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# Coasting or Recuperating?

Dear Reader,

In an infographic from EnBW on the topic of recuperation, a car is driven uphill and empties its batteries doing so, yet after the subsequent and identically long downhill section, the battery is charged to a higher state than before: poetic license perhaps and, unfortunately, unrealistic, and yet still a topic to be given some thought. Recuperation is often propagated in elevators in high-rise buildings, but during operation more energy is needed than without recuperation due to the higher losses of an inverter capable of recuperation. In motor vehicles, the topic is technically demanding and a yield is also not 100 % certain.

Although cars brake very often, the efficiency of recuperation depends on both user behavior and topology. Since it may often be better to coast down a slight incline rather than recuperate, the use of this function for optimization requires continuous, active intervention on part of the user regarding the use of these two modes, as things stands today. This makes it totally unsuitable for the average tech-averse user. And because it can safely be assumed that, ultimately, it is the same for everyone and that no one is always in perfect control, then, for the sake of the environment, automation must be implemented to optimize (electric) vehicles: The vehicle must change modes on its own in terms of control technology. The topology and driving dynamics data are potentially available for this purpose. This path should be pursued alongside better internal electrical efficiencies in order to do better in real life: For example, the ADAC Ecotest delivers a value of 27.6 kWh per 100 km for a given vehicle and the WLTP

a value of 22 kWh, which represents a difference of 20 %. This delta alone provides a starting point for possible improvements.

Nota bene, the selected example of a vehicle with 294 kW of power is set at high level. If one wants to continue more consistently along the “green path,” as electric mobility is prone to be sold as, there might be another (bitter) pill to swallow: that of not making the same mistake as we did for TVs. We used to be content to sit in front of a (bad) 80 cm tube with a power consumption of 80 to 100 W, today we sit in front of a (good) LCD device, however with a 65-inch screen and 200 to 300 W power demand. Ascetism is admittedly not always nice, but at the end of the day, things should perhaps progress differently for a car with its average motor power of 116 kW (Statista, 2019).

Enjoy browsing through this issue.



**Robert Unseld**  
Responsible Editor

