

The Italian White Certificates Scheme

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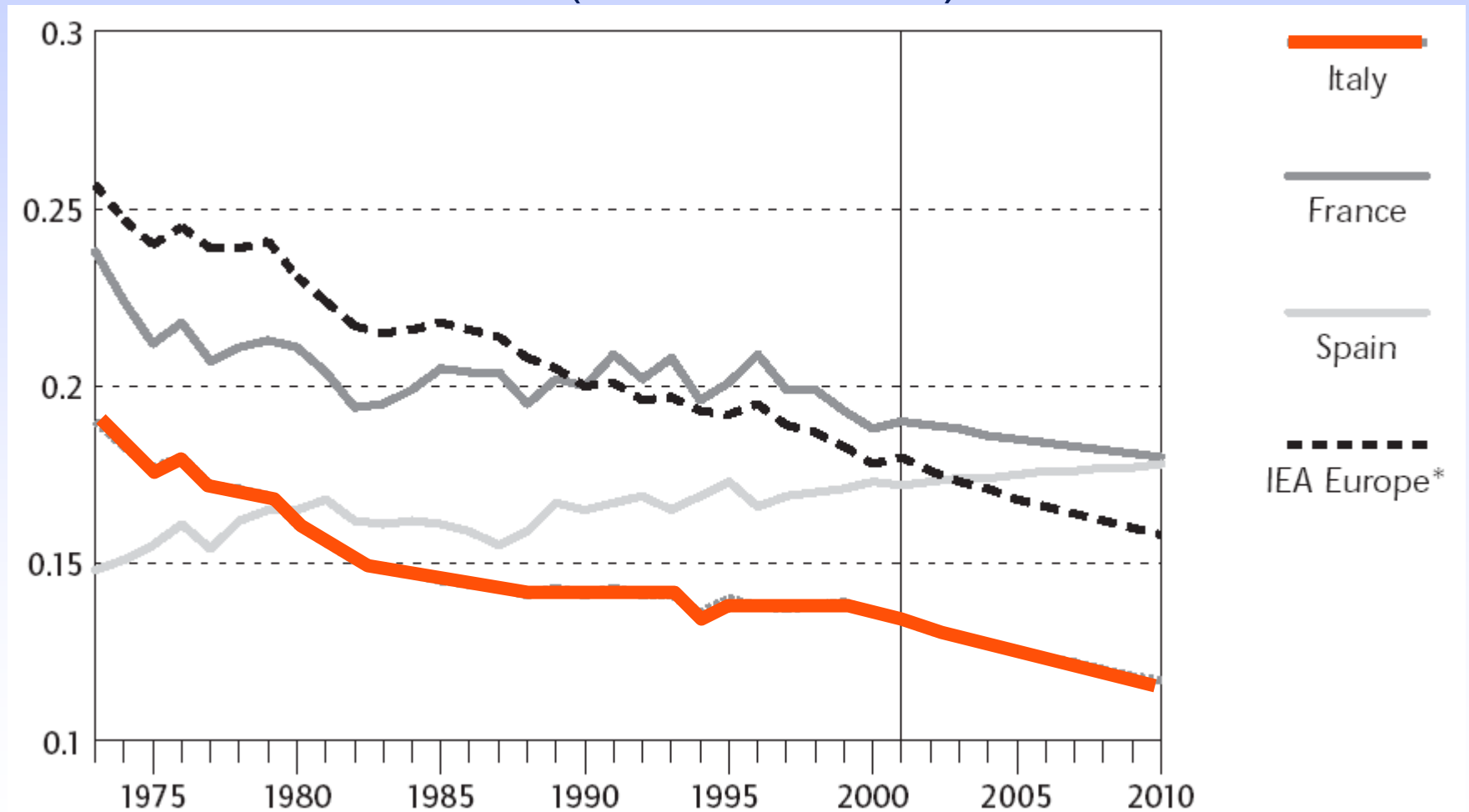
Energy consumption and energy policy in Italy



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Energy intensity from 1973 to 2010

Energy Consumption/GDP (toe/US\$)
(net of inflation)



Major country features

- ◆ Relatively **low per-capita energy consumption** compared to other industrialised countries
- ◆ Due to a relatively **lower per capita consumption of energy services**
 - ➔ not a good indicator of energy efficiency
- ◆ **Other important factors to be considered when assessing the level of energy efficiency of the economy:**
 - economic structure
 - climate
 - level of energy prices



The past

- ◆ **Relatively low political attention**
- ◆ **Traditional policy tools**
 - efficiency **standards** for building
 - energy **labelling** for electric appliances
 - **fiscal measures** (reduced VAT rates, investment tax credits, various types of tax deductions)
 - **voluntary agreements** between the Government and interested parties (e.g.: product manufactures, installers)
 - **revenue decoupling mechanism** for electricity and natural gas distributors (aiming, *inter alia*, at reducing the share of their revenue which is directly linked to the volume of energy sold and thus, the disincentive to promote end-use efficiency)



Drivers of the new policy

- ◆ **Kyoto commitments and national strategies to curb GHG emissions**
 - - 6.5% cf. 1990 levels between 2008-2012
 - significant role given to the enhancement of end-use energy efficiency
- ◆ **Raising concerns over security of supply issues**
- ◆ **Potential impact of market liberalisation**
 - concerns that the ongoing liberalisation process in the energy sector could result, in the absence of proper policy interventions, in raising energy consumption, with negative consequences on the natural environment and the security of energy supply



Drivers of the new policy (2)

- ◆ **As these changes call for an increasing role of DSM objectives** in the national energy policy agenda, the opening up of electricity and gas market to competition **requires new types of policy tools to be designed** in order to promote changes in production and consumption behaviours.
- ◆ **Two driving criteria** have to be taken into consideration:
 - cost-effectiveness
 - coherency with a competitive market framework



The White Certificates Scheme



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The new policy framework: major features

- ◆ In the attempt to meet these requirements Italy has introduced an **innovative policy framework** for the promotion of energy efficiency in end-use sectors, based on:
 - a **“command-and-control” component i.e:** mandatory energy saving targets for electricity and gas distributorscombined with ...
 - a **market-based mechanism, i.e:** “white certificates” trading scheme (cf. following slide)
- ◆ It has been **the first** operational tradable certificates scheme specifically focused on end-use energy efficiency to be designed and implemented **world-wide**
- ◆ **More recently:** introduced in **France and Poland**; under investigation in a number of **other European and non-European countries**; **European Directive 2006/32/CE** specifically considers “white certificates”



Summary of compliance options

- ◆ **Obligated distributors have 4 options to comply with their Energy Efficiency Targets :**
 1. **develop “in-house” energy efficiency projects**
 2. **develop energy efficiency projects jointly with third parties**
 3. **buy “tradable white certificates” by third parties (cf following slide)**
 4. **pay the sanction**



Definition

◆ A “white certificate”:

- attests the achievement of an **energy saving target** (e.g.: kwh saved, ton(s) of oil equivalent saved, cubic meter(s) of natural gas saved)
- **can be traded** as a commodity in a specific spot market or over the counter (OTC)



Why certificate trading?

- ◆ **The principle is well known in the environmental economic literature and has already been applied to a number of policy issues:** reduction of polluting emissions (i.e. emission trading schemes), renewable sources development (green certificates schemes), etc.
- ◆ **The possibility to trade certificates will guarantee, at least in principle, that savings will occur where it is more economic:**
 - parties with relatively high marginal costs of saving energy will be able to buy certificates from parties capable to realize savings at relatively lower marginal costs;
 - as a result, the overall cost of meeting a certain target should be minimized
- ◆ **The scheme thus combines the certainty of results (typical of “command and control” regulation) with the economic efficiency of market-based instruments**



The legislative process

- ◆ **Energy Efficiency Obligation for electricity and natural gas distribution companies:** implementation of the European Directives on the liberalisation of the electricity and gas market (1999 and 2000 respectively)
- ◆ **Definition of the obligation and introduction of the white certificates market:** Ministerial Decrees April 2001
- ◆ **Technical revision + definition of implementing regulation:** 2002 and 2003
- ◆ **New legislative provisions** in July 2004
- ◆ **Entered into force** in January 2005
- ◆ **Extended and revised** in December 2007
- ◆ **Definition of technical rules, administration, monitoring and enforcement of the whole mechanism under the Regulator's (AEEG) responsibility**



The role of the Regulatory Authority for Electricity and Gas (AEEG)

◆ Role in the “White Certificates” scheme:

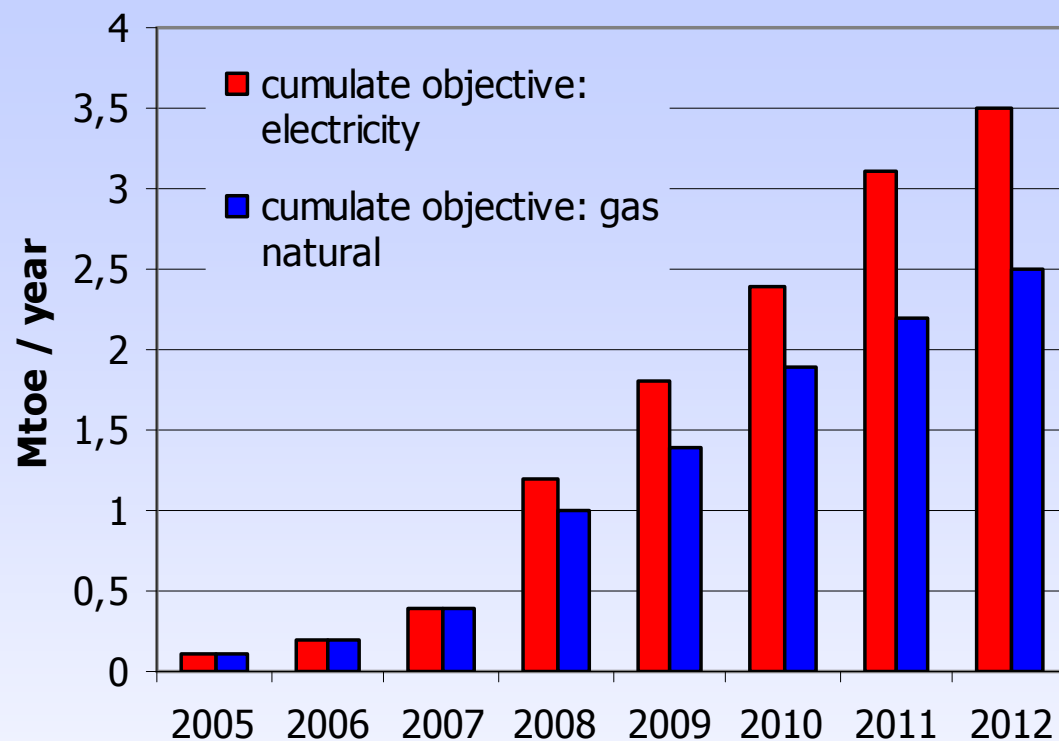
- technical rules for **projects design, development and evaluation**
- technical rules for the **issuing of EECs**
- technical rules for the **functioning of the EECs market** (jointly with the Electricity Market Operator)
- definition of **sanctions** for non compliance
- criteria and rules for **cost-recovery**
- 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* on the results delivered by the mechanism and proposals for changes in the legislative framework to improve its effectiveness**



The Demand Side



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Annual national primary energy saving targets **apportioned among major electricity and natural gas distribution companies** (on the basis of their market share).

The stringency of mandatory targets increases over time.



The Supply Side



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Eligible projects

◆ **Compliance with targets is achieved via the implementation of energy saving projects**

◆ **Eligible projects:**

- all end-uses
- only “hard” measures
- “early actions” i.e. projects implemented from 2001 to 2004, subject to AEEG’s approval

◆ **Projects can be implemented:**

- by all electricity and natural gas distributors
- by energy service companies (ESCO)
- by companies controlled by distributors
- final consumers with an “energy manager”



Eligible Projects/2

- ◆ Projects must be **designed, implemented and validated according to criteria established by AEEG, following consultation of all interested parties**
- ◆ **Conventional project lifetime: 5 years with few exceptions (8 years)**
- ◆ Projects must achieve a **minimum size** (toe saved)



Projects evaluation

◆ **The measurement of the primary energy savings achieved by each project is carried out following three evaluation approaches developed by AEEG:**

- a) for projects for which expected savings are reasonably well known a **default approach** is used, which allows to calculate total net energy savings produced only on the basis of the number of units installed (e.g. number of compact fluorescent lights); no on-field measurement is required for those projects;
- b) for projects whose impact is likely to vary according to a limited number of parameters of usage (e.g. number of hours of usage), an **engineering approach** is used whereby net savings are computed via a pre-defined algorithm and the direct measurement only of those parameters which are likely to vary on a case-by case basis;
- c) for projects for which neither of the two above mentioned approaches apply, AEEG requests a detailed **energy monitoring plan** which has to meet pre-defined criteria and is subject to pre-approval



Projects verification and validation

- ◆ **Projects verification as well as certification** are under AEEG's responsibility
- ◆ **Verification** is be carried out annually via:
 - control of projects **documentation** prepared according to a predefined reporting format and sent to AEEG by interested parties
 - random on-site **audits** (i.e.: control of more detailed project-related documentation as well as audit at customers' premises)
- ◆ **Certification** of verified projects' results (i.e. energy savings) is done via the issuing of **tradable white certificates**
- ◆ **Certification is ex-post**, i.e. only after energy savings have been actually been delivered



The white certificates

- ◆ White certificates are **issued** by the Electricity Market Operator **upon authorisation of AEEG** (1 EECS= 1 tep saved)

- ◆ **Three types of certificates**
 - ✓ type 1: reductions of **electricity consumption**
 - ✓ type 2: reductions of **natural gas consumption**
 - ✓ type 3: reductions in the **consumption of fuels other than electricity and natural gas**

- ◆ **Banking allowed**



Trading, Enforcement and Cost-Recovery



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The trading mechanism

- ◆ **Spot market trading plus OTC**
- ◆ **Registry and market fee**
- ◆ **Pre-defined market sessions timetable**
- ◆ **Market rules and procedures to ensure positive conclusion of market deals both to sellers and to buyers**



The enforcement mechanism (1)

- ◆ At the end of each compliance period (one year) distributors subject to the energy saving targets will have to **surrender** to AEEG a number of certificates equal, in volume, to their annual saving target
- ◆ Distributors who turn out to be non compliant are subject to **penalties**.



The enforcement mechanism

- ◆ Penalties for non-compliance defined by AEEG
- ◆ No pre-defined unit penalty; case-by-case assessment on the basis of basic criteria
- ◆ Minimum overall penalty: 25.000 euro
- ◆ Maximum overall penalty: 155 Meuro
- ◆ Grace period: one year if non-compliance < 40%



The cost-recovery mechanism

- ◆ **Costs born by distributors may be recovered via electricity and gas tariffs according to criteria and mechanisms defined by AEEG:**
 - **obliged distributors, up to the target**
 - **100 €/unit of primary energy saved via energy efficiency improvements in electricity and natural gas uses → flat and technology-neutral**
 - **updated on an annual basis**



A user friendly system

Fig. 3: Informazioni generali sull'intervento

Informazioni quantitative sull'intervento					
		Zona climatica - Destinazione d'uso dell'edificio	Impianto di riscaldamento alimentato a		
Seleziona il valore dei parametri da utilizzare per il calcolo e premi il tasto "Aggiungi" per inserire una nuova combinazione		A, B Abitazioni	gas	AGGIUNGI	
Si ricorda che per la richiesta in oggetto il periodo di riferimento su cui vengono calcolati i risparmi indicati nel seguito è pari ad un semestre.					
3.1	3.2	3.3	3.4	3.5	3.6
Superficie di vetro sostituita [m ²]	Zona climatica - Destinazione d'uso dell'edificio	Impianto di riscaldamento alimentato a	Risparmio Specifico lordo annuo [tep/anno/m ²]	Coefficiente	Risparmio netto conseguito [tep]
s			RSL	a	
30000	A, B Abitazioni	gas	.002	100%	30
					Calcola Tutti
3.7 Risparmio totale netto conseguito [tep]					30
3.8 Eventuale risparmio aggiuntivo riconosciuto per campagna di supporto [tep]					1.5
3.9 Risparmio totale netto di cui si richiede la verifica e certificazione [tep]					32



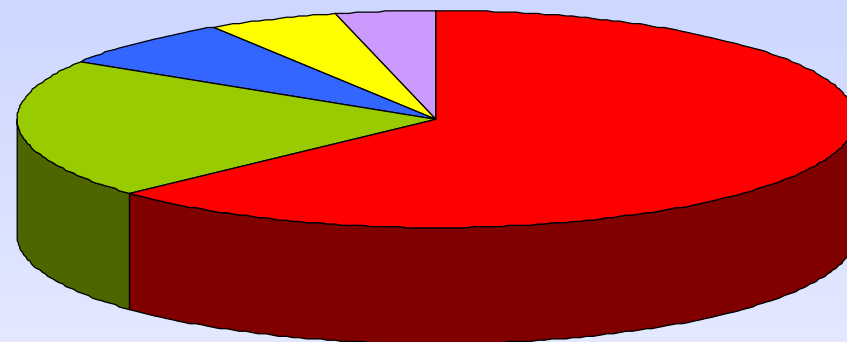
Results achieved



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White Certificates mechanism in Italy: breakdown of certified savings

Type and sectors of EE measures	
Electricity savings in the domestic sector	63%
Fuel savings for heating in the civil sector	21%
Electricity saving in the public lighting sector	7%
CHP in the civil sector	5%
Savings in the industrial sector	4%



Results achieved (2005-2007):

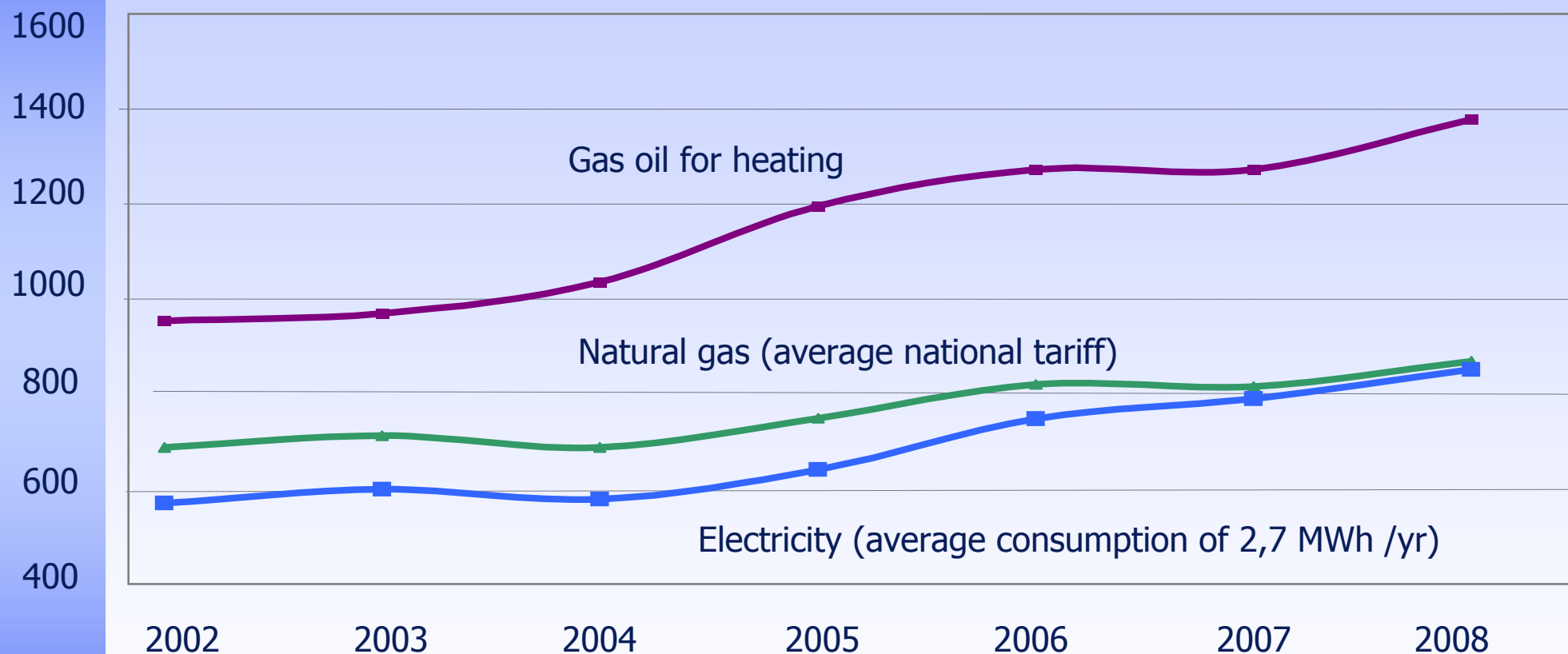
- 2 million toe saved against a target of 1,1 million toe;
- 78% electricity savings; 18% natural gas savings; 4% other fuels savings;
- 90% of savings delivered via projects for which simplified M&V methodologies exists (mostly deemed savings);
- 75% of savings delivered by energy service providers (including ESCOs);
- significant trading, mostly OTC;
- growing number of information campaigns and training programs.



White Certificates mechanism in Italy:

Value of saved energy for domestic users (taxes included)

€/ toe (current prices)

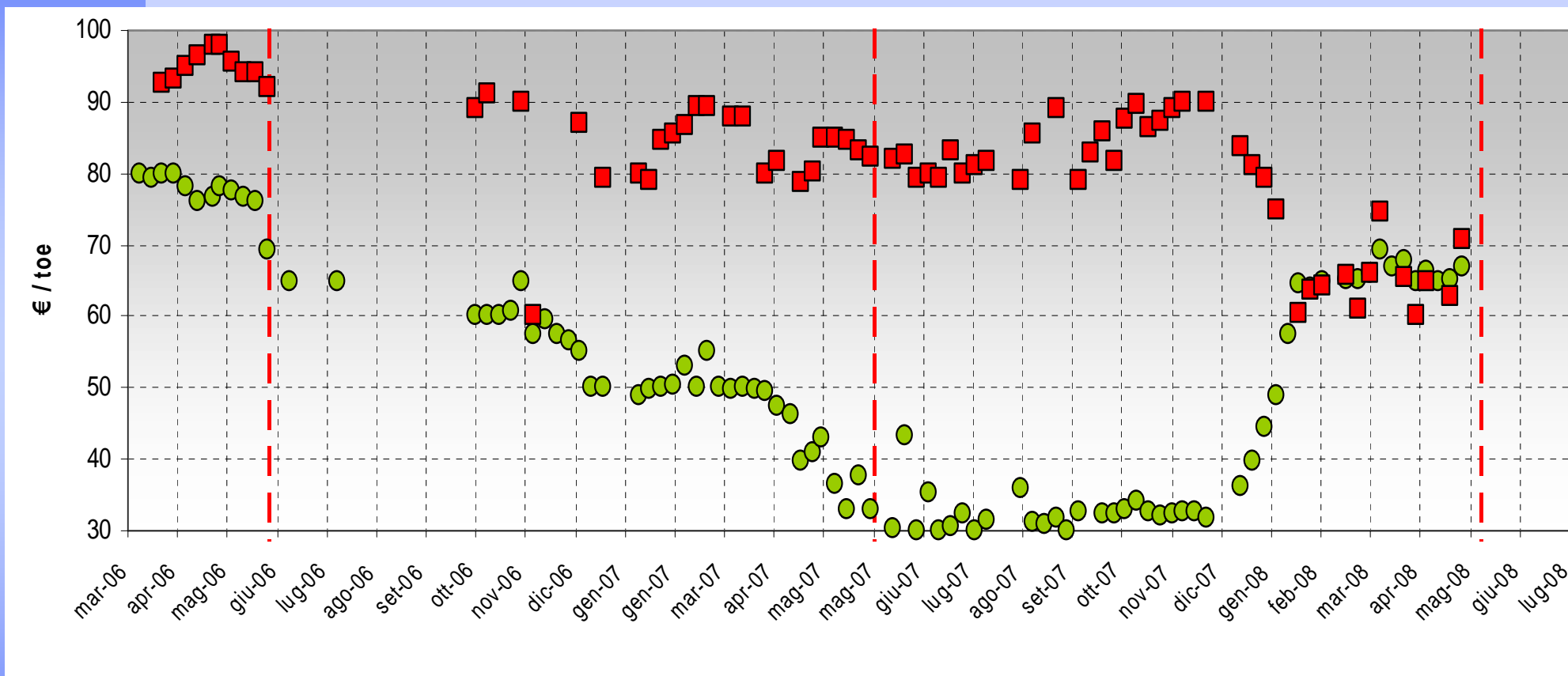


cf. tariff contribution = 100 €/ toe → large "private" economic gains



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White Certificates mechanism in Italy (marketplace)



● Electricity saving

■ Gas saving

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