BAB156
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Arthur M. Blank Center for Entrepreneurship

FEED Resource Recovery

It was the spring of 2006 and Shane Eten had just won a $20,000 sustainability award at the highly competitive Rice University Business plan competition. Shane was already thinking about how he would use the $20,000. This wasn't the first time his idea, Feed Resource Recovery (**feed**), had won or placed well in a business plan competition – he'd finished 2nd at the Babson College, 2nd at the University of Colorado, and 2nd at UC-Berkley competitions. Although the prize money and services in kind were helpful, Shane knew that he couldn't successfully launch his business on prize money alone. Shane estimated that he would need $150,000-$250,000 to build the anaerobic digester prototype and much more money after that to scale production and sell the system across the country. Where would he get the money?

Based upon his success in the business plan competitions and through strong personal networking, Shane had talked to several venture capitalists and they all expressed strong interest in the business. Potential investors seemed to be coming out of the woodworks, but still Shane was uneasy. How much of the company would he have to give up if he was going to secure their investments? Even from his preliminary conversations with the venture capitalists, he knew that the valuation[1] of the company was only going to be part of the problem. He was discouraged by the grim prospect of having to jump through hoops, answering the venture capitalists endless list of questions. He figured it would take at least six months of battling back and forth over equity and shares during which time the venture capitalists would be looking over his shoulder, and all this before a prototype was ever built. Furthermore, several of the venture capitalists were saying "this is a great idea, come back when you have a prototype built," so Shane wasn't even sure if VCs were really interested or just talking. But what other choice did he have? How could he raise the substantial amount of funding that he would require to assemble a team and build a working prototype? And how could he accomplish all of this without giving up all rights to his idea? The task was daunting and the answers were scarce.

[1] The valuation of a company is broken into two parts. The pre-money valuation is how much the company is deemed to be worth prior to the investment. The post-money valuation is the pre-money valuation plus the investment. The percentage of equity that the investor receives is the investment/post-money valuation. The percentage that the entrepreneur retains is the pre-money valuation/post-money valuation.

This case was prepared by Reuben Zacharakis-Jutz under the direction of Professor Andrew Zacharakis.as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Funding was provided by the Arthur M. Blank Center for Entrepreneurship, Babson College.

From Athlete to Entrepreneur: The History of Shane Eten

Shane Eten was born in Philadelphia and lived in a number of places while his father attended medical school. The family eventually settled in Cape Cod, Massachusetts where his father and mother started a family owned medical practice. Living near the sea inspired Shane's father.

> My father built a sailboat in our back yard. He started when I was in sixth grade. He told me he was going to build a sailboat and sail it around the world. He was probably a little crazy, but he actually built a thirty-six foot trimaran.[2]

For as long as Shane could remember, his father had a dream of building the sailboat. He would wake Shane up early in the morning on weekends and make him help work on the boat, sometimes working twelve-hour days. After several years of effort, they successfully launched it and saw it sail.

> Although at the time I really hated working on that boat, looking back I realize that it was a very important part of my childhood because it taught me the importance of hard work and taking a dream you have and making it reality.

Like many boys, Shane was more interested in playing sports than school. He always enjoyed the team aspect and the competitive nature that came with athletics. His goal was to play Division I basketball in college. Hampered by knee injuries but still wanting to pursue his dream of playing college basketball, Shane chose to attend Trinity College, a Division III school and play ball there. Unfortunately, his knees never fully recovered from a series of knee surgeries, so Shane never had a chance to play in college.

At Trinity, Shane majored in psychology and graduated in 2000. Although he enjoyed studying psychology, Shane didn't want to pursue a career in the field, but he didn't know exactly what he wanted.

> I really didn't enjoy school and to continue down the psychology career path would require me going back to school almost immediately. I like getting out there and getting my hands dirty with real work. In the field of psychology, I would have been doing a lot of research and theoretical education based work. I wasn't ready for that. I wanted to get out in the world and make something happen.

After graduating from Trinity, Shane went on many interviews and eventually found a job working for an up and coming computer company, Angstrom Microsystems. Angstrom Microsystems built super computers from off-the-shelf components and Linux software. Shane loved working for this fast growing entrepreneurial company because his job was never the same day-to-day. He had the opportunity to work with many different aspects of the business. His original job was working with vendors. Then, he moved his way up to product development and finally he settled in customer account management. While Shane was with Angstrom, the company grew from $500,000 to $15 million in sales in his first 8 months. With the hands-on

[2] Trimaran is a fast pleasure sailboat with three parallel hulls.

experience he gained and the opportunity of being able to see how so many aspects of a company worked, Shane realized:

> Entrepreneurship is fun and, most importantly, competitive. There's a real science to starting a company. It was at this time that I first started thinking about building my own company.

Unfortunately, Angstrom's success was short-lived as the market took a turn for the worse when one of Angstrom's largest customers stopped growing. The CFO of Angstrom left for a position at a candle company. He called Shane and convinced him to come along for the ride. The position that Shane had been offered was 180 degrees different from his job at Angstrom and an opportunity to test his abilities in a new way. Although Shane liked the tech industry, he decided to give it a shot. So at age 24 he started as a manager of a candle manufacturing plant.

> It was a drastic change. Laurence Candle Company was a sixty-year-old, third generation company, and I was managing people mostly older than me; some who had been working there for thirty years.
>
> He was forced to get on the floor and get dirty learning the process of making candles.

The Laurence Candle Company was struggling because its product was very similar to another established brand, Yankee Candle. The company needed new ideas so Shane raised his hand and asked if they would give him a shot at designing a new line of candles. After doing a bunch of market research and going to trade shows to see what was out there, he launched a new line of candles made from a new type of wax made out of soy. Soy wax was environmentally friendly because the wax was made from an all-natural crop; it was considered renewable and therefore sustainable. The soy wax candle line took off. Not only was soy cheaper than traditional paraffin wax, it could be sold as all-natural for 30-40% more than traditional candles. Sales jumped instantly. It saved the company.

> There was a new consumer emerging at this time and if you could say that it was all-natural then you could say that it was sustainable or noble. This new brand of customer was willing to pay a premium for environmentally friendly products.

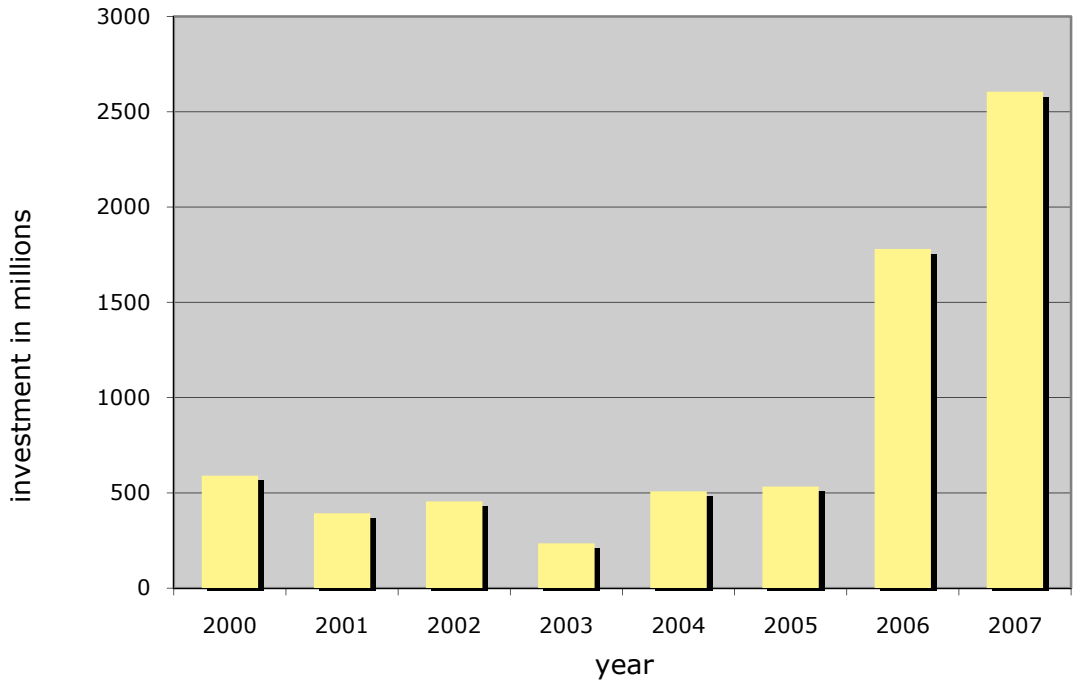
Shane put in 60-70 hour work weeks developing the line of soy candles. He also started research on adding biodegradable plastic wrappers to the candles. It was at this point that Shane knew if he was going to put in this much time and effort toward an idea, the next time it would be for himself and his own company.

Working for small companies, Shane had learned a lot about how the business world worked, but he knew that he needed a stronger foundation in accounting and working with numbers. If he was going to be successful in starting and managing his own ventures he was going to have to go back for an MBA. At 28 years of age, he decided it was time to go back to school. Soon after he applied, Shane was accepted to Babson College.

The CleanTech Industry

Shane entered Babson with a goal of finding an idea to launch his own business. He was intrigued with opportunities in the Clean Technology space, especially around combating global warming. Investment and growth in the CleanTech industry exploded in 2007 passing the record set in 2006 in the first three quarters.[3] **Figure 1** shows an explosive upward investment trend.[4]

Figure 1
Annual CleanTech investment over the years



Source: National Venture Capital Association

The increased growth and investment in the CleanTech industry has not only been brought on by the large price increases in gas and other fossil fuels, but also in the raised awareness of global warming by prominent figures such as former Vice President, Al Gore. Gore's work with the United Nations Intergovernmental Panel on Climate Change, his winning the Nobel Peace Prize, and his involvement in the Academy Award winning documentary, *An Inconvenient Truth,* have brought to light the serious issues of climate change and global warming. These works have also brought legitimacy and an increased interest in the CleanTech industry.

[3] November 28, 2007. CleanTech venture investments by US firms break record in 2007. National Venture Capital Association (NVCA). Thompson Financial Press release. Retrieved on January 30, 2008, from http://nvca.org/pdf/CleanTechInterimPR.pdf.
[4] Ibid NVCA 2007.

> Taken at face value, the surprisingly entertaining "An Inconvenient Truth" provides an idealistic, persuasive and compelling dissection of the perils of global warming. Frightening and timely, the smartly organized documentary is an urgent plea for responsibility and action as well as an impassioned call to heed the ominous warnings of science.[5]

Gore's words resonated with Shane. As Gore stated:

> But along with the danger we face from global warming, this crisis also brings unprecedented opportunities. What are the opportunities such a crisis also offers? They include not just new jobs and new profits, though there will be plenty of both, we can build clean engines, we can harness the sun and the wind; we can stop wasting energy; we can use our planet's plentiful coal resources without heating the planet.
>
> The procrastinators and deniers would have us believe this will be expensive. But in recent years, dozens of companies have cut emissions of heat-trapping gases while saving money. Some of the world's largest companies are moving aggressively to capture the enormous economic opportunities offered by a clean energy future.
>
> But there's something even more precious to be gained if we do the right thing. The climate crisis also offers us the chance to experience what very few generations in history have had the privilege of knowing: a generational mission; the exhilaration of a compelling moral purpose; a shared and unifying cause; the thrill of being forced by circumstances to put aside the pettiness and conflict that so often stifle the restless human need for transcendence; the opportunity to rise.[6]

Consumers and the public in general are expecting companies to be more eco-friendly; they want to see real efforts made toward carbon reduction and recycling. This has encouraged companies to race toward new technologies in order to capture a piece of this new market. One example of the efforts that mainstream companies are making is Google's recent pledge to become a carbon neutral company.

> Google today announced a new strategic initiative to develop electricity from renewable energy sources that will be cheaper than electricity produced from coal. The newly created initiative, known as RE<C, will focus initially on advanced solar thermal power, wind power technologies, enhanced geothermal systems and other potential breakthrough technologies. RE<C is hiring engineers and energy experts to lead its research and development work, which will begin with a significant effort on solar thermal technology, and will also investigate enhanced geothermal systems and other areas. In 2008, Google expects to spend tens of millions on research and development and related investments in renewable energy. As part of its capital planning process, the company also

[5] Ogle, C. June 9, 2006. Seeing entertaining documentary makes you want to save the world. *Miami Herald* online movie review. Retrieved on January 30, 2008, from http://ae.miami.com/entertainment/ui/miami/movie.html?id=616935&reviewId=20952.

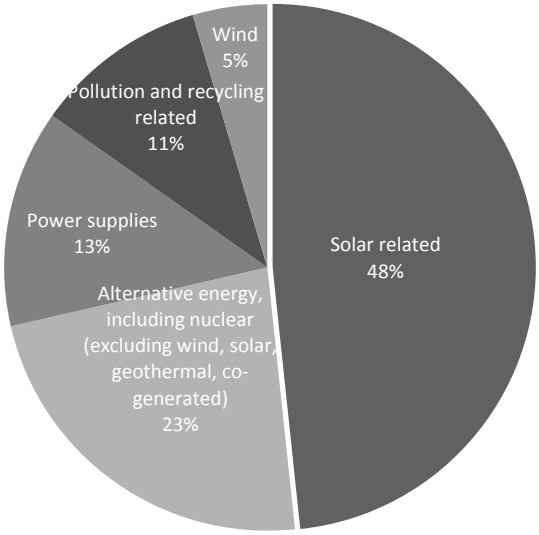
[6] Excerpt from Gore A, 2006. *An Inconvenient Truth: The Planetary Emergency of Global Warming and What We Can Do About It.* Paramount Classics.

anticipates investing hundreds of millions of dollars in breakthrough renewable energy projects which generate positive returns.[7]

Another example is Wal-Mart. Although Wal-Mart has faced much criticism for its energy consumption and pollution practices, the company has invested large amounts of money in green technologies. For example, Wal-Mart installed solar power in 22 of its super centers which accounts for roughly 1 percent of the U.S. super centers. Wal-Mart has also made other green commitments promising to decrease its carbon footprint. It has pledged to eventually run off 100% of renewable energy sources. In the short run company officials say they will adapt old stores to be 25% more efficient and new stores 30% more efficient.[8]

The increased interest in clean technology has attracted many investors. **Figure 2** shows the distribution of investment in the CleanTech industry by sub-category.[9]

Figure 2
US CleanTech Investment by Industry



With the wealth of interest by angel investors and venture capitalists alike, many new companies have hit the ground running and have found success. This explains the high interest that Shane has received from these investors. The CleanTech Venture Network estimates that over 240 CleanTech companies could be positioned for a liquidity event between 2007 and

[7] Fuller, J. November 27, 2007. Google's Goal: Ren Source: National Venture Capital Association Renewable Energy R&D Group and Supports Breakthrough Technologies. Google Press Center, Mountain View, CA. Retrieved on January 30, 2008 from http://www.google.com/intl/en/press/pressrel/20071127_green.html.
[8] Wall-Mart, Environmental, overview. Retrieved on January 30, 2008, from http://www.walmartstores.com/GlobalWMStoresWeb/navigate.do?catg=345.
[9] Ibid NVCA 2007.

2009.[10] A small niche within the CleanTech sector known as waste conversion technologies is beginning to catch on. One such example is Converted Organics Inc. Converted Organics, based in Boston is a development stage company dedicated to producing a valuable all-natural, organic soil additive through food waste recycling. Started in 2003, Converted Organics Inc. is a five-employee operation that has just recently gone public raising $9.9 million in an IPO and has a market capitalization of $14.3 million.[11] Other examples of recent transactions involving waste conversion providers are noted in **Table 1**.

Table 1

•**BlueFire Ethanol, Inc.** is established to deploy the commercially ready, patented, and proven Arkenol Technology Process for the profitable conversion of cellulosic ("Green Waste") waste materials to ethanol. They acquired $15,000,000 investment from Quercus Trust.[12]
•**Disenco Energy PLC** is a UK-based developer of a revolutionary home power generating unit known as the Disenco Home Power Plant, closed their initial IPO for $2,750,000.[13]
•**Oakleaf** merged with Greenleaf, which rents stationary compactors, containers, balers, and other waste management and recycling equipment to commercial businesses and haulers.[14]
•Scotts paid $20 million last year for **Rod McLellan Co.,** which focuses on naturally derived fertilizers.[15]
•The Carlyle Group acquired residuals recycler **Synagro Technologies** for about $447.5 million in cash, including the assumption of ~$310 million in debt. Synagro operates at over 1,000 wastewater treatment plants throughout the country, providing operations and residuals management services. Many of these wastewater treatment plants employ anaerobic digestion. The company is using this experience to expand into the agribusiness market with its first operational facility, which was designed and built in Chino, California. This digester is designed for 225 wet tons of fresh cow manure per day. It employs dewatering and onsite cogeneration using Capstone Micro turbines.[16]

[10] Parker, N. February 14, 2007. CleanTech is ripe for growth. Israel Venture Capital & Private Equity Journal (IVCJ). Retrieved on January 30, 2008, from http://www.altassets.com/casefor/sectors/2007/nz9921.php.

[11] Van der Pool, L. March 16, 2007. Spurned by VCs, waste conversion startup goes public, *Boston Journal Online*, Retrieved on January 30, 2008, from http://www.bizjournals.com/boston/stories/2007/03/19/story8.html.

[12] January 8, 2008. BlueFire Ethanol Closes $15.5 Million in Financing. BlueFire Press release. Retrieved on January 30, 2008, from http://bluefireethanol.com/pr/45/.

[13] February 26, 2007. Disenco Energy PLC Closes IPO for US$2,750,000 and Lists on the TSX Venture Exchange. PR Newswire Europe Ltd. Retrieved on January 30, 2008, from http://www.prnewswire.co.uk/cgi/news/release?id=191571.

[14] July 26, 2004. Greenleaf Compaction, Inc. has merged with Oakleaf Waste Management. Oakleaf News Releases. Retrieved on January 30, 2008, from http://www.oakleafwaste.com/oakleaf/news/releases/2004/072604_2.asp.

[15] Lambert, E. September 4, 2006. Organic Miracle Needed. Forbes.com. Retrieved on January 30, 2008, from http://www.forbes.com/forbes/2006/0904/066.html.

[16] January 29, 2007. The Carlyle Group to Acquire Synagro Technologies for $5.76 Per Share. Carlyle Group News. Retrieved on January 30, 2008, from http://www.carlyle.com/News/News Archive/2007/item7052.html.

Roots of Feed Idea

At Babson, the entrepreneurship professors stress the importance of opportunity and an entrepreneur's fit to that opportunity. So Shane thought he should leverage his past experience and start his own candle line. However, copyright laws and low profit margins discouraged him. Next, he looked at biodegradable packaging lines.

> When I had an idea I would do research for maybe three weeks, and see who else was out there, if the product was feasible, and who the customers were…. I would usually find a really big obstacle. Or I just found a company that does this or a big brand that does this or someone that tried to start it and it didn't work. And when I got to biodegradable plastic I realized there was no way to compost it, so it wasn't as environmentally friendly as I had first imagined. But during this search, I came across **composting technology.** This seemed like a big idea and a big opportunity. The key with composting that makes it so unique is that someone is getting paid for their raw materials, which is basically trash. Companies paid to have trash hauled away so that meant composters could get their raw material for free or even be paid to take it away.

Shane started doing research into the composting industry and was intrigued by waste conversion technology. He looked at gasification[17], plasma arc[18], aerobic composting[19] and finally anaerobic digestion.[20] Anaerobic digestion caught his eye. Anaerobic digestion was a relatively proven and cheap technology, and it seemed the most viable option. Next Shane began to look at the waste stream market. He wanted to know who the largest waste producers were, what kind of waste they produced and what the competition looked like in those industries. He looked at household and small restaurants and found that in most cases they would not generate enough waste to justify an on-site digester and the cost of transporting the waste to a central location would be prohibitive. After further research Shane found that the food waste produced by processing plants and supermarkets turned out to be the most promising. This was because they both were producing large amounts of food waste and the volume was concentrated in a single location (see **Figure 3**).

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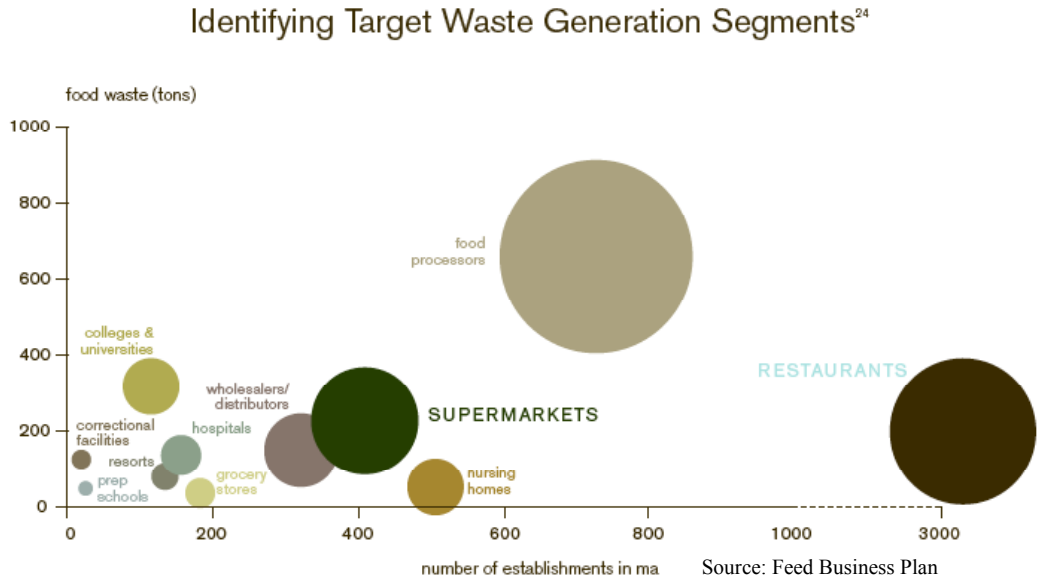
[17] **Gasification** is a process that converts organic material or biomass into gasses or liquid fuels by a combination of high temperatures and reduced oxygen supply. (Schilli, J. Using Gasification to Process Municipal Solid Waste. Environmental and Resource Management Group of HDR: *HDR Innovations,* Vol. 12).

[18] **Plasma arc gasification** is a process in which solid waste is shredded and fed into a furnace where extreme electrical charges bring the temperature above 3,000 degrees. After an hour or so, waste material breaks down into its molecular building blocks, leaving three marketable byproducts: a combustible synthesis gas, or syngas, that can be converted into steam or electricity; metal ingots that can be resold and melted down again; and a glassy solid that can be processed into material for floor tiles or gravel. (Durst, S. March 5, 2007. PROBLEM NO. 3: WASTE DISPOSAL. *Fortune,* Vol. 155, Issue 4, pB-4-B-4, 1p.)

[19] **Aerobic composting** is the process of decomposing organic waste using microorganisms and an aerobic or oxygenated environment. (Pace, M. Miller, B. Farrell-Poe, K. October 1, 1995. The Composting Process. Utah State University Extension. AG-WM 01.

[20] **Anaerobic digestion** is a biochemical process in which particular kinds of bacteria digest biomass in an oxygen-free environment. Several different types of bacteria work together to break down complex organic wastes in stages, resulting in the production of "biogas." (Retrieved on April 1, 2008 http://www.oregon.gov/ENERGY/RENEW/Biomass/biogas.shtml#Anaerobic_Digestion)

Figure 3



> Babson is great because there are tons of ideas floating around. The professors give us the tools to analyze whether an idea is an opportunity. You start with a problem and if there's a problem there's potentially an opportunity. So you have a bunch of students running around with two-page summaries on their ideas, sharing their thoughts and seeking feedback during breaks from class. The school also has a "Rocket Pitch" event where you get 3 minutes to convince the audience that your idea has real potential. It takes a lot of work to learn how to pitch your concept in 3 minutes, but that process really helps you understand the issues around the idea.

Shane's two-page opportunity was about the company he wanted to start, which he called Biospan. He would build a large anaerobic digester that would be at a centralized plant and he would collect food waste from restaurants, grocery stores and even homes to feed the digester and produce compost and biogas. The basic idea made sense -- taking waste and producing a usable byproduct. Shane decided that this idea was worth investing time and effort to really understand it. Shane applied to Babson's Entrepreneur Intensity Track (EIT)[21] program with the idea of launching this business.

Through the EIT program, Shane met with a venture capitalist who asked him tough questions like "how are you going to get six million dollars to build a big plant and how are you going to keep Waste Management from doing it bigger and better than you." Six million dollars was a lot of money and Shane didn't like the idea of competing with a company like Waste Management who did $13 billion in revenue each year. By asking the right questions, Shane also realized that a large centralized plant was inefficient. Transporting the waste to the plant and then

[21] EIT is a curriculum focused on deep business planning and launch of a business during the final year of a student's education.

sending the energy back to users added costs, used energy (gasoline for dump trucks) and wasn't as "Green" as a decentralized unit located where the waste was produced.

Shane then began to look at the industry and who might gain the greatest benefit from a mobile anaerobic system. Food processors, like large pig and chicken farms, already were starting to use anaerobic digestion systems. After more research Shane, found that grocery stores looked like the best option. They already were sorting their waste and sending it to composters and the volume was low enough to discourage large players from entering. This seemed like a great marketplace for his decentralized systems.

> You didn't have to ask them to change their habits. They were already sorting their waste and the system could be implemented on location without disrupting their day-to-day operation.

Shane wanted to get into the industry as efficiently as possible, so he started to look for existing anaerobic systems that he could adapt to his target. He couldn't find any systems that could handle high solid content; they were mostly set up for human or animal waste. Furthermore, those companies building these systems were targeting larger scale, centralized plants, not smaller, decentralized systems that Shane envisioned. Many people, mainly the business professionals in anaerobic digestion, were saying that decentralized systems would be too small to be effective. In Europe they were already using anaerobic digestion for food waste but only on a large scale. From the previous business models and the waste industry's frame of mind the on-site model was not seen as profitable but with the increases in energy prices and raised awareness in green tech it started to make more sense. Shane believed if the technology could be produced, the idea would be easy to market in a food retail industry where the profit margins were razor thin and competition fierce.

The Product

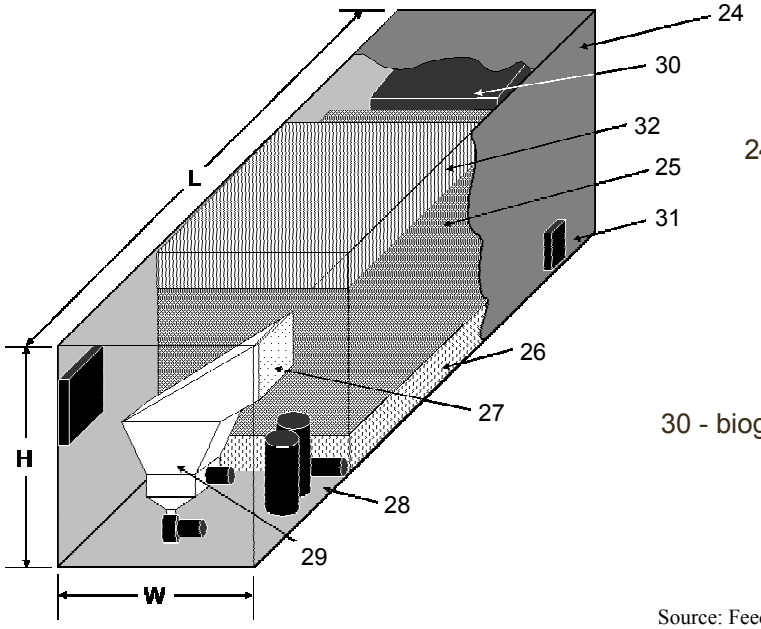
The **feed** system, known as the R2, would utilize anaerobic digestion (AD); a clean, safe, and proven technology, to turn biodegradable waste into fuel (biogas) for a distributed electricity generation unit. AD is the breakdown of organic material by microorganisms in the absence of oxygen. Although this process occurs naturally in landfills, AD usually refers to an artificially accelerated operation that processes organic waste to produce biogas and a stable solid residue. People have been turning waste into biogas for hundreds of years and many developing countries rely on small-scale AD systems for cooking. AD has grown rapidly in Europe mostly in large centralized plants using advanced technologies. The R2 is a combination of the cheap, compact systems of India and China and the large scale, expensive, and technologically sophisticated systems of Europe: a fully automated system that enables the customers to process waste and generate energy on-site without changing current waste disposal behavior.

> The decentralized nature of our system meant that you could place the R2 at the back of the store right in the same space that the organic waste dumpster currently occupied. It was critical to our potential customers that this system didn't require more space or alter the footprint of the current store.

The automation is made possible by the integrated control technology that operates the patented pH-balancing unit to continually optimize system performance. Other novel and patented ideas that differentiate the system include: an integrated biogas generator unit, a gravity-fed system that increases efficiency while reducing cost and complexity, a multi-tank system for system reliability and flexibility, and pH balancing of the waste stream to handle diverse waste. Other than biogas, the R2 produces nutrient rich compost that could potentially be sold to farmers. The projected price that the grocery store would pay for its R2 was around $300,000.

the **r**$_2$ system

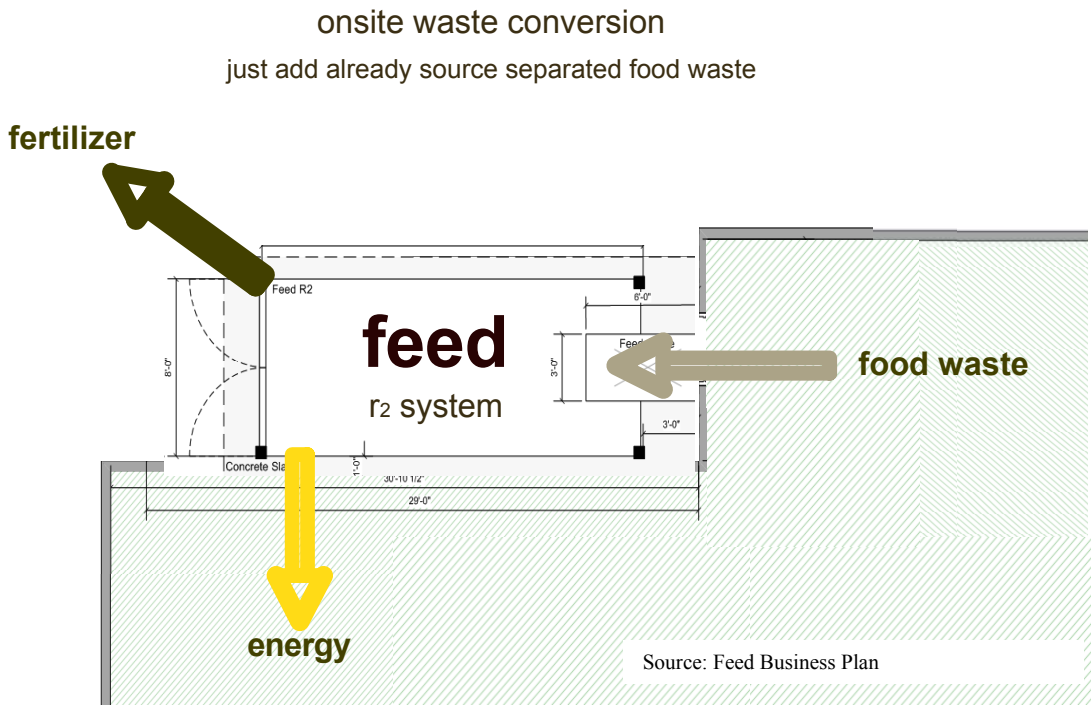
compact onsite waste conversion for supermarkets



from provisional patent

24 - biogas generator system
25 - anaerobic digester
26 - effluent holding tank
27 - hopper feed input
28 - pH control system
29 - feed hopper
30 - biogas fueled electric generator
31 - interconnection panel
32 - feed holding tank

Source: Feed Business Plan



Lots of Interest

Craig Benson, a professor at Babson, told Shane that the best way to attract investors was to go and talk to the biggest customer you could find. "*If you can find a customer for your product, investors will be more than willing to get on board,"* Craig noted. Shane started to make as many connections as possible. He called several grocery store chains in the Northeast, including Stop and Shop, Shaw's, Wal-Mart, and Whole Foods, but it was always hard get in front of anyone very high up in the ranks. He was always sent to someone who, even if interested, had no power to do anything about it. How could he get in front of the right person?

The success of **feed** in business plan competitions was also bringing a great deal of interest to his anaerobic digester idea. Many of the venture capitalist and investors that were present at the competitions were serious about its investment possibilities. During the Rice Business Plan Competition in spring 2006 when **feed** won the sustainability award, Dow Chemical Venture Group showed an especially strong interest and said they could introduce Shane to Wal-Mart. The Dow group flew Shane to their headquarters and put him on the phone with top executives at Wal-Mart. Shane said the conversation went something like this;

Does it have a 24 month payback time? I said no and they basically hung up.

The problem was that Dow and most of the venture capitalists were looking for quick returns and proven ready technology. That meant that Shane had to figure out how to get customer payback down to 2 years. Moreover, once the investors realized that the final product was still in the distant future, they were reluctant to invest the time and resources needed. This

meant that Shane needed to build a prototype before the venture capitalists would be interested. Shane started looking elsewhere for the needed capital.

Through the grapevine Shane heard about a Massachusetts Technology Collaborative (MTC) grant for on-site energy providers. To be eligible you needed to meet a set power output and find a buyer for the electricity that would sign on to the project. The MTC grant would then pay a certain amount of money for each kilowatt you could generate from the green energy method. Shane had a connection through a friend of the family at Ring Brothers grocery store, a small local grocery store on Cape Cod. Ring Brothers agreed to sign on as the company sponsor and **feed** won the grant for $195,000.

The grant required that **feed** first run a feasibility study before it could actually start to build the prototype, and the grant provided $20,000 for the research study. So Shane took a look at how much actual food waste Ring Brothers produced and found that they weren't producing enough waste to make the system feasible for the required energy output of 50kw that was needed for the grant. Without the proper energy production output they were forced to tell MTC that they were not going to be eligible for the $195,000 grant.

Team building

Based upon his experience with Ring Brothers and the knowledge that he needed to build a prototype, Shane realized that he didn't have the skill set to do this venture on his own. He needed some technical expertise on the founding team. Shane knew that he would need an engineer to run the actual research and production of the first prototype. He needed someone who could take over a large part of the company and have the ability to get things done without supervision. A friend of Shane's that worked at Raytheon told him that he worked with a young engineer who fit the profile that Shane was looking for.

Ryan Begin specialized in product development at Raytheon, where he led a multidisciplinary team of engineers in the integration of advanced missile defense hardware. While Ryan enjoyed the big paycheck, he was looking for something different. Before Raytheon, Ryan had worked on multiple renewable energy and non-energy products through Clarkson University and other private organizations.

> I wanted to get out of the large corporation and saw the **feed** concept as really interesting. It was in the green space, where I had done some work before. But most importantly, I could be on the ground floor of something potentially huge.

When they met, Shane knew that he had found the business partner he was looking for and that Ryan would be a strong addition to the team.

> Ryan has the unique ability to get his hands dirty in putting the prototype together, but at the same time he is also very smart and brings a lot of expertise to the table. He has a great work ethic, and he's the kind of guy that works so hard and is so driven that he makes you feel guilty if you're not working just as hard.

After their initial meeting Ryan began to run some of the numbers Shane had presented him regarding the biogas and electricity production of the suggested system. Although he found

that many of numbers were on the high end of possibility, they still were within the range of having some real potential.

> I could see that some of Shane's projections were off by a lot, but the potential was there. Also the fact that he already had interested customers and investors reaffirmed my feelings that this could be a great opportunity for me.

Ryan was leaving a high paying job at Raytheon with stability and benefits for a job with a new company and little or no salary.

> I had a choice to make, I could continue to take the safe route with Raytheon, or I could put it all on the line to test my skills and have the chance to do something big and exciting. I didn't feel like I was doing any real engineering at Raytheon. Being able to lead product development within the renewable energy field was very appealing to me. I could also see that Shane had real business savvy and really believed strongly in his idea and had what it would take to sell it.

To entice and reward Ryan, Shane agreed to take him on as a co-founder and to give him some founder's shares. After some back and forth on the amount of stock Ryan would receive in the company, they settled on 20% of the founder's shares and the goal of paying a salary once they had raised a significant amount of investment.

Next Steps

With the start of a team and a strong customer interest, Shane and Ryan knew they had to build a functioning prototype. They had run some preliminary numbers and put together some pro-forma financials (see **Exhibits 1-3** for pro forma financials). They showed that **feed** needed investment now. Where could they get the $250,000 dollars needed to build the prototype (see **Table 2**)? While most venture capitalists wouldn't invest at this stage, there were a few who might -- but at what valuation and how long would it take to close the deal? Shane also could raise the money through family and friends, but this would take time as well. Shane and Ryan were anxious to get started, but they knew if they couldn't build a prototype, **feed** would never get off the ground.

Table 2
Startup Capital Needed to Build Prototype

Components of Digester	$150,000
Engineering Salaries	75,000
Other/Misc	25,000
Total	**$250,000**

Exhibit 1

Feed Income Statement Projections

	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5	
REVENUES	**320,000**	**100%**	**1,880,000**	**100%**	**6,555,000**	**100%**	**13,985,000**	**100%**	**24,345,750**	**100%**
Cost of Sales	332,800	104%	1,440,629	77%	4,939,057	75%	8,794,486	63%	15,538,904	64%
Gross Profit	(12,800)	-4%	439,371	23%	1,615,943	25%	5,190,514	37%	8,806,846	36%
Sales &										
Marketing	29,600	9%	96,400	5%	315,150	5%	521,550	4%	838,373	3%
Salaries & Benefits	0	0%	0	0%	58,500	1%	102,000	1%	108,000	0%
Initial Branding Efforts	20,000	6%	40,000	2%	60,000	1%	0	0%	0	0%
Other	9,600	3%	56,400	3%	196,650	3%	419,550	3%	730,373	3%
Research &										
Development	14,600	5%	190,900	10%	349,300	5%	727,550	5%	1,062,373	4%
Salaries & Benefits	0	0%	34,500	2%	52,650	1%	108,000	1%	132,000	1%
Product Development	5,000	2%	100,000	5%	100,000	2%	200,000	1%	200,000	1%
General &										
Administration	17,067	5%	171,100	9%	485,790	7%	742,417	5%	1,048,495	4%
Salaries & Benefits	0	0%	103,500	6%	300,690	5%	405,600	3%	504,000	2%
Depreciation	667	0%	4,000	0%	9,000	0%	11,667	0%	11,667	0%
Rent & Utilities	0	0%	6,000	0%	15,000	0%	15,450	0%	15,914	0%
Legal Fees	10,000	3%	20,000	1%	30,000	0%	30,000	0%	30,000	0%
Other	6,400	2%	37,600	2%	131,100	2%	279,700	2%	486,915	2%
TOTAL EXPENSES	**61,267**	**19%**	**458,400**	**24%**	**1,150,240**	**18%**	**1,991,517**	**14%**	**2,949,240**	**12%**
Net Earnings										
before Taxes	(74,067)	-23%	(19,029)	-1%	455,703	7%	3,198,998	23%	5,857,606	24%
NET EARNINGS	**(74,067)**	**-23%**	**(19,029)**	**-1%**	**310,660**	**5%**	**1,919,399**	**14%**	**3,520,563**	**14%**

Exhibit 2
Feed Balance Sheet Projections

	Begin	Year 1	Year 2	Year 3	Year 4	Year 5
ASSETS						
CURRENT ASSETS						
Cash	20,000	45,093	891,000	1,602,517	3,870,868	7,869,012
Accounts Receivable		1,200	10,159	40,000	234,000	772,000
Inventories		0	0	60,000	130,000	331,200
Other Current Assets		204	1,224	60,000	130,000	276,000
Total Current Assets	20,000	46,497	902,383	1,770,517	4,364,867	9,249,012
PROPERTY & EQUIPMENT	0	1,333	15,905	29,048	33,095	35,714
TOTAL ASSETS	20,000	47,830	918,288	1,799,564	4,397,963	9,284,726
LIABILITIES & SHAREHOLDERS' EQUITY						
CURRENT LIABILITIES						
Accounts Payable & Accrued Expen		1,693	10,159	522,000	1,131,000	2,401,200
Other Current Liab		204	1,224	60,000	130,000	276,000
Total Current Liabilities	0	1,897	11,383	582,000	1,261,000	2,677,200
STOCKHOLDERS' EQUITY						
CommonStock	20,000	20,000	100,000	100,000	100,000	100,000
Preferred Stock	0	100,000	900,000	900,000	900,000	900,000
Retained Earnings		(74,067)	(93,095)	217,564	2,136,963	5,607,526
Total Equity	20,000	45,933	906,905	1,217,564	3,136,963	6,607,526
TOTAL LIABILITIES & EQUITY	20,000	47,830	918,288	1,799,564	4,397,963	9,284,726

Exhibit 3
Feed Cash Flows Projections

		Year 1	Year 2	Year 3	Year 4	Year 5
OPERATING ACTIVITIES						
Net Earnings		(74,067)	(19,029)	310,660	1,919,399	3,520,563
Depreciation		667	5,429	11,857	15,952	17,381
Working Capital Changes						
(Increase)/Decrease Accounts Receivable		(1,200)	(8,959)	(37,841)	(186,000)	(535,800)
(Increase)/Decrease Inventories		0	0	(60,000)	(70,000)	(201,200)
(Increase)/Decrease Other Current Assets		(204)	(1,020)	(58,776)	(70,000)	(146,000)
Increase/(Decrease) Accts Pay & Accrd Expenses		1,693	8,466	511,841	609,000	1,270,200
Increase/(Decrease) Other Current Liab		204	1,020	58,776	70,000	146,000
Net Cash Provided/(Used) by Operating Activities		(72,907)	(14,093)	736,517	2,288,351	4,068,145
INVESTING ACTIVITIES						
Property & Equipment		(2,000)	(20,000)	(25,000)	(20,000)	(20,000)
Net Cash Used in Investing Activities		(2,000)	(20,000)	(25,000)	(20,000)	(20,000)
FINANCING ACTIVITIES						
Increase/(Decrease) Common Stock		0	80,000	0	0	0
Increase/(Decrease) Preferred Stock		100,000	800,000	0	0	0
Dividends Declared		0	0	0	0	(50,000)
Net Cash Provided / (Used) by Financing		100,000	880,000	0	0	(50,000)
INCREASE/(DECREASE) IN CASH		25,093	845,907	711,517	2,268,351	3,998,145
CASH AT BEGINNING OF YEAR		20,000	45,093	891,000	1,602,517	3,870,868
CASH AT END OF YEAR	20,000	45,093	891,000	1,602,517	3,870,868	7,869,012