

Firepoint Energy – Creating Synthetic Fuel for Clean Energy and Extracting Rare Earth Elements from Waste Coal



Billy Ray Smith
CEO

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Interview conducted by:
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CEOCFO: *Mr. Smith, what is Firepoint Energy?*

Mr. Smith: We come out of a gasification industry where we build plasma gasifiers to convert garbage, landfill waste and waste coal into what is called syngas (synthesis gas). We then take that syngas and turn it into jet fuel. In March of this year, we came up to Pennsylvania and started looking at waste coal piles across the state, taking samples and looking for rare earth elements.

We found that across the state there is an abundance of rare earth elements, so we are now acquiring a site in the middle of Pennsylvania to grind up the rock and coal, convert it into syngas to make jet fuel, and at the same time take the hot rock, set it with an acid, and extract the rare earth elements. These are neodymium where you find the magnets, cerium, scandium and so on. We are also finding an abundance of aluminum oxide for aluminum production and titanium, along with a little gold and silver.

To summarize, our process cleans up waste coal piles, produces energy from them in the form of jet fuel, and extracts rare earth elements and other valuable minerals in a way that is highly profitable and cost-effective.

CEOCFO: *I have heard a lot about the scarcity of rare earth elements, I have never heard that they are there in waste. Why is that and why are people not looking for that all over?*

Mr. Smith: In Pennsylvania they have known there were rare earth elements in waste coal for seventy years. For example, you take something the size of a ping pong ball and put it in a corner of a piece of land and put another one in another piece of land, how would you bring all of these together to extract rare earth elements? While they are valuable, they are very dispersed across the world. They are not actually rare, but they are so dispersed that sometimes it is not economical to pull them all together into one place at one time. When companies dig coal mines, they are digging down into the earth, and they hit rock, and then they eventually hit the coal seam. They are harvesting out the coal seam, and then because it is not fully clear how thick the coal seams are, they will dig beneath it. It has been discovered that the rare earth elements lay in the rock that is both above and below the coal seams. We had a sample tested up in Gilberton, Pennsylvania, which involved testing the coal by itself and then testing the waste coal. We found more rare earth elements in the waste coal, the rock, the above burden, and the under burden, than we did in the actual coal. It seems like these rare earths pass through the coal seam and lay down below and above it when the earth was formed.

What you are going to hear more and more of is the government has now deemed rare earth element acquisition to be a matter of national security. We now get almost all of our rare earths for the defense department, magnets, and other tech-heavy manufacturing operations from China. The government wants us to bring all the mining and processing here to the United States, which was an edict issued in April of this year. Companies are out looking to dig big pit mines that may take thirty years to fully drill down to.

We found that if we go to a waste coal pile — like the site we are looking at that now has about eight million tons of coal — we can literally just have to scoop it up, crush it up, run it through our gasifiers, and in the end we have renewable fuel and rare earth minerals. Our process is more streamlined for this kind of an industry than traditional rare earth mineral processing plants.

CEOCFO: *Are there any types of environmental challenges or things to be aware of when you are doing the processing?*

Mr. Smith: Not really, because the rock processing is no different than mining stone for gravel. The biggest question people ask us is “What do you do with the carbon dioxide?” I tell them to Google CO₂+H₂, and they will find out that we can convert carbon dioxide into methane and make fuel out of it.

As weird as this may sound, our emissions are fuel. If we vented it into the environment, we would be releasing carbon monoxide and carbon dioxide and hydrogen into the atmosphere. If we run those through a GE turbine, we are producing electricity, and we will have cleaner emissions than if we run on natural gas by running that same gas through a gas-to-liquids plant. This is proven 1920s-1940s technology, and we convert that gas into cleaner-burning jet fuel and petroleum jet fuel.

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Our emissions are clean fuel, and that can be tough for a lot of people to wrap their heads around, but it’s 100 percent true.

CEOCFO: *What are some of the challenges in getting this off the ground?*

Mr. Smith: One challenge has been getting on the same page with the Department of Environmental Protection here in Pennsylvania. We have already dealt with the House, the Senate, and the Governor’s office because we know going into an industry like this we want the policymakers to know what we are doing. The second thing is it costs a lot of money to get started. This small site we are building in Central Pennsylvania is \$267 million. There is another pile a few hundred feet away of 15 million tons of waste coal and to build that site will cost at least \$400 million.

The expenditure it takes to purchase the equipment is very high. In the petroleum industry, they already have the equipment, since petroleum production is an established and ongoing process. We have to build this equipment from scratch, and we do that down in Texas and Louisiana. We truck it to Pennsylvania, assemble it, and start producing fuels and energy. The process of getting started is one of the hindrances to this industry.

CEOCFO: *When you are speaking to someone who might want to participate, do they understand?*

Mr. Smith: I spoke with a very well-known family in the eastern part of Pennsylvania, and the first question I was asked is how I concentrate this stuff. I told him that if I told him he would not need me anymore. They understand that this is doable; they just do not know how to do it. When we come along, we are saying that we can take the waste coal, crush it, gasify it and turn it into jet fuel, and then heat up the rock to extract the rare earths. All the processes we use already exist in the world today; we just have a special way of implementing them.

The origin of the synthetic fuel industry was invented by Germany in the 1920, when they learned to turned coal into jet fuel, gasoline and diesel fuel. Today, we use petroleum because it is cheaper, but synthetic fuels will be the next wide-scale evolution of fuel manufacturing. People in the industry already know it, but when I talk to people outside of the industry, their eyes glaze over because they often have difficulty understanding the concepts. I try to break it down to a

level they can understand; none of the processes are that complicated, but linking them all together can be a challenge for people to comprehend at first.

CEOCFO: *Are you concerned with potential new administration with different feelings regarding the environment and mining?*

Mr. Smith: Not really. We operate on a permit that allows us to scoop up waste and convert it; it is not like we are actually mining. As far as the administrations, I was concerned until April of this year, which is when the Department of Energy and the Department of Defense deemed fifty minerals to be critical to the infrastructure to the United States and seventeen of those are rare earth elements. Aluminum is big on that list, and one of the things we have found here in Pennsylvania is that there is an abundance of aluminum oxide in all of this rock and coal that we are processing.

I'm not concerned about the new administration primarily because there has been bipartisan recognition of the danger of not bringing rare earth element production back to the United States, and the push for renewable energy sources is now being driven by private industries and not just the government. Regardless, our business has been developed in such a way that it is not dependent on state or federal subsidies; they operation can make considerable revenue and profit without outside assistance. Any additional subsidies would be cherries, icing and sprinkles on top; our business can operate perfectly well without them.

In other words, we are administration-neutral because the importance of our work isn't dependent upon who is in office. Our activities solve problems that are vital to the military security, economic security, and environmental security of the nation.

CEOCFO: *Where do you see challenges or potential challenges?*

Mr. Smith: The challenges would be the things you do not know. That is why we are actively engaging engineering companies, and we are also in ongoing talks with the Governor's office in Pennsylvania, along with the House and Senate, and the Department of Environmental Protection. I'll be talking to the local County administration this week. We are trying to over all of the bases to minimize the emergence of any surprises. So far, everyone in Pennsylvania has been receptive to what we are doing. However, we don't want that warm reception to make us overly optimistic.

CEOCFO: *How do you deal with frustration of knowing you have something that is important on so many levels, yet even though things may be going smoothly, you never know what can happen?*

Mr. Smith: As the old saying goes, you have to expect the unexpected. You also have to acknowledge that not everything in life is going to work out exactly as you first envisioned. You do the things you can do, and the things you cannot do are out of your control, so you have to try to not lose sleep over it.

We were at a meeting in California years ago, and a woman involved in the meeting was talking about her company and how they had started it for one specific reason, and that did not work out. Instead of dissolving the company, they changed their approach, and everything worked out for the best. Therefore, the biggest thing is to be flexible so that if things are not going the way you want them to go, you can adapt and plot a more favorable course.

CEOCFO: *What if anything might people miss when they look at Firepoint Energy?*

Mr. Smith: People might miss how big the transition from petroleum fuels to synthetic fuels is going to be. Everyone knows about solar and wind, but I cannot run my car on solar or wind. Therefore, the next evolution of global energy is going to be in synthetic fuels, and we are right on that wave that is starting to rise up. Years ago, BP had a commercial on TV talking about their new cleaner-burning synthetic fuels. It is not new, because the people in the industry know about it, but the consumer is not yet aware that there is this growing energy movement that is going to affect their cars, their busses, and the entirety of transportation as we understand it today. Hydrogen will come along in time, but we have to convert hydrogen into another form and then reconvert it back into hydrogen to make it cost effective.

This means the next industry we are working on is the new synthetic fuel industry, and we do that from waste streams. What they are missing is that we are cleaning up the messes that were left behind by prior versions of the energy industry and converting that waste into a fuel that they can drive with right away. I do not think people are aware of that, but they will all be finding out about it in the next decade or so.

CEOCFO: *Final thoughts? What is the take away for our readers?*

Mr. Smith: Be aware of the world and industry that is around you. It is ever-changing, and sometimes change is difficult because you are changing mindsets. People need to be open to these changes when they come along. Sometimes change is good and sometimes it is not. I can drive an electric car from coast to coast, but I have to sit there for a couple of hours to charge it back up. If you are running on synthetic fuels, you would fill your car up just as you would at the gas station, and then continue down the road. And frankly, that synthetic fuel will be a cleaner form of energy than the electricity.

Again, you need to be cognizant of the world shift and not try to avoid it or outrun it. The world needs to transition to cleaner fuels. There are eight billion people on the planet, and the demand for cleaner energy is only going to go up. We believe the answer is the synthetic fuel industry.