

Department of Environmental Sciences and Engineering

Low Emission Zone in Lisbon

CENSE - Center for Environmental and Sustainability Research
Sustainability engineering (SustE) - Air Quality



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Objectives

The city of Lisbon, like many others in the EU region, introduced a Low Emission Zone (LEZ) as a measure for improving air quality in its city centre. The first phase of Lisbon's LEZ (which started in July 2011) restricted all vehicles that didn't meet the EURO 1 Emission Standard (vehicles built before July 1992) in the city centre (zone 1), while in the second phase (from April 2012 onwards) the emissions standard required to access this area was incremented to EURO 2 (vehicles built after January 1996), while a new extended area of about 1/3 of the city was created, where vehicles that didn't comply with EURO 1 were banned (zone 2). In order to evaluate the effects of the measure, an estimation of the impact of the introduction of the Lisbon LEZ was performed.

Methodology

Real traffic counting data (collected by the GERTRUDE system, property of the Municipality of Lisbon) and fleet characterization (per vehicle type and EURO standard) combined with CORINAR-based emission inventory methodology allowed to estimate the impacts in PM₁₀ and NO₂ emissions, before and after the implementation of the second phase of Lisbon's LEZ. Also, the long-term analysis of the PM₁₀ and NO₂ data measured in the Air Quality Monitoring Station (AQMS) of Avenida da Liberdade, allowed for the evaluation of the trends for the period 2001-2013. For the evaluation of the future third phase of the LEZ, the same approach will be performed, updating the traffic and emissions scenarios, complemented with air quality data from an enlarged group of AQMS.

Expected Results

Establishing a LEZ is a politically difficult process, and needs the cooperation of a large number of institutions – national, regional and local. It is also a measure that faces powerful interests (like taxi associations and bus operators, which have a disproportionately high level of emissions) and the initial opposition from car users. However, in 2012 the average concentration of PM₁₀ in Avenida da Liberdade was reduced by 16% and of NO₂ by 6% compared with 2011, with preliminary monitoring results for 2013 point to even lower concentrations for PM₁₀ in this AQMS, almost guaranteeing full compliance with the Air Quality legislation. Further reductions are expected with the entrance into force of the third phase of the LEZ, with even more stringent standards (and no exemption for taxis and public transport) and the increase of public support

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