SOLUTIONS FACTSHEET 3.2
Low Emission Zones

IN BRIEF
The main objective of a Low Emission Zone (LEZ) is to reduce local air pollution by denying vehicles access to a certain area (e.g. the city centre) if they do not meet certain criteria, which are typically based on the levels of pollutants they emit.

The effectiveness of LEZs is dependant on effective control and enforcement, and remains difficult to prove or attribute to the LEZ alone.

LEZs may cause unintended distributional effects. For example, by targeting highly emitting vehicles, which lower-income residents tend to use by, or inducing people to drive around the zone, shifting emissions to there.

EXAMPLES
LEZs are widespread throughout Europe. They have been introduced in many cities, including London, many cities in Germany, Portugal, Italy and Greece.

LEZs differ in size and dimension, by the type of vehicles prohibited from entering, whether targeted vehicles are excluded or allowed with a fee, and by how they are controlled and enforced. The main types of control and enforcement for LEZs are video surveillance (as found in London) and ‘visual’ control by local police (in Germany).

RESULTS
The main environmental result of LEZs is an improvement in air quality in the exclusion zone. By restricting the entry of more-polluting vehicles into the zones, LEZs decrease emissions of air pollutants, particularly particulate matter (known as PM - the sum of all solid and liquid particles suspended in air) and nitrous oxides (NOx).

However, LEZs may also generate unintended consequences. For example, vehicles forced to drive around the zone might use more fuel, emit more greenhouse gases and air pollutants because their trips are longer. This can lead to higher pollution outside the zone, disproportionately affecting the residents of these areas.

The results also depend on the efficiency of the control and enforcement. However, an LEZ’s effectiveness is, for the most part, unproven due to the difficulty in attributing air-quality changes to them alone.

As vehicles forbidden to enter the LEZs are generally old, mainly belonging to people on lower incomes or small businesses/entrepreneurs, LEZs can disadvantage poorer residents and tradespeople. When implemented alone,

1 www.urbanaccessregulations.eu
aside from other measures on the use of vehicles (e.g. charging drivers to access roads), LEZs typically change only the types of vehicles entering rather than the number.

**TECHNICAL AND FINANCIAL CONSIDERATIONS**

From a technical point of view, when considering the implementation of a LEZ, municipalities need to consider the way in which the system is enforced. Possibilities include camera-based (investment heavy, e.g. London), manual visual inspection (person-power heavy, e.g. German cities) or other technologies, depending on existing local conditions and requirements (e.g. RFID transponders).

The costs of LEZs depend on the type of control and the cost of changing the transport system to correspond to the new regulations, such as upgrading municipal fleets to meet the new requirements (service fleets and buses). In addition, signage and publicity must inform the public of the LEZ and its boundaries.

For LEZs to be most effective, cities should provide road users with alternative means of transport. This might require the provision of better walking, cycling and public transport infrastructure and/or increasing public transport operating times and frequencies.

Lower-income residents or businesses may need financial assistance to assist them in upgrading their vehicles or using alternative modes of transport.

**POLICY/LEGISLATION**

In Europe, many cities implement LEZs because they are in violation of the air quality standards set out in the European Union’s Air Quality Directive (96/62/EG).

Fundamentally, the law governing which types of vehicle may use which roads when must be changed. This may be possible within the municipal remit, or alternatively, regional, state or national level. In addition, local authorities may need to allocate land for logistics centres, which may require changes to planning laws.

Furthermore, it may be most effective to centrally organise/facilitate logistical collaboration (e.g. in logistics centres) or new transport-market organisations (sub-contracting the final deliveries to well-equipped transport companies), which may need legislation.

**TRANSFERABILITY**

LEZs have been widely implemented in Europe and are present in over 250 cities and regions. The conditions for their introduction are particularly favourable in Asian cities, as they consistently show a high interest in reducing local emissions and in environmentally friendly transportation systems. However, as access restrictions have been implemented in many developing and emerging countries already, future activities in this area could focus on transferring experiences from Asia to Europe or integrating already existing schemes into a wider sustainable freight transport policy package.

A good overview of different kinds of LEZs is on the website of the EU-funded CLARS project.

**INSTITUTIONS**

The lead agency for implementing a LEZ is usually the municipality. National policy frameworks are important to provide municipalities or local governments with the authority to issue road traffic regulations.
CASE STUDY: LONDON'S LEZ

Context
The Greater London Low Emission Zone is the largest in Europe, spanning about 1,600 km². It corresponds more or less to the inside of London’s M25 motorway, which circles the city. The purpose of the LEZ is to improve air quality and the health of Londoners by substantially reducing pollution caused by road traffic.

What makes London’s LEZ stand out is its control system. Cameras take a photograph of vehicle plates and compare them immediately with a database supplied by the UK’s Driver and Vehicle Licensing Agency. Foreign vehicles must register with Transport for London, a process that can take up to 10 working days. Vehicles not meeting the criteria of the LEZ can enter the zone if they pay between £100 to £200 (€126 – €253) a day. If the charge is not paid, drivers must pay a fine - the amount of which depends on the type of vehicle and how soon the penalty is paid. For example, lorries must pay a penalty charge of £1,000 (€1,300), or £500 (€650) if paid within 14 days.

In action
In the first phase of the LEZ that started in February 2008, lorries weighing more than 12 tonnes had to meet Euro 3 standards to enter the zone. In July 2008 other vehicle types, including lorries and vans between 3.5 and 12 tonnes, had to meet the Euro 3 standard.

Since January 2012, all lorries must meet the Euro 4 standard. London is considering introducing an Ultra Low Emissions Zone (ULEZ) that will ban diesel vehicles to tackle harmful emissions further and to improve air quality in central London. The ULEZ will operate 24 hours a day, 7 days a week in the same area as the current central London congestion-charging zone (see SOLUTIONS Factsheet 3.10). The scheme will apply to cars and motorcycles as well as vans, minibuses and lorries.

Results
Due to the strict control, the compliance rate for heavy goods vehicles was 98% by the second half of 2008. Only a small number of vehicles, an average of 140 vehicles per week in 2009, chose to pay to enter the zone. Based on the profiles of vehicles entering the zone, the city estimates that the first two phases of the scheme reduced traffic that emitted PMs by 1.9%, lower than the previously projected 2.6%.

Besides its environmental impact on PM emissions, London’s LEZ also stimulated the evolution of the logistics sector by accelerating investments in new vehicles before 2008 and 2012 to comply with the regulations. Large companies upgraded their fleets to comply with the requirements and improved load-factors. Some smaller companies struggled with investments in new vehicles and had to redirect the business to routes outside the LEZ.
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