

Jumbo electric vehicle has energy bragging rights at no charge

26 August 2019, by Nancy Cohen



Enticed car watchers see e-car designs that look like James Bond-like sleekmobiles ready for valet parking near some island casino. Meanwhile, what about the other world of heavy-duty trucks for mining and construction?

No way, have said skeptics, because battery needs made this idea impractical.

E&T explained that experts had been [debating](#) "whether the concept of battery-powered vehicles and heavy-load vehicles can go hand in hand."

Along comes an e-dumper, however, which "serves as an example that electric heavy-load vehicles do have their place."

Small wonder it has attracted media attention with claims hard to ignore, such as "The Biggest EV machine in the world!" "The machine does not burn any fuel!"

This newcomer with its 600 kilowatt-hour battery pack is an environmentally friendly mining truck. On the way up a hill, it gets loaded, and on the way down, delivers a very good benefit: It produces more energy than it actually spends. Wait for it: the

truck does not need charging.

A typical dump truck uses between 11,000 and 22,000 gallons of diesel fuel a year. That saves up to 196 metric tons of global-warming carbon-dioxide [gas](#) a year, said Eric Evarts in *Green Car Reports*.

Firstpost commented: "A fleet of such trucks, as employed by various coal mines, iron ore mines and quarries around the world, generates thousands of tonnes of CO2 every year."

Popular Mechanics also looked at the comparative numbers and wrote that "Kuhn Schweitz said that making the trip from quarry to cement factory 20 times in one day produces a [surplus](#) of 200 kilowatt-hours of energy (or 77 megawatt-hours per year). Your average dump truck, by contrast, uses between 11,000 and 22,000 gallons of diesel fuel each year."

A [video](#) was posted of the truck in action at a quarry in Switzerland, tasked to haul limestone. The video shows a truck in action to be loaded with limestone (which will be turned into cement).

[Anirudh](#) Regidi, *Firstpost*, gave readers more details: The Elektro Dumper is 30-feet long, 14-feet wide, 14-feet tall and weighs 45 tonnes when empty.

CNN described it as the "eDumper" being "a very different type of [beast](#)—110 tons heavy when fully loaded" and powered by a battery, making this a dump truck prototype gathering attention as the largest electric vehicle in the world.

This highly interesting truck inspired many comparisons by tech watchers, such as those from Regidi: "The tyres alone are taller than a human being and it costs as much as a small car." And, Regidi's description of the battery: "The all-electric beast is powered by a 4.4-tonne battery – about the

weight of a teenage elephant – with a capacity of 600 kWh. For reference, an average Indian home consumes 800 kWh a month."

E&T alongside numerous other sites reported on the "gigantic electric dumping truck" that now holds the crown as the world's largest electric vehicle.

Just how does the truck manage to keep the batteries going and generate electricity?

Anirudh Regidi, *Firstpost*: "Electric vehicles like a Tesla or the Elektro Dumper use something called regenerative braking to generate electricity and recharge their batteries. Normally, regenerative braking only helps extend range, not fully recharge a battery...The Elektro Dumper's source of seemingly 'unlimited' power is unique to its function."

As the loaded dumper comes down, he said, the vehicle only really needs to brake to avoid going very fast.

"Most of this braking regenerates electricity, and since the vehicle is so heavy, it generates a lot of electricity... which is stored in the batteries. After dumping its load, the much lighter Elektro goes back up the hill using the charge it gained while coming down, and because it's much lighter, it needs less power."

As discussed on the Kuhn-Grupper site, (the truck's manufacturer is Kuhn Schweitz), the site page made the point that "the e-dumper can also be operated as a plus-energy [vehicle](#). During its operation, CO2-free power is generated and the material mining and loading of the e-dumper is higher than the unloading. The ascent is therefore completed at a weight of 45 tonnes (empty weight), and the descent - fully loaded - at 110 tonnes. In total, more energy is generated during the descent than is required for ascent. CO2-free power is therefore generated as a secondary [product](#)."

CNN reported on the comments by the video presenter Lucas di Grassi, and what impressed him about the dumper's battery feature. "We had 75 tons of rocks and we went out of here with 90%, went all the way to the top," di Grassi told CNN

Sport. "We arrived with 80% battery, loaded up and on our way back, we recovered 8% so we came back with 88%—that's actually pretty cool."

E&T said that in a special report on electric vehicles by the Business, Energy and Industrial Strategy Committee late last year, recommendations were given to the UK government to set firm targets for low-emission commercial vehicles, including support for the development of low-carbon solutions for heavy, long-distance vehicles.

© 2019 Science X Network

APA citation: Jumbo electric vehicle has energy bragging rights at no charge (2019, August 26) retrieved 16 October 2021 from <https://techxplore.com/news/2019-08-jumbo-electric-vehicle-energy-bragging.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.