LISBOA
CÂMARA MUNICIPAL

LISBOA e·nova
AGÊNCIA DE ENERGIA E AMBIENTE DE LISBOA

CLIMATE CHANGE MITIGATION IN LISBON

Eduardo João Silva

Lisbon, 26th September 2017

Major milestones

2008: CML approves the Energy and Environmental Strategy for Lisbon and decision to join the Covenant of Mayors (first capital city).

2010: Action Plan Submission for Sustainable Energy (SEAP) of Lisbon, based on the inventory of CO2 emissions 2002 (3.887 kton CO2)

2012: Action Plan for Sustainable Energy approval

2015: Action Report presentation for the years 2013 and 2014

2016: Energy and Water matrix and CO2 inventory for 2014

Overview of the Main Goals

Energy

- Reduce 8.9% the consumption of primary energy;
- Reduce the energy consumption of buildings and transports by 1.85%;
- Reduce the energy consumption of CML by 1.95%;

Water

- Reduce 7.8% the global water consumption;
- Reduce water losses (leaks) by 15.6%;
- Increase water reuse by 3.1m3/hab.y;

Materials

- Reduce 10% the material consumption;
- Increase the selective waste collection by 29%;

and reduce by 20% the CO_2 emissions …by 2020

Framing Documents

"If you can't measure it,
you can't improve it."

Peter Drucker

LISBON ENERGY MATRIX

Main objectives

- Understand the energy and carbon performance of the Municipality;
- Make an analysis of energy consumption by sector and source of energy;
- Measure the evolution of energy consumption and CO2 emissions since 2002 (the reference year of the Covenant of Mayors).

LISBON WATER MATRIX

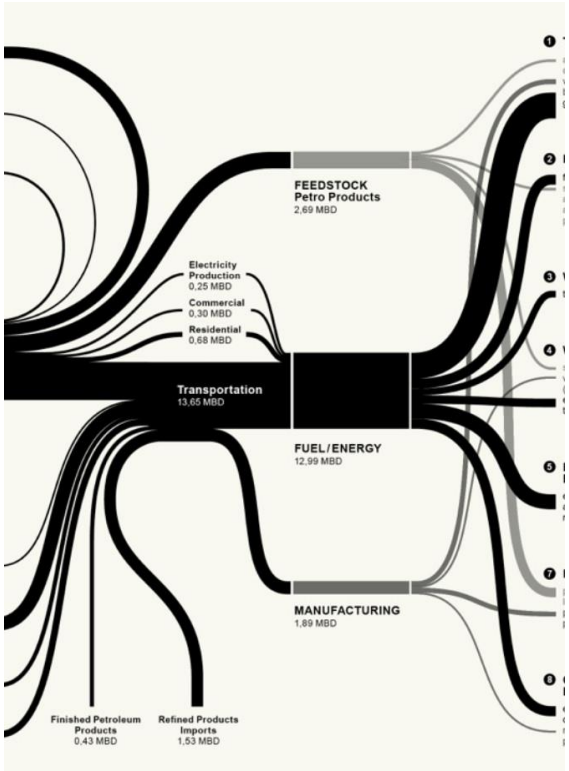
Main objectives

- Understand the water consumption in the Municipality;
- Identify and quantify the water consumption, disaggregating, whenever it is possible, the consumptions by type of user and use;
- Assess evolution of the main water flows consumption;

LISBON MATERIAL MATRIX

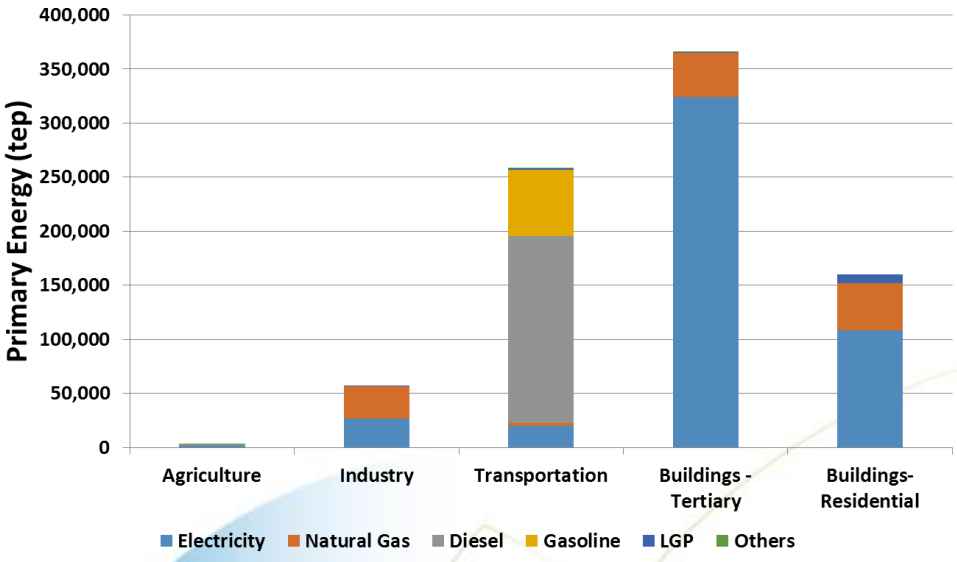
Main objectives

- Understand the material consumption in the Municipality;
- Identify and quantify the material consumption, disaggregating, whenever it is possible, the consumptions by type of user and use;
- Assess evolution of the main material flows;

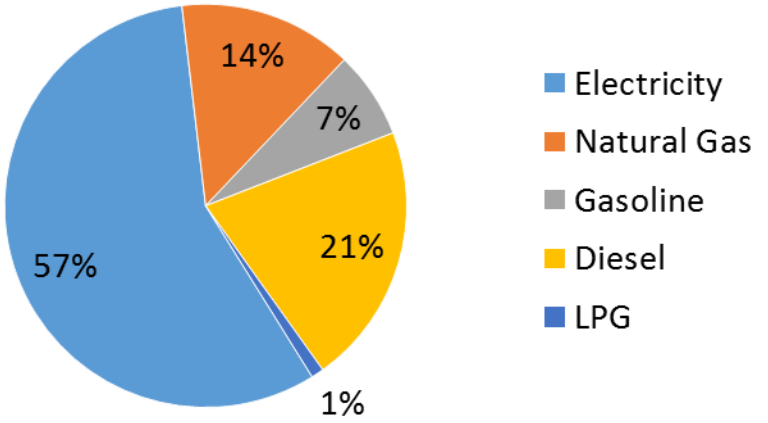


LISBON ENERGY MATRIX

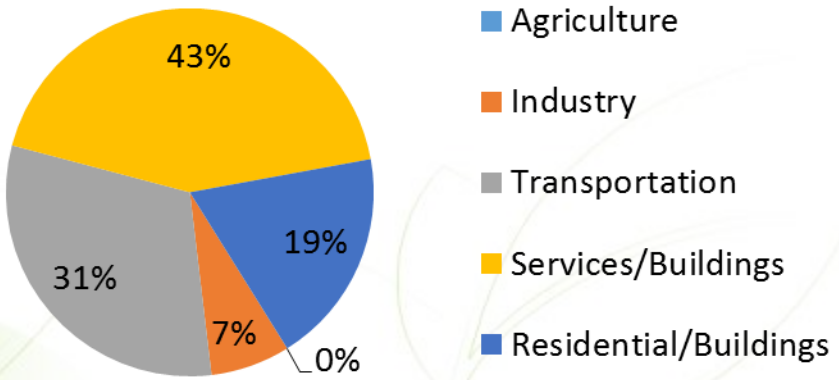
Energy consumption by sector and source



Energy consumption by source

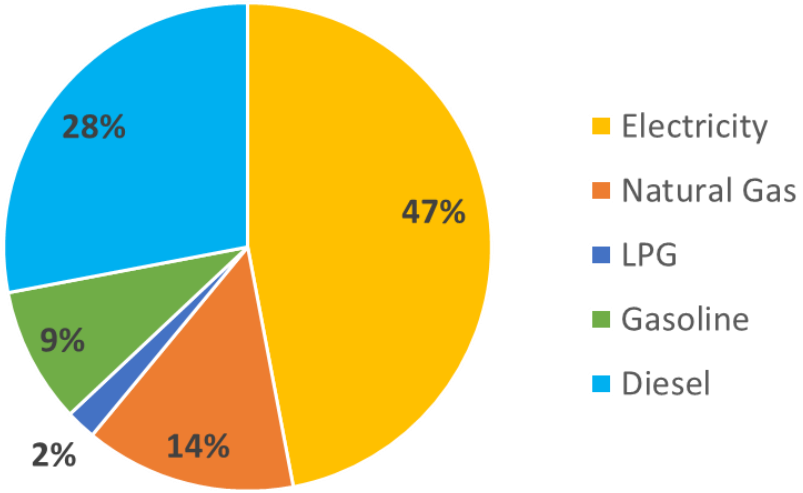


Energy consumption by sector

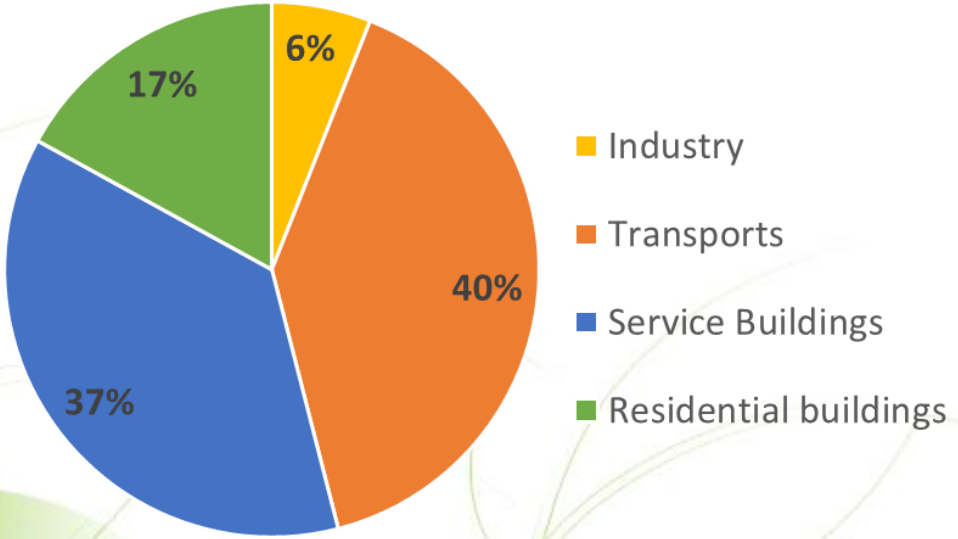


LISBON ENERGY MATRIX

CO2 emissions by source

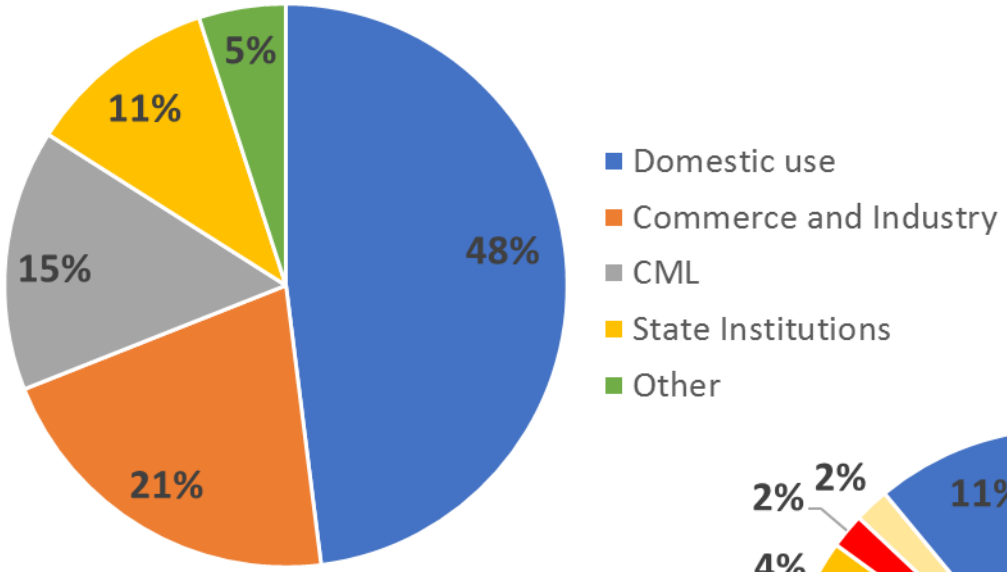


CO2 emissions by sector

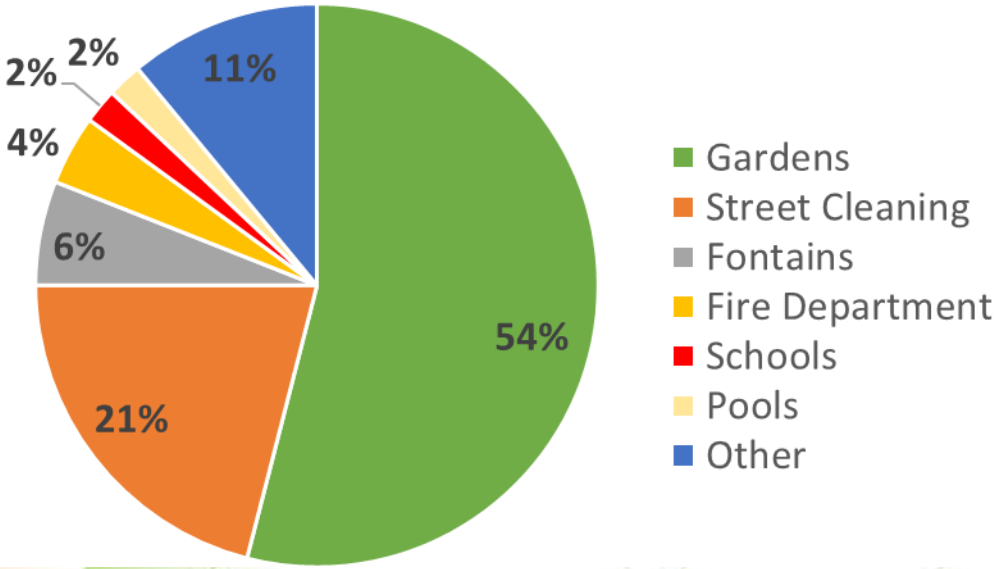


LISBON WATER MATRIX

Water consumption by source

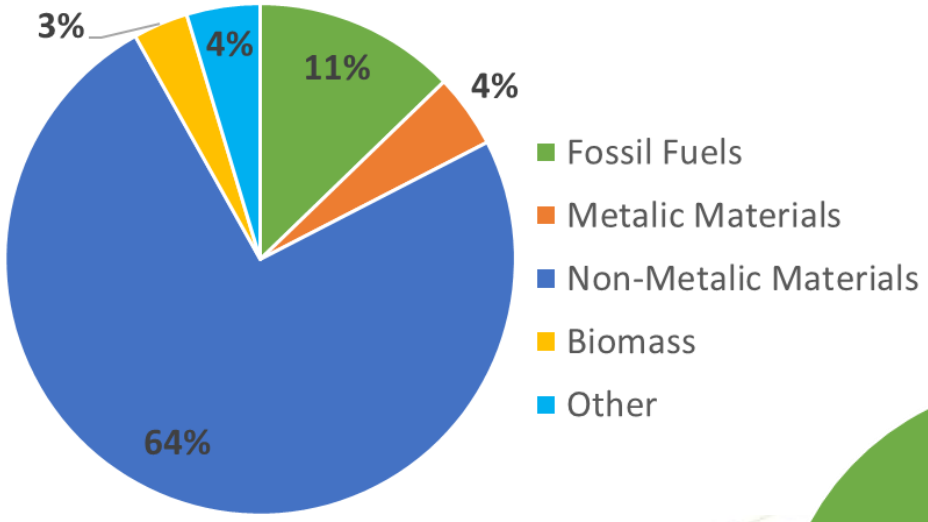


Water consumption in CML

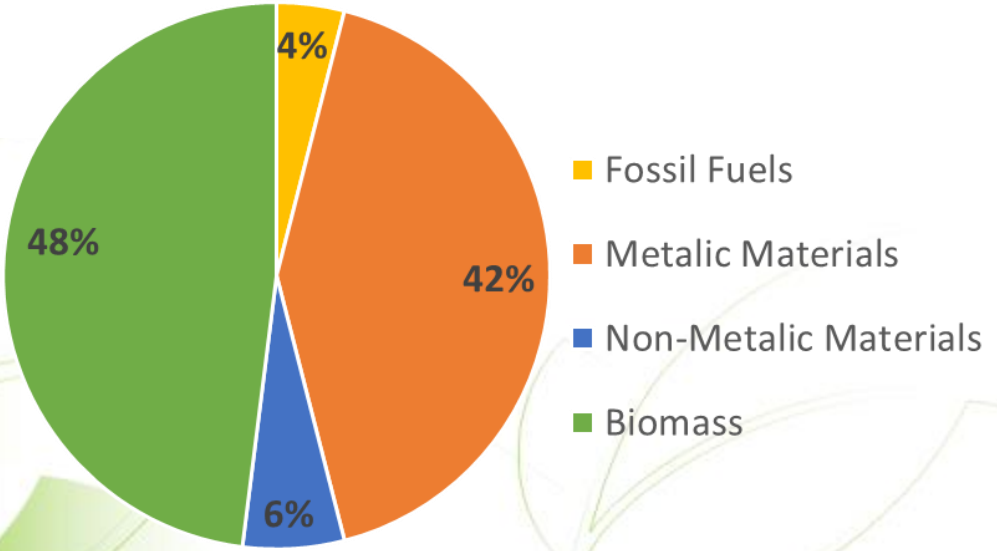


LISBON MATERIAL MATRIX

Material consumption by type

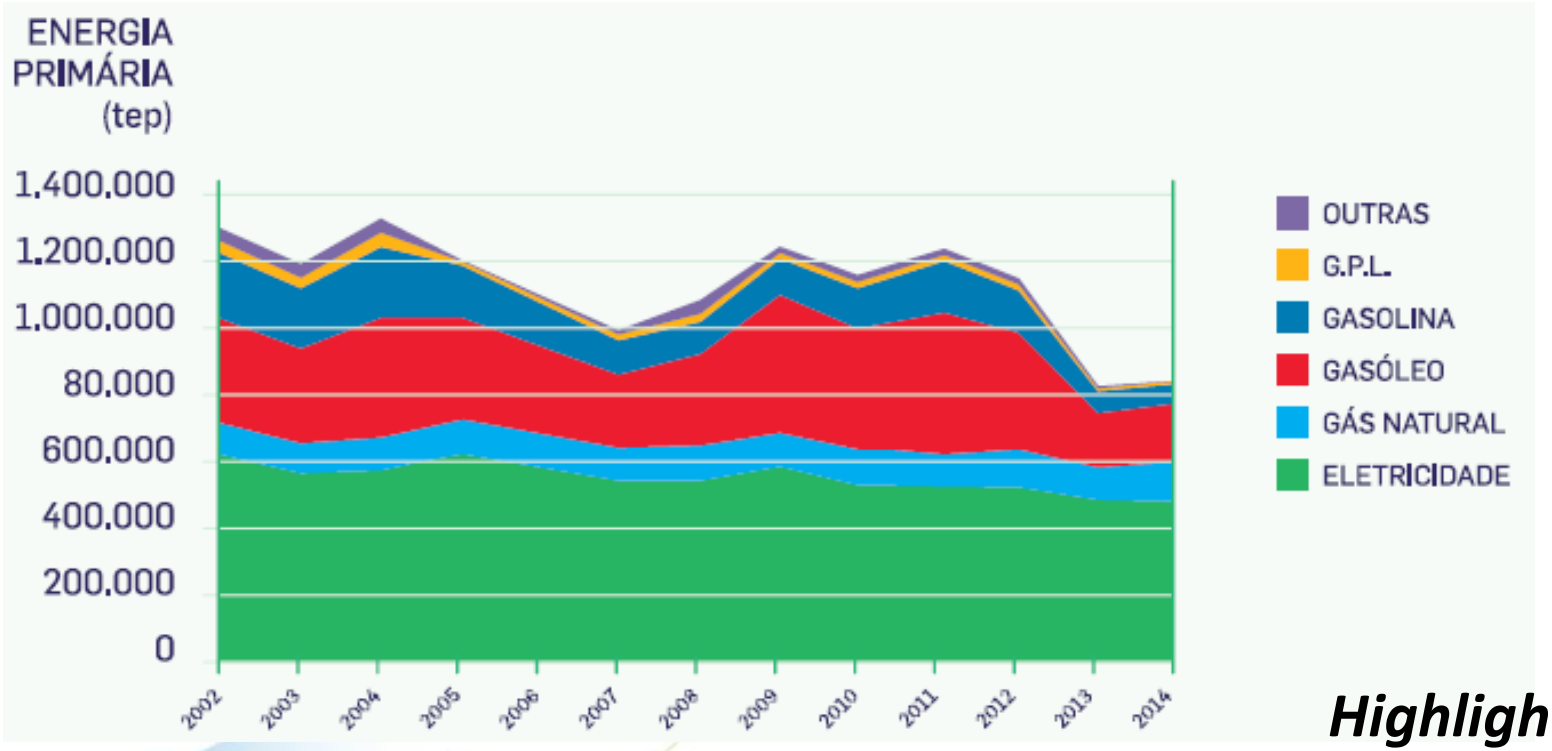


Material accumulation



Tackling of Energy Consumption

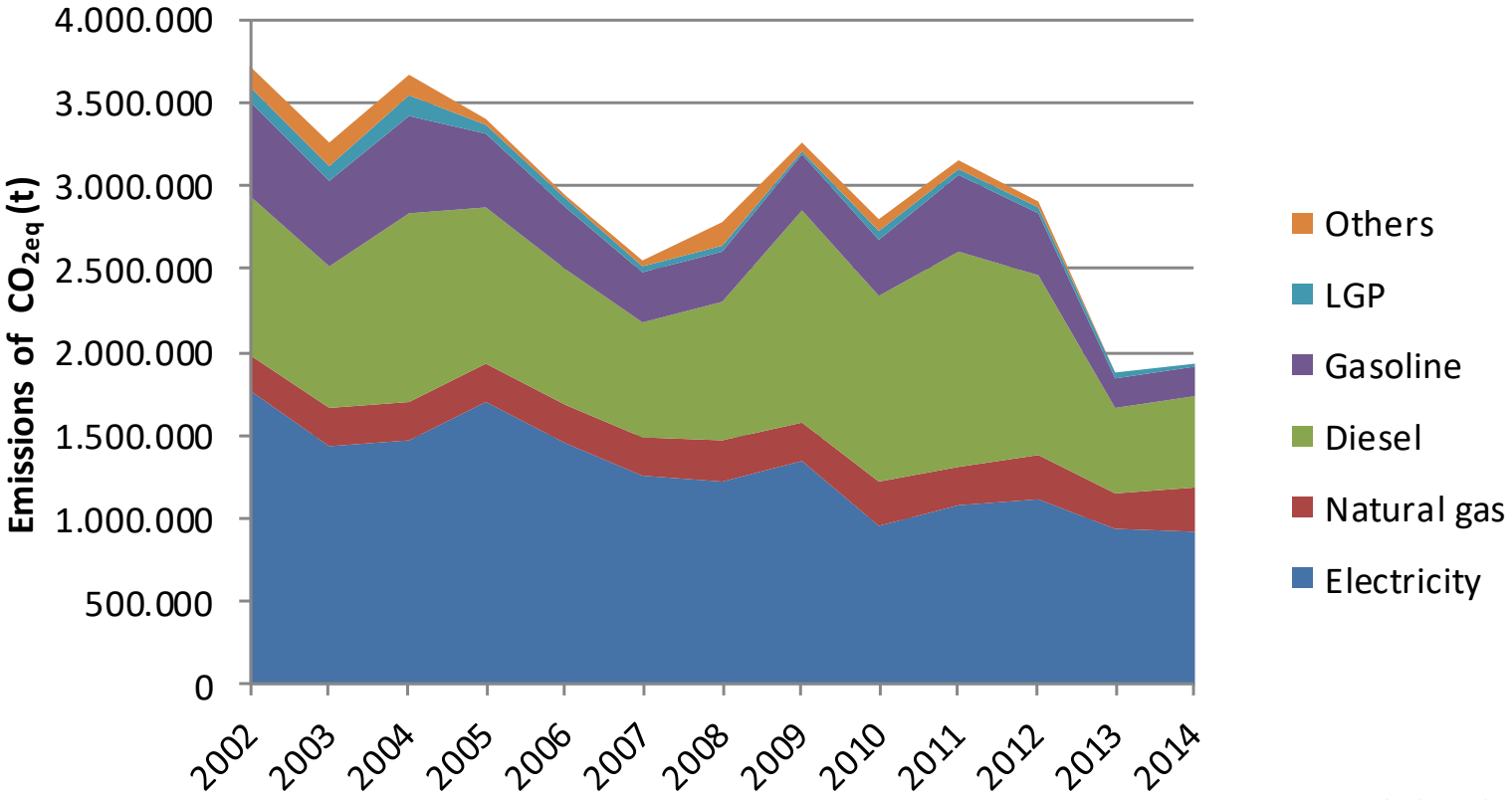
Primary energy consumption evolution



Highlights:

- - 62% of primary energy
- - 17% of Electricity
- - 69% of Gasoline
- - 43% of Diesel

Carbon Dioxide emissions evolution



Highlights:

- - 50% of CO2 global emissions

Understanding the success...

Increased renewable penetration in the Portuguese electricity sector and consequent reduction of CO2 emissions…

Can a whole country run on renewable energy?

By **Natasha Maguder**, CNN

Updated 0922 GMT (1722 HKT) September 1

Source: CNN

renewable energ

Portugal runs for four days straight on renewable energy alone

Zero emission milestone reached as country is powered by just wind, solar and hydro-generated electricity for 107 hours

As recently as 2013, renewables provided only about 23% of Portugal's electricity. By 2015 that figure had risen to 48%. Photograph: Pete Titmuss/Alamy Stock Photo

Portugal kept its lights on with renewable energy alone for four consecutive days last week in a clean energy milestone revealed by data analysis of national energy network figures.

Electricity consumption in the country was fully covered by solar, wind and hydro power in an extraordinary 107-hour run that lasted from 6.45am on

Most popular


French hitchhiker 'goes berserk' in New Zealand after four days stuck without a lift


Syrian ceasefire not dead, says US after aid convoy bombing


No grammar schools, lots of play: the secrets of Europe's top education system

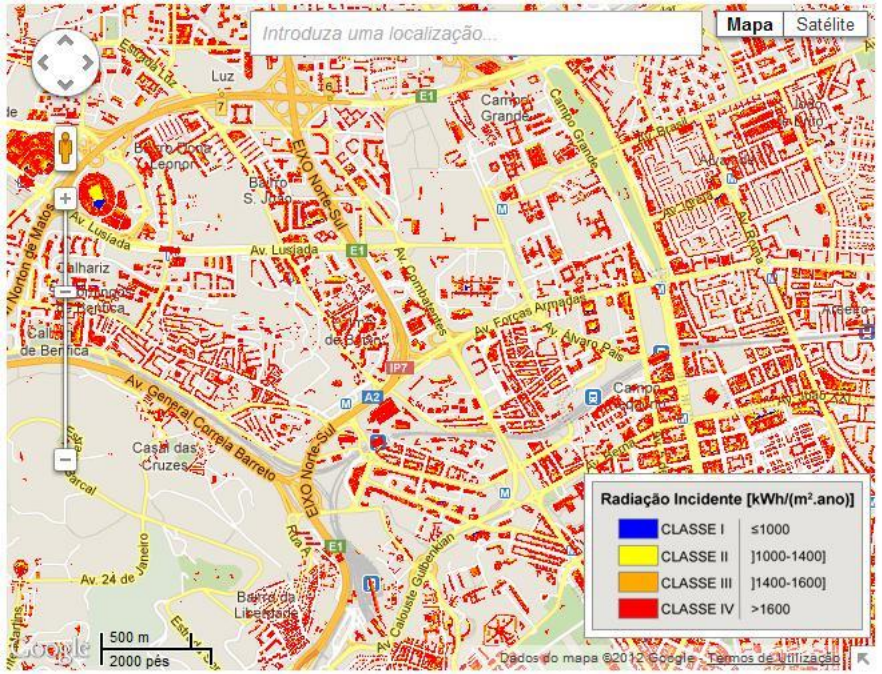
Donald Trump Jr compares Syrian refugees to poisoned Skittles


Jim Carrey sued over former girlfriend's suicide

Understanding the success...

- **Renewable energy uptake** in public buildings and infrastructures and at the residential level

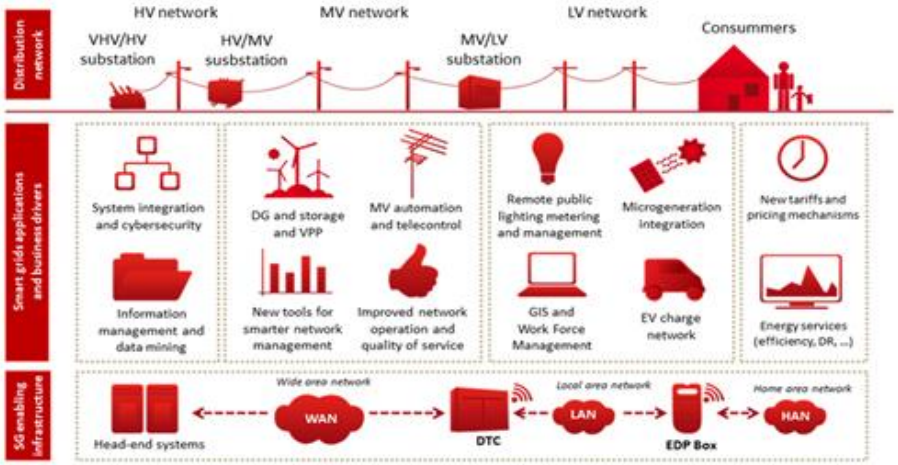
Sustainable Campus – 2.8MW



Lisbon's Solar potential chart

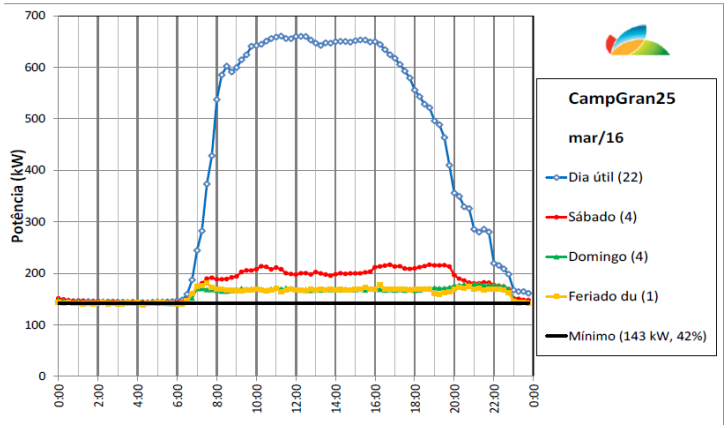
Understanding the success...

- **Supporting Energy Efficiency** through the development of Energy Management Systems



Understanding the success...

- **Supporting Energy Efficiency** behaviors



Energy Remote Management

eco-bairro BOAVISTA Ambiente +
um modelo integrado de inovação sustentável

ECO-Neighborhood

ESCOLA+ EFICIENTE
Eficiência Energética da Escola à Comunidade

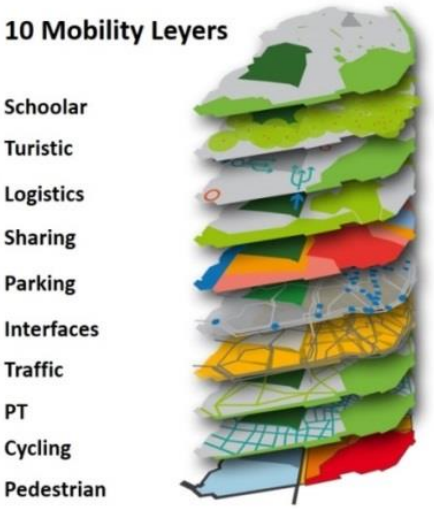
Efficient Schools

Understanding the success...

- **Building Retrofit** using innovative materials and techniques aiming energy efficiency

Understanding the success...

- **Lisbon Mobility Strategic Vision (MOVE),** including the new integrated management for the public BUS company after January 2017, with 90km more cycle paths by 2017, more BUS lanes and a cycle sharing system.



Understanding the success...

- **Support electric and sustainable mobility**

- eV Car Sharing
- eBike Sharing
- eV Charging
- Smart Parking
- eLogistics

Understanding the success...

- Continuous investment in new and innovative technologies for urban refurbishment and urban space (e.g. LED lighting), through promoting **ECO.AP**, **EIB** and **ELEnA** (7), in which the National Energy Agency foreseens the investment of € 36 million in the Lisbon region.

Reducing Water Consumption

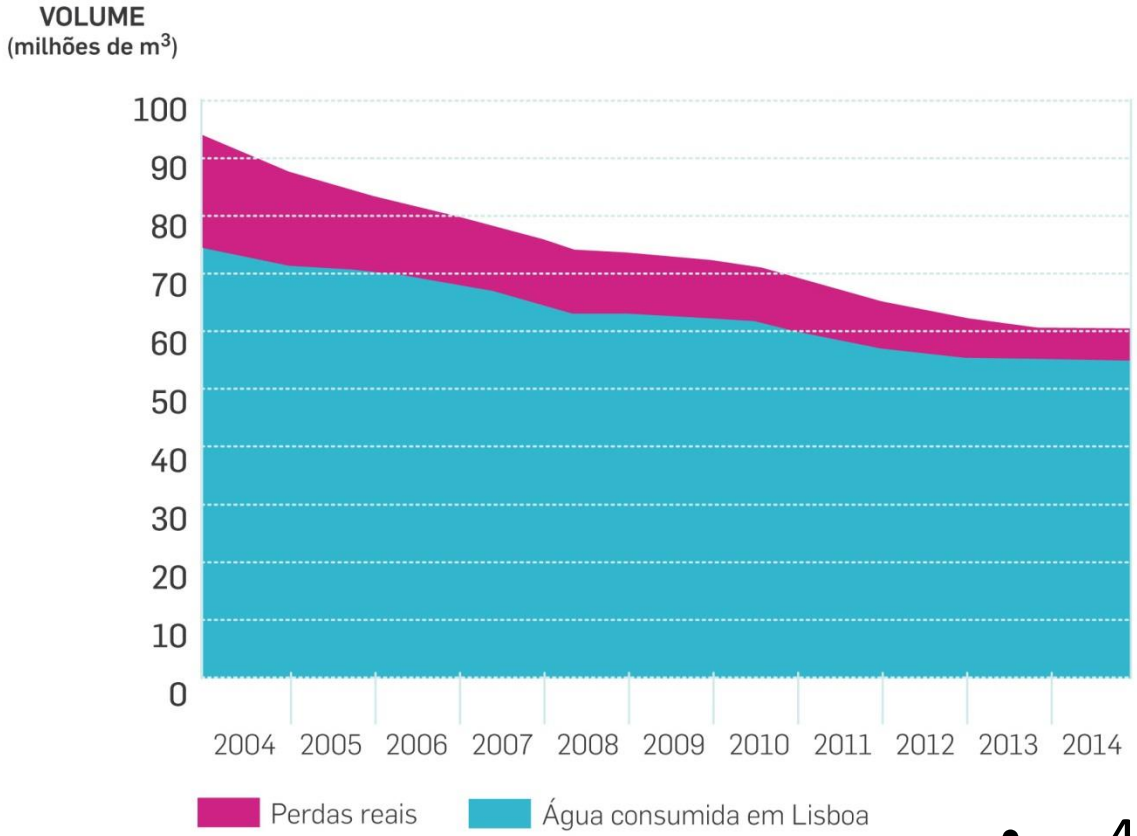
Implementation of simple measures

- Measure the consumption
- Network losses/leaks repairs
- Automatic irrigation
- Repair of infiltrations in lakes
- Control of the water level of lakes

Implementation of simple measures

- 16 locations

Global water consumption evolution



Highlights:

- - 44% of water consumption
- - 800,000 m3
- - 1,000,000 € savings

Looking to the future

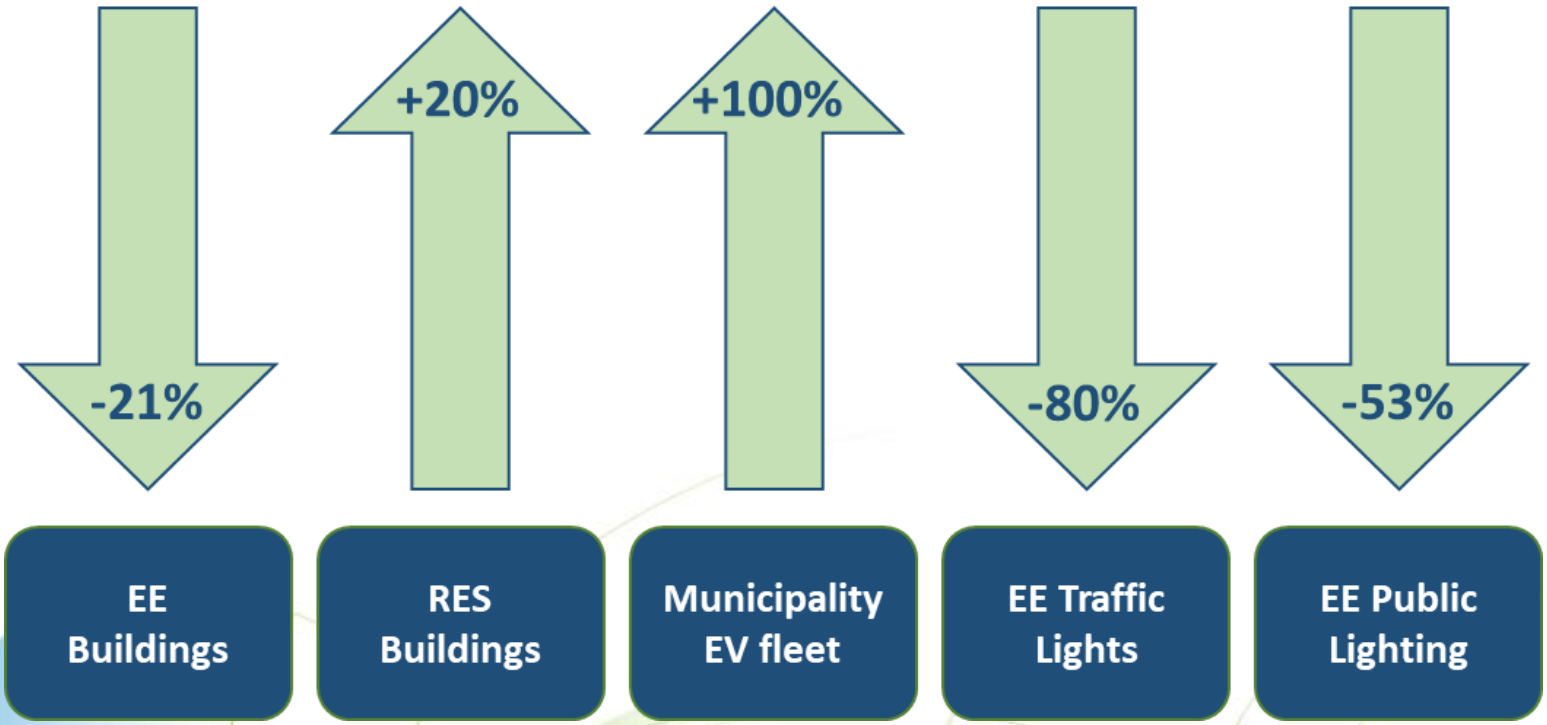
Sustainable Energy and Climate Action Plan

- Target of reducing CO2 emissions by 40% until 2030 was already met in 2014…

- -50% or 3.887 kton since 2002

More Ambicious Goals

- Short term targets in the Municipality (2020)



Thank you

Eduardo João Silva

eduardosilva@lisboaenova.org

LISBOA e·nova
AGÊNCIA DE ENERGIA E AMBIENTE DE LISBOA

LISBOA
CÂMARA MUNICIPAL