

## Renewable energy 'simply WON'T WORK': Top Google engineers

Windmills, solar, tidal - all a 'false hope', say Stanford PhDs The Register UK Science 21 Nov 2014 at 13:59, [Lewis Page](#)  
[http://www.theregister.co.uk/2014/11/21/renewable\\_energy\\_simply\\_wont\\_work\\_google\\_renewables\\_engineers/?page=1](http://www.theregister.co.uk/2014/11/21/renewable_energy_simply_wont_work_google_renewables_engineers/?page=1)

**Comment** Two highly qualified Google engineers who have spent years studying and trying to improve renewable energy technology have stated quite bluntly that renewables will never permit the human race to cut CO<sub>2</sub> emissions to the levels demanded by climate activists. Whatever the future holds, it is not a renewables-powered civilisation: such a thing is impossible.

Both men are Stanford PhDs, Ross Koningstein having trained in aerospace engineering and David Fork in applied physics. These aren't guys who fiddle about with websites or data analytics or "technology" of that sort: they are real engineers who understand difficult maths and physics, and top-bracket even among that distinguished company. The duo were employed at Google on the RE<C project, which sought to enhance renewable technology to the point where it could produce energy more cheaply than coal.

RE<C was a failure, and Google [closed it down](#) after four years. Now, Koningstein and Fork have explained the conclusions they came to after a lengthy period of applying their considerable technological expertise to renewables, in an [article](#) posted at *IEEE Spectrum*.

The two men write:

At the start of RE<C, we had shared the attitude of many stalwart environmentalists: We felt that with steady improvements to today's renewable energy technologies, our society could stave off catastrophic climate change. We now know that to be a false hope ...

Renewable energy technologies simply won't work; we need a fundamentally different approach.

One should note that RE<C didn't restrict itself to conventional renewable ideas like solar PV, windfarms, tidal, hydro etc. It also looked extensively into more radical notions such as solar-thermal, geothermal, "self-assembling" wind towers and so on and so forth. There's no get-out clause for renewables believers here.

Koningstein and Fork aren't alone. Whenever somebody with a decent grasp of maths and physics looks into the idea of a fully renewables-powered civilised future for the human race with a reasonably open mind, they normally come to the conclusion that it simply isn't feasible. Merely generating the relatively small proportion of our energy that we consume today in the form of electricity is already an insuperably difficult task for renewables: generating huge amounts more on top to carry out the tasks we do today using fossil-fuelled heat isn't even vaguely plausible.

Even if one were to electrify all of transport, industry, heating and so on, so much renewable generation and balancing/storage equipment would be needed to power it that astronomical new requirements for steel, concrete, copper, glass, carbon fibre, neodymium, shipping and haulage etc etc would appear. All these things are made using mammoth amounts of energy: far from achieving massive energy savings, which most plans for a renewables future rely on implicitly, we would wind up needing far *more* energy, which would mean even *more* vast renewables farms - and even more materials and energy to make and maintain them and so on. The scale of the building would be like nothing ever attempted by the human race.

In reality, well before any such stage was reached, energy would become horrifyingly expensive - which means that *everything* would become horrifyingly expensive (even the present well-under-one-per-cent renewables level in the UK has pushed up utility bills [very considerably](#)). This in turn means that everyone would become miserably poor and economic growth would cease (the more honest hardline greens [admit this openly](#)).

That, however, means that such expensive luxuries as welfare states and pensioners, proper healthcare (watch out for that pandemic), reasonable public services, affordable manufactured goods and transport, decent personal hygiene, space programmes (watch out for the meteor!) etc etc would all have to go - none of those things are sustainable without economic growth.

So nobody's up for that. And yet, stalwart environmentalists like Koningstein and Fork - and many others - remain convinced that the dangers of carbon-driven warming are real and massive. Indeed the pair reference the famous NASA boffin Dr James Hansen, who is more or less the daddy of modern global warming fears, and say like him that we must move rapidly not just to lessened but to zero carbon emissions (and on top of that, suck a whole lot of CO<sub>2</sub> out of the air by such means as planting forests).

So, how is this to be done?

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## **Revealed: The disruptive new energy technology that could save the human race**

Koningstein and Fork say that humanity's only hope is a new method of energy generation which can provide power - ideally "dispatchable" (can be turned on and off) and/or "distributed" (produced near where it's wanted) - at costs well below those of coal *or* gas. They write:

What's needed are zero-carbon energy sources so cheap that the operators of power plants and industrial facilities alike have an economic rationale for switching over within the next 40 years ...

Incremental improvements to existing technologies aren't enough; we need something truly disruptive.

Unfortunately the two men don't know what that is, or if they do they aren't saying. James Hansen does, though: [it's nuclear power](#).

As applied at the moment, of course, nuclear power isn't cheap enough to provide a strong economic rationale. That's because its costs have been forced enormously higher than they would otherwise be by the imposition of cripplingly high health and safety standards (in its three "disasters" so far - Three Mile Island, Chernobyl and Fukushima - the scientifically verified death tolls from all causes have been and will be zero, 56 and [zero](#): a record which other power industries including renewables can only envy\*).

Nuclear costs have also been artificially driven up by the non-issue of "waste". [In the UK for instance](#), all "higher activity nuclear waste" must be kept expensively stored in a secure specialist facility and can only ever - perhaps - be finally disposed of in a wildly expensive geological vault. No less than 99.7 per cent of this "waste" is actually intermediate-level, meaning that it basically isn't radioactive at all: you could theoretically make half a tonne of ordinary dirt into such "intermediate level nuclear waste" by burying a completely legal luminous wristwatch in it. (If you did that inside the boundaries of a licensed nuclear facility, the dirt really would then become ridiculously costly "waste".)

The remaining 0.003 of "nuclear waste" actually is dangerous, but it can almost all be reprocessed into fuel and used again. So waste really doesn't need to be an issue at all.

There can't be any doubt that if nuclear power had been allowed to be as dangerous per unit of energy generated as, say, the gas industry\* - let alone the terribly dangerous coal business - it truly would be too cheap to meter and Messrs Koningstein and Fork's problem would have been solved for them decades ago: by now, nobody with access to uranium would be bothering with fossil fuels except for specialist purposes - and there's no reason why nations "of concern" couldn't be [kept safely supplied](#). Would we run out of uranium? [Not until the year 5000AD](#).

Cheap power solves a lot more problems than just carbon emissions, too. If power is cheap, so is fresh water (the fact is we're really at that point already, though a [lot of people refuse to admit it](#) and prefer to treat fresh water as some sort of scarce and finite resource). If fresh water is cheap, an awful lot more of the planet is habitable and/or arable than is the case if it's expensive: and that is truly game-changing stuff for the human race.

And as a side benefit we'd by now have [actual useful spacecraft](#) which could actually go to places in reasonable amounts of time carrying reasonable amounts of stuff at reasonable costs. We'd be able to establish viable bases on other planets - for instance to mine uranium there, should we ever find ourselves running low.

Even if you aren't terribly convinced about the looming menace of carbon-driven warming, the fact that we have decided of our own free will *not* to have cheap, abundant energy and all the miracles it would bring with it ... that's a terrible human tragedy. Nobody knows how much misery might result from climate change in the future, but one can say with certainty that a lot of misery has been caused by the absence of cheap energy, water, food and decent places to live over the last sixty-plus years.

Anyway the truth is that the disruptive new technology which Koningstein and Fork are dreaming of already exists: but it's been stolen from us by our foolish fears, inflated in many cases by [dishonest activists](#). Even if someone could come up with some other way of making terrifically cheap energy, there's no guarantee that the ignorant fearmongers of the world wouldn't manage to suppress that too. There would almost certainly be a powerful application in weapons, just as there is in nuclear; this is, after all, *energy* we're talking about.

Koningstein and Fork believe that the answer to the carbon menace is a reallocation of R&D spending, to seek out high-risk disruptive technologies. But the fact is it would probably make more sense to spend money on making sure that people don't reach voting age without understanding basic mathematics and facts about risk and energy.

You wouldn't need to take that money from R&D. You could instead repurpose some of the [huge and growing amounts of money](#) that are currently being diverted into the purchase of tiny amounts of ridiculously expensive renewable energy.

After all, no matter the wider issues, we now have it on the best and unimpeachably environmentalist of authorities that renewable energy can't achieve its stated purpose. So - no matter what - there can't be any point in continuing with it.

None of this is new, of course. These realities have been wilfully ignored by the British governing class and others for many years. But the British/American governing classes, so fatally committed to renewables, often seem willing to listen to Google even if they won't listen to anyone else.

So, just maybe, this time the message will have some impact. ®

## Footnote

**\*The Piper Alpha gas rig explosion of 1988 *on its own* caused three times as many deaths as the nuclear power industry has in its entire history. Bizarrely though, no nations ceased using gas.**