The exemplary role of the public sector in energy efficiency deployment. The case of Italy.

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Key questions

- **How did the Italian public sector perform in playing an exemplary role in energy efficiency deployment?**
- **What are the main traits of the Italian strategy to face the ambitious targets set by the new Energy Efficiency Directive?**
- **What results have been achieved and what are the upcoming challenges?**

Introduction

The recent adoption of the EU Directive 1791 of 13 September 2023 on energy efficiency (EED-III) marks a significant reinforcement of the exemplary role to be played by Member States' public sectors, compared to the previous legislation. This emphasis goes along two main avenues: i) extending the contribution to the targets from central government to all public entities, and ii) introducingspecific rules on the subscription of public contracts.

Specifically, Chapter II of the EED-III condenses these novelties in three articles prescribing new standards and targets. Art. 5 (Public sector leading on energy efficiency) calls for a reduction of at least 1.9% in total final energy consumption in public entities (compared to the 2021 level) every year up to 2030. Art. 6 (Exemplary role of public entity buildings) extends the annual 3% renovation target to all public entities, whereas the previous one was limited to the central government. In conclusion, art. 7 (Public procurement) states that the subject of public contracts and concessions must be "products, services, buildings, and works with high energy-efficiency performance".[1]

The present policy brief outlines the Italian experience. Following sections focus on a detailed description of the strategy, the tools, and the results achieved. Final remarks address future challenges for the Italian energy efficiency policy framework regarding the public sector.

Focus on the Italian case

The draft National Energy and Climate Plan (NECP), submitted to the European Commission by the

[1] Specific features are detailed in DIR/1791/2023/EU, Annex IV.

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Ministry of Environment and Energy Security (MASE) in June 2023, traces the different strands of the Italian strategy for making the public sector play an exemplary role in deploying energy efficiency solutions.

Based on data from the Energy Performance Certificates (EPC) Information System (SIAPE), managed by ENEA, the share of Italian buildings owned and in use by public entities is characterised by a prevalence of low energy classes.[2]

Figure 1: Percentage of EPCs by class (E-G), year 2022

Source: ENEA, Annual Report on Buildings Energy Certification, 2023.

Most public residential buildings (56% of the public stock) are in energy performance class G (30.7%). Buildings in class F are 28%. The non-residential sector exhibits a smoother distribution: 16.1% in class G, 13.9% in F and 19.1% in E (Figure 1).

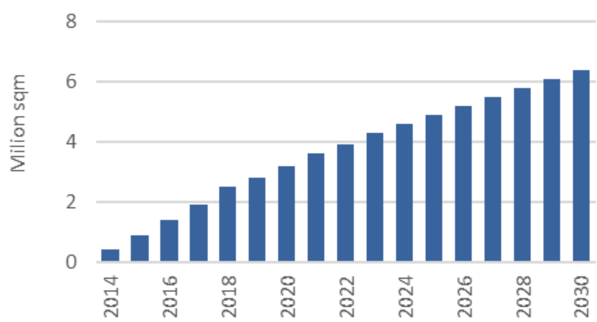
These data highlight a better average performance compared to the whole non-residential building population monitored by the SIAPE. In this case, the percentage of EPCs in class G, for the year 2022, amounts to 27.7% and the percentage in class F to 15.7%.

About designated use, non-residential public buildings monitored by the SIAPE are mostly schools (category E.7, 33.8%), offices (category E.2, 24.9%), or used for commercial activities.[3]

So far, indicator-based evaluations of the progress of Italy towards the annual 3% renovation target only refer to the prescriptions of the EU Directive n.27 of 25 October 2012 (EED-II) and, so, are limited to the central government building stock. In the NECP 2019 and 2023, the Italian building stock subject to obligations set by art. 5 of the EED-II is estimated at approximately 16 million square meters (sqm).

Figure 2 depicts the renovation trend, in cumulative square meters, along the obligation period. The path is based on actual data up to 2018 and on projections based on approved and financed projects from 2019 on.

Figure 2: Roadmap for central government building renovation. Surface with approved renvation projects (M-sqm)



Source: Ministry of Ecological Transistion (now Ministry of Environment and Eergy Security), National Energy and Cliamte Plan, December 2019.

Updated actual figures from the NECP 2024 show that the renovated surface in 2022 was below the planned target (3.2 million sqm versus 3.9). According to the plan, the slowdown in the submission of new projects was partly due to the Public Administration's need to accelerate the finalisation of projects already

[2] The Decree (DPR) n.412 of 26 August 1993 refers to a public building as "a building where the institutional activities of public entities are carried out". For further details, see: ENEA, Rapporto Annuale sulla Certificazione Energetica degli Edifici, Unit-Department for Energy Efficiency 2023, available at the following Link. Buildings' designated use, in the Italian legislation, is regulated by the Decree of the President of the Republic (DPR) n.412 of 26 August 1993.

[3] ENEA, Rapporto Annuale sulla Certificazione Energetica degli Edifici, Unit-Department for Energy Efficiency 2023.

approved. The average percentage of renovation achieved in 2014-2022, under art. 5 of the EED-II, was 2.5%.

The total surface potentially affected by the new obligation prescribed by art. 6 of the EED-III is estimated to be 209 million sqm, according to the NECP 2024. However, a refinement of estimates is running along with a review of the STREPIN for a tighter alignment to the EED-III.[4]

To reach the annual energy reduction obligation (-1.9% compared to 2021), the NECP 2024 establishes a target of 76 ktoe. Also in this case, figures must be confirmed taking into account the exceptions and derogations prescribed by paragraphs (1-3).

Measures: objectives and results

A set of actions and schemes among the measures aimed to contribute to the EED-III target, support energy retrofitting of public residential and non-residential buildings:

- White Certificates (TEE);
- Thermal Account (Conto Termico);
- Renovation Programme for Central Public Administration (PREPAC);
- Energy efficiency targets for the public administration (PREPA);
- National Fund for Energy Efficiency (FNEE);
- Minimum Energy Performance Standards (MEPS) in buildings;
- Kyoto Fund;
- Cohesion policy programmes.

Specific energy saving estimates from each measure are reported in the NECP 2024 and shown in Table 1.

Table 1: White certificates and alternative measures. Projected targets pursuant art. 8, EED-III (Mtoe)

	2022	**2030**
White Certificates	*0.32*	*1.83*
Thermal Account	*0.15*	*0.91*
PREPAC*	*0.003*	*0.011*
PREPA**		*0.15*
FNEE	*0.02*	*0.14*
MEPS	*0.13*	*0.68*
Kyoto Fund	*0.15*	*0.77*
Cohesion Funds	*0.01*	*0.01*

Source: MASE, NECP 2024
Note:
* Target set out for Central Govermenet PA in the NECP 2019;
**Planned measure addressing the obligations in art. 6, EED-III.

In the proceeding of the section, measures for which latest monitoring figures are available will be described in detail.

White Certificates.[5] White Certificates (Titoli di Efficienza Energetica) is the Italian obligation scheme, managed by the Gestore dei Servizi Energetici (GSE), adopted in Italy to comply with the EU Energy Efficiency Directives.[6] TEE are tradeable certificates of energy efficiency gains achieved by the implementation of projects in industry, network infrastructures, the tertiary sector, transport sector, civil sector, and deriving from behavioural measures. The TEE are granted by the GSE and transferred by the Gestore dei Mercati Energetici (GME) for each unit of energy saved, expressed in toe.[7] Electricity and gas distributors with over 50 thousand final customers are subject to mandatory primary energy saving to be achieved via:

- The execution of energy efficiency projects;

[4] See: Ministry of Environment and Energy Security, National Energy and Climate Plan, June 2024 (NECP 2024, Section 2.2 (i.4), p. 137), available at the following Link; and Ministry of Ecological Transition (now Ministry of Environment and Energy Security), Strategy for Energy Retrofitting of National Building stock, March 2021, available at the following: Link.

[5] Information reported in this section is sourced by the dedicated section on the GSE webpage, available at this Link.

[6] Gestore dei Servizi Energetici is a company owned by the Ministry of Economics and Finance. It provides support to citizens, businesses, and public entities on sustainable development themes, especially the deployment of renewable energy sources and energy efficiency.

[7] Gestore dei Mercati Energetici is a company of the GSE Group. For further information, see the GME website, available at this Link.

- The purchase of TEE from other parties admitted to the White Certificates Mechanism.

Eligible interventions encompass:

- High-efficiency co-generation,
- Interventions that generate energy savings beyond the lifetime,
- Specific energy efficiency defined by competent ministries.[8]

The mechanism can also be accessed by other entities on a voluntary basis:

- Citizens (provided the support of ESCOs),
- ESCOs with UNI 11352 certification,
- Businesses with a UNI 11339 certified Energy Manager or with an ISO 50001 certified management system.

The primary energy saving mandatory targets 2021-2024 are reported in Table 2.

Table 2: White Certificates targets 2021-2024. Primary energy consumption reduction

	Electricity (M-TEE/toe)	Gas (M-TEE/toe)
2021	0.45	0.55
2022	0.75	0.93
2023	1.05	1.30
2024	1.08	1.34

Source: GSE, MD (Ministry of Ecological Transition) 21/05/2021

Energy retrofitting projects carried out by Public Administrations (lighting and transport) are also eligible for incentives under the White Certificates scheme. The mechanism can be accessed directly (whether the requirements hold) or through the intermediation of distribution companies or ESCOs.

White Certificates cannot be cumulated with other incentives at a national level. Cumulation is allowed with other incentives from local sources, without prejudice to the EU regulation.[9]

Thermal Account (Conto Termico).[10] The Thermal Account incentivises energy efficiency interventions and small-scale renewable energy production projects. Potential beneficiaries are private and public entities. The latter category refers to:

- Public Administrations,
- Independent Public Housing Institutions,
- Cooperatives for inhabitants (registered at the Ministry for Business and Made in Italy);
- Publicly owned companies,
- Registered social cooperatives.

The intensity of the support varies from 40% to 65% of the actual expenditure, depending on the type of intervention.

Thermal Account incentives can be cumulated with other forms of support from national sources. The measure also covers expenditures incurred in carrying out energy audits and EPCs that, in the case of Public Administrations, can reach the total amount.

PREPAC.[11] The Energy Renovation Programme for the Central Public Administration (PREPAC) was introduced in 2014, aiming at contributing to the renovation target under art. 5 of the EED-II. Project proposals are ranked according to specific techno-economic evaluation parameters. Realisation costs can be fully financed, conditioned to available annual resources and contribution of co-financing sources.[12]

[8] MD (Ministry of the Economic Development, Ministry of Regional Affairs) n.106 of 20 May 2015.

[9] MD (Ministry of Economic Development; Ministry of Environment) of 11 January 2017, art. 1.

[10] Introduced by the MD (Ministry of Economic Development) of 28 December 2012. Information reported in this section is sourced by the dedicated section on the GSE webpage, available at this Link.

[11] Legislative Decree (LD) n.102 of 4 July 2014 and n.73 of 14 July 2020 (the EED-II and amendment transposition acts), and the MD (Ministry of the Economic Development) of 16 February 2016.

[12] For further information, see the dedicated section of the PnPE2 portal managed by ENEA, available at this Link, and the GSE web page, available at this Link.

From 2014 to 2022, 641 project proposals were evaluated by ENEA and GSE, with an average cost of approximately EUR 1.4 million and EUR 430 million of total financing. Four ministries (Defense, Economy and Finance, Internal Affairs, and Justice) submitted 96% of the proposals.

The Italian National Recovery and Resilience Plan (NRRP) includes a planned review of the PREPAC (sub-reform 1.1d) among the measures under Reform 1.1 "Simplification and acceleration of procedures for energy efficiency deployment", for Mission 2/Component C3.1 "Energy efficiency in buildings" (M2C3.1). In view of the alignment to the obligation ex art. 6 of the EED-III, this reform must adjust the application of the measure to a quantification of targets at a local level, subject to governance at the MASE.[13]

FNEE.[14] The FNEE promotes energy efficiency projects in private business (including ESCOs) and Public Administrations concerning:

- Energy consumption reduction in industrial processes,
- Construction and extension of district heating networks,
- Energy retrofitting of public infrastructures (including lighting),
- Energy retrofitting of buildings.

The fund has a revolving mechanism articulated in two parts:

- The granting of guarantees on single financing operations (30% of resources);
- The lending of discounted rate credits (70% of resources).

The incentives can be cumulated with other contributions conditioned to the limitations set by the *de minimis* threshold or the intensity of support established by the state aid regulations.[15]

The call for proposals was opened on 20 May 2019, under the management of Invitalia S.p.a.[16] Upgrade and reinforcement of the FNEE are also addressed by the sub-reform 1.1c, under Reform 1.1/M2C3.1 of the NRRP.

Kyoto Fund.[17] The Kyoto Fund is a revolving fund in operation since 2012, with an initial budget of EUR 600 million, distributed in 3 cycles. It is managed by Cassa Depositi e Prestiti (CDP)[18], which grants low-interest preferential loans (currently at 0.25%) for financing energy and water efficiency projects in buildings designated for education and training activities, sport, and healthcare services.

During 2015-2018, the fund provided financing of EUR 350 million to energy renovation projects of public schools. The Budget Law of 2019 has extended the types of eligible projects and launched the "Kyoto 5" call (closed on December 2022). At 31 December 2021, the financial support amounted to EUR 105 million for projects in about 200 buildings.

Planned evolutions of the measure will address an increase in the budget, partly sourced from the REPowerEU funds, up to EUR 800 million, and the design of a mixed financial mechanism accessible by all Public Administrations.[19]

[13] For further information, see NECP 2024, Section 3.2 (i).

[14] LD 102/2014, and ruled by the MD (Ministry of the Economic Development) of 22 December 2017 and MD (Ministry of the Economic Development, Ministry of environment) of 5 April 2019.

[15] For further information, see the dedicated section of the Ministry of Environment and Energy Security, available at this Link.

[16] Invitalia Spa is a company owned by the Ministry of Economy and Finance. It performs the functions of National Agency for the Italian Agency for Investment Attraction and Business Development.

[17] Budget Law 2007 (Law n.296 of 7 December 2006)

[18] Cassa Depositi e Prestiti (CDP) is a public shareholding company. For further information, see the CDP website, available at this: Link.

[19] For further information, see Annual Report on Energy Efficiency, 2023, Chapter 6, ENEA, available at this Link.

Cohesion funds

Projects aimed at deploying energy efficiency potentials of the public sector can also be financed by the European Structural and Investment Funds (European Regional and Development Fund and the Cohesion Fund) and the Development and Cohesion Fund (Fondo Sviluppo e Coesione). Projects can also be co-financed by dedicated national funds, subject to the coordinated management between the European Commission and Member States.

In Italy the ESIFs co-financing schemes are directed through the Rotation Fund for the Implementation of EU Policies (Fondo di Rotazione per l'Attuazione delle Politiche Comunitarie). Financial resources from the cohesion funds are assigned through National Operational Programmes (PON) and Complementary Operational Programmes (POC). Specific Development and Cohesion Plans (PSC) are set up for managing the resources allocated at a national and local level through the Development and Cohesion Fund.

The strategic orientation of the resources mobilised by the 2021-2027 financial framework was formally established by the EU-Italy Partnership Agreement.[20] The resources planned for the period amount to EUR 43.1 billion from the ESIF and approximately EUR 32 billion of national co-financing. The policy objective (PO) n.2 "A Greener Europe" has drawn EUR 8.8 billion, largely channelled towards less-developed regions (EUR 6.9 billion).

Resources for public building retrofitting are committed according to energy specific objectives, under PO2. Reported priority interventions are:

- High energy absorption buildings, structures. and plants,
- Deep renovations that allow significant energy savings,
- Combined energy retrofitting and structural anti-seismic improvements.

*Table 3: White certificates and alternative measures. Annual energy savings pursuant art. 8, EED-III (Mtoe)**

	2021	2022
White Certificates	0.113	0.316
Thermal Account	0.086	0.151
FNEE	0.005	0.010
Cohesion Funds	0.007	0.007

Source: Annual Report on Energy Efficiency, ENEA, 2022 and 2023.
Note: *Data refers to the overall result of the measure

Table 3 reports energy savings achieved by the measures, complying with the obligation set by art. 8 of EED-III. A comparison with data reported on Table 1 shows that all measures but the FNEE are sufficiently aligned with the projections.

In addition, the PREPAC contributed to the energy saving targets with an average annual reduction of energy consumption of approximately 1.1 and 0.94 ktoe on 2021 and 2022, respectively.

Other factors directly relate to the Italian energy efficiency strategy for the public sector. First of all, public residential buildings could be eligible for the fiscal deduction incentives for energy retrofitting in buildings (Ecobonus and Superbonus). Additional insights into the Italian strategy for public building renovations can be drawn from the planned investment reported in NRRP, M2C3.1, namely:

- Investment 1.1: Renovation plan and energy retrofitting of schools (targeting approximately 195 buildings for 410 thousand sqm, with 3.4 ktoe annual energy savings);

[20] Adopted on 19 July 2022, under the EU Regulation n.1060 of 24 June 2021 and the Commission Decision C(2022) n.4787 of 15 July 2022.

- Investment 1.2: Energy retrofitting of judiciary buildings (48 buildings, 290 thousand sqm, 0.7 ktoe annual energy savings).

Moreover, the planned reform of the Public Procurement Regulation, foreseen by the NRRP, has been adopted.[21] As reported by the NECP 2024, this reform introduced:

- New principles, especially regarding the evaluation criteria,
- Digitalisation of the whole life cycle of public contracts (planning, publication, award, execution).[22]

Final remarks

The Italian strategy for making the public sector play an exemplary role in the implementation of energy efficiency solutions has been revived by the recent issuance of the National Energy and Climate Plan in June 2023. The energy efficiency dimension acknowledges the reinforced ambition of the new 2030 targets introduced by the EU Directive 1791 of 2023.

A consistent contribution also stems from the progress achieved towards the completion of reforms and investments planned under the National Recovery and Resilience Plan. In particular, component M2C2: "Energy efficiency and buildings renovation" accounting for 26% of total resources allocated to Mission 2: "Green revolution and ecological transition", which attracted the lion's share of the total NRRP budget.

Energy efficiency deployment is supported by a well-structured and diversified set of measures, mostly already in force since the transposition of the EU Directive 27 of 2012. The functioning of the measures was sufficiently effective along with the monitoring cycle 2014-2020 and based on evidence emerging during the last three years.

However, to address the level of ambition raised by the new Directives, the increase in financial resources must be accompanied by substantial updates of the measures. Many planned evolutions of the measures reported in the NECP are already ongoing. Overall, the Italian authorities recognise the need to improve the measures through:

- Simplification and optimization of the procedures,
- Reshaping of the incentives to prioritise low-performing buildings and solutions with a higher social impact,
- Customization of specific mechanisms for targeting the public sector (e.g. Conto Termico 3.0 and the planned reform of the loan section of FNEE[23]).

A version of the PREPAC, that is coherent with the extension beyond the central government, is also planned. As discussed, a crucial step for the implementation of a "general PREPAC" (called PREPA) is the defining of targets at regional and local levels, and the subsequent coordination with the relevant administrations.

Moreover, the measure must be coordinated with the other incentive schemes (e.g. the FNEE and Kyoto Fund), and monitored by an integrated framework for the evaluation of support measures operating at different policy and administrative layers.

For further reading or information, please visit https://www.odyssee-mure.eu/

[21] LD n.36 of 31 March 2023.

[22] For further information, see NECP 2024, Section 3.2 (iii).

[23] Ibidem.