

The logo for ENEA, featuring the word "ENEA" in a bold, white, sans-serif font against a dark blue background with a stylized sunburst or energy symbol.

AGENZIA NAZIONALE  
PER LE NUOVE TECNOLOGIE, L'ENERGIA  
E LO SVILUPPO ECONOMICO SOSTENIBILE

# *The «Conto Termico»*

## “Renewable Energy for Heating & Cooling Support Scheme”

Fabio Zanghirella, Francesca Bonfà

ENEA - Technical Unit for Energy Efficiency

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# The «Conto Termico» - Objectives



The December 28th 2012 Ministerial Decree, the so called **“Renewable Energy for Heating & Cooling Support Scheme”** introduced a scheme of support (a grant) for small-scale projects to improve thermal energy efficiency and to promote thermal energy from renewables: the so called «Conto Termico» (literally «Thermal Account»)

## Objectives:

- energy efficiency improvements in existing public buildings;
- improve the energy performance of small size (<1000 kWth) thermal systems for space heating and domestic hot water production

## Eligible subjects:

- public administrations;
- private subjects: individuals, apartment block owners, private companies and agricultural enterprises

## Prospects:

- An opportunity to improve energy efficiency both in the private and in the public sector
- A job opportunity for technicians
- A support for the construction industry and the energy services sector (E.S.Co.)
- With consequent environmental benefits for the entire community

**Public administrations and private subjects may implement the actions via an E.S.Co., by means of a third-party financing contract, an energy service contract or an energy performance contract.**

# The «Conto Termico» – Eligible Projects



Two categories of projects, eligible for the support scheme, have been defined by the Decree:

**A. Projects to improve the energy efficiency**

**B. Small-scale projects consisting in systems for the production of thermal energy from renewable sources and/or high-efficiency systems**

Access to the incentive is governed by minimum eligibility requirements by type of action

## A. Projects to improve the energy efficiency

- Energy efficiency improvements in existing building envelopes:
  1. thermal insulation of walls, roofs and floors
  2. replacement of windows
  3. installation of solar shading devices
- Replacement of existing heating systems with condensing boilers

Project category dedicated to Public Administrations

An expenditure ceiling has been set for each type of action

## B. Small-scale projects consisting in systems for the production of thermal energy from renewable sources and/or high-efficiency systems

- Substitution of existing heating systems with heat pumps (geothermal, aerothermal, hydrothermal) <1000 kWth
- Substitution of existing heating systems with biomass boilers <1000 kWth
- Substitution of existing boilers (for space heating and/or DHW) with heat pump boilers <1000 kWth
- Installation of solar thermal systems for surfaces <1000 m<sup>2</sup>

Project category dedicated both to Public Administrations and to Private Subjects

The decree allocates funds for a maximum of 900 M €/year:

- 200 millions for projects implemented by public administrations
- 700 million for projects by private subjects

**The incentive amount is related to the nominal production of thermal energy or to the thermal insulated/shaded surface . It's granted for a period varying between 2 and 5 years, depending on the project.**

**The incentive cannot be combined with other public incentives (with little exceptions)**

# Eligible Projects “A”


| Action   | Duration [y] | Maximum % of cost | Maximum specific cost [€]                      | Incentive maximum value [€] | Incentive  |
|--|--------------|-------------------|--|-----------------------------|--|
| Thermal insulation                                     | 5            | 40%               | <b>a - Roof</b>                                | a+b+c >= 250'000            | $I_{tot} = \% * C * S_{int}$ $I_{tot} \leq I_{max}$  |
|  |              |                   | Outdoor: 200 €/m <sup>2</sup>                  |                             |  |
|  |              |                   | Indoor: 100 €/m <sup>2</sup>                   |                             |  |
|  |              |                   | Ventilated: 250 €/m <sup>2</sup>               |                             |  |
|  |              |                   | <b>b - Floor</b>                               |                             |  |
|  |              |                   | Outdoor: 120 €/m <sup>2</sup>                  |                             |  |
|  |              |                   | Indoor: 100 €/m <sup>2</sup>                   |                             |  |
|  |              |                   | Ventilated: 250 €/m <sup>2</sup>               |                             |  |
|  |              |                   | <b>c - Walls</b>                               |                             |  |
|  |              |                   | Outdoor: 100 €/m <sup>2</sup>                  |                             |  |
| Indoor: 80 €/m <sup>2</sup>                            |              |                   |  |                             |  |
| Ventilated: 150 €/m <sup>2</sup>                       |              |                   |  |                             |  |
| Replacement of windows or shutters                     | 5            | 40%               | Climatic Zone A, B, C:<br>350 €/m <sup>2</sup> | 45'000                      |  |
|  |              |                   | Climatic Zone D, E, F:<br>450 €/m <sup>2</sup> | 60'000                      |  |
| Replacement of existing boilers with heat pump boilers | 5            | 40%               | Pn <= 35 kWt : 160 €/kWt                       | 2'300                       | $I_{tot} = \% * C * Pn_{int}$ $I_{tot} \leq I_{max}$ |
|  |              |                   | Pn > 35 kWt : 130 €/kWt                        | 26'000                      |  |
| Installation of solar shading devices                  | 5            | 40%               | 150 €/m <sup>2</sup>                           | 20'000                      | $I_{tot} = \% * C * S_{int}$ $I_{tot} \leq I_{max}$  |



# Eligible Projects “B” – Heat pumps

The global incentive is calculated on the basis of the nominal thermal energy production  $E_i$  and of the performance through parameter  $C_i$

□  $I_{atot}$    $= E_i \cdot C_i$

$C_i$  

| Eligible Systems                         | $P_n \leq 35$ kW | $35$ kW < $P_n \leq 500$ kW | $500$ kW < $P_n \leq 1000$ kW |
|--|------------------|-----------------------------|-------------------------------|
| Electrical and gas heat pumps            | 0.055 (€/kWh)    | 0.018 (€/kWh)               | 0.016 (€/kWh)                 |
| Electrical and gas geothermal heat pumps | 0.072 (€/kWh)    | 0.024 (€/kWh)               | 0.021 (€/kWh)                 |

□  $E_i = Q_u \cdot [1 - 1/COP]$  - electrical heat pumps

□  $E_i = Q_u \cdot [1 - 1/(GUE/0.46)]$  - gas heat pumps

□ Nominal Total heat production [kWh<sub>t</sub>]

$Q_u = P_n \cdot Q_{uf}$

| Climatic Zone | $Q_{uf}$ |
|---------------|----------|
| A             | 600      |
| B             | 850      |
| C             | 1100     |
| D             | 1400     |
| E             | 1700     |
| F             | 1800     |

| Power                        | Period  |
|------------------------------|---------|
| $P_n \leq 35$ kW             | 2 years |
| $35$ kW < $P_n \leq 1000$ kW | 5 years |

# Eligible Projects “B” – Biomass boilers

## ❖ Biomass boiler:

annual global incentive [€]  $\longrightarrow I_{a\ tot} = P_n \cdot H_r \cdot C_i \cdot C_e$

## ❖ Heating fireplaces and stoves :

annual global incentive [€]  $\longrightarrow I_{a\ tot} = 3.35 \cdot \ln(P_n) \cdot H_r \cdot C_i \cdot C_e$

$1.0 < C_e < 1.5$  depending on the Particulate emission of the boiler

| $C_i$                         |                         |   |                       |
|-------------------------------|-------------------------|---|-----------------------|
| Heat generator                | $P_n \leq 35\text{ kW}$ | $35\text{ kW} < P_n \leq 500\text{ kW}$ | $P_n > 500\text{ kW}$ |
| biomass boiler                | 0.045<br>(€/kWh)        | 0.020 (€/kWh)                           | 0.018<br>(€/kWh)      |
| Heating fireplaces and stoves | 0.040<br>(€/kWh)        | -                                       | -                     |

| Climatic Zone | Hr [h] |
|---------------|--------|
| A             | 600    |
| B             | 850    |
| C             | 1100   |
| D             | 1400   |
| E             | 1700   |
| F             | 1800   |

# Eligible Projects “B” – Other eligible projects

## ❖ Solar thermal systems:

**global incentive [€]  $\longrightarrow$   $I_{a\ tot} = C_i \cdot S_i$**

$C_i$  depends on the installed solar surface  $S_i$ [m<sup>2</sup>]

| $C_i$   |                         |                                |
|---|-------------------------|--------------------------------|
| Type of project   | $S_i \leq 50\ m^2$      | $50\ m^2 < S_i \leq 1000\ m^2$ |
| solar thermal collectors  | 170 (€/m <sup>2</sup> ) | 55 (€/m <sup>2</sup> )         |
| solar cooling systems   | 255 (€/m <sup>2</sup> ) | 83 (€/m <sup>2</sup> )         |
| Concentrated solar thermal collectors                           | 221 (€/m <sup>2</sup> ) | 72 (€/m <sup>2</sup> )         |
| Concentrated solar thermal collectors and solar cooling systems | 306 (€/m <sup>2</sup> ) | 100 (€/m <sup>2</sup> )        |

| Surface                        | period  |
|--------------------------------|---------|
| $S_i \leq 50\ m^2$             | 2 years |
| $50\ m^2 < S_i \leq 1000\ m^2$ | 5 years |

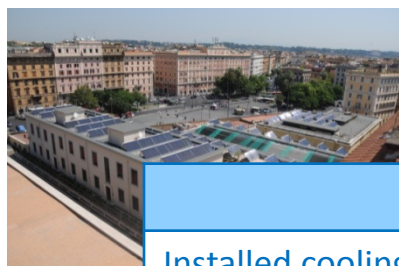
## ❖ Water Heaters based on heat pump :

**global incentive [€]  $\longrightarrow$   $I_{tot} = 40\% \cdot \text{Total cost}$**

**$I_{tot\ max}$  [€] is function of the volume of the heat storage**

| Volume [l] | $I_{tot\ max}$ [€] |
|------------|--------------------|
| $\leq 150$ | 400                |
| $>150$     | 700                |

# Eligible Projects “B”, an example: Solar Cooling Systems



| DESCRIPTION                | Values               |
|----------------------------|----------------------|
| Installed cooling power    | 17.5                 |
| Surface of the solar field | 56.25 m <sup>2</sup> |

| DESCRIPTION                 | Values             |
|-----------------------------|--------------------|
| Installed cooling power     | 105                |
| Surface of the solar field  | 350 m <sup>2</sup> |
| Investment cost             | € 350'000          |
| Yearly cost for fossil fuel | € 52'000           |

| DESCRIPTION   | Values               |
|---|----------------------|
| Installed cooling power                                       | 280                  |
| Surface of the solar field                                    | 708 m <sup>2</sup>   |
| Investment cost   | € 500'000            |
| Specific investment cost (€/m <sup>2</sup> of install. Solar) | €/m <sup>2</sup> 706 |
| Yearly cost for fossil fuel                                   | € 120'000            |
| Value of renewable energy (H&C)                               | € 70'000             |
| Incentive for each m <sup>2</sup> = €83 x 708 m <sup>2</sup>  | € 58'764             |
| Total Incentive (5 years)                                     | €293'820             |
| Payback time:   | ≤ 4 years            |



## The Thermal Account also provides specific incentives for energy audits and energy performance certificates

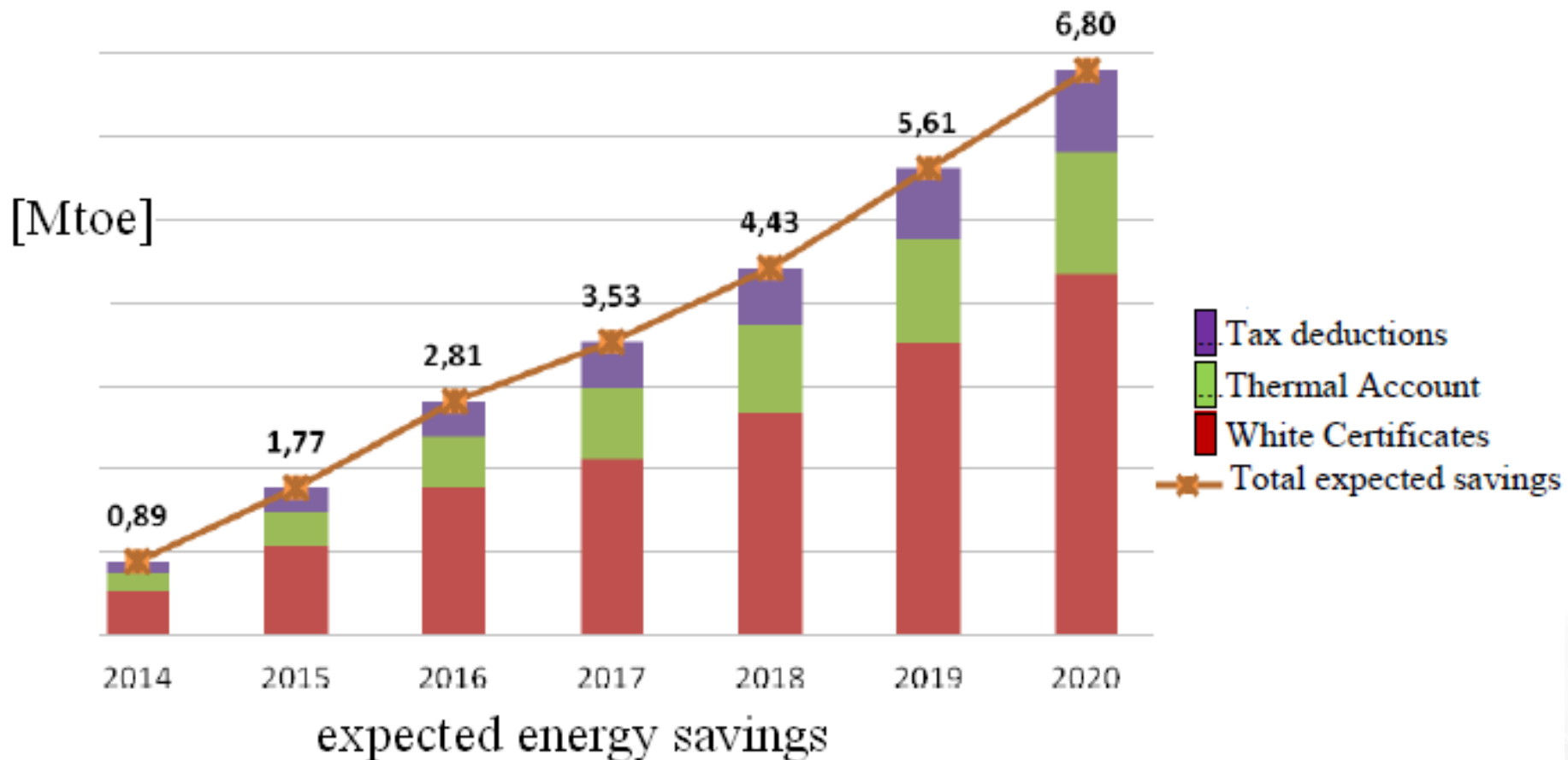
The incentive depends on the beneficiaries (PA or private subjects) and on the type of project. It will cover 100% (PA) or 50% (private) of the incurred costs, if the cost is not exceeding the allowed maximum value.

The maximum value depends on the type of the building (residential buildings, hospitals and other buildings) and on its net floor heated surface.

| Building type         | Net floor heated surface [m <sup>2</sup> ] | Maximum specific cost [€/m <sup>2</sup> ] | Maximum allowed value [€] |
|-----------------------|--|---|---------------------------|
| Residential buildings | <= 1600                                    | 1.50                                      | 5000                      |
|                       | >1600                                      | 1.00                                      |                           |
| Hospitals             | -  | 3.50                                      | 18000                     |
| Other buildings       | <= 2500                                    | 2.50                                      | 13000                     |
|                       | >2500                                      | 2.00                                      |                           |

# Expected Energy Savings

## Expected energy savings among the different support schemes



Expected energy saving by the "Conto Termico": 5.9 Mtoe

# Comparison among different support schemes

|                                  | «Conto Termico»  | Tax deductions<br>65%  | Tax deductions for<br>improving the energy<br>efficiency of existing<br>buildings (55 % and 36%) | White Certificates<br>(TEE)   |
|----------------------------------|--|--|--|---|
| <b>Eligible subjects</b>         | Public administrations and private subjects  | Private subjects (individuals and companies)   | Individuals  | Every kind of subject via an E.S.Co. Or an Energy Manager                                 |
| <b>Eligible actions</b>          | Increase of the energy performance of building envelopes, substitution of heating systems, solar thermal | Increase of the energy performance of building envelopes, substitution of heating systems, solar thermal, PV | Refurbishment and/or maintenance   | Increase of the energy performance of building envelopes, substitution of heating systems |
| <b>Ease of access</b>            | complex  | easy   | easy   | depends on the project  |
| <b>Duration of the incentive</b> | 2 – 5 years  | 10 years   | 10 years   | 5-8 years   |

# Comparison among different support schemes



## WHITE CERTIFICATES (TEE)

TEE enhance primary energy savings achieved as a result of an action to improve the energy efficiency

The duration of TEE is 5-8 years depending on the project

## TAX DEDUCTIONS

The tax deduction is an incentive proportional to the cost of the action

## THE “CONTO TERMICO”

Is an incentive proportional to the cost of the action and/or to its technical parameters



- Considering the same action/project, the «Conto Termico» provides an higher incentive amount than TEE
- The «Conto Termico» allows to support also small size projects (not included in TEE), since there is not a minimum threshold
- With respect to fiscal deductions, the «Conto Termico» allows, in some cases, a higher level of repayment and in a quicker time

# The «Conto Termico» – Current results



On September 30<sup>th</sup> 2014:

- 7752 Applications
- 4302 evaluated applications
- 4215 approved
  - 92 applications by Public Administrations (2%)
  - 4123 applications by Private subjects (98%), of which 905 biomass and 3059 solar thermal systems
- More than 12 M€ approved
  - 2.5 M€ to Public Administrations (21%)
  - 9.5 M€ to Private Subjects (79%)

On October 15<sup>th</sup> 2014

- 8007 Applications
- 5337 evaluated applications
- 5164 approved

## Complicated access procedure

- Need to fill-in the application on the dedicated website: several technical details requested
- Need to provide very detailed technical informations about the building and its plants before and after the intervention: very complicated to apply without the support of a technician

## 3 possible procedures

- Direct application (both for private subjects and PAs)
  - Application in 3 different steps with different technical detail levels and different deadlines
  - Application after the beginning of the works and within 60 days after their completion
  - Admittance to the incentive due within 60 days
- “Booking” procedure (only for PAs)
  - Application possible before the beginning of the works
  - Admittance to the incentive due within 60 days
  - Declaration of completion of work due within 12 months after the accepted booking
  - Access to the direct application procedure within 60 days after the completion of work
- Registration to specific registers (biomass boilers and  $HP\ 500\ kW < P_n < 1000\ kW$ )
  - Application to the registration
  - If registered, application according to the direct procedure

**Thank you for your attention**

