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5 big alt-energy letdowns: Ideas that sounded good but...

By [Katherine Harmon](#) in [60-Second Science Blog](#)

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As the call for a clean-energy savior—to wash away our fossil-fuel sins—grows louder, the number of questionable candidates swells. Should we be looking to photovoltaic or fusion? Turbines or tides? With thanks to readers who responded to our [Twitter](#) call for favorite alt-energy duds, here's a roundup of five ideas that may one day succeed, but aren't going to save the globe from a [climate calamity](#) anytime soon.

Zero-point energy

Some have posited that looking to the very small – as in quantum – might help solve the very big global energy need. According to quantum mechanics, a perfect vacuum actually contains a bit of energy, which can create particles that pop into existence out of nowhere before quickly disappearing again. Physicists have seen this [zero-point energy](#) in the form of the [Casimir effect](#) in which two closely spaced plates in a vacuum are pushed together ever so slightly by this energy. But one of the big problems would be capturing useful amounts of energy; after all, it takes at least as much energy to pull the plates apart again. Nevertheless, plenty of so-called "perpetual motion" devices using zero-point energy have been proposed, but careful analysis inevitably shows that such schemes violate at least one law of thermodynamics, and nothing concrete (or even too theoretically plausible) has materialized just yet.

Cold fusion

Also from the realm of the theoretically dubious, [cold fusion](#) (or low energy nuclear reaction) has had a hazy history since it was first reported in 1989. The process, which allegedly created an unexpected burst of heat in an experiment by electrochemists Martin Fleischmann and Stanley Pons at the University of Utah, apparently occurred when some heavy water (water that contained extra hydrogen isotopes called deuterium), was zapped with electricity by an electrode made of palladium (a rare metal). So far it [hasn't been replicated to satisfy](#) either the scientific community or the Department of Energy, leaving this type of fusion's future out in the cold for now.

Passive collection

What if we could somehow capture all of that energy we're constantly putting out – the "wasted" energy crossing the office for a cup of coffee or pounding on the keyboard? Passive energy collection technology has been [installed under turnstiles](#) in a Japanese East Railways station and even [the floor of a dance club](#) in London. This collected energy can then be turned around to meet some of the facility's needs. But all the footfalls in all the train stations – and dance floors, for that matter – aren't likely to be able to power life at the scale the world currently demands. Not to mention the hassle of ripping up all of that linoleum.

Hot fusion

We know its power well from the sun's rays and a nuclear bomb's wrath, but can nuclear fusion be replicated on a large (and safe) scale soon enough to power earth? Hot fusion, supported here in [a 1999 article](#), has proven to be much trickier to tackle than its cousin, fission. It eventually promises to be more eco-friendly than nuclear-waste-generating fission, but even the ambitious [ITER thermonuclear fusion reactor project](#), which is a joint venture among the European Union, India, Japan, China, Russia, South Korea and the U.S., has yet to get off the ground.

Sea movement

Tidal power, compliments of the moon's gravitational pull, has been slow going so far. Early installations dating back to the 1960s created massive barrages that, like dams, block a good deal of water – and wildlife. More recently, [underwater turbines](#) have been dipped into waters around the world in hopes of replicating the success of wind power. So far, it's had some drawbacks, including environmental concern about marine life safety and the failure of a big batch of blades in the Roosevelt Tidal Energy Project's installation (which have since been replaced). [Wave power](#) has also been tossed around as a "green" way to harness the oceans' power. A few floating installations have been riding the waves – some buoy-like others more serpentine – but this concept will need some large-scale champions if it's going to avoid the fate of other novel alt-energy ideas that are already dead in the water.

What other questionable alternatives did we leave out? Let us know your favorite unsung (or unworthy) alternative energy ideas by commending below or tapping into our [Twitter feed](#).

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