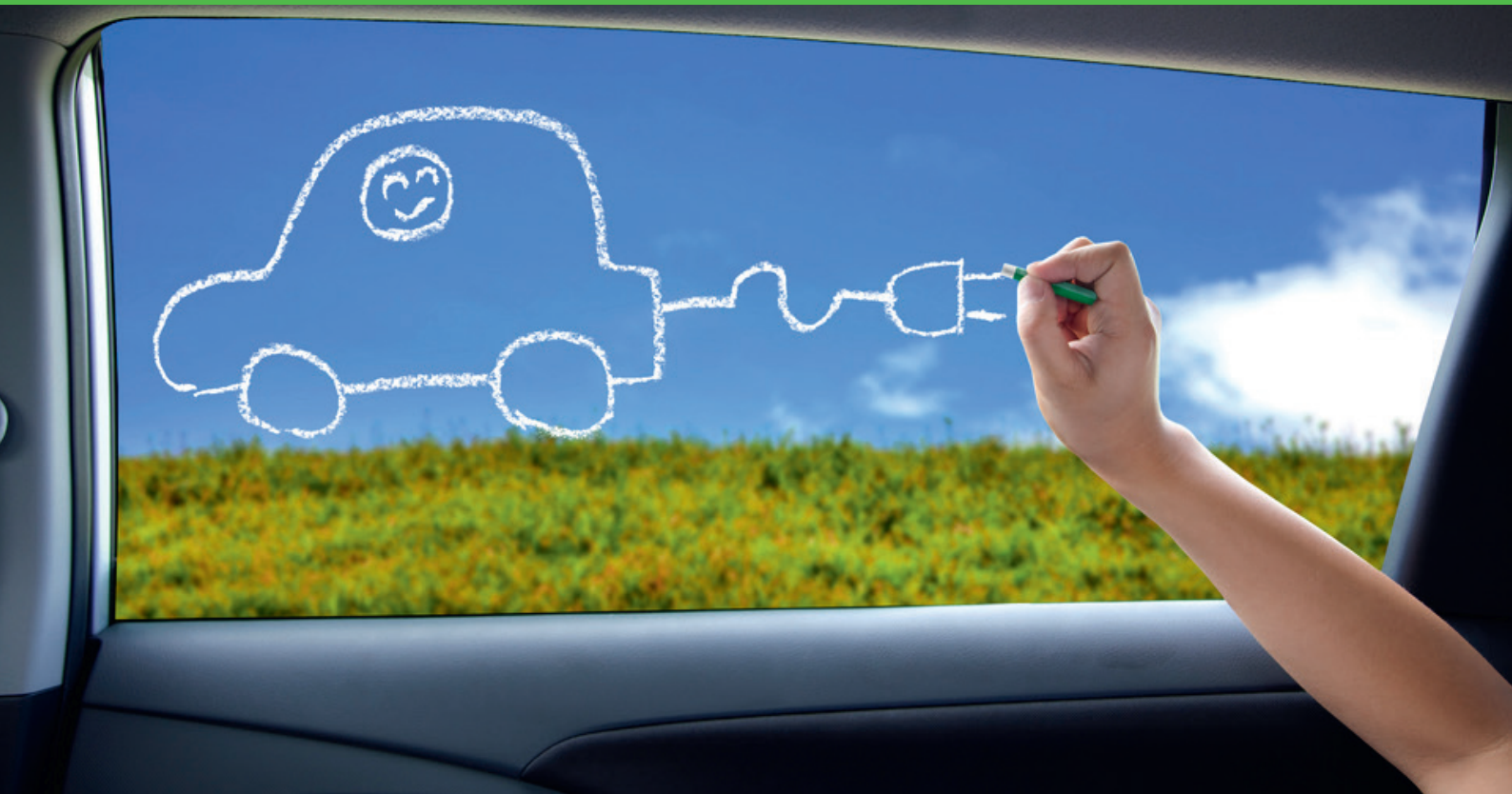


# Focus on



## THE RANGE OF ELECTRIC VEHICLES : A SUSTAINABILITY ISSUE?

By Serge Pelissier, senior researcher - AME Department · Ifsttar

**In 2016, according to an IPSOS1 study, nearly 60% of respondents considered the range of electric cars to be insufficient. 30% wanted to drive as far as with their current car, i.e. more than 500 km.**

**In response to this demand, car manufacturers are making increasing efforts. Renault recently managed to double the Zoe's range without increasing the weight of its battery. However, the desire to increase range at all costs can be environmentally counterproductive.**

### **A better rang ... at what cost?**

It takes more than 60 kg of lithium battery to replace a litre of petrol. To travel a greater distance, the battery therefore needs to be heavier, which increases the vehicle's energy consumption. This is a bad idea at a time when companies are seeking to reduce their environmental footprint.

Of course, manufacturers can reduce the weight of the battery. But even a lighter battery needs 24 hours to fully recharge on a 3 kilowatt (kW) «domestic» socket to travel 500 km. In response to this situation, fast and even ultra-fast charging stations are appearing with very high power demand in the order of 150 kW to 350 kW for a single car.

These can recharge a battery to 80% in a few hours or even 30 minutes.

This level of power corresponds to the electricity consumption of a district containing more than fifty homes. The simultaneous charging of a large number of vehicles could therefore disrupt the power grid. To prevent the charging of our cars from plunging thousands of people into darkness, we would therefore need to completely revamp our electricity production, protection and distribution facilities. The investments would be colossal, for very sporadic use. In this case, can we really talk about sustainable development?

## Electric vehicles: a new way of life

So why buy an electric vehicle, if it is not as convenient as our current cars? Because its strengths are undeniable, especially in urban areas. First of all, for society, because its use does not directly contribute to global warming. In addition, we all appreciate its very low pollutant and noise emissions and its lack of maintenance.

Finally, there is no need to plan a trip to a service station if we think we can recharge our car at home or at work.

Sustainable mobility is not just about the type of power. Above all, we must reinvent our mobility and develop alternatives to the private car.

The electric car, even with its current range, can be used for many of our journeys and play a full role within a mix of intermodal alternatives.

“Take advantage of the advent of the electric car and its many strengths to rethink our mobility”



Find out more

<http://www.smartgrids-cre.fr/index.php?p=vehicules-electriques-impact-reseaux>

<http://eduscol.education.fr/sti/articles/le-vehicule-electrique-dans-la-transition-ecologique-en-france>

<http://www.strategie.gouv.fr/publications/20172027-vehicule-propre-secours-climat-actions-critiques>

[http://wiki.lafabriquedesmobilites.fr/wiki/Communauté\\_autour\\_du\\_Véhicule\\_Electrique\\_-\\_sa\\_charge\\_et\\_les\\_réseaux](http://wiki.lafabriquedesmobilites.fr/wiki/Communauté_autour_du_Véhicule_Electrique_-_sa_charge_et_les_réseaux)



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