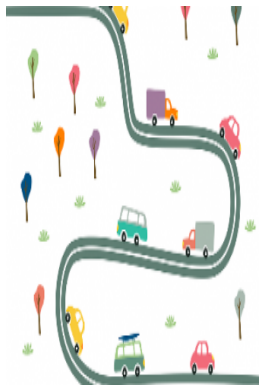


## 1. Projects



# Towards a local experiment in travel-based carbon rationing

Finished research

Begin: December 2021

End: September 2022

At a time of increasing calls for energy sobriety, the Mobile Lives Forum proposes to reflect on real solutions that are both fair and effective, to collectively reduce our emissions and implement a new mobility system that is less dependent on fossil fuels. Carbon rationing, which initially seems radical but is becoming increasingly topical, is worth examining in this respect. Inspired by the pioneering initiative in Lahti, Finland, a team of students in the Energy MA program (Paris Cité University) is examining the possibility of conducting a local experiment in carbon rationing for travel.

Research participants

- Arnaud Passalacqua
- Master Energie Université de Paris

The Mobile Lives Forum is exploring the idea of using carbon rationing as an alternative to a carbon tax. Taxation is criticized as being unfair, as it weighs more heavily on the poorest households, while also being inefficient as it has little effect on the lifestyles of the richest, even though they are the biggest emitters of CO<sub>2</sub>. Rationing would have at least two advantages over taxation: setting a national cap on CO<sub>2</sub> emissions and giving each French person the right to emit the same amount of CO<sub>2</sub>, regardless of their financial situation.

In 2020-2021, a team of six students in the Energy MA program, supervised by engineer and transport historian Arnaud Passalacqua, worked on a proposed plan to implement a nationwide carbon rationing scheme. This work allowed us to answer three initial questions: does such a rationing system seem possible, fair and desirable, within the

limits of certain pre-designated parameters? The Mobile Lives Forum also documented an experiment conducted in the Finish town of Lahti, where a carbon trading scheme was set up, providing each resident with a carbon budget for travel, which they managed via a mobile app. For 2021-2022, the Forum engaged a new multidisciplinary team of 8 students (engineers, political scientists,...) within the Energy MA degree to design a local carbon rationing experiment, to be applied to individual trips taken by volunteer participants within a given territory in France.

## **The results:**

The Mobile Lives Forum has drawn up 5 major recommendations based on the exploratory work carried out by the student group:

### **1/ Set up the simplest possible system, limited in time and incentivized**

- The scope: travel by internal combustion engine car and domestic flights
- Duration: a full year
- The tools: a mobile app and/or manual reporting
- Mobilizing volunteers: incentivized, collective and participatory
- Number of volunteers: 150 to 200 at the beginning, to secure a group of at least 100 active participants until the end of the project
- Assessment: quantitative and qualitative, by a team of social scientists, assisted by students

### **2/ Invest in communication and mobilization beforehand to guarantee the success of the experiment**

- An initial stage will aim to assemble local actors and stakeholders, who are ready to get involved and support the project. If applicable: local authorities, associations, social centers, schools, employers, etc.
- The mobilization of volunteers must be based on active and positive communication and/or on pre-existing networks (student-parent associations, local neighborhood residents, etc.) because collective dynamics work well in mobilization, as shown for example by the “family zero waste challenge”. <sup>1</sup>

### **3/ Meet all the conditions for a real change in practices, less focused on carbon-emitting travel**

- An interesting target could be people who use their car extensively, even though their daily lives are lived within a relatively small radius: 30% of the population carry out all of their activities (excluding social activities) within a 9 km radius (Mobility and Lifestyles Survey, 2020), while 60% of trips under 5 km are made by car (INSEE, 2019).
- Another solution is to draw up a diverse sample of the population in the chosen territory, in terms of mobility practices, job type, family situation, etc. in order to draw conclusions about the profiles with the greatest potential for change.
- The team recommends choosing a medium-sized city, as in these territories the distances traveled are the lowest, yet they are mostly done by car. The students highlight the importance of targeting a territory where public transport is free

(Dunkirk, Niort, etc.) to allow for a change in practices and compensate for rationing car travel.

- Involving public actors will be essential to enact measures that enable car-free mobility: for example, by making temporary adjustments to the public space (e.g. school streets dedicated to walking and cycling), providing electric bikes...

#### **4/ Involve the volunteers in designing the tools and materials for the experiment**

- The volunteers can collaborate in defining the experiment's parameters, targeted routes and goals, as well as the rules of the carbon measuring system, to correspond to their social characteristics and practices, and to involve them in the project.
- The quantities of CO2 involved could be translated by reference to specific, real journeys (for example a round trip by plane) or in points, to make the notion of a budget and trade-offs in terms of "carbon expenditure" clear.
- Several methods can be considered for measuring the volunteer's carbon emissions:
  1. digital (website, mobile app) or more "low tech" (manual monitoring via a logbook);
  2. in the case of a digital app, based on geolocation or on the voluntary reporting of trips.

#### **5/ Assess quantitatively and qualitatively the effects of rationing throughout the experiment**

- Prior to the experiment, the participants' mobility practices and carbon footprints will be recorded and measured, through qualitative interviews and quantitative measurements.
- Throughout the project, a team of researchers in human and social sciences will monitor the experiment, not only to measure the impact of rationing on emissions, but also to identify obstacles and levers to changing practices.
- The team stresses the need to provide volunteers with individualized support, in order to reduce the risk of them quitting the project and to offer adapted solutions to each situation.
- The assessment will have to bear in mind that the final goal is to contribute to an examination of the feasibility and the fairness of implementing an individual quota system, at a national or even European scale.

## **Conclusion**

This exploratory work confirms the value of testing a voluntary and collective carbon rationing scheme for travel at the local scale. From an operational standpoint, caution must be taken with regards to the costs linked to developing a digital app, given the relatively small number of users. To stick to a budget of approximately 200,000 euros, priority must be given to active support for participants who are changing their habits. It is worth remembering that the experiment in Lahti cost 1 million euros. The next stage of this project will be to reach out to local authorities and/or associations that are interested in implementing an experiment in their territory, on the basis of a pre-operational document (costs, schedule, time and skills, selected methods...).

## **Download (in French only)**

**[Download the presentation \(in French only\)](#)**

**[Download the full report \(in French only\)](#)**

## **Bibliography**

[France's National Low-Carbon Strategy: Can it work without slowing down?](#), Aurélien Bigo, June 2020

Mathilde Szuba, [Une carte carbone plutôt qu'une taxe carbone ?](#) [A carbon card rather than a carbon tax?], Socialter, June 2019

[Faire sa part ? Pouvoir et responsabilités des individus, des entreprises et de l'Etat face à l'urgence climatique](#) [Doing your part? The power and responsibilities of individuals, companies and the State in the face of the climate emergency], Carbone 4, June 2019

[Delphine Batho et François Ruffin veulent instaurer un quota de kilomètres en avion par personne et par an](#), [Capital](#), [Delphine Batho and François Ruffin want to introduce a yearly quota of plane kilometers per person], July 2017

Szuba Mathilde, Semal Luc, ["Rationnement volontaire contre 'abondance dévastatrice' : l'exemple des crags"](#), [Voluntary rationing against 'devastating abundance': the example of crags], Sociologies pratiques, 2010/1 (no. 20)

### **Notes**

1 <https://www.zerowastefrance.org/wp-content/uploads/2018/03/organiser-un-defi-familles-zero-dechet.pdf>

### **Mobilization**

Mobilization is the action by which individuals are called upon to gather in the public space for a concerted effort, be it to express or defend a common cause or to participate in an event. In this respect, it is a social phenomenon pertaining to mobility. This article has been written by Sylvie Landrière, Dominic Villeneuve, Vincent Kaufmann and Christophe Gay.

[En savoir plus](#) x

### **Mobility**

For the Mobile Lives Forum, mobility is understood as the process of how individuals travel across distances in order to deploy through time and space the activities that make up their lifestyles. These travel practices are embedded in socio-technical systems, produced by transport and communication industries and techniques, and by normative discourses on these practices, with considerable social, environmental and spatial impacts.

[En savoir plus](#) x

---

## Associated Thematics :

### Lifestyles

- [Diversity of lifestyles](#)

### Policies

- [Reducing inequalities](#)
  - [Ecological transition](#)
  - [Cities & Territories](#)
- 

### To cite this publication :

Arnaud Passalacqua et Master Energie Université de Paris (01 February 2022), « Towards a local experiment in travel-based carbon rationing », Préparer la transition mobilière. Consulté le 07 April 2025, URL: <https://forumviesmobiles.org/en/project/15436/towards-local-experiment-travel-based-carbon-rationing>

---

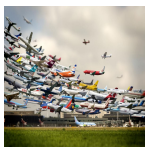
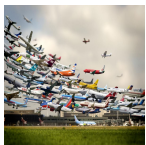


Projects by [Forum Vies Mobiles](#) are licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 3.0 France License](#).

Permissions beyond the scope of this license may be available at [contact](#).

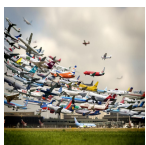
---

### Other publications



[Did Covid cause public transport to grind to a halt?](#)

Annelise Avril, David Henny



- 1 <https://forumviesmobiles.org/en/project/13515/rationing-carbon-emissions-travel-promising-alternative-carbon-tax>
- 2 <https://en.forumviesmobiles.org/project/2021/10/04/lahti-first-carbon-rationing-experiment-applied-local-journeys-13847>
- 3 <https://forumviesmobiles.org/en/new-voices/13345/frances-national-low-carbon-strategy-can-it-work-without-slowing-down>
- 4 <https://www.socialter.fr/article/carte-carbone-plutot-qu-une-taxe-un-quota-pour-chaque-citoyen-1>
- 5 <https://www.carbone4.com/wp-content/uploads/2019/06/Publication-Carbone-4-Faire-sa-part-pouvoir-responsabilite-climat.pdf>
- 6 <https://www.capital.fr/economie-politique/delphine-batho-et-francois-ruffin-veulent-instaurer-un-quota-de-kilometres-en-avion-par-personne-et-par-an-1374307>
- 7 <https://www.cairn-int.info/revue-sociologies-pratiques-2010-1-page-87.html>
- 8 <http://creativecommons.org/licenses/by-nc-sa/3.0/fr/>
- 9 <http://forumviesmobiles.org>
- 10 <http://creativecommons.org/licenses/by-nc-sa/3.0/fr/>
- 11 [http://fr.fvm.localhost/modal\\_forms/nojs/contact](http://fr.fvm.localhost/modal_forms/nojs/contact)