PREPAC – Energy Requalification Programme of the Central Public Administration (Italy)

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Background and objectives

Article 5 of the EU Energy-Efficiency Directive (EED) 2012/27/EU, has required Member States to renovate ≥ 3 % per year of the usable, covered, air-conditioned floor area of central-government buildings. Italy transposed it with Legislative Decree 102/2014. Then, Decree 16 September 2016 (so-called "DM PREPAC") established the PREPAC grant scheme to meet that obligation. For Italy, the stock to be addressed represent about 16 million m² in ministries, constitutional bodies and armed-forces buildings (source: odyssee-mure.eu)

Strategic goals for PREPAC (2021-2030) align with the provisions of Articles 5 and 6 of the EED recast (EU)2023/1791:

- renovate on average 480 000 m² per year (≥ 3 % of stock);
- cut central-government final-energy use by ≥ 1.9 % per year;
- act as an *"exemplary role"* for regional and municipal estates.

Key features

Element	Specification	Legal / technical basis
Financial support	Non-repayable grant up to **100 %** of eligible costs; resources: €75 million/year (2021-2030) after €355 million in 2014-2020	DM PREPAC 2016; Cabina di Regia funding decisions (pubblicazioni.enea.it)
Beneficiaries	Central public administrations (ministries, constitutional bodies, defence, justice, inland-revenue, etc.)	D.Lgs 102/2014, Art. 5
Project ranking criteria	(i) **Cost of saved energy** (€/kWh, 45 % weight); (ii) co-financing share; (iii) completion time; (iv) *exemplary* projects (≥ 50 % primary-energy cut & envelope + systems) reserve 20 % of funds	DM PREPAC 2016, Annex A (pubblicazioni.enea.it)

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Element	Specification	Legal / technical basis
Eligible interventions	Envelope insulation, window replacement, HVAC upgrade (condensing boilers, heat-pumps), LED lighting, BACS, PV/solar-thermal	Linee guida ENEA–GSE 2017 (certifico.com)
Exclusions	Buildings < 250 m², strictly protected heritage where energy performance requirements conflict, purely military premises, places of worship	DM PREPAC 2016, Art. 2
Funding flow	State budget item financed by part of ETS auction revenues and a levy on natural-gas bills; disbursed via MASE–GSE convention	ENEA report 2024 (pubblicazioni.enea.it)

Implementation

- **Governance:**
  - **Cabina di Regia per l'Efficienza Energetica** (chaired by MASE) issues the annual call and final approval.
  - **ENEA** and **GSE** carry out technical-economic appraisal and monitoring.
- **Annual cycle (simplified):**
  1. **Call published** (March–April).
  2. **Project submission** by 15 July through GSE portal (diagnosis or EPC mandatory).
  3. **Joint ENEA–GSE assessment** → merit ranking.
  4. **Decree of approval** (December) allocates grants; conventions signed.
  5. **Works** must finish within 36 months; progress and savings reported in the ENEA 4E database.
- **Support tools:** Pre-diagnosis templates, cost-optimal calculators and help-desk webinars (≥ 600 PA staff trained in 2024). mase.gov.it

Budget (or other cost data)

Period	Grants committed	Mean grant / project	Surface upgraded	Source
2014-2020	**€355 million**	€1.3 million	1.96 million m²	(pubblicazioni.enea.it)

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2021-2022	**€75 million yr⁻¹** (statutory allocation)	€1.6 million	0.61 million m²	(pubblicazioni.enea.it)
2014-2023 **total**	**≈ €430 million** invested	—	2.56 million m²	(media.enea.it)

*Median cost of saved primary energy 2016-2022 = €130 /MWh (average = €145 /MWh).

Results and impacts

- **Uptake:** 677 proposals submitted (2014-2023); **310** funded (46 % pass-rate). pubblicazioni.enea.it
- **Energy savings:** preliminary monitoring indicates **1.1 ktoe (2021)** and **0.94 ktoe (2022)** annual primary-energy reduction from completed projects – c. **38 GWh yr⁻¹** electricity equivalent. odyssee-mure.eu
- **Emission cuts:** ≈ 260 kt CO_2 cumulated 2014-2023 (ENEA model). pubblicazioni.enea.it
- **Progress vs. 3 % target:** renovated area averages **~2 % yr⁻¹**; thus PREPAC covers ≈ 67 % of the legal obligation – supplementary measures are planned under the new EED-III transposition. odyssee-mure.eu
- **Typical interventions (share of funded actions 2014-2022):** window replacement 33 %, envelope insulation 26 %, HVAC replacement 19 %, LED lighting 15 %, rooftop PV 11 %. gse.it

Lessons learnt

- **Cost-effectiveness discipline works.** Weighting the €/kWh indicator steers proposals toward high-yield actions and holds the median cost at €130/MWh.
- **Administrative capacity is the bottleneck.** Ministries with dedicated energy teams (e.g. Defence, Economy) capture > 80 % of funds, while smaller bodies rarely apply. Targeted TA and simplified templates are expanding participation.
- **Ringfencing for comprehensive ("exemplary") projects**. They deliver > 50 % energy cuts but need longer preparation; reserving 20 % of funds for them is essential to avoid a bias toward light retrofits.
- **COVID-19 & alternative incentives reduced submissions** in 2019-2021; alignment with "Conto Termico" and PNRR funds is now explicit to prevent cannibalisation.
- **Monitoring quality and impacts.** Since 2022, all projects must install metering for post-intervention verification, strengthening the evidence base for NECP reporting.

Sources

ENEA, **"Il Programma per la Riqualificazione Energetica degli Edifici della PA Centrale – Sintesi istruttorie ENEA-GSE"**, Jan 2024. pubblicazioni.enea.it

ENEA press release, **"Public administration buildings: €430 million invested for requalification"**, 27 May 2024. media.enea.it

Odyssee-MURE Policy Brief, **"The exemplary role of the Italian public sector in energy efficiency"**, 2024. odyssee-mure.eu

Decree 16 Sep 2016 (G.U. n. 262/2016) – implementation rules for PREPAC. agenziademanio.it

MASE website, **"Decree 12 Dec 2023 – Approval of PREPAC 2022 ranking"**. mase.gov.it

ENEA/GSE, **Linee guida PREPAC** (May 2017). certifico.com

GSE official PREPAC portal: https://www.gse.it/servizi-per-te/efficienza-energetica/prepac gse.it

Interview with national expert

Where does the original idea of the scheme come from?

PREPAC was conceived to operationalise Article 5 of the EU Energy Efficiency Directive 2012/27/EU, which requires Member States to renovate ≥3% per year of the useful floor area of central-government buildings. Italy transposed this obligation through Legislative Decree 102/2014, and the Decree of 16 September 2016 ("DM PREPAC") established a dedicated grant line to deliver those annual renovations in a structured, transparent way. The policy logic is straightforward: target a portfolio of cost-effective, replicable measures—envelope upgrades, high-efficiency HVAC and controls, lighting, building automation—prioritised by primary-energy savings and cost-effectiveness, while ensuring minimum comfort and quality standards for public services.

What have been the main difficulties encountered in developing or implementing the scheme?

Three families of challenges emerged. (i) Asset and data heterogeneity: central administrations manage diverse building types and conditions; establishing robust baselines (audits, metered data, hours of use) and comparable key performance indicators takes effort. (ii) Procurement and scheduling constraints: projects must comply with public-procurement rules and often operate in occupied buildings; this affects phasing, cost control, and time-to-completion. (iii) Regulatory interfaces: heritage restrictions, fire safety, acoustics, and indoor-air-quality requirements can limit design options, especially for deep envelope works. To mitigate these, we issued standardised technical dossiers, provided ex-ante design reviews, and promoted bundling of similar buildings to achieve economies of scale and reduce transaction costs.

What success factors would you have identified?

Clear governance and roles—policy steering by the Ministry, technical guidance and appraisal by ENEA, implementation by the beneficiary administrations—keeps decision paths short. Standardisation is essential: templates for energy audits and M&V plans, model technical specifications aligned with Green Public Procurement criteria, and checklists for commissioning reduce variability and rework. Portfolio thinking—aggregating buildings by archetype and climate—improves predictability of outcomes and procurement leverage. Performance orientation—ranking proposals by expected primary-energy savings (kWh/y), €/kWh saved, and qualitative risk factors—helps allocate scarce funds efficiently. Finally, capacity building (training designers, RUPs, and facility managers) sustains quality from design through operation.

What have been the main changes in the scheme in recent years? Are there further developments planned? Or what would be the main challenges for the coming years?

Two development tracks are in focus. First, deeper integration of performance evidence: progressively strengthening meter-informed baselines, post-retrofit M&V, and feedback loops to refine design guidelines over time—without overburdening administrations.

Second, digitalisation: a more API-ready data backbone linking building registries, audits, works progress, and energy billing will streamline reporting and ex-post evaluation. The main challenges are stable multi-year funding to sustain a predictable pipeline; supply-chain and skills availability for quality envelope works and commissioning; and policy coherence with other instruments (e.g., Conto Termico, renovation waves, and green-procurement rules) to avoid overlaps and unintended incentives. For complex assets and protected buildings, early coordination with heritage authorities remains critical.

If you could go back in time, what would you do differently?

I would front-load four design choices.

(1) A unified asset registry for the central-government stock, with unique building IDs and standard taxonomies for systems and uses—this would have accelerated baselining and portfolio aggregation.

(2) Pre-approved, archetype-specific tender kits (technical specs, drawings, M&V protocols) to shorten procurement timelines and reduce design variance.

(3) A staged rollout with pilot cohorts and randomised technical inspections to calibrate thresholds, cost benchmarks, and risk allowances before scaling nationally.

(4) Stronger emphasis on operations and maintenance from day one—commissioning, controls tuning, and simple operator dashboards—because a significant share of savings depends on how buildings are run after handover.