

# Sustainable Energy Technology at Work - SETatWork

## Overview of the ETS in Italy

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# ITALY

## ETS Country Overview

On the 15th of May 2007, the EU concluded the assessment of Italy's national plan for allocating carbon dioxide (CO<sub>2</sub>) emission allowances for the **2008-2012 trading period** of the EU ETS

The Commission accepted Italy's national plan on condition that certain changes are made:

- reduction in the total number of emission allowances proposed (6,3% less than Italy had proposed)
- provide more information on how the country will treat new entrants to the emissions trading scheme (ETS)
- include combustion installations in its allocation plan

### Summarizing table:

Member State	1st period cap	2005 verified emissions	Number of installations 2005-2007	Proposed cap 2008-2012	Cap allowed 2008-2012	Additional emissions in 2008-2012	JI/CDM limit 2008-2012 in %	2008 verified emissions
Italy	223,1*	225,5*	1044	209*	195,8*	Italy has to include further installations. The amount of additional emissions is not known at this stage	14,99*	220,7*

\* million tonnes of CO<sub>2</sub>

### Total amount of allocations for the period 2008-2012

	2008 [Mt CO <sub>2</sub> ]	2009 [Mt CO <sub>2</sub> ]	2010 [Mt CO <sub>2</sub> ]	2011 [Mt CO <sub>2</sub> ]	2012 [Mt CO <sub>2</sub> ]
<b>Total amount of allocations</b>	<b>206,72</b>	<b>198,47</b>	<b>191,41</b>	<b>179,72</b>	<b>177,38</b>

	Average allocations 2005 - 2007 [Mt CO <sub>2</sub> /year]	Average allocations 2008 – 2012 [Mt CO <sub>2</sub> /year]
<b><u>Energetic activities</u></b>		
-Thermoelectric	131,06	100,66
<b>-Other combustion activities</b>	14,90	14,52
- <i>Gas pipeline compressors</i>	0,88	0,88
- <i>District heating</i>	0,231	0,23
- <i>Other</i>	13,78	13,41
<b>-Refineries</b>	23,76	20,06
<b><u>Production and processing of ferrous metals</u></b>	14,76	15,76
- <i>Metal ore</i>	13,47	14,47
- <i>Pig Iron or Steel</i>	1,29	1,29
<b><u>Mineral Industry</u></b>	33,54	34,65
- <i>Cement</i>	26,52	27,63
- <i>Lime</i>	3,07	3,07
- <i>Glass</i>	3,15	3,15
- <i>Bricks/Ceramics</i>	0,80	0,80
<b><u>Other Activities</u></b>		
- <i>Pulp and Paper</i>	5,09	5,09
<b>Total</b>	<b>223,11</b>	<b>190,75</b>
<b>New entrants to the ETS</b>		
- <i>Thermoelectric</i>		15,84
- <i>Non Thermoelectric</i>		2,42
<b>Total</b>	<b>223,11</b>	<b>209,00</b>

### Average amount of yearly allocations for NAP 1 and NAP 2

the amount of allocations for existing plants for the period 2008-2012 is 33,11 Mt CO<sub>2</sub>/year lower than the amount for the period 2005-2007



	2008 [Mt CO <sub>2</sub> /year]	2009 [Mt CO <sub>2</sub> /year]	2010 [Mt CO <sub>2</sub> /year]	2011 [Mt CO <sub>2</sub> /year]	2012 [Mt CO <sub>2</sub> /year]
<b><u>Energetic activities</u></b>					
-Thermoelectric	116,64	108,40	101,33	89,64	87,30
-Other combustion activities	14,52	14,52	14,52	14,52	14,52
- Gas pipeline compressors	0,88	0,88	0,88	0,88	0,88
- District heating	0,23	0,23	0,23	0,23	0,23
- Other	13,41	13,41	13,41	13,41	13,41
-Refineries	20,06	20,06	20,06	20,06	20,06
<b><u>Production and processing of ferrous metals</u></b>	15,76	15,76	15,76	15,76	15,76
- Metal ore	14,47	14,47	14,47	14,47	14,47
- Pig Iron or Steel	1,29	1,29	1,29	1,29	1,29
<b><u>Mineral Industry</u></b>	34,65	34,65	34,65	34,65	34,65
- Cement	27,63	27,63	27,63	27,63	27,63
- Lime	3,07	3,07	3,07	3,07	3,07
- Glass	3,15	3,15	3,15	3,15	3,15
- Bricks/Ceramics	0,80	0,80	0,80	0,80	0,80
<b><u>Other Activities</u></b>					
- Pulp and Paper	5,09	5,09	5,09	5,09	5,09
<b>Total</b>	<b>206,72</b>	<b>198,47</b>	<b>191,41</b>	<b>179,72</b>	<b>177,38</b>

**Yearly allocations for existing plants in each sectors**

except for the thermoelectric sector, yearly allocations are constants for the period 2008-2012 because of the unpredictability related to the new entrants in the ETS

### Competent authorities in the administration of the Emission Trading Directive

	Agency for the environment and technical services (APAT)	Committee for the implementation and management of Directive 2003/87/EC (Ministry for the Environment, Land and Sea)
Issuance of permits		X
Allocation of allowance		X
Issuance of allowance		X
Validation of monitoring method		X
Receiving and supervising verified emissions reports		X
Accreditation. of verifiers		X
Registry	X	
Compliance and enforcement		X
Approval of the use of CERs & ERUs for compliance		X
Administration of new entrants reserve		X
Information to the public		X
Auctioning		X

	2006		2007	
	Verified emissions [Mt CO <sub>2</sub> /year]	Allocated emissions* [Mt CO <sub>2</sub> /year]	Verified emissions* [Mt CO <sub>2</sub> /year]	Allocated emissions [Mt CO <sub>2</sub> /year]
<b>THERMOELECTRIC ACTIVITIES</b>	<b>149,0</b>	<b>124,7</b>	<b>146,6</b>	<b>121,9</b>
ENEL	51,6	40,6	46,7	39,9
EDISON	20,3	16,2	24,3	18,1
ENDESA	14,1	10,3	12,5	10,0
EDIPOWER	12,7	10,2	12,5	9,8
ENIPOWER	10,5	9,1	11,9	9,9
TIRRENO POWER	7,1	5,3	6,6	5,2
Other installations	32,7	33,0	32,1	28,9
<b>PRODUCTION OF CEMENT</b>	<b>27,9</b>	<b>26,2</b>	<b>31,4</b>	<b>28,9</b>
ITALCEMENTI	8,2	7,7	8,1	7,7
BUZZI UNICEM	5,1	5,2	5,4	5,2
COLACEM	4,6	4,2	4,8	4,2
Other installations	10,0	9,1	13,1	11,8
<b>REFINERIES</b>	<b>25,3</b>	<b>27,3</b>	<b>26,0</b>	<b>26,9</b>
ENI	4,5	4,6	8,5	8,2
ERG	3,6	5,1	6,3	6,2
SARAS	6,2	6,1	4,1	5,1
Other installations	11,0	11,5	7,1	7,5
<b>PRODUCTION OF STEEL</b>	<b>13,7</b>	<b>14,8</b>	<b>13,9</b>	<b>14,8</b>
ILVA	10,8	11,4	10,7	11,4
LUCCHINI	1,6	2,2	1,7	2,2
Other installations	1,3	1,2	1,5	1,2
<b>PRODUCTION OF PAPER</b>	<b>5,0</b>	<b>4,9</b>	<b>5,0</b>	<b>4,9</b>
<b>PRODUCTION OF LIME</b>	<b>2,7</b>	<b>2,7</b>	-	-
<b>PRODUCTION OF GLASS</b>	<b>2,9</b>	<b>3,0</b>	<b>2,9</b>	<b>3,0</b>
<b>PRODUCTION OF CERAMICS</b>	<b>0,6</b>	<b>0,7</b>	<b>0,6</b>	<b>0,6</b>
<b>TOTAL ETS</b>	<b>227,1</b>	<b>204,3</b>	<b>226,4</b>	<b>201,0</b>

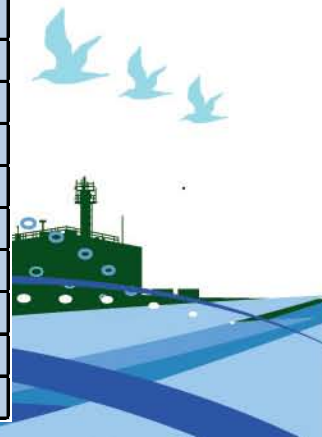
List of the biggest CO<sub>2</sub> emitting Italian installations under the ETS for each sector in 2006 and 2007

\* new entrants to the ETS not included



**25 biggest  
CO<sub>2</sub> emitting  
Italian  
installations  
under the  
ETS for  
each sector  
in 2008**

PERMIT ID	INSTALLATION NAME	MAIN ACTIVITY	ALLOCATED 2008	EMISSIONS 2008
A-769	<b>ENEL</b> -Centrale termoelettrica di Brindidi sud	1-Combustion installations	11.044.502	14.914.745
A-762	<b>ILVA</b> - Stabilimento di Taranto	5-Production of pig iron or	13.255.657	10.776.465
A-758	<b>EDISON</b> - Stabilimento di Taranto	1-Combustion installations	3.931.995	9.269.020
A-841	<b>SARAS</b> - Raffinerie di Sarroch	2-Mineral oil refineries	2.582.276	6.213.751
A-343	<b>ENEL</b> - Centrale termoelettrica di Fusina	1-Combustion installations	4.038.937	4.766.602
A-98	<b>TIRRENO POWER</b> - Centrale termoelettrica di Vado Ligure	1-Combustion installations	4.206.197	4.341.087
A-980	<b>ENDESA</b> - Centrale termoelettrica di Fiumesanto	1-Combustion installations	3.269.014	3.927.922
A-808	<b>ENI</b> - Raffineria di Gela	2-Mineral oil refineries	2.938.704	3.360.799
A-108	<b>ENEL</b> - Centrale termoelettrica di La Spezia	1-Combustion installations	2.992.668	3.335.079
A-222	<b>ENIPOWER</b> - Stabilimento di Ferrera Erbognone	1-Combustion installations	2.448.955	3.270.078
A-804	<b>EDIPOWER</b> - Centrale termoelettrica di San Filippo del Mela	1-Combustion installations	3.019.107	3.066.166
A-765	<b>EDIPOWER</b> - Centrale termoelettrica di Brindisi	1-Combustion installations	1.330.374	2.796.843
A-387	<b>ENEL</b> - Centrale termoelettrica di La Casella	1-Combustion installations	2.242.653	2.783.132
A-664	<b>ENEL</b> - Centrale termoelettrica di Montalto di Castro	1-Combustion installations	4.124.677	2.648.546
A-825	<b>ERG</b> - Impianto IGCC	1-Combustion installations	371.272	2.593.169
A-666	<b>TIRRENO POWER</b> - Centrale termoelettrica Torrevaldaliga	1-Combustion installations	2.451.352	2.570.429
A-839	<b>ENEL</b> - Centrale termoelettrica di Sulcis	1-Combustion installations	2.368.499	2.355.837
A-380	<b>ENDESA</b> - Centrale Termoelettrica di Monfalcone	1-Combustion installations	2.295.356	2.340.206
A-764	<b>ENIPOWER</b> - Stabilimento di Brindisi	1-Combustion installations	2.623.369	2.301.706
A-244	<b>ENDESA</b> - Centrale Termoelettrica di Ostiglia	1-Combustion installations	2.639.977	2.295.105
A-223	<b>ENI</b> - Raffineria di Sannazzaro	2-Mineral oil refineries	1.718.236	2.212.571
A-859	<b>ENDESA</b> - Centrale di Tavazzano e Montanaso	1-Combustion installations	2.604.052	2.170.252
A-799	<b>ENEL</b> - Centrale termoelettrica di Termini Imerese	1-Combustion installations	2.024.066	2.151.544
A-617	<b>EDISON</b> - Stabilimento di PIOMBINO	1-Combustion installations	943.424	2.103.417
A-42	<b>EXXONMOBIL</b> - Raffineria di Augusta	2-Mineral oil refineries	1.716.530	1.996.562



## Italian biggest emitters' strategy for Sustainability and Environment

- ✓ Best thermoelectric technologies available  
(high efficiency coal-fired plants with reduced CO<sub>2</sub> emissions, combined-cycle gas turbine plants)
- ✓ Development of sources with zero emissions
- ✓ Containment and dedusting of emissions
- ✓ CO<sub>2</sub> capture and sequestration
- ✓ CDM and JI projects  
(China, India, South America, Russia, Ukraine, Southeast Asia, North Africa, the Balkans)
- ✓ Adopting certified environmental management systems
- ✓ Increasing management's awareness and training to employees



### Technology related needs:

- ✓ Substantial investments in the energy system
- ✓ Appropriate regulation framework
- ✓ Well functioning energy markets
- ✓ Access to suitable sources of finance

### Energy efficiency related needs:

- ✓ all energy conversion processes
- ✓ energy transportation and distribution
- ✓ end-use of energy in the production processes
- ✓ also in transport and housing sectors

### Renewable energies related needs:

clear, consistent and unsurprising regulatory framework able to boost the economical advantages of renewables becoming competitive with other conventional energy sources

## Needs & Opportunities

### SET Priorities by industry sector:

#### Power&Heat

- ✓ main challenge: generate electricity at a low cost and low emissions
- ✓ opportunities: the fight against climate change is not only essential for the environment but also to ensure the competitiveness and further business growth for the Company
- ✓ SET priorities mainly based on:
  - investment in the best thermoelectric technologies available
  - development of renewable and nuclear energy; innovative technologies in the field of renewable energy
  - energy efficiency
  - CO<sub>2</sub> capture and sequestration
  - use of mechanisms such as JI and the CDM introduced by the Kyoto Protocol

## Needs & Opportunities

### SET Priorities by industry sector:

#### Cement industry

- ✓ main challenge: promoting sustainable building practices and cutting-edge approaches to reducing CO<sub>2</sub> in cement production
- ✓ opportunities: optimizing products and processes as well as investing in research and development
- ✓ SET priorities mainly based on:
  - improving thermal energy efficiency and process technology
  - lowering the clinker factor as the best approach for reducing CO<sub>2</sub> emissions
  - optimizing fuel composition, including the use of waste as fuel
  - commitment to quarry rehabilitation and biodiversity conservation
  - reducing the use of non-renewable resources
  - use of recycled products for aggregates activities
  - ongoing investments in plant equipment and training

### SET Priorities by industry sector:

#### Steel&Iron

- ✓ main challenge: consumption monitoring and benchmarking of processes for energy saving opportunities
- ✓ opportunities: developing a long-term sustainable business, minimizing costs and the environmental impact of operations
- ✓ SET priorities mainly based on:
  - reuse of steam in certain processes
  - installation of regenerative burners in furnaces
  - improvements to decrease electricity consumption primarily used to melt the metallic charge and to power the rolling, welding and finishing machinery
  - production of steel through the electric arc furnace using recycled steel
  - power generation with combined cycle plant using natural gas and fuel oil
  - careful water management in steel making production facilities used for cooling

## SET Priorities by industry sector:

### Residential sector

#### ✓ SET priorities mainly based on:

##### Heating and conditioning systems

energy consumption reduction and optimization, both in centralized heating plants and in individually owned heating system. Biomass-based distributed generation can play a key role in energy saving.

##### Lighting

The share of electric energy allocated to domestic lighting in Italy is about 13.5% of the overall consumption of electricity. An optimized use of electricity for this application is very important; this can be obtained by using, for example, fluorescent lamps instead of traditional incandescent bulbs.

##### Highly energy efficient buildings

construction of buildings with low energy consumption or completely “passive”; use of renewables and efficient construction measures

### General opportunities:

#### banking institution

- renewable energy funds (example: ATMOS spa)
- funds supporting investment in urban areas (example: JESSICA Holding Fund)
- green loans and energy efficiency loans (example: UniCredit group)

#### Fiscal and administrative measures

- deduction from taxes of 55% of total cost of the interventions devoted to the increase of the efficiency or to the installation of renewable energy equipments;
- reduced taxation (such as VAT) for clean technology equipments and systems
- reduction/rationalization of administrative procedures and costs

#### Cooperation projects and programmes

- Italy-China energy cooperation (Sino-Italian Cooperation program)
- Renewable Energy Financing in the Mediterranean Region Project (MedREP)
- Sustainable Energy Europe (SEE) Campaign

## Good Practice Case Studies

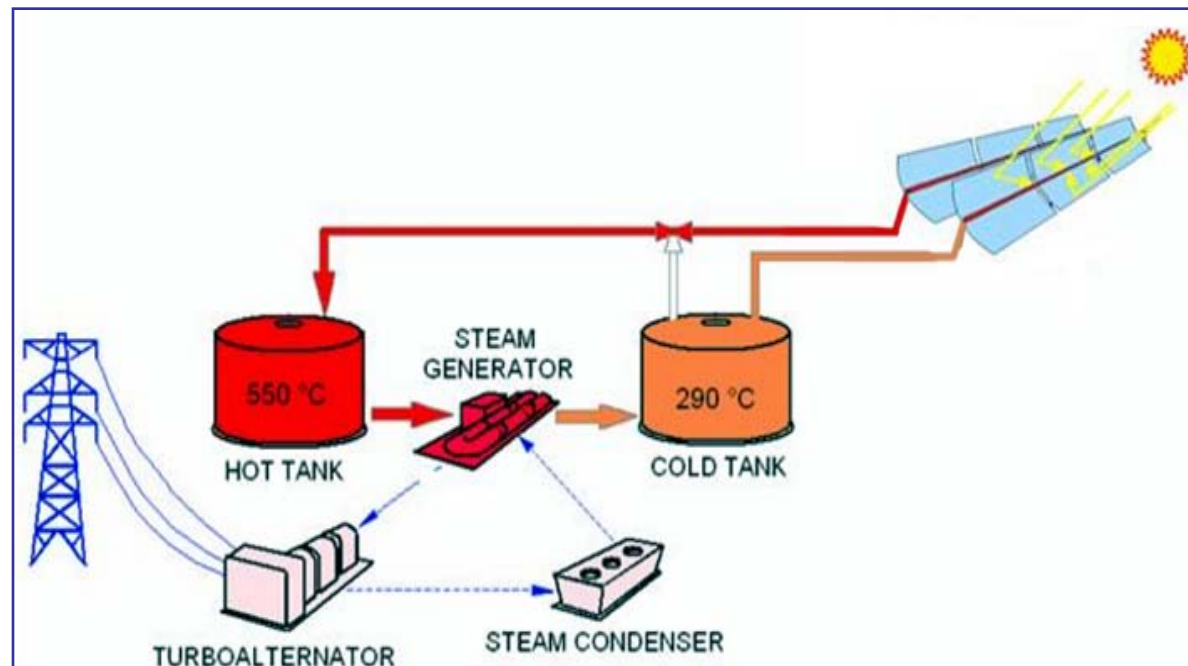
**2 good practices example identified so far:**

- 1. Energy efficiency good practice: the ARCHIMEDE project**
- 2. Waste heat recovery for power generation in China**

## Energy efficiency measure: Good Practice Case Study

<b>TITLE</b>	<b>ARCHIMEDE PROJECT: First application in the world of the integration of a combined gas cycle with a solar plant</b>
<b>Location</b>	Priolo Gargallo – province of Siracusa (Sicily Region) - ITALY
<b>Project dates</b>	Start: 2003 End: 2011
<b>Technology</b>	Solar energy (heat)
<b>Host sector</b>	Supply of energy. The project is carried out by ENEL together with ENEA

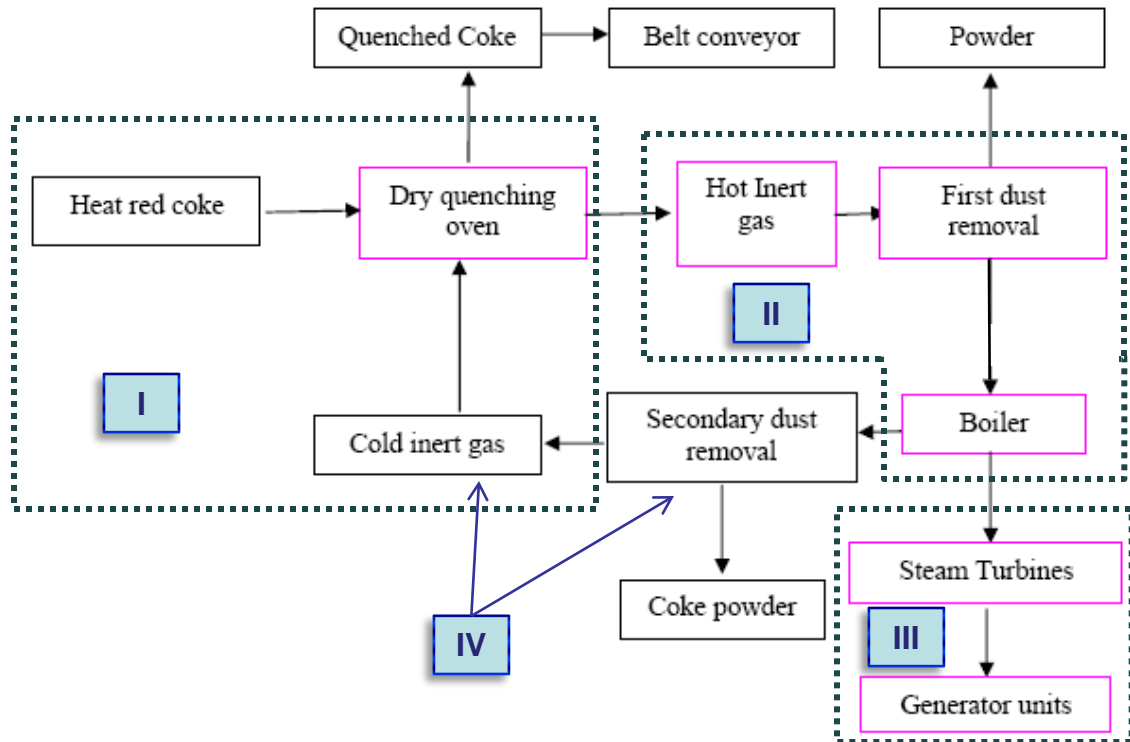
- I. The sunlight is concentrated by reflecting panels onto a receiving tube running along the focus of the parabolic surface
- II. This concentrated energy heats a fluid (Molten salts) flowing into the tube which can be stored for some hours
- III. The heat is then used to generate steam in a conventional steam generator



## CDM project: Good Practice Case Study

TITLE	<b>Coke Dry Quenching (CDQ) Waste Heat Recovery for Power Generation Project of Wugang No. 9 and 10 Coke Ovens</b>
Location	Peoples' Republic of China Hubei Province, Wuhan City
Project dates	Start: 2009 End: 2019
Technology	Recycling available waste heat to generate electricity
Host sector	Wuhan Iron and Steel (Group) Co.

- I. Cool inert gas will be transported into the dry quenching oven to cool the red coke down
- II. the inert gas, which absorbs the heat of the red coke, will then transfer the heat to the waste heat boiler to produce steam
- III. the steam will be led into the steam turbine to drive a generator for power generation, transforming the energy contained in the heat to electricity
- IV. the cooled inert gas will be recycled after a dust removal treatment and used to restart the cooling red coke process



- Country profiles on the ETS in Italy updated in the course of action**
- Elaboration of good practice/case studies as basis for dissemination and partner matching**
- Identification of energy efficiency and saving opportunities**
- Provision of training services**
  - **dedicated materials for the training activities in Italian language**
  - **training event organized together with Confindustria Firenze (Industrial Association in Florence) addressed to selected industries mainly active in the manufacture of ceramic products sector.**
- Contacting stakeholders involved in energy efficiency and savings in Italian and European industries sectors for realisation of energy efficiency and saving projects**



Sustainable Energy  
Technology at Work

# ITALY

## Match-Making activity



ETS match-making event will be organized as a parallel event during the  
**18th European Biomass Conference & Exhibition - Lyon, France, 3-7 May 2010**

Event jointly organised by:



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### 18th European Biomass Conference and Exhibition From Research to Industry and Markets

Where Biomass Science  
Meets Industrial Application

Lyon Convention Centre  
Cité Internationale  
France

Conference 3-7 May 2010  
Exhibition 3-6 May 2010

Institutional Conference support:  
European Commission  
ADEME - French Environment and Energy  
Management Agency  
UNESCO - United Nations Educational, Scientific  
and Cultural Organization, Natural Sciences Sector  
WCRE - World Council for Renewable Energy  
EUBIA - European Biomass Industry Association

Coordination of the Technical Programme:  
European Commission DG Joint Research Centre

### MAIN TOPICS:

establish a connection between ETS  
companies, technology and service  
suppliers and associated actors

#### □ Energy industries

- Hydroelectric
- Biomass based power project
- wind farm project
- waste heat recovery

#### □ Reducing fuel emissions

#### □ Afforestation / Reforestation



## SETatWork Intervention

### Organisation of special importance for future activities within the project

- SAFE** - Energy Resources and Environmental Sustainability  
Italian non-profit association, centre of excellence for energy and environment.
- MET** – Management of Emissions Trading  
supported by the Italian Ministry of Environment, is a “match point” for operators and experts regarding Emission Trading, CDM and JI projects
- CONFINDUSTRIA FIRENZE**  
Industry Association in Florence
- KYOTO CLUB**  
non-profit Italian organisation engaged in reaching the targets set by the Kyoto Protocol
- AZZERO CO2**  
ESCo which offers support for energetic efficiency and renewable energies
- LEGAMBIENTE**  
the most important environment association in Italy

Find out more about the activities of SETatWork  
and access the SETatWork Database at:

**[www.SETatWork.eu](http://www.SETatWork.eu)**

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