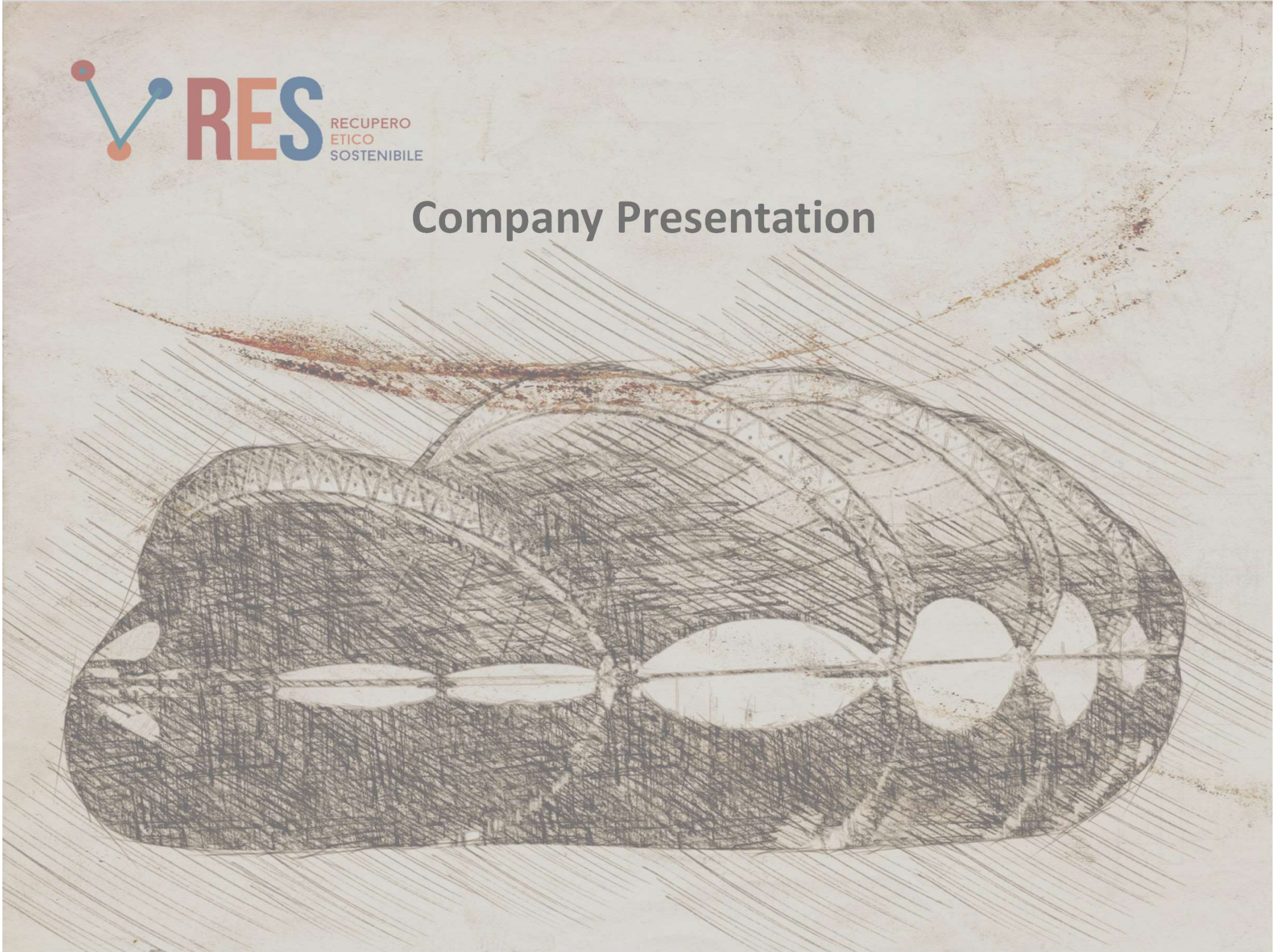
RES
RECUPERO
ETICO
SOSTENIBILE

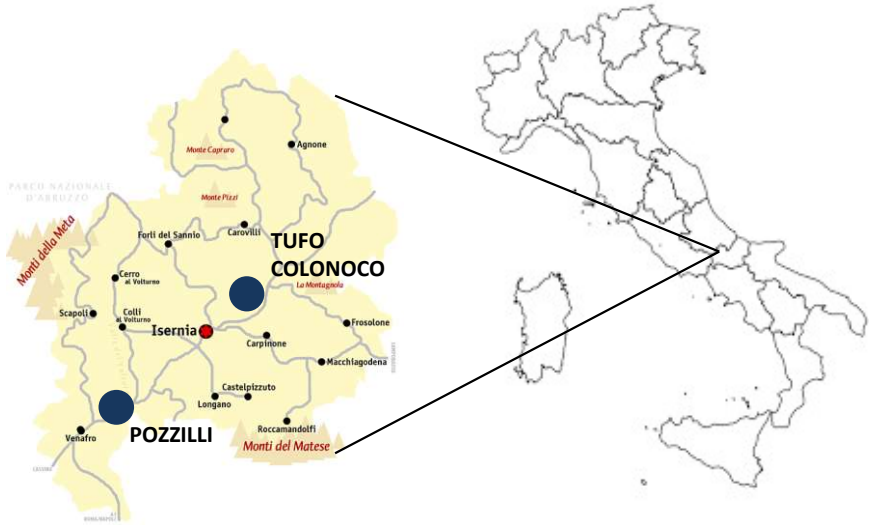
Company Presentation



Overview

Company

- **RES S.p.A. has been operating in the circular economy and environmental sustainability sector for over 30 years**. In particular, the company deals with the entire process of waste management from selection to functional treatment and transformation to the regeneration and recovery of waste and reuse as raw production materials**.**
- Operations are carried out in two plant facilities:
  - **Pozzilli (IS),** where there is a dedicated plant to plastic and bulky materials selection and the production of Secondary Solid Fuel («**SSF**»);
  - **Tufo Colonoco (IS)**, where there are:
    - ✓ A mechanical-biological waste treatment plant («**TMB**») and production of Secondary Solid Fuel («CSS»);
    - ✓ A landfill;
    - ✓ A composting plant;
    - ✓ A biogas plant and two photovoltaic systems.



Financials & Key Points 2021

Dati pro-forma consolidati - €k	31-dic-21	31-dic-22
Val. della Produzione	16.108	17.900
EBITDA Adjusted	4.572	3.320
Net Income	1.515	1.441
NFP Adjusted	3.215	3.989

INPUT

Total waste delivered 2022: 128,7 kton (Municipalities and external)

External suppliers	Waste Separation	Waste separation
69,1% (88,9 kton)	**19,8%** (25,5 kton)	**11,1%** (14,3 kton)

OUTPUT

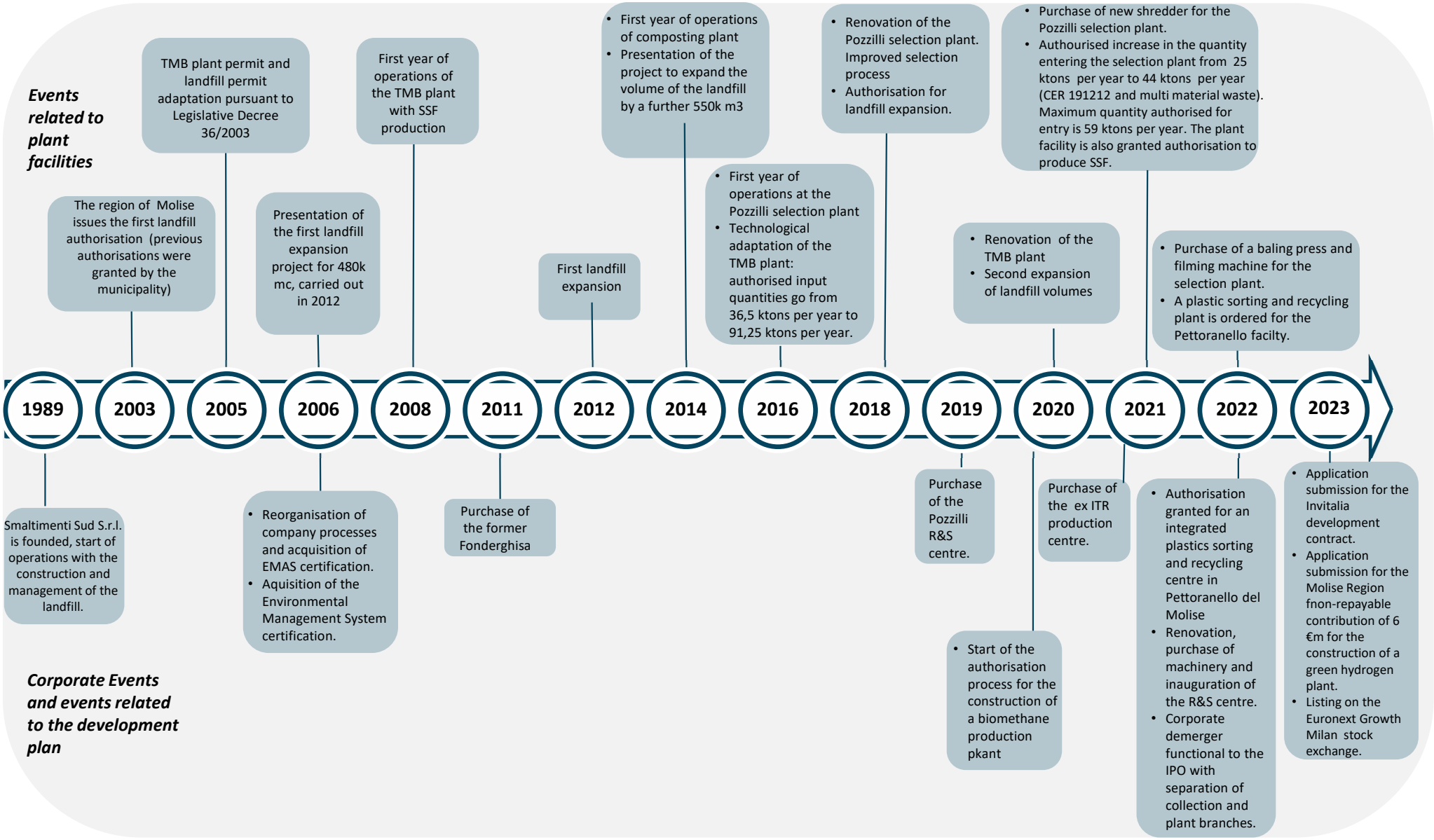
Total output 2022: 121,3 kton

0, 3 kton	0,0 kton	14,6 kton	63,8 kton	42,6 kton	5,9 kton
Leachate (0,3%)	Compost (0%)	Materials Recovery (11,3%)	Landfil (49,6%)	SSF (33,1%)	Volume Loss (5,7%)

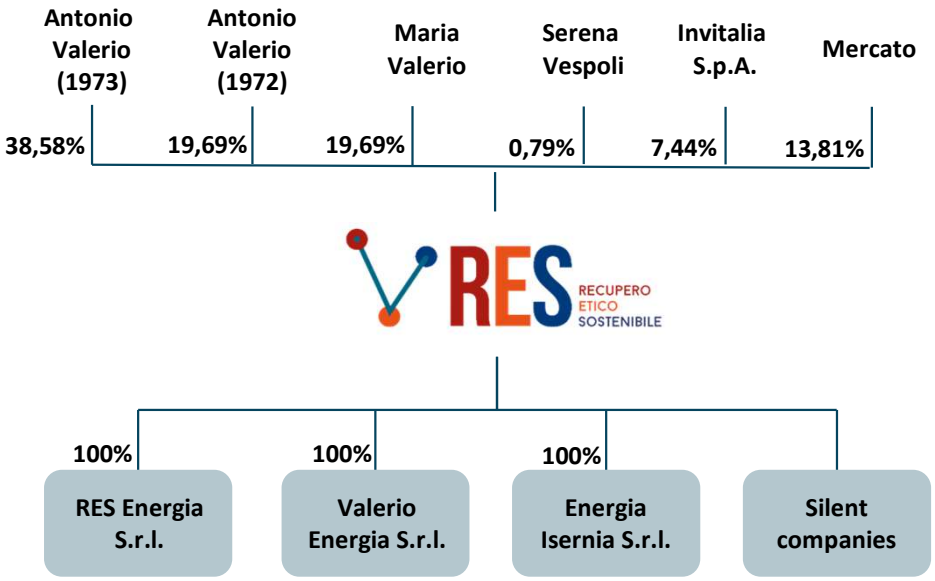
Strategy

- **Enhancement of the former Ittierre industrial site in Pettoranello del Molise (IS)** through the creation of an integrated centre for the selection, washing and mechanical and chemical (through pyrolisys) recycling of plastics. The project has obtained **9,6 €m of non-repayable contributions under the National Reform and Resilience Plan (PNRR) from a total of approximately 27,6 €m of planned investment**.
- **Further streamlining of the existing plant equipment** with the aim of increasing the recovery of materials whilst minimising waste, and simultaneously evaluating M&A opportunities on plants and third party authorisations.
- **Activate reasearch projects applied to materials** in Pozzilli R&D centre necessary for the implementation of new industrial measures in the circular economy field and technological transfer to pre-existing plants.

Timeline


Events related to plant facilities
1989
Smaltimenti Sud S.r.l. is founded, start of operations with the construction and management of the landfill.
2003
The region of Molise issues the first landfill authorisation (previous authorisations were granted by the municipality)
2005
TMB plant permit and landfill permit adaptation pursuant to Legislative Decree 36/2003
2006
Presentation of the first landfill expansion project for 480k mc, carried out in 2012
• Reorganisation of company processes and acquisition of EMAS certification.
• Aquisition of the Environmental Management System certification.
2008
First year of operations of the TMB plant with SSF production
2011
Purchase of the former Fonderghisa
2012
First landfill expansion
2014
• First year of operations of composting plant
• Presentation of the project to expand the volume of the landfill by a further 550k m3
2016
• First year of operations at the Pozzilli selection plant
• Technological adaptation of the TMB plant: authorised input quantities go from 36,5 ktons per year to 91,25 ktons per year.
2018
• Renovation of the Pozzilli selection plant. Improved selection process
• Authorisation for landfill expansion.
2019
Purchase of the Pozzilli R&S centre.
• Start of the authorisation process for the construction of a biomethane production pkant
2020
• Renovation of the TMB plant
• Second expansion of landfill volumes
Purchase of the ex ITR production centre.
2021
• Purchase of new shredder for the Pozzilli selection plant.
• Authourised increase in the quantity entering the selection plant from 25 ktons per year to 44 ktons per year (CER 191212 and multi material waste). Maximum quantity authorised for entry is 59 ktons per year. The plant facility is also granted authorisation to produce SSF.
• Authorisation granted for an integrated plastics sorting and recycling centre in Pettoranello del Molise
• Renovation, purchase of machinery and inauguration of the R&S centre.
• Corporate demerger functional to the IPO with separation of collection and plant branches.
2022
• Purchase of a baling press and filming machine for the selection plant.
• A plastic sorting and recycling plant is ordered for the Pettoranello facilty.
2023
• Application submission for the Invitalia development contract.
• Application submission for the Molise Region fnon-repayable contribution of 6 €m for the construction of a green hydrogen plant.
• Listing on the Euronext Growth Milan stock exchange.
Corporate Events and events related to the development plan

Organisational Structure



- **Valerio Energie S.r.l.:** owner of two photovoltaic systems at the landfill. In turn it controls 100% of Valerio Servizi S.r.l., a purpose company established for the construction of a methane gas distributor for motor vehicles.
- **Energia Isernia S.r.l.:** owner of a biogas production plant at the Tufo Colonoco landfill site.
- **RES Energia S.r.l.:** owner of a project relating to the construction of a biomethane production plant (authorisation processes in progress).
- **Inactive companies:**
  - **DV Ecologia (20%)**: Company for specific projects, currently inactive.
  - **Marte S.r.l. (100%)**: Inactive company (originally established for the construction of a demolition plant).

BOARD OF DIRECTORS

President
Maria Valerio

CEO
Antonio Valerio (1973)

Independent Director
Enrico Testa

Independent Director
Piero Angelone *

Director
Antonio Valerio (1972)

Independent Director
Fabrizio Cannizzaro *

Director
Serena Vespoli

BOARD OF STATUTORY AUDITORS

President: – Giovanni Petrollini
Standing Auditors: Paolo Milano - Anthonj Tamburri
Alternate Auditors: Mary Pellegrino - Pasquale Pirraglia

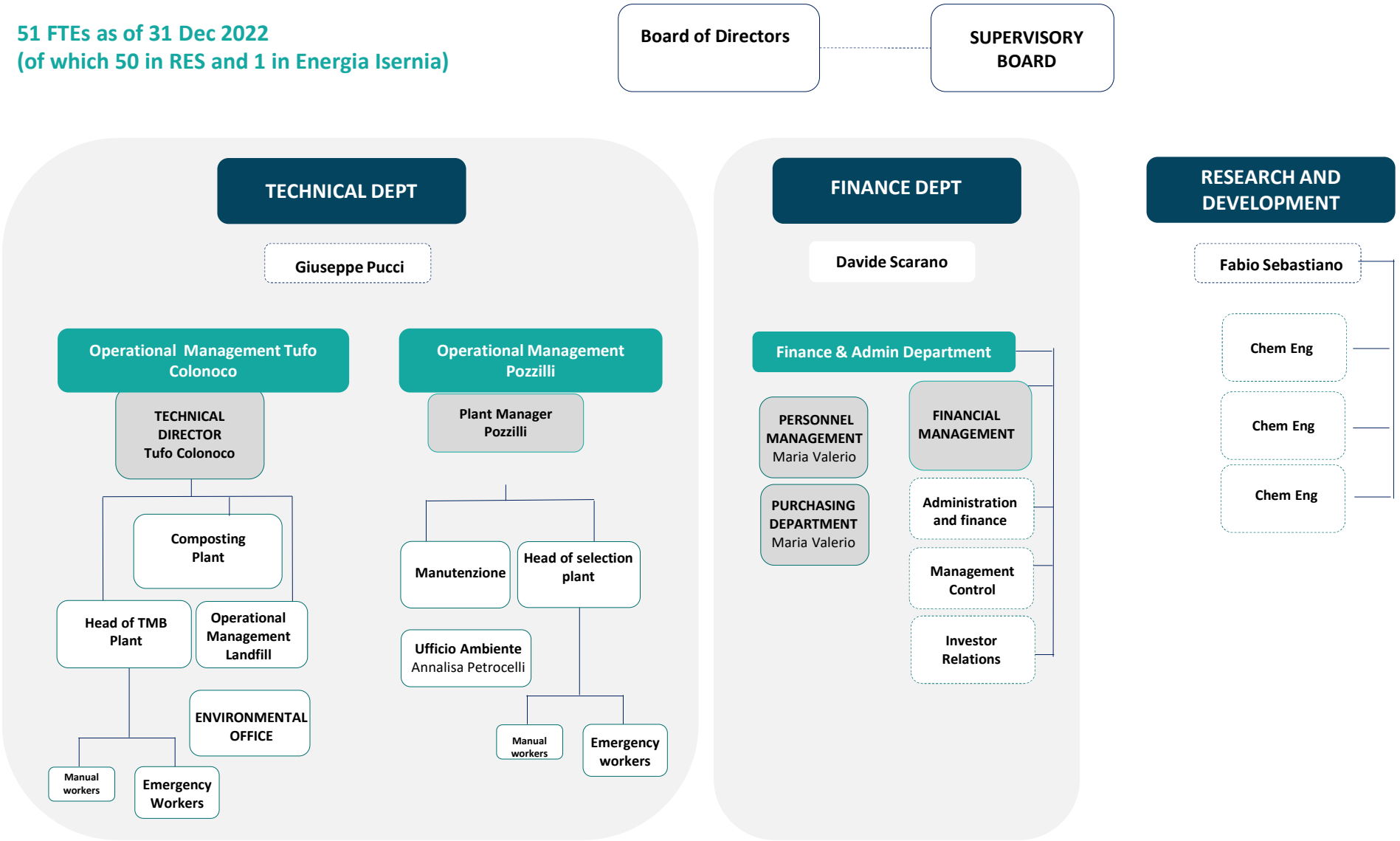
ADVISORY & AUDIT FIRM

BDO

** Currently undergoing appointment by the Assembly of 29 June 2023 to approve budget as of 31.12.2022*

Organisation Chart

51 FTEs as of 31 Dec 2022
(of which 50 in RES and 1 in Energia Isernia)



Business Model

- **RES is vertically integrated across the entire waste supply chain, overseeing every phase of waste lifecycle.**
- The Company business model focuses on waste management ; passing from entry as waste and exixting the plant in the form of a resource:

Tasks carried out by RES

COLLECTION

- Urban waste (pre sorted and undifferentiated) treated within the plant centre deriving from 71 Municipalities located mainly in the Molise region (n. 66 Municipalities) and residually in the neighbouring regions (n. 5 Municipalities)
- Smaltimenti Sud S.r.l., a related Party pertaining to RES, directly manages the collection and transportation operations on behalf of 53 of the total 71 Municipalities served
- Non hazardous special waste is delivered by leading third-party companies including: Herambiente S.p.A., Gruppo ACEA, Gruppo Porcarelli, AMA, Aciam S.p.A., SAF S.p.A. e Picenambiente S.p.A.

SELECTION/ TREATMENT

- Waste is treated in the various facilities owned by the Group including the selection plant, the composting plant and the TMB plant.

RECOVERY OF MATERIALS AND ENERGY PRODUCTION

- Materials recovered from waste treatment; paper, glass, plastic and metals can be used to recover resources destined for supply chain consortia and partly for sale on the free market to be subsequently introduced into the production circuit as primary or secondary recycled raw materials.
- A compost is obtained from the organic waste fraction which can be utilised as Compost as a soil amendment or fertiliser.
- The secondary solid fuel (SSF) derived from selection plant and TMB processing, is transferred to third-ppary plants and used to produce electricity via incineration.
- Electricity is produced from the two photovoltaic systems and the biogas plant at the landfill.

DISPOSAL

- The non recoverable fraction from waste resulting from the treatment processes carried out directly by RES, as well as waste delivered by third parties, is disposed of in the landfill.
- The leachate produced at the composting plant and at the landfill is in turn disposed of by third parties and in part at the Pozzilli purification plant managed by Cogem, an external company outside the listing perimeter attributable to the Valerio family, in a joint venture with Herambiente.

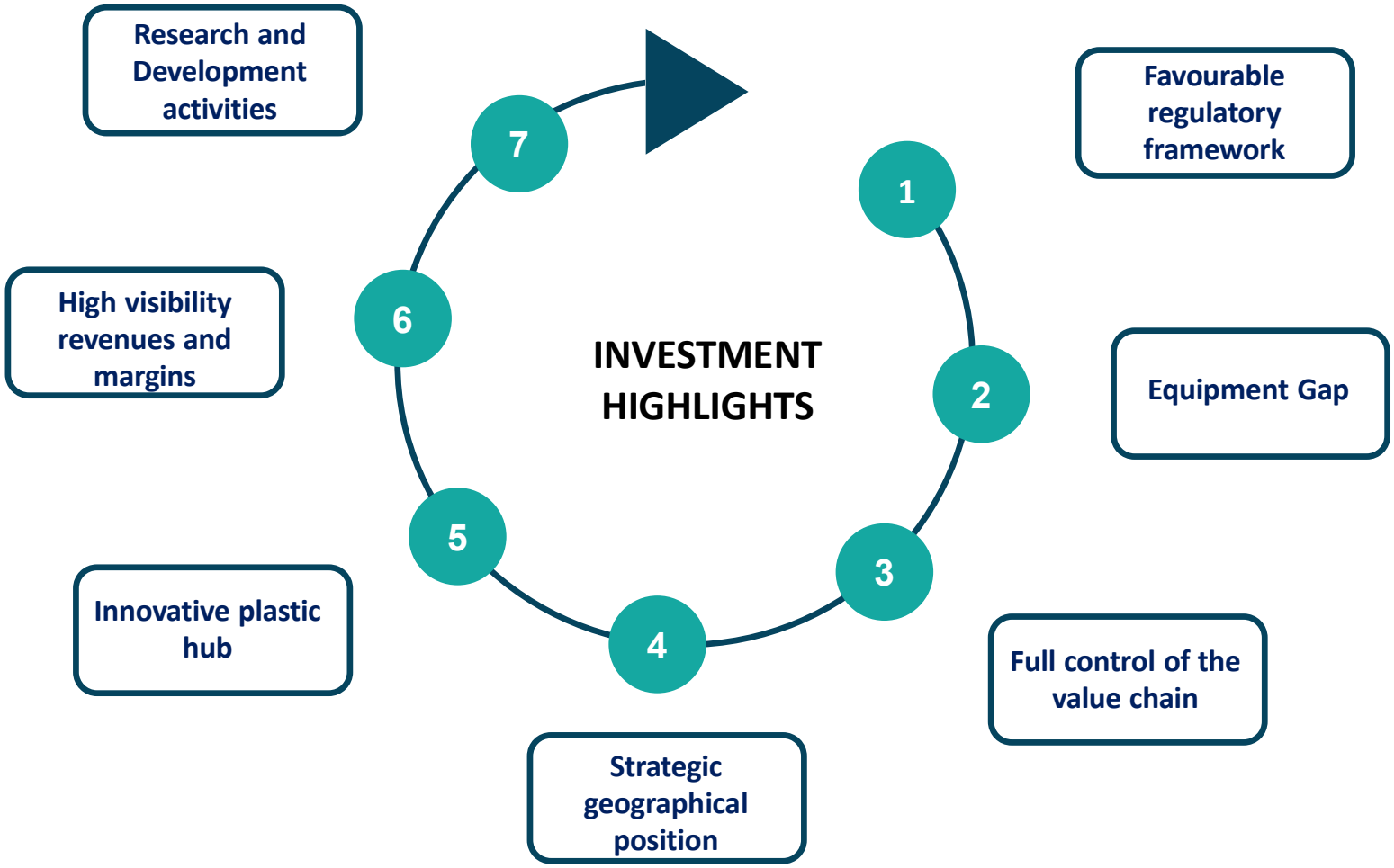
Plant Equipment

	Pozzilli	Tufo Colonoco				
	Selection Plant for SSF production	**TMB Plant for SSF production**	**Composting and biostabilisation Plant**	**Landfill**	**Biogas Plant (625 kWp)**	**Two photovoltaic Systems (988 kWp and 80 kWp)**
						
INPUT	• Waste sorting • Non hazardous special waste	• Unsorted waste collection • Non hazardous special waste	• Differentiated organic waste • Fraction from TMB	• Non hazardous special waste • Composting and TMB waste	• Biogas generated from landfill waste (organic fraction)	
OUTPUT	• Recycled materials (plastic, paper, glass, metals) • SSF	• Recycled materials (plastic, glass, metals) • SSF	• FOS • Leachate • Compost	• Leachate	• Electricity	• Electricity
AUTHORISED QUANTITIES	• 59 ktons per year	• 91,25 ktons per year	• 18 ktons per year	• 84k/tons per year	• 3,93 mln mc/of biogas per year	• n.a.

LEGEND

CSS: fuel derived from the processing of non-hazardous and special non-hazardous urban waste.
Underscreen: heavy fraction, which generally contains metals, wood, aggregates and glass
FOS: daily landfill cover materials
Leachate: liquid that originates from the infiltration of water into the mass of waste or from its decomposition, and derives mainly from landfill and composting plants.

Investment highlights



1 –Favourable regulatory framework

- The Italian and European regulatory context is directing waste management towards a dimension where the valorisation of waste as a resource has become increasingly necessary. The regeneration of waste is therefore the basis for achieving the objectives set at a European and national level.
- To allow the transition of European economies towards an ecological dimension, both the European Commission and individual member states have allocated substantial funds for this purpose:

European Green Deal

1.000 €bln

Of sustainable investments until 2030

- Set of political initiatives proposed by the European Commission with the aim of promoting the transition towards a climate neutral economy by 2050.

Piano Nazionale di Ripresa e Resilienza
#NEXTGENERATIONITALIA

60 €bln

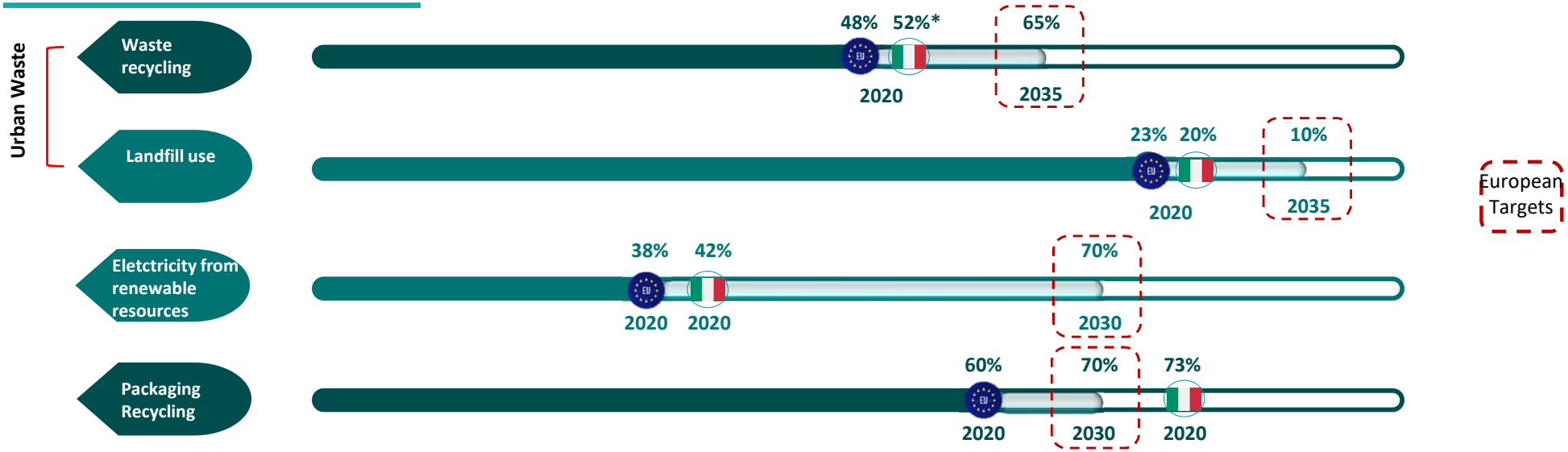
Of investments for ecological transition

- Document that Italy has prepared to access next generation EU funds, and provides for investments for a total of 222,1 billion euro. 2,1 billion are dedicated to the waste sector, of which 600 for 'flagship' projects, and 1,5 for the construction of new plants and the modernisation of existing ones.

PIANO NAZIONALE Transizione 4.0

- Bonuses for company investments in industry 4.0 projects have also been extended 2022.
- Tax benefits, in the form of tax credit for investments made by 31 December 2022.

Some of the objectives set at European level:



*The figures refer to recycled materials subjected to biological treatment and home composting

2 –Equipment Gap

- Italy is characterised by a high number of medium-small sized plants. The overall number of plants which carry out the recovery of materials in Italy amounted to 7.314 in 2020, mainly located in Northern Italy.

CURRENT SITUATION IN ITALY

- **Uneven territorial situation**, most of the recycling plants distributed between Central and Northern Italy
- Many regions in the South are well beneath the presorted waste collection targets set by TUA
- The average capacity per plant is generally quite low compared to other European countries.
- Italy is forced to resort to ever-increasing waste exports. The export of both municipal and special waste is increasing in 2020.

STRUCTURAL DEFICIENCY OF MANAGEMENT SYSTEMS

Both for those plants dedicated to recycling of organic fraction and for those dedicated to transform waste into energy, which forced Italy to export more than 4 milion tons of waste abroad in 2020.

CURRENT SYSTEM REQUIREMENTS

4,2 Mton In 2020

In 2020 there was a plant requirement of more than 4 million tonnes of waste, of which approximately 2.5 are recovered abroad.

ESTIMATED REQUIREMENTS

Ca. 34 Mton

In the period 2021-2025, a cumulative requirement of approximately 34 million tonnes is estimated.

COST FOR OUR COUNTRY

1€bln

Not bridging this gap means continuing to transfer economic value abroad equal to around 1 billion euros per year.

LACK OF ENERGY PRODUCTION

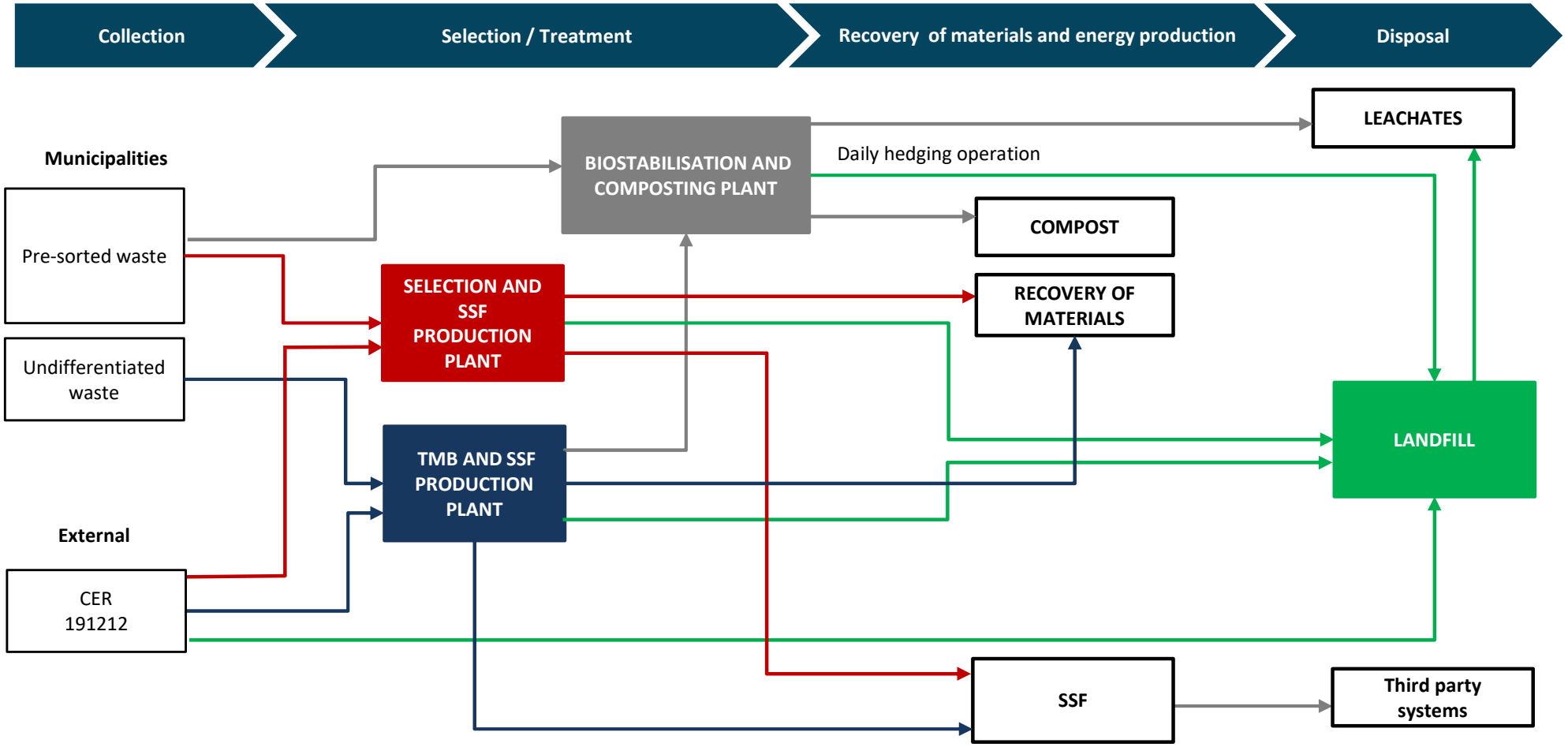
Ca. 400k MWh

The lack of energy production that can be generated from waste, destined to be "waste-to-energy" abroad, can be estimated at between 330,000 and 400,000 MWh per year

(Source: FISE Assoambiente 2020 Report "For a National Waste Strategy; ISPRA Special waste report 2022; ISPRA Municipal waste report)

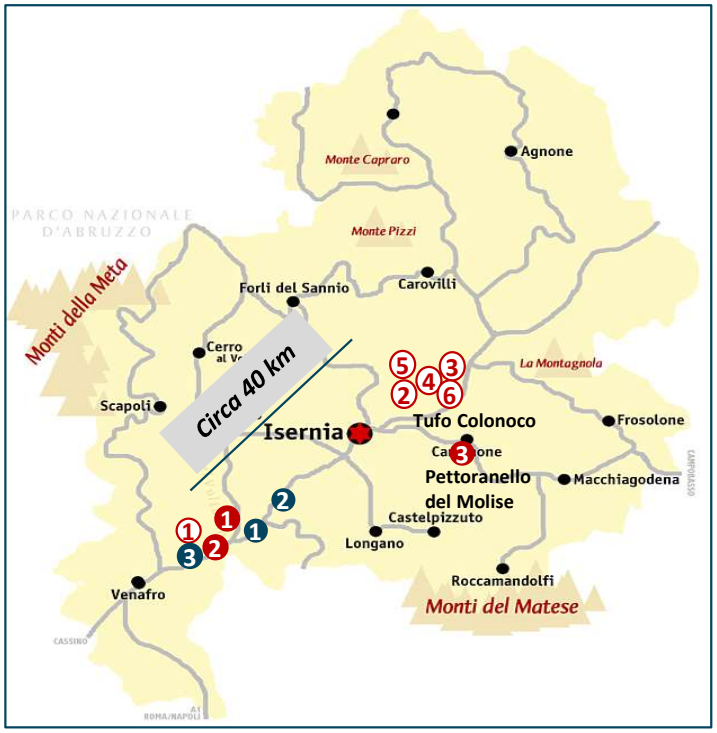
3 – End-to-End control of the whole value chain

- RES is one of the few companies to be present in every phase of the waste management cycle, guaranteeing cost efficiency and operational flexibility.



4 - Strategic geographical position

The entire material management and valorisation chain is located in the province of Isernia, with clear logistical and economic benefits



RES - Polo impiantistico attuale:

1. Selection plant
2. Landfill
3. Photovoltaic systems
4. Biogas cogenerator
5. Icomposting plant
6. TMB plant

Investimenti in corso:

1. R&D centre
2. RES Energia (biomethane project)
3. Polo Pettoranello (plastic recycling and pyrolytic oil production)

Third party facilities nearby:

1. Herambiente waste to energy plant
2. Colacem cement factory
3. Sewage/purification plant managed by Cogem (RES related party) in association with Herambiente

- **Main supplier of SSF to the plants currently present in Molise.**
- The only company in Molise that produces SSF with characteristics which can be used by the recovery plants (powered exclusively by SSF) present in the Region.
- **Strategic relationship with Herambiente and Colacem thanks to geographical proximity of plants.**
- Operational efficiency and optimisation of transport costs.
- Pettoranello del Molise is part of the **ZES (Zona Economica Speciale)** Adriatica Puglia – Molise. Companies in this area benefit from a tax credit commensurate with the share of the overall cost of the goods acquired by 31 December 2022 up to a maximum of 100 milion euro.
- 29% of the leachate produced in 2022 was disposed at the purification plant managed by Cogem (20% in 2021) and this percentage is destined to increase further in the future.

5 – Innovative center for plastic recovery

Creation of an innovative hub for the recovery and recycling of plastic, totally in line with the principles of circular economy and sustainability.
Total investment of approximately €26.75m in two phases.

4 – TECHNOLOGICAL INNOVATION

- Highly innovative technological project, which goes beyond the current state of the art in the circular economy sector.
- Obtained a non-refundable grant of €9.6 million within the PNRR, which recognized the strategic value of the project.

STRENGTHS OF THE INVESTMENT

1 – MATERIAL RECOVERY

PHASE 1:

- Push selection system for the recovery of plastic packaging.
- PET recycling plant for the production of PET / HPDE flakes and granules.

Entry into operation by the end of 2023.

3 – INDUSTRIAL SYNERGIES

The pyrolysis plant will be powered, in addition to the processing waste of the selection plant, by the SSF currently produced by the other RES plants with a clear financial benefit for the Group (reduction of disposal costs).

2 – WASTE VALORISATION

PHASE 2:

- Plant for the transformation of process waste into pyrolytic oil for the plastics industry.
- MoU for the purchase of the total availability of pyrolytic oil produced for next 5 years at least.

6 – High visibility of revenues and margins

- Within the authorized quantities, RES defines the level of use of the various plants from year to year (i.e. full capacity vs partial use):
  - in relation to market trends (price of delivery to the plants vs cost of disposal to third parties, selling price of recovered materials)
  - based on the best possible balance in the functioning of owned assets in a logic of overall integration/efficiency

High visibility of revenues and margins	Highly regulated sector	Business Partner of primary standing	Point of reference in the Molise area	Operational flexibilty
The quantities and prices of waste delivered to the plants are largely defined on the basis of annual or biennial contracts, which are usually renewable; the same applies to the cost of disposing of SSF and leachate	• The sector is highly regulated and is characterized by high barriers to entry and limited competition. • RES plants operate on the basis of regulatory provisions that define the authorized capacities and the relative duration of the authorization. • Operation in a context of large plant deficit	• The Company pays particular attention to the evaluation and selection of industrial partners involved in the waste supply chain (contributors and third parties where disposal is carried out), which in the case of RES are always qualified operators of primary standing. • Among these are ACEA, Herambiente, Colacem Group, as well as the various supply chain consortia	• RES is among the main contacts in the Molise region for the management of urban waste, serving (both through Smaltimenti Sud and other operators) no. 66 Molise municipalities, thanks to a relationship consolidated in over thirty years of collaboration Strategic supplier of SSF for regional waste energy valorization plants owned by third parties	• Within the authorized quantities, the company has the possibility to plan the workloads of the individual plants also based on the trend in the price of the waste delivered to the various plants (input) and the price of the recovered materials (output) • In 2022, the plants were used for approximately 66% (weighted average according to incoming volumes) of the maximum authorized quantity (69% in 2022).

7 – Research and development activities

The Pozzilli Research and Development Centre plays a key role in the future strategy of the company, which intends to leverage the know how acquired in the waste sector to carry out reasearch activities functional to the implementation of new industrial initiatives in the circular economy and at the same time make technological transfer to the Group's plants already in operation.

Efficiency improvements of existing assets

Investments aimed at improving the performance of existing plants, in order to maximize the recovery of materials while minimizing the quantity of non-recoverable waste destined for disposal.

Projects in the feasibility analysis phase

- Development of projects for the recovery of materials and for supporting companies in their ecological footprint transition of their consumer products. Among the projects under study are:
  - Consumer goods sector: possible collaboration with primary Italian players active in the fashion accessories sector, interested in creating an automated plant at the Pettoranello plant for the production of a line of luggage using recycled plastic material deriving from the manufacturing cycle plant for the extensive selection and recycling of plastics, where the counterparty would deal with the definition of production volumes, distriubution and marketing, while the Issuer would be responsible for the formulation of the recycled material- physical requirements and then the entire prosuction process.
  - Naval sector: possible collaboration with a primary shipping company under which the company would provide RES with waste material (for example ropes used on ships or microplastics deriving from ships' pre-filtering systems), which would subsequently be processed by RES or used to make the padding of clothing items that would be sold to the shipping company (for internal use or for retail outlets);
  - Hydrogen: in H1 2023 RES has obtained a non-refundable public/regional grant of Euro 6 million under the PNRR, for the construction of a plant for the production of green hydrogen to be located in Pettoranello, which would partly fuel Smaltimenti Sud's fleet trucks, which would switch from diesel to hydrogen.

Landfill Mining

- Currently under analysis the feasibility of Landfill Mining (LFM) interventions on the landfill, through the excavation of the deposited waste and their subsequent treatment aimed at inertizing the dangerous fractions and the separation and selection of the different components, with the aim of recovering and valorising the noble part of the deposited materials (primarily plastic) and at the same time recover volumes.

Consolidated Profit & Loss

Consolidated Profit & Loss (Euro/000)	31.12.2021	31.12.2022
Core Revenues	15,410	17,244
Other Revenues	587	704
Total Revenues	**15,997**	**17,948**
Cost of Good Sold	111	(66)
Materials	(1,147)	(1,302)
Services	(8,153)	(10,623)
Wages & Salaries	(2,047)	(2,077)
Other Costs	(1,455)	(1,022)
Total Costs	**(12,691)**	**(15,090)**
EBITDA	**3,306**	**2,858**
EBITDA Margin	**21%**	**16%**
Depreciation & Amortization	(1,131)	(1,119)
EBIT	**2,175**	**1,739**
EBIT Margin	**14%**	**10%**
Interest net income	(106)	(69)
Profit (Loss) Before Taxes	**2,069**	**1,670**
Taxes	(554)	(229)
Net Profit & Loss	**1,515**	**1,441**

EBITDA Adj	**4,572**	**3,320**
EBITDA Margin	**28%**	**19%**

NOTE: the consolidated pro-forma P&L retroactively simulate the effects connected to: i) the acquisition of the share in Valerio Energie Srl, Energia Isernia Srl and RES Energia Srl; ii) the split of collection and transport activities..

Consolidated Balance Sheet

Consolidated Balance Sheet (Euro/000)	31.12.2021	31.12.2022
Intangible Fixed Assets	3,485	3,893
Tangible Fixed Assets	12,483	13,661
Financial Fixed Assets	1,094	636
Total Fixed Assets	**17,062**	**18,190**
Inventory	484	400
Account Receivables	5,167	5,145
Account Payables	(4,585)	(4,906)
Commercial Working Capital	**1,066**	**639**
Other Current Assets	379	5,839
Other Current Liabilities	(501)	(3,068)
Fiscal & Social Net Debts	1,408	(366)
Accrued Interests & Deferred Costs	(277)	(440)
Net Working Capital	**2,076**	**2,604**
Other Long Term Payables	(14,751)	(15,240)
Long Term Leave Fund	(337)	(333)
Net Invested Capital	**4,051**	**5,221**
Net Financial Assets & Liabilities	4,338	4,086
Cash & Cash Equivalent	(1,874)	(772)
Net Financial Position	**2,464**	**3,314**
Shareholders Equity	**1,587**	**1,906**
Ttotal Net Financial Position & Equity	**4,051**	**5,221**

Creation of an annovative hub for plastic recovery

Creation of a plant for the mechanical and chemical recycling of plastics aimed at the production of secondary raw materials, to be placed in the plastic industry market.

Construction of a photovoltaic system on the industrial plant to produce electricity for self-consumption.

Expansion of existing plant hub

Expansion of the current volumes of the landfill by a further 500,000 m3; implementation of a gas generator for the volumetric reduction of landfill waste and the production of gas intended for the production of electricity.

Implementation of additional optical selectors at the Pozzilli selection plant.

Project for the construction of an advanced biomethane production plant and CO2 recovery with a level of purity capable of being used in the food industry.

Growth through external lines through the acquisition of individual plants and/or authorizations in neighboring areas.

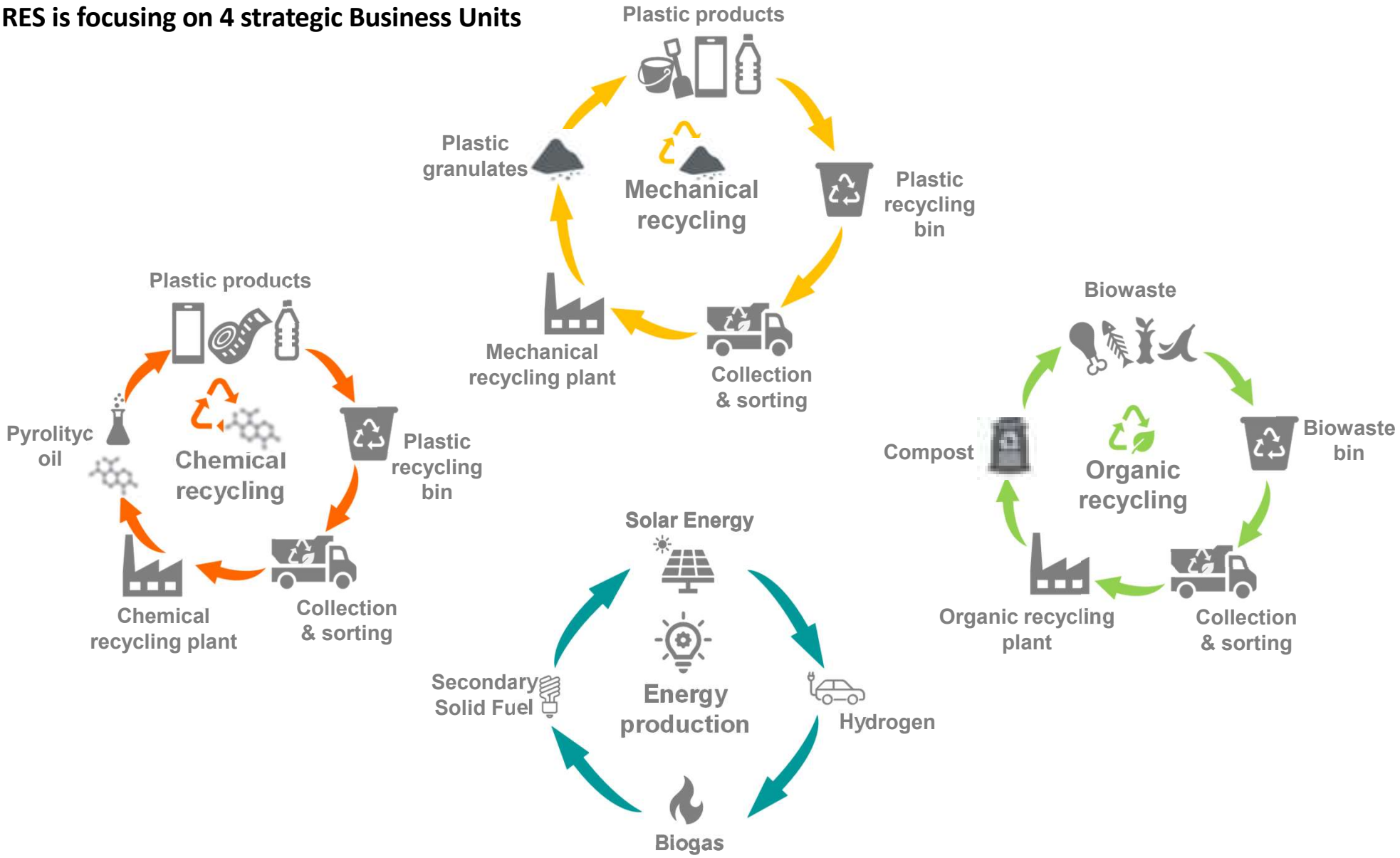
Research and Development activities

Investments aimed at improving the performance of existing plants, in order to maximize the recovery of materials while minimizing the quantity of non-recoverable waste destined for disposal.

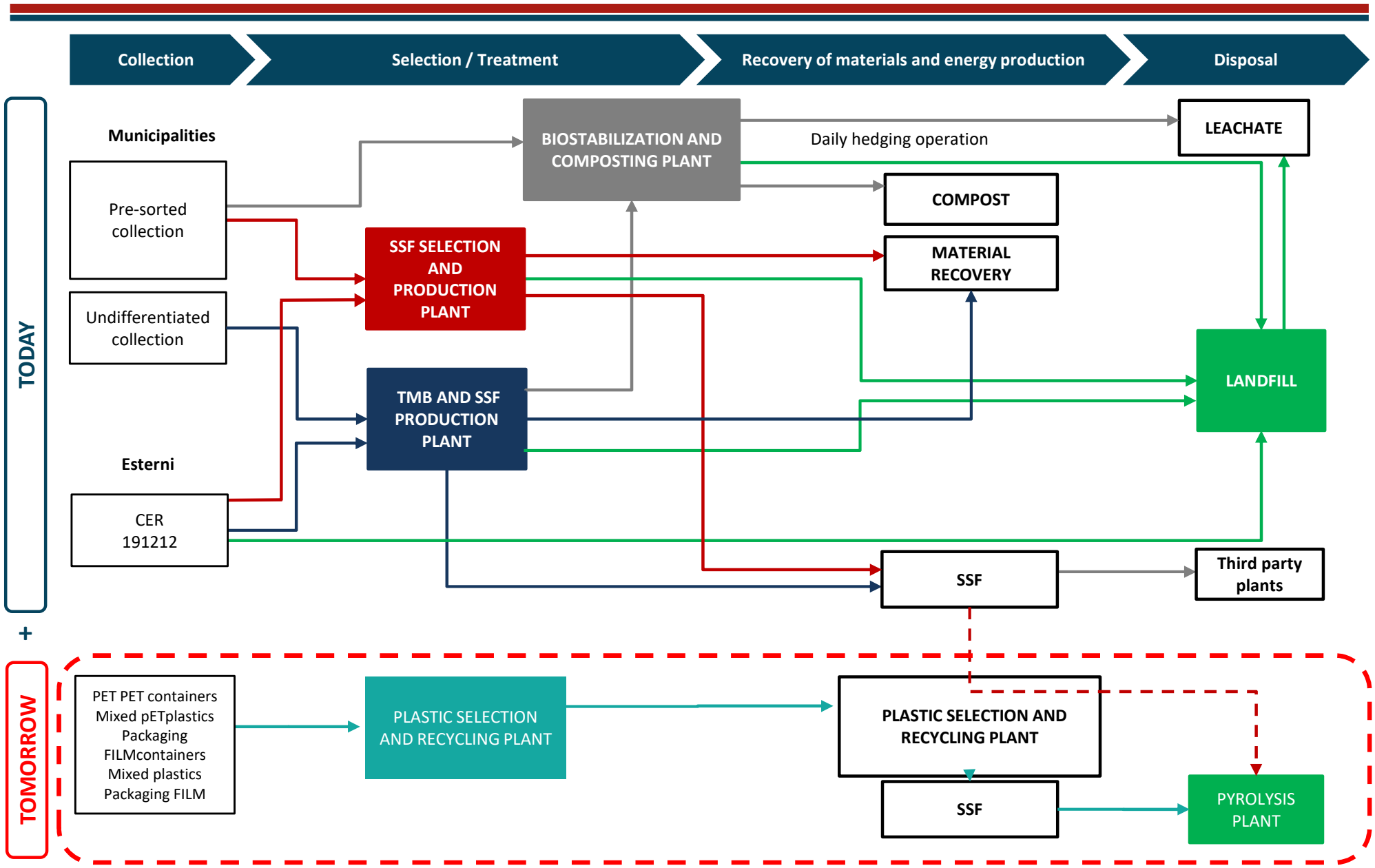
Currently under analysis the feasibility of Landfill Mining (LFM) interventions on the landfill, with the aim of recovering and enhancing the noble part of the deposited materials (primarily plastic) and at the same time recovering volumes.

Development of R&D projects for the recovery of materials and for supporting companies in their ecological footprint transition of their consumer products.

RES is focusing on 4 strategic Business Units



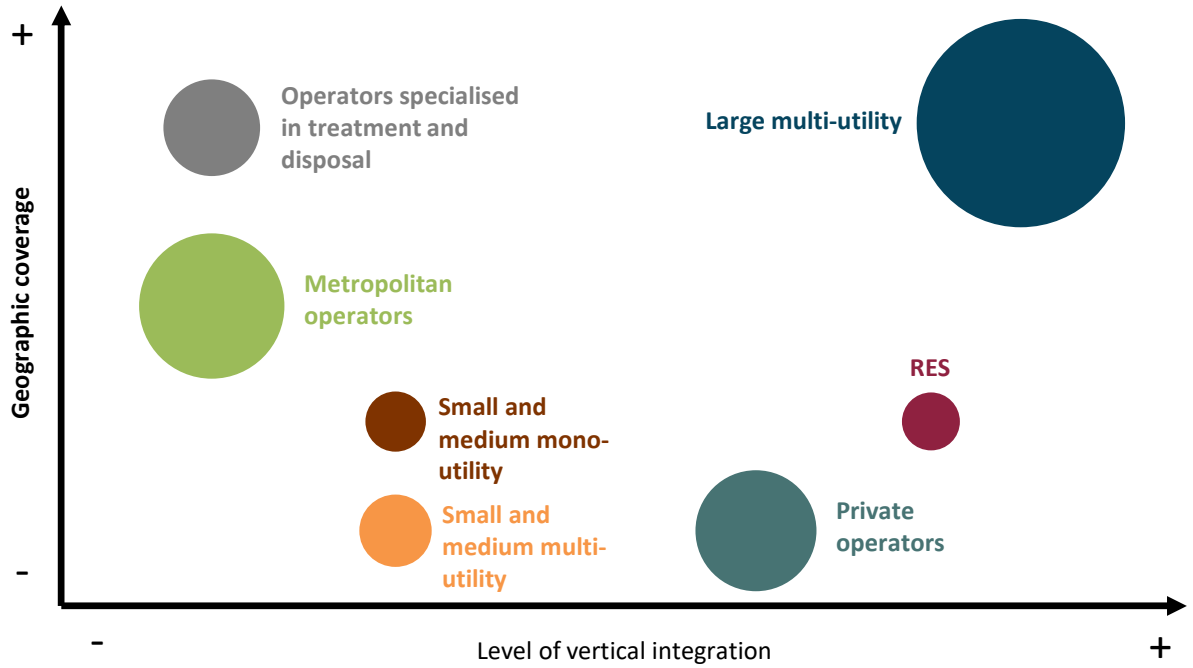
Future Business Model



Competitive positioning

The waste sector in Italy is made up of companies with very different characteristics in terms of size, business, presence along the supply chain, ownership structures and territory served, mainly attributable to the following categories:

- Large multi-utilities: public service companies, with a wide commercial offering, active on both urban and special waste.
- Metropolitan operators: mainly offer environmental protection services for the municipalities/bodies by which they are controlled; they generally have a very limited offer relating only to urban waste.
- Small and medium mono-utility / multi-utility: companies with an average offer typically relating only to urban waste.
- Private operators: private and independent companies, which are not part of any multi-utility, public or international group.
- Private companies that deal exclusively with waste treatment/disposal.



Note: the size of the bubbles is related to the average turnover of the companies present in the clusters
Source: management review

RES, which operates at a local level, is among the few Italian private operators to have internalised the entire value chain and is able to oversee every phase of waste lifecycle, from collection (through a related party) to treatment, up to disposal and energy production

- Some companies have been identified, listed and unlisted, comparable to RES, similar from an offering point of view, and which operate in the same geographical area or in neighboring areas. These are companies that have commercial relationships with RES because, not treating certain types of waste internally or not having sufficient capacity to do so, they resort to RES plants for the final treatment/disposal of some waste.

Company	Collection		Selection/ Treatment			Energy recovery/ matter	Disposal by other operators	Disposal in owned facilities	Other environmental businesses (reclamation, engineering and construction)
	Direct	Through related party	Urban	Special non - dangerous	Dangerous specials				
Res		✓	✓	✓		✓	✓	✓	
Ecotec		✓	✓	✓	✓	✓	✓		
Deco		✓	✓			✓	✓	✓	✓
Macero Maceratese			✓	✓	✓	✓	✓		
Greenthesis	✓	✓	✓	✓	✓	✓	✓	✓	✓
A.C.I.A.M.	✓		✓			✓	✓		
Gruppo Porcarelli		✓	✓	✓	✓	✓	✓		

Source: Management review

RES, together with Deco and Greenthesis, is one of the few companies to own its own landfill, a fundamental asset that allows closing the waste treatment cycle without having to incur further costs for disposal by third parties. After Greenthesis, which also has an incinerator, RES appears to be the most integrated company among those mapped as with its own systems it is able to treat the majority of waste without resorting to third-party systems.

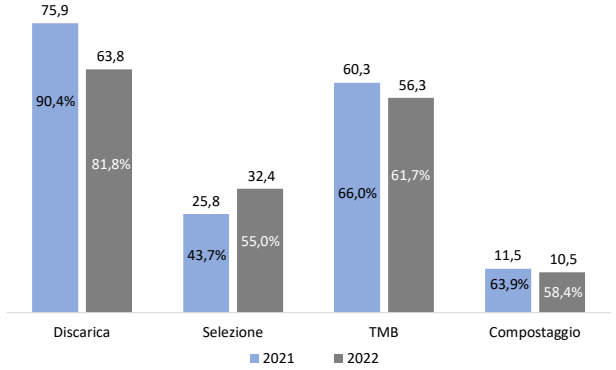
Società	Selection Plant (Mechanical Treatment)		TMB plant		Composting plant	Incinerator	Energy recovery	Photovoltaic
	TM	TM with CSS production	TMB	TMB with CSS production				
Res		✓		✓	✓	✓	✓	✓
Ecotec	✓					✓		
Deco				✓		✓	✓	✓
Macero Maceratese	✓					✓		
Greenthesis	✓	✓	✓	✓	✓	✓	✓	✓
A.C.I.A.M.	✓		✓		✓	✓		
Gruppo Porcarelli	✓	✓	✓			✓		

Source: Management review

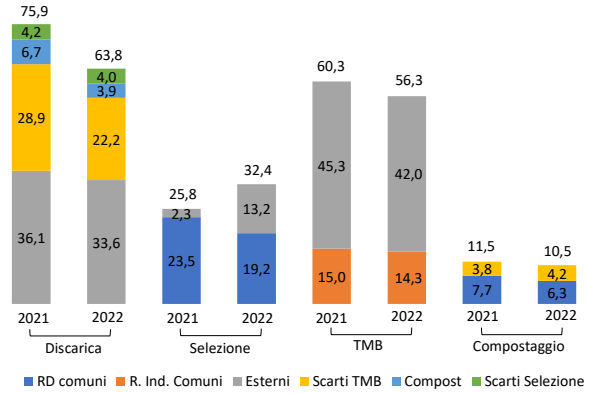
Material flows managed by RES

Progressive reduction in the use of landfill as a form of waste disposal

RES - RES - Quantity of waste treated (kton) and plant saturation (% of total authorized)



RES - - Type of waste treated per plant



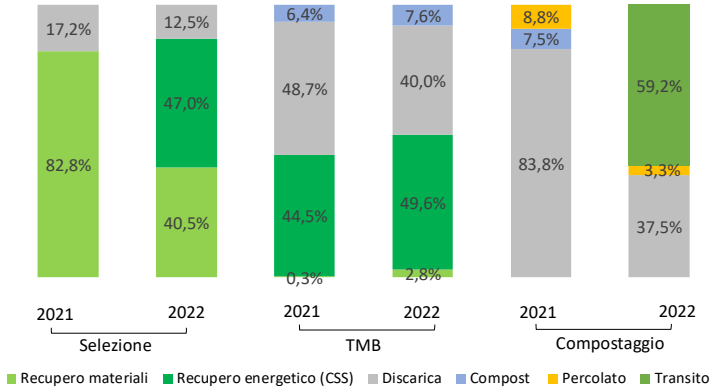
During 2022, the total waste treated by RES amounted to 163 ktons (173.5 ktons in 2021) and comes from: i) separate collection (25.5 ktons in 2022 and 31.2 ktons in 2021); ii) undifferentiated waste collection (14.3 ktons in 2022 and 15 ktons in 2021); iii) external contributions (88.9 ktons in 2022 and 83.7 ktons in 2021); iv) internal processing cycles (34.4 ktons in 2022 vs 43.6 ktons in 2021).

Approximately 47% of the waste sent to landfill in 2022 is represented by the planting of processing by-products carried out at the TMB plant, the composting plant and the selection plant (52% in 2021)

Note: The composting plant, in addition to the organic fraction of the separate waste collection, is fed with the underscreen coming from the TMB

…Favouring the recovery of both materials and energy functional for their introduction into the production cycle

RES – waste managementi (% of total per plant**)**



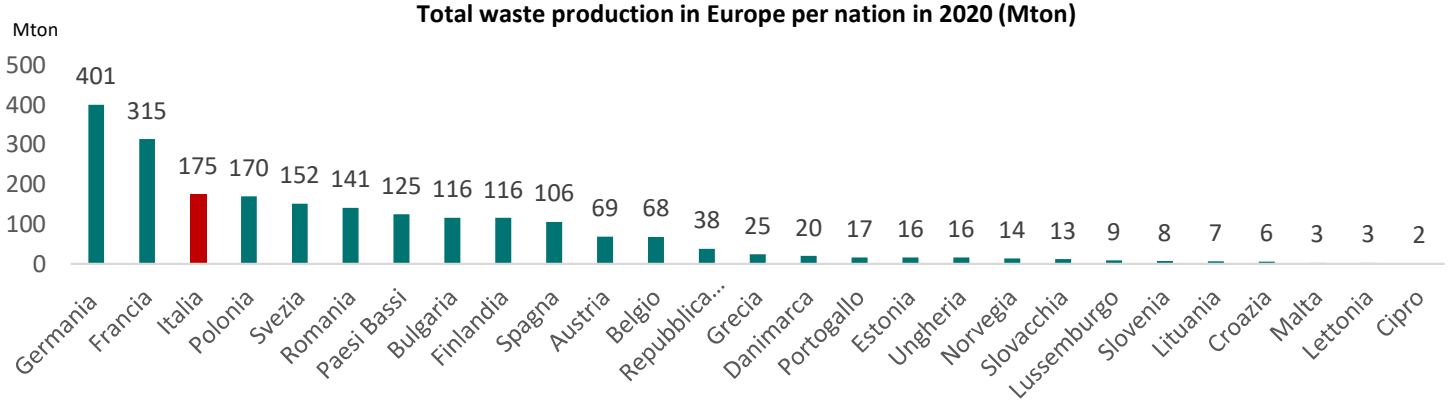
- Starting at the end of 2021, the company has progressively focused the industrial waste cycle towards energy recovery (production of SSF) or materials
- The quantity of CSS produced is equal to 42.6 ktons in 2022, up by 61.3% vs 2021 (26.4 ktons), also following the obtaining of the authorization to produce CSS from the selection plant
- Overall, in 2022, approximately 57k tons of waste were recovered (including CSS production, material recovery and compost production) of the approximately 129k tons of waste delivered to plants between municipalities and external entities, an increase of 21.7% compared to 2021
- The overall recovery percentage of the total waste treated in 2022 is approximately 44.4% (36.2% in 2021

Note: part of the waste delivered to the composting plant in 2022 was then transferred for disposal by third parties

WASTE PRODUCED

- European waste production in 2020 amounted to approximately 2.15 billion tonnes, a slight decrease compared to the values recorded in the previous 10 years, where the reduction is attributable to the spread of Covid-19.
- Among the largest waste producers in 2020 are Germany (401 Mton), France (315 Mton), Italy (175 Mton), Poland (170 Mton) and Sweden (152 Mton).
- Municipal waste amounts to approximately 215 million tonnes, equal to approximately 10% of the total waste produced.

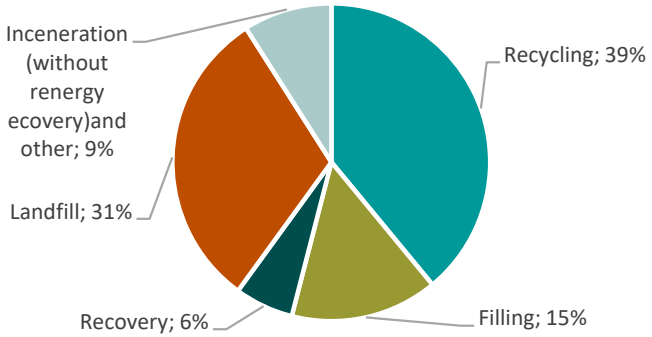
Total waste production in Europe per nation in 2020 (Mton)



Impact of Covid-19

-8% vs 2018

WASTE MANAGEMENT



- Recycled waste increases: +40% vs 2004
- The quantity of waste destined for disposal decreases: -21% vs 2004
- Europe currently allocates 23% of urban waste produced to landfill and approximately 48% to recycling

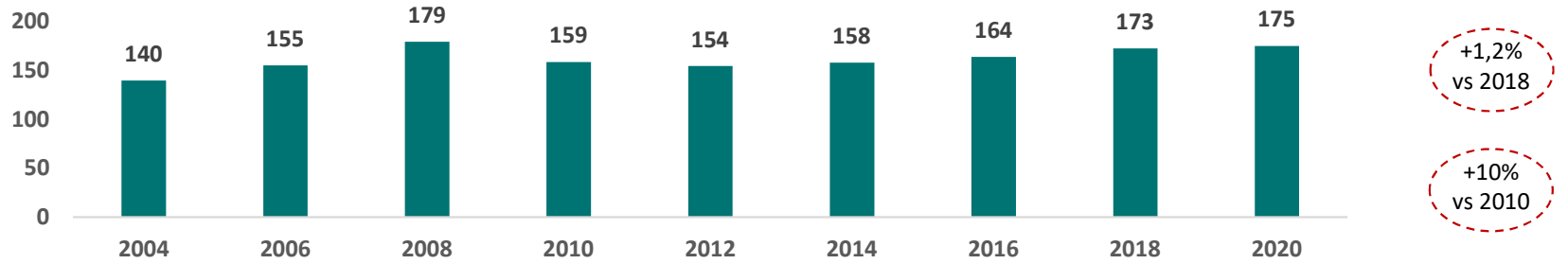
Europe is still far from the objectives set by the European Green Deal

(Source: Eurostat)

TOTALE WASTE PRODUCED

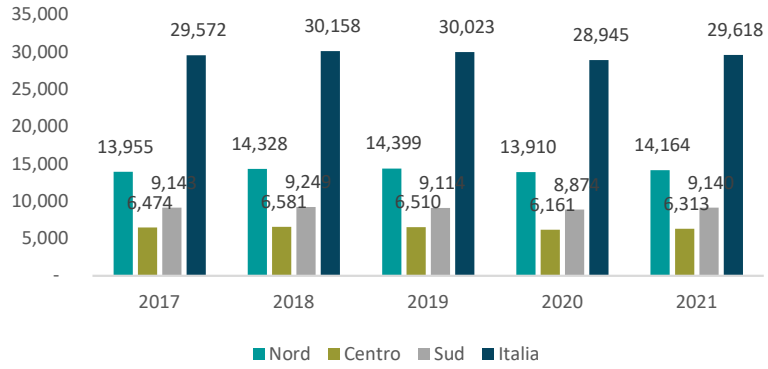
- Italy, after Germany and France, is the nation that produces the most waste in Europe with a total of approximately 175 million tonnes of waste produced in 2020.
- 17% are municipal waste, 83% are special waste.Il 17% sono rifiuti urbani, l'83% sono rifiuti speciali.
- Italy has had a gradual increase in waste over the last 10 years; in particular, production in 2020 was higher than that of 2018, but lower than in 2019. This reduction is largely attributable to the spread of the Covid-19 pandemic which forced many businesses to temporarily close.

Evoluzione produzione dei rifiuti in Italia (Mton)



URBAN WASTE

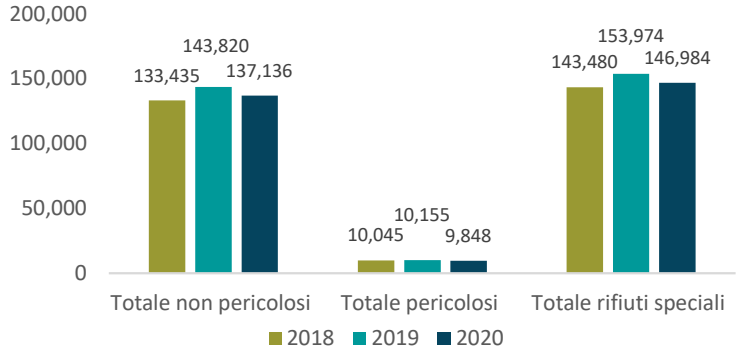
Andamento produzione rifiuti urbani per macroarea in Italia (kton)



- During 2021, there is an increase in waste production in all geographical macro-areas, due to the restart of post-pandemic activities.

SPECIAL WASTE

Production trend of special waste in Italy (ktons)

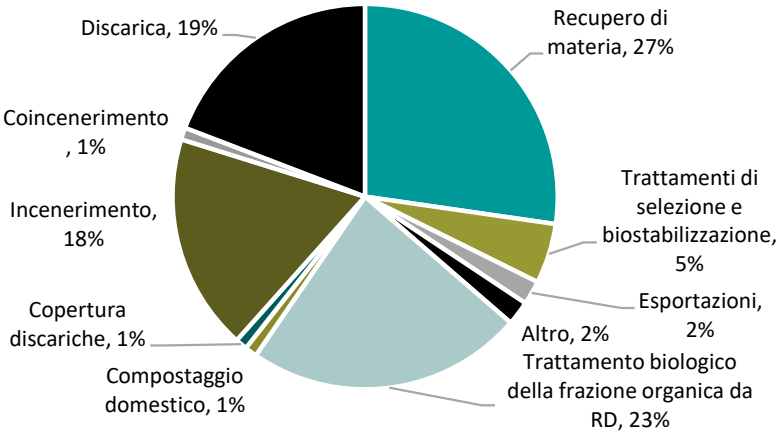


- -4,5% vs 2019, corresponding to approximately 7 million tonnes.

(Source: ISPRA Special waste report 2022; ISPRA Urban waste report, Green Book 2020 Utilitatis)

URBAN WASTE

Gestione dei rifiuti urbani in Italia nel 2021 (%)



- Landfills for the disposal of urban waste in Italy are 131 as of 2020, of which 51 in the South and 3 in Molise;
- There are 14 urban waste waste-to-energy plants in Italy as of 2020, of which 4 in the South and 1 in Molise.

European target for 2035 for landfill disposal of municipal waste:

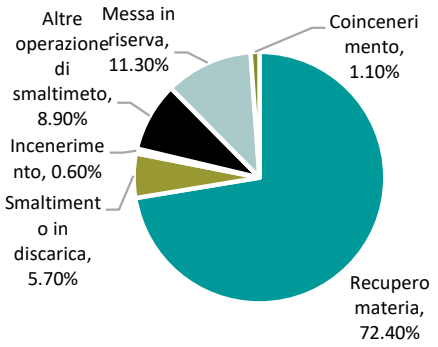
19% Italy 2021 → **10%** Target EU 2035

European objective for 2035 for the recycling of municipal waste

51% Italy 2021 → **65%** Target EU 2035

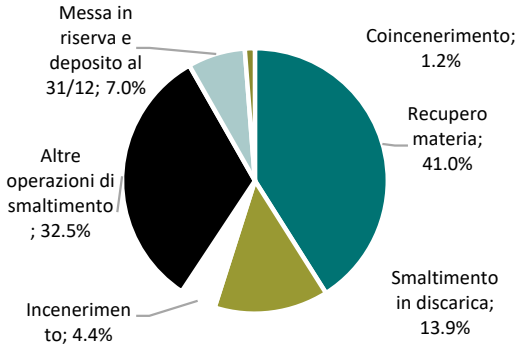
SPECIAL WASTE

MANAGEMENT OF SPECIAL NON HAZARDOUS WASTE IN ITALY IN 2020 (%)



Among the forms of management of non-hazardous special waste, material recovery operations prevail, with a quantity of 108.9 million tonnes, equal to 72.4% of the total non-hazardous waste managed.

MANAGEMENT OF SPECIAL HAZARDOUS WASTE IN ITALY IN 2020 (%)



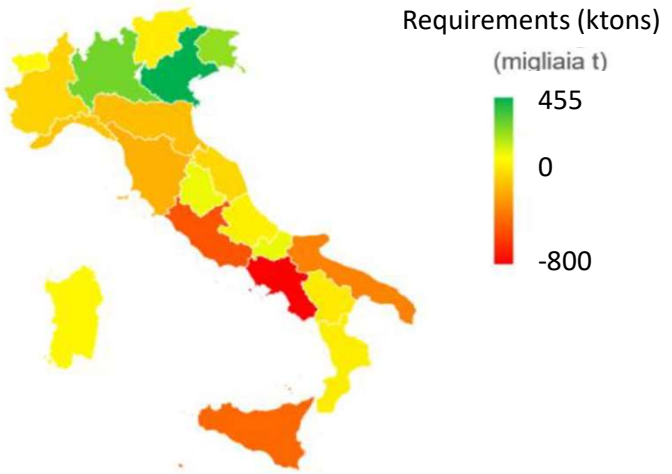
In 2020, the hazardous waste sent for recovery operations totaled 4.4 million tonnes, while 5 million tonnes were sent for disposal operations.

(Source: ISPRA Special Waste Report 2022; ISPRA Urban Waste Report, Green Book 2020 Utilitatis)

The Italian market

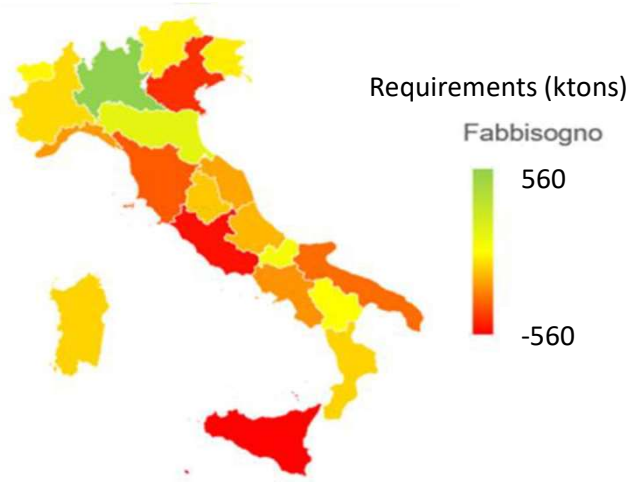
Focus on equipment gap

Plant requirements for organic waste treatment by 2035 (kton)



- **The plant requirement to be filled by 2035 to reach the European targets amounts to approximately 2.4 million tonnes.**
- **The greatest needs are recorded in the Centre-South (Campania with around 800 ktons, Lazio with over 500 ktons and Sicily with over 450 ktons), while some regions in the North, such as Veneto, Lombardy and Friuli-Venezia Giulia are fully self-sufficient.**
- Closing the plant gap would make it possible to reduce the costs relating to the transport of waste outside the region (assumed to be equal to 75 million euros of additional TARI), 90% of which will be borne by the Central-Southern regions.

Plant requirements for energy recovery by 2035 (kton)



- Sicily (560 ktons), Veneto and Lazio (around 460 ktons each) represent the greatest needs.
- The most efficient regions are Lombardy, Emilia-Romagna and Molise.
- Filling this gap would allow:
  - Reduction of landfill rates,
  - Annual electricity production of approximately 2 million MWh
  - Annual thermal energy production of 1.1 million MWh,
  - Savings of CO2 emissions equal to approximately 500 thousand tons per year.

Source: CDP, “Waste and territorial gaps: what prospects for Italy?”, 2022