Project TwoPager | EuroTeQaThon III

PROJECT DETAILS

Challenge Collaborator: **Research Center Energy4Climate**

Team name: **Power-off**

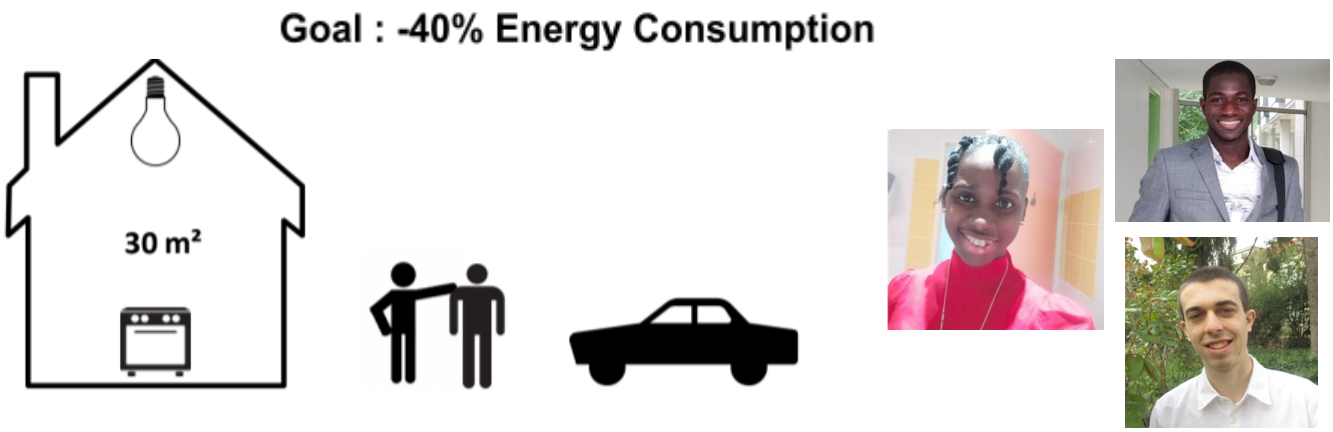
Team slogan: **Don't over-estimate what you can become in the short term, but don't under-estimate what you can become in the long term.**

Team members :

Blessing Akpan	Master in energy	École Polytechnique, France
Sylvain Mion	Engineering course	École Polytechnique, France
Alassane SANGARE	Engineering course	École Polytechnique, France

Target problem

Given an initial annual energy consumption value of a theoretical household (12800 kWh/year, car included), we first had to imagine an initial consumption profile (appliances and their power and frequency of use) that fits with it, then to suggest a way to **reduce by at least 40% the annual consumption**, and finally to imagine a ten-year transition to do it.
To solve it, we suggest **very original behavioral changes of habits** in all aspects of everyday life, that both **save energy and improve life quality** (e.g : stop being a coffee addict and drink water or juice instead to save the energy of the coffee machine). We then propose to **replace some appliances** by some others which are either more efficient (e.g. : replace a class F fridge by a class A one), either better dimensioned to the household needs, but always taking into account other **non-energetic criteria** (raw materials consumption, reusing and recycling, acceptability, feasibility…). We propose a gradual ten-year program to achieve it, that takes into account the **human natural reluctance to change**.



EuroTech Engineering University

Potential for impact

Our solution enables **more than 50% of energy savings** for a household in a France-like temperature pattern, so there is a huge potential environmental impact. And beyond the technical solutions suggested, the philosophy which we imagined and that drives them can be useful to households all over the world. Our solution has also been designed to be **accessible to almost every one**, since it mostly consists of behavioral changes, which need **very little budget**.
Economically, our solution will, for sure, also have an impact. For example, it will make the market for bikes grow and the market for coffee machines shrink !

Innovation

Most of the solutions we encounter today are based on an idea of sacrifice or on new technologies. But what we propose is different. It is a **new way of thinking**. We propose economical and mostly low-tech ways to change a habit for a better one in a way that your energy consumption will reduce AND your life quality will be improved.
Innovation is not only about technology. Changing the energy efficiency class of appliances is easy. In the past it has been said again and again. Inventing a new way of life that is not sacrificial is much more difficult, but also more sustainable. But we managed to do it, thanks to a lot of **imagination and organizational innovation.** Let's take an example : you can buy a more efficient freezer. But you can also live without one. But how to do it ? Our solution answers such a question.

Feasibility

Most of the solution consists in looking at our habits and being creative enough to change them in a socially, economically and environmentally good way. It doesn't require the help of a government or an industry. It requires **awareness, a bit of computing, some imagination and a very little budget**. It does not require a lot of investment or purchases. Most of the supplementary cost is covered by the money saved due to energy reduction and to the change of the appliances that are overpowerful in regard to the household needs.
The next steps with our project would be to apply our philosophy of energy saving to other topics such as **saving energy at work**. We have done a lot of computing concerning energy but we didn't do detailed computing concerning **raw materials or CO2** : it could be interesting to do this too.
As a further development of our project we would also like **to create a booklet** containing a fiction, inspired from our case-study household. The story we would tell would be based on the philosophy that drives our solution. What we want is to inspire a **new vision of energy savings** : we don't have a ready-made solution for you specifically but we know that you can have both a better and a less energy-consuming life. You can do as well as our case-study household, or even better !

Inclusivity

Among the jury of the challenge were **academic mentors**, but also an **industrial partner,** Vincent Maillard, the president of Octopus Energy, a British company specialized in helping households and firms to reduce their energy consumption. We took their points of view into account so that they were convinced by our project. Our solution has also been inspired from the **cultural diversity** of our team members and our day-to-day life regarding energy efficiency. Of course, in terms of behavior, we anticipated sociological aspects and reactions of potential users (**households** that would implement our solution), such as the human natural reluctance to change and the fear that changing of behavior might mean coming back to the Age of Stone : to deal with it, we designed a very gradual ten-year transition, and thought only of changes that lead to a **healthier** and **better life**. Our solution is both technically convincing and socially attractive.