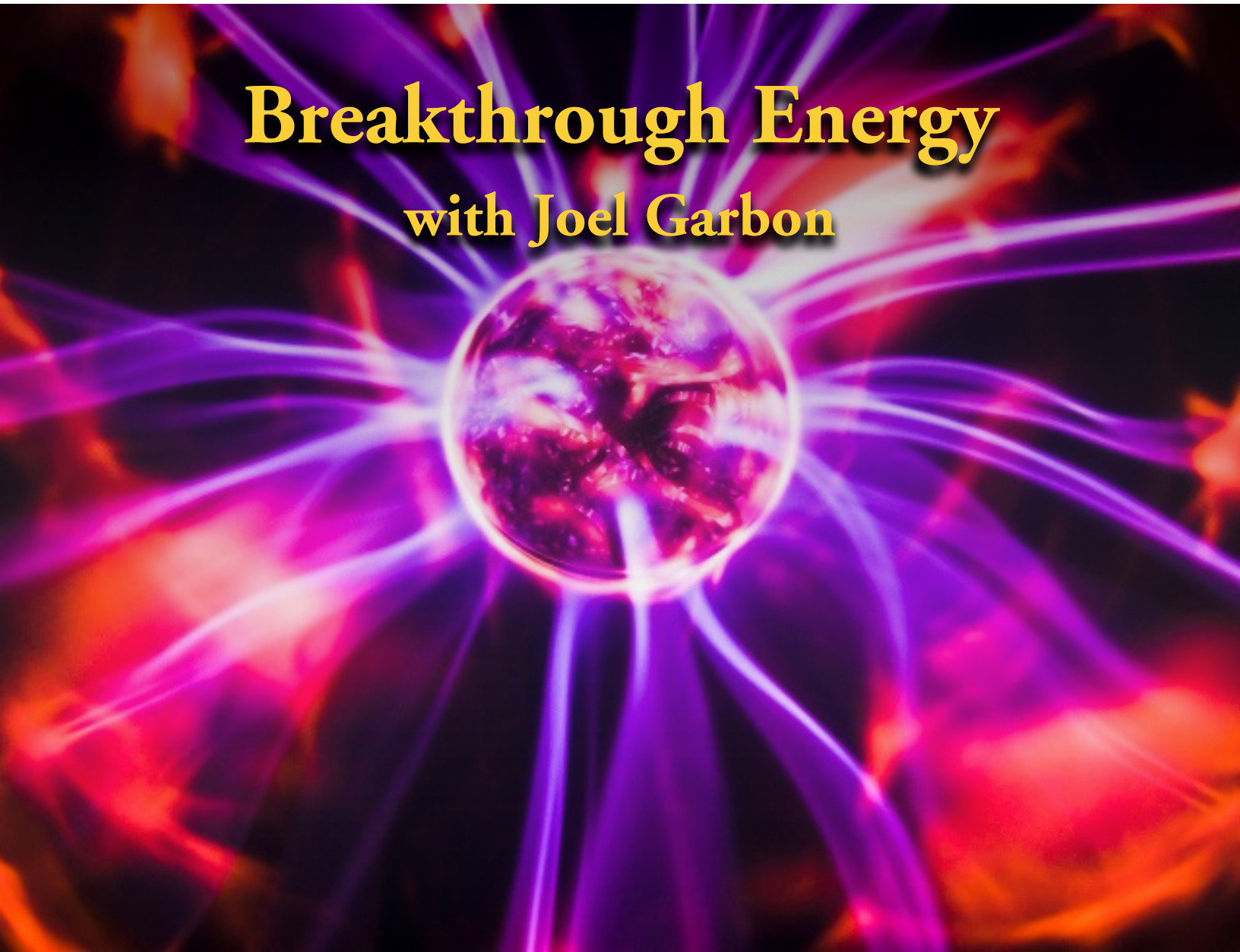
BUILDING WEALTH IN CHANGING TIMES

The Solari Report

FEBRUARY 19, 2015



Breakthrough Energy

February 19, 2015

C. AUSTIN FITTS: Ladies and gentlemen, it's my privilege to welcome back to The Solari Report Joel Garbon who has joined us once before. He has had a long and very successful career as an industrial science consultant and educator.

In addition to his successful career and raising and handing up a family, he also decided that he would write a wonderful book on breakthrough energy with Jeane Manning. So he co-authored and became president of the New Energy Movement. I always wonder where he gets the time to do anything. There are some other things he does, and I won't even go into those. We're talking to a very accomplished person, and there is no one I trust more to help me navigate the topic of breakthrough energy.

Joel, welcome back to The Solari Report. We really appreciate you taking time from a very busy schedule to do this.

JOEL GARBON: Thanks, Catherine. You forgot to mention that we always have a lot of fun and we have hearty laughter when we have these conversations.

C. AUSTIN FITTS: Yes, we do when we have an opportunity. We go to conferences together and we get to roll our eyes a lot.

JOEL GARBON: There are a lot of great topics that we get to touch on here. It's always a treat. Thank you so much for inviting me on.

C. AUSTIN FITTS: I just said to you before we started this that when you change the energy model, you change the entire economic and investment model of the planet. This kind of topic can lead to anything.

Let's just get back to the beginning. I want to get your help to explain some of what we mean by breakthrough energy technology. What is

breakthrough energy? Break it down for us – both what it is and what the different areas are that we need to understand if we're going to get a basic framework of the topic.

JOEL GARBON: Well, generally speaking, when we talk about breakthrough energy technologies, we're talking about genres of technology that go beyond the conventional renewables.

We all know that what we've been using primarily for the last several hundred years have been fossil fuels. We've been burning stuff – primarily hydrocarbons or wood or other types of biomass – and then we've been burning more natural gas lately.

Then we've gone into this clean energy revolution that is using more wind and solar and a little bit of tidal power, and we've been using hydroelectric power for a long time. But even what we call the conventional renewable power sources, really they are incremental technology improvements on technologies that have existed for a long time.

There have been windmills around for many, many centuries. Hydro power has been used probably for over 1,000 years, and solar in its various forms as well. But when we're talking about breakthrough energy technologies, what we're really talking about are leading edge 'frontier physics' types of energy-generating technologies that have not existed before and that really need a major up-step in awareness from not just the science community but also from the public, and they need support.

They need funding support. They need a lot of advocacy because many of those who are coming up with these technologies are sequestered away in labs and private work spaces, often times working alone as isolated inventors. We really need advocates for these people to help get their breakthroughs out into the public domain so that they can have a social benefit.

C. AUSTIN FITTS: One of the things I want to address right upfront is we posted on the blogpost for The Solari Report a copy of your description

of an initiative which I'm very excited about which is standards. I named my last company after Alexander Hamilton, and Hamilton was instrumental in getting the bureau of standards created at the Department of Treasury, which was critical to the industrial economy or the development of the industrial economy in the United States.

Having dipped into dealing with a couple of inventors in this area, I think having standards to allow people to test and verify that can be agreed upon and has real support is really important. Maybe you could just talk a little bit about that because I think that is one of the steps that is going to make a lot of the development in this area financially feasible.

"Having dipped into dealing with a couple of inventors in this area, I think having standards to allow people to test and verify that can be agreed upon and has real support is really important."

JOEL GARBON: What is the deal with why we even need any type of standardized test and test protocols for breakthrough energy technology?

I'm going to use as a good example what is being called 'cold fusion'. Most education people have heard of this. Cold fusion is a technology we can talk about a little bit later as far as what it actually is scientifically.

C. AUSTIN FITTS: Oh, no. Let's talk about it now.

JOEL GARBON: You want to talk about it now?

C. AUSTIN FITTS: I keep reading and trying to figure it out.

JOEL GARBON: I don't want to get out of order here.

C. AUSTIN FITTS: No, that's okay. I won't let you get lost. I keep trying to understand cold fusion and I can't do it.

JOEL GARBON: Well, we'll use this basically starting from its description and how it came about and what has happened since then and why test standards have a real application here.

We go back to March of 1989, almost 26 years ago. There was an announcement by two electrochemists from the University of Utah by the names of Martin Fleischmann and Stanley Pons of a new process that they had come up with for generating energy – thermal energy, heat.

What this process basically involved was doing a simple electrolysis experiment where you had electrodes and some water, but in this case it was water that had been enriched with deuterium, which is also called heavy water, and running a current through that system – through the electrodes – resulted in, after some period of time, the release of an excess amount of heat that could not be accounted for just by the electrical input that was going into the process.

That discovery of this anomalous excess amount of heat was very exciting to the researchers. Ultimately they made a press release that sent a shock wave across the world really in scientific circles and in the public's imagination because essentially they said, "Look, we've discovered something that could result in the end of fossil fuels." It's a radical new energy source that could be clean and cheap. It's essentially using water as a fuel and could somehow be scaled up to be a practical power source.

Well, these guys – Fleischmann and Pons – they were just jumped on immediately by the scientific community, especially by those who were involved in conventional nuclear physics. The nuclear physicists essentially were feeling a lot of encroachment upon their scientific turf by these upshot electrochemists. It was like, "What are you guys doing talking about nuclear chemistry?"

The long and short of it was that the research findings themselves came under a lot of scrutiny and criticism by many in the conventional mainstream academic circles, and they beat their drumbeat so loud that essentially Fleischmann and Pons were basically blackballed from the academic science community.

It was a very, very sad state of affairs because these pronouncements of cold fusion as essentially junk science were made prematurely, and there were apparently a number of vested interests who were at the forefront of

that drumbeat to basically sweep this cold fusion nonsense under the rug.

Part of this, going to the test standards angle, Fleischmann and Pons released their announcement of this radical new energy science with relatively little data and with essentially little, if any, replication data or independent verification of the process. Even though there had been many researchers who quickly studied the findings, studied the experiments, and set it up in their own labs to try to replicate the process – many finding the same type of anomalous excess energy results – there was a lot of disagreement in the science community about what constituted a valid proof that there truly was excess heat being generated.

That debate ranged long and hard for many years. In fact, right up to this very day – even though we're 26 years later after that announcement.

So we've got all of these researchers around the world – and there have been dozens and dozens, including researchers at our own US Naval laboratories, MIT, many universities, Texas A&M, researchers in Italy, Japan, and on and on. All throughout the globe there have been dozens and dozens of very credible credentialed scientists who have come up with good findings – actually findings that are much more robust than Fleischmann and Pons' original findings – but yet still the debate rages about what is the best way to measure the heat output or any electrical output.

It's still a very contentious field. So there definitely is a need to have some agreed upon standardized testing protocols that an inventor or research team can apply to their breakthrough energy process or invention that would stand the stamp of a verification or a proof, such that if they do abide by those standardized test protocols and they do indeed show valid results, that this would now be an investment-worthy concept of invention.

That is where we've been trying at New Energy Movement, my organization, in collaboration with some other colleagues and other interested parties to help assemble support for a standardized testing

protocol document – an actual document that could be put into public domain – that inventors and researchers could use in knowing that this was put together by credentialed scientists and engineers. It's something that would stand the test of time, that would be using the appropriate instrumentation, using the appropriate methodologies, and that this would be a way for the inventor to say, "Okay, I know if I do it like this and I show results that are such, I know I've got something of very, very high interest to the world in something that is marketable."

C. AUSTIN FITTS: And it can be verified by a third party.

JOEL GARBON: Exactly.

C. AUSTIN FITTS: Right.

JOEL GARBON: The third party would use these same test protocols to verify the findings of the inventor or the research team who also used those protocols.

C. AUSTIN FITTS: Right. To me, this kind of thing is absolutely essential.

Before we dive into the different areas, which I want to do, I just want to step back to the second law of thermodynamics because what we're basically talking about when we talk about breakthrough energy is whether or not the second law of thermodynamics is essentially universally true. Is that not the gist of it?

JOEL GARBON: Yes, that is waved around. Some would stand behind it as a barrier to new discovery. What I mean by that is our understandings of science, while we may consider them to be very advanced, that is a very relative position to have.

If we were to look back at the researchers at the time of Galileo, there is no doubt that they would just be amazed at how far science has come on our planet. But if we were to have someone come from a culture perhaps outside of our solar system that knew how to transverse inner stellar distances with advanced propulsion and energy technologies and they

arrived on little planet Earth, they would probably think that our science was relatively crude. They would think that our scientists would be arrogant to hold the position that we essentially know all of the universal principles of physics.

Whenever we talk about any particular theory as being dogma, to me that really doesn't smack of good science because good science should be open to new understandings, and especially to new data. I mean, if someone has data to present, the scientist has to at least be willing to look at it.

"If someone has data to present, the scientist has to at least be willing to look at it."

Our current understandings of thermodynamics, and everyone hears about the laws of conservation of matter and energy and derivatives from that. That is well and good, but none of these inventors who are claiming that they've uncovered a process that produces the appearance of excess energy are claiming that they are actually 'creating' energy. Essentially what they are saying is, "Hey, we may be transforming energy from one form to another, and it may be that the form that is coming into the process is a form of energy that's not easily measured or isn't so detectable by our current instrumentation or by our current understandings."

A good example of that would be when people hear about zero-point energy. What is zero-point energy? What is that?

Some will describe it in very esoteric terms, "Well, it's the etheric material. It's the background fabric of space-time," and all these kind of other world descriptions.

C. AUSTIN FITTS: Mystical descriptions.

JOEL GARBON: Yes, mystical. You know what? Some of that may be the most appropriate way to describe this stuff that seemingly pervades everywhere in space. It's hard to measure, but yet we know it's there because physics accepts that zero-point energy is real; it's just hard to really know how to

wrap our minds around it because it seems like it's so thin, but at the same time so dense that a whole universe could be born from a tiny, tiny point of energy.

It's a very tough thing for us to get our heads wrapped around, but it's still a great example of something that could be a source of energy that we're not good at measuring or even describing.

We could be tapping into that in some of these exotic energy process and converting them into forms of energy that are very easy for us to measure, like heat and light and electricity and other forms of radiation.

No one is claiming that they are creating energy. They are saying, "Look, we're finding a novel way to transform it into a type that is useful to us."

C. AUSTIN FITTS: I see it as simple politics and risk management, not science. I think the second law of thermodynamics is basically designed to ensure that you can enforce central control and you can make sure that a very large population doesn't have access to technology that could create risk of a variety of kinds.

It's really a law that keeps you in a model that keeps the current system working and operating. If the law isn't true, it blows the model.

JOEL GARBON: Oh, it's very inconvenient, right, for the model to be untrue or even to just be a little sideways. Science itself is very politically loaded.

C. AUSTIN FITTS: Unbelievable.

JOEL GARBON: It's interesting. I've worked in industrial science for over 30 years. I'm not a PhD, but I am a scientist. However, many who are PhD's think, "You're not a scientist unless you have that degree."

However, I have seen many who really don't have a good understanding of how things practically work. They may have an understanding of some things that happen experimentally in very small conditioned surroundings in a lab, but they really can't see how these things work

together to actually build a process that actually does something useful to society, like it makes paper or it cleans water or it makes fuel or something like this that we all take for granted.

C. AUSTIN FITTS: Right.

JOEL GARBON: I think there is something to be said for having a lot of practical experience, and maybe a little bit of broad wisdom in some of those things. Get out of the lab. Degrees do not make one's value, and unfortunately in the academic science community, often there is a lot of hiding behind academic terminology and whose career is getting advanced by publishing this paper or that paper and all of these things, and they lose touch with what is really going on in the real world.

It's unfortunate in the structure of academic science, and the funding that goes along with it encourages that entrenchment of thinking that results in a lot of dogmatic positions and results in the refusal often to look at disruptive data because it upsets the gravy train of funding coming to someone who is working along conventional terms.

C. AUSTIN FITTS: Right. Well, let's face it. Nikola Tesla did not have a chair at Harvard.

JOEL GARBON: No, he didn't.

C. AUSTIN FITTS: And if he tried to get one, JP Morgan would have made sure he couldn't.

JOEL GARBON: But I hear he work really nice white silken gloves at dinner.

C. AUSTIN FITTS: Yes.

JOEL GARBON: He was quite the charmer.

C. AUSTIN FITTS: So let's dive through the areas. When I was trying to organize my notes on this, I was thinking in terms of energy that serves in applications – residential and commercial real estate, or transportation

– I keep looking at what is going on with cars – and then sort of industrial equipment and manufacturing process.

Then I looked at your standards, and you've got them organized more around the technology. Maybe you could explain the list that you had.

JOEL GARBON: As far as developing some standardized testing protocols, it is practical to categorize these as far as the forms of input and output energy that might be present in any type of breakthrough invention. If you use, for instance, cold fusion like we just talked about, in cold fusion what do you have? You have a chemical present; it's water. You also have a chemical present that is in the form of the electrodes there. In cold fusion they were focusing on these palladium cathodes. Then there was another material for the anode in the electrolysis experiment.

Already we've got chemicals present, we have electrical input present, and then what is of most interest on the output side of the experiment is heat. So there is a thermal effect; there is thermal energy there. And, potentially, there is some type of radiation effect, perhaps a nuclear effect. It's called 'cold fusion' which implies that there is something happening on the nuclear level.

There may be some things related to nuclear energy that we should take into account.

If we looked at other types of technologies that might use permanent magnets as part of the platform for technology, maybe like a magnetic motor or something like that, now we would have electricity involved because we've got a motor. We have magnetism as an effect. These might be a couple of the inputs there.

Now we might have – it being a motor – one of the output energy forms is mechanical power where you are actually turning something, you're moving something or cranking something. There is a mechanical measurement that is required.

You might have electricity on there if it's coupled up to a generator, or

maybe there is some other type of field effects that happen around such a device. Perhaps it causes the air temperature to actually drop, which is often an interesting anomaly that happens with some of these devices, rather than it heating up.

C. AUSTIN FITTS: With magnetic devices?

JOEL GARBON: Yes, with magnetic devices this often happens. So there is something else that is going on.

Other types of devices produce various types of plasma discharge – so being able to measure those wavelengths of light.

C. AUSTIN FITTS: Step back! Ignorant people here. Explain what plasma is.

JOEL GARBON: Plasma, quite simply, is generating a hot ionized gas. That's the simplest way to think about it. Anyone who has looked at a neon sign, what is causing that glow – that pinkish or greenish glow? You pick the color. What is going on in there? It's not like you have the normal incandescent light bulb which is the kind that we typically for years and years used the Edison light bulb that had a little filament in there.

"It's not like you have the normal incandescent light bulb which is the kind that we typically for years and years used the Edison light bulb that had a little filament in there."

In an incandescent light bulb you actually have current going through that little filament, and that current is heating up that wire and it is generating light.

But in a neon sign or a fluorescent bulb, what you have is you have a gas in there that under the presence of high voltage – but not necessarily anything that is conductive and you don't have a wire that is going across both ends of the bulb – but you have a high voltage. What that does is it induces the ionization of the gas inside the bulb. That excites the gas, puts it into a higher energy state, and then it releases photons of light.

Depending on the gas, it's going to be a color. The gas mixture that's in a normal fluorescent bulb is such that it generates what we would generally think of as a whitish light, but in a neon sign it is going to be different gases chosen to produce the more artful, colorful type of effects that we want.

A plasma generally is a hot ionized gas. That is probably the simplest way to think about it.

C. AUSTIN FITTS: Nuclear. What would fit under the discussion of nuclear?

JOEL GARBON: For nuclear, again, when most people think of nuclear they think of two things. They think of bombs and they think of nuclear power plants. They associate radiation.

What about this Fukushima thing? What about this Chernobyl thing? What is that all about?

Well nuclear power itself generally can come in two different forms. It can either be from a fission process where relatively heavy elements split apart into lighter elements, and in that process they release a lot of energy in the form of light and heat and some type of radioactivity – some type of radiation. Or, a nuclear energy process can be what is called a fusion reaction where light elements come together to form heavier elements and likewise produce a lot of heat and light.

If you look up in the sky in the daytime and you see that brilliant star that we call our sun, that is using a fusion process. It's generally fusing together very light atoms of hydrogen into helium. That is the primary fusion reaction in a star like our sun. Of course, it's so energetic that it's enough to power a whole solar system.

In a conventional power plant here on earth, we're using heavy elements in a fission reaction where we're taking something like uranium or plutonium, splitting those atoms apart, and releasing energy, desirably in the form of heat. That heat then is used to boil water, to turn a turbine, and to generate electricity.

It's basically a glorified way of boiling water to make steam. Rather than using oil or gas or coal or wood to heat a boiler we're using nuclear power to do that. Unfortunately in the fission type of power that we've used for decades in our nuclear power plants, those do tend to generate a lot of high-level radioactive waste that is very dangerous, very toxic, and long-lived. It's a real problem legacy for us, and now we've got something like Fukushima that's just been an unmitigated disaster.

C. AUSTIN FITTS: In the process of preparing I was revisiting what thorium technology was. This is a little bit outside of this – back into conventional – but what I hadn't realized was how far we'd gone with thorium technology and the extent to which the powers be really put the kibosh on it. We could have globally had much safer nuclear technology, and instead we chose a much more dangerous one.

JOEL GARBON: Well, that's true. When people hear 'thorium', again it's like, "What's that?" That's some element off the periodic table. It's not exactly something you're looking at in your kitchen all the time.

A brief description of a thorium energy process is thorium is a fairly common element. It's a heavier element that can be used to derive a certain isotope of uranium. This particular isotope of uranium – uranium 233 – can then undergo a much safer fission process than what occurs in our conventional nuclear power plants that use uranium 235.

It doesn't sound like a lot of difference. Who cares about uranium 233 versus 235? Well, the difference is this: Uranium 235 is basically what is used for weapons grade nuclear material. It's what you can make an atom bomb out of, and the products of fission of that material are more radioactive.

The uranium 233 is a safer process. It's generally not considered weapons grade material. The nuclear proliferation issue isn't quite as significant with that, and thorium is much more abundant than uranium is naturally, and you can derive the uranium 233 from thorium.

This process has been well-researched. There are many nations who have been doing this research for quite a long time and looking at it. Again, there is a political process and other vested interests, including military interests.

If you look in the United States, the Department of Energy and the Pentagon, they have heavy hands into what goes on with nuclear policy for obvious reasons – because of the weapon issue with that whole thing.

It's a hot potato, and it's fair to say that the public at large has become quite sensitized to the whole issue of nuclear power of any sort because of accidents like Chernobyl and like Fukushima. I would say that that is a good thing that has happened. It's good for people to stand up and pay attention to what is going on with energy policy, not just nuclear policy but our whole energy policy, because it's not just about flipping the switch on your wall and getting electricity or pushing your toaster down and getting some heat to cook the bread. It shouldn't be mindless like that. We really should be more aware as citizens of where these power sources are coming from and what the implications are for our environment, for our health, for our national security, and for the lifetime effects of our choices in energy sources.

When something like Fukushima happens, hopefully it wakes up people to think, "Wait! That was not good. Now what do we do? What do we do to fix it, and what do we do to prevent it from happening somewhere else?" because we are highly, highly vulnerable to this happening again somewhere else, including on our own shores.

C. AUSTIN FITTS: Right. Are there any more technologies you want to describe?

JOEL GARBON: Well, there are some other ones here that I would say are other forms of using water as fuel. Some people who may go on to YouTube, if you just put in 'water as fuel' and you look through YouTube, you will find hundreds and hundreds if not thousands and thousands of videos of various inventors of all sorts who have claimed to find the Holy Grail as far as using water as a fuel.

In general, there are some very interesting processes that can break down water into a combustible gas. It's generally some mixture of hydrogen and some other components, water being hydrogen and oxygen. When you use various processes to break it down – whether it's just simple electrolysis or some type of pulsed frequency – you can get some very interesting gaseous products that can be then burnt and recombined in other ways to liberate either mechanical power or heat or electricity.

C. AUSTIN FITTS: So the notion of running cars on water is not completely impossible.

JOEL GARBON: Oh, it's very real. It's very real. I've seen some experiments that were very eye-popping, some of them even done in my own kitchen by inventors who demonstrated actual burning of water. I mean, where water right out of the tap was on fire.

This is definitely possible, and there are novel circuitries involved. There are special types of plasma sparks that are involved to do this type of water ignition process, but it is out there.

"I've seen some experiments that were very eye-popping, some of them even done in my own kitchen by inventors who demonstrated actual burning of water. I mean, where water right out of the tap was on fire."

Having it be brought to the point where it's safe and practical and accepted and can get past the hurdles of certain vested interests that have erected various barriers to the disruption of the typical automotive fuels, this is something that I think has great promise.

There are other applications of water and other water-fuel types of technologies that we won't go into here, but it has great promise.

C. AUSTIN FITTS: So let me just say, Joel, let's step back. You have – as a scientist – for many years observed lots of claims and lots of different technology.

JOEL GARBON: Yes.

C. AUSTIN FITTS: I think it's fair to say that you believe technology exists

which can create more economic energy than the systems we're using now.

JOEL GARBON: Oh, yes. I think that would be not only technologies with the abilities to help clean up the environment, to start a whole new level of economic prosperity and shared abundance, but could help us to remediate problems that we already have in the environment.

There is so much damage that has been done that is, in a way, just sitting there. It's like festering sores all over the planet that are fairly large-scale projects that require clean-up and remediation, but the cost and conventional energy to address those is enormous. To have new sources of energy that are very, very inexpensive and that are non-polluting would give us the ability to help clean up the nest to a tremendous degree. That's one of the things that really excites me.

Some of us hear about this giant patch of plastic debris floating around somewhere out there in the Pacific. Some say it's somewhere between the size of the state of Texas and the size of the country of Australia, but it's enormous. It's just swirling around out there, this wasteland of trash.

Well, if you had free energy – and I'm using that term loosely – or very low-cost energy that was clean, we would have the ability to deploy certain types of operations that could literally clean that stuff up. I mean, we could go get it and harvest it. That would just be one big-picture thing that would be really cool to do.

C. AUSTIN FITTS: We could have happiness breaking out all over. I don't think there is anything that depresses humans more than seeing the environmental damage to the planet. I think that's just a terrible emotional burden for every person on this planet, whether we are conscious of it or not.

JOEL GARBON: Ultimately though, Catherine, I think that from just the way we live our lives, people right now to a large degree can feel very constrained by the work that they do – that they're required to do – just to support their family. Much of that has to do with energy – the cost of

energy and how we go about things.

If we truly had free energy – or nearly-free energy – we would be able to have a whole different type of societal structuring that would unchain people to a large degree from the ways we've been earning livings, going about our normal life, and being able to tap into a lot more of our creative potential to come up with new and more brilliant and more beautiful ways of living this life here, both individually and collectively.

I think we have so much untapped goodness and potential for just amazing transformations.

C. AUSTIN FITTS: It's interesting when you sit and you watch this technology. I haven't seen anywhere near what you have, but when I watch it do its thing, I just start to giggle because it makes you realize how abundant things could be.

In the 1990s when I was prototyping reengineering the financial system in a way that would re-optimize and I walked away from that, I realized the current wealth is only one percent of what it could be. That was my estimation, and that was before I knew about breakthrough energy. Then when you add breakthrough energy to that, it's kind of like: Who needs to worry about money?

JOEL GARBON: Right. See, there you go. It's just like that. If you had access to unlimited energy, you really now have the tools in hand to provide for your material support, whether it's your food, whether it's your lighting, your heating, transportation, construction – all these things. You have now a tool that you, your family, your community can use. You don't have to buy into this whole large matrix of complexity and all these little economic twists and turns.

C. AUSTIN FITTS: So let me speak on behalf of Mr. Global. Let me pretend for a second that I'm Mr. Global. Let me argue why I don't want to let the genie out of the bottle. I don't want to open Pandora's Box.

JOEL GARBON: I'm already trying to stuff them back in!

C. AUSTIN FITTS: So the first thing I would say is, "Look, we already have too many people on this planet. If you make energy free, the population is going to explode and then we're really going to have an environmental mess." That's the first thing Mr. Global is going to say.

JOEL GARBON: Okay.

C. AUSTIN FITTS: Then the second thing he is going to say is, "You give this technology into the hands of people – just seven billion people – and some of them are going to use it to do harm. It's too powerful. They are going to use it to do harm, and we're going to get into an even more dangerous mess."

The third thing he's going to say is, "There are only 300 million Americans and there are only 500 million English-speaking people. If we let free energy out of the bag, when it's all over the Chinese will control and run all of us, and we don't want that. We're a minority so we have to do what we have to do. We need a control model so that the minority can stay in control." That's what they're going to say.

JOEL GARBON: Sure. I could understand that. You know what the underlying basis of all of that is, of course. It's fear.

C. AUSTIN FITTS: Right.

JOEL GARBON: It's fear, it's fear, it's fear. You can call it other things. You can call it greed or selfishness or paranoia or superiority complex or whatever you want, but it's all fear. It's all fear.

C. AUSTIN FITTS: Let me unpack a piece of that. Right now the US currency is operating on an oil standard essentially. If you let out free energy, then you need another collateral basis for the currency.

I've always believed the whole push to get the whole world on GMO seed, they were looking for something that would work after oil and gas wouldn't do the trick. I always assumed that that was in anticipation of this technology – of the genie coming out of the bottle and not being

able to be put back in.

When you change the model, you have to reinvent the currency, you have to reinvent a lot things.

I'm not agreeing with Mr. Global, but I'm saying that Mr. Global is afraid of a whole bunch of different things. If you look at the reason why Mr. Global is afraid, historically there are good reasons to be afraid. There is a reason he's afraid of the human race.

JOEL GARBON: Unfortunately Mr. Global is so entrenched in a separation mentality and is so disconnected from the source of life that it will not end well for the Mr. Global legacy. Mr. Global could be a hero for the planet, which I could guarantee could be much more satisfying than being looked at as a devil.

"Unfortunately Mr. Global is so entrenched in a separation mentality and is so disconnected from the source of life that it will not end well for the Mr. Global legacy."

C. AUSTIN FITTS: Right.

JOEL GARBON: An empire is never going to stand.

C. AUSTIN FITTS: I agree.

JOEL GARBON: The only thing that is going to stand is a society that becomes increasingly enlightened and increasingly not only in greater harmony with the other human elements of the society but aligned with life in the way life works.

Life is abundant. Life shares aspects of life, and it shares it freely. Life partakes of free air, of free sunshine, of free water. There are biblical sayings that are so beautiful about the flowers and the birds who have no care because they're provided for and they partake of this universal abundance. They don't have a separation mentality. They don't mind that the bees are collecting pollen and drinking nectar from the same flowers that the hummingbirds are. They don't mind that because they recognize that without those bees there would be no flowers, so they

work in harmony.

C. AUSTIN FITTS: Right. The sun never said to a forest, "Look, you can only have sunshine if you allow me to put in a chip." You see how ridiculous it is.

JOEL GARBON: You're going to coax me into photovoltaic solar panels in that here. I'm not going there because that's conventional renewable, and you can have someone else talk about that.

C. AUSTIN FITTS: One thing I did bring up – and I sent you my notes – is I do see a lot of non-energy technology that I think is impacting energy usage right now. If you look at the revolution in smartphones, we're getting close to everybody on the planet with direct contact with each other. But, I also think material science – and I sent you the announcement from the Swiss that they had used graphene to get the efficiency on solar panels up to 60%, and that knocks your socks off. Then you're talking about really competing against coal, although I don't know how expensive a graphene solar panel is. Graphene is still pretty expensive.

JOEL GARBON: Let's put it this way: It would be, at least right now, like someone who can only afford a bicycle looking at the Tesla through the auto show window and drooling. That's about the relative distance that a graphene solar panel would be in affordability.

Really, that particular development that the Swiss announced is very much in its micro stages and its infancy. Graphene is an amazing material; it has very unique and anomalous characteristics and great promise, but it's going to take quite some time before that becomes a practical solution.

So 60% photovoltaic efficiency – at some point, that's great. Right now, there have been a lot of great strides made even in the last several years.

C. AUSTIN FITTS: Oh, I think so.

JOEL GARBON: So solar has come a long way. In fact, even today Apple announced $850 million deal with First Solar to collaborate on a big solar farm, and Amazon is powering all of their data centers with renewable energy of some sort now. That's all well and good.

C. AUSTIN FITTS: Right, but isn't some of that marketing? I think a lot of that is marketing.

JOEL GARBON: Sure it is.

C. AUSTIN FITTS: I posted the link to the Department of Energy Renewable Energy Data Book that they just published in December, and solar is such a tiny part of both the domestic and global energy picture. It's just tiny.

JOEL GARBON: Right. It's just waved around a lot.

C. AUSTIN FITTS: It is waved around a lot, and people can relate to it. They can understand it.

JOEL GARBON: What people need to understand is that we have such a tremendous base load energy demand that is largely – almost all of it – fossil and nuclear based. That's a huge base load demand.

Where the renewables have come into play, primarily wind and solar, have been in meeting a small percentage of incremental demand that has gone on top of this huge base load.

C. AUSTIN FITTS: Right.

JOEL GARBON: Now, it is true that these conventional renewables of wind and solar have been growing in the increment that they are able to satisfy of this growing demand each year, but they're still not the dominant part of that. There is more natural gas power plants. There are much more of those that go on.

The Chinese are still building a lot more coal-powered plants, as India is,

and all this. There is still a lot more growth in the hydrocarbon-based power sources than there is on the wind and the solar, even though wind and solar have been growing leaps and bounds, but relative to their own base. It's not so great relative to the whole base load demand.

C. AUSTIN FITTS: One of the technologies I named in my email, in the blogpost I wrote in anticipation of this discussion, was fracking technology which is clearly another technology to improve accessibility for conventional oil and gas. It's truly a transitional technology, but it's made an enormous difference in the US over the last ten years.

JOEL GARBON: No doubt about it. It's highly controversial of course because people are concerned from a few different angles. Do these fracking chemicals end up polluting our aquafers? Are we actually releasing more methane into the atmosphere as a greenhouse gas? Are we encouraging more and longer-term dependence on oil and gas as opposed to moving to cleaner alternatives? As the supply increases and the price comes down, there is not as much of an incentive for people economically – at least from the standpoint of the consumer's immediate interest in dollars flowing out of their weekly household budget. There's not a lot of incentive to think about doing other types of things besides putting gas in the tank.

C. AUSTIN FITTS: Have you ever noticed that any time a lot of interest begins to grow on renewables and breakthrough energy, suddenly the price comes down?

JOEL GARBON: It is kind of interesting, isn't it!

C. AUSTIN FITTS: It is kind of interesting.

JOEL GARBON: Just to touch on what you just stated, Bill Gates has been briefed on cold fusion very, very deeply – at least at a fairly recent meeting. I think it was December in Italy that he was thoroughly briefed on the preferred name for cold fusion, which is 'low energy nuclear reactions' or LENR. There are some credible sources that say that Gates is now funding cold fusion in some capacity.

Is there something going on? Well, there could be.

C. AUSTIN FITTS: That's the big question. You know for a long time I've believed that there is a line between the general economy and this technology, and this technology has been kept out of the general economy for many decades.

The energy technology we use in the mainstream economy is decades – if not centuries – old.

JOEL GARBON: Right.

C. AUSTIN FITTS: Essentially all innovation development has been kept off to the side.

I believe the stuff exists because if you look at the UFO's and you look at the underground basis, I just don't see a way to run all of those underground bases on fossil fuels.

"My opinion is that the breakaways are using this stuff on the planet, whether they're flying around in the sky or they're building cities underground."

My opinion is that the breakaways are using this stuff on the planet, whether they're flying around in the sky or they're building cities underground. Somebody is using it. Somebody has got it, although I don't know specifically what 'it' is.

If you've ever seen those UFO's, they're not gassing up at Exxon, that's for sure.

JOEL GARBON: No.

C. AUSTIN FITTS: So somebody's got it.

JOEL GARBON: The simple fact is that if there has been even one of the claims of contact being credible – even one – it automatically implies that there are advanced energy and propulsion technologies, and they are here.

C. AUSTIN FITTS: Right.

JOEL GARBON: So it would mean that it's possible. It would mean that scientists crouching and cringing behind some dogmatic position about what is and is not possible in energy science loses all its credibility because somebody else is already doing it. They may be a very, very distant cousin to us, but they are there and they have figured it out.

I personally believe that the universe is highly populated and that there is a lot of interstellar commerce and leisure travel, and quite a bit of it happens to come into our neighborhood. I accept these things as kind of matter of fact. My family and I have had our own direct personal experiences in that area that just make it very matter of fact.

I just think it's like, "Let's get over it, folks." Let's start understanding and sharing these opportunities to do some incredibly happy and important work on our planet because we can change the whole game and it would be just wonderful.

C. AUSTIN FITTS: Things can work.

JOEL GARBON: It would be an adventure.

C. AUSTIN FITTS: Things can work.

JOEL GARBON: Yes.

C. AUSTIN FITTS: Poverty is a political choice; it's not an economic necessity. There's no reason for poverty.

Anyway, so here is my question for you, Joel. Emotionally, you maintain your calm. You maintain and have a happy life and a family and do all these things holding in your mind the extraordinary contradiction between the way we as a planet do things – which is very primitive – and what you know is possible. How do you manage to navigate a very primitive world knowing what you know and yet having a wonderful life? How do you do it?

JOEL GARBON: I'll tell you right now. I'm literally getting goose bumps all

over my body. I'm serious. I think because what I need to say next is probably the most important thing that I could possibly say. I know in my being that there is something that I'm supposed to be part of to help us get to that healthier, happier world. I accept that call and I want to do it. It's really the happiest thing that I experience in my life right now – doing it.

Usually how it comes about is meeting people, collaborating with people, and having small glimpses at what is possible because I have seen some amazing things. I guess you could say that I've seen behind the wizard's curtain a number of times.

I know these things are real, but even if I hadn't had the experiences of seeing and touching some of these amazing technologies and other experiences, I know in my heart and in my soul that there is a greater intelligence that does understand the workings of this world and the rest. That also is very, very conscious of the role that each of us can play in turning this into a beautiful adventure.

We don't have to be totally consumed by the apparent work that we do to feed our families. I do it. I have a regular day job and all that kind of thing, and I run New Energy Movement as my philanthropy of sorts. I meet with these various inventors and try to get involved in these other projects, some of which you know about. I do all that, but it's fabulous. There are many nights I don't want to sleep because I feel like I'm going to miss something.

It's more about dealing with the fact that there is still a physical organism that we move around in, and it is vulnerable to fatigue unfortunately – at least in this stage of our evolution.

C. AUSTIN FITTS: Right. We haven't found that breakthrough energy that we can plug into.

JOEL GARBON: Exactly. I think that is my long-winded answer to the emotional balance issue. Look, I'm a scientist who believes in a loving creator and a benevolent universe. It's not even just a belief; It's a

knowing. It's the most certain thing that I am aware of.

I appeal to that greater something every day, generally at the start of my day. I think about it throughout the day, and at the end of the day. It is the most real thing to me.

I just try to listen and just go where I'm pointed and work with the people who are put in my path who I look at as being deliberately sent to me to work with me. We each have messages to give and receive in each moment. Just be open to that and watch the miracles happen, and they do – literally. They do.

C. AUSTIN FITTS: They do. I live in a town called Hickory Valley and there is a town mural painted on one of the buildings across the town commons from me. Underneath is a quote from Corinthians, which is kind of the town motto, which says, "Whatever you do, do it for the glory of God."

JOEL GARBON: Amen.

C. AUSTIN FITTS: There you go.

JOEL GARBON: You can't go wrong there. I think when I hear scientists – and some of the most brilliant or 'intellectually gifted' people that I've ever met – be just dogmatically opposed to even the idea that there is a creator even. My mouth almost just drops open like, "How can you be so unaware?"

C. AUSTIN FITTS: Lost.

JOEL GARBON: I don't even know the word for it because how can you be so intellectually intelligent and so ignorant of the spiritual capacity which is another form of intelligence?

I'm a grandfather. My oldest daughter and my seven-year-old granddaughter just moved into my home here three weeks ago, which has been a great joy and a tremendous adjustment for all of us here. I would say that as a grandfather I've seen a little bit of life and I've had a

few experiences.

One of the things I've come to see is that while there are many, many people who are very, very intellectually intelligent – including most every scientist you're likely to meet – it doesn't mean that what comes along with that is the social intelligence, the emotional intelligence, the spiritual intelligence, and then the good seasoning of experience, all of which have to combine to actually get some real wisdom.

I would pause it that someone who is unaware of the source of life and the source of love and of universal sustenance – if they are unaware of that or uninterested in knowing that, I'm sorry, folks, but you cannot say that that person has wisdom. They may have intelligence, they might have some good ideas here and there, but they don't have wisdom. That's my bias.

"They may have intelligence, they might have some good ideas here and there, but they don't have wisdom. That's my bias."

C. AUSTIN FITTS: Right, and the danger is that they can then make a whole lot of mess.

I have two more questions before we close. Oil and gas prices. Do we think that the consciousness of breakthrough energy is now sufficient? We have a whole bunch of countries that are in a real squeeze. China and India are being squeezed by a growing population and a growing middle class. Germany and Japan have a huge squeeze. Germany wants to not be dependent on Russian gas, but now they're closing down nuclear reactors because of Fukushima, and, of course, Japan has had Fukushima.

So you've got some of the greatest engineering minds of the world who have enormous incentive to figure this out and start to apply it. Do you think we've reached the point where we're starting to see the line shift? Could this be affecting oil and gas prices?

JOEL GARBON: That is a good speculation. I of course can't say it for a certainty, but I do know that certainly in the case of Japan they have

some of the leading researchers in the cold fusion field. I would tell the audience here that cold fusion is real, and it is becoming ever more refined and robust. It's around the corner.

C. AUSTIN FITTS: Right.

JOEL GARBON: These countries, like you said, there is a lot of great science acumen in both Germany and Japan, and they're not just sitting around building windmills. That's not what they're doing. There are a lot of other things in the works.

C. AUSTIN FITTS: I almost fell over when Lockheed came out with their announcement.

JOEL GARBON: It was kind of a curious announcement about their fusion, speaking of a fusion technology. I didn't find a lot of substance in it.

C. AUSTIN FITTS: There was no substance in it. I assumed they were doing it to checkmate with the Russians who had just made an announcement, so Lockheed made an announcement to kind of check and checkmate.

JOEL GARBON: The Russians have a very robust breakthrough energy science community over there. They're doing some of the best work, and they're doing some things with plasma technologies with magnetic platforms for energy that look very, very promising.

C. AUSTIN FITTS: You know, they really are the dominant player in the palladium market. I keep watching as gold and silver have come down, palladium hasn't come down anywhere near as much. I keep wondering if this has anything to do with cold fusion. Who knows?

JOEL GARBON: It could possibly, but the leading horses in the cold fusion race aren't using palladium anymore. The electrolytic types of the cold fusion process do still use those types of precious metals as the catalyst or as an electrode, but what is more predominant now are processes that are using powdered nickel and that are using a solid fuel form of hydrogen. Generally it's lithium aluminum hydride. It's a solid material that when

you heat it up it eventually – at a certain temperature – releases hydrogen into the process. Then hydrogen has some type of interaction with the nickel in a process that is highly speculated but not well understood. There are lots of theories about it, but it seems to be very repeatable in producing excess heat.

The most recent replications and verifications of these type of nickel hydrogen fusion processes are showing an excess heat output of about three times as much on the output side of the process as on the inside of the process, and that's huge. I mean, to think about that, that's three to one over unity process.

C. AUSTIN FITTS: That's amazing!

JOEL GARBON: The results are fairly consistent between various researchers, and there is a lot of activity that has happened in the last six months in that field. Even up to this past week there has been some very interesting developments there.

It's very fertile, and I think that what we're likely to see is that there will be some of these low energy nuclear reaction (LENR, aka cold fusion) type of processes that are likely to come into the industrial and commercial space probably within the next two to three years. Then probably into maybe the transportation space possibly five to six years. Last will be at the consumer front, before you actually have a device for the home, and there are good reasons for that.

It's much more practical for an inventor or a new company that has a breakthrough energy process to have that process marshalled along by a commercial entity or an industrial entity that not only has a facility of scale where they can really have the process engaged around the clock producing usable power and have a technical staff that can be there to maintain and troubleshoot, and you're isolating your first number of these installed units or devices in a few locations which minimizes the risk during the early phase learnings and all this because a company can sustain an accident and kind of contain that and pay for that in ways that the individual homeowner can't.

You can see how if someone had a cold fusion type of device in their home and something goes awry, starts a fire, and burns down the home and the family gets injured, guess what that is going to do? That is going to put such a kibosh on this whole field. It would be used to great affect by those who wouldn't want the technology to proliferate. They'd have all the scare tactics going and that whole thing, whereas if instead you had it in a much more managed setting at a professional installation with trained personnel and all that, you just minimize the risk.

There is no doubt in my mind that these energy systems are going to be deployed first at commercial industrial, then likely in the transportation sector, and then last will be the consumer front.

C. AUSTIN FITTS: Right. You need a professional overhead to really manage it.

JOEL GARBON: Yes.

C. AUSTIN FITTS: Last question. You joined us at the *Secret Space Program* conference. I'm always trying to make sure that our subscribers watch those videos. We have them up on the 'subscriber only' space so they're all accessible.

I always say to them, "Watch Farrell, Fitts, Dolan, and McCandlish. Just go through them all." I want you to describe what the impact was on you of being there and hearing all the different presentations. Just share with everybody what it was like for you.

I have to say, I was shocked that it had such an impact on you. I said, "Joel, you know all of this already. Why would this have an impact?"

JOEL GARBON: I will preface it with this: Several of the leading UFO/ET researchers are friends of mine and have been long-time friends of mine. I've been exposed to this field for quite some time. I've been to a lot of conferences and gatherings where these topics have been presented in various ways.

No question at all, the *Secret Space* conference had the most high quality, best articulated, and most professionally presented cases of evidence and theory and implications of anything that I'd seen before. It was just so well-orchestrated as far as how these topics were all interwoven in something that finally painted a really coherent picture of the broader field and what its impact is on the everyday citizen.

I would say that someone could have come into that conference who was just a regular Joe or Mary off the street who knew nothing about the topic, and they could hear this and they would have come to grasp to a very high level what the meaning of this topic was, the fact that it's real and serious and affects them, as could a very highly educated academic from any of our major universities. They could also be there and feel very comfortable that these are professionals who are delivering these presentations, who know their stuff, and how could argue these points and present facts in a way that could withstand very, very rigorous scrutiny.

To me, that whole balance of speaking to the whole spectrum with credibility was something that I hadn't seen anywhere else. Oftentimes these other conferences that I've been at, there is some of the angle that gets discussed in a way or presented in a way that leads it so open for criticism and ridicule, and deservedly so in a lot of cases. But that did not happen at the *Secret Space* conference.

"Oftentimes these other conferences that I've been at, there is some of the angle that gets discussed in a way or presented in a way that leads it so open for criticism and ridicule, and deservedly so in a lot of cases."

For me to finally hear Joseph Farrell in person was a great treat!

C. AUSTIN FITTS: Yes, it's terrific.

JOEL GARBON: It's just amazing stuff. I can't recommend it enough.

C. AUSTIN FITTS: Okay, well you heard it from the source. You've got to watch those conference videos. I just think they snap into the jigsaw

puzzle a piece that really helps you get the whole picture.

Joel, I can't thank you enough for joining us on The Solari Report. Just describe your website. If we want to support your efforts to build this standards group, what do we do? How do we do it?

JOEL GARBON: The best way is to go to www.NewEnergyMovement.org. On the homepage you can see a number of different resources to find out more about what the Standards in Testing Protocol initiative is about. The presentation that I gave on this at the Global Breakthrough Energy Movement conference in Boulder last year is up there and you can watch it. There are some other presentation videos up there as well.

What is not up there yet is a collaboration that just came about between New Energy Movement and the Tesla Science Foundation to join together in moving this initiative forward. The Tesla Science Foundation, who I highly respect, has agreed to really help find some sponsors for this.

C. AUSTIN FITTS: That's fantastic.

JOEL GARBON: We can finally have some money to pay the technical committee members who actually write the protocols. What we have found is that there are a lot of people who believe this is a really great idea, but they don't have or are not willing to commit the time to do it for free. I understand that because I have served as a volunteer on protocol development committees for the water treatment field, both in the US and Canada, and it does take a lot of time.

C. AUSTIN FITTS: It's very time consuming.

JOEL GARBON: But, you know, this is a very worthy initiative. Your listeners can certainly go check it out. We're happy to accept any type of support you bring our way, including financial, and there are easy ways to do that at the website. I really appreciate you taking a look.

C. AUSTIN FITTS: Well, Joel, you have a wonderful week. If you see that line

between the labs and the real economy melting, give me a call. I need to know.

JOEL GARBON: Okay, Catherine. Take Care.

C. AUSTIN FITTS: Bye.