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Global Covenant of Mayors: Aggregation Report on Energy Access and Energy Poverty 2025

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Contents

Abstract

This report monitors the Energy access and energy poverty pillar (EAPP) of the Global Covenant of Mayors (GCOM) during 2023-2024 using descriptive statistics and cross-tabulation analysis of MyCovenant and CDP-ICLEI Track platforms data. The study tracks reporting progress globally looking at badge assignment and examines European EAPP action characteristics. Results show 1 575 signatories obtained EAPP badges (i.e. completed important reporting steps on the pillar) by 2024 (17% growth), covering 430 million people (34% of total Global Covenant of Mayors population). Regional adoption rates vary significantly: North America (32%), East Asia (27%), and Southeast Asia (23%) lead, while several regions remain below 10%. European energy actions increased 39% to 2 770 interventions, with 90% integrating mitigation or adaptation objectives and implementation favouring awareness-raising, financial incentives, and energy management. Critical gaps include variable reporting quality and geographic data limitations restricting global action analysis. Findings inform policy by evidencing municipal climate-energy integration effectiveness and identifying capacity-building priorities for accelerating pillar adoption globally.

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Authors

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Executive summary

Policy context

This report supports EU and global effort for energy poverty alleviation, energy access and climate action policies through monitoring of the Global Covenant of Mayors' (GCOM) Energy access and energy poverty pillar (EAPP), launched in January 2023. With 733 million people globally lacking electricity access, municipalities play a critical role in delivering equitable energy transitions. The analysis tracks 2023-2024 progress across GCOM signatories, providing evidence for policy effectiveness and identifying areas requiring support.

Key conclusions

The energy access and energy poverty pillar achieved substantial uptake within its first two years, with signatory participation growing 17% and demographic reach expanding to 430 million people by 2024. Regional disparities persist, with several regions maintaining adoption rates below 10% despite established membership, indicating expansion potential.

European municipalities demonstrate strong integrated climate-energy poverty action, with 90 % of EAPP interventions combining multiple pillar objectives, validating the framework's complementary design. Implementation approaches favour awareness-raising, financial incentives, and management strategies over regulatory mechanisms.

Gaps include variable reporting quality constraining comparative analysis, and geographic data limitations restricting action analysis to Europe. Policy recommendations include: targeted capacity-building for low-adoption regions; reporting standardization protocols; expanded monitoring infrastructure for global action analysis; and impact assessment frameworks to evaluate intervention effectiveness.

Main findings

Approximately 1 575 signatories held EAPP badges for goal, assessment, and/or plan by 2024 (2 250 total badges assigned). Municipalities with complete badge coverage tripled to 125. European Union & Western Europe maintains the largest participation (1 291 signatories); North America demonstrates the highest adoption rate (32%).

Energy access and poverty actions increased 39% to 2 770 interventions, outpacing overall climate action growth (3%). Implementation status for main categories: 51% ongoing, 41% planned, 7% completed. Building related interventions dominate integrated actions (857 residential interventions), while EAPP-only actions prioritize socio-economic support and awareness-raising. Municipalities consistently designate one-third of actions as strategic priorities.

Related and future JRC work

Comprehensive 2023 analysis appears in the scientific article "Local actions driving progress on urban energy access and energy poverty in the Global Covenant of Mayors initiative – Pittalis et al. (2025)" (under review as of November 2025, final title might change). Future work includes global action analysis expansion and impact assessment development.

Quick guide

This report monitors the Global Covenant of Mayors' Energy access and energy poverty pillar using descriptive statistics and cross-tabulation methods. Data sources include MyCovenant and CDP-ICLEI Track reporting platforms. Analysis covers badge assignment trends globally and detailed action characteristics for European signatories during 2023-2024. Municipal engagement on energy access and poverty is tracked through badges awarded for assessment, target-setting, and action planning.

1. Introduction

Energy access and energy poverty represent critical challenges for municipalities and local governments worldwide. As of 2023, 733 million people globally remain without electricity access, of which around 101 million live in urban areas. Access to clean cooking present a more critical condition, with 2.1 billion people lacking access to clean fuels and technologies for cooking, of which around 500 million live in urban areas[1]. When looking at the multidimensional issue of energy poverty, the situation is similarly challenging. Municipal governments confront multiple concurrent pressures: managing affordability challenges for residents, maintaining energy infrastructure that meets development demands, and addressing the immediate consequences of energy crises on local communities. These challenges, however, create opportunities for local leadership to assess community impacts, implement targeted interventions that expand energy access and alleviate poverty, and transition toward energy provision that ensures security, affordability, and sustainability. While municipalities have led innovative responses through, among others, building energy efficiency programmes, renewable installations, and targeted assistance schemes, substantial scope remains for expanding these efforts to protect vulnerable populations ensuring energy access and tackling energy poverty.

The Global Covenant of Mayors for Climate and Energy (GCOM) launched the Energy access and energy poverty pillar (EAPP) in January 2023, providing signatory municipalities with a systematic framework and tools to assess conditions, set targets, and develop interventions addressing energy poverty and access challenges. This technical report monitors the EAPP uptake and implementation during 2023-2024, the framework's first two operational years. The analysis addresses critical policy questions regarding pillar effectiveness, geographic adoption patterns, and municipal implementation approaches. The report tracks global badge assignment[2] to assess signatory engagement and regional performance, examines energy poverty actions reported by CoM Europe to understand implementation strategies and sectoral targeting, and identifies gaps in reporting quality and geographic coverage to inform capacity-building priorities. Employing descriptive statistics and cross-tabulation methods using MyCovenant and CDP-ICLEI Track platform data, the analysis provides evidence-based insights for strengthening the pillar's contribution to urban energy poverty alleviation and sustainable energy transitions.

This report monitors the Global Covenant of Mayors' energy access and energy poverty pillar progress during 2023-2024 and is structured in the following sections:

- Chapter 2 frames the GCOM approach to the topic of energy access and energy poverty.
- Chapter 3 introduces the methodology used to carry out the analysis.
- Chapter 4 presents the EAPP performance in 2023-2024 by looking at badges’ distribution.
- Chapter 5 examines EAP actions focusing on the Covenant Europe regions.

[1] : IEA, IRENA, UNSD, World Bank, WHO. 2025. Tracking SDG 7: The Energy Progress Report. World Bank, Washington DC. © World Bank. License: Creative Commons Attribution—NonCommercial 3.0 IGO (CC BY-NC 3.0 IGO)

[2] Badges are a symbolic visual recognition obtained by signatories upon reaching certain stages – completion of assessment, target, plan - and acknowledge the progress municipalities make in their climate and energy action plans.

Note on scope and related publications

This technical report focuses on tracking progress in energy badge uptake and action reporting between 2023 and 2024, providing a comparative analysis of trends and growth patterns during this period. A comprehensive analysis of 2023 data, including detailed examination of the EAPP methodology, statistical analysis of findings, and in-depth discussion of municipal actions, has been conducted separately and is presented in the scientific article " Local actions driving progress on urban energy access and energy poverty in the Global Covenant of Mayors initiative – Pittalis et al. (2025)" (under review as of November 2025, the final title might change). Readers seeking detailed methodological insights, testing, and comprehensive interpretation of results are directed to the forthcoming scientific publication.

2. The Global Covenant of Mayors approach to energy access and energy poverty

The Global Covenant of Mayors for Climate and Energy (GCOM) introduced the energy access and poverty pillar (EAPP) as its third thematic pillar in January 2023, joining the established mitigation and adaptation components. The pillar emerged from a two-year collaborative development process involving Regional and National Covenants, ensuring the framework accommodates regional variations while enabling coordinated action across the GCOM municipalities. Through this pillar, participating cities gain systematic tools to evaluate local energy access and poverty conditions, establish improvement targets, formulate intervention strategies, and monitor advancement on energy access and poverty challenges.

The pillar is structured using the following three energy attributes as described in the GCOM Common Reporting Framework (CRF)[3]: i) **Secure energy**: energy is accessible and/or reliable, enabling access to economic, social, and cultural engagement. ii) **Sustainable energy:** energy is generated from renewable and non-pollutive resources avoiding negative health, social and gender consequences. iii) **Affordable energy:** energy is affordable and/or the building stock is energy efficient to maximise value of expenditure enabling energy applications for economic, social, and cultural opportunities.

Per each energy attribute, several indicators are made available to the municipalities to assess their local energy access and energy poverty conditions. Each GCOM region has selected the most relevant energy attribute based on its local characteristics and energy needs, tailoring its energy assessment accordingly[4] This structured yet adaptable methodology accommodates diverse urban realities while maintaining measurement consistency and aggregation potential, supporting municipalities in implementing equitable energy transitions that address the needs of their most vulnerable residents.

Table 1. List of GCOM Regions and selected energy attributes

GCOM Regions		European Union and Western Europe	Eastern Europe and Central Asia	Japan	Latin America and the Caribbean	Middle East and Northern Africa	North America Canada	North America US	Oceania	Republic of Korea	China	Taiwan	South Asia	Southeast Asia	Sub-Saharan Africa
Energy attrib-	Security	Additional	Additional	Additional	Additional	Additional	Additional	Additional	Additional	Additional	Additional	Selected	Selected	Selected	Selected
	Sustainability	Additional	Additional	Selected	Selected	Selected	Additional	Additional	Additional	Selected	Selected	Selected	Additional	Additional	Additional
	Affordability	Selected	Selected	Additional	Additional	Additional	Selected	Selected	Selected	Selected	Additional	Additional	Additional	Additional	Additional

Legend: Selected energy attribute for mandatory assessment; Energy attribute for additional reporting

Source: JRC elaboration

[3] Global Covenant of Mayors Common Reporting Framework (CRF) available at: https://www.globalcovenantofmayors.org/our-initiatives/data4cities/common-global-reporting-framework//

[4] Pittalis, M., Palermo, V. and Bezerra, P., How to Develop an Energy Poverty Assessment - Covenant of Mayors Guide-book - Complementary document 3, Publications Office of the European Union, Luxembourg, 2025, https://data.europa.eu/doi/10.2760/3804131, JRC142169

3. Datasets and methodology

3.1. Data sources

The datasets used in this report merge energy access and energy poverty reported data sourced from the MyCovenant (Bezerra, Paula; Papaiordanidis, Stefanos; Kuster, Corentin; Treville, Aldo; Melica, Giulia, 2025) and CDP-ICLEI Track (CDP, 2024) reporting platforms with a cut-off date of December 2024. The integration of these two data sources ensures a comprehensive dataset, capturing the diverse type of data and initiatives undertaken by municipalities and regions worldwide. In this report, "GCOM data" refers to the aggregated datasets from these platforms, reflecting the latest available information.

3.2. Methodology

This analysis employs descriptive statistics and cross-tabulation techniques to examine energy access and poverty pillar uptake and action reporting within the Global Covenant of Mayors framework. GCOM data encompasses all signatories with at least one energy access and poverty badge or documented energy access and poverty related action during 2023-2024. The signatories can report and engage in three types of energy access and poverty badges: plan badges, assessment badges, and target badges, which represent key stages of municipal commitment and planning. The badges can be partially or fully assigned depend on the level of engagement.

The analytical approach centres on systematic cross-tabulation across multiple dimensions: temporal comparison (2023 versus 2024), geographic distribution (ten GCOM regions), badge typology (plan, assessment, and target badges), action characteristics (implementation means, sectoral focus, pillar integration), and implementation status. Growth rates were calculated as percentage changes between annual values, while penetration rates represent the proportion of energy access and poverty-engaged signatories relative to total GCOM membership or population. Regional median population values were computed to characterize typical municipality size within each geographic area.

For the European-focused analysis of energy access and poverty actions, cross-tabulation methods examined action distribution across implementation approaches, macro-areas for energy poverty interventions[5], mitigation and adaptation sectors, implementation status categories, and temporal planning horizons. Actions were categorized according to signatory-reported classifications for means of implementation, pillar relevance, key action designation, and completion status. The analysis maintains a descriptive focus, presenting data patterns and trends without statistical testing, which can be found in Pittalis et al. 2025.

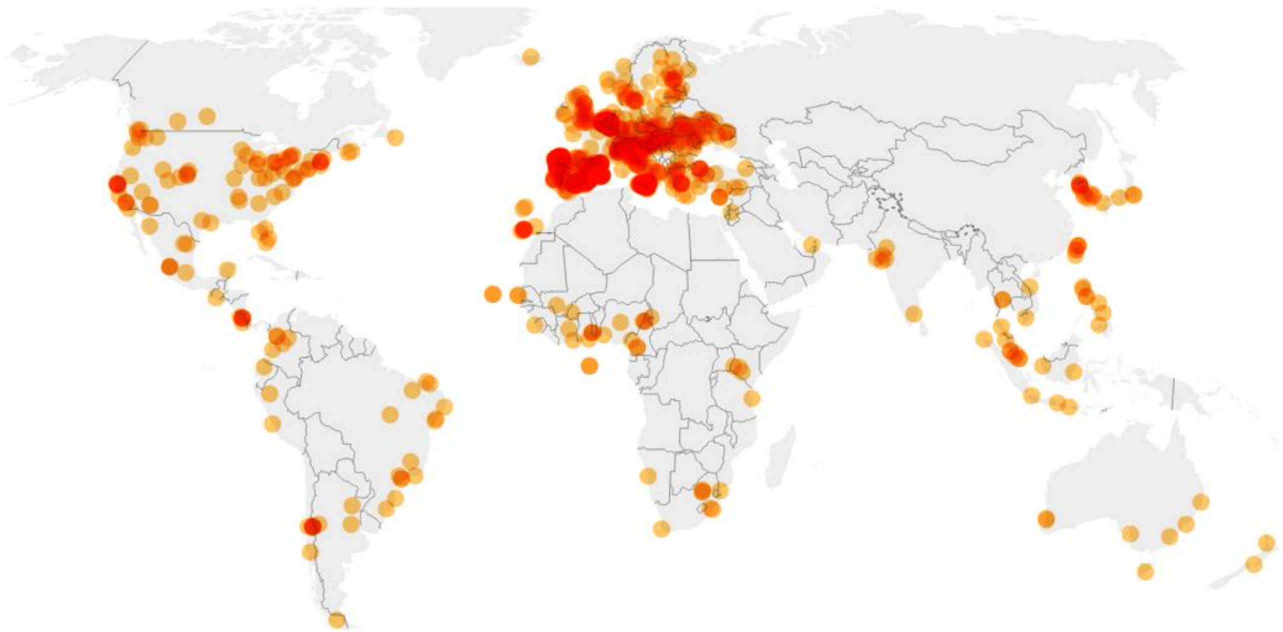
[5] Energy poverty macro-areas are categories used by the CoM Europe to structure its energy poverty assessment. As energy poverty is a complex and multidimensional issue driven by various transversal factors, the multidimensional aspects of energy poverty are reflected in five macro-areas used in the EU context: Climate, Facilities and housing, Mobility, Socio-economic, Policy and regulatory framework and Participation/awareness raising. For each macro area, a set of indicators is made available to provide a picture of the status of energy poverty for the municipalities. The definition of macro-areas takes into consideration and follows also the Energy Poverty Advisory Hub assessment recommendations.

4. Global energy access and poverty badges performance analysis

This section presents a comprehensive analysis of energy access and poverty pillar performance across the Global Covenant of Mayors alliance, examining badge distribution patterns, regional variations, and demographic reach during 2023 and 2024.

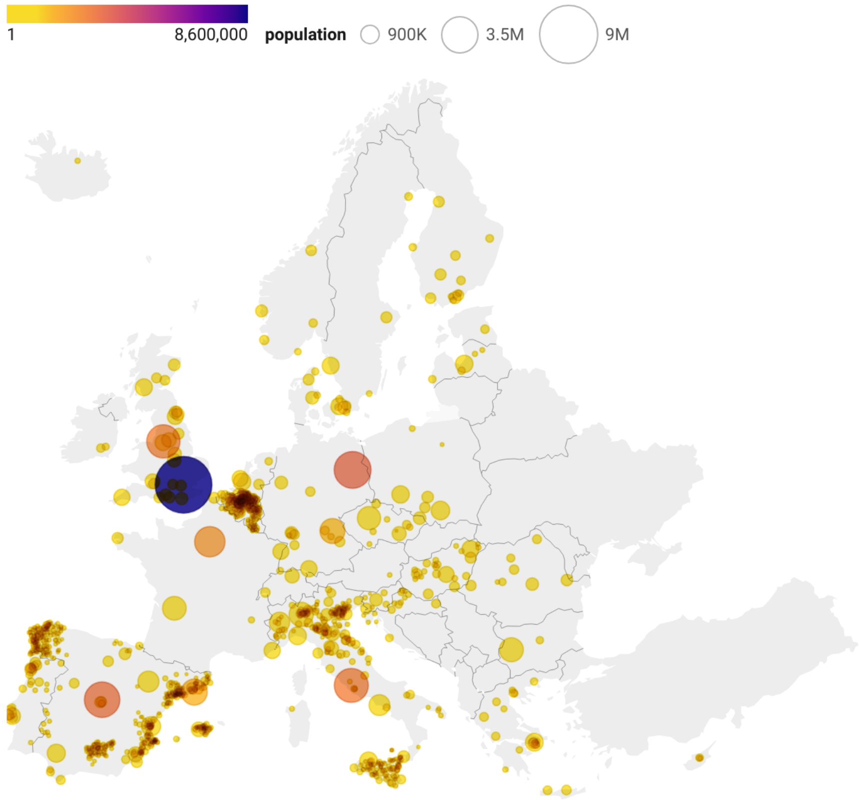
The analysis focuses on signatories that have reported activities within the EAPP and obtained at least one energy access and poverty badge during the 2023-2024 period, as depicted in **Figure 1**. This sample encompasses municipalities from ten Global Covenant of Mayors regions: European Union & Western Europe, North America, Latin America & the Caribbean, Eastern Europe & Central Asia, Sub-Saharan Africa, Southeast Asia, East Asia, Middle East & North Africa, and Oceania. The European Union & Western Europe represents the largest concentration of participating municipalities, followed by North America and Latin America & the Caribbean, as depicted in **Figure 2**.

Figure 1. Global distribution of signatories with at least one energy access and poverty badge (red) in 2024 with colour intensity indicating concentration levels.

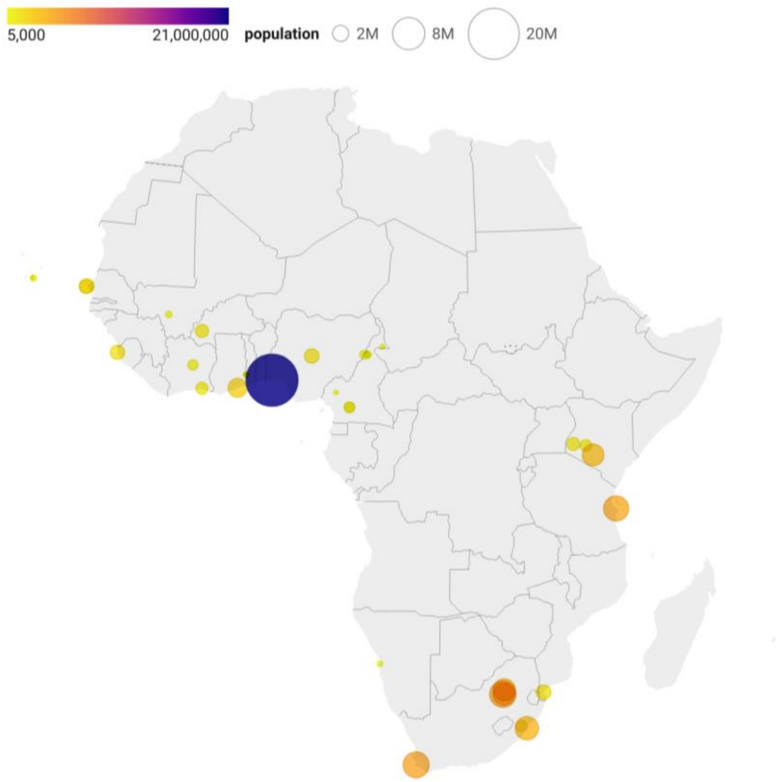


Source: JRC elaboration

Figure 2. Distribution of signatories for selected GCOM Regions: European Union and Western Union (a), Sub-Saharan Africa (b), Latin America and the Caribbean (c). Colour scale and circle dimension indicate population size.



(a)



(b)

(c)

Source: JRC elaboration

The section is structured as follows:

- **Overall energy access and poverty badges distribution:** yearly evolution of the number of signatories with energy access and poverty badges, typology and composition of assigned badges, municipalities achieving full badge coverage, and cross-pillar integration with climate change mitigation and adaptation commitments.
- **Regional performance assessment**: geographic distribution of the energy access and poverty pillar participation across the covered GCOM regions, volume, and composition of badges per region, regional adoption rates relative to overall membership, and comparative growth patterns among regions.
- **Population impact and coverage analysis**: demographic reach of the energy access and poverty pillar measured by population residing in participating municipalities, penetration rates within the total GCOM population base, regional variations in population coverage, and characteristics of participating municipalities by size and covenant membership duration.

4.1. Overall energy access and energy poverty badges distribution

This section examines the uptake of the EAPP through the assignment of energy badges to GCOM signatories during 2023 and 2024. Engagement with the pillar is tracked through three types of energy badges: plan badges, assessment badges, and target badges, which represent key stages of municipal commitment and action. The analysis presents data on the total number of signatories participating in the EAPP, the distribution of badges by type, progression toward comprehensive participation through full badge coverage, and integration with existing mitigation and adaptation commitments. These metrics provide a quantitative picture of how municipalities are engaging with energy poverty and access issues within the GCOM framework.

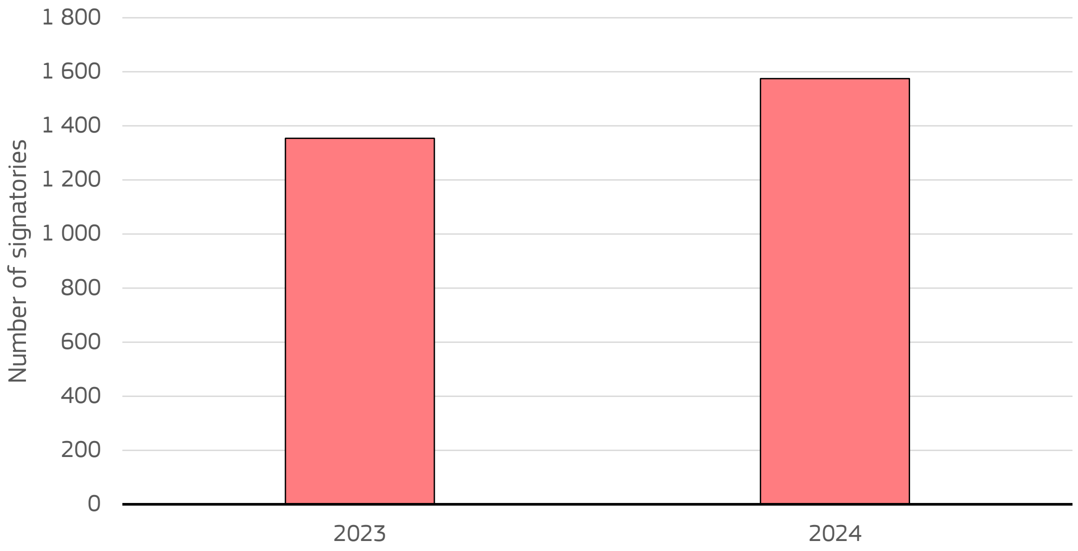
4.1.1. Number of GCOM signatories with energy badges

The number of signatories with at least one EAP badge increased from 2023 to 2024. The following chart displays the total count of municipalities that have been assigned one or more badges within the energy access and energy poverty pillar.

In 2023, approximately 1 350 signatories held at least one energy access and poverty badge. This represented the baseline participation level for municipalities engaging with the energy access and energy poverty pillar. By 2024, this number grew to approximately 1 575 signatories with at least one EAP badge.

The growth from 2023 to 2024 represents an increase of around 225 signatories, corresponding to a growth rate of approximately 17%. The increase indicates expanding participation in the energy access and poverty pillar, with more municipalities initiating engagement by obtaining at least one badge across the plan, assessment, or target categories.

Figure 3. Number of GCOM signatories with at least one EAP badge.



Source: JRC elaboration

4.1.2. Typology of energy access and energy poverty badges assigned

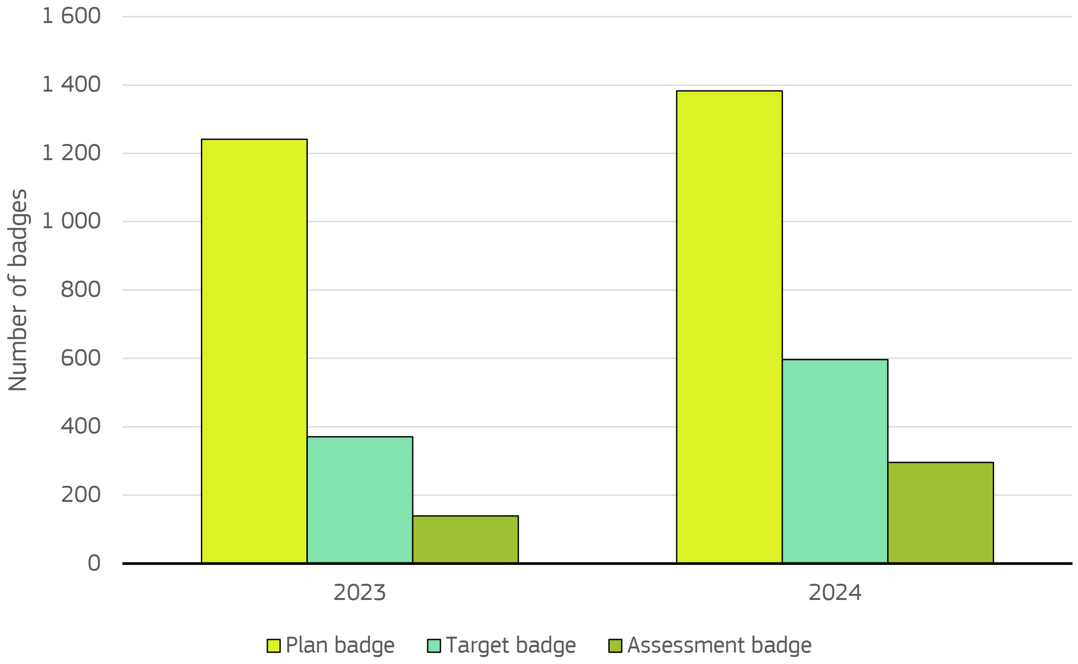
The number and composition of EAP badges assigned to signatories varied across the two reporting years.

In 2023, the total number of EAP across all three categories reached approximately 1 750. The *energy plan badge* accounted for the largest share (71%) at approximately 1 250 badges. The *energy target badge* represented around 400 badges (23%), while the *energy assessment badge* accounted for approximately 100 badges (6%).

By 2024, the total number of energy access and poverty badges grew to approximately 2 250, an increase of 28%, or 500 more badges from the previous year. The *energy plan badge* remained the dominant category, rising to approximately 1 375 badges. The *energy target badge* increased substantially to around 625 badges, while the *energy assessment badge* grew to approximately 250 badges.

All three badge types within the energy access and poverty pillar increased between 2023 and 2024, although with different rates of growth in each one of them. The plan badge maintains the largest share in both years, representing more than half of all badges assigned, but now it only counts for 61% of the total badges. The *energy target badge* consistently represents the second-largest category, while the assessment badge remains the smallest segment in both reporting periods, but with more representativeness than before, 11% of the total badges in 2024.

Figure 4. Number EAP badges by typology.



Source: JRC elaboration

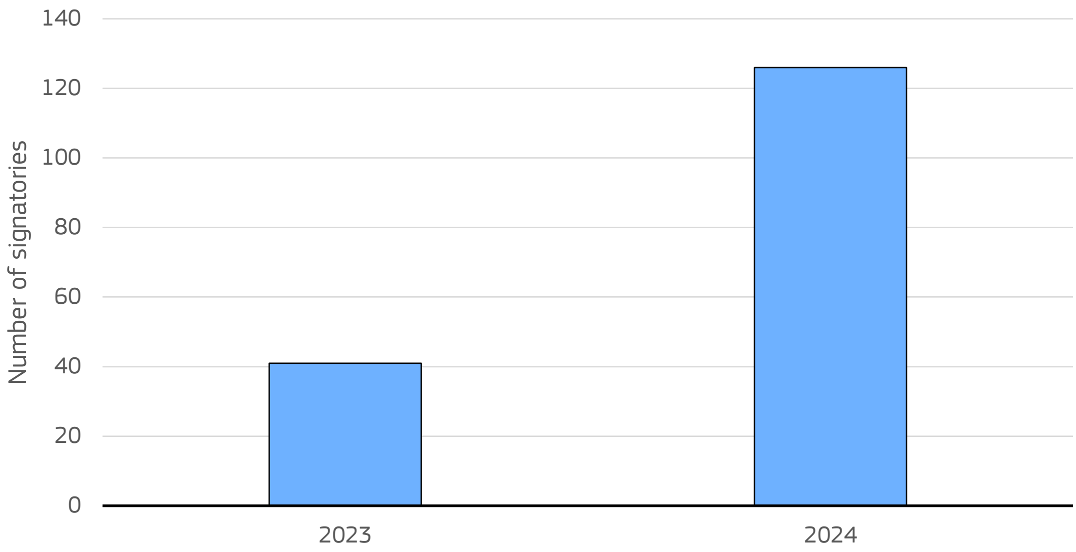
4.1.3. Number of signatories with full badges for energy access and energy poverty

The number of municipalities holding all three types of badges increased between 2023 and 2024. The following chart tracks municipalities that have been assigned all three types of badges, representing signatories with complete engagement across plan, assessment, and target components of the EAPP.

In 2023, 40 municipalities held all three types of badges, representing a small subset (3%) of the total signatories engaged with the energy access and poverty pillar. By 2024, this number increased substantially to approximately 125, or 8%, municipalities with complete badge coverage.

The growth from 2023 to 2024 represents an increase of 85 municipalities achieving full badge status, corresponding to a growth rate of approximately 210%. This more than tripled the number from the previous year. The 2024 figure of 125 municipalities with all three badges indicates expanding comprehensive participation in the pillar, though this group remains relatively small compared to the total number of municipalities achieving at least one badge.

Figure 5. Signatories with full EAP badges.



Source: JRC elaboration

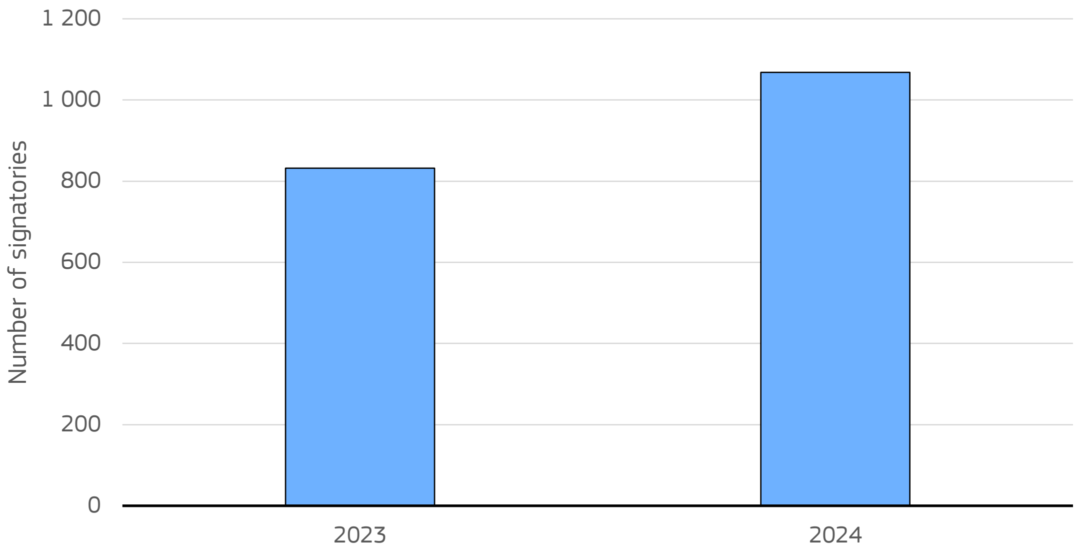
4.1.4. Number of signatories with at least one energy access and energy poverty badge and full climate change mitigation and adaptation badges

The number of signatories holding at least one energy access and energy poverty badge alongside full climate change mitigation and adaptation badges increased from 2023 to 2024. The following chart tracks municipalities that have achieved complete badge coverage for both the climate change mitigation and adaptation pillars while also engaging with the energy access and energy poverty pillar.

In 2023, almost half of the signatories, approximately 832, held this cross-pillar profile, representing municipalities that had fulfilled all requirements for the first two thematic areas and were initiating or progressing their work on energy poverty and access. By 2024, this number grew to approximately 1,068 municipalities with comprehensive climate change mitigation and adaptation engagement plus at least one energy access and poverty -related badge.

The growth represents an increase of 236 municipalities, corresponding to a rate of approximately 28% between the two reporting periods. This indicates that a substantial portion of signatories with complete climate action commitments are expanding their participation to include the newer thematic pillar. The data suggests growing integration across all three areas of the Global Covenant of Mayors, with municipalities building on existing commitments to address energy poverty and access challenges alongside their climate change mitigation and adaptation efforts.

Figure 6. Number of signatories with at least one EAP badge and full climate mitigation + adaptation badges.



Source: JRC elaboration

4.1.5. Conclusion

The data from 2023 and 2024 shows consistent growth across all measures of engagement with the EAPP. The total number of signatories participating in the pillar increased, with growth recorded in each of the three badge types. The number of municipalities achieving complete badge coverage grew substantially, more than tripling between the two reporting periods, and growing in a higher rate than the number of signatories, representing a higher engage for the new signatories or those that already had badges in 2023.

Cross-pillar engagement also expanded, with an increase in municipalities that combine full mitigation and adaptation commitments with energy access and poverty pillar participation. This suggests that signatories are progressively integrating energy access and poverty considerations into their broader climate action frameworks. The overall trajectory demonstrates expanding adoption of the EAPP the GCOM signatory base.

4.2. Regional performance assessment

This section examines the geographic distribution of EAPP engagement across ten GCOM regions. The analysis tracks the number of participating municipalities, the volume and composition of badges assigned, and the adoption rate of the energy access and poverty pillar relative to overall regional membership. Regional patterns reveal where the EAPP has gained traction and where potential for expansion remains within the existing signatory base.

4.2.1. Number of signatories with energy access and energy poverty badges across GCOM regions

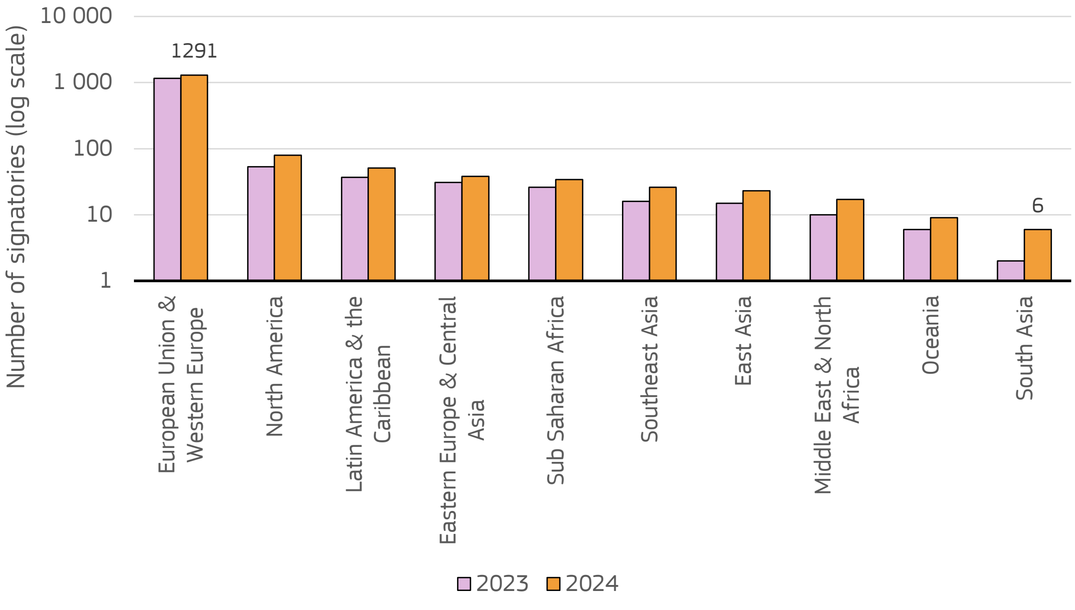
The distribution of signatories with at least one energy access and poverty badge varies substantially across GCOM regiones covered, with all regions showing growth between 2023 and 2024. The following chart displays the number of municipalities holding one or more EAP badges, grouped by region.

In 2023, the European Union & Western Europe region dominated the participation with 1 158 signatories, representing most of the global engagement with the energy access and poverty pillar. North America recorded 53 signatories, followed by Latin America & the Caribbean with 37. Eastern Europe & Central Asia had 31 signatories, while Sub-Saharan Africa recorded 26. The Asian regions showed lower participation levels, with Southeast Asia at 16, East Asia at 15, and South Asia at 2 signatories. The Middle East & North Africa region had 10 signatories, and Oceania recorded 6.

By 2024, all regions demonstrated growth. The European Union & Western Europe increased to 1 291 signatories, maintaining its position as the largest participating region. North America grew to 80, while Latin America & the Caribbean reached 51. Eastern Europe & Central Asia expanded to 38 signatories, and Sub-Saharan Africa increased to 34. Southeast Asia grew to 26, East Asia to 23, and South Asia to 6. The Middle East & North Africa rose to 17 signatories, while Oceania reached 9.

Growth rates varied considerably across regions. South Asia showed the highest relative increase at 200%, though from a small baseline. The Middle East & North Africa recorded 70% growth, Southeast Asia showed 63% growth, and East Asia demonstrated 53% expansion. North America, Oceania, and Latin America & the Caribbean each grew by approximately 50, 50, and 38% respectively. Sub-Saharan Africa increased by 31%, Eastern Europe & Central Asia by 23%, and the European Union & Western Europe by 11%. The data reveals that while the European Union & Western Europe maintains the largest absolute number of participating municipalities, several smaller regions are experiencing faster relative growth rates in energy pillar adoption.

Figure 7. Number of signatories with at least one EAP badge per GCOM Region.



Source: JRC elaboration

4.2.2. Number of energy badges across GCOM Regions

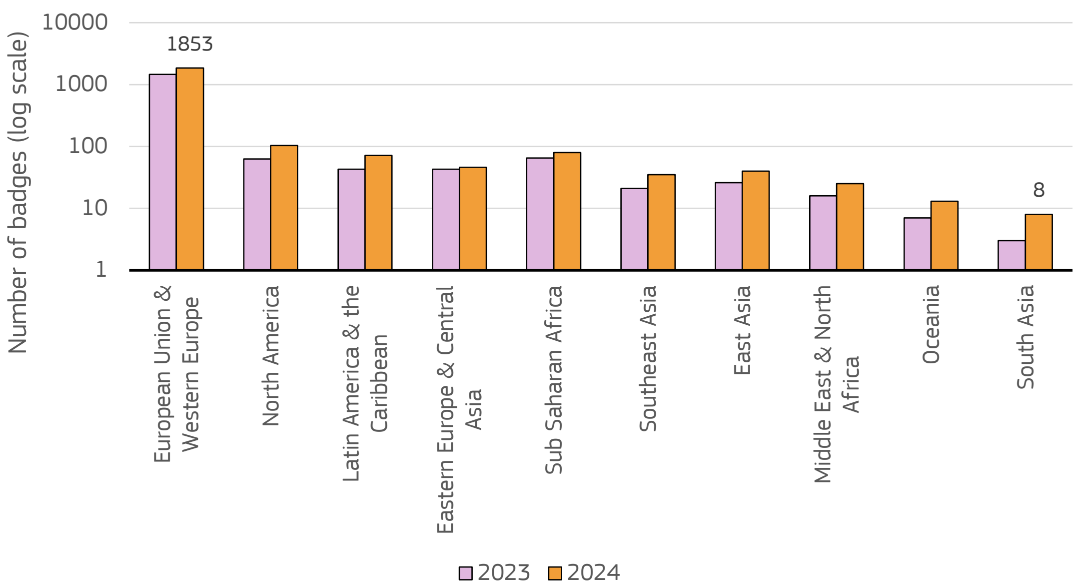
The total number of badges assigned per region provides additional detail on the depth of engagement beyond the count of participating municipalities. The following chart displays the overall number of badges distributed across all three categories (plan, assessment, and target) within each Global Covenant of Mayors region.

In 2023, the European Union & Western Europe held 1 464 badges, followed by Sub-Saharan Africa with 65, North America with 63, and Latin America & the Caribbean and Eastern Europe & Central Asia both with 43. The Asian regions recorded lower totals, with East Asia at 26, Southeast Asia at 21, and South Asia at 3. The Middle East & North Africa had 16 badges, and Oceania recorded 7.

By 2024, the European Union & Western Europe increased to 1 853 badges, while North America grew to 104 and Sub-Saharan Africa to 80. Latin America & the Caribbean reached 72, Eastern Europe & Central Asia 46, East Asia 40, Southeast Asia 35, the Middle East & North Africa 25, Oceania 13, and South Asia 8.

Comparing the two charts reveals variations in badge intensity across regions. Some regions show higher badge-to-signatory ratios (ranging between 1,2 badges per signatory in Eastern Europe and Central Asia, to 2,3 badges per signatory in Sub-Saharan Africa), indicating municipalities with multiple badges, while others demonstrate more concentrated participation with fewer badges per municipality. This additional dimension provides insight into the progression of signatories through various stages of EAPP pillar engagement within each geographic area.

Figure 8. Number of EAP badges per GCOM Region.



Source: JRC elaboration

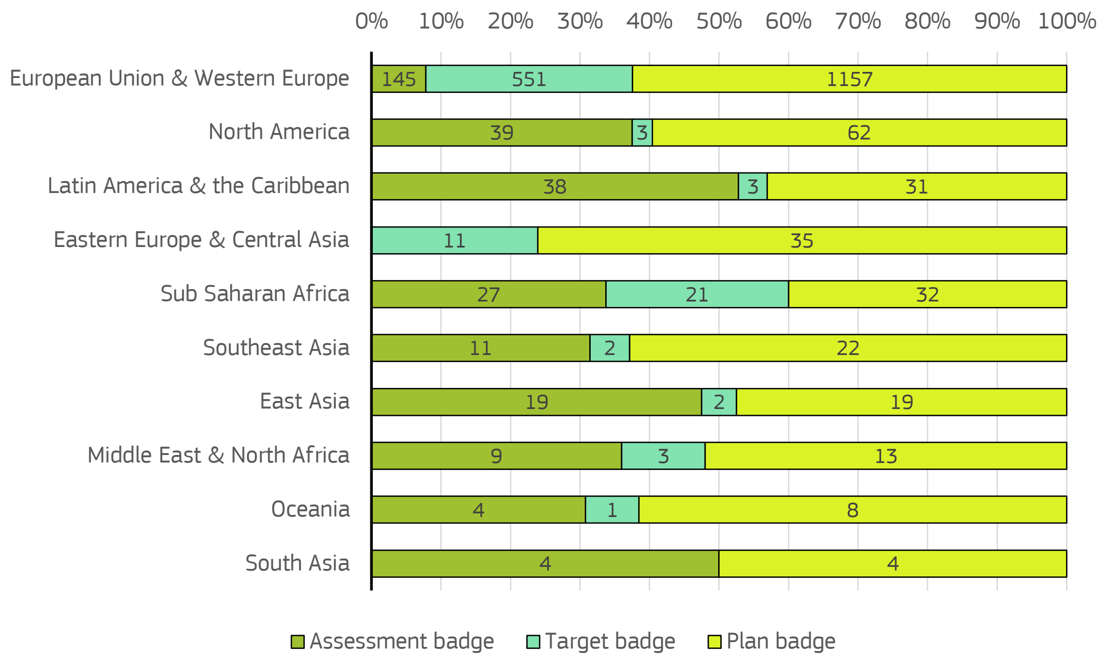
The composition of energy access and poverty badges varies across regions, reflecting different patterns of EAPP engagement. The following chart displays the distribution of plan, target, and assessment badges as a %age of total badges within each Global Covenant of Mayors region for 2024.

Plan badges represent the largest share in most regions. Out of the total badges assigned in the region, the European Union & Western Europe shows approximately 62 % plan badges, 30 % target badges, and 8 % assessment badges. Eastern Europe & Central Asia demonstrates the highest concentration of plan badges at approximately 76 %, with 24 % target badges and no assessment badges. North America displays 60 % plan badges, 37 % assessment badges, and 3 % target badges.

Latin America & the Caribbean shows a distinct pattern with assessment badges forming the largest share at approximately 53 %, followed by plan badges at 43 % and target badges at 4 %. East Asia and South Asia both display balanced compositions, with plan and assessment badges each representing approximately 50 % of their totals and minimal or no target badges. Sub-Saharan Africa shows relatively even distribution across all three categories, with 40 % plan, 26 % target, and 34 % assessment badges.

The regional variations in badge composition indicate different priorities and stages of implementation across geographic areas. Some regions show strong emphasis on planning activities, while others demonstrate more balanced engagement across assessment, planning, and target-setting components of the energy access and energy poverty pillar. The results are also influenced by the historical evolution of energy access and energy poverty activities within the GCOM. For example, a simplified version of the pillar focused only on energy access was active in Sub-Saharan Africa since 2018, giving the region more time to carry out the various stages of the pillar.

Figure 9. Proportion of number and type of EAP badges per GCOM Region in 2024.



Source: JRC elaboration

To deepen the analysis, we consider three regions with the highest number of badges and signatories to demonstrate distinct patterns in badge type growth between 2023 and 2024. The following panel of charts displays the evolution of assessment, target, and plan badges for the European Union & Western Europe, North America, and Latin America & the Caribbean.

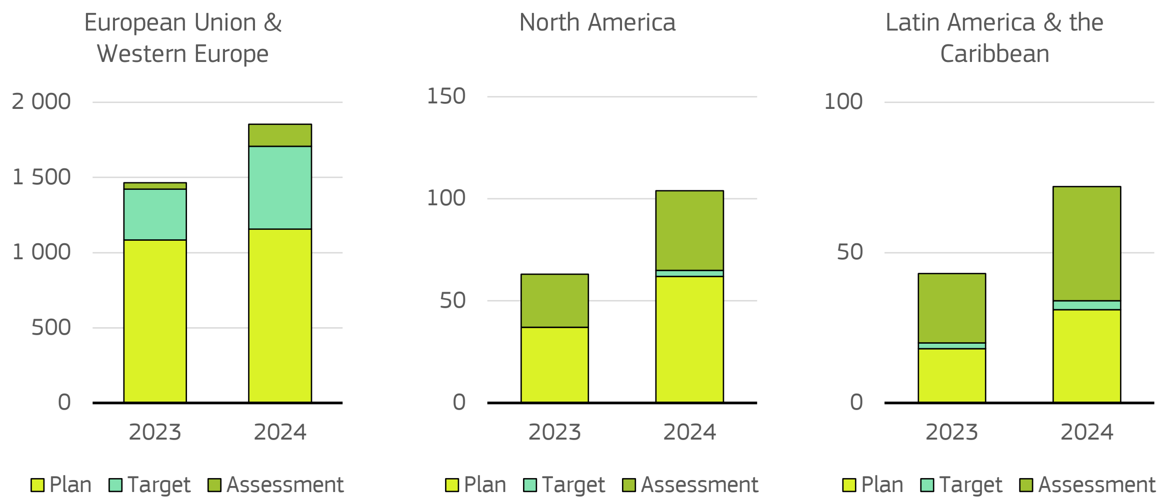
In the European Union & Western Europe, plan badges grew from 1 084 in 2023 to 1 157 in 2024, an increase of 7%. Target badges increased substantially from 338 to 551, representing 63% growth. Assessment badges showed the highest relative growth, rising from 42 to 145, an increase of 245%.

In North America, plan badges grew from 37 to 62, an increase of 68%. Target badges appeared for the first time in 2024 with 3 badges, while assessment badges increased from 26 to 39, representing 50% growth.

In Latin America & the Caribbean, plan badges grew from 18 to 31, a 72% increase. Target badges remained minimal, rising from 2 to 3. Assessment badges increased from 23 to 38, representing 65% growth.

The three regions show different development trajectories. The European Union & Western Europe demonstrates growth across all categories with particularly strong expansion in assessment and target badges. North America and Latin America & the Caribbean show higher relative growth rates from smaller baselines, with both regions prioritizing assessment and plan badges over target-setting activities

Figure 10. Change in number and type of badges for selected GCOM Regions



Source: JRC elaboration

4.2.3. Conclusion

The geographic analysis reveals substantial variation in EAPP engagement across GCOM regions. The European Union & Western Europe maintains the largest absolute participation in terms of both signatories and badges, while North America, East Asia, and Southeast Asia demonstrate the highest adoption rates relative to their total membership. All regions recorded growth between 2023 and 2024, though at different rates and with varying badge compositions. Adoption rates are still limited, considering the two years-time period of EAPP activity, indicating considerable potential for expanding energy access and energy poverty pillar participation within existing signatory bases.

4.3. Population impact and coverage analysis

This section provides insight into the scale of potential impact and the number of people who may benefit from EAP interventions implemented through the GCOM framework. The analysis tracks total population covered, penetration rates relative to overall GCOM membership, regional distribution, and the typical size of participating municipalities across different geographic areas.

4.3.1. Overall population reached by signatories with energy badges

This section examines the demographic reach of the energy access and energy poverty pillar by analysing the population residing in participating municipalities.

The total population covered by municipalities with at least one EAP badge increased between 2023 and 2024. The following chart displays the aggregate population residing in signatory municipalities that have engaged with the EAPP.

In 2023, approximately 297 million people lived in municipalities holding at least one energy access and energy poverty badge. This represented the baseline demographic reach of the energy access and energy poverty pillar across all participating signatories. By 2024, this figure grew to approximately 430 million people residing in municipalities with energy access and energy poverty pillar engagement.

The growth from 2023 to 2024 represents an increase of approximately 133 million people, corresponding to a growth rate of 45%. The expansion indicates that the energy access and energy poverty pillar is reaching a significantly larger population base as more municipalities adopt the initiative or as larger municipalities join the initiative and work on the pillar. The 2024 figure of 430 million people demonstrates the substantial demographic scale of potential impact for energy access and poverty interventions through the GCOM framework.

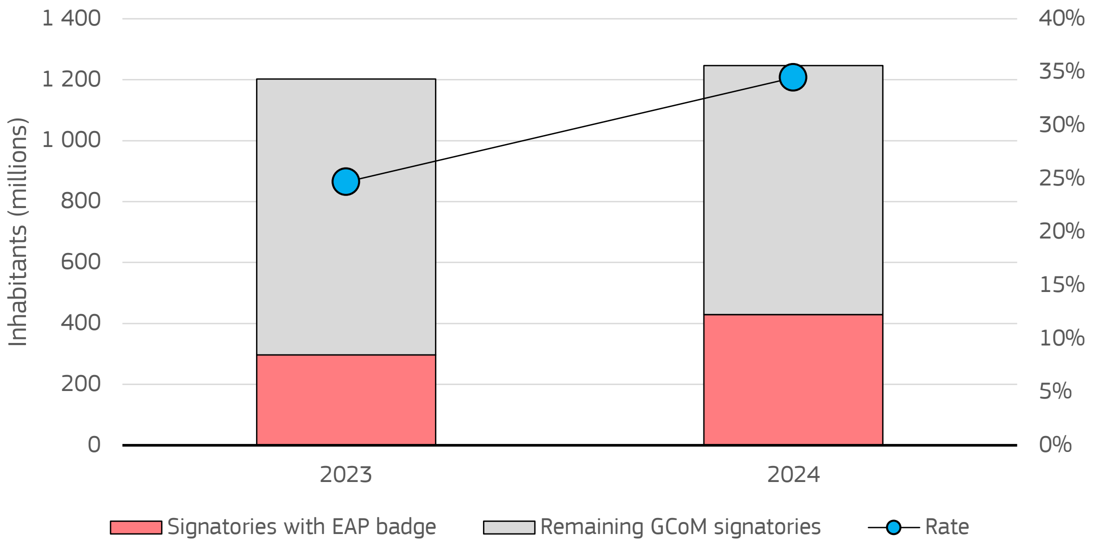
The share of GCOM population covered by the energy pillar increased between 2023 and 2024. The following chart displays the population residing in signatories with at least one energy badge compared to the total population across all GCOM municipalities, with a penetration rate shown as a trend line.

In 2023, approximately 297 million people lived in municipalities with energy access and poverty pillar engagement, while the total GCOM population stood at approximately 1 200 million. This represented a penetration rate of around 25 %, meaning one quarter of the GCOM demographic reach was covered by municipalities participating in the energy access and energy poverty pillar.

By 2024, the population in energy-engaged municipalities grew to approximately 430 million, while the total GCOM population increased to approximately 1 250 million. The penetration rate rose to around 34%, indicating that more than one-third of the total GCOM population now resides in municipalities with energy pillar participation.

The penetration rate increased by 9% age points between the two years, demonstrating that energy access and poverty pillar adoption is growing faster than overall GCOM membership expansion. The remaining GCOM population decreased from approximately 903 million to 820 million people living in municipalities not yet engaged with the energy access and poverty pillar. This shift indicates both new municipalities joining the initiative and working on the energy access and poverty pillar and existing larger signatories expanding their participation beyond climate mitigation and adaptation to include energy access and poverty considerations.

Figure 11. Population covered by signatories with EAP badges and by overall GCOM signatories.



Source: JRC elaboration

4.3.2. Population reached by signatories with energy access and energy poverty badges across GCOM Regions

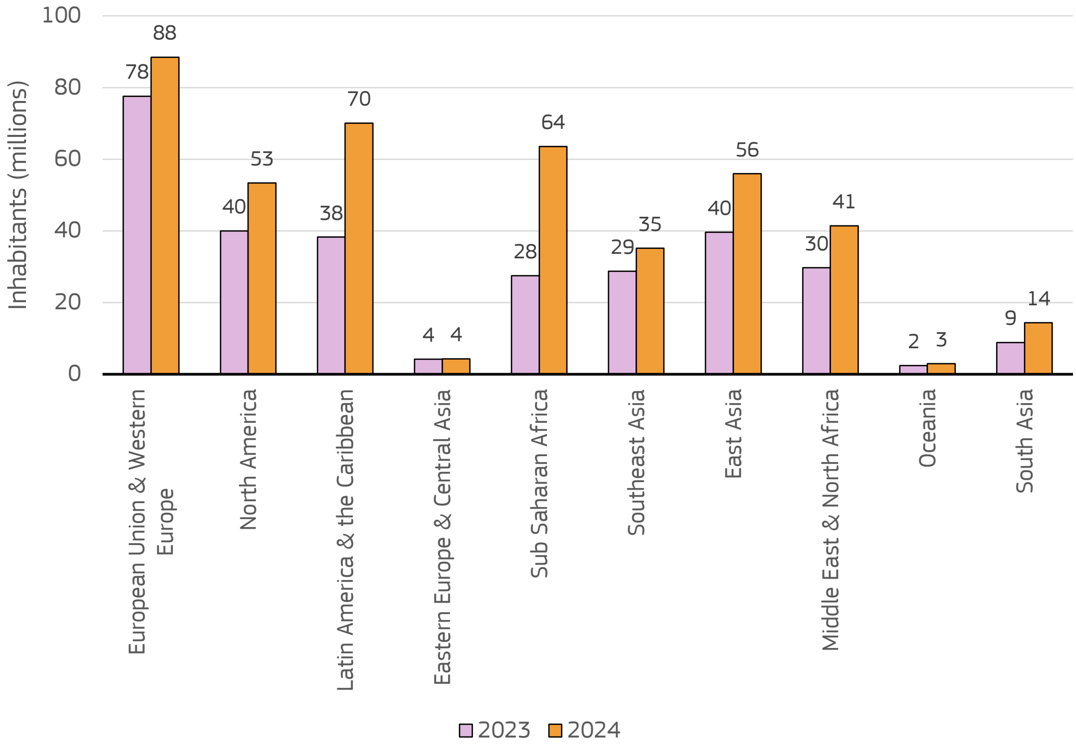
Population coverage by municipalities with energy access and energy poverty pillar engagement varies across GCOM regions. The following chart displays the total population residing in municipalities with at least one energy access and energy poverty badge, grouped by region for 2023 and 2024.

In 2023, the European Union & Western Europe badges covered the largest population at approximately 78 million people, followed by North America with around 42 million and Latin America & the Caribbean with approximately 38 million. East Asia reached around 40 million, while Sub-Saharan Africa and Southeast Asia each covered approximately 28 million people. The Middle East & North Africa accounted for around 28 million, South Asia for approximately 8 million, and Eastern Europe & Central Asia for around 5 million. Oceania recorded the smallest coverage at approximately 2 million people.

By 2024, the European Union & Western Europe population coverage of the assigned badges increased to approximately 90 million people, maintaining the largest regional coverage. Latin America & the Caribbean grew substantially to around 70 million, while Sub-Saharan Africa expanded to approximately 62 million. East Asia reached around 55 million, North America approximately 52 million, and the Middle East & North Africa around 40 million. Southeast Asia covered approximately 32 million people, South Asia around 12 million, Eastern Europe & Central Asia approximately 5 million, and Oceania around 4 million.

Growth patterns differed markedly across regions. Sub-Saharan Africa more than doubled its population covered by energy access and energy poverty badges, while Latin America & the Caribbean increased by approximately 84%. The Middle East & North Africa and East Asia both grew by around 43 and 38% respectively. North America, the European Union & Western Europe, and Southeast Asia showed more moderate growth rates of approximately 24, 15, and 14%. The regional variations reflect both the addition of new municipalities and differences in the demographic scale of participating signatories within each geographic area.

Figure 12. Change in population covered by signatories with EAP badges by GCOM Region.



Source: JRC elaboration

The typical size of municipalities engaged with the energy access and poverty pillar differs substantially across regions. The following chart displays the median population of signatories with at least one energy access and poverty badge per Global Covenant of Mayors region for 2024, with data presented on a logarithmic scale to accommodate the wide range of values.

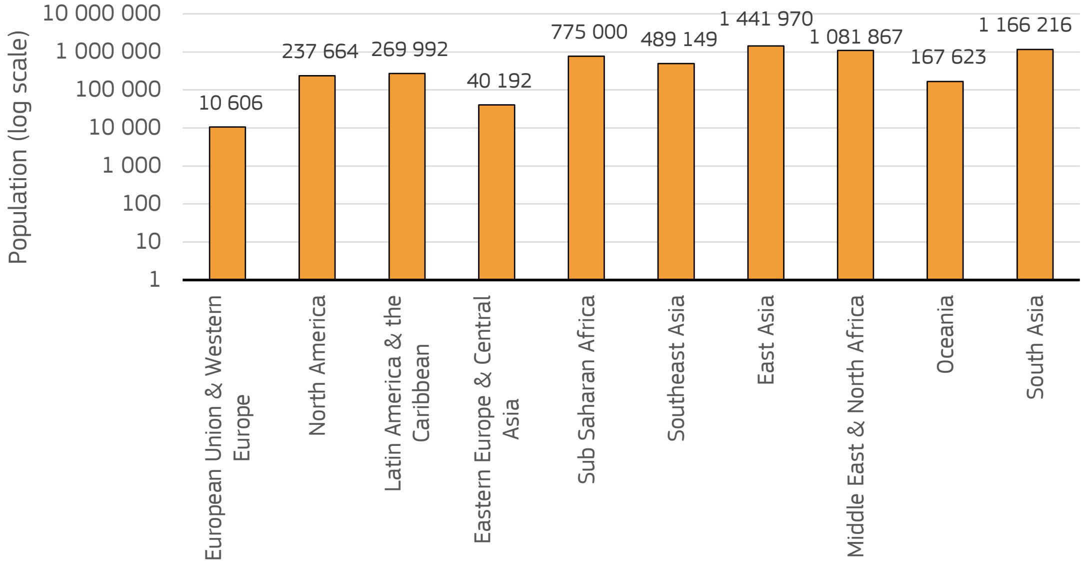
East Asia and South Asia show the highest median population values at approximately 1 million people per municipality, indicating that pillar's engagement in these regions involves predominantly large urban centres. Sub-Saharan Africa and the Middle East & North Africa follow with median values around 700 000 to 900 000 people. Southeast Asia records a median of approximately 500 000 people per municipality.

North America, Latin America & the Caribbean, and Oceania show median values in the range of 200 000 people, representing medium-sized cities as typical participants. Eastern Europe & Central Asia demonstrates a median around 50 000 people, while the European Union & Western Europe shows the smallest median at approximately 10 000 people per municipality.

The logarithmic scale reveals that participating municipalities span several orders of magnitude in population size across regions. The low median in the European Union & Western Europe, despite its large EAPP total population coverage, reflects engagement from numerous smaller municipalities alongside larger cities. Conversely, regions like East Asia and South Asia achieve substantial population coverage through participation of megacities and large urban areas. In regions with limited numbers of participating signatories, such as South Asia, Oceania, and the Middle East &

North Africa, median values may vary substantially between years as individual large or small municipalities join the pillar.

Figure 13. Median size of signatories with energy access and poverty badges by GCOM Region in 2024.



Source: JRC elaboration

4.3.3. Change in number of signatories with energy access and energy poverty badges across GCOM Regions

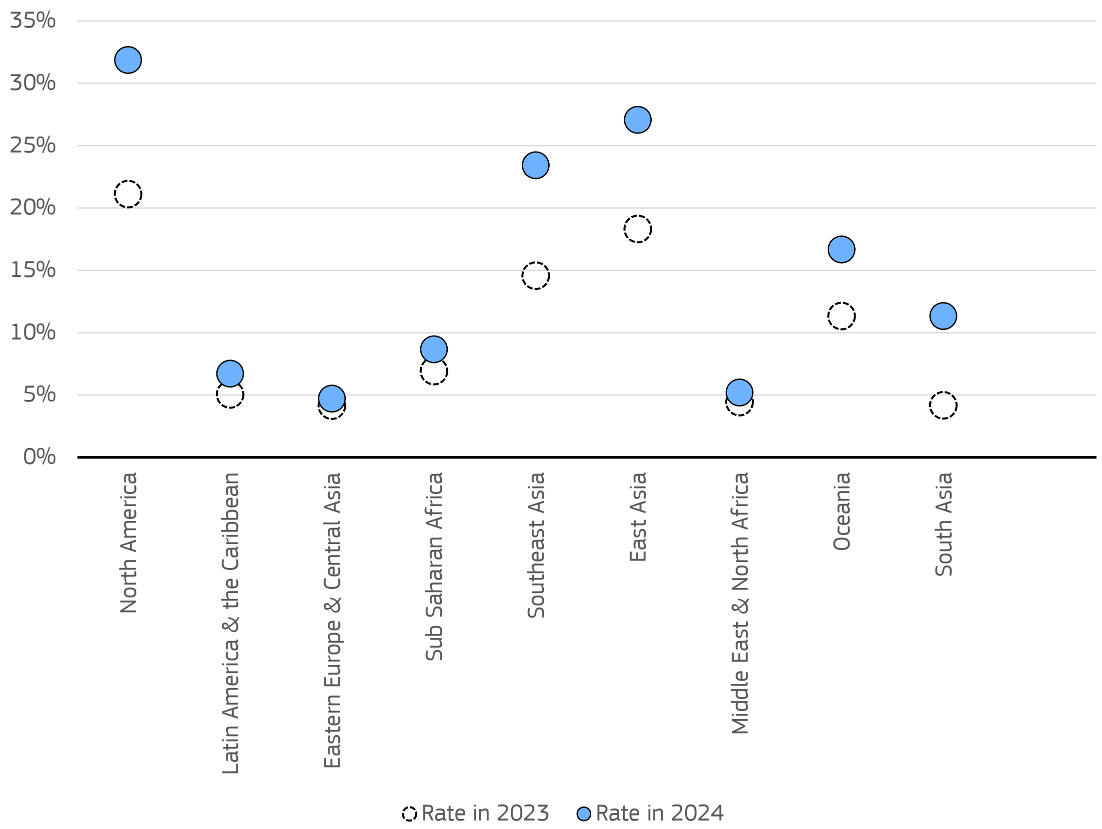
The adoption rate of the EAPP varies significantly across regions when compared to overall GCOM membership. The following chart displays the total number of signatories per region alongside those holding at least one energy access and energy poverty badge, showing the penetration rate of the energy pillar within each regional signatory base for 2023 and 2024.

In 2023, North America showed the highest adoption rate at 21% (53 energy signatories out of 251 total), followed by East Asia at 18% (15 out of 82) and Southeast Asia at 15% (16 out of 110). The European Union & Western Europe recorded an 11% rate (1 158 out of 10 892), while Oceania matched this at 11% (6 out of 53). Sub-Saharan Africa reached 7% (26 out of 377), and Latin America & the Caribbean 5% (37 out of 735). Eastern Europe & Central Asia, the Middle East & North Africa, and South Asia all recorded 4% adoption rates.

By 2024, North America increased to 32% (80 out of 251), maintaining the highest regional adoption rate. East Asia grew to 27% (23 out of 85), and Southeast Asia reached 23% (26 out of 111). Oceania rose to 17% (9 out of 54), while the European Union & Western Europe increased slightly to 12% (1 291 out of 10 990). South Asia and Sub-Saharan Africa both reached 11% and 9% respectively. Latin America & the Caribbean grew to 7% (51 out of 760), while the Middle East & North Africa and Eastern Europe & Central Asia both recorded 5% adoption rates.

The data reveals considerable variation in energy access and energy poverty pillar penetration across regions. North America, East Asia, and Southeast Asia demonstrate the strongest relative engagement, with nearly one-quarter to one-third of signatories participating in the energy pillar. In contrast, several regions maintain adoption rates below 10% despite having substantial overall GCOM membership, indicating significant potential and high expectations for further expansion of the energy access and poverty pillar within existing signatory bases, leading to an increasing knowledge, commitment, and action of EAP at the local level.

Figure 14. Change in the share of signatories with EAP badges compared to the overall number of signatories per GCOM Region.



Source: JRC elaboration

4.3.4. Conclusion

The demographic analysis demonstrates substantial expansion in the population covered by the energy access and energy poverty pillar. Between 2023 and 2024, coverage grew from approximately 297 million to 430 million people, with the penetration rate increasing from 25 to 34% of the total Global Covenant of Mayors population. Regional patterns reveal significant variation in both absolute population coverage and the typical size of participating municipalities. The European Union & Western Europe achieves broad coverage through numerous smaller municipalities, while regions such as East Asia and South Asia rely on participation from large urban centres. The data indicates that the energy access and poverty pillar is reaching a demographically diverse and expanding population base across different regional contexts and municipality sizes.

5. Analysis of energy poverty actions

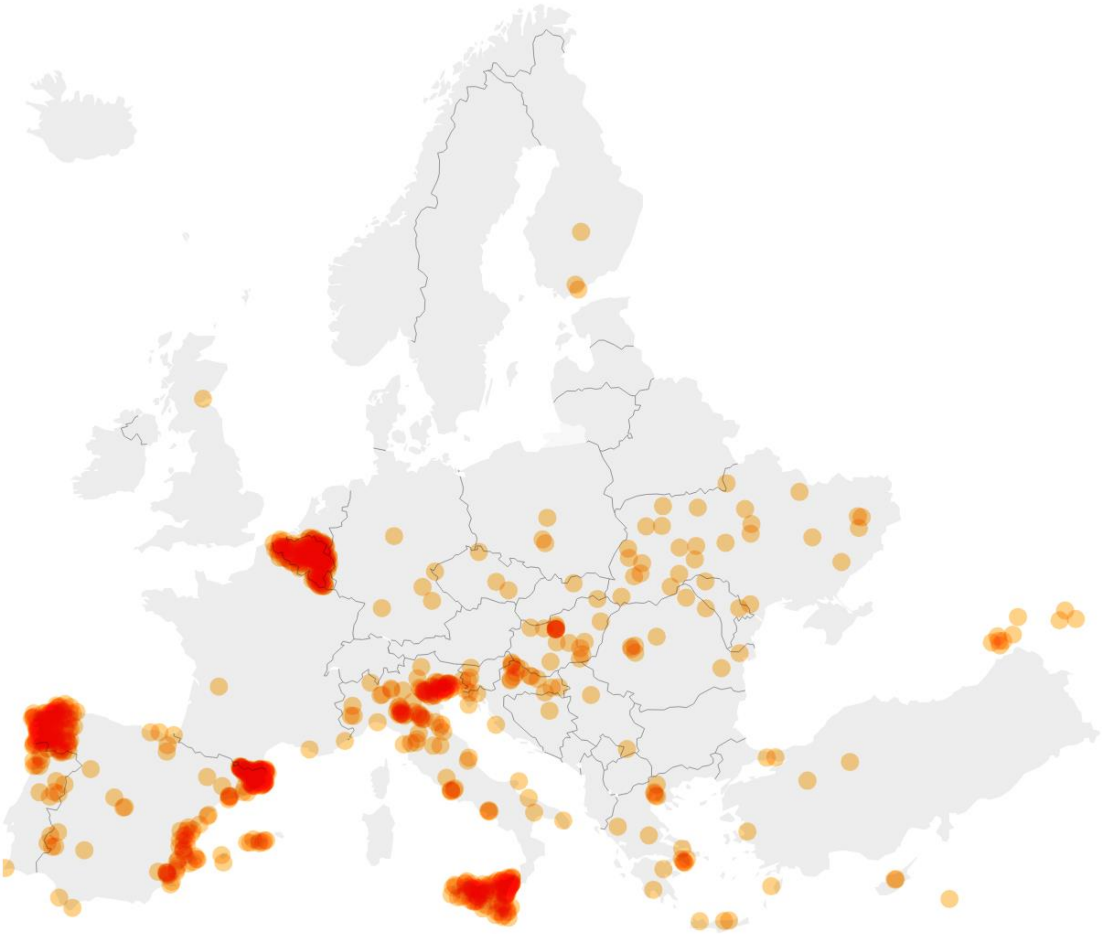
This section examines actions reported by signatories from the GCOM Regions of European Union and Western Union, Eastern Europe and Central Asia, Middle East and Africa, shifting from the global perspective of previous sections to a regional focus. The analysis is limited to these Regions due to data availability and reporting quality. It should be noted that around 95% of signatories considered in this analysis are from the European Union and Western Union region, hence the perspective provided is oriented towards actions carried out in this region. Actions considered in the analysis include interventions flagged by municipalities as relevant to energy access and energy poverty, regardless of whether they originate from the energy pillar or from mitigation and adaptation plans. As indicated in **Table 1**, each GCOM region has selected an energy attribute (European Union and Western Union – affordable energy, Eastern Europe and Central Asia – affordable energy, Middle East and Africa – secure energy) and the analysis in this section refers to actions as “energy poverty” (EP) actions since almost all of them (99%) come from GCOM Regions that have chosen the affordable energy attribute and have focused their work on energy poverty. Finally, as additional context, the application of the EAPP in the European Union and Western Union region was carried out by the COM Europe office considering the energy poverty guidelines developed by the EU Energy Poverty Advisory Hub (EPAH), this is reflected in the energy-poverty macro-areas and indicators used in the region. The section explores the number of signatories reporting actions, the characteristics and types of interventions, implementation approaches, cross-pillar integration, sectoral distribution, implementation status, priority designation, and temporal planning. This comprehensive view provides insight into how municipalities are translating EP commitments into concrete interventions across diverse contexts and through varied implementation strategies.

5.1. Geographic coverage and data sample

The map displays the geographic distribution of signatories reporting EP actions in 2024. Municipalities are represented by dots, with colour intensity and size indicating concentration levels.

The distribution shows notable clusters in several areas, particularly across France, Italy, Spain, and central European countries. Coverage extends across Western Europe, the European Union, and portions of Eastern Europe and the Middle East, with varying densities of participating municipalities. Some regions demonstrate dense concentrations of reporting signatories, while others show more dispersed participation. The concentration of signatories reporting EAP actions reflects the overall distribution of signatories in the GCOM initiative, where most municipalities are in the region of European Union and Western Europe.

Figure 15. Signatories reporting EP actions in 2024 (red) with colour intensity indicating concentration levels



Source: JRC elaboration

The sample of signatories analysed in this section includes municipalities that have reported EP actions, regardless of their EAP badge status. The following chart displays the distribution of signatories across three categories for 2024: those with only energy access and poverty badges, those with only reported energy poverty actions, and those with both badges and actions.

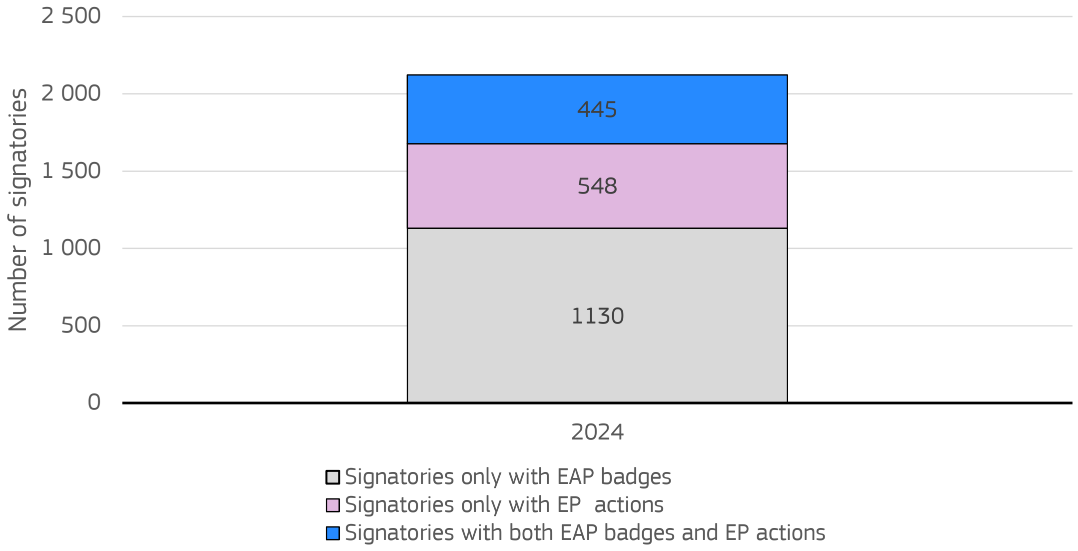
When looking at the status of signatories:

- 1 130 municipalities hold energy access and poverty badges but have not yet reported specific energy poverty actions in their plans.
- 548 signatories have reported energy poverty actions without holding any energy access and poverty badges, indicating they have flagged energy poverty activities integrated to their mitigation or adaptation actions in their plans.
- 445 signatories have both energy access and poverty badges and reported energy poverty actions, representing municipalities with formal energy access and poverty pillar commitment that have also documented specific interventions.

Therefore, the analysis focuses on the 993 signatories that have reported energy poverty actions, combining both the group with only actions (548 - purple) and the group with both badges and actions (445 – deep blue). This represents municipalities that have provided substantive information about their EAP interventions, whether or not they have formally received an energy access and poverty badge.[6] The presence of nearly 550 signatories reporting energy poverty actions without related badges indicates that energy poverty-relevant activities extend beyond and before the energy access and poverty pillar reporting, with municipalities addressing energy poverty issues through their broader climate action frameworks.

When looking at the geographic distribution of the 993 signatories, almost all of them are from the European Union and Western Union (944 signatories), while a small sample is from the regions of Eastern Europe and Central Asia (42) and Middle East and Northern Africa (6)

Figure 16. Distribution of signatories with EAP badges, EAP actions and both badges and actions.



Source: JRC elaboration

5.2. Trends in energy actions reporting

This section examines trends in energy poverty action reporting by signatories between 2023 and 2024. The analysis tracks the growth in the number of municipalities reporting energy poverty interventions, the volume of documented actions, and the quality of reporting in terms of implementation detail. It also explores the extent to which energy poverty actions are integrated with other thematic pillars, revealing how municipalities structure their interventions across the Global Covenant of Mayors framework.

[6] Since 2019 municipalities in the European Union and Western Union region have the possibility to indicate when a climate mitigation or climate adaptation action is relevant for the field of energy. This option was available before the design and activation of the EAPP and is reflected in the information reported by signatories. In some cases, a municipality might have reported an action indicated as relevant to EAP, while not having yet received an EAP badge. In this eventuality, it is likely that the actions is primarily focused on mitigation or adaptation, with additional relevance for energy. For this reason, appears reported as an EAP action and is considered in the group of actions part of the analysis.

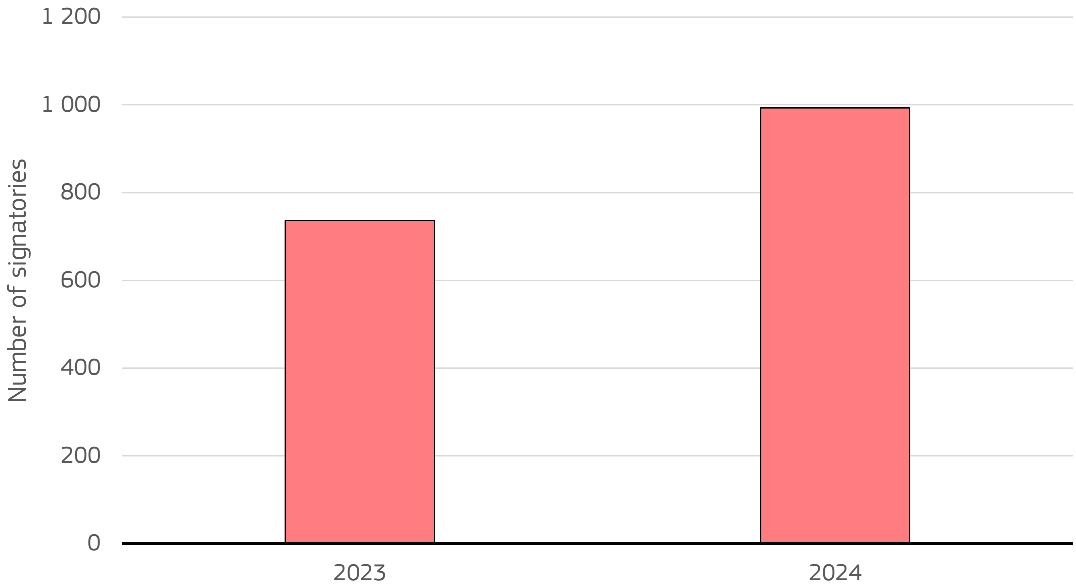
5.2.1. Growth in reporting signatories and documented actions

The number of signatories reporting energy poverty actions increased between 2023 and 2024. The following chart displays the total count of municipalities that have documented energy poverty interventions in their climate action plans, regardless of energy access and poverty badge status.

In 2023, 736 signatories reported energy poverty actions. This represented the baseline for municipalities providing substantive information about energy poverty interventions. By 2024, this number grew to 993 signatories with documented energy poverty actions.

The growth from 2023 to 2024 represents an increase of 257 signatories, corresponding to a growth rate of approximately 35%. This expansion indicates that more municipalities are documenting and reporting energy poverty activities, either as part of their formal energy access and poverty pillar commitments or as components of their mitigation and adaptation strategies. The substantial growth reflects both increased awareness of energy poverty issues and improved reporting practices, especially among European signatories.

Figure 17. Number of signatories reporting energy poverty actions.



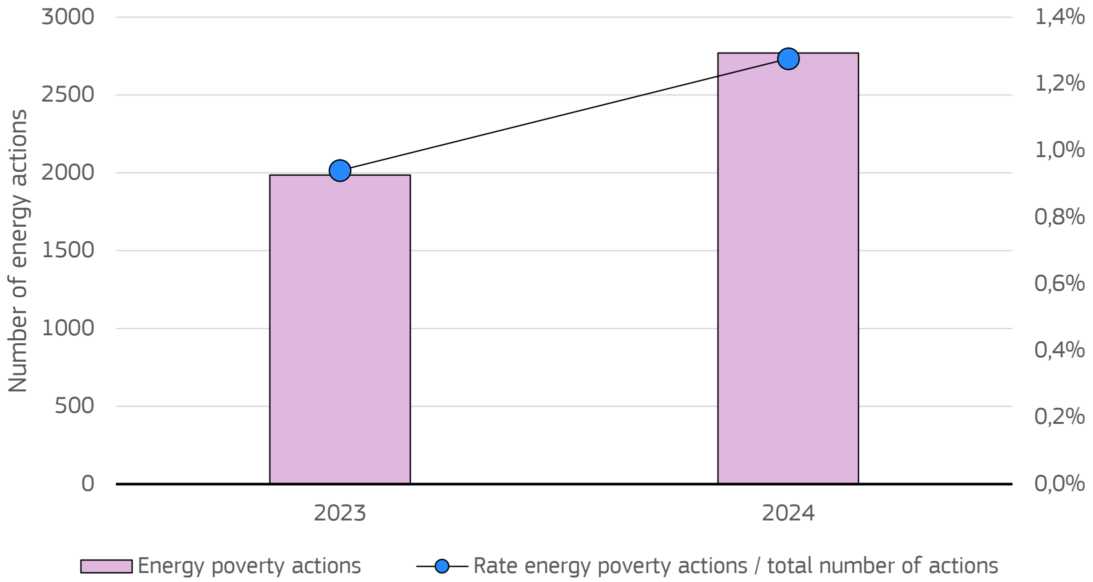
Source: JRC elaboration

The number of energy poverty actions reported by signatories increased between 2023 and 2024, with energy poverty actions growing at a faster rate than overall climate action reporting in the region. The following chart displays the count of energy poverty actions compared to the total number of actions reported municipalities across all pillars, with a penetration rate showing energy poverty actions as a share of the total.

In 2023, 1 986 energy poverty actions were reported, representing 0.9% of the total 211 161 actions documented by European signatories across all thematic pillars. By 2024, energy poverty actions increased to 2 770, while the total number of reported actions grew to 217 156. The penetration rate rose to 1.3%.

The growth in energy poverty actions represents an increase of around 784 actions, corresponding to a growth rate of approximately 39%. In comparison, the overall CoM Europe actions' count grew by only 3% during the same period. The penetration rate increased by 0.4% age points, indicating that energy poverty interventions are slowly becoming a more prominent component of municipal climate action planning. While energy poverty actions still represent a relatively small share of total reported activities, the faster growth rate suggests expanding attention to energy poverty and energy-related climate interventions, especially within European municipalities' comprehensive action frameworks.

Figure 18. Growth in number of EP actions and comparison with overall GCOM recorded actions across three pillars.



Source: JRC elaboration

5.2.2. Completeness of implementation information for energy poverty actions

The completeness of information provided by signatories when reporting energy poverty actions varies, with differences in the level of detail about implementation means. The following chart displays the distribution of energy poverty actions across three categories: actions with specific “means” declared – intended as policy/programming instruments used for actions implementation, actions reported as "other means" without further detail, and actions with “no means” declared[7].

In 2023:

- 1 199 actions included specific information about implementation means, representing around 60% of all reported EP actions.
- 429 actions were categorized as "other means," indicating signatories provided limited detail beyond this generic classification.

[7] When reporting information related to actions, signatories provide details about action title, implementation status, timeline of implementation, means used for actions implementation, impacted sectors.

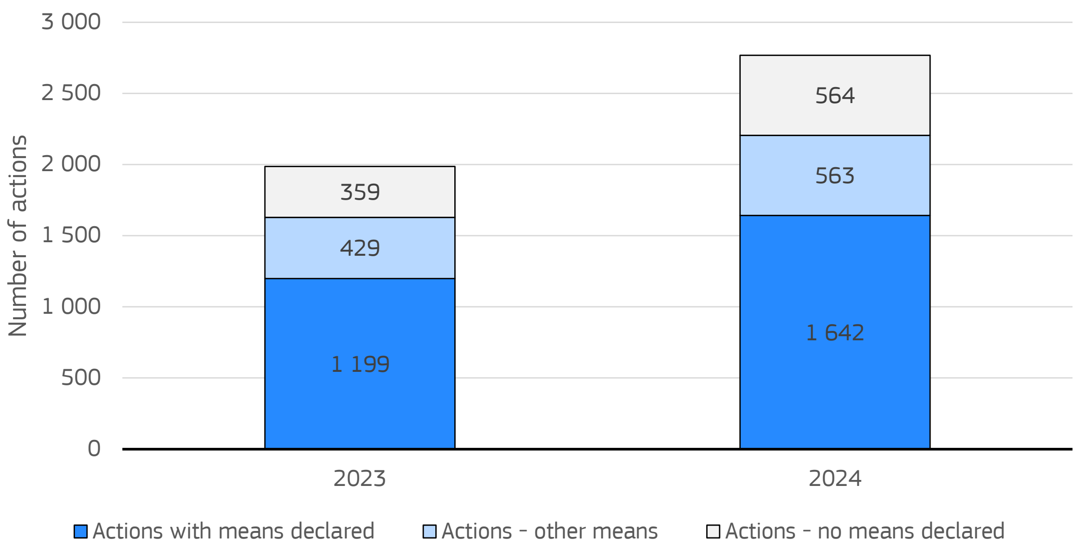
- 359 actions had no means declared, representing cases where signatories did not provide information about how the action would be implemented.

By 2024:

- actions with declared means increased to 1 642, maintaining a similar share of around 59% of total EP actions.
- actions classified as "other means" grew to 563, while actions with no means declared increased to 564.

All three categories showed growth in absolute numbers, with actions containing specific means information growing by approximately 37%, "other means" by 31%, and no means declared by 57%. The distribution indicates that while most energy poverty actions include implementation details, a substantial portion remains either vaguely reported or missing this information entirely. This suggests varying levels of reporting capacity, attention to detail, or planning maturity among signatories when documenting their energy poverty interventions.

Figure 19. Variation in the declaration of means used in energy poverty actions.



Source: JRC elaboration

5.2.3. Cross-pillar integration of energy poverty actions

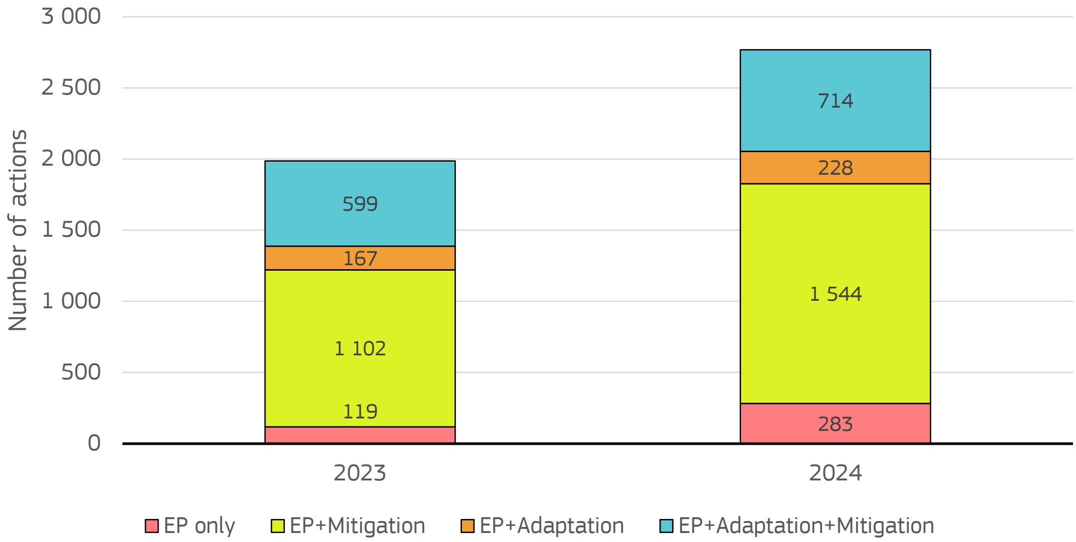
Energy poverty actions often address multiple thematic pillars simultaneously, reflecting the integrated approach of the Global Covenant of Mayors framework. The following chart displays the distribution of energy poverty actions by pillar combination, showing whether actions are reported as energy poverty-only or as integrated with mitigation, adaptation, or both.

In 2023, most energy poverty actions demonstrated cross-pillar integration. 1 102 actions combined energy and mitigation objectives, representing the largest category at around 55% of all energy actions. 599 actions integrated all three pillars (energy poverty, climate mitigation, and climate adaptation), accounting for approximately 30%. About 167 actions linked energy poverty and adaptation, while only 119 actions focused exclusively on energy poverty without mitigation or adaptation components.

By 2024, integrated approaches remained dominant. Energy poverty and climate mitigation actions grew to approximately 1 544, maintaining their position as the largest category at around 56%. Actions integrating all three pillars increased to 714, representing approximately 26%. Energy poverty and adaptation actions rose to 228, while energy poverty-only actions more than doubled to 283.

Growth patterns reveal increasing engagement with integrated approaches. Energy poverty-only actions showed the highest relative growth at approximately 138%, though from a small baseline. Energy poverty combined with mitigation actions grew by 40%, energy poverty combined with adaptation by 37%, and triple-pillar actions by 19%. The data demonstrates that approximately 90 % of energy poverty actions in 2024 are integrated with at least one other pillar, with energy poverty-mitigation linkages being most common. This reflects the interconnected nature of energy poverty interventions with greenhouse gas emission reduction and climate resilience objectives, leveraging synergies across the Covenant's thematic framework.

Figure 20. Distribution of actions by pillar of intervention.

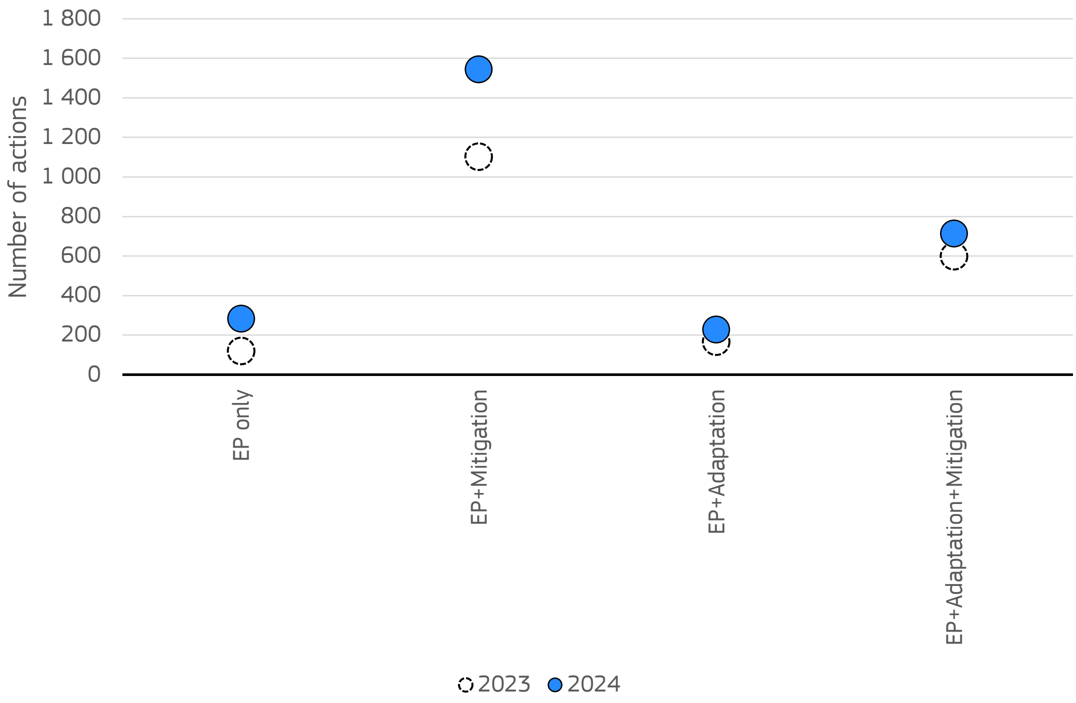


Source: JRC elaboration

The visual comparison of pillar combinations across the two years presented in the following chart reinforces the patterns of integrated action growth. The following chart displays 2023 and 2024 values side by side for each category, clearly illustrating the progression in each pillar combination.

The chart emphasizes the dominance of energy poverty and mitigation actions, which remain the largest category in both years with 1 100 and 1 544 actions respectively. The triple-pillar combination (energy poverty, adaptation, and mitigation) represents the second-largest group, while energy and adaptation actions show more modest totals. Energy poverty-only actions, though still the smallest category, demonstrate the most pronounced relative growth between the two reporting periods.

Figure 21. Variation in number of actions per pillar of intervention or combination of more pillars.



Source: JRC elaboration

5.2.4. Conclusion

Growth in energy poverty action reporting exceeded overall climate action reporting growth, with the number of signatories and documented interventions increasing by approximately 35 and 39% respectively between 2023 and 2024. While most actions include implementation details, a substantial portion remains vaguely reported or missing key information, indicating varying reporting capacity across municipalities. Cross-pillar integration characterizes approximately 90% of energy poverty actions, with energy poverty -mitigation linkages dominating, reflecting the interconnected nature of energy poverty interventions with broader climate objectives.

5.3. Energy poverty action types and impacted sectors

5.3.1. Introduction

This section examines energy poverty action characteristics, focusing on implementation approaches and sectoral targeting. The analysis first explores the diverse means municipalities employ to deliver energy poverty interventions, it then examines how action focus varies depending on pillar integration, analysing energy poverty-only actions and then action integrating climate mitigation and adaptation. This differentiated analysis provided information on how municipalities tailor their intervention strategies based on whether they address energy poverty objectives independently or in combination with climate mitigation and adaptation goals.

5.3.2. Means of implementation across energy poverty actions

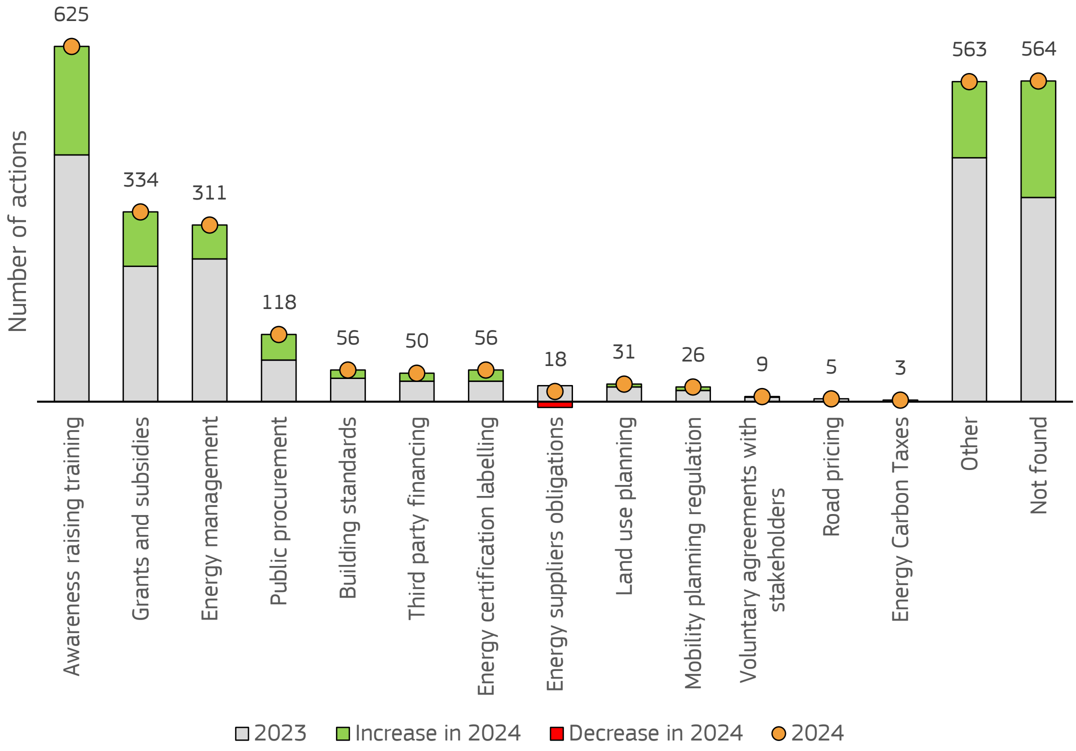
European signatories employ a diverse range of implementation means for their energy poverty actions. The following chart provides a detailed breakdown of energy poverty actions by implementation category for 2023 and 2024, showing the specific approaches municipalities use to address energy access, energy poverty, and related climate objectives. The categories come from a list of dropdown options available in the reporting platform, municipalities autonomously select the category when reporting the actions.

In 2023, awareness raising and training represented the largest category with 434 actions, followed by energy management at 251 actions and grants and subsidies at 238 actions. Public procurement accounted for 73 actions, while building standards and energy certification labelling each recorded around 40 actions. Third party financing reached 36 actions, and energy suppliers obligations stood at 28 actions. Smaller categories included land use planning with 26 actions, mobility planning regulation with 20 actions, voluntary agreements with stakeholders at 8 actions, road pricing at 5 actions, and energy or carbon taxes at 3 actions. Actions categorized as "other" totalled 429, while 359 actions had no means declared.

By 2024, awareness raising and training increased to 625 actions, maintaining its position as the dominant implementation approach. Grants and subsidies grew to 334 actions, and energy management reached 311 actions. Public procurement expanded to 118 actions, while energy certification labelling and building standards both increased to 56 actions. Third party financing rose to 50 actions, and land use planning reached 31 actions. Mobility planning regulation grew to 26 actions, and voluntary agreements increased to 9 actions. Road pricing and energy or carbon taxes remained stable at 5 and 3 actions respectively. Energy suppliers obligations declined to 18 actions, representing the only category showing a decrease. Actions classified as "other" increased to 563, and those with no means declared rose to 564.

Growth rates varied across categories. Public procurement showed the highest relative increase at approximately 62 %, followed by awareness raising and training at 44 %, and grants and subsidies at 40 %. Energy certification labelling grew by 56 %, while energy management increased by 24 %. The decline in energy suppliers obligations by 36 % was the only negative movement, reflecting shifts in regulatory approaches or reporting classifications. The substantial growth in both "other" and "not found" categories, increasing by 31 and 57 % respectively, indicates ongoing challenges in standardizing action reporting and ensuring complete information capture. The data reveals that European municipalities favour awareness-building, financial incentives, and management approaches as primary means for implementing energy poverty and mitigation interventions, with regulatory and market-based mechanisms playing more limited roles.

Figure 22. Distribution of EP actions by type of means used for implementation.



Source: JRC elaboration

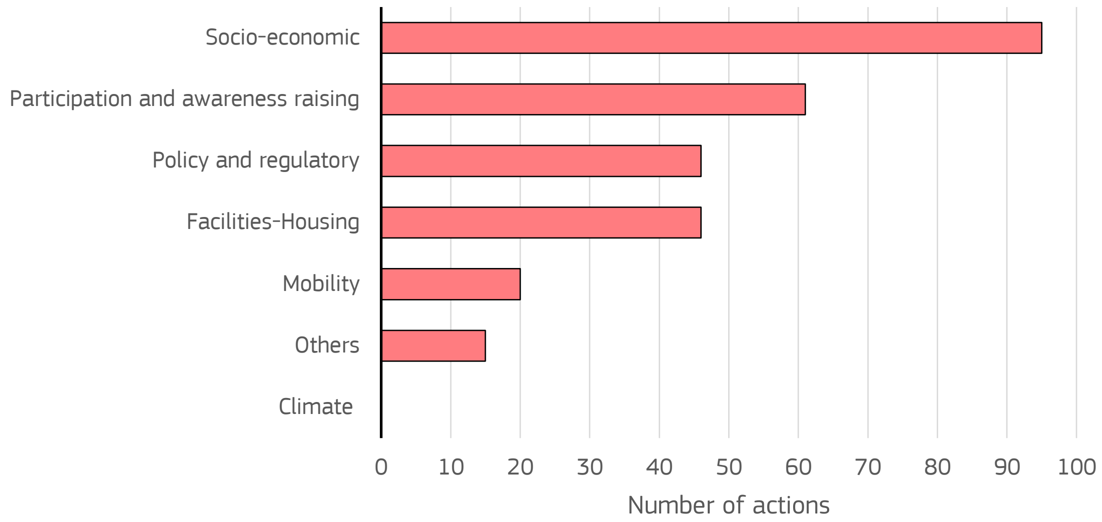
5.3.3. Focus on energy poverty-only actions

The following chart displays the distribution of the 283 energy poverty-only actions reported in 2024, categorized according to the Covenant of Mayors Europe framework for energy poverty assessment and action planning. The framework is based around 6 macro-areas, that reflect the complex and interconnected factors driving energy poverty, ranging from socio-economic circumstances to policy approaches and awareness-raising efforts. The macro- areas are: climate, facilities/housing, mobility, socio-economic aspects, policy and regulatory framework, participation/awareness raising. In this case, the categorisation was carried out by the authors as the reporting platform does not provide an immediate correspondence of actions with macro-areas and signatories are not explicitly requested to indicate the macro-area of work.

Socio-economic interventions represent the largest category with 95 actions, addressing income-related aspects and economic vulnerabilities affecting energy poverty and diverse types of assessments and mapping of related conditions. Participation and awareness raising accounts for 61 actions, focusing on community engagement and knowledge-building initiatives. Policy and regulatory actions total 46, encompassing framework conditions and institutional approaches. Facilities and housing interventions reach 46 actions, targeting building energy efficiency and housing quality issues. Mobility-related actions account for 20 interventions, while climate-related actions show no reported activities. An additional 15 actions are classified as "others," indicating interventions that do not fit clearly within the standard macro area categories[8].

The distribution reveals that European municipalities addressing energy poverty through dedicated actions prioritize socio-economic support, awareness building, and policy development over infrastructure-focused interventions. The absence of climate-specific actions and the smaller number of mobility and housing interventions suggest that these aspects are more commonly addressed through integrated approaches combining energy poverty with mitigation or adaptation objectives, as shown in previous analyses.

Figure 23. Distribution of energy poverty only actions per macro area of intervention in 2024.



Source: JRC elaboration

5.3.4. Sectoral distribution of energy poverty-mitigation actions

Actions combining energy poverty and mitigation objectives are distributed across various intervention sectors. The following chart displays the 1 544 energy poverty and mitigation actions and the 714 energy poverty, mitigation, and adaptation actions reported in 2024, organized by mitigation sector categories to show how municipalities target different areas for integrated climate and energy interventions.

Residential buildings represent the largest sector for energy poverty and mitigation actions with 857 interventions, of which 198 also integrate adaptation objectives. This is linked to the fact that the energy poverty happens in households and hence buildings is the sector where to focus the action to alleviate energy poverty and vulnerability. Municipal buildings account for 143 energy and mitigation actions, with 158 incorporating all three pillars. Local electricity production shows 157 energy poverty and mitigation actions, of which 43 include adaptation components. The transport sector records 93 energy poverty and mitigation actions, with 34 extending to adaptation. Tertiary

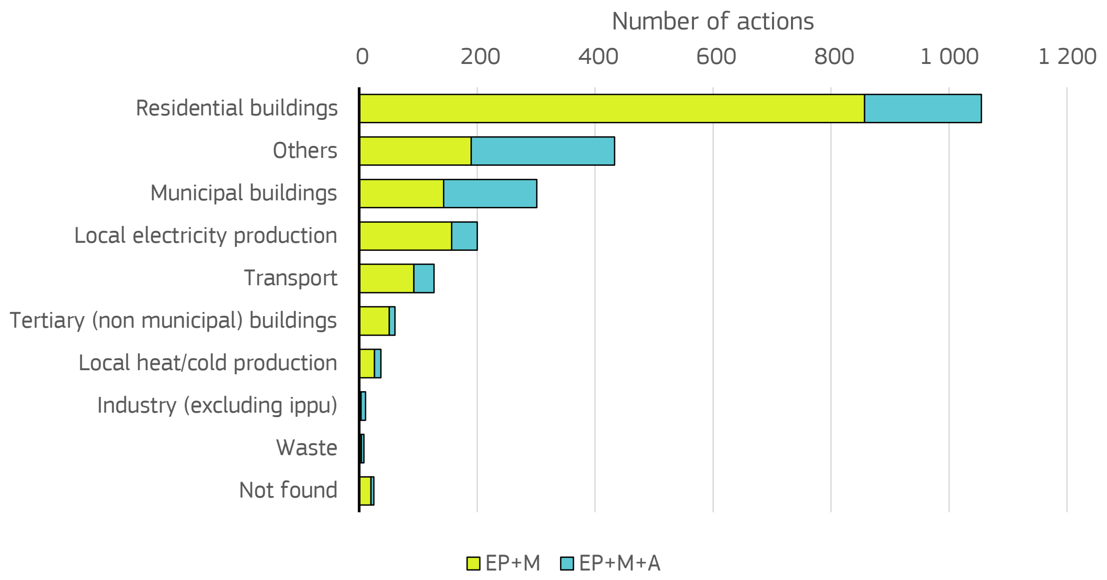
[8] The review and categorisation of actions has been carried out by the authors. The energy poverty macro-areas do not include an "Others" category, however the typology of actions described by municipalities didn't fit immediately in one of the macro-areas and the use of an additional category was considered as the most accurate way to classify actions.

non-municipal buildings total 51 energy and mitigation actions, with 10 also addressing adaptation. Local heat and cold production accounts for 26 and 11 actions respectively across the two categories.

The "others" category shows a distinct pattern, with 190 energy poverty and mitigation actions and 243 triple-pillar actions, indicating that a substantial number of integrated interventions fall outside standard sector classifications. Industry and waste sectors show minimal representation, with 3 and 4 energy poverty and mitigation actions respectively, and 8 and 4 triple-pillar actions. An additional 20 energy and mitigation actions and 5 triple-pillar actions are classified as "not found"[9].

The data reveals that building-related interventions dominate both energy poverty and mitigation combinations and full three-pillar integration, reflecting the significant role of energy efficiency of buildings in addressing climate and energy poverty objectives simultaneously.

Figure 24. Energy actions impacting also mitigation distributed per type of mitigation sector in 2024.



Source: JRC elaboration

5.3.5. Sectoral distribution of energy poverty-climate adaptation actions

Actions combining energy poverty and adaptation objectives are distributed across adaptation-relevant sectors. Adaptation sectors follow the categorisation illustrated in the CRF. The following chart displays the 228 energy poverty and adaptation actions and the 714 energy poverty, mitigation, and adaptation actions reported in 2024, organized by adaptation sector categories to show how municipalities integrate energy considerations with climate resilience interventions.

Buildings represent the largest sector also for energy poverty and climate adaptation actions with 40 interventions, while 374 also integrate mitigation objectives, making this the dominant category for triple-pillar integration. The energy sector itself accounts for 72 energy poverty and climate

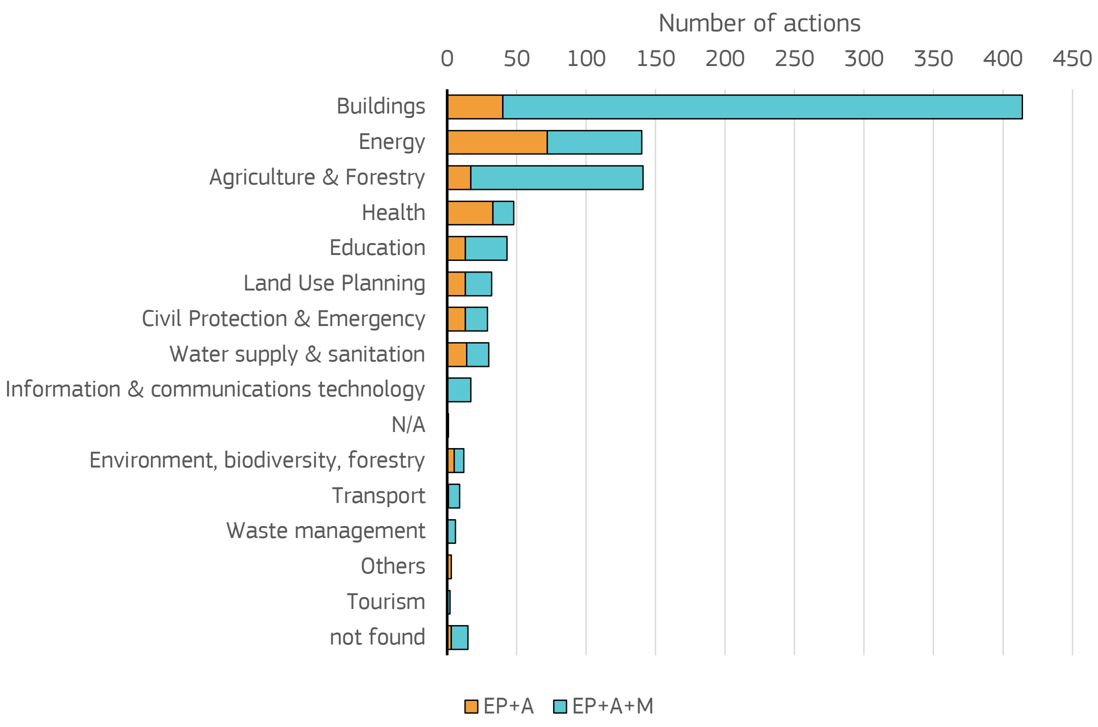
[9] The use of “Not found” category refers to actions in which signatories missed to declare the impacted sector

adaptation actions and 68 triple-pillar actions, reflecting infrastructure resilience and supply security considerations. Agriculture and forestry show 17 energy poverty and adaptation actions and 124 triple-pillar interventions, indicating significant potential for integrated land-based climate solutions. Health-related actions total 33 for energy poverty and adaptation, with 15 extending to mitigation, while education shows 13 and 30 actions respectively.

Land use planning, civil protection and emergency response, and water supply and sanitation each record between 13 and 19 energy poverty and climate adaptation actions, with smaller numbers incorporating mitigation. Information and communications technology show no energy poverty and adaptation actions but 17 triple-pillar interventions. Transport, waste management, environment and biodiversity, and tourism sectors show minimal representation in energy and adaptation combinations, with most activity concentrated in triple-pillar approaches.

The distribution reveals that interventions focused on adaptation and integrated with energy poverty prioritize buildings, energy infrastructure resilience, and cross-cutting sectors like agriculture, health, and education. The higher numbers in the triple-pillar column for buildings and agriculture suggest these sectors particularly benefit from comprehensive integration across all three covenant objectives. The pattern indicates that when municipalities address climate adaptation alongside energy poverty, they frequently also incorporate mitigation goals, reflecting the interconnected nature of climate action, tackling vulnerable sectors and group to climate change and energy poverty, while addressing the root causes through mitigation.

Figure 25. EP actions impacting also adaptation distributed per type of adaptation sector in 2024.



Source: JRC elaboration

5.3.6. Conclusion

European municipalities employ diverse implementation approaches for energy poverty actions, with awareness raising, financial incentives, and energy management dominating, while regulatory and market-based mechanisms remain limited. When looking at impacted macro-areas and sectors: energy poverty actions concentrate on the macro-area of socio-economic support and community engagement, reflecting direct responses to energy poverty dimensions. Integrated energy poverty-mitigation actions focus on buildings' energy efficiency, particularly residential and municipal facilities, while energy poverty-adaptation combinations prioritize infrastructure resilience across buildings, energy systems, and cross-cutting sectors like agriculture and health. The prevalence of triple-pillar actions, energy poverty-mitigation-adaptation, in buildings and agriculture demonstrates municipalities' recognition of synergies across climate and energy objectives in these sectors.

5.4. Status, relevance, and implementation timeline of energy actions

This section analyses the implementation characteristics of energy poverty actions, examining their status, strategic importance, and temporal planning. The analysis tracks progress in action delivery by categorizing interventions according to their implementation stage. It explores how municipalities prioritize their energy poverty actions' portfolios by designating key actions and examines the temporal distribution of interventions to understand planning horizons and program duration. Together, these elements provide insight into the operational maturity and strategic planning of energy poverty-related interventions within the European signatory base.

5.4.1. Status of energy interventions

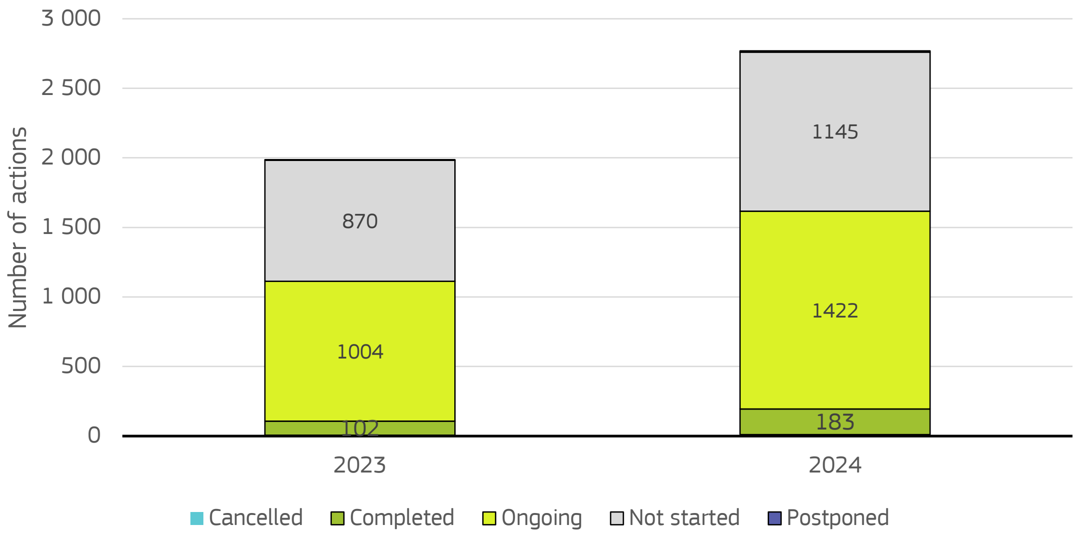
The implementation status of energy poverty-related actions varies across various stages, with changes between 2023 and 2024 reflecting progress in action delivery. The following chart displays the distribution of energy poverty actions by status category, showing the number of interventions that are completed, ongoing, not yet started, postponed, or cancelled based on information reported by European signatories on the platforms.

In 2023, ongoing actions represented the largest category with 1,004 interventions, accounting for approximately 51% of all energy poverty actions. Not started actions totalled 870, representing around 44%. Completed actions reached 102, while postponed and cancelled actions remained minimal at 5 and 6, respectively.

By 2024, ongoing actions increased to 1 422, maintaining their position as the largest category at approximately 51% of the total. Not started actions grew to 1 145, representing around 41%. Completed actions rose to 183, accounting for approximately 7%. Postponed actions increased to 8, and cancelled actions reached 11.

Growth rates varied across status categories. Cancelled actions showed the highest relative increase at approximately 83%, though from a small baseline. Completed actions grew by 79%, indicating considerable progress in delivering energy interventions. Ongoing actions increased by 42%, while not started actions grew by 32%. Postponed actions rose by 60%.

Figure 26. Change in energy poverty actions implementation status

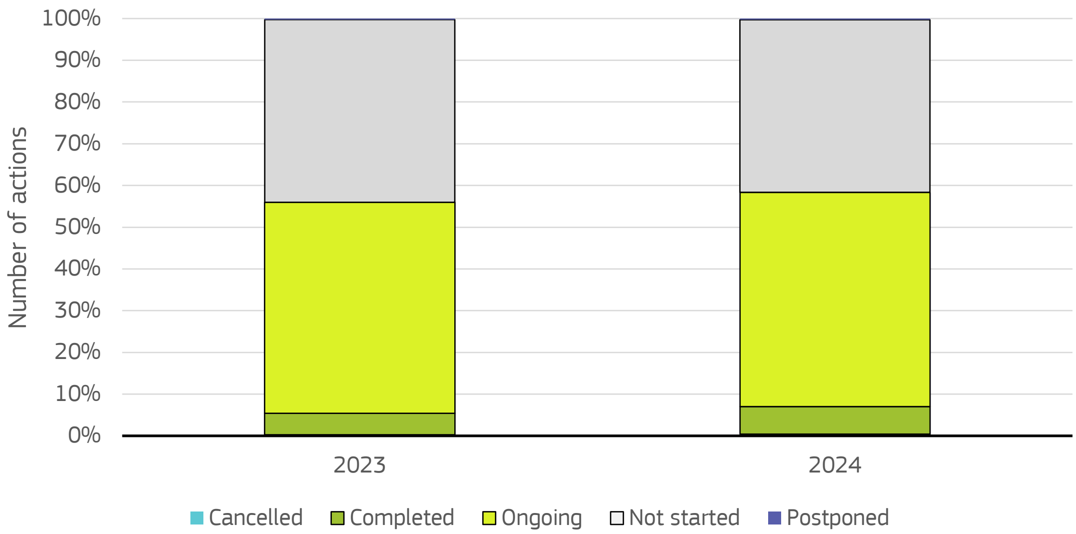


Source: JRC elaboration

The relative distribution of action status remained stable between the two years, with ongoing actions consistently representing approximately 51% of the total and not started actions declining slightly from 44 to 41%. Completed actions increased their share from 5 to 7%, while cancelled and postponed interventions remained below 1% in both years.

The data reveals that half of all reported energy poverty actions are actively being implemented, while over 40% remain in planning stages. The increase in completed actions demonstrates tangible progress in energy poverty intervention delivery, while the growth in ongoing and not yet started actions reflects expanding municipal ambition and planning capacity. The extremely small numbers of cancelled and postponed actions suggest strong commitment to energy poverty interventions, with minimal abandonment or delay of planned activities reported by European municipalities.

Figure 27. Relative distribution of energy poverty actions by implementation status



Source: JRC elaboration

5.4.2. Conclusion

Half of energy poverty actions are actively being implemented, with over 40% in planning stages and growing completion rates demonstrating tangible delivery progress. The extremely low proportion of cancelled or postponed actions indicates strong municipal commitment to energy poverty interventions. Municipalities consistently designate around one-third of their actions as strategic priorities, maintaining a balanced portfolio of key interventions and supporting activities. Implementation timelines concentrate around the 2020-2030 period while spanning from legacy programs dating to the 1990s through long-term initiatives extending to 2050, reflecting diverse approaches combining immediate responses with transformative multi-decade strategies.

6. Conclusions, outlook, and recommendations

This technical report provides a comprehensive assessment of the Energy Access and Energy Poverty Pillar's uptake and implementation within the Global Covenant of Mayors framework during 2023 and 2024, revealing substantial growth and evolving engagement patterns across both badge assignment and action reporting.

Global badge performance demonstrates consistent expansion across all metrics. The number of signatories with energy access and poverty badges grew by 17%, reaching approximately 1 575 municipalities, while total badge assignments increased by 29% to approximately 2 250. Municipalities achieving full badge coverage more than tripled, and cross-pillar integration expanded notably, with 1 068 signatories combining energy access and poverty engagement with complete mitigation and adaptation commitments by 2024. The demographic reach of the pillar increased, covering 430 million people by 2024, representing 34% of the total GCOM population—a 9% age point increase from 2023. Regional analysis reveals significant variation, with the European Union & Western Europe maintaining the largest absolute participation while North America, East Asia, and Southeast Asia demonstrate the highest adoption rates relative to their membership bases. Several regions maintain adoption rates below 10%, indicating considerable potential for expansion within existing signatory populations and for strengthened aggregate knowledge of the EAP.

The analysis of energy poverty actions shows that related interventions are growing faster than overall climate action reporting, with documented actions increasing by 39% compared to 3% for all climate actions. Approximately 90% of energy poverty actions integrate with mitigation, adaptation, or both pillars, demonstrating municipalities' recognition of synergies across climate, energy and just transition objectives. Implementation approaches favour awareness-raising, financial incentives, and energy management strategies, while building-focused interventions dominate sectoral distribution. Implementation status indicates operational maturity, with half of actions actively ongoing and growing completion rates demonstrating tangible delivery progress. However, reporting quality remains variable, with substantial portions of actions lacking detailed implementation information.

Areas for future development and analysis include several dimensions.

- First, expanding action analysis to the global level would provide comprehensive insight into how different regions translate energy access and poverty commitments into interventions, moving beyond the current European focus constrained by data availability.
- Second, improving reporting standardization and completeness remains critical, particularly for implementation means classification and sectoral categorization, to enable more robust comparative analysis.
- Third, targeted support for regions with low adoption rates could accelerate pillar uptake where significant potential exists within established GCOM membership.
- Fourth, tracking of action outcomes and impacts would complement the current process-focused analysis, assessing the effectiveness of different implementation approaches in achieving energy access and poverty reduction goals.
- Fifth, the future assessment and monitoring of the EAPP will offer valuable insights to guide more tailored actions and policy support. These findings can help improve coordination and effectiveness at local, GCOM, and international levels

- Finally, deeper examination of municipalities achieving full badge coverage and comprehensive action portfolios could identify best practices and transferable lessons for accelerating broader adoption across the alliance.

The analysis demonstrates that the Energy Access and Energy Poverty Pillar has achieved meaningful traction within its first two years of operation, attracting diverse municipality engagement across geographic contexts and population sizes while fostering integrated approaches that leverage climate-energy- justice synergies.

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List of abbreviations and definitions

Abbreviations	Definitions
CDP	Carbon Disclosure Project
CRF	Common Reporting Framework
EAPP	Energy Access and Energy Poverty Pillar
EAP	Energy Access and Energy Poverty
EP	Energy Poverty
EPAH	Energy Poverty Advisory Hub
GCOM	Global Covenant of Mayors for Climate and Energy

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