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# Cars Weigh Too Much

Their weight-to-payload ratio is the worst since mahouts rode elephants

BY VACLAV SMIL

19 DEC 2014 | 3 MIN READ |

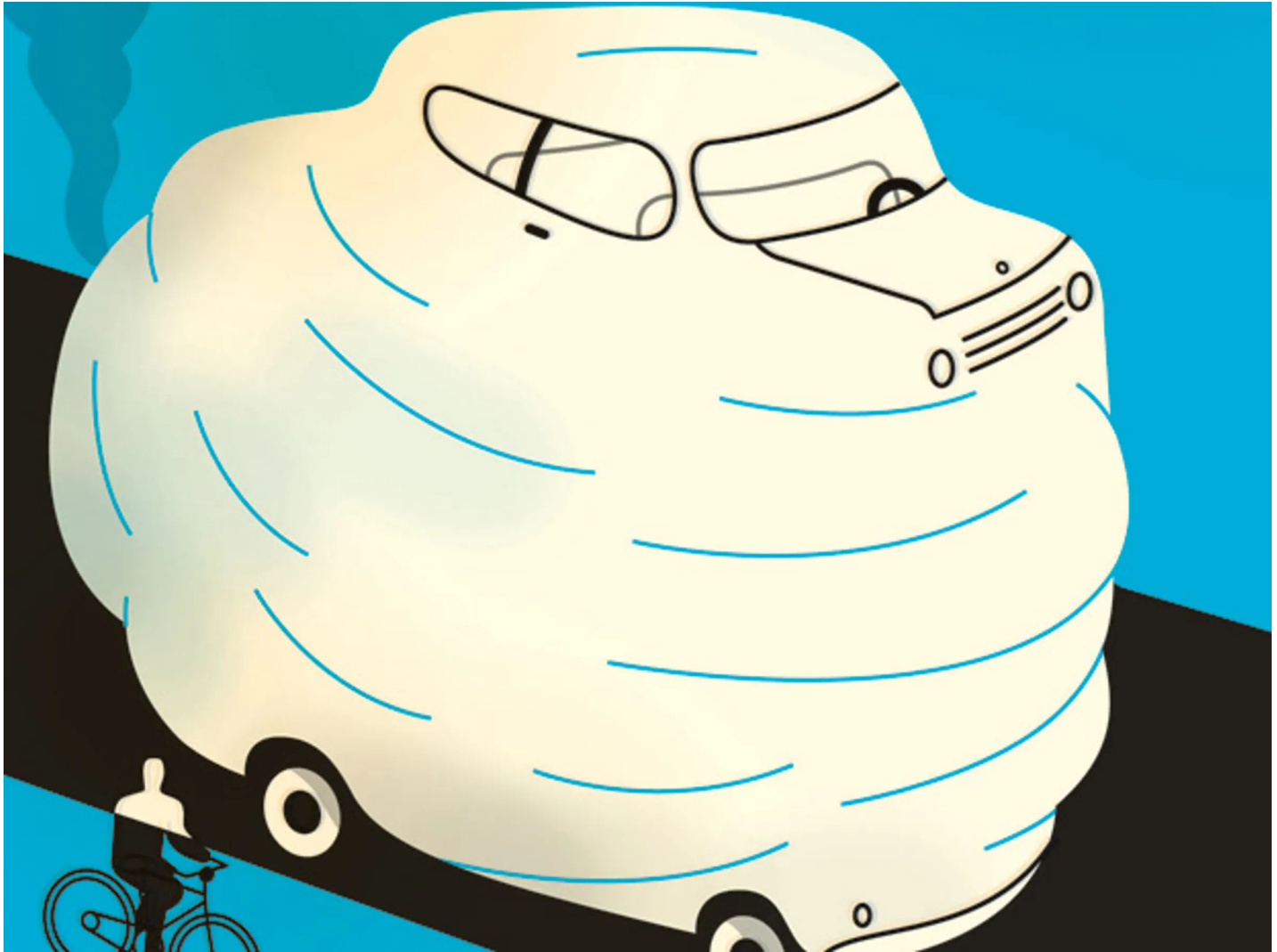


ILLUSTRATION: HARRY CAMPBELL



ILLUSTRATION: HARRY CAMPBELL

**A century ago the best-selling car** in the United States, Ford's Model T, wrung a watt from every 12 grams of its internal-combustion engine. Now, engines in best-selling American cars are getting a watt per gram—a 92 percent improvement. That is the one bit of happy news I am going to impart today.

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FEATURE ENERGY

# AUSTRALIA GOES ALL-IN ON GREEN HYDROGEN

Juggernaut or boondoggle—it’s too soon to tell

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BY PETER FAIRLEY

15 HOURS AGO | 7 MIN READ |



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The Sun Metals solar farm, completed in 2018, supplies electricity to a zinc refinery in Townsville, Qld., Australia. The AUS \$200 million, 120-hectare plant can supply 124 megawatts under ideal conditions. The plant is now owned by Ark Energy, a subsidiary of Korea Zinc, which also owns the adjacent refinery. By the end of 2023, Ark Energy plans to commission a fleet of fuel-cell trucks powered by green hydrogen to haul zinc concentrates and ingots between the refinery and a nearby port. ARK ENERGY

**For several months now, 20 teams of Australian high-school students have been designing fuel-cell cars to compete in the country's inaugural Hydrogen**

Grand Prix. They've been studying up on renewable energy, hydrogen power, and electric vehicles, preparing for the big day in April when their remote-controlled vehicles will rumble for 4 hours in Gladstone, a port city in Queensland. The task: make the most of a 30-watt fuel cell and 14 grams of hydrogen gas.

A few months later and some 800 kilometers up Queensland's coast, Grand Prix corporate cosponsor Ark Energy aims to apply the same basic hydrogen and fuel-cell components—albeit scaled up more than 3,500 times. By 2023's third quarter, Ark expects five of the world's largest fuel-cell trucks to be hauling concentrated zinc ore and finished ingots between a zinc refinery and the nearby port of Townsville. The carbon-free rigs will pack 50 kilos of hydrogen zapped from water using electricity from the refinery's dedicated solar power plant.

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