DATA ON MUNICIPAL WASTE MANAGEMENT IN ITALY

GREEN book

2026 EXECUTIVE SUMMARY

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KEY MESSAGES

1

In 2024, **national municipal waste production** exceeded **29.9 million tonnes**, an increase of 2.3% compared to 2023. **Separate waste collection** has reached **68%**, while **preparation for reuse and recycling stands at 52%**, up by 1.3% compared with 2023. The **gap between collection and recycling** confirms that the sector's transition cannot be measured solely by the amount of waste intercepted, but by the ability to transform it into actual material recovery and greater supply chain efficiency.

2

The composition of waste sent for recycling highlights the central role of the various material streams in the development of the circular economy. In 2024, **the organic fraction accounted for 41% of the waste sent for recycling**, followed by **paper and cardboard at 25%, glass at 13%,** wood at 7%**, plastic at 6%**, and other smaller fractions. These material streams are characterised by differing industrial conditions, treatment costs, quality of collected materials, and market outlets, requiring specific management tools and cooperation models to turn separate collection into actual recycling. The case of plastic is particularly significant: although it represents the smallest share by weight, it is nevertheless important in terms of the volumes handled, the variability in the quality of the streams, the incidence of contaminants, and competition with virgin raw materials. From this perspective, strengthening the market for secondary raw materials and ensuring the consistent use of EPR (Extended Producer Responsibility) economic instruments and the CONAI Environmental Contribution as economic levers to support recycling are essential conditions for providing stability to recovery supply chains and making the sector's contribution to circular economy objectives structural and long-term.

3

Extended producer responsibility plays a central role in linking collection quality, actual recycling, demand for secondary raw materials, and the proper coverage of costs. Analysis of the **2024 MUD data** underlying the MTR-3 tariff revenue determinations shows that **average collection and treatment costs vary significantly across the different fractions: from 24.2–27.8 euro cents/kg** for **glass** and 27.33–30.23 **euro cents/kg** for **paper** and **cardboard**, up to 43.67–53.44 **euro cents/kg for plastic packaging**, where the incidence of contaminants has a greater impact on cost variability. The effective application of the "polluter pays" principle therefore requires **EPR systems to ensure proper coverage of the efficient costs incurred by operators** along the post-consumer value chain, as recognised in the Economic and Financial Plans (EFPs) approved under ARERA regulations, thereby preventing the costs of circularity from being improperly transferred to tariffs and end users. This objective may also be achieved through modulation of the CAC that takes account of waste recyclability, moving beyond the simplified parameter of average cost.

4

Achieving the European targets, and in particular **reducing landfill disposal to 10% by 2035**, requires adequate **treatment infrastructure** aligned with territorial needs and with the need to minimise waste transport and the related emissions that undermine the environmental benefits of recycling. Projections to 2035 highlight **significant deficits, particularly in Southern Italy and Sicily**, both in the treatment of the organic fraction and in the management of residual mixed waste. The construction of the Rome Capitale waste-to-energy plant could significantly reduce the Central Italy area's need for residual mixed waste treatment capacity, while the facilities financed under the National Recovery and Resilience Plan (NRRP), as well as through the "Aid Decree" and partly through companies' own capital, will help reduce the gap relating to the organic fraction. Strengthening treatment capacity in Southern Italy nevertheless remains a key priority, as infrastructure capacity is still insufficient in relation to the volume of waste generated.

5

Strengthening investment, including through dedicated financing mechanisms such as those introduced under the NRRP, is necessary to address long-standing structural issues, starting with infrastructure deficits and territorial disparities. **In 2024**, companies in the sector made total **investments of approximately €2 billion**, with **large companies** driving investment levels, **which more than doubled between 2016 and 2024**. Northern Italy records higher average investment levels than Southern Italy and the Islands (**€4.5 million in the North in 2024 compared with €2.8 million in the South**), confirming the need to strengthen industrial and financial capacity also in the areas with the greatest needs.

6

Despite the progress made in recent years, the **process of implementing local governance remains incomplete** in several areas of the country, and service structures continue to display significant territorial disparities. **39% of the population is served by companies awarded contracts through tender procedures, and 62% of the tenders were issued by municipalities, 96% of which awarded the service contract for a single municipality**. More than operational scale alone, the central issue is the ability of local structures to ensure planning, business continuity, integration across the different stages of the waste management chain, and investments aligned with territorial needs.

7

Tenders for the award of service contracts have an **average duration of less than five years**, reflecting a short-term approach to service management, with limited investment focused mainly on collection and transport contracts and only marginally on treatment infrastructure. The overall picture points to low service standards and management structures that are often highly fragmented. Although **area-wide tenders** account for only a residual share of the total, they cover approximately **7 million inhabitants** and have a total tender value of **€16 billion**.

8

In **2025, the average tender-based price for the treatment of Organic Fraction of Municipal Solid Waste (OFMSW)** stands at around **€101/t**. Following the increase observed during the 2019–2022 period, also linked to the inflationary spike after the pandemic shock, prices have declined but remain above pre-pandemic levels. The distribution of the sample nevertheless shows **minimum values significantly below the average and contrary to the overall trend observed in the sample**. Persistently very low award values, or values not aligned with investment and operating costs, could contribute to creating less favourable conditions for the entry of new operators or the retention of existing ones, **thereby making the development of new treatment capacity more difficult and affecting the territorial balance of supply and the overall resilience of the system**.

9

In **2024**, **the sector's turnover** reached approximately €**19 billion**, equivalent to around **1% of national GDP**, employing more than **122,000 direct workers**. Integrated operators generate **33% of the total turnover**. **Companies with the highest turnover**, although representing a minority share of the sample, achieve the best economic and financial performance, generating **48% of the sector's revenues**. Larger companies also continue to perform better in terms of productivity and profitability.

10

The TARI (municipal waste tariff) **in 2025 was €333 at the national level, with large regional differences**. While **Northern Italy** has an average TARI (municipal waste tariff) of **€288**, **Central and Southern Italy record values of €358 and €378 respectively, both above the national average**. Differences in expenditure reflect local conditions, management structures, infrastructure capacity, and differing levels of industrial maturity in service provision. The economic sustainability of the system therefore requires a balance between industrial efficiency, environmental quality, proper cost allocation, investment, and the protection of end users.

EXECUTIVE SUMMARY

+2.3% IN WASTE GENERATION IN 2024; SEPARATE WASTE COLLECTION REACHED 68% (+1% COMPARED WITH 2023)

THE RECYCLING RATE STOOD AT 52%, UP 1.3% COMPARED WITH 2023 – A WIDE GAP BETWEEN SEPARATE COLLECTION AND RECYCLING STILL REMAINS

In recent years, the municipal waste sector has entered a phase of profound transformation. After a long period in which the main indicator of progress was the growth of separate waste collection, the challenge is gradually shifting towards the system's ability to turn collected waste streams into actual recycling, material and energy recovery, reduced disposal, and greater overall efficiency across the value chain.

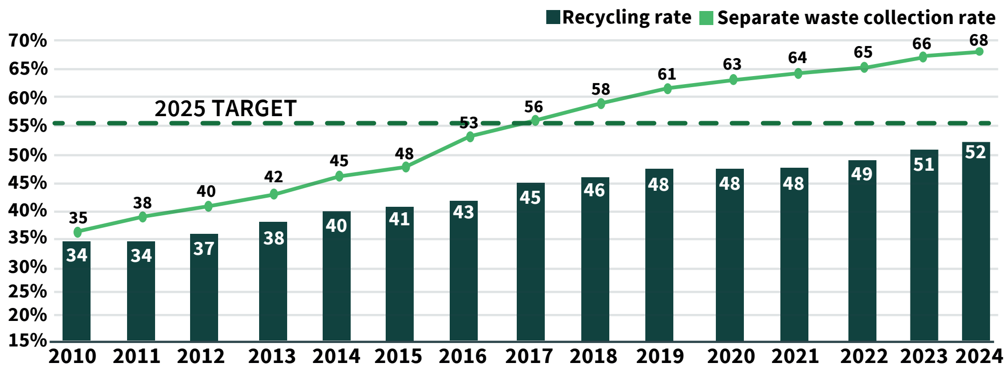
This shift has been reinforced by the European framework, which in recent years has progressively moved the focus from waste collection alone to its effective recovery and valorisation. In fact, the EU targets require a significant increase in the recycling of municipal waste, up to 60% by 2030 and 65% by 2035, and a reduction in landfill disposal to 10% by 2035. Achieving these targets appears even more challenging in light of the new calculation methodologies, which are more stringent both for recycling and for the assessment of landfill disposal, making an approach based exclusively on the quantities collected separately no longer sufficient.

From this perspective, municipal waste management can no longer be viewed solely as a local environmental service required to ensure increasingly high quality standards, but also as an essential industrial component of the circular economy, linking citizens, local areas, treatment facilities, production chains, and secondary raw material markets.

The most recent evidence confirms this trend. In 2024, national municipal waste generation stood at just over 29.9 million tonnes, an increase of 2.3% compared with 2023. In the same year, separate waste collection reached 68% of national waste generation, with an increase of 1% and a quantitative rise of 755 thousand tonnes, reaching almost 20.3 million tonnes. The rate of preparation for reuse and recycling also improved, reaching 52%, up by 1.3 percentage points compared with the previous year.

FIGURE 1

TRENDS IN RECYCLING AND SEPARATE WASTE COLLECTION [YEARS 2010–2024; PERCENTAGE VALUES]



Source: Ispra

A wide gap nevertheless remains between the separate waste collection rate and the actual recycling rate. This gap confirms that, although collection is a fundamental step in ensuring homogeneous and recyclable waste streams, achieving high collection rates alone is not sufficient; the different fractions collected must also be of high quality. Between collection and actual recycling lies a critical stage in which the quality of waste inputs, the efficiency of sorting processes, the reduction of rejects, the optimisation of treatment costs, and the ability to integrate secondary raw materials sustainably into production cycles through mechanisms that enhance their competitiveness with virgin raw materials are all determined. It is at this stage of the value chain that the role of collection operators takes on strategic importance. The ability to establish an ongoing dialogue with citizens, non-household users, and local communities directly affects the quality of the material fed into recovery streams and, consequently, the economic and industrial sustainability of downstream supply chains. The development of collections must also be accompanied by the availability of an adequate plant infrastructure for the sorting, treatment and valorisation of waste streams. The revision of the Waste Framework Directive confirms this trajectory, introducing new targets for the prevention of food waste and extending extended producer responsibility to the textile and footwear supply chains. In this way, the European framework broadens the scope of waste management, which no longer concerns only downstream activities, but also encompasses product design, the quality of materials placed on the market, the organisation of collection systems, reuse, recycling, and the efficient allocation of costs along the value chain. Within this framework, the proper distribution of costs along the value chain is particularly important, in line with the European "polluter pays" principle. In fact, strengthening separate collection and improving the quality of waste streams entail organisational, operational and industrial costs that cannot be considered solely within the scope of the local service. Source separation, the reduction of impurities, the collection of increasingly specific waste fractions, and the recovery process require investments, communication activities, control systems, and operational capabilities that directly affect the economic balance of operators and the overall sustainability of the service.

ENSURE AN EFFICIENT ALLOCATION OF COSTS THROUGH THE STRENGTHENING OF EXTENDED PRODUCER RESPONSIBILITY

From this perspective, extended producer responsibility systems play a central role. EPR, in addition to serving as the financing mechanism for the management of the waste within its remit – from collection through to recycling, including the necessary intermediate sorting and treatment operations – should also play a role in encouraging better product design through appropriate modulation of Environmental Contributions, with the aim of promoting the production of goods that are easier to recycle. The recent tensions affecting certain recycling supply chains also confirm that the resilience of the system depends on the ability to link collection quality, industrial demand for secondary raw materials, adequate treatment infrastructure, and economic mechanisms capable of properly covering the costs incurred along the value chain, including measures to regulate secondary raw material prices through EPR resources in order to maintain the competitiveness of recycled polymers compared with those derived from virgin raw materials. Within this framework aimed at improving cost transparency along the separate waste management chain, ARERA's regulatory intervention introduced incentives to improve the degree of cost coverage for separate waste collection through the Ha indicator, which is still in an initial implementation phase and whose effects are likely to become appreciable in the next interim revisions of MTR-3 (2028–2029). In this direction, it would be appropriate to strengthen regulatory instruments already reflected in the technical quality indicators (Resolution 387/2023, as amended), through the macro-indicators R1 and R2, which measure respectively the effectiveness of sending waste fractions subject to extended producer responsibility obligations for recycling and the effectiveness of sending the organic fraction for recycling.

An examination of the 2024 MUD declarations contained in the MDCR form made it possible to extract the specific collection and treatment costs (CRD and CTR) for the separately collected paper, glass, and plastic fractions, in order to identify the unit costs per quantity of waste collected and, for plastic packaging waste, per quantity of waste delivered, which is significantly affected by the incidence of contaminants. The varying completeness with which the form was filled in has resulted in two levels of analysis: one based on restricted samples – with maximum data completeness – and one based on extended samples, with some approximation in the information. The analysis identified an average cost for the separate collection and treatment of glass ranging from a minimum (underestimated) average of 24.2 euro cents/kg to a maximum of 27.8 euro cents/kg. For the paper fraction, the identified sub-sample shows an average minimum cost of 27.33 euro cents/kg and an average maximum cost of 30.23 euro cents/kg.

TABLE 1

AVERAGE COST OF COLLECTING AND TREATING GLASS AND PAPER [EURO CENTS/KG, YEAR 2024]

	GLASS SUBSAMPLE AVERAGE COST PER QUANTITY COLLECTED [EURO CENTS/KG]	PAPER SUBSAMPLE AVERAGE COST PER QUANTITY COLLECTED [EURO CENTS/KG]
RESTRICTED SAMPLE	27,83	30,23
EXTENDED SAMPLE	24,20	27,33

Source: Utilitatis calculation based on MUD data

AVERAGE COLLECTION AND TREATMENT COSTS VARY SIGNIFICANTLY ACROSS THE DIFFERENT FRACTIONS: 24.2–27.8 EURO CENTS/KG FOR GLASS; 27.33–30.23 EURO CENTS/KG FOR PAPER AND CARDBOARD; UP TO 43.67–53.44 EURO CENTS/KG FOR PLASTIC PACKAGING

The study confirms the empirical data observed at association level. Likewise, the detailed analysis of the unit costs relating to the plastic packaging stream – based on the same methodology used for the other materials – highlights a cost structure characterised by greater variability, mainly linked to the degree of purity of the waste delivered, resulting in an average minimum cost (underestimated) of 43.67 euro cents/kg and an average maximum cost of 53.44 euro cents/kg.

TABLE 2

AVERAGE COST OF COLLECTING AND TREATING PLASTIC [EURO CENTS/KG, YEAR 2024]

	PLASTIC SUBSAMPLE AVERAGE COST PER QUANTITY COLLECTED [EURO CENTS/KG]	ASSUMED SHARE OF CONTAMINANTS [% OF QUANTITY COLLECTED]		ESTIMATED AVERAGE COST PER QUANTIT DELIVERED [EURO CENTS/KG]	
		MIN	MAX	MIN	MAX
RESTRICTED SAMPLE	40,08	15%	25%	47,15	53,44
EXTENDED SAMPLE	37,12	15%	25%	43,67	49,49

Source: Utilitatis calculation based on MUD data

From this perspective, covering the efficient costs incurred by operators to ensure high-quality collection, the reduction of impurities, user information activities, and the transfer of materials to recovery supply chains constitutes an essential element in the effective application of the "polluter pays" principle. Separate waste collection is therefore not the end point of the transition, but the first link in a broader industrial value chain. For it to generate actual recycling, materials, and value, the EPR system must transparently recognise the costs necessary to ensure quality, business continuity, and market outlets, preventing the burdens of circularity from falling improperly solely on service operators or end users. Lastly, it should be noted that, pursuant to paragraph 27.5 of MTR-2 and paragraph 29.5 of MTR-3, the PEF ensures the achievement of economic and financial equilibrium and, in any case, compliance with the principles of effectiveness, efficiency, and cost-effectiveness in management, including with regard to planned investments.

HALVE LANDFILL WASTE IN THE NEXT 15 YEARS

Effective management and valorisation of waste streams necessarily requires adequate treatment infrastructure distributed across the region. The quality of collection generates value only if accompanied by an adequate network of sorting, treatment, recycling, and recovery infrastructure capable of transforming collected waste streams into materials that can actually be reused in production cycles or, for non-recyclable fractions, into forms of recovery consistent with the European waste hierarchy. Within this framework, the issue of infrastructure takes on strategic importance, also in light of the European targets for the progressive reduction of landfill disposal. The 10% target for 2035 makes it necessary not only to strengthen the system's capacity to collect, sort, and valorise recyclable waste streams, but also to manage efficiently the residual fractions that cannot otherwise be recovered. To reduce landfill disposal, which in light of European targets must be halved over the next 15 years, adequate infrastructure capacity consistent with the European waste hierarchy is required in order to manage the residual mixed waste fraction.

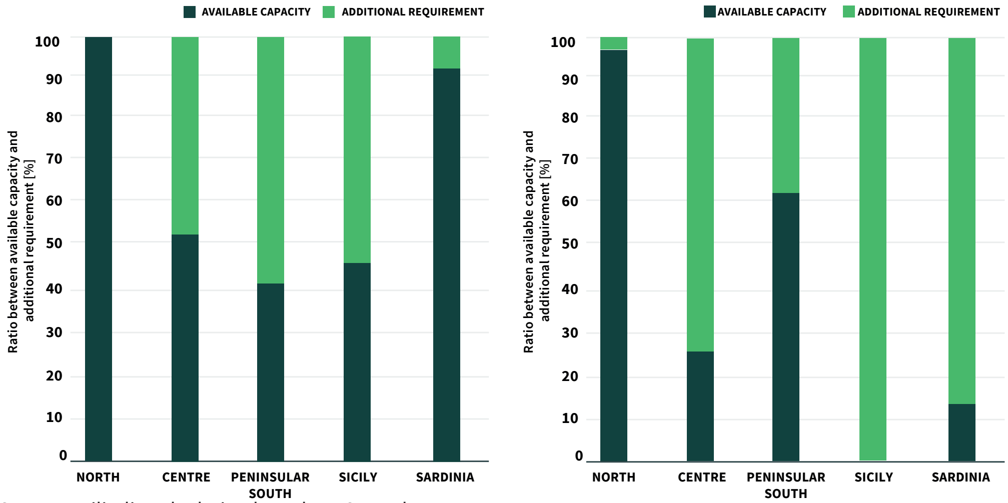
INFRASTRUCTURE DEFICITS IN THE TREATMENT OF THE ORGANIC AND RESIDUAL MIXED WASTE FRACTIONS PERSIST, PARTICULARLY IN SOUTHERN ITALY AND SICILY

At present, Italy risks being unable to achieve the European targets unless adequate development of treatment infrastructure takes place in the coming years, particularly with regard to energy recovery from fractions that cannot otherwise be recovered, including through the construction of waste-to-energy plants. Projected infrastructure needs up to 2035 continue to reveal significant critical issues, particularly in the treatment of the organic fraction and residual mixed waste, with more pronounced territorial disparities in certain areas of the country.

FIGURE 2

PLANT NEEDS BY 2035 FOR THE ORGANIC AND MIXED WASTE FRACTIONS

ORGANIC FRACTION UNSORTED FRACTION



Source: Utilitalia calculation based on ISPRA data

NRRP: +€2.1 BILLION FOR STRENGTHENING SEPARATE WASTE COLLECTION, MODERNISING EXISTING FACILITIES, AND BUILDING NEW PLANTS

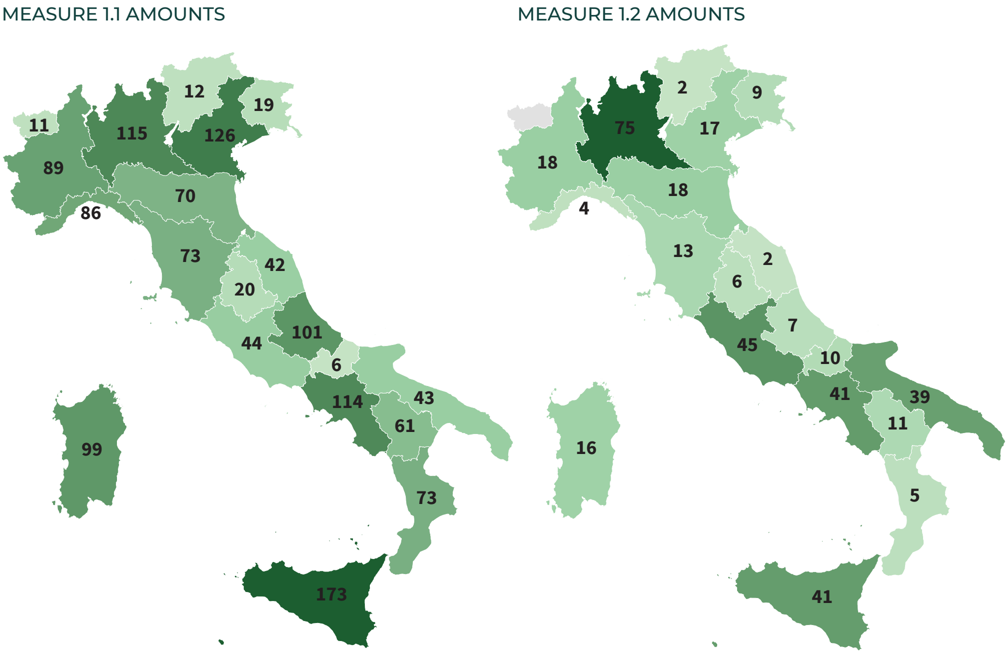
IN 2024, COMPANIES IN THE SECTOR MADE APPROXIMATELY €2 BILLION IN INVESTMENTS, UP FROM 2016

For the residual mixed waste fraction, Northern Italy and Sardinia will show a relatively limited residual capacity requirement, amounting to approximately 100,000 tonnes and 170,000 tonnes respectively, whereas Central Italy, Southern Italy and Sicily will instead face a particularly significant infrastructure deficit. It should nevertheless be noted that the construction of the planned facility serving Rome Capitale could significantly reduce the Central Italy area's infrastructure requirement, potentially by as much as half. With regard to the organic fraction, Northern Italy and Sardinia are expected to be substantially self-sufficient in terms of treatment infrastructure, whereas Central Italy, Southern Italy and Sicily will show a particularly significant capacity deficit. In the case of Central Italy, the additional requirement is almost equivalent to the capacity currently available, while in Sicily and Southern Italy the estimated deficit will exceed the capacity currently installed. It should be noted that, thanks to NRRP measures, as well as the "Aid Decree" and forms of financing through companies' own capital, new facilities have come into operation across the macro-areas and will help reduce the infrastructure gap, potentially by as much as half. Investing in new treatment capacity not only makes it possible to reduce the infrastructure gap, but also to reduce the movement of waste between different areas of the country and, consequently, the emissions associated with transport.

In the waste sector, the NRRP allocated a total investment of €2.1 billion to strengthen separate waste collection, modernise and build treatment and recycling facilities, and support projects in strategic supply chains. Overall, the NRRP has represented a significant opportunity for the waste sector to address long-standing structural issues, starting with infrastructure deficits and pronounced territorial disparities.

FIGURE 3

VALUE OF PROJECTS UNDER NRRP MEASURES 1.1 AND 1.2 BY REGION [€ MILLION]



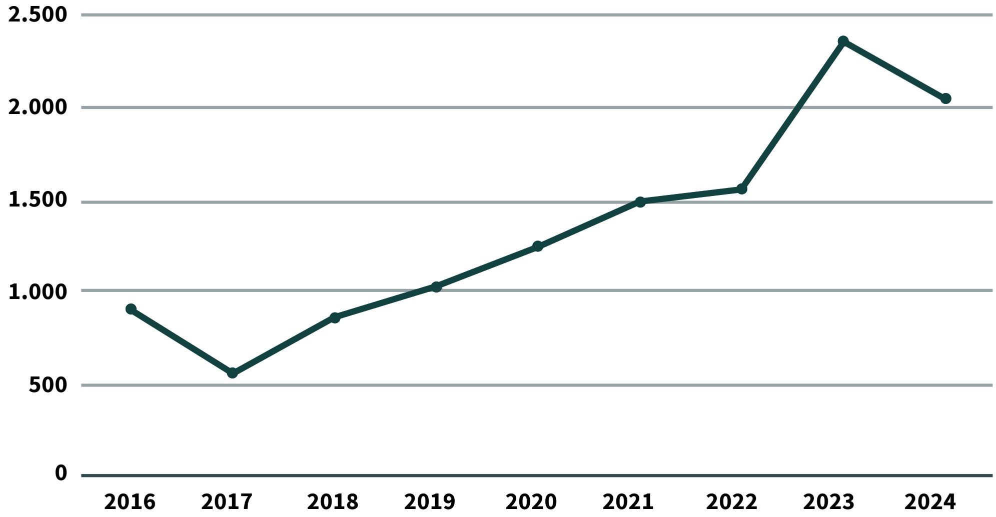
Source: Calculation based on PNRR data

The scale of the investments and the number of projects eligible for funding confirm the existence of a significant demand for infrastructure and innovation throughout the entire supply chain. However, the ability to turn the allocated resources into concrete, operational projects remains crucial, consolidating the effects of the reforms over time and durably strengthening the efficiency and sustainability of the waste management system.

Looking at the level of investment, it can be seen that in 2024 companies in the sector made investments of approximately €2 billion, compared to an EBITDA of approximately €2.2 billion. Looking at the trend over the 2016–2024 period, overall investment levels show a growing trend, with a peak between 2022 and 2023 reflecting the impact of the NRRP. This trend reflects a progressive strengthening of investment efforts in the sector, probably linked both to the evolution of the regulatory framework and to the need to adapt and develop treatment infrastructure.

FIGURE 4

ESTIMATED INVESTMENTS IN THE SECTOR [2016–2024; MONO-UTILITIES; € MILLION]



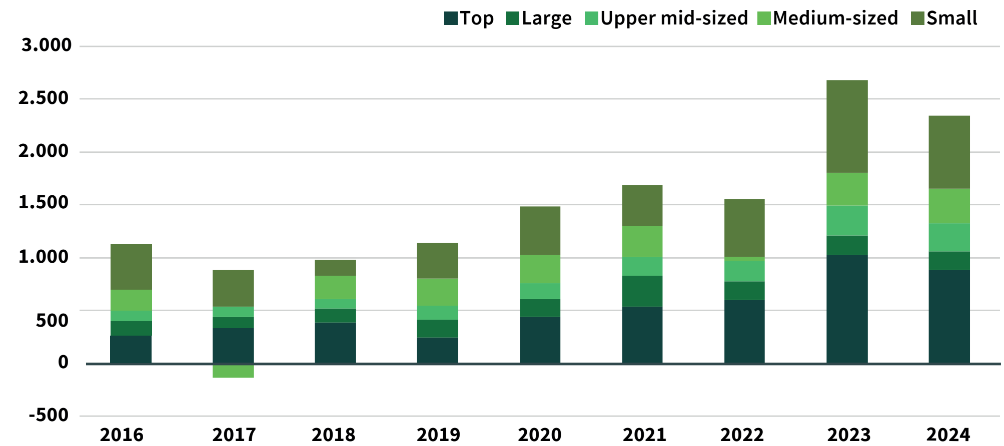
Source: Utilitatis calculation based on AIDA BvD data

The investment trend, however, appears to be strongly driven by the larger operators. Top companies recorded an increase from approximately €200 million in 2016 to more than €720 million in 2024, representing overall growth of around 250%, while maintaining a dominant role throughout the entire period. Large and upper mid-sized companies also show strong growth, whereas small companies, despite recording a significant increase in investment levels, still display limited and highly volatile volumes.

TOP COMPANIES ARE DRIVING INVESTMENT: +250% BETWEEN 2016 AND 2024

FIGURE 5

TREND IN INVESTMENT LEVELS BY COMPANY SIZE [2016–2024; MONO-UTILITIES; € MILLION]



Source: Utilitatis calculation based on AIDA BvD data

THE NORTH RECORDS HIGHER AVERAGE INVESTMENT LEVELS THAN THE SOUTH AND THE ISLANDS

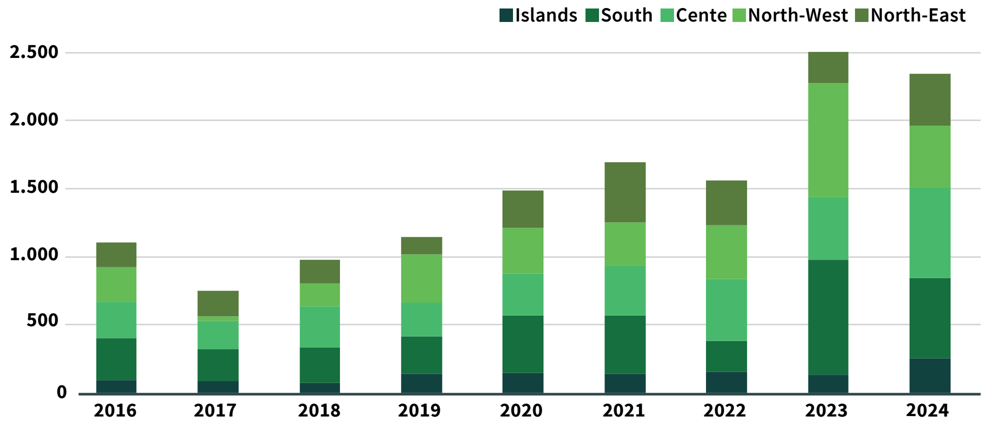
Overall, the data show a strong concentration of investment both in terms of company size and across the value chain, with the most structured operators and the integrated cycle playing a predominant role. This configuration reflects, on the one hand, the industrial structure of the sector, which is still characterised by significant fragmentation, and, on the other, the differing capital requirements of the individual stages of the service, highlighting how larger and vertically integrated operators are able to achieve higher average investment levels than others.

From a territorial perspective, investment trends show widespread growth across all macro-areas, with particularly strong intensity in Southern Italy. The growth in investment in Southern Italy therefore points to a phase of acceleration and catch-up, consistent with the need to address pre-existing infrastructure gaps and strengthen treatment capacity and service quality in the southern regions. Despite the observed growth, which appears to reflect a process of infrastructure catch-up and accelerated intervention in response to pre-existing needs, the average level of investment by companies in Southern Italy remains lower than in Central and Northern Italy, demonstrating that the more structured companies continue to enjoy greater investment capacity.

This trend appears more evident in 2023 when the extraordinary resources of the NRRP helped to activate and concentrate investments in areas characterised by greater territorial disparities. The peak recorded in 2023, followed by a decline in 2024, suggests a trend that is not entirely linear, reflecting a phase of strong acceleration linked both to the closing of the infrastructure gap and to the possible temporary concentration of extraordinary interventions.

FIGURE 6

TREND IN INVESTMENT LEVELS BY GEOGRAPHICAL AREA [2016–2024; MONO-UTILITIES; € MILLION]



Source: Calculation based on AIDA BvD data

Overall, the historical series shows a progressive strengthening of investment in the sector, driven largely by larger operators; however, the uneven trend observed over the last two years also reflects the impact of the NRRP, which has supported operators in Southern Italy and the Islands and contributed to a partial redistribution of investment capacity across the sample. At the same time, elements of disparity emerge both by size class and by geographical distribution, reflecting the differing levels of industrial maturity within the sector and the persistence of gaps in investment capacity.

STRENGTHEN INVESTMENT IN TREATMENT INFRASTRUCTURE AND TECHNOLOGICAL AND DIGITAL INNOVATION

However, the investments required for the industrial upgrade of the sector do not only concern physical processing capacity. It is therefore necessary to continue strengthening investment in order to ensure the development of technological and digital infrastructure, waste input monitoring systems, flow forecasting tools, optimisation of collection and transport, and innovation in sorting and treatment processes. The availability of more timely and interoperable data can in fact help improve operational efficiency, reduce rejects, and strengthen the quality of secondary raw materials.

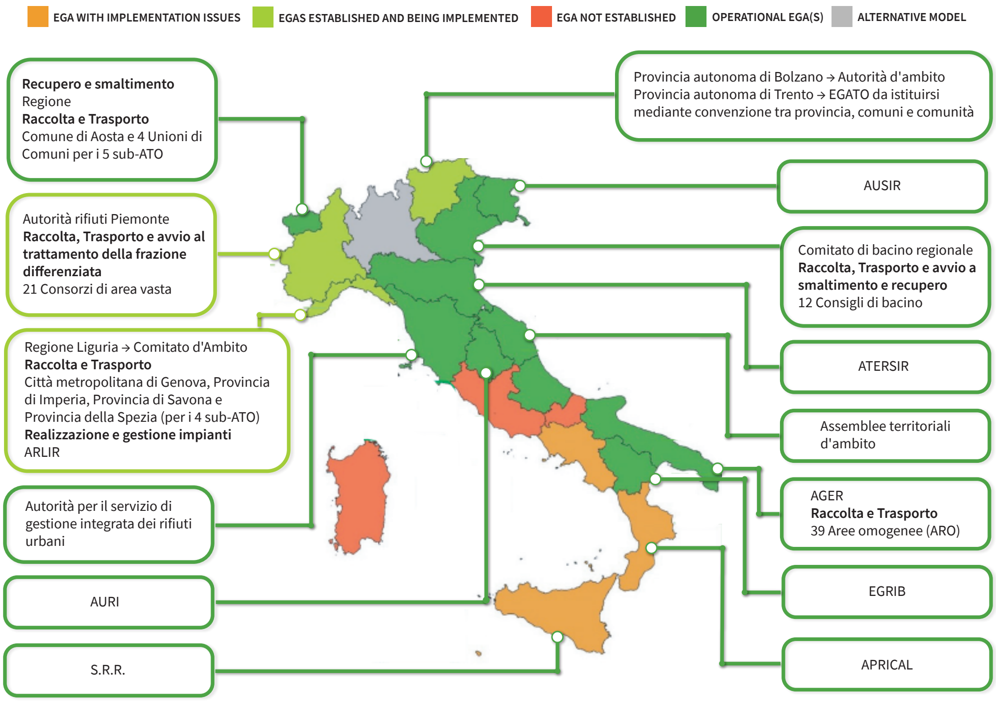
The goals of improving and increasing the efficiency of the environmental sector also depend on strong local governance capable of embracing the strategic vision of the National Waste Management Programme (PNGR), as well as the specific Regional Waste Management Plans (PRGRs).

Although several governing bodies have become operational over the last two years, where Regions have opted for local governance, the implementation process remains incomplete in some Regions, and the organisation of the service through optimal territorial areas has been achieved only in certain Regions. The implementation of existing legislation, reflected in different governance models, sometimes also depending on the various stages of the service, the simultaneous presence of derogations and the absence or inoperability of Area Government Agencies in some areas of the country, provides a clear picture of heterogeneous local governance.

HETEROGENEOUS GOVERNANCE WITH THE IMPLEMENTATION PROCESS STILL INCOMPLETE IN SOME REGIONS

FIGURE 7

OPERATIONAL LEVEL OF THE LOCAL REGULATORY AUTHORITIES (EGAS)



Source: Utilitatis

Excluding Lombardy, which avails itself of the possibility of adopting “alternative or derogation models to the Ambiti Territoriali Ottimali (AOTO) model”, to date there are three regions that have not established any EGAs. Despite the progress made in recent years, the process of reorganising the sector's territorial structure remains far from achieving the necessary characteristics of scale rationalisation and institutional uniformity envisaged by Article 3-bis of Decree-Law 138/2011.

AT OPERATIONAL LEVEL, THE SECTOR IN ITALY IS CHARACTERISED BY HORIZONTAL AND VERTICAL FRAGMENTATION OF THE SERVICE

In Italy, at the management level, the sector continues to be characterised both by a horizontal fragmentation of the service, still due to the high presence of managers that do not go beyond the municipal territory, especially in the central-southern areas of the country, and by a vertical fragmentation with regard to the stages that make up the supply chain, with only a few large managers able to close the cycle. Operators active in the collection segment and in the integrated cycle differ in terms of the size of the territory served and the level of integration of the phases that make up the municipal waste cycle. Such operators are also classifiable in terms of company structure and the manner in which they handle contract assignment.

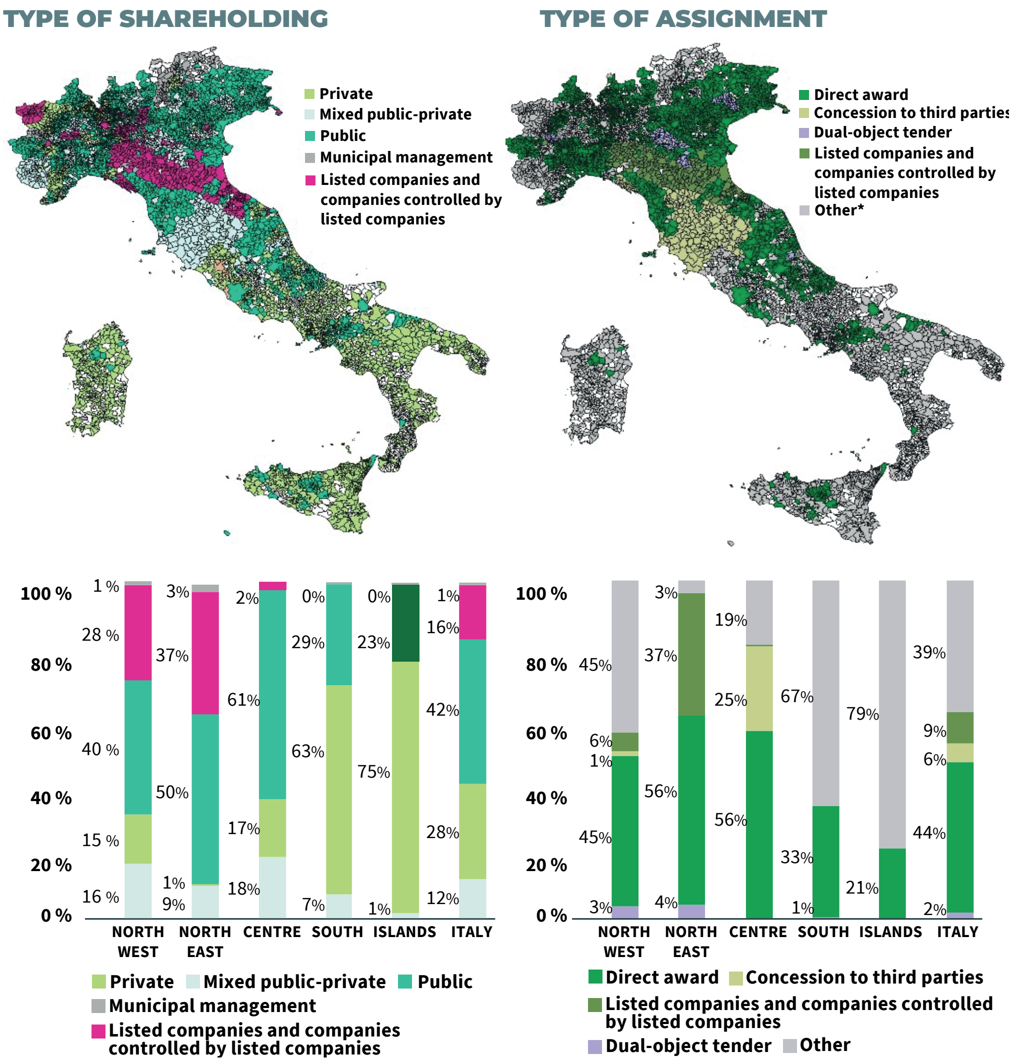
According to the latest data provided by the Utilitatis database (Fig. 8), from the perspective of ownership structure, wholly publicly owned operators prevail at national level (42% in terms of population served); listed companies or companies controlled by publicly controlled listed entities cover an area corresponding to 16% of the population, while mixed public-private companies account for 12% of the population.

There is a noteworthy statistic regarding areas managed on a cost-reduction basis by private operators or specific municipalities: they represent a total of 29% of the national population, which is not negligible. With regard to the type of service award, 39% of the population — rising to 79% in the Islands and 67% in Southern Italy — is served by companies awarded service contracts through tender procedures, the relatively short durations of which result in frequent turnover in service management. 9% of the population is served through contracts awarded to listed companies or companies controlled by listed entities (mainly located in North-Eastern Italy, where they account for 37% of the population). Finally, a residual share of the population is managed with concessions to third parties (6%) and double tenders (2%).

GREATER PRESENCE OF WHOLY PUBLIC OPERATORS (42%)

FIGURE 8

TYPE OF SERVICE AWARD AND OWNERSHIP STRUCTURE OF COLLECTION AND INTEGRATED CYCLE OPERATORS [2025]



*The category includes operators that were awarded the service through public procurement contracts, including publicly owned companies awarded tenders and, in residual cases, operators appointed through municipal ordinance; municipalities providing the service in-house were also included in this category.

Source: Utilitatis

62% OF TENDERS ARE ISSUED BY MUNICIPALITIES AND, OF THESE, 96% ARE FOR THE AWARD OF THE SERVICE WITHIN A SINGLE MUNICIPALITY

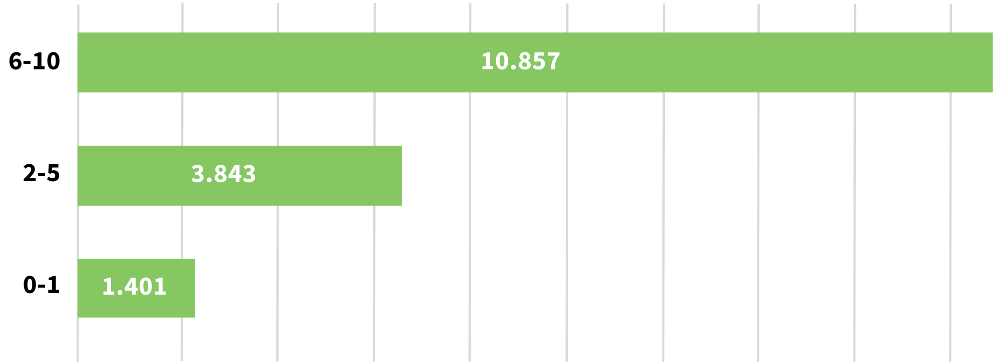
Management fragmentation is also accompanied by a strong temporal discontinuity in the running of the service. At national level, most of the tenders issued over the last three years have had an average duration of less than five years, with the difference becoming more pronounced in certain areas of the country. Analysing the calls for tenders by type of activity awarded, an average duration of about 4 years is noted for the collection phases, while for the recovery and disposal activities, the average duration is approximately 2 years. In 2024, 62% of all tenders were issued by municipalities and, among these, more than 96% were launched to provide environmental services within a single municipality. Cross-referencing this information reveals a picture still characterised by service awards predominantly at municipal level and by strong discontinuity in service management over time, factors that may limit planning capacity, the achievement of operational economies, and continuity of investment.

Area-wide tenders, which tend to award the service for longer periods, continue to account for only a residual share (3% of the total). Although fewer in number than the total tenders issued, the concessions currently in force cover approximately 7 million inhabitants overall, with a total tender value of €16 billion, many of which are approaching expiry. The issue of concessions expiring over the coming years is particularly significant, as it concerns a substantial share of existing service awards and affects a considerable portion of the territory served. Area-wide tenders expiring within the next five years affect almost 3 million inhabitants (around 41% of the total population involved) and represent more than €5 billion (around 33% of the total value of existing concessions).

CONCESSIONS FOR 5 BILLION EUROS EXPIRING WITHIN THE NEXT 5 YEARS

FIGURE 9

VALUE OF CONCESSIONS EXPIRING IN ITALY BASED ON TENDER AMOUNT [2025; SAMPLE OF 22 AREA-WIDE TENDERS; € MILLION]



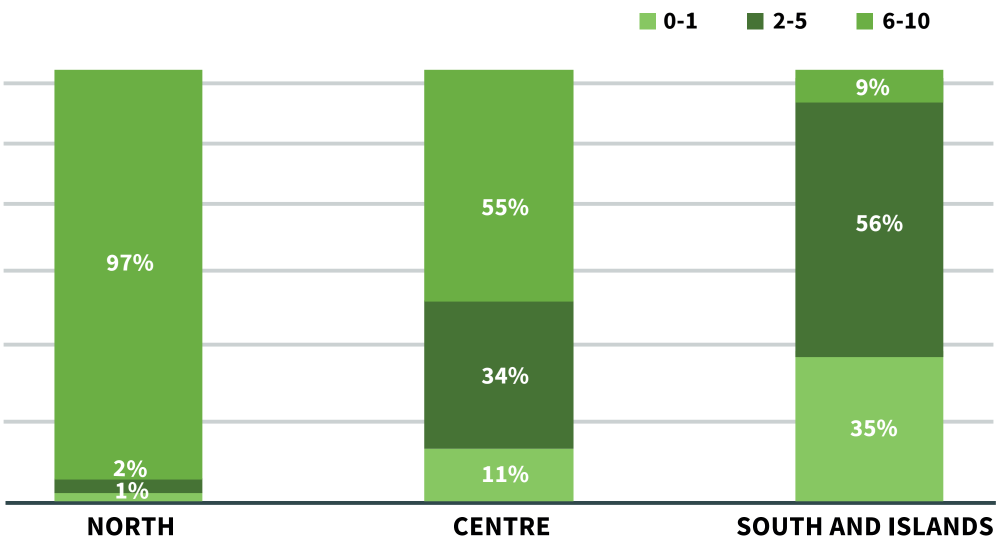
Source: Utilitatis calculations regarding tenders

The territorial distribution also shows differentiated patterns. While in Northern Italy the value of concessions is concentrated almost entirely in the 6–10 year range, indicating a prevalence of longer-term expiries, in Southern Italy and the Islands the value is instead concentrated mainly in concessions expiring within 2 to 5 years (€342 million, around 56% of the area total) and, secondly, in those expiring within 1 year (€217 million, 35%), whereas the share with expiries between 6 and 10 years is residual (€54 million, around 9%).

€342 MILLION IN CONCESSIONS EXPIRING WITHIN TWO TO FIVE YEARS IN SOUTHERN ITALY

FIGURE 10

PERCENTAGE DISTRIBUTION OF CONCESSION VALUES BASED ON TENDER AMOUNT BY EXPIRY INTERVAL AND MACRO-AREA [2025; SAMPLE OF 22 AREA-WIDE TENDERS; PERCENTAGE VALUES]



Source: Utilitatis calculations regarding tenders

IN 2025, THE AVERAGE PRICE FOR OF MSW TREATMENT STOOD AT €101/t

Given the growing attention paid to the treatment of certain material fractions, the Utilitatis Foundation has launched an observatory on tenders issued during the 2017–2025 period for the treatment of the organic fraction. For the analysis, more than 170 tender outcomes relating exclusively to the treatment of OFMSW were extracted across the national territory, examining their distribution and price trends on a tender basis, net of VAT and transport costs (where specified). The analysis shows that in 2025 the average price stood at around €101/t, up slightly compared to 2024. Looking at the trend over the entire period analysed, it can be observed that, after the increase recorded during the 2019–2022 period – also linked to the inflationary spike following the pandemic shock – prices declined from their peak levels, while remaining above pre-pandemic levels.

Price trends must also be interpreted in light of the quality of the waste streams delivered to treatment facilities. During the period observed, the share of non-compostable material present in OFMSW worsened, rising from 4.9% in 2017 to 6.6% in 2024, with a peak of 7.1%

[1] The value is calculated as a weighted average, using the tonnages covered by the tender as the weighting factor

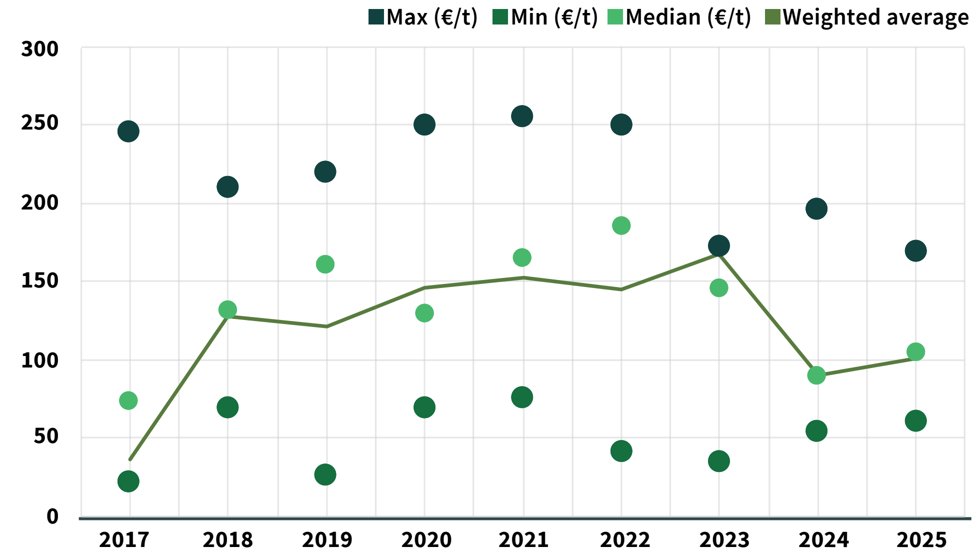
DURING THE PERIOD OBSERVED, THE SHARE OF NON-COMPOSTABLE MATERIAL IN OFMSW INCREASED: 4.9% IN 2017 VS 7.1% IN 2022

in 2022[2]. The presence of non-compostable materials constitutes a significant industrial variable, as it can increase sorting and pre-treatment activities, the amount of rejects to be managed, and the disposal costs associated with contaminants. Although it does not fully explain the determinants of treatment prices, which are also influenced by territorial, contractual, infrastructural, and market conditions, collection quality nevertheless represents an important factor to consider when assessing the economic sustainability of the value chain.

Observing the distribution in relation to the median also reveals a heterogeneous distribution within the sample of tenders analysed, particularly with regard to minimum values. While the maximum values in the sample follow a trend over time consistent with the sample average, the minimum values are significantly below the average, outlining a subset of outcomes that consolidates a price positioning which, although stable over time, remains markedly distant from the average observed in the larger sample of outcomes.

FIGURE 11

TREND IN THE AVERAGE TENDER-BASED PRICE FOR OFMSW TREATMENT [2017–2025; €/T]



Source: Utilitatis calculations based on tender results

SIGNIFICANTLY BELOW-AVERAGE PRICES RISK SLOWING DOWN NEW FACILITIES AND POLARISING THE MARKET

Values significantly below the market average do not in themselves constitute a distortion, as they may reflect specific industrial, contractual, or operational efficiency conditions. However, where such values prove persistent or are not fully consistent with the costs required for the management and development of treatment capacity, they may contribute to creating less favourable market conditions for the commissioning of newly built facilities, many of which are financed through NRRP resources in line with the need to bridge the infrastructure gap also identified by the National Waste Management Programme (PNGR). In particular, very low treatment prices may make it more difficult to cover the costs of new facilities, or even those already in operation, potentially creating barriers to entry or encouraging other operators to exit the market, thereby leading, in the medium term, to a polarisation of supply. In a sector where significant infrastructure needs and an uneven distribution of treatment capacity persist, the analysis of tender prices therefore takes on strategic importance not only as an indicator of gate fee trends, but also as a tool for assessing the economic sustainability of investments, the competitive balance of the market, and the overall resilience of the national municipal waste management system.

The analysis of treatment prices and market conditions more generally highlights the issue of the economic sustainability of operators. The sector's ability to ensure service quality, investment, innovation, and industrial continuity depends not only on the structure of service awards, but also on the economic and financial strength of the companies operating along the various stages of the value chain. The economic and financial analysis therefore makes it possible to view the sector not only as a local public service, but also as a significant industrial sector required to support investment, forward thinking, and business continuity along an increasingly complex value chain.
During 2024, companies in the sector (mono-utilities and multi-utilities) generated turnover

[2] CIC Research Centre – Italian Composting Consortium

€19 BILLION IN TURNOVER: 0.9% OF GDP AND 122,000 EMPLOYEES

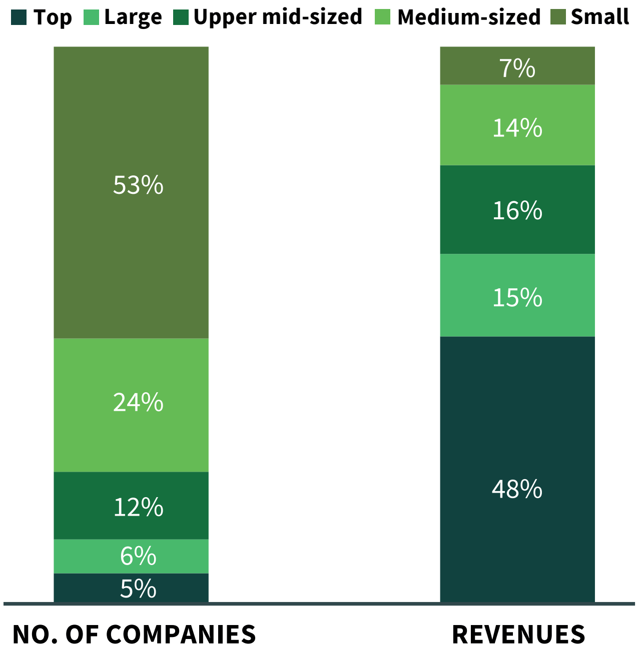
THE TOP COMPANIES, WHICH REPRESENT 5% OF THE TOTAL, GENERATE 48% OF THE SECTOR'S REVENUES

INTEGRATED OPERATORS GENERATE 33% OF TOTAL TURNOVER

of approximately €19 billion, equivalent to around 0.9% of national GDP. They employ more than 122 thousand direct workers, representing 0.47% of total employment in Italy and 3.5% of employment in the industrial sector. The analysis conducted on mono-utilities, which account for 97% of the total companies in the sample, shows that turnover is generated predominantly by large companies which, although representing a minority in numerical terms (5%), generate 48% of the sector's revenues (Fig. 12).

FIGURE 12

DISTRIBUTION OF OPERATORS AND SECTOR TURNOVER BY SIZE CLASSES [YEAR 2024]

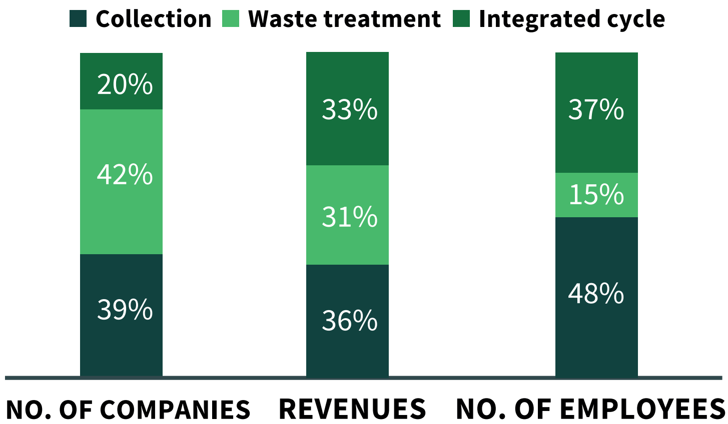


Source: Utilitatis calculation based on AIDA BvD data

The analysis shows that collection operators, which account for 39% of the total, generate 36% of total revenues while employing 48% of the sector's workforce (Fig. 13). Integrated operators, by contrast, account for 20% of total operators, generating 33% of total turnover and employing 37% of the total workforce. Complementarily, the category of plant operators accounts for the remaining 41% of companies in the sector, generating 31% of revenues while employing 15% of the workforce.

FIGURE 13

DISTRIBUTION OF THE NUMBER OF OPERATORS, TURNOVER, AND EMPLOYEES IN THE URBAN HYGIENE SECTOR BY TYPE OF ACTIVITY [2024]



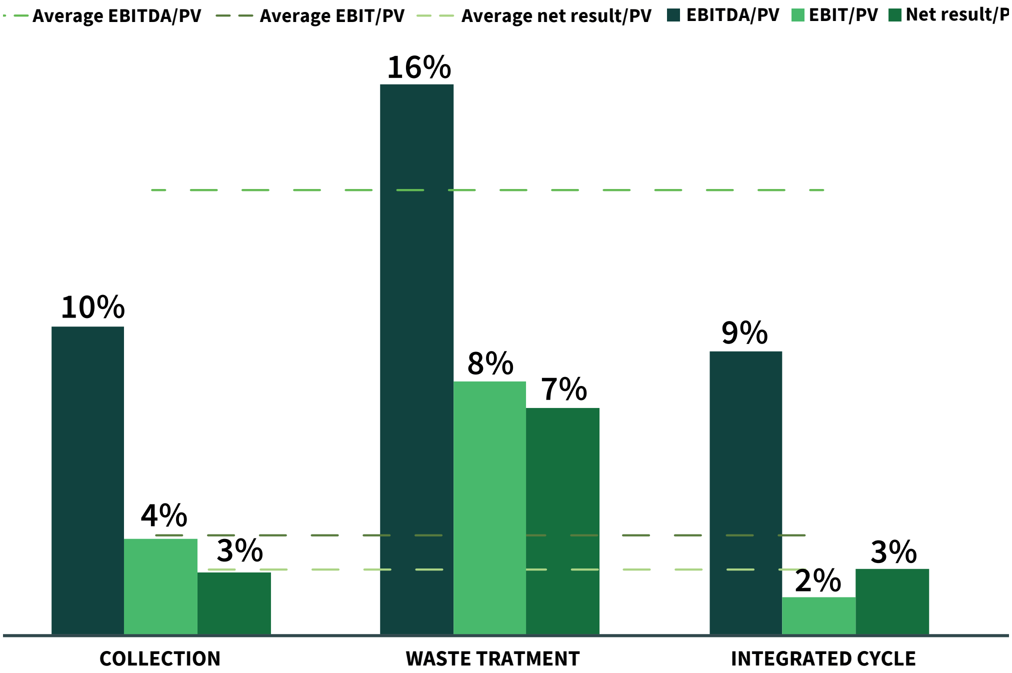
Source: Utilitatis calculation based on AIDA BvD data

The financial analysis also shows how both the type of activity carried out and company size influence operators' economic performance (Fig. 14). The classification by activity shows higher operating margins for plant operators (EBITDA margin of 16%), while collection operators and integrated operators record lower figures (EBITDA margins of 10% and 9% respectively).

BEST ECONOMIC AND FINANCIAL PERFORMANCE AMONG PLANT OPERATORS

FIGURE 14

PROFITABILITY OF THE MONO-UTILITY SAMPLE BY ACTIVITY [2024]

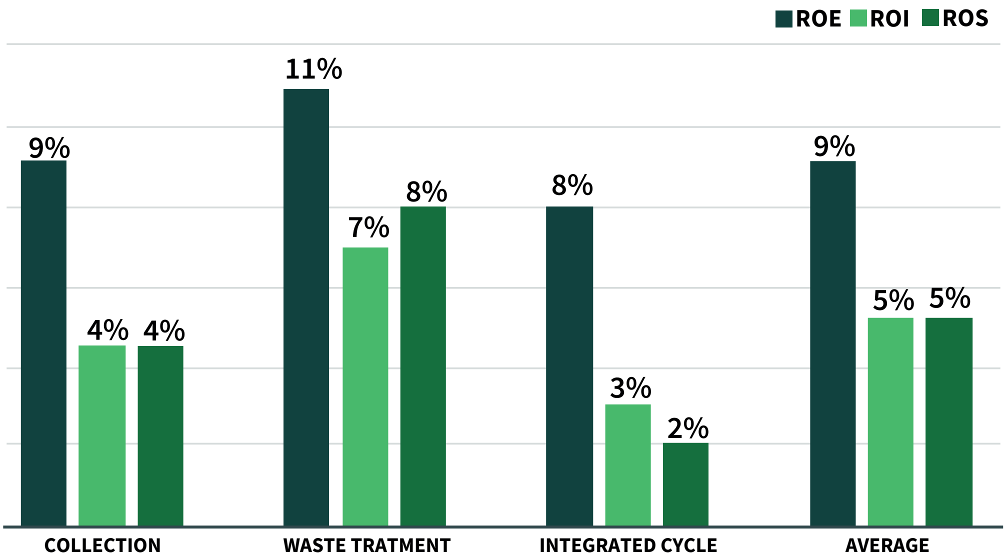


Source: Utilitatis calculation based on AIDA BvD data

With regard to operators' economic performance (Fig. 15), this appears to be particularly influenced by the type of activity carried out; in particular, plant operators show above-average values (ROE = 11%; ROI = 7%; ROS = 8%).

FIGURE 15

PROFITABILITY RATIOS OF THE SINGLE-UTILITY SAMPLE BY ACTIVITY [YEAR 2024]



Source: Utilitatis calculation based on AIDA BvD data

ARERA STRENGTHENS THE REGULATORY FRAMEWORK: TARIFF METHOD, CHARGES, QUALITY AND SOCIAL BONUS

In this context, the economic sustainability of the service cannot be viewed as a contrast between market dynamics and economic governance instruments. Protecting users, ensuring service continuity, guaranteeing cost transparency, and achieving circular economy objectives require a stable framework capable of promoting industrial efficiency, investment, and the proper allocation of costs along the value chain.

From this perspective, the evolution of ARERA regulation also plays an important role in defining the economic and operational conditions under which the sector is required to

TARI (waste tax): SIGNIFICANT COUNTRYWIDE DIFFERENCES – FROM €378 IN THE SOUTH TO €288 IN THE NORTH

support investment, service quality, and user protection. After a phase of progressive development of the reference instruments, 2026 marks a significant turning point, with the full application of a set of provisions affecting various stages of the management cycle, from the structuring of service awards to the determination of the charges applied to users. The adoption of the Waste Tariff Method for the third regulatory period 2026–2029 represents a central milestone, as it directs the determination of recognised costs towards investment planning, the improvement of environmental performance, and the economic sustainability of the service.

In parallel, the introduction of the Integrated Text on Charges for the Waste Management Service aims to make tariff structuring criteria more homogeneous and transparent, strengthening comparability between territories and the relationship between users and operators. The framework is further complemented by measures relating to the technical and contractual quality of the service, the introduction of accounting separation requirements, and the extension of the social bonus to the municipal waste sector. Taken together, these instruments are relevant not only from an administrative perspective, but also in terms of enabling a more transparent assessment of service costs, evaluating service quality, supporting investments consistent with environmental objectives, and strengthening protection measures for economically vulnerable users.

With respect to the financial sustainability of the service, both on the household and non-household level, TARI (municipal waste disposal charge) expenditure takes on different values depending on the geographical areas of reference, maintaining a certain stability over time.

In 2025, the average expenditure for the service for a household of three living in a 100-square-metre dwelling amounted to €333, with significant territorial differences across the macro-areas: €288 in Northern Italy, €358 in Central Italy, and €378 in Southern Italy. Territorial differences in expenditure also reflect differing levels of maturity in management structures, infrastructure capacity, and the ability to organise the service according to integrated approaches. The central issue is therefore not the opposition between regulation and the market, but the creation of a balance in which industrial efficiency, environmental quality, proper cost allocation, and affordability for users can be assessed consistently across the entire value chain.

THE NOTEBOOKS OF THE GREENbook

1.

CRITICAL RAW MATERIALS AND URBAN MINING FOR NATIONAL SECURITY

UTILITATIS
FONDAZIONE

Promote knowledge, innovation and best practices when managing Local Public Services.

The Utilitatis Foundation is the fruit of a journey that began in 1995 with the establishment of the Istituto di ricerca sui servizi pubblici/Italian public services research institute, the then Proaqua, at the behest of Federgasacqua (now Utilitalia). Since its inception, it has taken the form of a non-profit consortium aimed at study and research activities of a technical-economic nature, as well as assistance to administrations or companies involved in service reorganisation processes.

In 1999, the institute expanded its research activities, at first focusing exclusively on the integrated water service, to other local public services, such as the natural gas distribution service and the municipal waste management service, transforming itself into the CRS-PROAQUA public utilities research centre. In 2006 the Research Centre took on its current name, UTILITATIS pro acqua energia e ambiente.

In May 2011, the consortium was transformed into a Foundation, strengthening its mission as an entity oriented towards promoting the culture of local public service management and the dissemination of legal, economic and technical content.

In 2021, the Founder Promoter, Utilitalia, supported the functional redesign of the Foundation, relaunching its study and research activities, increasing its scientific standing and, at the same time, developing its business activities with regard to both training and consultancy, also outside the federal sphere.

The Foundation's aim is to promote knowledge, innovation and best practices in the management of Local Public Services, improving their quality and efficiency as well as their economic, social and environmental sustainability, orienting the business model towards sustainable success, i.e. the stable creation of long-term value for its shareholders, in a form shared with the relevant stakeholders.

The Foundation's activities focus on drafting periodical industry-related publications such as the Blue Book and the Green Book, monographs dealing with technical, economic and governance aspects of the water and waste service, which contain proprietary data of the managers; the Orange Book, dedicated to innovation in public utilities; the Utilities Sustainability Report, which collects the extra-financial performance of Utilitalia's members; and on collaboration in study and research projects with other Italian and foreign research centres and foundations.

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