



Local Energy from Local Waste

LIPOR

Intermunicipal Waste Management of Greater Porto

Aires Pereira | Chairman

24-25 September 2014

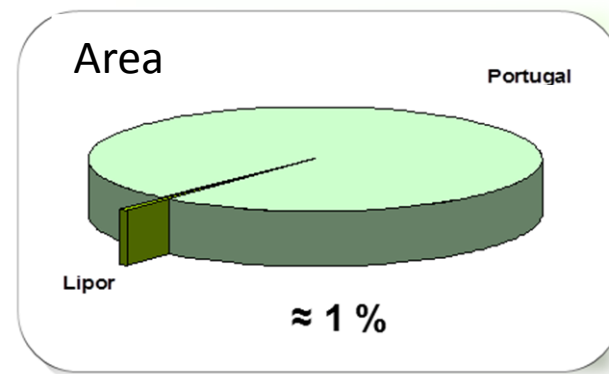
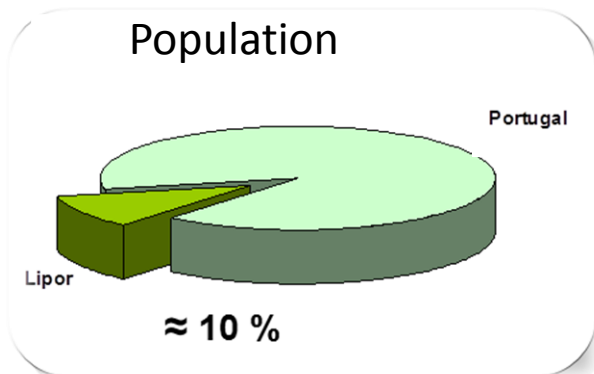
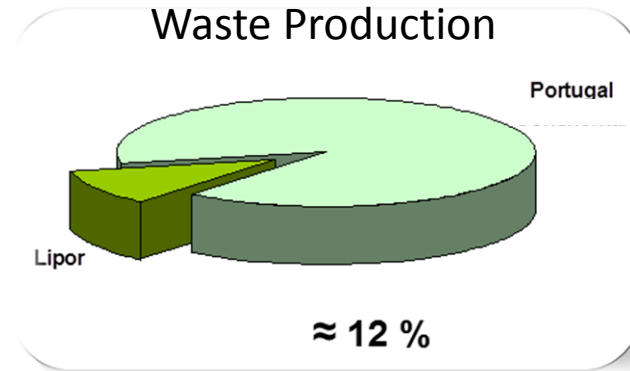
Brussels



Introduction



- **8 Municipalities**
- **Covered Area – 648 km²**
- **Population – 985.000 inhabitants**
- **Municipal Waste Production (2013) – 471.861,31 t**
- **Per Capita – 1,3 kg/inhab/day**





Governance

- ♥ Created in 1982.
- ♥ Legal Status.
- ♥ Board of Directors and Intermunicipal Assembly.
- ♥ CEO and Professional Management Team





Mission, Vision and Values

Mission: *To devise, adopt and implement **sustainable** waste management solutions, bearing in mind the **needs** of our partners and the communities we serve.*

Vision: *Wherever we are, we **want to be a reference brand within the environmental sector.***

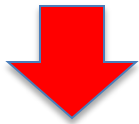
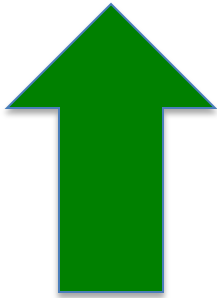
- Values:**
- **To be Ambitious** and results-oriented.
 - **To be Creative** in the search for innovative and sustainable solutions.
 - **To be Responsible** within the scope of our activities.
 - **To be Ethical** in our Internal and External relationships.
 - **To be a TEAM!**





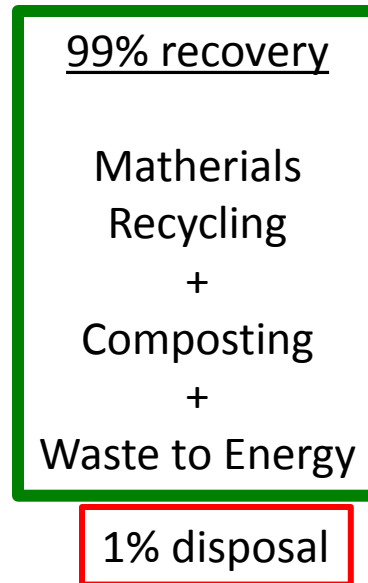
LIPOR Waste Treatment approach

Maximize waste recovery

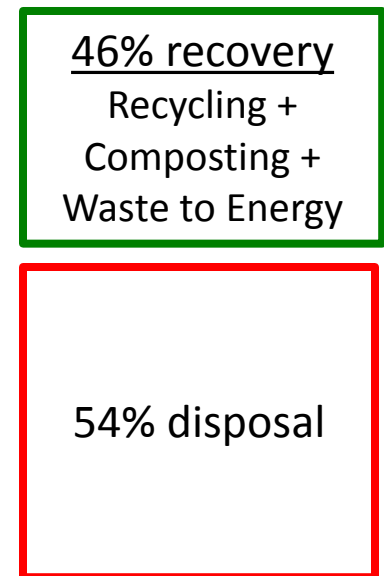


Reduce waste disposal

LIPOR



Portugal (average 2012)





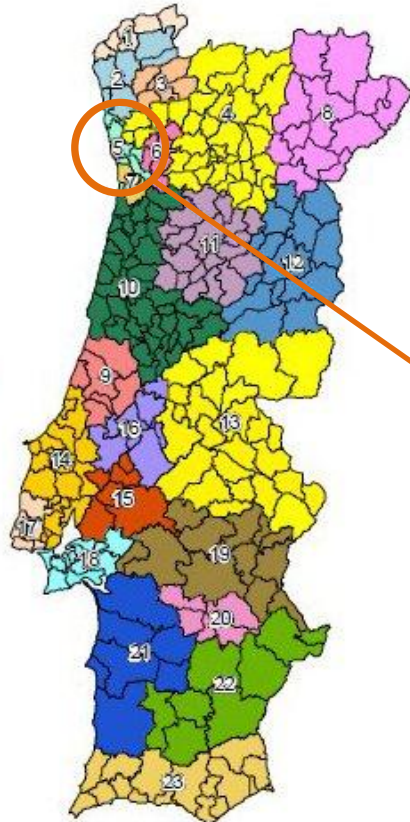
LIPOR's performance in recycling

Recyclables Waste Collection

(Paper and Cardboard; Plastic, Glass, Metal, Wood)

Jan.- August 2014 ∴ National Data

- 1 - VALORMINHO
- 2 - RESULIMA
- 3 - BRAVAL
- 4 - RESINORTE
- 5 - Lipor
- 6 - Valsousa (Ambisousa)
- 7 - SULDOURO
- 8 - Resíduos do Nordeste
- 9 - VALORLIS
- 10 - ERSUC
- 11 - AMR do Planalto Beirão (Ecobeirão)
- 12 - RESIESTRELA
- 13 - VALNOR
- 14 - VALORSUL
- 15 - Ecolezíria
- 16 - Resitejo
- 17 - Amtres (Tratolixo)
- 18 - AMARSUL
- 19 - Amde (Gesamb)
- 20 - Amagra (Ambilital)
- 21 - Amcal
- 22 - Amalga (Resialentejo)
- 23 - ALGAR



Waste Management System	Amounts Collected (tonnes)	Population Covered (millions)
VALORSUL	33.868	1,6
LIPOR	21.136	1,1
RESINORTE	18.090	1,0
ERSUC	16.284	1,0
ALGAR	15.732	0,5 (increase with tourism)





Reference Projects - Composting



COMPOSTING PLANT

- 🌱 Waste Processing Capacity: 60.000t/ year
- 🌱 Compost Production Capacity: 10.000t/year
- 🌱 Organic valorization (composting) of organic and green waste;
- 🌱 Materials from, exclusively, selective collection
- 🌱 **Compost production, NUTRIMAIS, fulfilling very high quality parameters;**
- 🌱 **Nutrimais apt for application in biological agriculture.**









Reference Projects



SELECTIVE COLLECTING DOOR-TO-DOOR

-  This is a project in partnership with the municipality of Maia and Green Dot Company
-  50.000 households with selective collection
-  There are 3 different instrumented containers for paper, packaging, glass
-  There is 1 instrumented container for mixed waste





Reference Projects



PAY-AS-YOU-THROW (PAYT) SYSTEM

- ♥ **LIPOR is the first entity to launch a PAYT system in Portugal.**
- ♥ **The Pay as You Throw System of Lipor** integrates different solutions in order to answer the needs of the different types of waste producers and waste deposition systems.
- ♥ The project are implementing in a pilote zone - Vila Nova da Telha (Maia)
- ♥ Are involved 1.500 households and 4.000 inhabitants
- ♥ Instrumented containers in order to create a system that allows decoupling waste management payment of water consumption



Other Reference Projects

- ♥ **ECOFONE**, door-to-door selective collection of recyclables in restaurants, offices (2.000 customers).
- ♥ **Restauração 5 Estrelas**, door-to-door selective collection of organic material in 1.500 restaurants and canteens of the region.
- ♥ **Cemitérios**, selective collection of flowers and green waste in 45 cemeteries of the region.
- ♥ **Terra-à-Terra**, home composting in 10.000 houses of the region.

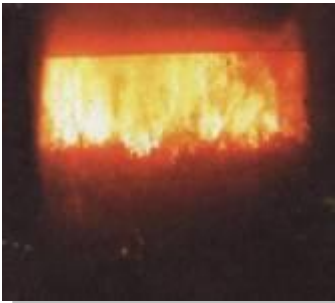


Maia - Waste-to-Energy Plant and Landfill



Treatment capacity: 1,100 Ton/day (380,000 Tons/year)

- ✧ Two treatment lines, each one with 550 Ton/day of capacity (24.7 Ton/hour)



Installed power of 25 MW

- ✧ base load power sent to the electricity grid.



Metal scrap recovery sent for recycling

- ✧ Also possibility of slag recovery



Maia - Waste-to-Energy Plant and Landfill

General Data (2013)

Waste incinerated (Tons)	Electricity Production (MWh)	Electricity exported (MWh)	Scrap for recycling (Tons)	CO2 Emissions avoided (Tons)
382,733	180,142	153,174	5,535	69,535

Local energy production equivalent to the domestic consumption of 150.000 citizens: 15% of population served by Lipor



Maia - Waste-to-Energy Plant and Landfill



Less than 1% of Municipal Waste received by LIPOR goes to Landfill



Systems Certifications



Legenda:

- Quality Management System Certification (ISSO 9001:2001)
- Environmental Management System Certification (ISSO 14001)
- Occupational Health and Safety Management System (OHSAS 18 001/NP 4397)
- Social Responsibility Management System Certification (SA 8000)
- Investigation, development and innovation Management System Certification (NP 4457)





Awards – External Recognition



- **1st place** in the category of medium-sized enterprises in the Public Sector Excellence Award at work 2013

European Business Awards for the Environment
Prémio de Inovação para a Sustentabilidade



EBAEpiS 2013-2014

1.º Prémio

- **LIPOR** was the **winner in Sustainable Development Award 2012/2013** by sustainability in its business vision.



- **Honourable Mention** at Product or Service category, Green Project Awards 2012, for the project "Horta à Porta – Hortas Biológicas na região do Porto"

- **Honourable Mention** at Prize BES Biodiversity, in 2011

BES PRÉMIO **BIO** DIVERSIDADE



PERSU 2020 - Challenges

- **Strategic Guidelines for Horizon 2020**

7 EU ENVIRONMENTAL ACTION PROGRAMME (2014 – 2020)

Main Goals of the roadmap for Resource Efficiency

- Transform **Waste into a Resource**
- **Reduce waste production per capita**
- **Remove, gradually, the landfill disposal.**
- To assure high quality recycling
- To develop markets for secondary raw materials



LIPOR I Unit



LIPOR, Baguim do Monte (Portugal) – Sorting Plant(1), Drop off Site (2), Composting Plant(3), Horta da Formiga – Home Composting Centre (4), Adventure Park(Ermesinde Old Landfill) (5), Platform (6)



LIPOR II Unit



LIPOR, Maia (Portugal) – Waste-to-Energy Plant (1), Landfill (2), Treatment of leachate (3).



MaiaWaste-to-Energy Plant and Landfill

Monitoring

- **Internal**
 - **Solid emissions**
 - **Liquid emissions**
 - **Gaseous emissions**
- **External**
 - **Evolution of the surrounding environment**



Maia Waste-to-Energy Plant and Landfill

External Monitoring

EXTERNAL MONITORING PROGRAM

Objective : following and evaluating the effects of the LIPOR II complex on the surrounding environment



Environmental component

Public health component

Psychosocial component

- Noise
- Biomonitoring
- Water resources
- Soils
- Air Quality

- Epidemiological surveillance
- Surveillance for adverse effects
- Monitoring risk factors

- Social Psychology



Waste-to-Energy Population Involvement

A Horta de Crestins – Biological Kitchen Garden



We are near the Incineration Plant



Waste-to-Energy Population Involvement

Transparency with local Population



Official Monitoring Commission

(people from different Departments of Central and Regional Government, and Municipality of Maia)

- 2 meetings/year



Local Monitoring Commission

- 8 people representing all political parties of the Council
- Monthly meetings



And some more pictures!



Waste-to-Energy Plant of Maia





Waste-to-Energy Plant of Maia



WtE Plant



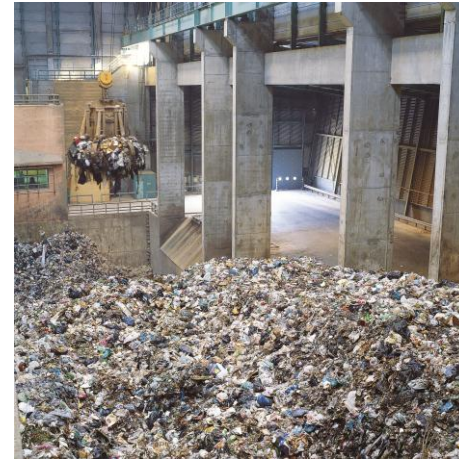
Operators in the control room



Waste-to-Energy Plant of Maia



Control room



Reception pit



MSW bunker zone



Waste-to-Energy Plant of Maia



Combustion grid



Thermal recovery



Waste-to-Energy Plant of Maia



Power station



Alternator and turbine



Steam aero-condensers



Waste-to-Energy Plant of Maia



Gas treatment reactor



Filter



Waste-to-Energy Plant of Maia



Fly ashes



Specific landfill – for inert ashes disposal



Waste-to-Energy Plant of Maia



Iron scrap bunker



Slag bunker



Thank you for listening!



lipor

