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THIS IS A GAME CHANGER. THIS IS A NEW STANDARD. A NEW AGE OF ENERGY PRODUCTION

E-Cat Technology – What does it mean for society?

A look into the future with E-Cat Australia's Chief Technical Advisor – William Donovan.



William Donovan inside the 1 MW e-Cat

This is a New Standard

Many decades ago, we were promised that nuclear energy would be so cheap that it could not be metered. What was not anticipated was how incredibly dirty this source of energy could be. Perhaps if a holistic approach was used, we could have turned around and not embraced the leviathan. But that was not done, and we have many thousands of metric tons of radioactive waste to contend with due to our collective lack of foresight.

The Rossi E-Cat gives us an opportunity to enjoy a truly cheap source of energy without radioactive by-products. This time we really have a "cheap" energy, one that will become a new standard for comparison.

One Rossi E-Cat "cell" can potentially produce all the heat and power that a typical home would need for a cost of US \$80.00 dollars per year. This would include recharging an electric vehicle plugged into the socket, as 80% of the population can utilize an electric car

for their transportation needs. This means that the aged no longer have to choose between heat and food. That will become a thing of the past, relegated to the dark times before the fusion era.

Further Implications

Currently, transport from Earth to Orbit costs approximately 5000 dollars per kilo. We use rockets primarily because exotic propulsion systems are energy hogs, taking as much as 180 watts per kilo. Normally, that's a lot of energy, and nuclear fission is far too dangerous and



dirty to use to generate this kind of power. When we burn a fuel, only a few parts per million are converted to energy. Nuclear fission converts perhaps at most 0.1 per cent of its mass to energy. The rest becomes radioactive garbage. Fusion converts between 1 to 10 per cent of its mass to energy, and the Rossi E-CAT has no radioactive waste by-products. It is 100 times more efficient than fission. It is

the only compact power source that can take us to the stars, and it can do it with one ten thousandth the cost of chemical fuels, at about \$0.50 per kilo.

When this power source is first adopted for propulsion, first we will see airlines converted over to fusion, with the turbines replaced with electric motors to turn the turbofans. After this, the turbofans will be replaced with more advanced exotic propulsion systems, which will reduce the noise considerably. Ticket costs will plummet. With exotic propulsion, sub-orbital flights will become common, reaching any point on the planet within two hours.

This is only the start. Let's see what else happens.

Immediate - 1-10 Years: The Conventional Adoption Period

This is a time where, for those who are familiar with triage, society adopts fusion for immediate needs. We will see businesses that need cheap energy to stay afloat as the first to implement the technology.

Cruise ships will be the next to convert their boilers over to the E-Cat, and we will see large ships that are considered archaic by today's standards that use steam as the first to adopt this technology.

Power plants that use steam for power generation will also adopt it as well. Carbon taxes are certainly an incentive, but the E-Cat will be cheaper than coal in the future. Economics will drive businesses to adopt this technology. Will the utilities lower their rates? Perhaps, but they should be watched to make sure that they comply. Their track record shows that they try to maximise their profits to our detriment. Remember what they did to the oil producers in Midland. We predict that centralized power generation will be phased out in

the long term, with a distributed power grid evolving to replace it. Which brings us to why this will happen.

Rossi is releasing a home unit with a 5-10xKW capacity. That's a good start, but if say 2-3 of these are connected in parallel, you have a totally independent home. But- it gets better. Because if you're outputting all the extra power to the grid, the power plants need to generate less energy to keep up with demand. Power plants use natural gas for peak loads, and if they can start to rely on the extra power coming from a distributed grid, those "peaking plants" are no longer necessary. I know there is a good argument for being off-grid, and some will choose to do just that. But in the short term, consumers will want to remain hooked up to the grid as a backup. And that's where the distributed grid will begin to evolve.

Hospitals will adopt the E-Cat as a backup as a replacement for their diesel generators. This will first be seen in "hurricane alleys" where storms are sure to knock out the power. At first it would look like a step backwards, as the backups will be steam operated, but there is a solution for that one as well.

Unfortunately, it looks like air travel will not be the first to convert over, as the capital costs will at first appear to be prohibitive.



Proximal – 10–20 Years: The Period of Economic Renaissance

I know that there are those who would like a quick fix that would happen overnight. It would be nice for that to happen, but unfortunately, it took us nearly a century to get into this mess, and it will take an absolute minimum of 20 years to get out of it.

That being said, in this period the adoption of fusion is no longer a "quick fix". It has had 10 years to prove itself, and even the sceptics have come on board. Now the conversion forges ahead, with a large fraction of conventional energy sources replaced with Rossi E-Cat, or perhaps the next generation by that time. Almost every home that can afford to do so has a unit in their basement next to their water heater. The distributed grid is a reality. No new power plants have been built, as there is no need to do so. The grid is updated to make use of the massive power distribution, and blackouts and brownouts are a thing of the past. Parents will talk to their children about the old days, and the kids, like always, listen in disbelief. "But daddy, WHY did they do that? Wasn't it silly?" Parents will just shrug their shoulders, and their descendants will roll their eyes.

It is in this period that aircraft will be built to utilize fusion power, first using rankine (?) cycle steam turbines, and later going totally electric. Since the power source would be so incredibly cheap, long distance aircraft will first resemble the “guppy”, a military transport capable of swallowing a 767 whole without a burp. Presently, aircraft are small because fuel is expensive. That will no longer be the case. In flights longer than 5 hours, airlines will adopt a system similar to trains. There will be a dining area, as well as cabins for sleeping. There will be a real galley with fresh food prepared on site.

We will also see the renaissance of the airship- with a difference. Hot air, not hydrogen or helium, can be used for lifting this time, since there is a cheap source of heat. Once again, we will see leisurely cruises to distant lands while dining and traveling in comfort. This will become the cruise line of the 21st century. Not to mention the huge amount of cargo it can ship.

It is in this period that trains will adopt the E-Cat. Mining will adopt the E-Cat as well. They need something that doesn't consume oxygen, and this fits the bill quite nicely. Besides, they need to become acquainted with the technology before they begin to move off-world.

The military will not be too far behind, with tanks with unlimited range and battle ships that only need service twice a year without constant refueling. The first to convert are the ones using fission reactors, as they are the easiest along with older ships using steam. Submarines will also use the E-Cat. We predict that remote military bases, as well as civilian research facilities such as those on Antarctica, will implement the E-Cat. We will also see it on the international space station.

Now let's go a bit further and see where it all goes:

Long Term - 20-50 Years - The Period of Space Colonization

Now we're cookin' with HHO. Up to this point, the conventional military and civilian space programs have been reluctant to adopt fusion, but renegades have been putting them to shame. Richard Branson, once he realizes that this is exactly what he needs for Virgin Galactic to take off (no pun intended) he will be working with us on the E-Cat systems to make sure that happens. Space tourism will be taking place a little before this time, and will see a massive resurgence with the adoption of cheap fusion energy. Unfortunately, first we will see it used in steam rockets. By the way, all the work was done in the 1950s when they were thinking of using fission reactors to do just that. A sci-fi, “Destination Moon”, was made along those lines. So the technology is there.

First we will be going to where the fuel is. You don't want to run your tank dry in the galactic hinterlands. Water ice was discovered on the Moon, and we know there is plenty on Mars. After that, we go to the outer solar system, and melt the ice to put into the tanks. With this technology, and a 1G spacecraft, every point in the solar system is accessible with one week travel time.

It is at this point that mining concerns realize that there are billions of tons of metals out there in the asteroid belt just begging to be mined. Some of these are “Earth Crossing” asteroids that are easily moved into a stable orbit. At first “mining shacks” will be built, with space colonies for workers nearby. This was outlined in the works by Gerard O'Neill, “The High Frontier” and T.A. Heppenheimer, “Colonies in Space”.

Man moves out toward the stars. Finally.

You want to live near where the work is. A week long commute is out of the question. So we will see colonies springing up where the resources lie anywhere in the solar system. In the long term, there will be billions moving off world, considering the Earth being what it is, the cradle of humanity, and thought of with fondness and reverence. There will be trips made to Earth, as a kind of pilgrimage to see where it all started.

It will be at this point that the third world finally frees itself of the yoke of crushing debt, as economics are changing back to real assets, and while the industrialized world is shifting focus off-world, they no longer need third world countries and their resources. They cut them loose, and those countries quickly recover their dignity in the process.

After decades of non-polluting technologies, the air is clearing. Oxygen is on the rise and the ozone holes are gone. Mankind has a future again.

This is what it really means. Let's make sure it happens.

William Donovan



William Donovan with inventor Andrea Rossi



E-Cat Australia CEO Roger Green with inventor Andrea Rossi