



Italian National Agency for New Technologies,  
Energy and Sustainable Economic Development



ODYSSEE-MURE

*“OdysseeMure fit-4-55 (2022-2025)”*

# EE in Central Government buildings: PREPAC

*Rome 25 September 2024*

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# The EU directives

## EU targets (Energy Efficiency Directives)

- 20% GHG reductions
- 20% renewable energies
- 20% energy efficiency

**2020**

**2030**

- 55% GHG reductions
- 40% renewable energies
- 36-39% energy efficiency

**2050**

**The first  
climate  
neutral  
continent**

# Buildings sector

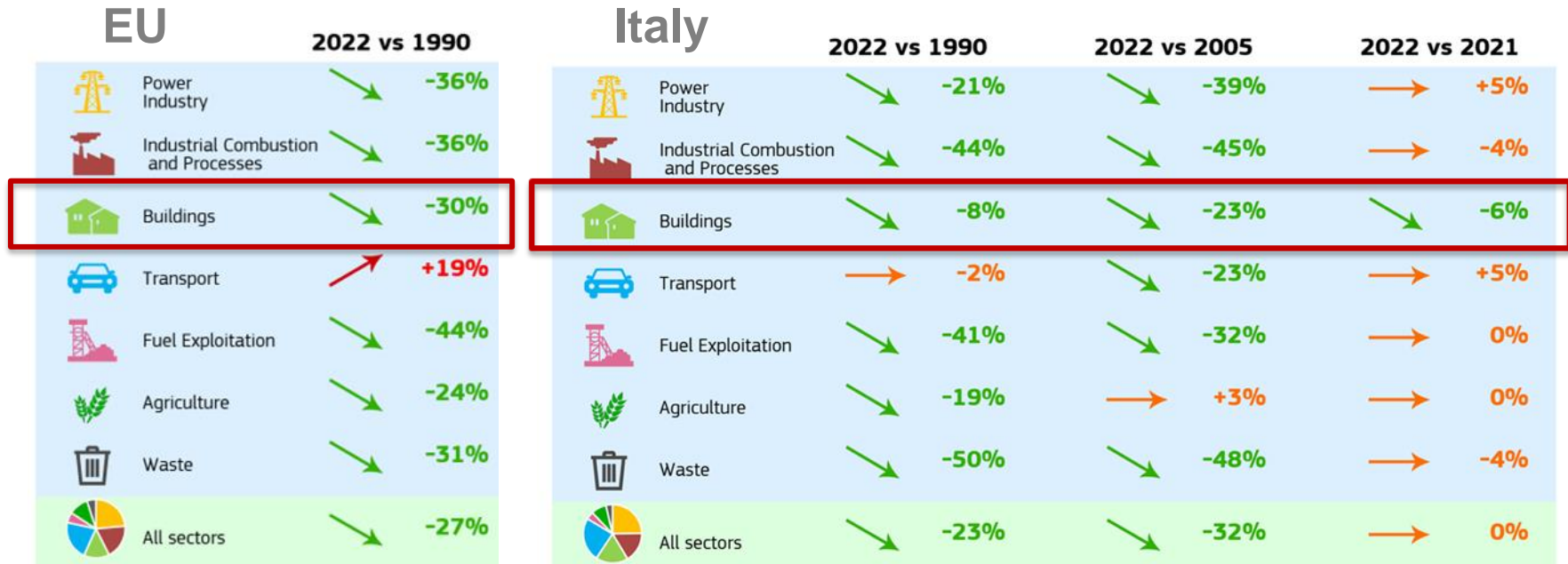


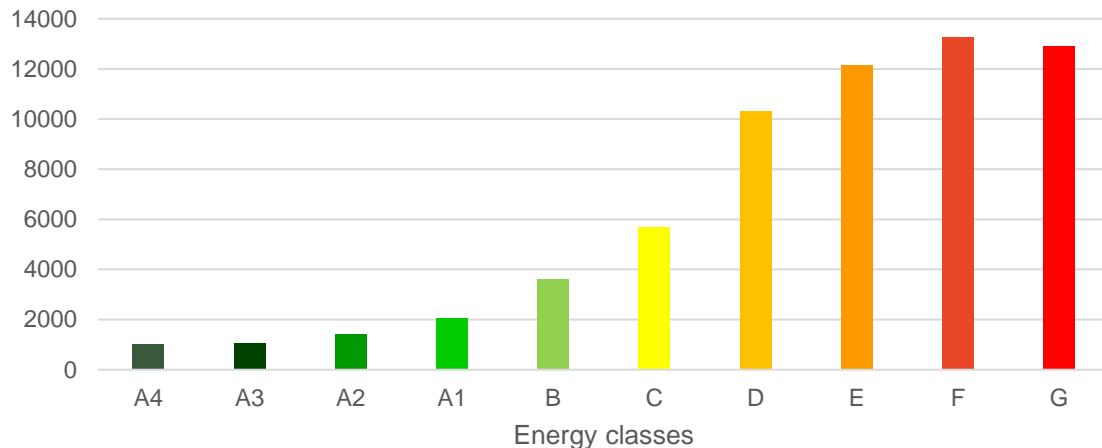
Image source: JRC, 2023

In 2022, Italy's GHG emissions accounted for **≈8.9% of the EU's total emissions.**

# Building sector

## Public buildings in Italy

Distribution of public buildings or buildings for public use by energy class



Source: ENEA, December 2023



In Italy **60% of public or publicly used buildings** are classified in energy classes E, F, and G.

(based on a sample of  $\approx 63.5$  thousand EPC)

# The PREPAC Programme

EED 2012 + EED 2018 → DLgs 102/2014 + DLgs 73/2020 (art. 5)

- **2014-2030:** a Programme for the **Energy Renovation** of buildings owned (and occupied) by **Central Public Administration** .
- **yearly Energy Renovation** of at least **3%** of the heated and/or cooled total floor area.



**EXEMPLARY ROLE of  
CENTRAL GOVERNEMENT**



# The PREPAC directors

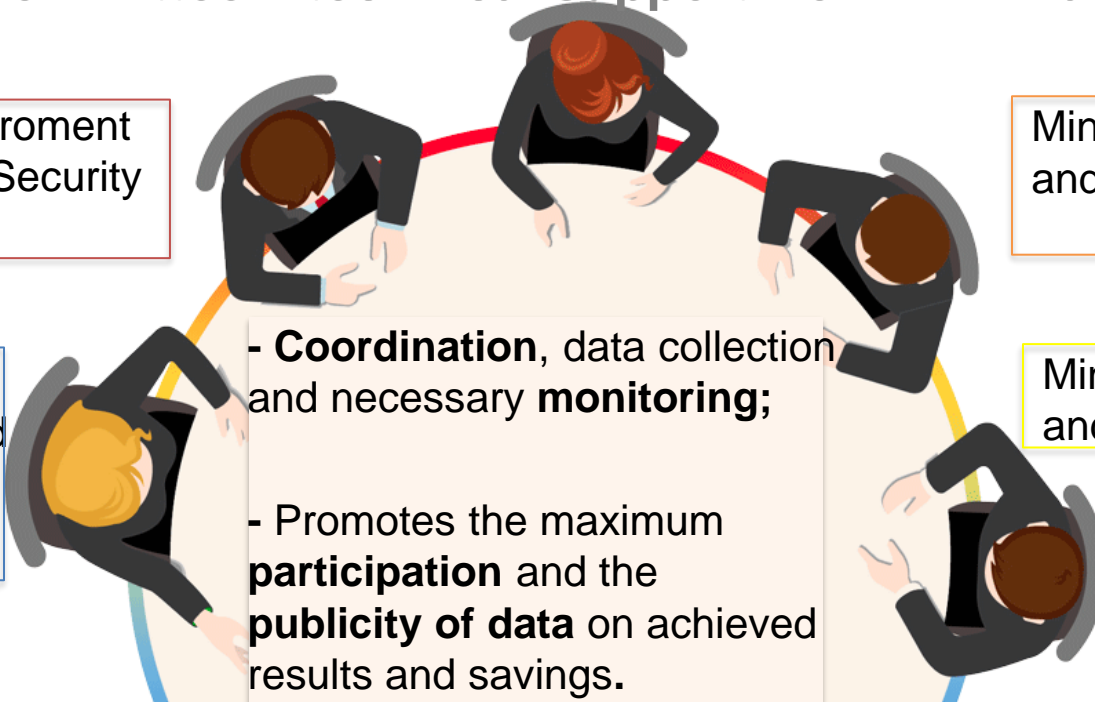
## Steering Committee + technical support from ENEA and GSE

Minister of Environment and Economic Security (MASE)

Minister of Infrastructure and Transport (MIT)

Minister of Enterprises and Made in Italy (MIMIT)

Minister of Economy and Finance (MEF)

- 
- **Coordination**, data collection and necessary **monitoring**;
  - Promotes the maximum **participation** and the **publicity of data** on achieved results and savings.

# Who PREPAC is addressed to

## Central Public Administration

1. Constitutional bodies,
2. Central government authorities.



**DATABASE** and  
**MAPPING** of public  
buildings



Total area of central PA around  
**16 Million m<sup>2</sup>**

# Who PREPAC is not addressed to

- a) Buildings with a total useful **covered area of less than 250 m<sup>2</sup>**;
- b) Buildings **protected** under the provisions of the Code of Cultural Heritage and Landscape (DLgs 42/2004), **if the compliance with the minimum energy performance requirements is not compatible** with their character, appearance, or context, or detrimental to their conservation;
- c) Buildings intended for **national defense purposes**, except for buildings used as service housing or offices for the armed forces;
- d) Buildings used as places of worship and for conducting religious activities.



# What is the amount?

## Financial resources

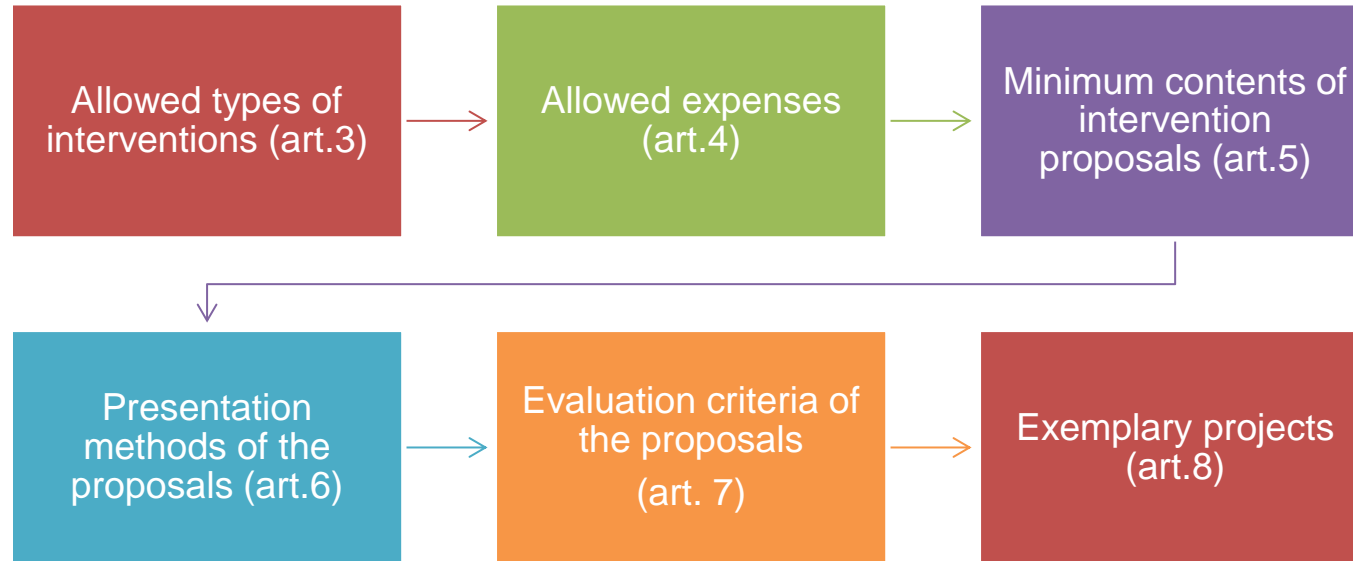
PREPAC 2014-2020	Total 355 million €
PREPAC 2021-2030	75 million €/year

“The implementation of interventions included in the programme is managed, without new or additional charges to public finance, by the **Interregional Superintendencies for Public Works** of the **Ministry of Infrastructure and Trasports**, by the relevant administrations, and by the **State Property Agency**, in order to promote forms of rationalization and coordination among interventions, including among multiple administrations, fostering economies of scale and contributing to cost containment.”

# Implementation modalities

## Ministerial Decree 16 September 2016 (D.M. PREPAC):

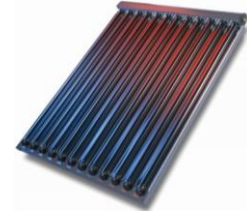
The implementation modalities of the intervention programme for improving the energy performance of buildings owned by the central public administration.



# Interventions allowed into the Programme

## D.M. PREPAC (art. 3)

### a) Opaque / transparent envelope and technical systems



### b) Electricity and thermal energy production systems



### c) Other actions for energy services to reduce energy consumption

HVAC  
internal lighting  
elevators  
DHW

# Allowed expences

## D.M. PREPAC (art. 4)

- a) **Implementation of energy efficiency interventions, including VAT** (supply and installation of materials, systems, and devices for monitoring, including related construction works, as well as expense for startup and testing);
- b) **Professional services** related to the implementation of interventions, the drafting of the energy performance certificate, as well as pre-intervention energy audits of the building;
- c) **Training and information programs** on behavioral norms for energy savings, addressed to the users of the buildings subject to intervention, up to a maximum of 5% of the total project amount.

# Minimum contents of the proposals

## D.M. PREPAC (art. 5)

- a) **Energy assessment**, that identify actions that can lead to a **reduction in energy consumption** and have a **good cost-effectiveness ratio**,
- b) **Accurate description of the building** and its systems before and after intervention,
- c) **Estimated costs** for the implementation and management of the intervention,
- d) **Estimated times** for the start and completion of the intervention,
- e) **Co-financing** presence (own resources or ESCO),
- f) List of any **authorizations** required for the implementation of the intervention, such as in case of historical and artistic preservation restriction.
- g) [...]

# Presentation methods and evaluation criteria

## D.M. PREPAC (articles 6 and 7)

The central PA that intend to participate to the program **must submit** their proposal **by the 15<sup>th</sup> of July** to the Minister of the Environment.

The feasible proposals from a technical-economic standpoint are placed in a **merit ranking**, established according to specific evaluation criteria:

1. the **ratio between total cost and estimated energy saving**,
2. the presence of **co-financing**;
3. the **estimated time for the implementation** of the intervention.

60%

30%

10%

# Exemplary projects

## D.M. PREPAC (art. 8)

**20%** of the annual available resources are allocated to projects defined as **exemplary**, meaning eligible proposals that include:

- interventions on the **building envelope**,
- interventions on **technical systems**,
- primary energy **savings of at least 50%** compared to current consumption.

# Main activities of ENEA & GSE

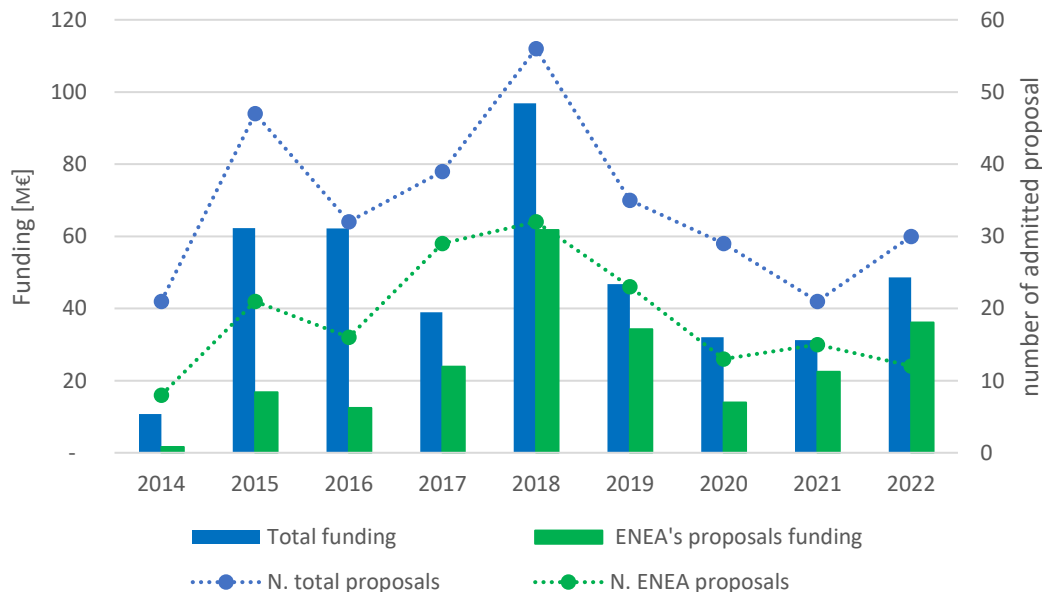
- Provide **general criteria and operational indications** for the preparation and presentation of project proposals for the admission to the Programme (Guidelines to the PREPAC);
- **Technical-economic examination of proposals;**
- Provide **information, training, and assistance** to facilitate the acquisition of specific know-how.

Link to Report PREPAC: [Il Programma per la Rigualificazione energetica degli Edifici della Pubblica Amministrazione Centrale \(enea.it\)](https://www.enea.it/it/programmi-e-progetti/programmi/programma-per-la-rigualificazione-energetica-degli-edifici-della-pubblica-amministrazione-centrale)





# PREPAC 2014-2022: summary of the results

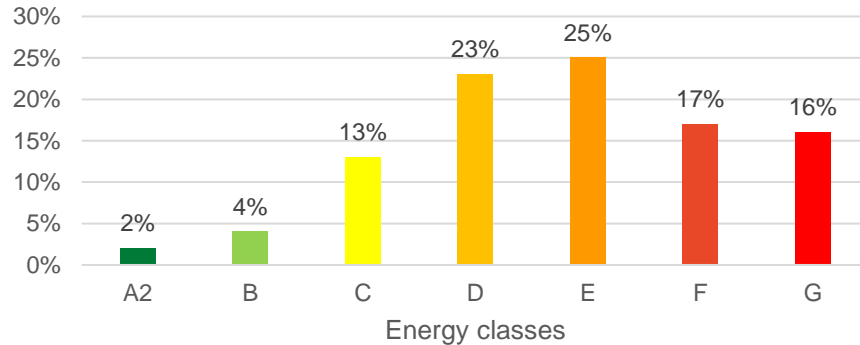


169 ENEA projects out of 310 total (55%)  
€250 million out of €430 million total (52%)

- **641 proposals** evaluated, 310 financed, with total financed amount **around 430 million €**.
- The **average project amount** **around 1.4 million €**
- The **average (estimated) saving per proposal** is 620,000 kWh/year (primary energy);
- **2023**: examination is concluded, but ranking is not published

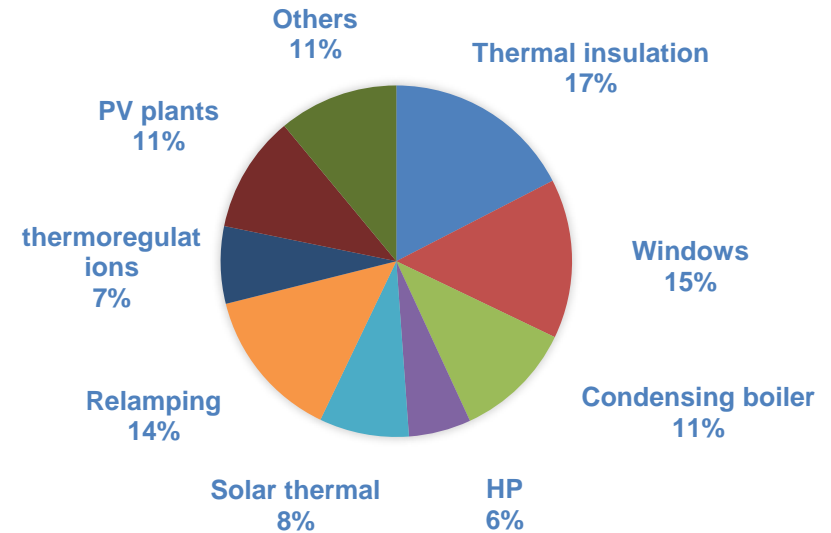
# PREPAC 2014-2022: ENEA proposals (169)

## State of art of the 430 buildings



<b>Heating</b>	Traditional boiler (75%), condensing boiler and HP (<20%);
<b>DHW</b>	Traditional boiler (44%) & electric boiler (37%);
<b>Cooling</b>	HP air to air (63%) e HP air to water (23%);
<b>Lighting</b>	fluorescent lamps (85%)
<b>Solar thermal</b>	7%
<b>PV</b>	2%

## Interventions requested



Link to Report PREPAC: [Il Programma per la Riqualificazione energetica degli Edifici della Pubblica Amministrazione Centrale \(enea.it\)](http://www.enea.it/it/programmi-prepac)

# PREPAC 2014-2022: historical buildings



Palace of the Navy in Rome



Military Navy District 'Nisida' in Naples



Headquarters of the Ministry of Foreign Affairs in Rome



Ducal Palace of Modena



National Library of Genoa



Villa Lubin, headquarters of CNEL in Rome

**43% of the 430 buildings were realized before 1970**

# PREPAC 2014-2022: summary of the results

## Has the PREPAC programme achieved the target of 3%?

A heated area of  $\approx 2.6$  million m<sup>2</sup> was financed which corresponds to an average surface area of around 2% per year, as published by Court of Auditors report.

**The results are not in track with the goal of PREPAC. The main reasons for this failure are due to several factors** that can be summerized as follows:

1. decrease in the number of proposals submitted at the start (2014) and since 2019 (COVID-19 and other incentive mechanisms);
2. low technical quality of the proposals submitted;
3. significant reduction (-60%) of the average heated surface area of the buildings subject to intervention of the proposals submitted in the three-year period 2020-2022

# Next future development

PNRR 2021 + PNIEC 2023 + EED 2023 + EPBD IV

There is the intention to **update** and **enhance PREPAC**.

- **Expand the funding to the total public administration** (municipal buildings, schools...) in line with the target of the EED 2023;
- Streamline administrative activities, also foreseeing the development of appropriate management information systems, with the aim to **expedite the execution times** of the work;
- **Comply with the new obligations** of the EPBD IV.



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