

RE: DNREC regulation proposed for EV cars

Boyer, Jeffrey A (DOS) <Jeffrey.Boyer@delaware.gov>
on behalf of
DGIC (MailBox Resources) <gic@delaware.gov>

Thu 4/27/2023 12:41 PM

To: HearingComments, DNREC (MailBox Resources) <DNRECHearingComments@delaware.gov>
Cc: nhltc@duck.com <nhltc@duck.com>

I'm forwarding your email to DNREC.

From: noreply@delaware.gov <noreply@delaware.gov>
Sent: Wednesday, April 26, 2023 3:39 PM
To: DGIC (MailBox Resources) <gic@delaware.gov>
Cc: nhltc@duck.com
Subject: DNREC regulation proposed for EV cars

Name: Mary Therese Kelly
Email address: nhltc@duck.com
Phone Number:

Comment / Question: EVs, do not have a tailpipe and a popular online carbon calculator shows it has a zero-carbon output. But that doesn't mean there isn't a carbon footprint. EVs, doesn't have a tailpipe and a popular online carbon calculator shows it has a zero-carbon output. But that doesn't mean there isn't a carbon footprint. For instance, coal is about the dirtiest way to generate electricity to recharge a car battery. Powering an EV with electricity generated from coal is marginally better than burning gasoline in an internal-combustion engine, according to numbers compiled by Jennifer Dunn at Northwestern University's Center for Engineering Sustainability and Resilience. Most North American grids are composed of a mix of generating sources, from coal to hydro to nuclear, though Canada has pledged to eliminate coal-burning plants by 2030. When that mix is taken into account, charging a car generally creates less than half the carbon emissions compared to gasoline, according to Dunn. It's only when electricity comes from clean, renewable sources like wind and solar that you see the most pronounced drop in EV emissions generated to power the car. Where does your battery come from? Before an electric vehicle even charges for the first time, however, one key part of its power system already has a significant carbon footprint. "One really important aspect of an EV to think about is its battery," explains Dunn. "For example, the material that helps power the battery is produced from a number of different metals, things like nickel and cobalt and lithium." As electric vehicles age, here's how the batteries are finding a second life EV rider: Harley-Davidson fans kick tires of new all-electric motorcycle Mining and processing the minerals, plus the battery manufacturing process, involve substantial emissions of carbon. Lithium mining, needed to build the lithium ion batteries at the heart of today's EVs, has also been connected to other kinds of environmental harm. There have been mass fish kills related to lithium mining in Tibet, for example. The freshwater supply is being consumed by mines in South America's lithium-rich region. Even in North America, where mining regulations are strict, harsh chemicals are used to extract the valuable metal. An aerial view of the brine pools and processing areas of the Rockwood lithium plant on the Atacama salt flat in northern Chile, the largest lithium deposit currently in production. (Ivan Alvarado/Reuters) Adding to the cumulative effects on the environment, lithium demand is expected to at least triple by 2025, pushing more exploration and extraction globally. Second life for lithium-ion batteries And all that extracted raw material — once the batteries are worn out — will land somewhere. It's something Andrew MacDonald at Maritime Autoparts in Debert, N.S., is thinking about. His facility recycles car parts and he says it's only a few more years before his industry will start seeing EVs and their lithium-ion batteries in the scrapyards. "As pure electric vehicles come onto the market, there's less wearable parts, so it's going to change what we sell," he says. Andrew MacDonald of Maritime Autoparts is expecting to start seeing lithium-ion batteries at his recycling facility within the next few years as electric vehicles age. Problem is, it's not clear what he should do with them. (Jill English/CBC) MacDonald adds that his company is already receiving nickel metal hydride batteries from early-model hybrids, and is figuring out what to do with them. "We do our own research, but it would be nice to have better partnerships with the OEMs [original equipment manufacturers] to understand exactly what we're dealing with, what are the best methods and procedures and policies in handling them," MacDonald says. "There's lots of stuff going on in the research labs around the world, trying to figure out

what to do with these things. But certainly there's a big potential for what you can do with them," he says. One of those research facilities is the U.K.'s Faraday Institution, and it's looking at ways to both reduce waste and extend the usefulness of all that lithium that's being mined. "There are going to be a lot of batteries that reach end of life. Out of those batteries, you're going to find very valuable applications in second life," says Gavin Harper, a Faraday Institution research fellow and the lead author of last month's paper on battery recycling, published in the journal Nature. Beyond powering cars, researchers are developing new applications for high-density lithium-ion batteries, as well as for cells when they're recycled from older cars. (Ben Nelms/CBC) He says if reuse is considered in the initial design, applications for batteries can be wide-ranging when their state of health — or charging capacity — is no longer adequate for an electric vehicle. "The best option companies are looking at is to remanufacture cells into new battery packs for electric vehicles," he says. That means taking apart the individual lithium-ion cells that make up an EV battery, removing the unhealthy ones, and reassembling them for continued EV-use. Beyond powering cars, there are other second-life applications being explored for lithium-ion cells, primarily rooted in energy grid and mobile energy storage, which can include acting as a power reserve for electric vehicle charging stations. "In the new energy economy, things go hand in hand," says Harper. Electric-vehicle charging network planned for N.L. in 2020 What on Earth? Whatever happened to the promise of hydrogen-powered cars? The challenge now is moving these kinds of applications beyond research labs and cottage industries. Harper says batteries aren't necessarily designed for disassembly right now, and to make it economically feasible when EVs start to see mass adoption, there's still work to be done. "We need to make sure we invest time and energy to find the right way of doing things, and solutions that are to scale of what's coming down the line," he says. Getting more out of batteries Whatever happened to the promise of hydrogen-powered cars? NO NO NO NO NO NO THIS LEGISLATION OR DIRECTIVE IS PUTTING THE CART BEFORE THE HORSE AND IT IS NOT WITHOUT GLOBAL CONSEQUENCES THAT ARE NOT GREEN. New California executive order requires that "by 2035, all new cars and passenger trucks sold in California be zero-emission vehicles." Existing vehicles that run on fossil fuel would be allowed to keep operating. Is this the death knell for the internal combustion engine? In a word: maybe. Zero emissions starting in 2035 — that's the talking point for California Gov. Gavin Newsom's controversial executive order from September 23, 2020. But as simple as that sounds, there are a lot of questions that need answering and hurdles to overcome. Using all the available information, we'll explain what the executive order means to consumers and the industry as a whole. What Does the Order Mean? Starting on January 1, 2035, the executive order would ban the sale of new vehicles that are powered by an internal combustion engine, which includes gasoline, diesel and hybrid electric vehicles.

This message was sent using the contact form on delaware.gov.