

Guideline LOW EMISSION ZONES



Low Emission Zones (LEZ) are areas requiring emission standards for vehicles and prohibit vehicles not fulfilling these standards from entering. Some LEZs might only cover certain vehicle classes (HGVs, LGVs), others cover all vehicles entering the zone. They facilitate retrofitting of high emitting vehicles and a change in the vehicle fleet.

The first LEZ was introduced in Stockholm in 1996. Since then, many European countries have applied this powerful tool and today there are 225 active or planned LEZs in Europe. The reduction potential of LEZs is documented by various studies. Their impact varies greatly, depending on the design of the zone, a couple of parameters and crucially also its enforcement. In this paper we show a number of facts about LEZs and the most important things to know.

Requirements

A low emission zone sets minimum emission standards, thus it excludes more polluting cars from the city. If the requirements are sufficiently stricter than the average emission level of the local vehicle fleet, the scheme will trigger accelerated fleet transformation (incl. retrofitting) and thus reduce emissions. If the standards are not ambitious enough, the vehicle fleet will not experience the desired change.



Size

If a LEZ is too small it will be circumvented and its effect will be reduced. If it is sufficiently large, like the example of the City of Berlin proves, it will also change the vehicle fleet in the surrounding areas. It should at least be large enough not to cause increased traffic by vehicles driving around it.

Labelling

There needs to be a system to recognise the vehicles. For example, the German system works with emission stickers that reflect the EURO emission standards. The stickers cost an one-time fee of 5 Euros.

Phase in steps

The positive effect of strict LEZ requirements on air quality is documented. However, requiring strict standards without a phase-in possibly leaves citizens with not enough time to adjust. To avoid this to happen, the LEZ should be phased in step by step. Introduce EURO 2 and EURO 3 requirements as intermediary steps, based on the current vehicle fleet composition and the final targeted EURO standard. But it is obvious that only with only with strict requirements a LEZ delivers the desired improvements.

Retrofit subsidies

While retrofitting also increases the value of the vehicle, a large fraction of its benefits are environmental and health related. Retrofit

subsidies are a good solution to lessen the economic burden for the individual.

For example, Germany has introduced subsidies for filter retrofitting. Until 2013, retrofitting was supported with 330 Euros, since 2013 the subsidy was 260 Euros per vehicle. By 2012, Germany has already subsidised 670,000 retrofits (2/2012).

It is also possible to finance retrofit programs for trucks or other vehicles, as different national programs show.

Exemptions

Exemptions have a good and a bad effect. Exemptions can include: Emergency and health transport vehicles, fire brigade vehicles, or vehicles of disabled people. They also may include small utility or transport vehicles, where extreme economic hardships put the owner in a difficult position to comply with the requirements.

Generally, exemptions should be temporary and phased out at some point. That is because every exemption renders the LEZ less effective. In the case of Berlin, virtually all exemptions were phased out in 2013.

Control and enforcement

While setting prohibitive penalties for violation of the LEZ is important, even more crucial is controlling the compliance with it

When it comes to fines, they need to be high enough as to provide a working incentive

Air pollution & Health

In 2010, more than 400,000 people died prematurely in the EU due to air pollution. That makes air pollution the main environmental cause for shortened lives in the EU. The resulting health problems cost society estimated 330-940 billion Euro per year. Over 90% of the urban population in the EU is exposed to concentrations higher than the limit values recommended by the World Health Organisation (WHO). Among the most important pollutants are black carbon (BC), which is a part of particulate matter (PM), Nitrogen Dioxide (NO₂) and ozone (O₃)



for vehicles drivers not to violate the scheme. The classic version is a monetary penalty but it is possible to also use other measures, like points in a violation database.

Controls are vital, if one wants to have a working and effective measure. They need to take place both in moving and standing transport. In German examples the majority of violations were detected and fined in parking vehicles.

National Requirements

Provisions in national legislation are required to allow cities to introduce LEZs. In several countries, NGOs are currently pressing national governments to introduce these, or have already succeeded in doing so.

Communication

Like with every other major or minor scheme, properly communicating the scheme and its advantages is the road to success. Not only does it help educating about why this measure is absolutely necessary for the city, it does also create acceptance for it. Furthermore, an early and intensive communication speeds up the improvement of the vehicle fleet.

An on-going positive communication campaign does also document the improvements for the citizens, who often would not notice any visible changes by the LEZ, except perhaps for another sticker on the windshield.

Last but not least, cities are advised to include industry and commerce associations into the process. As experience shows, these stakeholders might be the most critical to the measure.

Costs of a LEZ

For balancing Pros and Cons for a LEZ knowing the costs is absolutely necessary. The experience with existing examples suggests that while there are costs attached to setting up and maintaining a LEZ, it does, if set up appropriately, pay for itself.

The implementation costs consist mainly of the costs for setting up the signs at the outer boundaries of the zone. A German comparison of these costs estimates these to be somewhat between 30,000 and 130,000 EURO, mainly depending on the size of the zone.

Second and most important are the personnel costs related to handling the exemptions of the LEZ. Examples from the same German comparison showed that these personnel costs peaked as high as 900,000 EURO during the introduction of the zone.

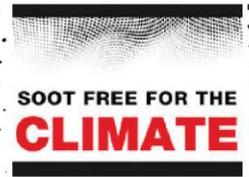
Important to highlight is:

Several municipalities agreed, that, given a appropriate conception of fees for the exemptions, the costs of the LEZ scheme can be completely covered by the revenues of the exemption fees.

Additional costs have to be planned in for the analysis of the LEZ scheme, which truly have to be planned into costs of every other scheme to determine its effectiveness. Additional revenues arise from the penalties for violations of the scheme.

Costs for vehicle owners

First of all there are possibly the costs for the emission labels. For vehicles that fulfil the requirements, that's it. For vehicles that are not fulfilling the requirements of the LEZ, their owners possibly face the costs of retrofitting.



These range from a couple of hundreds to a few thousand EUROS, depending on whether it's a regular car, LGV or HGV. If the filter system should not only filter particles, but also NO_x, then the costs are somewhat higher.

National retrofit subsidy programmes can help the vehicle owners in financing the retrofit. Road taxation systems that allow for toll reductions based on emission levels of vehicles are a further financial support to retrofits. Such systems help levitating the economic burden for single vehicle owners, whose investment first and foremost helps reducing societal costs.

Next Steps

Low Emission Zones function as facilitator of change. It is possible to extend the list of targeted emission sources beyond road vehicles. Why not also include construction machinery? Why not include busses, rail vehicles or ships, depending on the source the city wants to regulate? Given the necessary national provisions, cities can use the LEZ to address widely different sources. In many cases, busses, construction machinery, or ships still remain high emitting sources, consequently they should quickly be included in the LEZ.

Is a LEZ enough?

While a LEZ has considerable advantages, it is not a single cure for air quality problems. To take its effect to another level, such a relatively technical measure is ideally combined with measures that simultaneously foster more sustainable modes of transport. In order to reduce air pollution in inner cities below EU standards, or even more stringed WHO recommendations, cities need to reshape transport patterns in such a way that motorized transport as a whole is reduced in favour of public transport, walking and cycling. Additionally, strategically combining measures such as LEZs with communication campaigns and the promotion of sustainable transport modes does increase acceptance.



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ABOUT US

Clean Air is a project by nine European environmental organisations that fight for clean air in European cities. Despite the existing legislative framework and the citizens' right to clean air, continuing violations of air pollution limits remain a problem in many cities. Air pollution threatens health, environment and climate. It's time to take action!

www.cleanair-europe.org

Started in 2009, the associated campaign "Sootfree for the Climate" aims to reduce diesel soot emissions, which accelerate climate change and pose a threat to public health. To this day twelve European NGOs have joined the campaign.

www.sootfreeclimate.org

a project by



project coordination

co-financed by the EU's LIFE financial instrument



associated campaign

