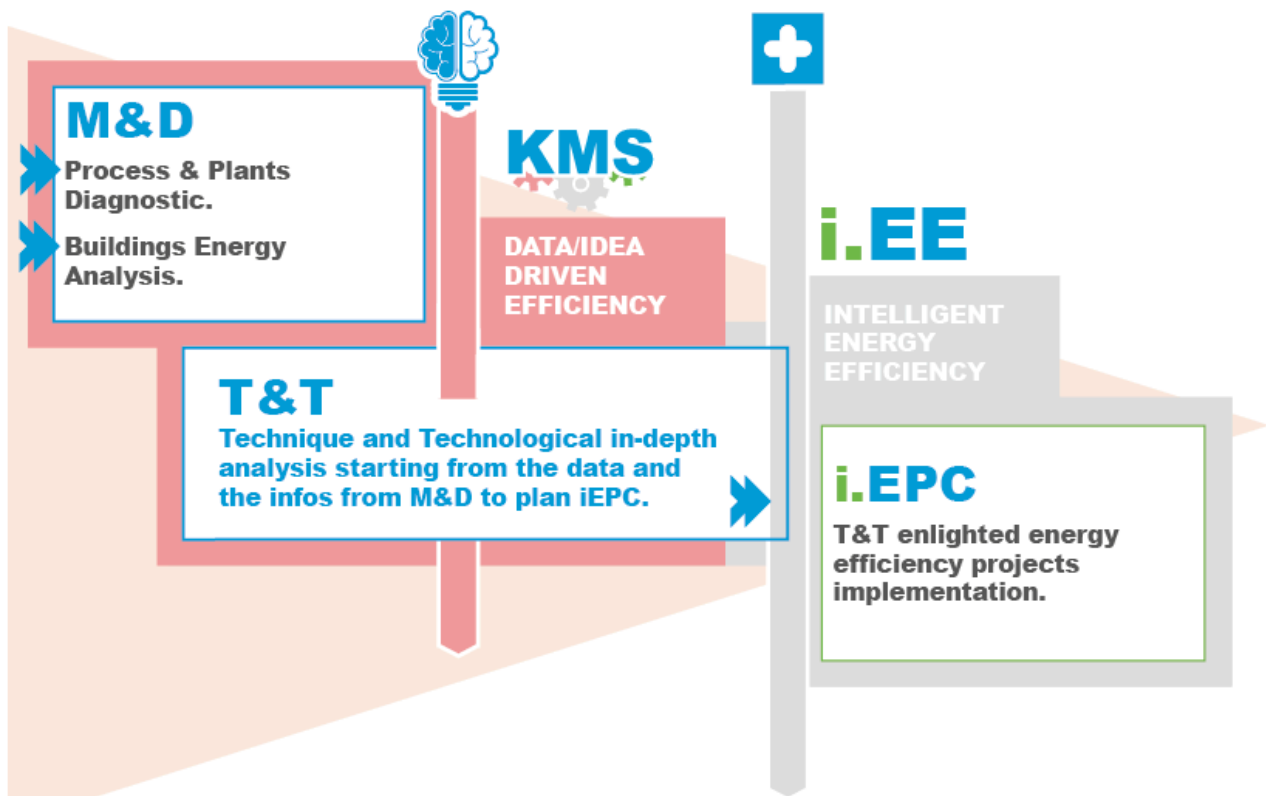
**Shifting organization behavior and structure to reduce energy intesity.**

## **ENERGY EFFICIENCY**

**Plan & enforce to increase competitiveness.**







## Intelligent Energy Efficiency

Reach Short Terms Competitivity goals, consolidating the market position or creating the chance to conquer new positions or different markets.

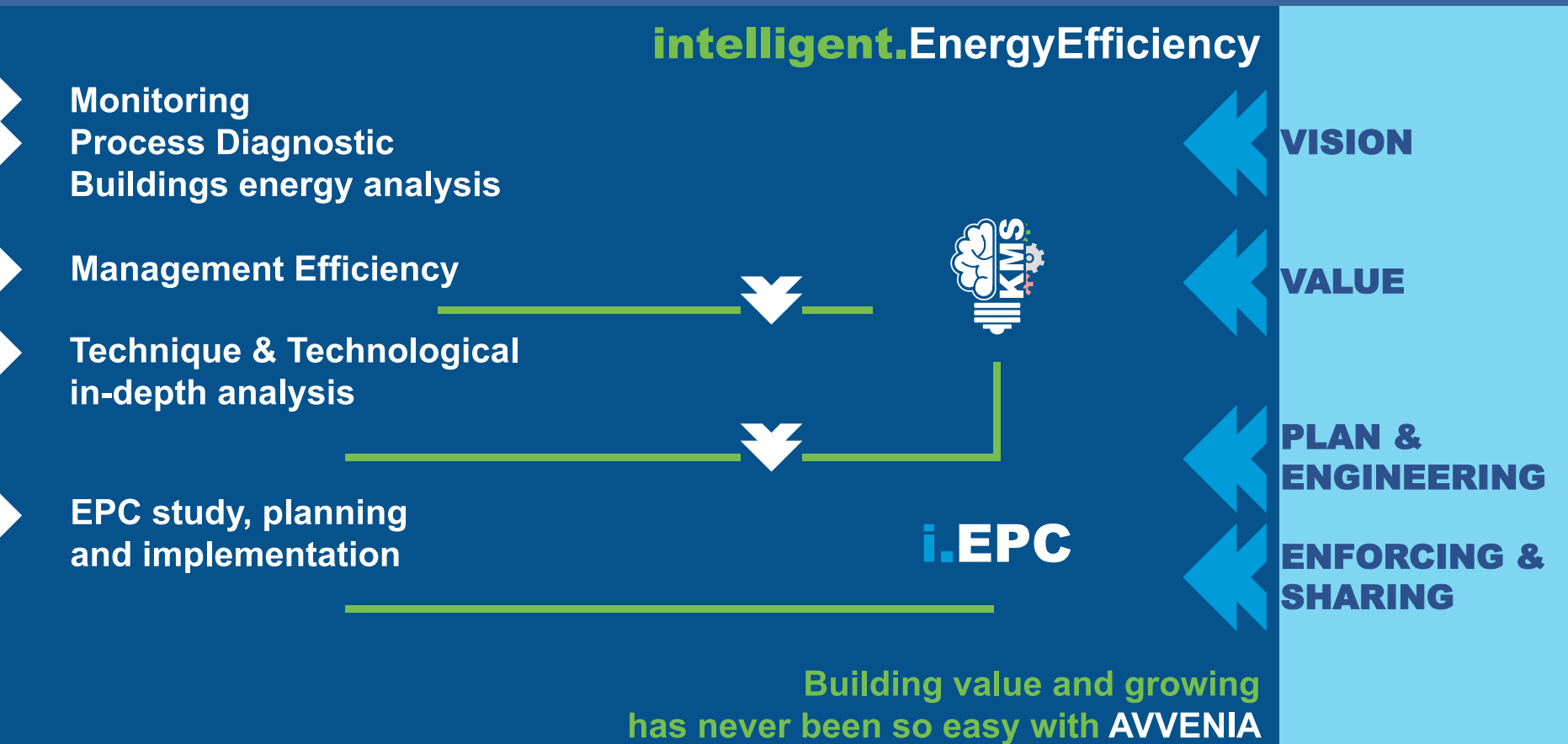
## Knowledge Management System

An instrument and method to study and analyze the company functions and structures to enhance the organization management and identify the path to follow to reach energy efficiency goals.

## iEnergy Performance Contract

Guaranteed results Energy Efficiency projects aiming to the enhancement of the "Energy performances related to the products or the services".





# ENERGY EFFICIENCY. A Real Opportunity for the companies' growth.

## INNOVATION

### THE ENERGETIC VECTOR.

Our innovative vision is linked to the possibility to understand and describe the performances of an industrial dimension defining performances index related to the specific or global energy consumption and the real destination it is delivered for.



Energy becomes the main driver to the Knowledge Management.

## COMPETITIVITY

### PRIMARY GOALS

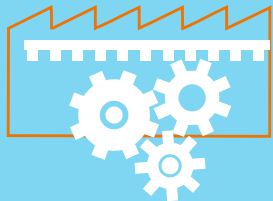
- Products/Service Flexibility
- Real Time Management
- Developing plans to penetrate new markets
- Investments to increase the technology intensity

### SECONDARY GOALS

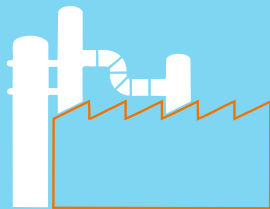
- DIRECT SAVINGS
- Savings from a better management
- Savings from the social costs
- Savings from the environmental costs



## ENERGY EFFICIENCY. WHERE do we deliver it.



**PROCESSES**



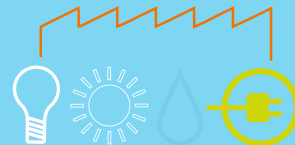
**PLANTS &  
MACHINERY**



**PROCESSES'  
BUILDINGS**



**AUXILIARY  
BUILDINGS**



**AUXILIARY  
SERVICES**



No matter which is the kind of energy we are using, the study of the flow of the energy vector will be able to describe a new map of the working chart of all the aspects involved in the transformation of this energy in a product service. In that map we will find all the drivers we need to follow to increase the competitiveness.

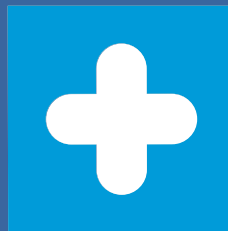


**AVVENIA**

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## ENERGY EFFICIENCY. HOW do we deliver it.

To define and underline all the aspects involved inside an industry, a company or a more specific process dimension, understanding the real potential we mix and melt the concepts on which is based energy efficiency.



**INNOVATION**  
**COMPETITIVITY**  
**SAVINGS**

### **SPECIFIC MODELS**

BUILDINGS'  
BEHAVIOURS STUDY  
AND FORECASTING

### **SOPHISTICATED ALGORITHMS**

FORECASTING OF  
PRIMARY AND  
SECONDARY  
ECONOMIC BENEFITS

### **DIAGNOSTIC & MONITORING**

ADVANCED  
CAPABILITIES TO  
SEARCH CRUCIAL  
ENERGETIC  
ELEMENTS

THE STUDY OF THE ENERGETIC VECTOR FLOW

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# intelligent ENERGY EFFICIENCY. HOW do we deliver it.

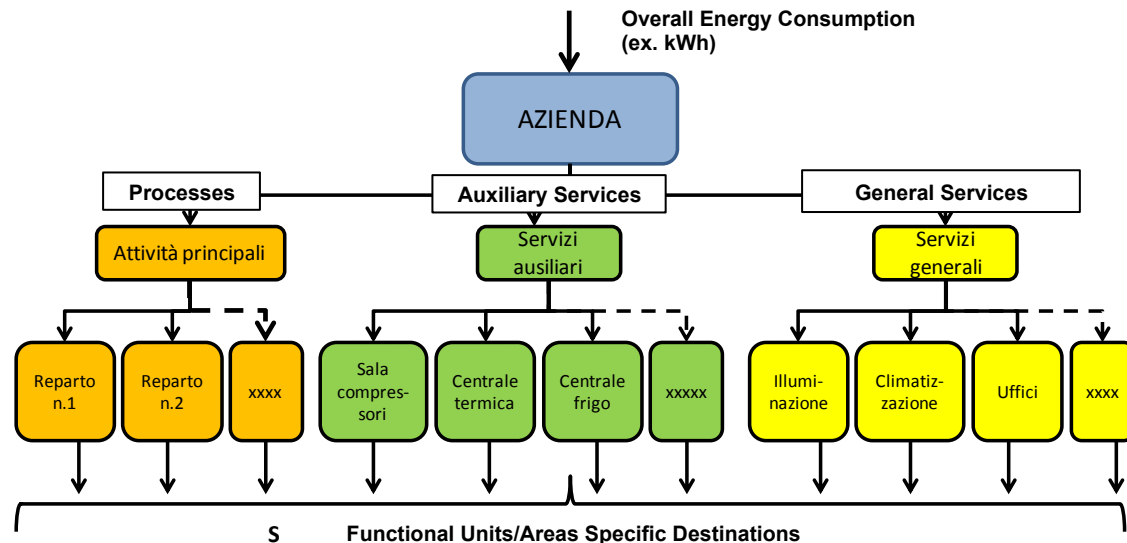
We work on compliance with our ideas.

The AVVENIA “Company Structure” is perfectly performing in the direction to give the right importance to the right data, estimated or measured.

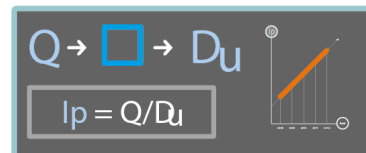
This revolutionary energetic map of the corporate organization has been taken as the reference model for the mandatory audit.

This operative model has been developed in order to:

- Define macro functional areas' parameters (which energy vector for which company area)
- Define the general KPI ( $Q_e/Q_p$ )
- Define specific KPI for each area to allow benchmark analysis (specific energy vector on specific destination)



Final Destination  
(Products or Services)



# intelligent ENERGY EFFICIENCY. HOW do we deliver it.

GENERAL PI



ELECTRICITY	23.330.408	[kWh]
TOTAL PRODUCTION "Dg"	10.232.583.823	[pz]

ENERGY VECTOR



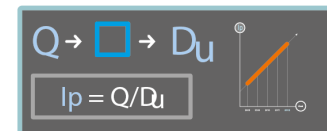
ELECTRICITY	PLANT	
lpe	0,00228	kWh/pz

MAIN FRAME

Main Activities			Facilities			General Services		
lpe	0,00082	kWh/pz	lpe	0,00095	kWh/pz	lpe	0,00045	kWh/pz

FUNCTIONAL AREAS

Specific KPI to be submitted identifying the specific usage destination



Linee Liquidi			Sala compressori			Magazzino			Gruppi frigo cdz		
lpg	0,00028	kWh/pz	lpg	0,00023	kWh/pz	lpg	0,00015	kWh/pz	lpg	0,00007	kWh/pz
lps	0,01905	kWh / litri	lps	0,01905	kWh / litri	lps			lps	4.594,06	kWh / GGE
Linee SANPRO			Centrale termica			Depuratore			Uffici		
lpg	0,00030	kWh/pz	lpg	0,00003	kWh/pz	lpg	0,00005	kWh/pz	lpg	0,00013	kWh/pz
lps	0,00061	kWh / pezzi	lps	0,00061	kWh / pezzi	lps			lps		
Linee Cotton Floc			Gruppi frigo processo			Officina meccanica			Mensa		
lpg	0,00005	kWh/pz	lpg	0,00016	kWh/pz	lpg	0,00001	kWh/pz	lpg	0,00001	kWh/pz
lps	0,00011	kWh / pezzi	lps	0,00011	kWh / pezzi	lps			lps	303,59	kWh / persone
Sala Masse			Aspirazione			HVAC masse			Acqua		
lpg	0,00015	kWh/pz	lpg	0,00018	kWh/pz	lpg	0,00003	kWh/pz	lpg	0,00004	kWh/pz
lps	0,01024	kWh / litri	lps			lps			lps		
Sala Masse alcolici			Osmosi inversa						Illuminazione		
lpg	0,00004	kWh/pz	lpg	0,00011	kWh/pz				lpg	0,00009	kWh/pz
lps	0,00296	kWh / litri	lps						lps		
									MIS		
									lpg	0,00003	kWh/pz
									lps		
									HVAC		
									lpg	0,00008	kWh/pz
									lps	487,20	kWh / GG annuali

## ENERGY AND MANAGEMENT EFFICIENCY.

Portovesme – Siderurgy.

- **Process Intervention.**

**- 75%**

- **Workflow management.**
- **Service & Maintenance scheduling.**

**+ 50%**

A “Waelz” productive line is thought to be used to produce zinc and lead from steelworks’ dusts and wastes.

## PROCESS EFFICIENCY.

How to produce in a better way?

A first new plant’s setting and configuration, exploiting the heat coming from the oxidation of the metals introduced in the combustion chamber, was already reducing the energy consumption of a substantial value equal to the 75%.

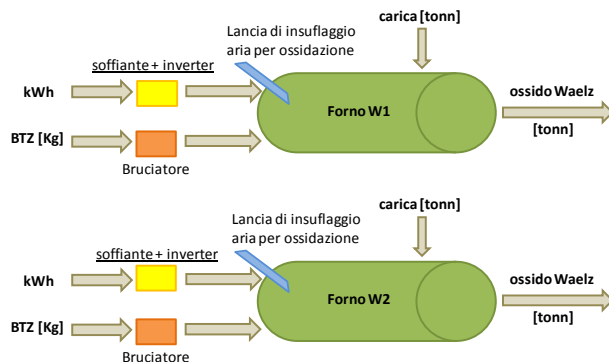
## PROCESS OPTIMIZATION.

How to optimize the production?

Chemical-physical reactions themselves were creating critical conditions in the “combustion” chamber dramatically lowering the specific KPI.

Going for maintenance stopping the production (Re-Heating power)?  
Or keep on producing as long as possible with lowered performances?

The STUDY OF THE EVOLUTION OF THE KPI gave us the answer.





# ENERGY EFFICIENCY. RESULTS & Numbers.

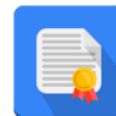
## AUTOMOTIVE



65%

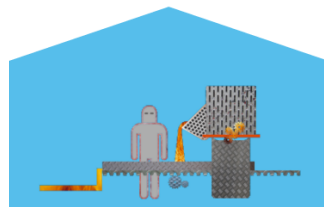


262500ton



105k

## SIDERURGY



25%



537,500ton



215k

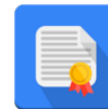
## FOOD INDUSTRY



18%



20,000ton



8k

# SOME OF THE COMPANIES AVVENIA IS WORKING WITH



FIAT  
SOCIETÀ PER AZIONI

FIAT



TRENITALIA  
GRUPPO FERROVIE DELLO STATO ITALIANE

TRENI ITALIA



Ferrarelle

FERRARELLE



Coca-Cola®

COCA-COLA



NORDA



ADITYA BIRLA  
NOVELIS



nuovaplast



Pam  
PANORAMA



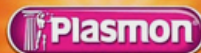
Pfizer



PIAGGIO®



Gratia  
SALUMI ITALIANI



Plasmon



PLASCO  
Preforme in PET



PLASTICA ALTO SELE  
Arredi in Resine Sintetiche

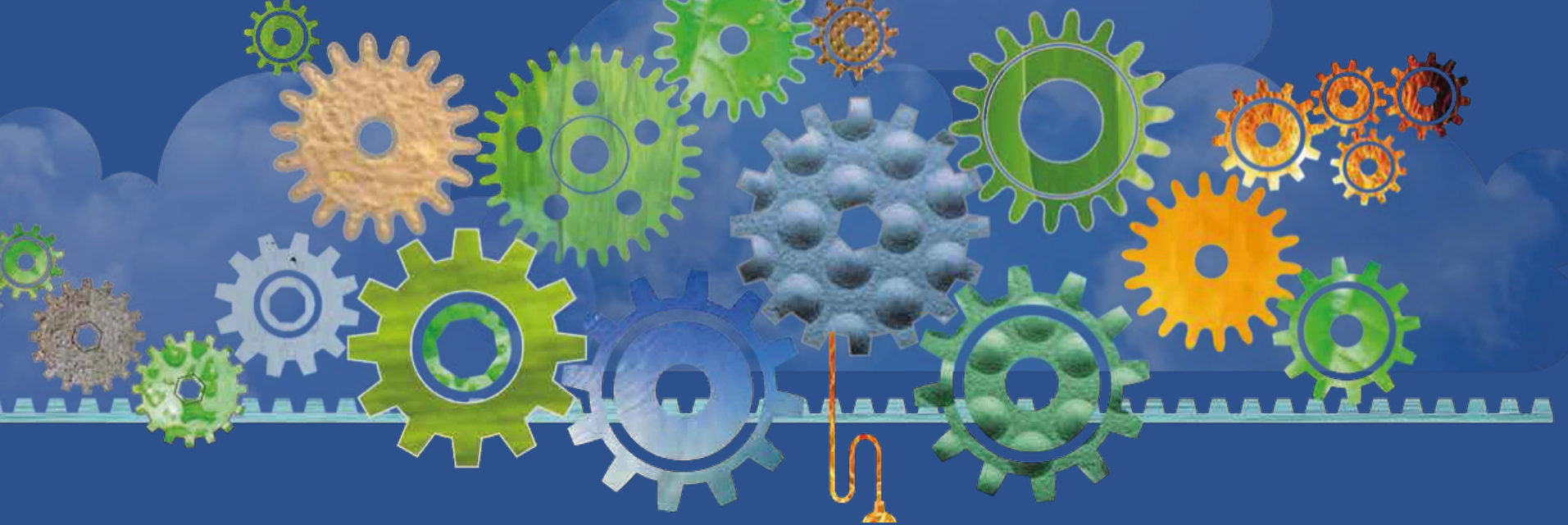


Portovesme s.r.l.



RAMBIL

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**Energy cannot be created or destroyed,  
but it can be rationalized.**

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