

## Contribution of lifts to the reduction of greenhouse gas emissions: a legal framework

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### *Background*

The **United Nations Framework Convention on Climate Change** (UNFCCC), adopted in 1992, is an international environmental treaty with the objective to "stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic [i.e., human-induced] interference with the climate system".

The framework does not have any enforcement mechanisms: it outlines the potential "protocols" or "agreements" that may be negotiated to prevent dangerous human-induced interference with the climate system. Examples of such agreements include the Kyoto Protocol and Paris Agreement.

The central aim of the **Kyoto Protocol** is: "to reduce greenhouse gas emissions, based on the fact that (a) global warming exists and (b) human-made CO<sub>2</sub> emissions have caused it". This Protocol proves to be a "small but essential first step towards stabilising atmospheric concentrations of greenhouse gases".

The **Paris Agreement** deals with greenhouse gas emissions mitigation, adaptation, and finance mechanisms. The central goal of the Paris Agreement is to strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius.

### *Contribution of the building sector and lifts*

The building sector is one of the major sources of greenhouse gas emissions contributing to climate change. The sector heavily uses raw materials, chemical processes, energy and equipment, thereby contributing to almost 40% of greenhouse gas emissions.

In Europe, there are suitable directives that steer the improvement process for the various products affecting the amount of greenhouse gases

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emissions: for the building sector, these are summarised in the **Energy Performance of Buildings Directive 2010/31/EU (EPBD)**. This directive specifies the need to take into account most of the building elements, from those that form part of the building envelope and that have a significant impact on the energy performance of the latter, to the technical building systems necessary for the operation of each building: the amount of such energy needs is leading to the classification of the buildings based on their yearly energy performance.

In the past years, we experienced a rapid and steady improvement in all the services explicitly covered by the EPBD directive, which apparently does not include specific indications concerning in general the impact of the energy performance of lifts. But the target of “**nearly zero-energy buildings**” set out in the EPBD implies the need, for the member states, to eventually take into account also the yearly energy required, for the operation of lifts and their like, in the buildings of the tertiary sector.

Recently, indications concerning a supposed energy performance of lifts started to be used to advertise specific lift products: why?

As a matter of fact, in the European market there are various proposals for the identification of the energy performance of lifts not limited to the actual energy requirement for servicing a specific building, but leading to a sort of classification based either on labelling or on environmental performance declarations (EPD), or even on life-cycle assessment (LCA). None of them has been acknowledged yet as officially suitable for all the possible lift solutions.

The reason behind it is that there are indeed other directives prescribing specific requirements for the classification of the energy performance of the products they cover. This classification is mandatory, but it is also limited only to those products listed under such directives.

For instance, the **Energy Labelling Directive 2010/30/EU**, which concerns products with high potential for energy saving, gives indications on how to apply labelling and to provide standard product information on the consumption of energy and other

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resources, by specific Implementing Labelling Regulations. Every three years, plans are run to evaluate those products not yet included under the Directive and determine a further list of new products to be implemented. Lifts have been taken into consideration a few times in these three-yearly plans, but have never been included in the approved list. Therefore, at the moment, this directive is not applicable to lifts.

There is also the Directive 2009/125/EC, the ErP directive, establishing a framework for the setting of **eco-design requirements for Energy-related Products**, for which it sets minimum energy efficiency standards and, similarly, every three years, a new list of candidates to be prepared and evaluated. For those products that, in turn, are included under the directive, specific regulations are also prepared and published, including the requirements for the relevant conformity assessment. Lifts had been considered also for being included under this directive but, until now, no decision has been taken.

There are some voluntary technical regulations too, such as the VDI 4707 which had proposed rules for identifying the energy performance of lifts in combination with the specific type of buildings and the relevant vertical traffic pattern. However, the conflicts with the standards ISO 25745 – 1 and ISO 25745 – 2 and the prescriptions of both the Energy Labelling Directive and the Eco-design Directive are hindering a wide implementation of such proposals. New proposals might indeed be expected to appear in the market because the attempt of favouring specific lift products by referring to their supposed energy performance (based on rules which, at the moment, cannot be objectively applicable to all the possible situations) is still perceived as a sort of must by the marketing people. The problem is that, since the European Commission, to raise awareness among consumers on the need to select more efficient products, started that extraordinary marketing operation based on multi-colour labels exposed in the sales areas of shopping malls or individual stores, advertising the more or less efficient "household white goods", the customers became intimately aware of the importance of

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selecting and using more efficient products both for the protection of the environment and for long-term personal savings. The success has been so evident that many marketing specialists are trying to copy such move, though there is no agreed evidence to justify their lifts performance declarations, except the fact that unfair competition could help them increase their sales in some markets.

Nevertheless, it is true that, in some important markets, there are widely used rating systems for buildings, such as Green Globes from Green Building Initiative (GBI) and BREEAM from Building Research Establishment (BRE) in the U.K.; Green Star from Green Building Council (GBCA) in Australia; Green Building Council (USGBC), Living Building Challenge from International Living Future Institute (ILFI), Passive House Institute (PHIUS) and LEED in the U.S.A – just to name a few and best known ones. The aspects of reducing operational and embodied energy of products, increasing renewable energy generation and green power have been incorporated in these rating systems, which appear to have a very important impact on the perceived value of the rated buildings, greatly affecting their economic valuations. Such rating systems nowadays consider also the impact of lifts to account credits for the classification of the building, very often in ways somehow far from the lifts actual level of energy performance. In many cases, the ratings tend to consider the lift environmental performance and need to access information concerning their whole Life Cycle.

Therefore, it would make sense to find an objective and reliable way to provide also that type of information, in addition to the necessary (and eventually mandatory by the EPBD) amount of yearly energy requirements for the operation of the lifts, in order to fulfil the requirements of those customers (builders, developers, renovators, restructurers, etc.) who are facing, in their markets, a very tough competition based on the classification of their buildings according to the ratings issued by such rating organisations.

We must acknowledge that the activity of the rating organisations, though very useful for pushing the improvement of the environmental performance of

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We should be afraid that a similar situation might also affect the similarly expanding activities for the voluntary rating of the environmental performance of lifts, in case this voluntary rating process is guided by existing and/or new organisations, which might be keen of setting, by themselves, both the rules and the fares for providing and assessing the required rating documents. It is extremely important that all the operators in the lift sector understand the importance of carefully analysing and objectively developing the guidelines for an agreed system which proves to be unbiased towards any of the possible different solutions, in order to provide a reliable and undisputable rating system, simple to be applied and flexible to include also future possible new applications. A lot of work has already been done by representatives of the large and small companies; different possible solutions have been and are still being considered, although none of them seems to comply with the requirements set out above. Considering the need to provide the information required for those applications for which the optimum rating of the buildings is the target, it appears that the solution leading to an **Environmental Product Declaration (EPD) for lifts**, or a similar deliverable, might be the correct answer, as long as the rules to be applied do not cause discrimination to any of the various products to be rated. Also the assessment of the results shall prove to be easy to be obtained, without unnecessary burden and waste of human and economic resources, burden and waste for which the bill would be paid by the customers. Probably a lot of work is still to be done but, if the final target is widely shared by all the parties involved, and the existing process is questioned and revised in those details which, at the moment, seem to cause some lack of agreement, a successful and happy end might be at reach within a very reasonable time.

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