



The CyloSPACE

AN ALTERNATIVE TO AN ELECTRIC CAR

Bernard Joseph explores a peddle and solar powered alternative to expensive electric cars

What's the best way to get from A to B in our post-carbon world? Well, it mainly depends on the distance between A and B, the time you have, the quantity of stuff you need to carry, your budget, how A and B are logistically linked (the type of roads, the topography etc.). You could also add parameters like who you want to travel with and the weather forecast ... Let's consider short distances up to 25km maximum.

I have always liked to use a bicycle wherever possible, both in cities, but also in rural regions, where I now live in Dordogne, France. Biking has many advantages in comparison with public transport, cars or motorbikes.

Firstly, a bike is a zero-carbon emission vehicle. You can also easily avoid traffic inside cities, you can ride almost everywhere, you are outside, and you stay fit.

On the other hand, you are subject to bad weather, and you can only carry a limited number of things, even though there is now very impressive carriage equipment.

In cities, biking is also faster than cars or buses. In rural areas it's often the opposite.

Another element to take into account is your level of fitness. But today, electric bikes reduce the effort required considerably.

I wanted a vehicle that can use electricity, but doesn't need to be plugged in to recharge and one that can move several passengers at once without being too affected by the weather.

There are several available options without pedals, like electric cars. But the manufacturing of an electric car, mainly the batteries, produces a lot of pollution, much more than the manufacturing of a petrol car.

The issue here is the weight of the vehicle, and possibly the speed (outside cities). An electric car weighs at least 5-10 times the weight of the passengers. An electric bike, only a third of the passenger weight, 15-30 times less.

It therefore requires much less energy to move, and you can use the cleanest energy on the planet, your body and muscles.

CycloSPACE

After a couple of years of research, I found several recumbent bikes with two or three wheels. Some have a roof but very few accommodate several passengers and bags. My search led me to the ELF, produced in the US; the Mö to be produced by Evovelo in Spain; and the CycloSPACE, already produced in small quantities in France for about 10 years. (The inventor was awarded the Inventor Lépine trophy in Paris.)

My first choice was the Mö, but the production was delayed several times and I became impatient. I contacted CycloSPACE and coincidentally a second-hand 4-seat vehicle had become available in the French Alps region.

After making a test on a similar vehicle close to Bordeaux (a couple of hours from where we live), I decided to acquire the second-hand one. We put it on a trailer, and brought it back to Dordogne.







This model is equipped with:

- 4 wheels
- 4 seats, only the front ones with pedals
- A 250W engine (Bafan type on the pedals) and front battery
- 2 Nexus 8-speed gear shifts
- A small trunk
- 4 solar lights for cycling at night
- 2 front disk wheels AVID BB7 Road
- 2 back roller brakes

It's all made of aluminium profiles and plates, and covered with a polycarbonate roof.

The first impression was that it was fun to ride on flat roads and down-hill. The 100lb vehicle with only 250W of electric power was very hard to move up hills, however, so I decided to make several adaptations:

1. More power: add a second electric engine (and battery) of 500W, with a total power of 750W.
2. Move the batteries to the back trunk.
3. Add soft solar panels on the roof to charge the batteries. (This had already been done on the model that we tried near Bordeaux.)
4. Optimise the position of the seat for more comfort while pedaling.



So far, I have only increased the power of the main engine. I still need to add the second electric engine, the soft solar panels (already bought), and to move the batteries.

After some short trips with two front passengers, up to 30km round trip in the quite hilly region of Dordogne, my thoughts are:

- It's a lot of fun to drive.
- People around us are very enthusiastic and ask many questions.
- It moves a bit faster than a bike on flat roads and downhill.
- It's still quite hard going uphill with the 500W engine. 750 Watts should help a lot.
- It's very quiet and aerodynamic.
- It will need a better headlight to clearly see the road at night.
- I really like the two gearshifts, each front passenger can adapt them to his/her own pace.
- On long distance, after 10km, we start to have different aching muscles than on a bike, probably because the position of the body is different. I believe that it can be improved with updated seats.
- We have a 4-seater, but use the two back seats to carry stuff. It's a bit challenging to carry four passengers going uphill. It probably needs a 1000W engine at least.
- On slippery/wet roads, sometimes the wheels lack traction going uphill.

Pricing

This vehicle is quite expensive in comparison to a car because it's built on a small-scale in a small workshop with no automation. Most of the parts are made in France, except the brakes and gearshifts. The cost for a vehicle with electric assistance and solar panels is about €7,500-8000, VAT included.

Conclusions

A lot of people depend on cars in the countryside. I think that on many short journeys – such as going to the market or local shops, driving the kids to the village school – could be made using a similar peddle powered vehicle. This would reduce air pollution, as cars have a much higher pollution emission rate on trips shorter than 5-10km, when the engine hasn't reached its optimum working temperature.

After the adaptations, my next step is to consider promoting and assembling the vehicle locally in Dordogne.

We also plan to take longer trips with it, travelling for a week and over a 300km distance.

Bernard Joseph is from Belgium. He holds a Master in BA, is a nutrition, holistic and lifestyle coach, who has moved away from capitalist business entrepreneurship to human permaculture and ethical cooperation through the association www.permasens.org. He has recently built his bioclimatic off-grid round wooden house in Dordogne.