

## Converting Liquid Waste into Hydrogen Based Fuels



**Ermanno Santilli - CEO**

### **About MagneGas Corporation (NASDAQ:MNGA)**

Founded in 2007, Tampa-based MagneGas Corporation (NASDAQ: MNGA) is a technology Company that counts among its inventions, a patented process that converts liquid waste into hydrogen based fuels. The Company currently sells MagneGas® into the metal working market as a replacement to acetylene. It is also selling equipment for the sterilization of bio-contaminated liquid waste for various industrial and agricultural markets. In addition, the Company is developing a variety of ancillary uses for MagneGas® fuels utilizing its high flame temperature for co-combustion of hydrocarbon fuels and other advanced applications. For more information on MagneGas®, please visit the Company's website at [www.MagneGas.com](http://www.MagneGas.com).

**Interview conducted by: Lynn Fosse, Senior Editor, CEOCFO Magazine**

### **CEOCFO: Mr. Santilli, what is the concept at MagneGas?**

**Mr. Santilli:** The concept at MagneGas is quite simple. MagneGas was created to exploit the technology that was developed by Dr. Ruggero Santilli. That concept was developed for many years. It started out when he was a professor at Harvard, MIT and Boston University. It is really something totally new and unique and patented by us called Submerged Plasma Arc Technology. We take liquid waste and turn it into a powerful and versatile gas.

### **CEOCFO: Would you please explain how it works?**

**Mr. Santilli:** Usually, when people ask me that question, I draw their attention to something that people know from the green tech industry, which is solid gasification. Typically, in layman's terms gasification is where you have two electrodes and you are shooting electricity through those electrodes and you are trying to gasify solids; solid waste, hazardous waste, all sorts of waste. What happens is that you get a kind of smoky syn-gas and you get energy and you get ash or some sort of slag. It is similar to that but has many advantages, instead of having a solid waste, you have a target liquid that you are trying to get rid of or sterilize, you take two electrodes and you shoot electricity through them immersed in a liquid. What is different about MagneGas is that the syn-gas that is coming off of our system is immediately usable, unlike solid gasification systems that need to be scrubbed. In addition we feel our technology is more efficient because our electrodes are always in contact with the target liquid, unlike solid gasification systems.

### **CEOCFO: Is this system being used today or still in development?**

**Mr. Santilli:** We have three business lines. Two of them are developed and we have units in operation. The first one is the industrial gas business. Right now, I standing up and peering over the window of my office and I am looking at a unit that today is operating from eight until midnight. That unit here is producing gas to replace acetylene. The other application that we have; the concept was pioneered by MagneGas Corporation, but it was confirmed by MagneGas Italy, where we have a unit operating there to sterilize sludge's, to quite simply, reduce the disposal cost from roughly Eur 170 to Eur 80 per ton. The third application, which is a very exciting application, is to co-combust MagneGas with other lower combustion temperature fuels. We are still in the process of certification of that business line. Therefore, we do not have any unit operating in that application now, but we have three different projects around the world for to certify either coal or diesel applications.

### **CEOCFO: What are the results of that co-combustion?**

**Mr. Santilli:** The headline is that we believe we can take coal and we can extract more energy with an emission better than natural gas. It therefore becomes more efficient, therefore you have fewer emissions and those emissions are better than natural gas. It is pretty dramatic result; we are aware of that. We have had the same results in Brisbane, Australia, Tarpon Springs, Florida and now in Michigan. Those results came by refiring the smoke of coal or the flue gas of coal, as it is known, with MagneGas, which has a much higher flame temperature. Today the whole coal fired industry treats this smoke or this flue gas as a waste product, which is very expensive to clean with scrubbers, precipitators and everything else. MagneGas treats that waste stream as an energy stream and we light in on fire, quite simply.

**CEOCFO:** *With coal getting a bad rap these days in the US, at least from the government perspective, do you see that as helpful in people investigating what you are doing or are they so concerned with survival that it may be harder for you to get attention?*

**Mr. Santilli:** No. I firmly believe that large systems, and you could call the coal industry a system, in order for it to be disrupted or changed, there needs to be a dramatic reason to do so. If our technology came about twenty years ago, we might not be getting the tremendous attention and resources that we are getting now to develop this technology. We visited one of the coal power plants who said, "Our development team will be motivated to work with you, because they are trying to save their their jobs." It really comes down to the fact that the industry as a whole is in crisis. However, the fact that coal is the most abundant energy source in the world and produces more energy than any other natural resource in the world cannot be; it ignored. That said it typically operates at 33% efficiency so it is abundant but inefficient. Therefore, we believe that the combination of coal and MagneGas is going to be something that I think is going to change the world.

**CEOCFO:** *When you are talking with prospective users do they understand quickly? Is there an aha moment? Do they believe it is really possible?*

**Mr. Santilli:** That is a very interesting question. Every single person that any company talks to with a new product; you are going to receive varying degrees of openness to change; whether it is the industrial gas business or sterilization business or the co-combustion business, it is always the same. Some people are open to change; they are interested in learning more. Other people are a little reluctant and their threshold of risk is probably a little lower to do new things and that is fine. However, my response to people is, "Do not listen to what I am saying. Come and visit us. You will see the results." When you visit us and you see that our technology is real, we always connect with people in a very positive way and they become supporters.

**"MagneGas is unique. I believe we are the only Submerged Plasma Arc Technology company in the world. You could argue that liquid waste is the most neglected and abundant waste stream in the world." - Ermanno Santilli**

**CEOCFO:** *What is involved in implementing your systems in the various divisions?*

**Mr. Santilli:** With the system itself, the concept is quite simple. Our largest unit will fit on two semi-trailers and our smallest just about fits on a desk. Therefore, it is not a large footprint big space. Our smaller unit, our 100 kW unit, we demonstrated at the recent BioMass Conference in Orlando and it fits on a very small trailer and can be pulled by a pickup truck. I am actually looking at it right now and we are prepping it to be shipped to our customer in Kazakhstan. Therefore it is varying degrees. However, compared to other systems for example solid gasification units the MagneGas unit is very compact. Regarding setting it up, you just need to make sure you have the sufficient amounts of power. Then you have to have access to your target liquid. Of course, ideally you would need to define what market you are going to be selling the gas into.

**CEOCFO:** *With so many potential customers, how do you decide where and how to focus your time and energy?*

**Mr. Santilli:** That is a great question. Like any other growing company that has limited resources, that is something we think about all of the time. Our objective for this year is pretty conservative and it is something that I believe we are on track to achieve. One is the breakeven of our stand alone gas business. In other words, our gas sales would cover the costs of our gas business unit. To achieve that, we have two strategies and this is how we are figuring out where to apply our resources. We go after marquee customers such as General Motors, the US Navy and Fire Departments, for validation purposes and also, obviously, for commercial gain. However, we also go after local customers that are in our area and we deliver to directly. We are also working with some industrial partners that are in the industrial gas business to distribute our gas for us. That is where we are putting our resources on the industrial gas side. For the Sterilization business unit we are leveraging the work that MagneGas Italy did when they worked with the largest sewage treatment company in Italy for two years. They obtained certification that they met European norms for sterilization, so that sewage could be used for fertilizer or irrigation water. Therefore, we are putting our resources on mirroring that application to the EPA here in the United States. We are going to be targeting the transformation of class B Class waste into A Class waste, which we believe will save time and money. They way I describe it is, we make natures best fertilizer safe to be used. For the co-combustion, there is so much interest that we are struggling to keep up with all the different demands in different areas. However, in the US we are working with confidential partners, who are working with an EPA / DOE approved laboratory to confirm what we have seen in three different facilities, that we transform coal into a cleaner than natural gas fuel. I am happy to say that we are progressing to our sixth month of testing with this confidential partner and the testing is going very well. Actually, I am flying up there this evening to meet with our technological partners from Australia, Future Energy. We are going to view this latest round of testing first hand. My vision for the co-combustion side is that once the news is out and has it has been validated that we have this amazing co-combustion effect with coal, people will start asking why. What you are going to find is that all the other fuel opportunities are going to come forward, which are

basically any combustion temperature which is low and resulting in an inefficient burn, such as incinerators, biomass, heavy oils and even such as diesel, MagneGas will likely have an application. We are actually pursuing diesel and oil, right now. We believe that the opening of that whole market is going to be the first certification of our co-combustion business line.

**CEOCFO: *What have you learned in your previous experiences that is most helpful as you grow MagneGas and as you have so many irons in the fire as well as the fact that it takes a long time for concepts to be embraced? Would you give us a little bit about your experience and philosophy?***

**Mr. Santilli:** I spent a great deal of time with some global brands such as Bobcat, Thermo King and Ingersoll Rand. I have spent most of my time working in Europe. I look at Europe as a microcosm of the global world and global economy; it is just a little more compact. What I have learned in Europe and the world is that every company has a product, but the people that you trust in those local markets will find a market for that product. You can have an opinion about how the product will be best applied, but you need people locally who are going to be working with you that you can trust to be your channel partners. What I have learned is that you really need to find the right channel partners that you can work with and trust. You need to give them enough rope to work with and do what they do best, which is mate their knowledge of the local market with local demand of your product. I think that was probably one of the most important findings that we have done. With that comes teamwork and you develop the ability to collaborate. I think we have a tremendous, world changing technology that no one else has. First of all, certify and commercialize it in every market. Therefore, you need to collaborate with people. Collaborating is sharing, it just means that you have to work together closely and openly and have a great level of communication with your technology partners. Finally, I think that I would say that what I have learned here is that Dr. Santilli is a tremendous inventor and researcher and he did a great deal of ground breaking research. Now, what we are doing is perhaps focusing more on the “D” and taking all of the tremendous “R” that Dr. Santilli left us with and going through the process of certifying that in our target markets and then launching them into those markets. Therefore, what I have learned in this role is that when you come up with something new you really do need to collaborate with local partners and you need independent certification, particularly in some of the more mature markets that we are targeting.

**CEOCFO: *Are you funded for the steps you would like to take next?***

**Mr. Santilli:** Yes. Actually, this year has been a tremendous year on the funding perspective. We believe that we approximately two years of runway now at our current burn rate to ensure that we deliver on preferably all three of those business lines that we are pursuing. I think that is a testament to the fact that we are doing a good job of communicating with shareholders. I think that is also a testament to the fact that our shareholders believe in what we are doing. They recognize that we have a tremendous product and they are responding by investing in MagneGas.

**CEOCFO: *Why should people pay attention? Why does is MagneGas an exceptional company?***

**Mr. Santilli:** MagneGas is unique. I believe we are the only Submerged Plasma Arc Technology company in the world. You could argue that liquid waste is the most neglected and abundant waste stream in the world. When it comes to our gas, it is a unique gas. It has some combustion properties that we believe are unique in the world. As we get closer and closer to certifying these various applications, whether it is industrial gas or sterilization of manures of co-combustion of coal, I believe that MagneGas is going to change the world.

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