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## CAN WE ATTRACT A GREENER FUTURE WITH RARE-EARTH-FREE MAGNETS?



SUSTAINABILITY

### A new type of magnet eliminates the need for scarce and unsustainable rare earths

**Spotted:** Magnets made from rare earths have become ubiquitous in several high-performance technologies and products ranging from wind turbines and electric vehicles (EVs) to consumer electronics and robots. However, while rare earth elements are essential for critical infrastructure, [China](#) controls the bulk of the supply chain, making the magnets subject to geopolitical tensions.

Now, [Niron Magnetics](#) has developed a high-performance permanent magnet that is as strong as a rare earth magnet but does not use any rare earth elements. Instead, the company's Clean Earth Magnet is produced using abundant and easily recyclable materials (iron and nitrogen).

Not only do [Niron's](#) magnets exceed the performance of rare-earth-based magnets by up to [50 per cent](#), according to the company, but they also have a [75 per cent](#) lower overall environmental impact. Additionally, the Clean Earth Magnet is stable over a wide range of temperatures and, helped by the company's scalable manufacturing processes, can be produced at a lower cost than those made from rare earths.

[Niron's](#) magnets were recently selected as one of [TIME Magazine's Best Inventions of 2023](#), and [TIME](#) is not the only one excited by this technology. The company has forged commercial partnerships with companies like [Volvo Cars](#), [General Motors](#), [Tymphony](#), and [Western Digital](#).

Earlier this month, [Niron announced](#) an additional \$33 million (around €30.4 million) had been raised, from investors including [GM Ventures](#) and [Stellantis Ventures](#). This new financing will help the company scale its manufacturing capacity to support exclusive customer programmes and the first sales of its Clean Earth Magnet.

Written By: Lisa Magloff

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Email: [press@nironmagnetics.com](mailto:press@nironmagnetics.com)

Website: [nironmagnetics.com](https://nironmagnetics.com)

Contact: [nironmagnetics.com/contact-us](https://nironmagnetics.com/contact-us)

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### Takeaway:

Rare earth elements are not in fact rare but have earned the name because they are found combined with other elements, making them very expensive to mine, in processes that also produce vast amounts of [toxic waste](#). This is why relatively few sources provide most of the world's supply. In addition, although the elements themselves can be reused, recycling the magnets is a time-consuming and expensive process. Because of this, Niron's magnets could be a game changer – ensuring a cost-effective and sustainable supply. This is especially vital in the shift to net zero, as EVs and other green technologies rely heavily on rare earth magnets.