

Decreasing the carbon footprint of KU Leuven staff mobility: How a Carbon Compensation Policy can support sustainable management

In December 2015, the international community adopted an agreement with global participation in Paris. During the climate conference, the private sector was more visible than ever before and announced commitments to decrease its carbon footprint. Cities increasingly recognize that deep emissions cuts needed to avert the impacts of climate change must happen within city boundaries. Numerous societal actors align to recognize their role and responsibility in the implementation of the Paris Agreement.

The **Young Researchers' Society for Sustainability (YouRSS)** at the KU Leuven desires to work at and for a university that recognizes its role and responsibility in supporting a transforming society that acknowledges planetary boundaries. Besides contributing to a knowledge base and providing societal stakeholders with tools and methods to find solutions for societal grand challenges, we call for leading by example. This implies that the KU Leuven implements the latest knowledge and methods to maintain its position as a leading university.

This proposal focuses on the sustainable management of staff mobility. **Transport of staff and students** accounts for **24 % of total KU Leuven carbon emissions**. Staff mobility accounts for half of these emissions:[1]

Table 1: Carbon emissions by staff with different transport modes at KU Leuven

Commuting by car	9 390
Foreign travel by plane	6 340
Foreign staff residence-Leuven by plane	4 131
Commuting train	1 502
Work-related travel by own car	935
TOTAL	22 298

KU Leuven is promoting sustainable transport of staff for short distances: 2WD bikes, Blue-bikes, close collaboration with De Lijn and NMBS, etc. However, international transport of KU Leuven staff is currently only discouraged implicitly by providing video-conference tools. We are convinced that active and explicit incentives are needed to decrease emissions of transport of staff. These should be supported by coherent policy and an awareness campaign. **Staff mobility by airplane** is by far the easiest and most obvious starting point because:

- Data availability: there is already an obligatory information of carbon emissions on each flight.
- Easy administration: data is centralized at OMNIA.
- Obligation to book with OMNIA, so measures are difficult to circumvent.
- Rationalizing airplane use saves the University costs, time and has a large impact on emission reductions.

Towards rationalized flying

As academics, flying cannot always be avoided and therefore measures should be taken with care. However, flying is often not the most optimal mode to carry out research and educational tasks. For example, jurying a PhD defence in the United States takes a few hours, but the whole trip will require three business days. Thus, **financial, temporal and climate costs should be weighed against the added benefit of a flight**. This can be done by rationalizing flying behaviour. A strategy to achieve this would follow two tracks:

- (i) Incentivising staff to seek for alternatives to flying, by providing such alternatives and by increasing awareness.
- (ii) Correcting the price signal of flying by internalizing the social costs of carbon.

1) Alternatives for flying

A sustainable mobility policy will only be effective when alternatives exist. Video-conferencing tools are already in place but should be centrally managed by Technical Services. Additional investments are needed in order to make sure sufficient rooms (both large and small) with equipment are available. Trainings can be organized, and staff for technical support should be present on-site. These investments are easily recovered by saving on flights. Moreover, **video-conferencing tools will not only replace international flying but also promote multicampus and interuniversity cooperation** at KU Leuven.

For short trips and flight connections (e.g. to Schiphol), the standard travel mode proposed should be the train. This is often also the fastest mode.

An awareness campaign will be necessary to facilitate the transition to a sustainable mobility policy. A website should contain all the necessary information for staff to easily find the best mode to suit their needs. The **annual carbon emissions per staff member** could be communicated, and compared to the University average (similar to the PaperCut system for printing) [2].

Finally, individual departments should be encouraged to pursue more ambitious policy and can serve as a best practice example. **This is already happening today**. The CEDON group at the Faculty of Economics and Business (KU Leuven, Brussels) opts for train travel for distances < 500 km. Carbon emissions due to flying are compensated via a CO₂ compensation programme of the airline company. The use of taxis is avoided and airport shuttles are taken instead. The FORECOMAN group at the Faculty of Bioscience Engineering (KU Leuven) employs an internal carbon compensation scheme for flights. Its revenues are used for research that leads to CO₂ reduction emissions in Ethiopia.

2) A correct price

One of the main reasons flying behaviour is irrational is its low cost. Since externalities are not taken into account, flying is too cheap which reduces the **incentive to seek for alternatives**. By internalizing the social cost of carbon, the price of flying will be more correct.

We propose to install a price correction levied on CO₂ emissions [3]. Although the exact level of this correction should be further discussed, we emphasize that this discussion must focus on its desired effect on behaviour. For example, the social cost of carbon is set at \$37/t in the US [4]

and £59/t in the UK [5], although recent estimates go as high as \$220/t [6]. Certainly the carbon price should be high enough to achieve an effect on behaviour. The carbon price in the European ETS system is currently around €6/t, which is too low [7]. For short-haul flights (within EU), a uniform fee on each flight is more effective [8] (e.g. €12.5 in Gothenburg [9]).

If a carbon price is installed, revenues can be collected. We propose to collect the revenues in an **internal KU Leuven Climate Fund**. This way, KU Leuven maintains agency and the operation is revenue-neutral for the University [10]. We argue that by reducing redundant flying and keeping the revenues internal, the overall operation will actually result in net savings for the University.

The largest pitfall of a carbon price is that it puts small and less affluent research groups at a disadvantage [11]. This can be easily resolved by redistributing the revenues each year. This way, less-than-average flyers become net receivers and more-than-average flyers become net payers. Alternative implementations could make use of an annual carbon budget per person or a so-called 'flycatcher tax'. The fairest and most effective implementation is to be decided after open debate.

The revenues collected in the internal KU Leuven Climate Fund could also be used to support sustainable and cutting-edge initiatives within the University, which might otherwise not get funding. A bottom-up principle would be applied: anyone can apply for funding of sustainable research projects. At a carbon price of €40/t, the fund would receive at least $40 \times 6340 = €253,600$ per year, expected to decrease when airplane transport decreases [12]. This modest sum is already enough to promote unconventional initiatives and to improve the image of KU Leuven towards future students, other institutions, *etc.*

Sustainable leadership in an international context

This proposal does not come out of a vacuum. First movers such as the University of Gothenburg, University of Stockholm, Yale University, the University of Rotterdam and Potsdam Institut für Klimaforschung have already installed a sustainable mobility policy. Yale, for example, installed a carbon tax of \$40/t [13]. In a number of those universities and also in academic networks, bottom-up initiatives are lobbying for and developing sustainable mobility policies and codes of conduct. Examples are the FORECOMAN and CEDON groups at KU Leuven, the University of Ghent, University of Antwerp [14], Uppsala University, the university of Groningen, Cornell University and the INOGOV Early Career Network. At the Flemish level, the Departement Leefmilieu Natuur & Energie (LNE) initiated a pilot 'Internationalisation and Sustainability' that brings together staff from different universities to discuss sustainability challenges related to internationalisation.

[1] https://www.kuleuven.be/metaforum/docs/pdf/wg_23_n-1.pdf

[2] The same concept is used in the Tyndall Travel Tracker app. (<http://www.futureearth.org/blog/2016-jan-19/tyndall-travel-tracker-cumulatively-changing-our-travel-behavior-one-flight-time>)

[3] http://www.worldbank.org/content/dam/Worldbank/document/SDN/background-note_carbon-tax.pdf

[4] <https://www.whitehouse.gov/sites/default/files/omb/assets/inforeg/technical-update-social-cost-of-carbon-for-regulator-impact-analysis.pdf>

[5] <http://www.forestry.gov.uk/fr/inf-d-7wtdju>

[6] <http://dx.doi.org/10.1038/nclimate2481>

[7] A return flight Brussels-New York emits 1.72 tonnes of CO₂ per person. This would translate in an additional cost of 68.8 € (at €40/t). At the ETS price, the extra cost would be only ~ 10.3 €.

[8] A round-trip flight to Amsterdam emits 0.05 tonnes of CO₂ per person and would cause an additional cost of only 2 €, which has little impact on behaviour.

[9] http://medarbetarportalen.gu.se/digitalAssets/1587/1587006_beslut-gu-interna-klimatfond-2016.pdf

[10] Aiming for real compensation of the emitted CO₂ is very hard to achieve as it requires extra administration and follow-up. CO₂ compensation tackles the effects rather than the causes. Moreover, compensating CO₂ emissions by internal measures is not cost-optimal. We argue that the task of the University is not to achieve real compensation on the short term, but long-term sustainability.

[11] An additional issue in this respect is invoicing. An internal carbon price cannot be paid for with project money, so reserves will have to be used for this.

[12] If a fixed fee is levied on EU flights, the revenues will be higher.

[13] <http://carbon.yale.edu/sites/default/files/files/Carbon-charge-report-041015.pdf>

[14] http://www.uantwerpen.be/popup/kalenderonderdeel.aspx?calitem_id=4479&c=LANDP38&n=101002
