On behalf of:

)eutsche Gesellschaft



of the Federal Republic of Germany

# WHITE CERTIFICATES THE ITALIAN EXPERIENCE

SENER

SECRETARÍA DE ENERG

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SFMARNA

ECRETARÍA DE MEDIO AMBIENT Y RECURSOS NATURALES

ENEA, the National Agency for New Technologies, Energy and the Sustainable Economic Development



Italian Ministry for the Economic Development

International Forum White Certificates: An instrument to recognize savings and efficient use of energy in Mexico?

Mexico City, October 23th, 2018

## **'White Certificates' or 'Energy Efficiency Certificates' National System**

Operating in Italy since 2005.

First experience in the world



# Rationale

The EEC program is based on:

obligations of energy saving charged on obliged subjects







1. the *Energy Services Operator* (it. GSE) manages the entire system



## 2. improvement of efficiency realized in *final uses*



3. *national targets of improvement of EE* are fixed by the State (in terms of toes to save each year)



## 4. big electricity and natural gas DSOs are *obliged subjects*



5. the improvement of the EE is witnessed by the issuing of *Energy Efficiency Certificates* 



## 6. a market mechanism of EEC is established



7. a *tariff revenue* is foreseen for obliged subjects as economic help to reach the target



8. economic *sanctions* are foreseen for non complying obliged subjects



a. non obliged electricity and natural gas DSOs;



**b.** ESCOs (certified Energy Saving Companies)



c. companies with a certified Energy Management Expert;



d. companies with an ISO50001 Energy Management System;



## How to fulfil the obligation?

Obliged subjects can:

- 1. realize themselves EE measures generating EEC in industries, homes, etc.,
- 2. let voluntary subjects realize EE measures, and buy certificates from them;
- 3. buy certificates on the spot market;
- 4. do nothing, and pay a sanction for non compliance





## Energy savings are "special" about M&V issues:

- 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
- for new installations the "before the project" scenario is not known, so you need to make assumptions ("project baseline")
- in the "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 (e.g. climatology, levels of production, etc).

Different evaluation methods developed during the years:

3. monitoring method: detailed project with a complete *energy monitoring plan*, subject to pre-approval

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. Physical measurements of significant energy parameters must be carried out. Measurements must take place before and after the implementation of the project.
- 4. Procedure about the collection and the handling of the data.

Source: FIRE

# The WhC legislative path



A complex scheme like the Italian WhC needs frequent updates and fixes. Sought effects often require time to be obtained.

	Obblighi effettivi Totale Distributori	Obblighi effettivi Distributori Energia Elettrica	Obblighi effettivi Distributori Gas	Totale cumulato per l'adempimento	Titoli emessi dall'inizio del meccanismo
Anno di obbligo	( Mtep/a)	(Mtep/a)	(Mtep/a)	(Mtep/a)	( Mtep/a)
2005	0,16	0,10	0,06	0,16	-
2006	0,31	0,19	0,12	0,47	-
2007	0,64	0,39	0,25	1,11	1,79
2008	2,20	1,20	1,00	3,31	3,73
2009	3,20	1,80	1,40	6,51	6,63
2010	4,30	2,40	1,90	10,81	9,64
2011	5,30	3,10	2,20	16,11	14,74
2012	6,00	3,50	2,50	22,11	20,69
2013	5,51	3,03	2,48	27,62	28,17
2014	6,75	3,71	3,04	34,37	34,65
2015	7,75	4,26	3,49	42,12	40,04
2016	9,51	5,23	4,28	51,63	47,57
2017	5,34	2,39	2,95	56,97	52,93*
2018	5,57	2,49	3,08	62,54	
2019	6,20	2,77	3,43	68,74	
2020	7,09	3,17	3,92	75,83	

#### Tab. 4.3.1 - Titoli necessari per l'adempimento dell'obbligo



I dati sui prezzi bilaterali sono disponibili a partire dal 1 aprile 2008 data in cui è entrato in vigore l'obbligo di comunicazione del prezzo delle transazioni bilaterali attraverso il Registro TEE gestito dal GME, introdotto dalla delibera n.345/07 dell'ARERA

#### Fig. 4.3.4 - Andamento dei prezzi TEE di sessione. Anni 2017-2018



#### Fig. 4.3.3 - Prezzi TEE. Media annua



# The growth of the industrial sector



# Present value of EECs

## *Download from:* http://www.mercatoelettrico.org/en/

RESULTS

Energy Efficiency Certi	ficates			
cumulative values since 01/01/	2018		update	ed as of 16 Oct 2018
		N. L. (0)		
weighted average min max			TEE traded (No)	value (C)
311,32	145,00	489,90	2.866.220	892.308.512

Tab.	4.3.1	- Tito	li necessari	iper l'a	dempimento	dell'obbligo
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Obblighi effettivi Totale Distributori	Obblighi effettivi Distributori Energia Elettrica	Obblighi effettivi Distributori Gas	Totale cumulato per l'adempimento	Titoli emessi dall'inizio del meccanismo
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2017	5,34	2,39	2,95	56,97	52,93*

## 2005÷2017

OBLIGATION, TOTAL	56.97 MToes
<b>CERTIFICATES ISSUED, TOTAL</b>	52.93 MToes

# Considering the economic value of savings, investments, EEC, tariff revenues, taxes:

	Final users	Families	Professionals	State
TOTAL REVENU E 10 <sup>9</sup> Euros	+23.6	-0.9	14.5	+4.3

# **AVOIDED CO<sub>2</sub> EMISSIONS**

**RESULTS** 

YEAR	TARGE	TS TOE	
	ELECTR.	NG	
2005	0,1	0,06	
2006	0,19	0,12	
2007	0,39	0,25	
2008	1,2	1	
2009	1,8	1,4	
2010	2,4	1,9	
2011	3,1	2,2	
2012	3 <i>,</i> 5	2,5	
2013	3,03	2,48	
2014	3,71	3,04	
2015	4,26	3,49	
2016	5,23	4,28	
2017 2,39		2,95	

Apart from the economic-financial aspects, the system of White Certificates has induced in Italy the following effects:

- Birth of an energy services market. More than 3000 ESCOs are registered at GSE's website nowadays.
- 2. Diffusion of a culture of the measurement of energy consumptions.

# THANKS FOR YOUR ATTENTION



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