

WHITE CERTIFICATES IN ITALY

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IT WhC mechanism - When?

Started in July 2004, through 2 Interministerial degrees named:

«New definition of qualitative national energy saving targets and renewable sources development»

After modified in:

December 2007 and last in December 2012.

IT WhC mechanism - What?

White Certificates are Energy Efficiency Obligations (EEOs) or Energy Efficiency certificates (EECs)

Certify that a certain reduction of energy consumption has been attained

1 WhC = 1 saved toe (tonne of oil equivalent)

1 WhC = 100€ (originally, they are tradable)

WhCs hold up to 5 or 8 years, depending from the type

Only
additional
savings are considered, i.e.

“over and above spontaneous market trends and/or legislative requirements”

IT WhC mechanism - How?

The national law (Ministerial Degree) defines:

- energy consumption reduction annual targets;
- obliged subjects;
- volunteer subjects.

Markets (national digital stock exchange or bilateral agreements) define the EECs price.

IT WhC mechanism - How?

Adoption of both the “command & control” and the “voluntary” approaches, with subsequent advantages for :

- final users (energy savings)
- obliged subjects (tariff revenue)

Command & Control component:

The end-use Energy Efficiency Obligation is placed on electricity and natural gas Distribution System Operators (DSO) with more than 50,000 final customers

The national company «Gestore Servizi Energetici» (GSE) is the managing, verifying and certification authority.

Four options to comply with:

1. **develop own** energy saving projects on final consumers
2. **develop** energy saving projects on final consumers **jointly** with third parties
3. **buy** white certificates (or energy efficiency certificates – EECs) attesting that a certain amount of energy has been saved by a third party via energy saving actions on final consumers → **Market-Based component**
4. **do nothing**, and pay the **financial sanction** for non compliance

Eligible projects:

- all end-use sectors
- only “hard” measures

Voluntary component

Projects can be implemented by different subjects:

1. electricity and natural gas distributors
2. companies controlled by electricity and natural gas distributors
3. energy service providers (e.g. ESCOs)
4. big energy end-users (with appointed Energy Manager)
5. public administrations / companies ISO 50001 certified or with Energy Manager

Energy Manager is defined by Law n.10/1991

EURAC
research

Electric/Gas
tariff

Recover
(89 €/TOE)

DISTRIBUTORS
more than
50.000 custmrs

Local Auths

**It. Market
Operator**

**SPOT
MARKET**

Private
subjs

DISTRIB.
<50.000 cst
ESCO-E.M.

Industry

TOE saved

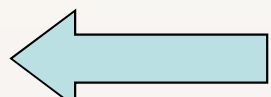
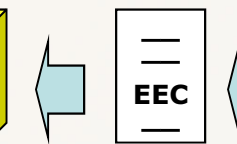
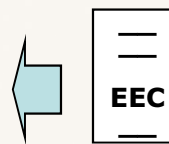
TOE saved

TOE saved

TOE saved

energy efficiency
projects

energy efficiency
projects



IT WhC mechanism - Targets

Period 2013-2016	
Year	Annual hoarded target(Mtoe)
2013	4,60
2014	6,20
2015	6,60
2016	7,60

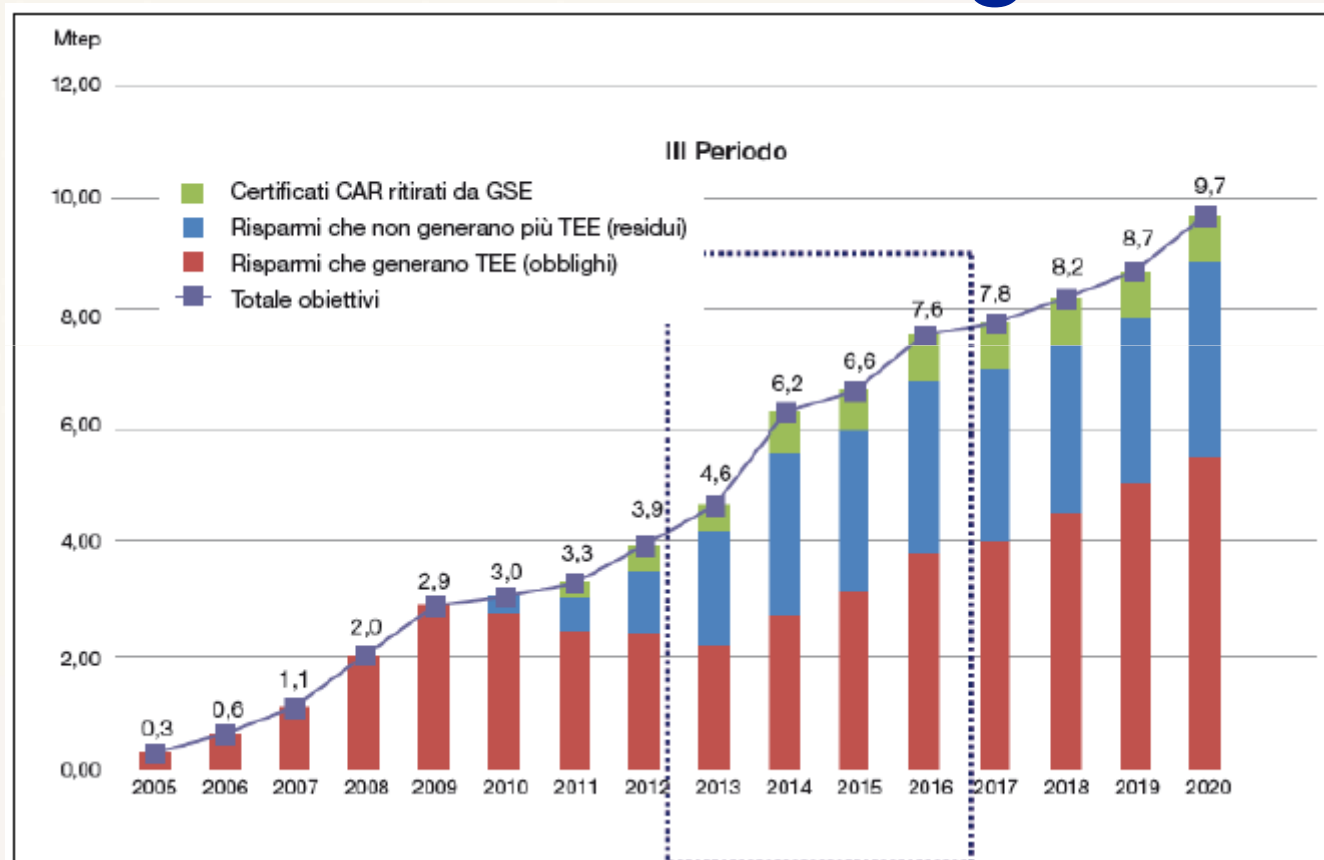
Annual target electricity		Annual target gas	
Year	WhCs (million)	Year	WhCs (million)
2013	3,03	2013	2,48
2014	3,71	2014	3,04
2015	4,26	2015	3,49
2016	5,23	2016	4,28

Source: Economic Development Ministerial Decree 28th December 2012

IT WhC mechanism - Targets

WhC target cover 1/3
of national energy
saving target defined
by the PAEE (2011)

Source: GSE

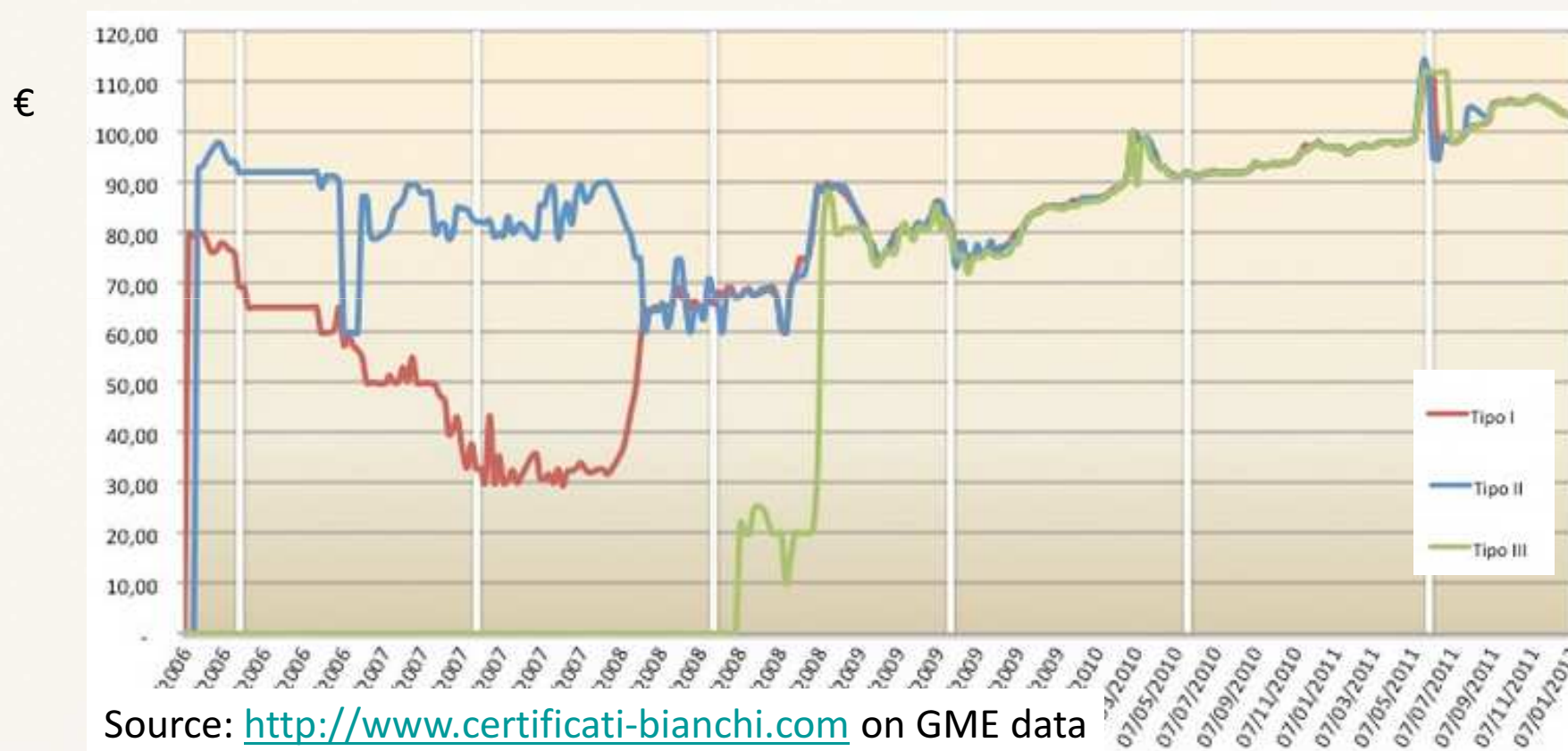


IT WhC mechanism - Types

Different types of WhCs:

- Type I: electricity end use reduction
- Type II: gas end use reduction
- Type II HEC: high efficiency cogeneration (CHP)
- Type III: others not for transport sector
- Type IV and V: others in transport sector

IT WhC mechanism - Prices



Present values of EEC

Energy Efficiency Certificates

cumulative values in the 31 sessions of 2013

updated as of 06 Aug 2013

Type	Price (€/toe)			TEE traded (No)	Value (€)
	reference	min	max		
I	106,80	87,80	116,00	568.138	60.677.208
II	105,67	87,81	115,50	679.701	71.826.212
II-HEC	111,73	105,50	115,00	32.341	3.613.399
III	107,77	87,80	115,50	344.043	37.077.537

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www.mercatoelettrico.org/en/Default.aspx

IT WhC mechanism - Accounting

Default method (>20Toe)

Easy / demands savings / Incentive relate to the n. of activities
e.g. thermal solar collectors / heating pumps

Engineering method (>40Toe)

Congruent with ENEA data sheets / simple calculations and few in-field measures required
e.g. district heating

Monitoring method (>40Toe)

detailed project with a complete *energy monitoring plan*, subject to pre-approval / pre and post measurement

e.g. industrial thermal recovery

complexity

Model of Governance: Government

- targets
- obliged parties (including apportionment rules)
- eligible parties
- eligible measures
- trading 'routes'
- enforcement mechanism: general criteria for setting the penalty, grace period
- cost-recovery: general principles
- definition of the implementing regulation, the administration of the system, the monitoring of results

Model of Governance: Regulator

- technical rules for **projects design, development and evaluation**
- technical rules for the **issuing of EECs**
- technical rules for the functioning of the EECs **market**
- definition of **sanctions for non compliance**
- criteria and rules for **cost-recovery**
- **day to day administration**, e.g. project evaluation and certification of energy savings; annual compliance check with the targets and EECs redemption
- **monitoring of results and proposals** to the Government:
publishes an Annual Report and two Interim Reports on the results delivered by the mechanism with proposals to improve its effectiveness

Eligible projects:

- all end-use sectors
- only “hard” measures

Projects can be implemented by 4 subjects:

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2. companies controlled by electricity and natural gas distributors
3. energy service providers (e.g. ESCOs)
4. big energy end-users (with appointed energy manager)

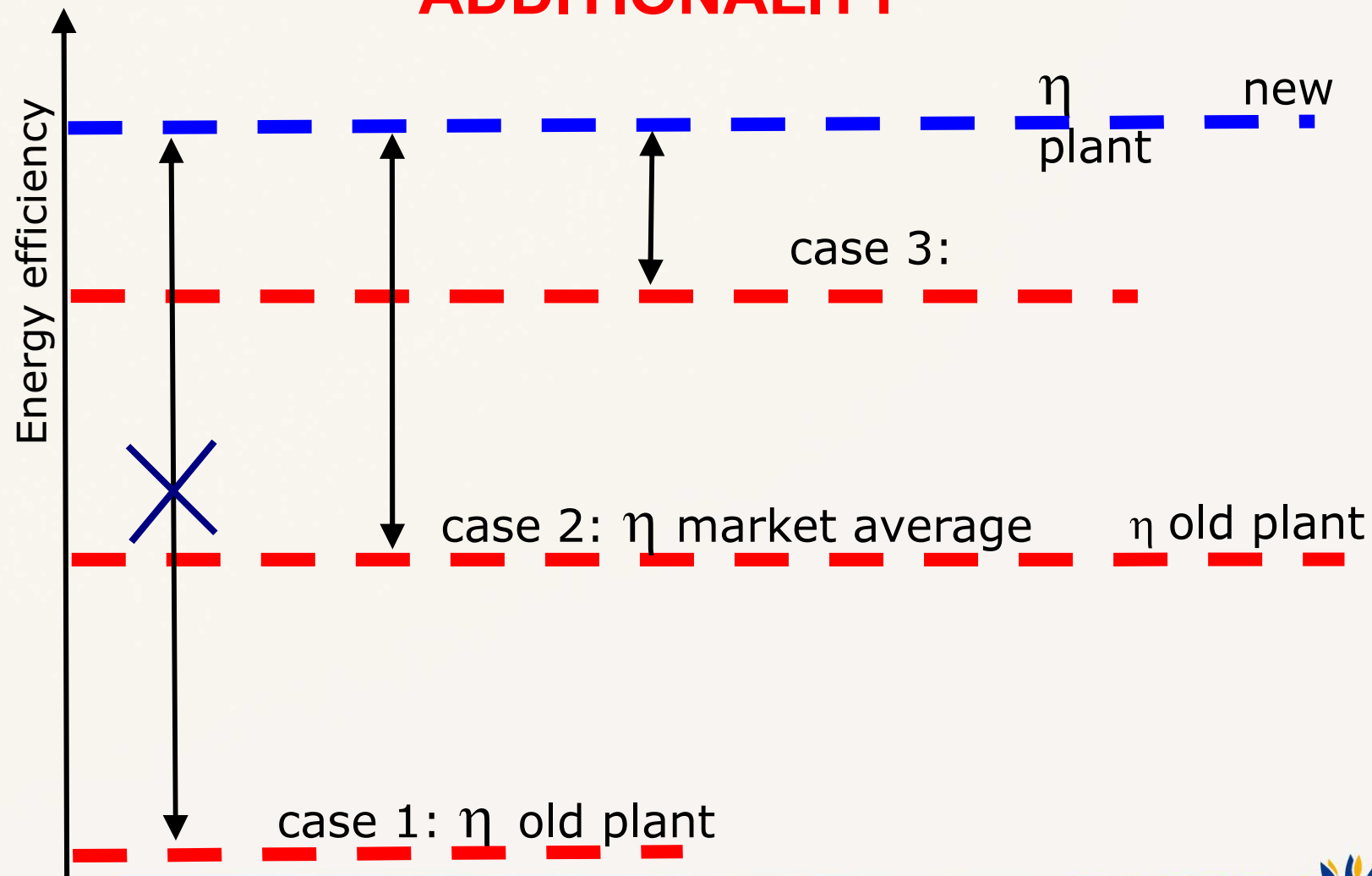
M&V

What is “special” about M&V of energy savings?

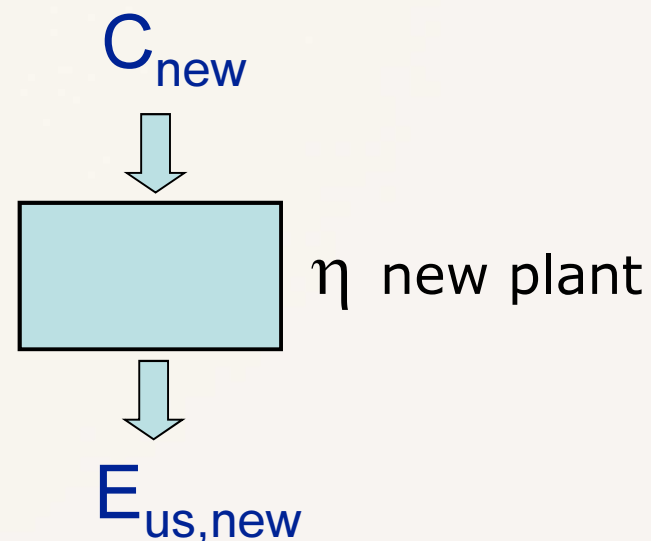
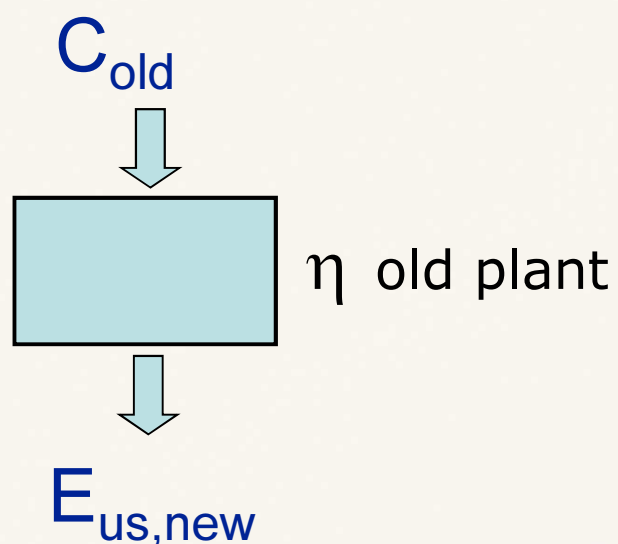
- **you can not measure** energy savings **at the meter**
- you have to measure the energy savings via a **comparison of the energy consumption before and after** the project
- **in some cases** the “before the project” scenario is not known (e.g. lack of data, new installations) and **you need to make assumptions (“project baseline”)**
- in the cases “before the project” scenario **you need to net out** the impact on consumption trends of variables other than those on which the energy saving project have an influence

- **Market Transformation measures** (e.g. information campaigns, training programs) are eligible only if they are associated to “hard” measures
- Provided they meet specific qualification requirements, they entitle the hard measure to a **“premium”** on the amount of certified energy savings

ADDITIONALITY



ADDITIONALITY



SAVING =

M&V:1) Default method



- Method simple and easy to implement
- Analysis carried out according to technical standard forms issued by AEEG
- Main characteristics:
 - 1) saving evaluation only based on the number of units installed at the final customer's (e.g.: the number of electric motors installed)
 - 2) no in-field technical measures required
- Constant annual saving for the WhC life time

M&V: 2) Engineering method

- Analysis carried out according to technical standard forms issued by Economic Development Ministry
- Method requiring few in-field measures and a simple algorithm for evaluation of savings
- In order to obtain the WhCs, the proponent has to submit the measures and the related calculation to the GSE (Energy Service Regulator) every year
- The energy saving may change every year according to the measured parameters: the algorithm allows such a year assessment



M&V: 3) Monitoring method

The proponent must submit a detailed project with a complete **energy monitoring plan**

The project must include:

1. Description of the project
2. Definition of the algorithm to calculate the energy saving
3. Monitoring plan and main characteristics of the instrumentation
4. Procedure about the collection and the handling of the data

M&V: 3) Monitoring method

The monitoring plans have to meet **pre-defined criteria**.

They have to be based upon two strict conditions:

1. **physical measurement** of significant energy parameters
2. measurements must take place **before and after** the implementation of the energy efficiency project.

*All this is mandatory to evaluate the **real** - non estimated -
energy savings.*

M&V: 3) Monitoring method

The first pre-condition to consider in order to apply for WhC is that the savings must stem from

increase of energy efficiency

and not only from a generic energy saving initiative, e.g. when turning off lights or devices.

In this latter case energy savings don't stem from increase of efficiency

Minimal dimension of a project

<i>M&V method</i>	<i>Obligated subjects + EM</i>	
Default	20 toe/year	
Engineering	40 toe/year	
Monitoring	60 toe/year	

Trading mechanism

- Trading is a **central element**
- **No authorisation** needed
- **Electronic Energy Efficiency Certificates (EECs) Registry** directly linked with the AEEG information system for administering projects evaluation
- **Electronic trading platform** (one session per week)
- **Specific market rules and procedures** to guarantee access, transparency, security of market deals both for sellers and for buyers

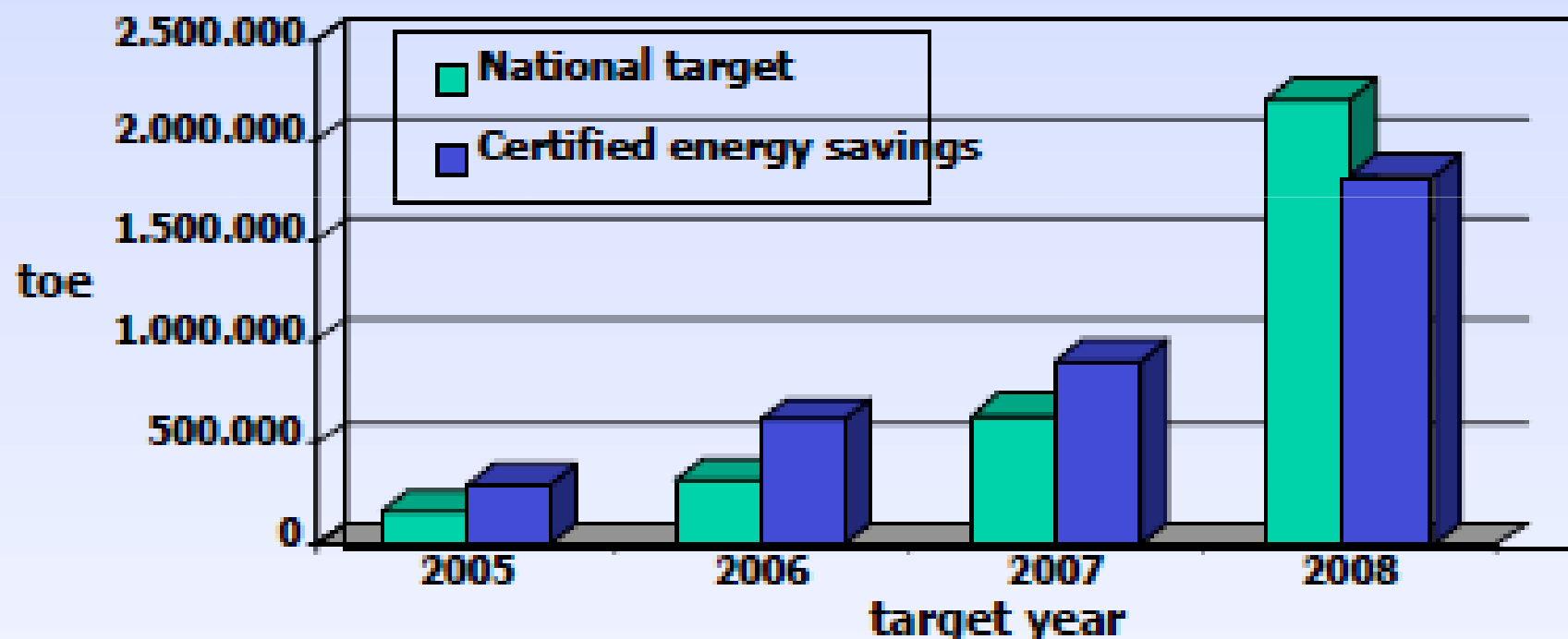
Cost-recovery mechanism

Costs borne by obliged distributors may be recovered via **electricity and gas tariffs** according to criteria and mechanisms defined by AEEG

- **obliged** distributors, **up to the target**
- **including purchasing** of EECs from third parties
- **standard allowed cost**
- **€/unit of primary energy**
- **updated on an annual basis** according to a pre-defined formula

Results achieved 2005-08

**3,7 million toe saved against a target of 3,3 million toe:
To uptodate**

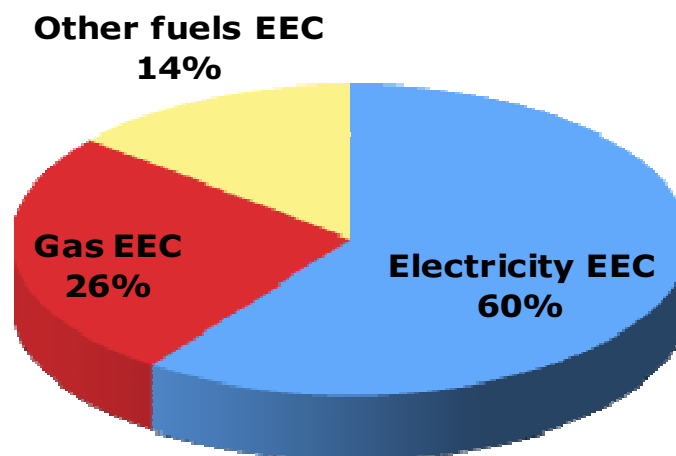


Risultati ottenuti rispetto al target

Anno di obbligo	Obblighi effettivi Distributori Energia Elettrica (Mtep/a)	Obblighi effettivi Distributori Gas (Mtep/a)	Totale cumulato TEE necessari per l'adempimento (Mtep/a)	Titoli emmessi dall'inizio del meccanismo (Mtep)
2005	0,1	0,06	0,16	
2006	0,19	0,12	0,47	
2007	0,39	0,25	1,11	1,26
2008	1,2	1	3,31	2,6
2009	1,8	1,4	6,51	5,23
2010	2,4	1,9	10,81	8,02
2011	3,1	2,2	16,11	11,44
2012	3,5	2,5	22,11	14,79 (*)

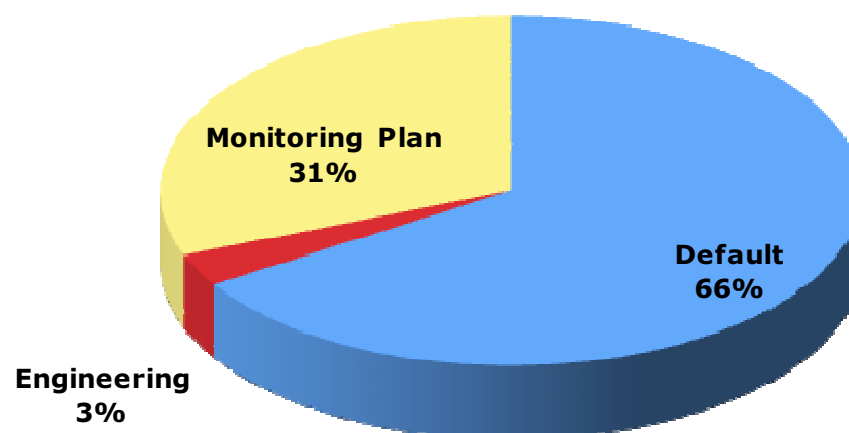
(*) fino a fine giugno 2012

Results achieved 2005-12



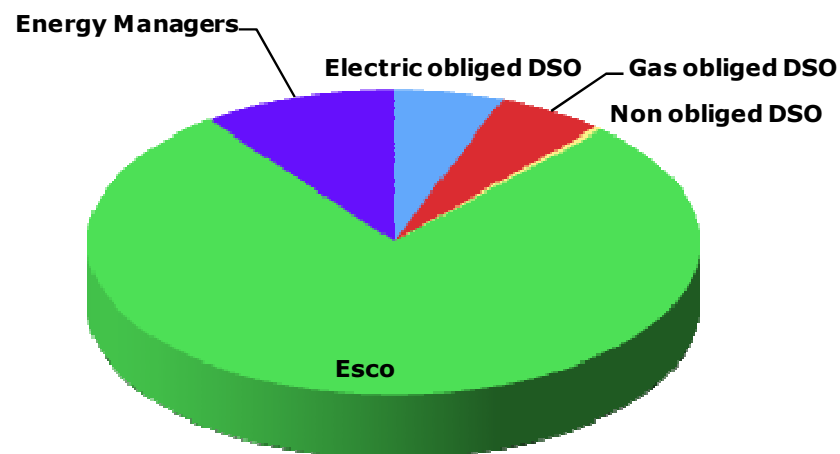
Breakthrough of EEC depending on kind of energy saved

Results achieved 2005-12



Breakthrough of EEC depending on kind of M&V method

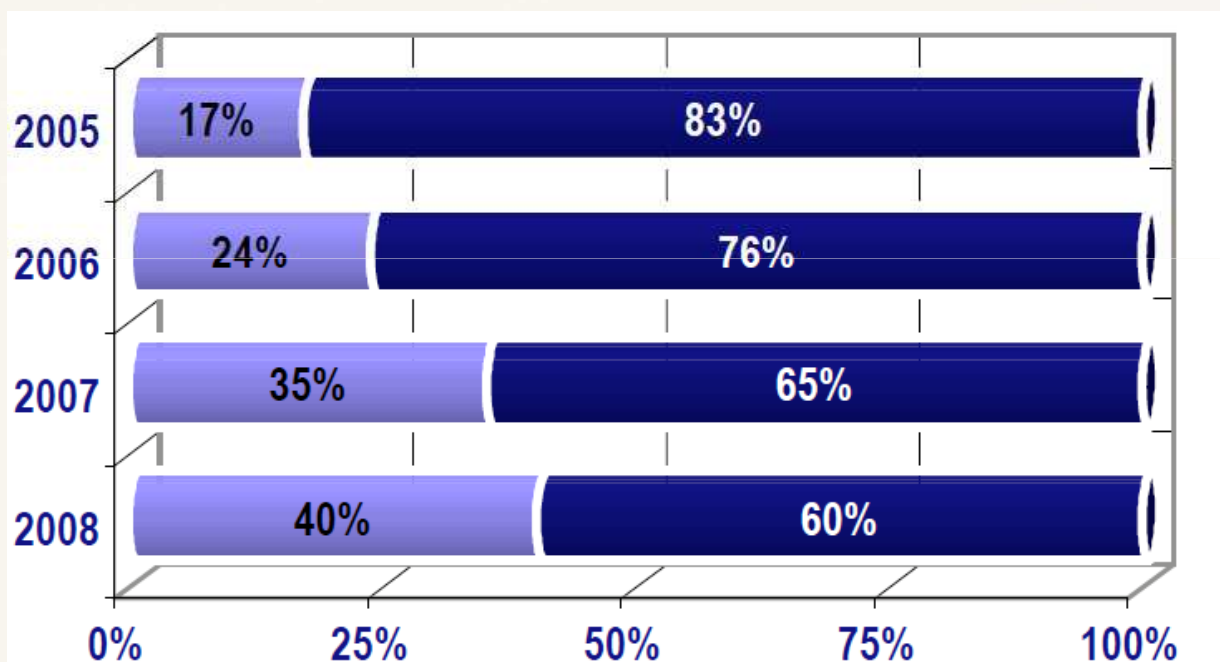
Results achieved 2005-12



Breakthrough of EEC depending on kind of subjects

Results achieved 2005-08

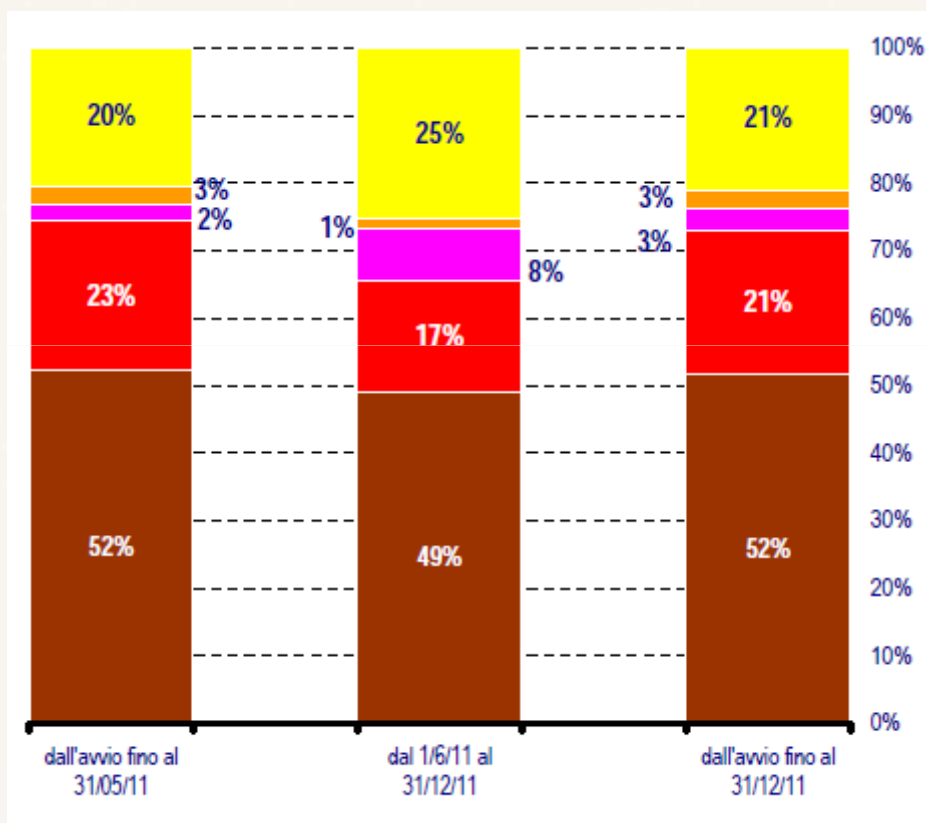
Around 95% of EEC through the market



■ Spot market

■ Bilateral contracts

Results achieved 2005-11



- Industrial uses (thermal+electric)
- Public lighting
- CHP and district heating in households
- Fuel savings for heating purposes in households
- Electricity uses in households

Conclusions

It is working...

- ...in delivering energy savings, in a cost effective way, mainly via “mass market” measures and technologies that are already cost-effective, and via energy service providers (including but not limited to ESCOs)

Major regulatory challenges:

- criteria and rules for M&V of energy savings
- criteria and rules for cost-recovery (flat and technology neutral V/s differentiated)
- definition of sanctions for non compliance (pre-defined V/s determined *ex-post* on a ‘case by case’ basis)

- **Importance of the market component:** price signals key to highlight market disequilibrium ☐
need for corrective legislative and regulatory measures ☐ need to increase market transparency
- **Model of governance:** split the day-to-day administration and the updating of the technical regulation (deemed savings) with a technical agency (ENEA) and the Regulator/
Government focusing on general technical rules, economic regulation and monitoring

THANKS FOR YOUR ATTENTION

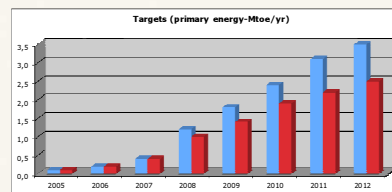
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The Demand Side



- Cumulative targets for **electricity distributors**
- Cumulative targets for **natural gas distributors**

Cumulative targets (primary energy-Mtoe/yr)

<i>years</i>	2005	2006	2007	2008	2009	2010	2011	2012
electricity	0,1	0,2	0,4	1,2	1,8	2,4	3,1	3,5
gas	0,1	0,2	0,4	1,0	1,4	1,9	2,2	2,5
total primary energy	0,2	0,4	0,8	2,2	3,2	4,3	5,3	6,0

