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**Carbon Sciences Has Developed A Revolutionary Breakthrough Biocatalytic Process That Allows Them To Turn Carbon Emissions Into Portable Fuel**

**Industrial Goods  
Waste Management  
(CABN-OTC: BB)**



**Byron Elton  
President and COO**

**BIO:** Byron Elton has over 25 years of media and marketing experience with a proven record in pioneering new business development strategies and building top-flight marketing organizations. He previously served as Senior Vice President of Sales for Univision Online. Mr. Elton served for eight years as a senior executive at AOL Media Networks, where his assignments included Regional Vice President of Sales for AOL and Senior Vice President of E-Commerce for AOL Canada. His broadcast media experience includes leading the ABC affiliate in Santa Barbara, California and the CBS affiliate in Monterrey, California, in addition to serving as President of the Alaskan Television Network.

**Company Profile:** Carbon Sciences Inc. is developing a breakthrough technology to recycle carbon dioxide (CO2) emissions into liquid, portable fuels. Innovating at the intersection of chemical engineering and bio-engineering disciplines, we are developing a highly scalable biocatalytic process to meet the fuel needs of the world. Our solution to energy and climate challenges is to enable a sustainable world of fuel consumption and climate stability by recycling CO2 into fuel. For example, Carbon Sciences' breakthrough technology can be used to recycle CO2 emitted from fossil fuel power plants into gasoline to run cars and jet fuel to fly aircraft.

**Interview conducted by:  
Lynn Fosse, Senior Editor  
CEOCFOinterviews.com**

**CEOCFO:** Mr. Elton, what is the vision at Carbon Sciences?

**Mr. Elton:** "Carbon Sciences is a technology company. We have developed and continue to develop the technology that recycles carbon dioxide emissions back into liquid portable fuels. We do this through a revolutionary breakthrough biocatalytic process. It creates an environment where the catalysts can perform their emission of stitching together hydrogen and carbon molecules together to create hydrocarbons, which are the building blocks for fuel."

**CEOCFO:** How does the process work?

**Mr. Elton:** "We are emulating the same process that occurs in nature. In nature carbon dioxide is absorbed by plants, these plants are buried and over millions of years they turn into the petroleum that we dig out of the ground, refine into fuel and transport for our transportation sector. We replicate that process, but with

some significant advantages. In nature, the biocatalysts are exhausted and depleted fairly quickly. Without a significant increase in these "turns" the production of fuel is a very expensive process. We provide a protective environment for the biocatalysts that not only allows them to perform their mission many times over a long period but also makes the process much more efficient. The successful commercialization of the technology hinges on two dynamics. The first is significantly increasing the functional life of the biocatalysts (TTN – total turnover number) and the second is reducing the CO2 to fuel reaction time. We have made recent announcements outlining significant breakthroughs in both areas."

**CEOCFO:** From where are you getting the carbon dioxide?

**Mr. Elton:** "There is an extraordinary amount of CO2 being emitted every day. The 2006 numbers were at 26 billion tons so we are certainly well above that number. With a coal-fired plant being built in China every week, the estimates are that in 20 years, that number will be well over 40 billion tons. There is tremendous pressure on major CO2 emitters to mitigate that output and that is where our logical opportunities lie."

**CEOCFO:** Where are you in the development process?

**Mr. Elton:** "In March of this year we introduced a prototype at our facilities here in Santa Barbara that demonstrate our CO2 to fuel technology. From the high quality data we have been harvesting and with very sophisticated computer aided process engineering tools, we are confident that we will be delivering a full-scale package to the industry by this time next year. As I mentioned earlier,

the breakthroughs we have achieved recently in the areas of reducing the reaction time and biocatalytic total turnover number have given us great confidence.”

**CEOCFO:** What is the competitive landscape?

**Mr. Elton:** “We have many fellow travelers in this mission to successfully address the dual energy and climate crisis. We don’t believe however, that any single approach is going to solve the problems. These are enormous challenges we face. How are we going to continue to provide the kind of energy that not only we need, but that the world needs particularly with the emerging demands coming out of China, India, and Brazil? Equally important is to ensure we are not destroying the environment at the same time. In terms of our technology, no one to our knowledge is pursuing the same path. We have some compelling advantages we think that make this technology very compelling. We are the most direct path from CO2 to fuel, our technology occurs in a very mild environment (low energy), the resulting product will be used in the existing infrastructure, supply chain and vehicles, and we have the advantage of scale. We can make extraordinary amounts of fuel with our process.

Most specifically today when you talk about carbon capture, is sequestration, and that is the process of capturing the CO2 and injecting it back into the earth, hiding it and we along with a lot of other people have great concerns about the viability of that approach. As a matter of fact we think it is not a good idea. There are all kinds of unanswered questions and potential problems that we anticipate with that particular approach, not the least of which is safety. What are the costs sequestering monitoring it and making sure it is not endangering the environment or the people around it. You have a lot of the not-in-my-backyard situations as well where people are certainly not going to be anxious to have that anywhere near where they live. Having said that, if it were the only alternative it is something that should be looked at. Fortunately, there are other alternatives. There were

some testimony in front of the senate last week from a woman from Sandia Labs who talked about carbon challenges and had introduced the idea; and this was also in a New York Times article. There are other alternatives to sequestration. There are technologies working on doing something with this CO2 once it is captured that not only would be very safe, but very strategic for the US. It is a homegrown solution that provides significant liquid portal of fuels for the transportation sector, which of course our society depends on. I mentioned lots of other people that were working on this, algae, wind or solar or whatever and we applaud their efforts and think that they should be encouraged and supported. We also believe that if problems are enormous enough that they require solutions that really match the enormity of the problems, so you have a scalability issue. Algae as an

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example, which is being pursued energetically, requires a tremendous amount of land, water, time, to do all that. The carbon footprint of harvesting it and turning it back into something you can use is significant. It also has its own carbon footprint because of everything that goes along with harvesting it, crushing it and processing it. Then you have the additional challenge of the existing infrastructure, which of course can’t handle the existing fuels. So it is a tremendous amount of investment to change the existing infrastructure.

Our particular technology, and this is one of the reasons I believe that we are getting as much attention as we are, brings four things to the table that we think are very important. Number one, our technology provides the most direct path from CO2 to fuel; it is exactly as I described it. We introduced the CO2 to the water where it is hydrated; the biocatalytic

process takes place and turns it into fuel and it happens within hour. It is done in mild conditions, so it is a low energy. There are people who have continued to explore opportunities and ways of doing this with different methods and require enormous amounts of energy. My friends at Madison Avenue would say the juice is not worth the squeeze; you spend more energy than you end up with. So that is an advantage that we bring to the table. Thirdly, the fuel that we make fits right back into the existing infrastructure; the same supply chain and the same vehicles, so the cars, trucks, planes, boats, use the exact same fuel that they are using now. In terms of getting it to them and using it, there is no need for any additional infrastructure or changing of the existing system. Our last one is scalability, how much of it can you make because we use a lot of liquid portable fuels in this country and that is another great advantage of Carbon Sciences technology. We can make a gallon of gasoline out of 65 cubic feet of carbon dioxide and a metric ton of carbon dioxide can make a 150 gallons of gasoline. So you start to do the math and you realize with billions and billions of metric tons available to us on an annual basis, the amount of fuel that we can make is extraordinary. We have done the math and have determined that if you just took the coal fire plants as an example and were able to use somewhere around 25% of the CO2 emissions that they produce in the course of a year, we could make enough fuel to satisfy 30% of the world energy. So scalability is a big factor in all this. If you have a technology that isn’t going to make much of an impact or much of a dent, then if it isn’t all that helpful, you can figure out a way to make a huge impact and that is something we bring to the table as well.”

**CEOCFO:** What is the financial picture of the company?

**Mr. Elton:** “It is an challenging time for everyone, but we find that this particular challenge and technology is front and center. We have no shortage of people that want to talk to us about this in terms of strategic partners or financing. We are

publicly traded (stock symbol CABN). We also have opportunities for private investors to invest in the company. We have a 'public market venture' model. There is also grant money available which we are considering."

**CEO CFO:** In spite of the new administration and peoples' interest, new ideas often don't get pursued. How does Carbon Sciences breakthrough barriers to acceptance?

**Mr. Elton:** "The first thing we have going for all of us most people would agree that the dual crisis of supplying the energy we require and protecting the environment, is the single most pressing issue of our time. It also speaks to other issues in terms of political stability around the world and the amount of money that is

funneled to petro-dictatorships. These are challenges that can no longer be ignored or delayed. It is a matter of survival for us, one because of the environment, two because of the energy that we need, and three because in many ways it is an opportunity for us to create high paying jobs here at home. There are a lot of smart people hacking at this problem and we are fortunate that we have a technology that we believe better answers and addresses the problems than any other single approach."

**CEO CFO:** Final thoughts; why should investors pay attention to Carbon Sciences?

**Mr. Elton:** "Energy is the largest market in the world, bigger than food. The world runs on liquid portable fuels. This market

place currently is a huge marketplace, and moving forward it is going to be even bigger. I celebrated a significant birthday the other day, so just for fun I went back and looked at what the world population was when I was born and it was 2.6 billion. Today it is approaching 7 billion. In twenty years, it will be approaching 9 billion people. More importantly, the demand for energy will go up 50% over where it is today. With the ability and the need to find alternative ways to provide energy and take care of the planet, there has never been a bigger opportunity for anybody and we are delighted to be a part of that and excited about the progress that we have made."

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