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MUNICIPAL WASTE LAW IMPLEMENTATION NATIONAL OVERVIEW: SPAIN

Gdansk, 5-6 June 2025

WASTE-TO-ENERGY CONGRESS, CEWEP 2025

Spain facing European municipal waste policies and targets

European Commitments:

The EU has set ambitious goals for municipal waste management, **particularly challenging for Spain**, including **binding targets for municipal waste recycling or preparation for reuse** (55% by 2025, 60% by 2030 and 65% by 2035) and the **reduction of the amount of waste disposed in landfills to 10%** by weight by 2035

Current situation:

The municipal waste management system in Spain **strongly relies on landfill disposal**, where 47% (10.8 million tons) of the waste generated is landfilled, followed by recycling (43%) and energy recovery (10%)

Climate change:

In terms of GHG emissions, the **municipal waste sector accounts for *ca*. 4% of GHG emissions in Spain** and can make a significant contribution to climate change mitigation.

Municipal waste treated in Spain in 2022

23.2 Million tons generated

10.8 Million tons disposed in landfills

2.4 Million tons to energy recovery

Recycling + Composting

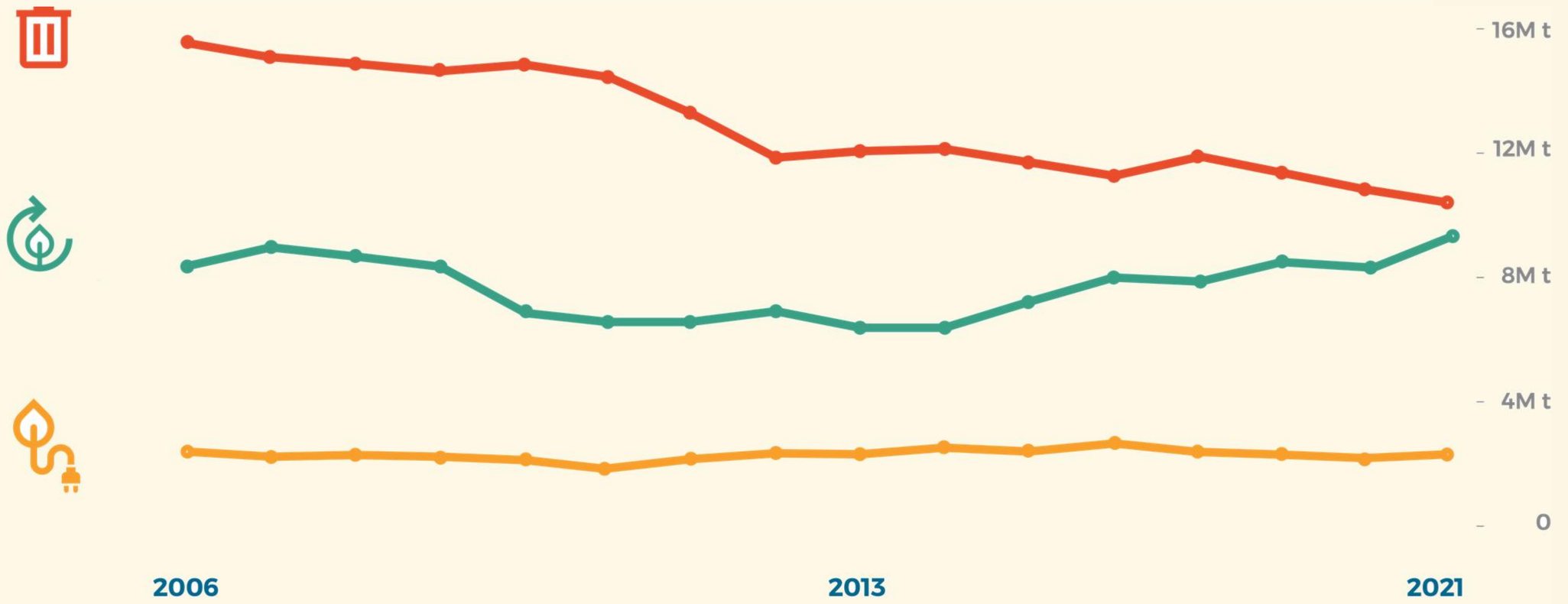
Energy Recovery

Landfilling

Current situation Spain		EU targets 2025		2030		2035	
	43%		55%		60%		65%
	10%						
	47%		40%		20%		10%

Source: Data from the Ministry of Ecological Transition and Demographic Challenge. Annual report on municipal waste generation and management (2022)

Trend in Spain: 2006 – 2021



Recycling + Composting

Energy Recovery

Landfilling

AEVERSU. Source: Data from the Ministry of Ecological Transition and Demographic Challenge (2021)

Municipal waste treated in Spain in 2022 - 2027 Criteria

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Recycling + Composting

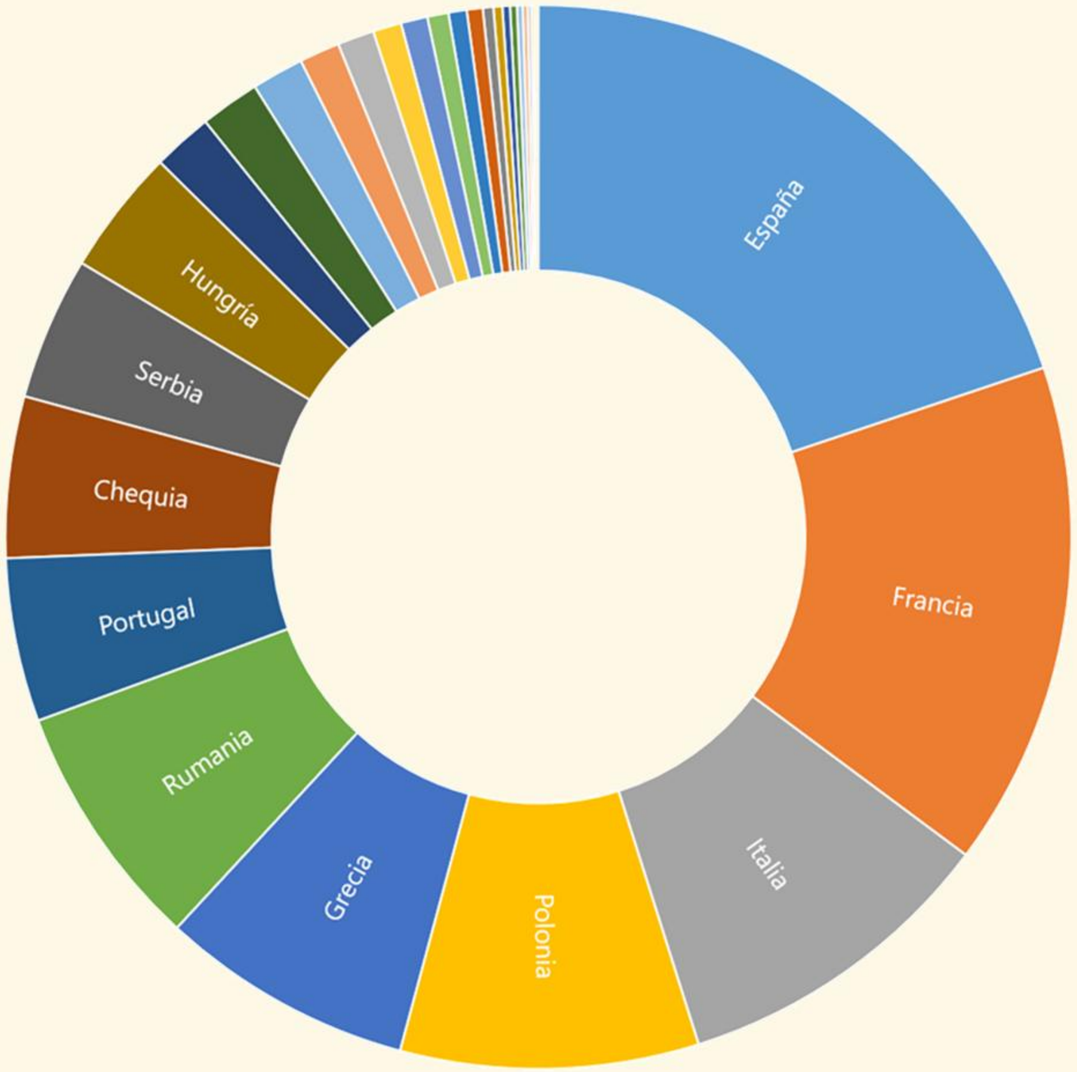
Energy Recovery

Landfilling

Spain Situation 2022		EU targets 2025		2030		2035	
	26%	55%		60%		65%	
	10%						
	47%	40%		20%		10%	
	17%						

Source: Data from the Ministry of Ecological Transition and Demographic Challenge. Annual report on municipal waste generation and management (2022)

EU leaders on landfilling



Spain → 48.6 million inhabitants

11.2M tons to landfill (230 kg/inhab/year)

This represents 19.8% of the total

France → 68,1 million inhabitants

8,7M tons to landfill (128 kg/inhab/year)

15,3% of de total

Italy → 58,9 million inhabitants

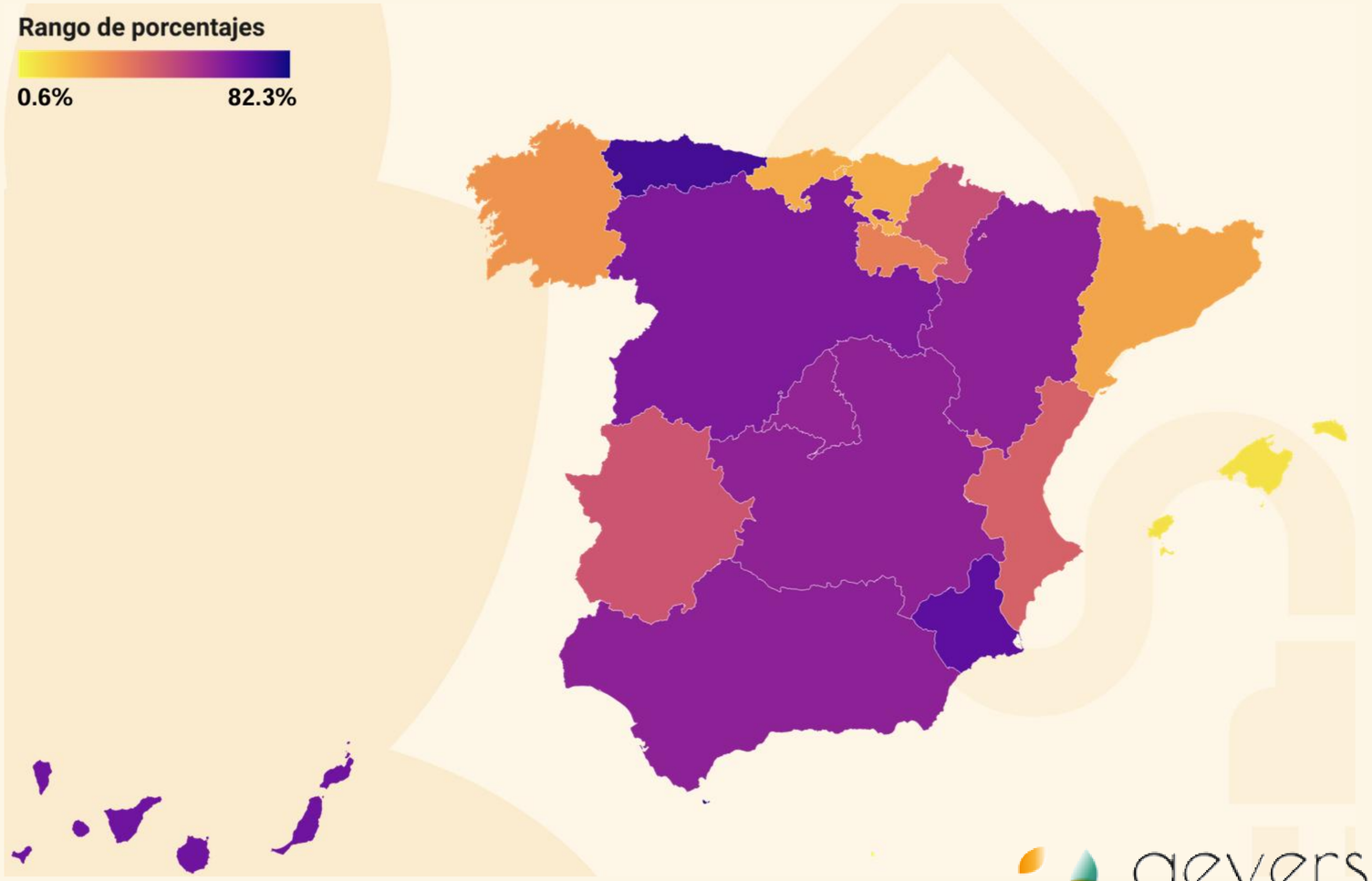
5,6M tons to landfill (95 kg/inhab/year)

9,9% of the total

AEVERSU. Data Source: EUROSTAT (2022)

Percentage of MW landfilling (per region) in Spain

CCAA	%
Principado de Asturias	74.72
Región de Murcia	69.69
Canarias	66.63
Castilla y León	63.67
Andalucía	60.83
Aragón	60.79
Castilla-La Mancha	60.19
Comunidad de Madrid	59.43
Comunidad Foral de Navarra	45.45
Extremadura	43.53
Comunidad Valenciana	39.91
La Rioja	31,46
Galicia	25.91
Cataluña	21.51
Cantabria	20.36
País Vasco	19.43
Islas Baleares	5.90
Ceuta	-
Melilla	-



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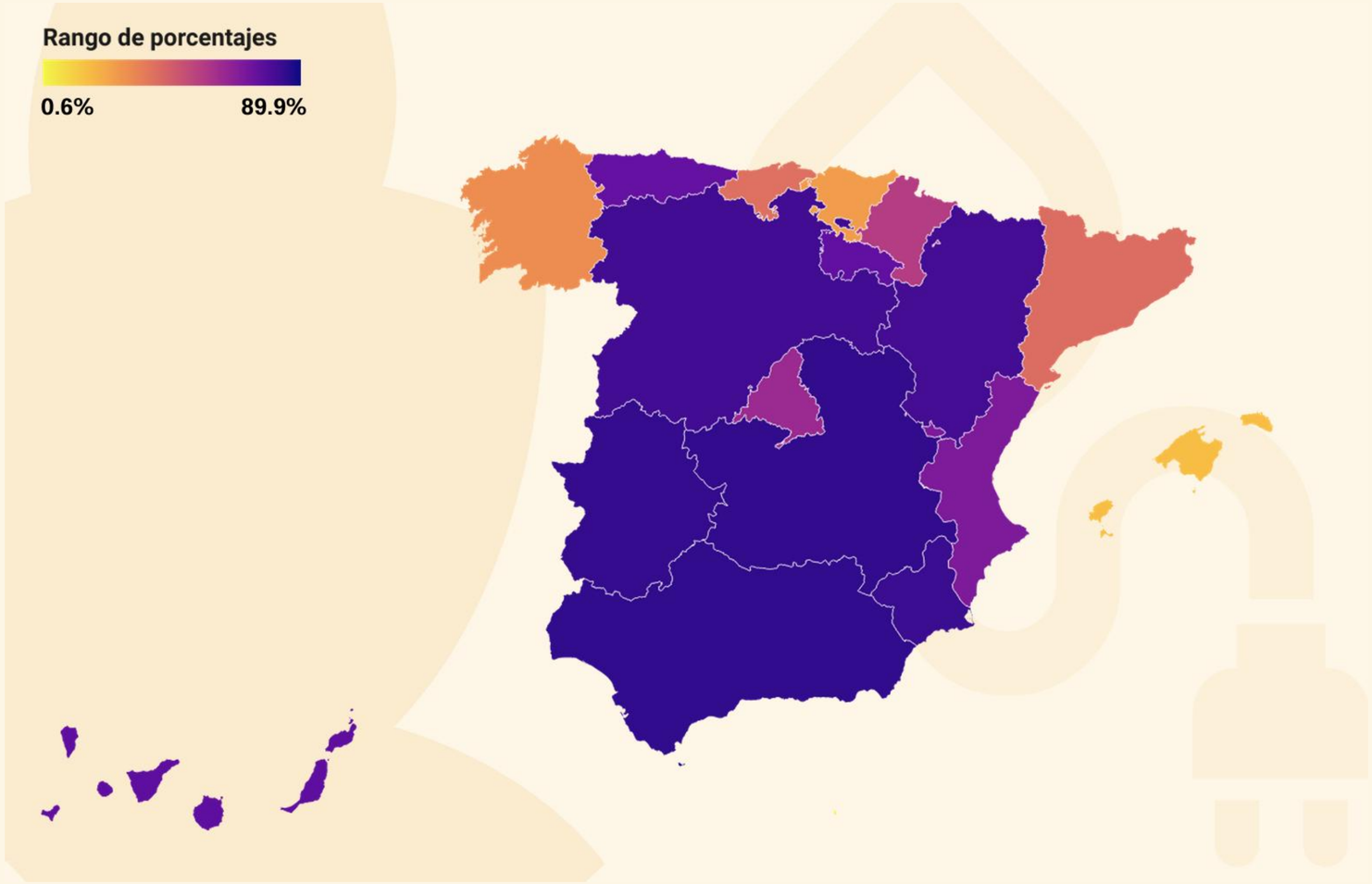
Percentage of MW landfilling (per region) in Spain (criteria 2027)

CCAA	%
Andalucía	85.06
Castilla-La Mancha	84.78
Extremadura	84.46
Región de Murcia	83.39
Castilla y León	82.10
Aragón	81.52
Canarias	75.88
La Rioja	75.21
Principado de Asturias	74.72
Comunidad Valenciana	70.00
Comunidad de Madrid	62.91
Comunidad Foral de Navarra	55,95
Cataluña	40.47
Cantabria	39.23
Galicia	30.47
País Vasco	25.68
Islas Baleares	16.30
Ceuta	-
Melilla	-



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WTE (t/year)

2021	
TOTAL	2.480.520

2022	
TOTAL	2.544.408

2023	
TOTAL	2.519.254

> 96% Municipal waste

Waste to Energy in Spain and Andorra. (2023)

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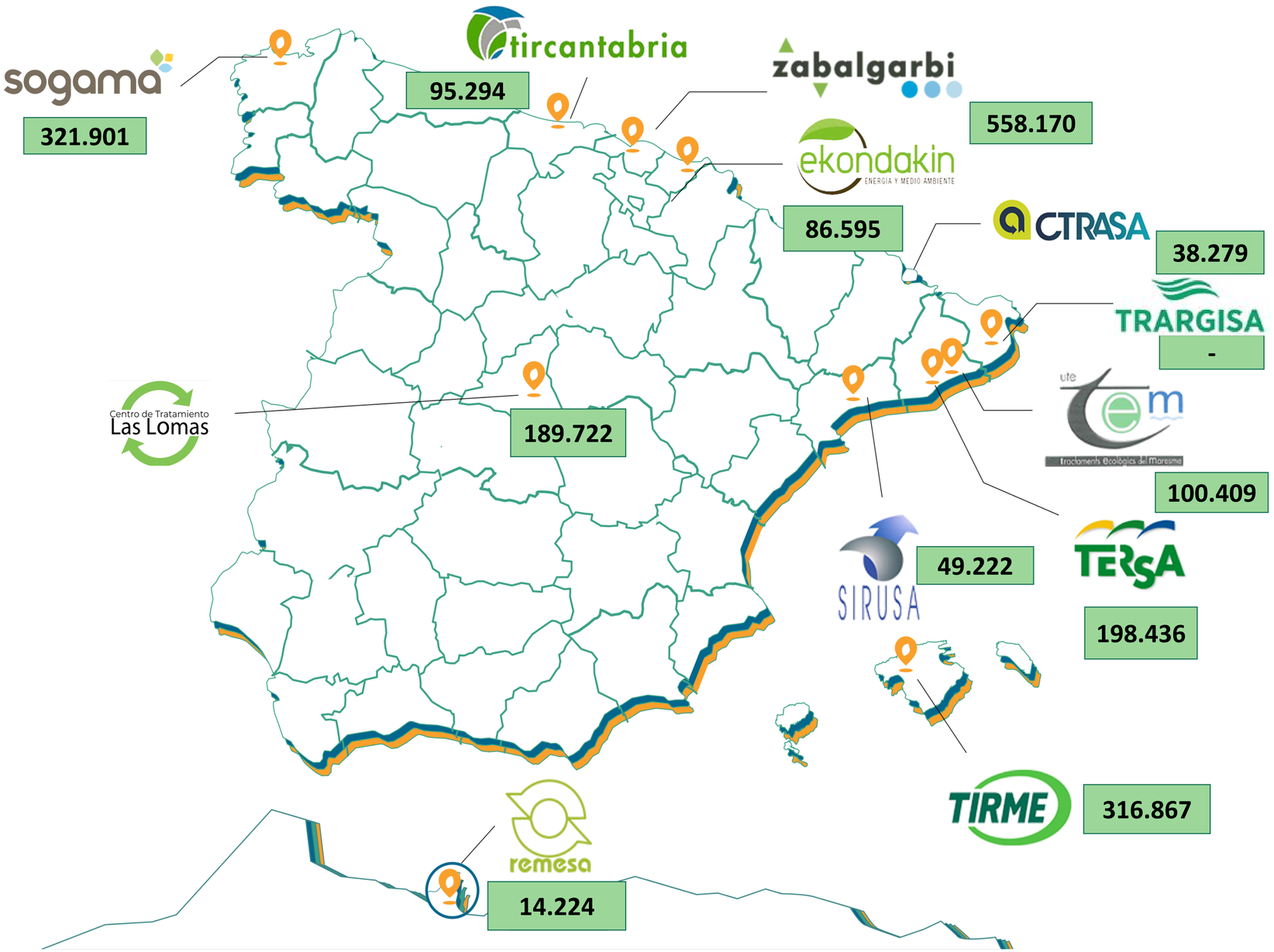
WTE (MWh)

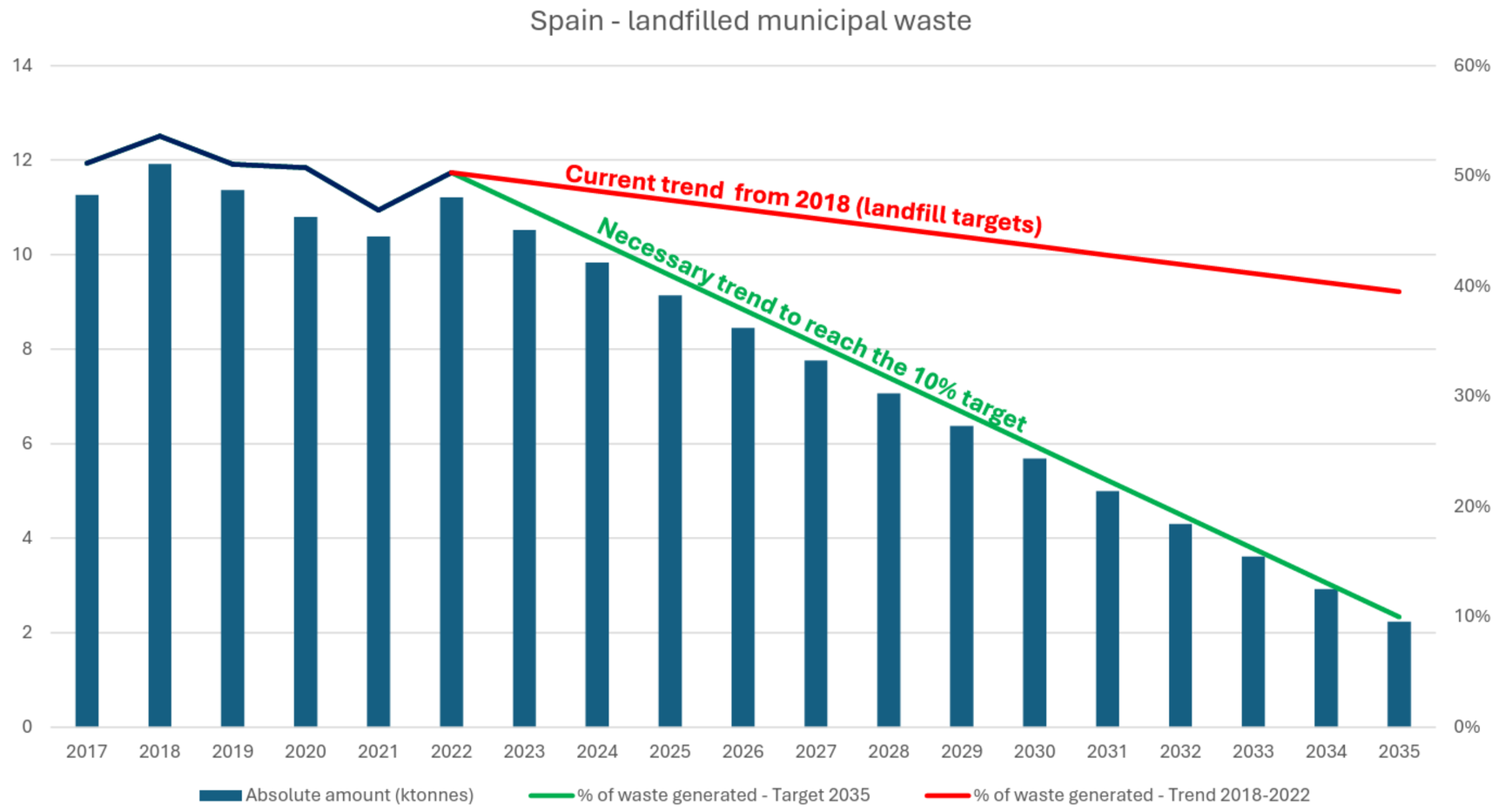
2023	
TOTAL	1.969.119

2023	
DISTRICT HEATING / COOLING	40.196



Waste to Energy in Spain and Andorra. (2023)

Projected compliance with 2035 landfill targets for Spain



At this rate, they will still landfill almost 40% of their municipal waste in 2035

In Spain more than 50% of the waste was landfilled in 2022.

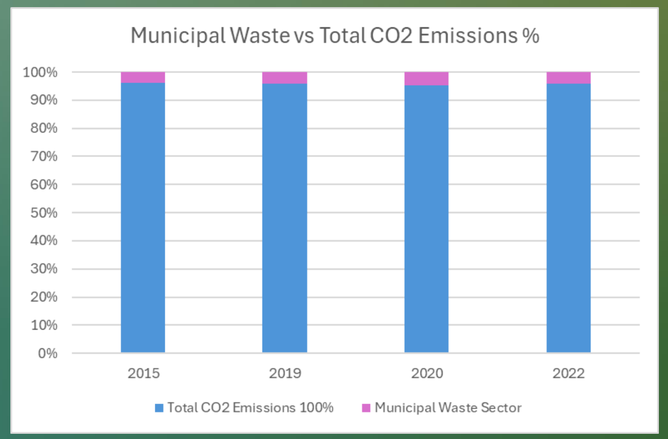
In order to reach the 10% target in 2035, they should reduce their landfill rate by 3.1 percentage points per year

Between 2018 and 2022 they reduced their landfill rate by 0.83 percentage points per year.

Source: CEWEP European Session at IFAT Munich (2024). Introduction on municipal waste and landfill targets.

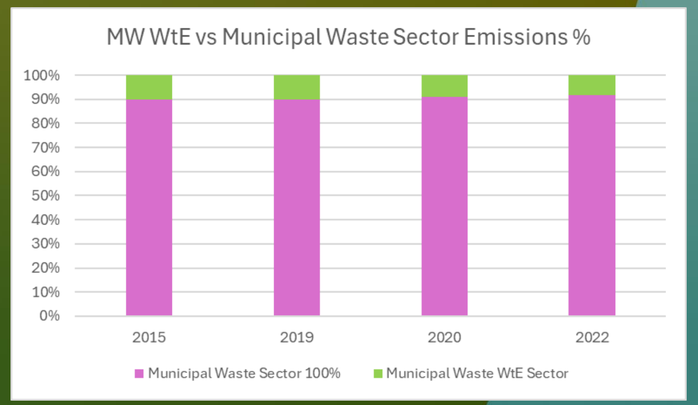
Contribution of the municipal waste sector to GHG emissions in Spain

	2015	2019	2020	2022	Average
Total Gross CO2 Emission (kt CO2eq/y)	331.965	308.894	269.803	292.297	**300.740**
Total Gross CO2 Emission Municipal Waste Sector (kt CO2eq/y)	12.826	12.399	12.965	12.042	**12.558**
Total Gross CO2 Emission Municipal Waste Landfill Sector (kt CO2eq/y)	9.423	8.799	9.455	8.510	**9.047**
Total Gross CO2 Emission Municipal Waste WtE Sector (kt CO2eq/y)	1.289	1.253	1.167	1.009	**1.180**



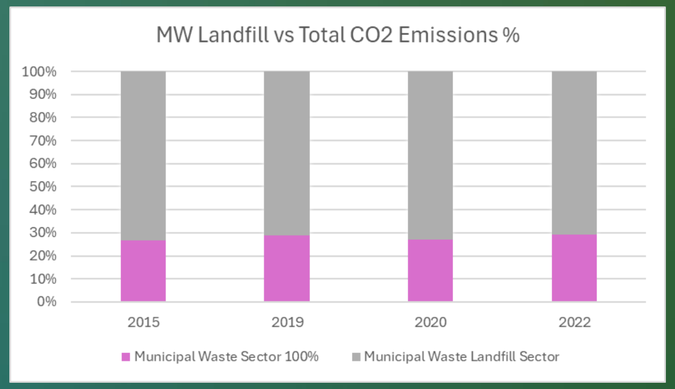
4,2 %

Average MW Sector over Total CO_2



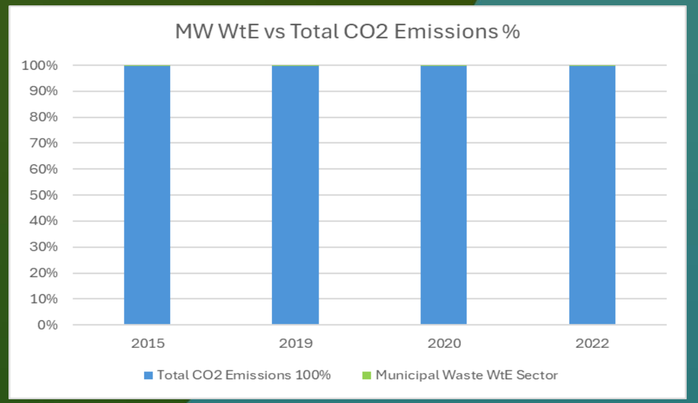
9,4 %

Average MWtE over Municipal Waste Sector



72 %

Average MW Landfill over Municipal Waste Sector



0,4 %

Average MWtE over Total CO_2

Source: AEVERSU. Data from the Ministry of Ecological Transition and Demographic Challenge. National Inventory of Greenhouse Gases (GHG) 2024.

The key challenges in achieving the goals are multi-faceted:

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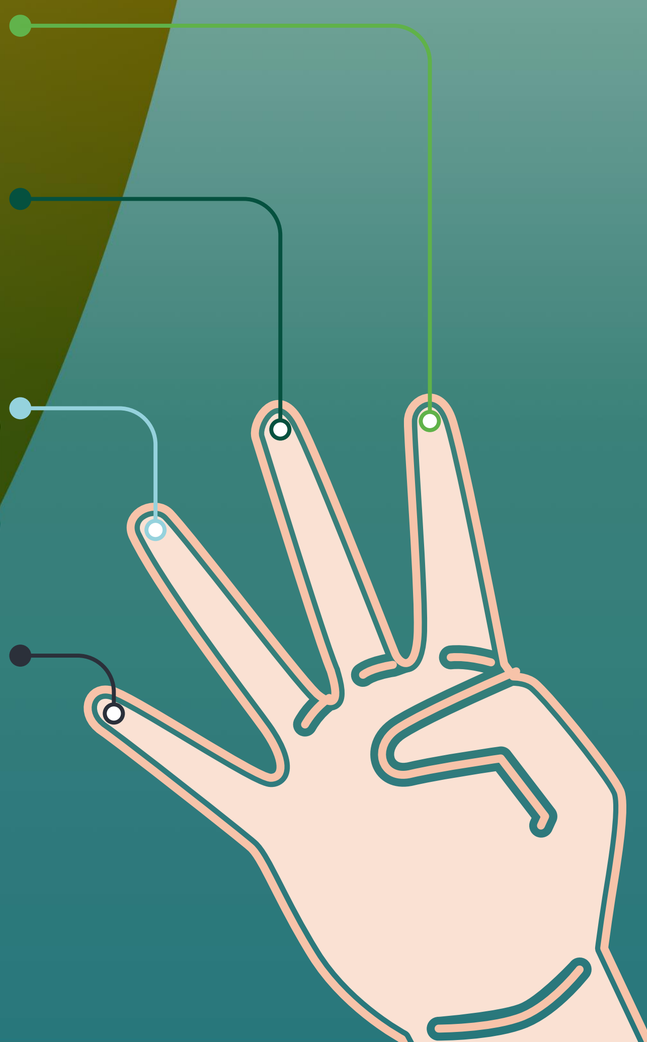
HETEROGENEITY AMONG REGIONS (CCAA): need for **regionally tailored approaches**, **coordination** between the General State Administration and the CCAA, robust and ongoing dialogue, **shared commitment**, ensuring **alignment and effective allocation of resources**.

INFRASTRUCTURE DEFICITS: Need to address gaps, **investing in new waste treatment capacity** to increase recycling rates and divert waste from landfills. Spain should move toward an **integrated waste management model** based on a coherent combination of reliable treatments, incorporating energy recovery as a complementary option to high-quality recycling.

NEEDS FOR AWARENESS AND CITIZEN PARTICIPATION: To promote the efficient use of resources, **prevention in waste generation**, **reuse** and **increased selective collection rates**, as a necessary step to achieve **recycling targets** and **move up the waste hierarchy**.

APPROPRIATE ECONOMIC INSTRUMENTS AND CLEARER FINANCING MECHANISMS: Designing schemes that **internalize environmental costs** and **promote compliance with the waste hierarchy and climate change mitigation** through better regulation of Extended Producer Responsibility (EPR), linked to the Polluter Pays Principle**. Incineration tax**, **EU-ETS** and **EU Taxonomy** for Sustainable Finance **do not fit to current situation**.



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At present:

2,5 Mt/year

WASTE TO ENERGY

+ 2.000 GWh/year

+ 1.200 GWh/year

- 245% GHG

WTE in Spain: Contributing to recycling targets and raw materials substitution (including critical materials)

Bottom Ash

+/- 425.000 tons/year

Metallic Fraction

+/- 30.000 tons/year

Ferric

Non Ferric

Metallic fraction (Fe+NFe)

To recycle

Mineral Fraction

+/- 395.000 tons/year

Depending on Demand

Embankment dam / ridge / landfill sealing and closure			Precast concrete
Subbase and base layers of roads			Bed and covering for ducts and pipes
Roller compacted concrete (RCC)			Filler material for trenches, drainages and Extrados
Cement production (Clinker)			Noise Barriers

To recycle

It is necessary to double WTE capacity to reach at least 25%

	Current situation Spain	EU targets 2035
Reclaje + compostaje Recycling + Composting	43%	65%
Valorización energética Energy Recovery	10%	
Vertido Landfilling	47%	10%

Source: Data from the Ministry of Ecological Transition and Demographic Challenge. Annual report on municipal waste generation and management (2021)

Diverting 3 Million Tonnes from landfills to WTE would mean:

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3 Mt/year

From **Landfilling**

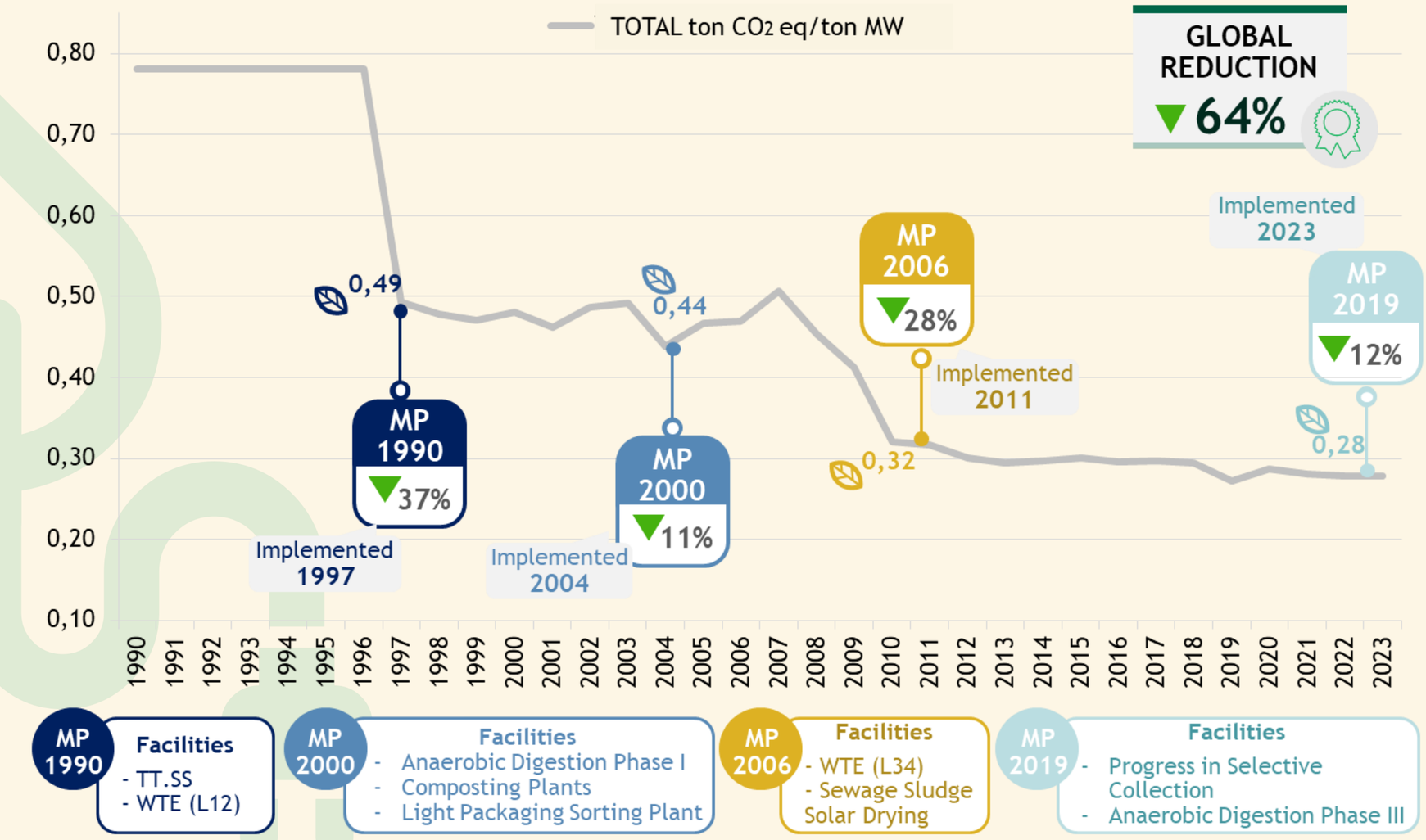
To **Waste to Energy**

+ 2.400 GWh/year

+ 1.440 GWh/year

- 1,6 Mt CO_2e

GHG Emissions reduction through Waste Master Plans (MP)



NOTE: All the figures represented have been calculated based on estimates of waste generation from the fixed population officially registered for the years 1990 - 1997 and the emission factors by current treatment

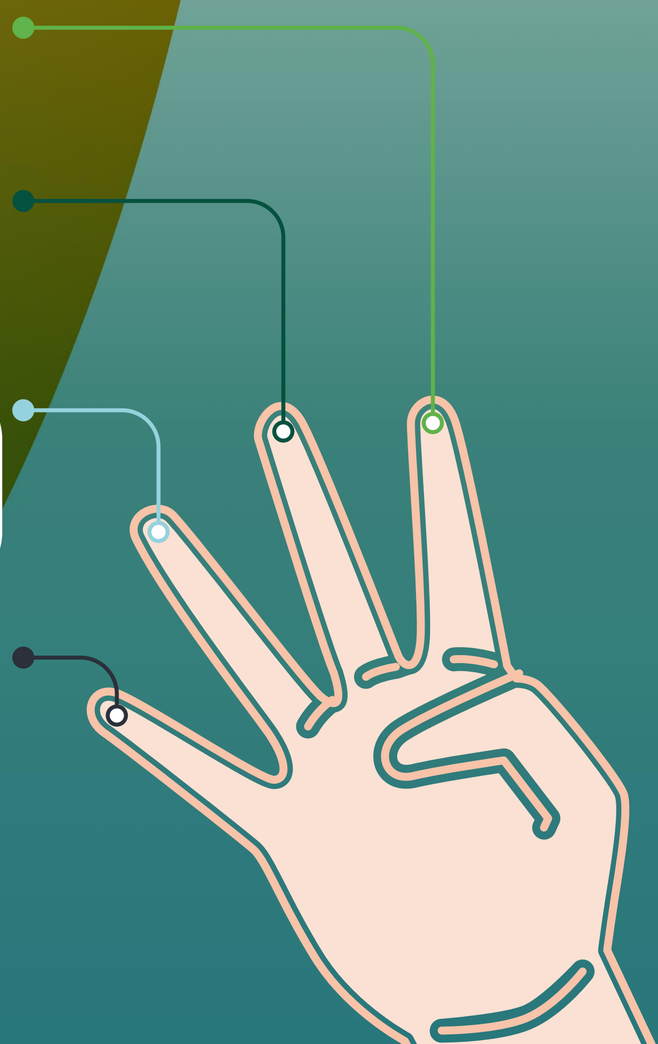
To summarize:

The Spanish legislative framework for the transition to more sustainable waste management is ambitious and robust in theory. Real challenge lies in **practical implementation**, monitoring, and **effective enforcement across different regions** and requires **substantial public and private investment** in infrastructure, technology, and public awareness campaigns.

Spain's current trajectory indicates a **high probability of non-compliance with key EU municipal waste targets**, demanding **urgent and drastic interventions**. Data show that there is not a minor discrepancy but a substantial gap requiring a **radical change in current practices**. Without adequate financial support, the ambitious objectives set by the EU and national legislation will be difficult for regions to meet.

No single approach will achieve high recycling rates and prevent waste from ending up in landfills. A coherent and consistent combination of instruments is needed. **Integrated management schemes that incorporate energy recovery** as a **complementary treatment to high-quality recycling**, as demonstrated in the most environmentally advanced Member States, are essential.

Economic instruments are a key tool to drive behavioral change and investment in waste management (*i.e.* landfill tax). Incentivizing the **uptake of secondary raw materials**—specifically aggregates and metals recovered from waste to energy—is also **crucial for securing critical raw materials** and fostering a **robust circular economy.**



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THANKS FOR YOUR ATTENTION