

[21-0159](#)

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Written testimony in favor of [21-0159](#) with amendments.

While we are generally supportive of zero emission vehicles, the current definition, according to California state law, includes hydrogen vehicles. We're wary of hydrogen vehicles because currently, 95% of hydrogen is produced from fracked natural gas which is a huge greenhouse gas emitter, which we're trying to curtail with this bill.

Because hydrogen isn't an energy source but a storage strategy that requires significant energy inputs, its application in any situation where electricity could be used directly fundamentally won't make sense no matter what progress is made because of entropy and the inherent losses in conversion. The wind and solar energy that might be used to generate clean hydrogen could directly be put to use powering electric cars, cutting out the energy-wasting middle steps, like conversion to hydrogen and back. So, while hard-to-electrify sectors still exist, or where other storage strategies aren't better, hydrogen could make sense there. Otherwise, we think it's best to avoid the losses and electrify directly.

For identifying hydrogen, there's a scale of 9 color codes. Green hydrogen is the only acceptable solution because Green hydrogen is produced through a water electrolysis process by employing renewable electricity and there is no carbon dioxide emission during the production process. Water electrolysis is a process which uses electricity to decompose water into hydrogen gas and oxygen.

And even if they used green hydrogen, it's still a bad idea because it's less efficient than simply using that wind and solar to power an electric vehicle instead of converting water to hydrogen and back, with major energy loss. Best to use electric vehicles and not hydrogen vehicles, and to get those electric vehicles powered by wind and solar.

To conclude, hydrogen buses or trucks (if available) should be permitted only if electric ones aren't an option -- and only with green hydrogen. Electric vehicles that are fueled by a wind and solar grid are the only true zero-emission vehicles.