



The Revo|ve:

An Introduction and Comprehensive Business Assessment

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The CSM Wind Competition team consists of nine active student members, one graduate student advisor, two faculty advisors, and seven supporting advisors.

Executive Summary

The purpose of the Collegiate Wind Competition, commissioned by NREL and the Department of Energy (DOE) and undertaken by Zephyrus, is to design and construct a portable wind turbine to meet a specific need. Additionally, the team is required to identify a market for their turbine and develop a business plan to support all marketing and financial decisions.

An increasing focus on renewable energy by the U.S. government is driving opportunity for products that safely harness power from the natural environment. Wind energy has become a large part of this focus, with a goal to increase production in the U.S. to 20% by 2030. Capitalizing on the future of wind energy, Zephyrus has created a portable wind turbine that targets the abundant market of outdoorsmen, hikers, and campers.

The Revolve turbine is based off a Savonius design and produces 5 volts during operation, enough power to charge most portable electronics. The Revolve has many advantages over its competitors, solar chargers and batteries, as well as various factors that make it desirable to its market consumer:

- It has the ability to charge at night;
- It does not require recharging prior to use;
- It is lightweight, weighing under 5lbs;
- It is collapsible to a size of 12 inches;
- The design utilizes recyclable materials;
- It is color customizable.

Zephyrus will be formed as an employee-owned limited liability company (LLC) with four individual owners. Marketing strategies will heavily utilize far-reaching and inexpensive social media outlets to spread information and gain a consumer base for the Revolve. A warehouse, located in central Colorado, will provide space for all assembly to be done in house. As sales increase, Zephyrus will

outsource storage and shipping to a third party, providing room for machinery and allowing employees to focus on marketing and production.

Based on operating and material costs as well as results from a customer survey, the Revolve will be initially sold for \$175. Demand was forecasted over five years using data from global portable electronic sales, camping participation, and the customer survey, predicting sales of over 11,000 units by the end of Year 5. Zephyrus will require \$45,000 in initial capital investment, acquired in the form of a small business loan, and will begin to see net profit by the middle of Year 2. At the end of Year 5, Zephyrus expects to sell 37,000 units, giving a net income of over \$530,000.

The Revolve



Team Project Summary

The purpose of the Collegiate Wind Competition, commissioned by NREL and the Department of Energy (DOE) and undertaken by Zephyrus, is to design and construct a portable wind turbine to meet a specific need. In creating Zephyrus's product, the Revolve, the company hopes to fill the market need of a portable wind charger designed for the typical outdoorsman. Included with the required design and testing of the turbine, the following business plan was completed, showcasing a well-structured marketing plan, financial analysis, and business model that is feasible to accomplish and attract potential investors.

Business Overview

The mission of Zephyrus is to provide a unique, alternative source of portable energy, keeping users connected in the most remote locations.

The name of the company, Zephyrus, comes from the Greek god of the west wind. It is also the root word of *zephyr*, which refers to a light or westerly wind. Zephyrus is easily recognizable, memorable, and serves to identify the company's mission.

Zephyrus plans to provide a financially competitive, portable green energy source that will give hikers and campers access to environmentally friendly power in situations where access to power is limited.

With Zephyrus, energy's a breeze!

Market Opportunity

The Revolve is a personal wind turbine designed with the social outdoorsman in mind. This is a product for those who want to document their trip to the jungle in Costa Rica with their digital camera, or like to listen to their iPod while climbing Mt. Everest, or need an electronic GPS to find their way through the Saharan desert. The amount of people having these adventures is increasing every year. According to the Outdoor Foundation, in 2010, Americans engaged in 1.5 billion more recreational outings than the

previous year. In 2011, “outdoor recreation reached the highest participation level in the last five years”, and 42.5 million Americans specifically enjoyed overnight camping [1]. The Revolve directly targets this growing market, which will provide increasing opportunities every year.

A crucial advantage of harnessing wind for power is that it is available at all hours in any season. While seasonal fluctuations are important, the regional variations in wind conditions will have much more of an impact on where the Revolve can be most effectively used. Local conditions are especially important for the Revolve because it operates closely to ground level where the wind can be easily obstructed by objects. According to a study on wind resource estimates by AWS Truepower, the Midwest United States has the best opportunity for harvesting wind energy, with average wind speeds ranging from five to ten miles per hour at 80 meters [2]. The Outdoor Foundation claims this region also held some of the highest rate of camping participation in 2012, creating an ideal market opportunity for portable wind energy.

Product Description



Figure 1: The Revolve

The physical design of the Revolve is akin to a Savonius turbine, a vertical axis turbine that utilizes drag forces from the wind to rotate and generate torque. Savonius turbines are ideal for small power generation and can operate at low heights where wind speed is minimal [3]. The two wings of the Revolve are made out of nylon ripstop fabric “windows” that open and close to reduce destructive drag, a major drawback of a standard Savonius, increasing its efficiency.

The Revolve plays on the concept of a tent with its ability to be disassembled easily and collapsed, allowing it to be stored in a small bag. With the push of a button, the arms can be broken

down into two pieces and detached from the center shaft similar to the deconstruction of a tent pole. The Revolve's collapsibility will allow it to have minimal size impact, a characteristic that is vital to backpackers and campers. In fact, results of an online poll conducted by Zephyrus (Appendix B) show that 83.3% of those surveyed wanted the device to be smaller than a 32 oz. Nalgene bottle (the smallest offered survey response). The collapsed design will allow the Revolve to fold from a height of four feet to a mere 12 inches, with elastic strings running through the tubing to keep all pieces together. An adjustable support stand allows the turbine to be set at any angle and staked down, keeping it stable in the rockiest and windiest conditions.



Figure 2: The Revolve Fully Collapsed

The Revolve is made mostly of aluminum, which is lightweight and durable, making it ideal for any consumer concerned about travelling light. The wings are made from nylon ripstop, a waterproof material that resists tearing and ripping. This fabric is available to the consumer in a variety of colors, allowing each user to personalize their own turbine. Not only is the Revolve designed with long-lasting, lightweight materials, they are also highly recyclable after the product's end of life, reducing its overall environmental impact.

For the Collegiate Wind Competition, Zephyrus has provided two different designs: a market turbine and a testing (competition) turbine. The competition turbine will be using the required Electrify Ammo Motor with a 100:1 gearbox. The market turbine will use a smaller more efficient generator with a three-phase generator. The competition turbine will also include a safety shut-off braking system that will disable the turbine if the load is disconnected, due to competition specifications. Although the auto shut-off is not present in the market turbine, it still has been designed with safety in mind with the use of fabric and lightweight materials with no sharp edges. Please refer to Zephyrus's Design Review report for more information on engineering and design specifications of the Revolve.

Competitive Overview

Zephyrus's competition consists of three industries: solar cells and batteries, which currently dominate the portable energy market, as well as other "portable" wind turbines. Batteries come in all shapes and sizes and are relatively inexpensive. However, while they are comparable in size and weight to Zephyrus's turbine, they still need to be recharged after each use, an inconvenient feature for outdoor use. Also, if unused for an extended period of time, the battery can lose some of its charge, resulting in less power subsequently available for the user [4]. Additionally, batteries have complex structures made of heavy metals such as cadmium, lead, nickel, and mercury. Because of these materials, batteries, when not recycled properly, pose significant environmental threats [5].

Solar panels have a wide range of power and size and can be extremely lightweight. They vary from \$40 to \$800 and weigh from less than one pound to above three pounds [6] [7]. When used on camping trips, backpackers and hikers must either hook the panel up to their backpack, which is cumbersome, or plan on being stationary in a sunlit area for some part of the day to allow the panel to charge. Ultimately, the Revolve can outperform solar panels because it can be disassembled into smaller pieces and has the ability to produce electricity at any time. Industry is also currently lacking a system for recycling or reusing photovoltaic panels, decreasing the environmental sustainability of solar products [8].

Although portable wind turbines do exist, such as those that can be towed in a trailer, designs that are compact enough to be carried in a small bag are not widely available. The HyMini is one example of a small handheld wind-turbine. It claims to generate enough power to charge a cell-phone, but it requires an on-board battery which must be charged. Therefore, it still requires energy from the electrical grid to function. Based on testing done by Zephyrus, even with this battery charged, the HyMini is not capable of producing enough power to charge a cellphone.

Despite the possible competitors, when the Revolve enters the market, it will likely have a minimal effect on those companies already producing portable energy products because it is unique from the others in size and function. This will provide Zephyrus with the opportunity to advance in the market

and become the go-to brand for portable wind energy.

Environmental Impacts

As a company entering the renewable energy market, Zephyrus takes pride in the sustainability of its operations. Therefore, environmental effects were a considerable factor when selecting materials for the Revolve.

Aluminum, the main component of the product, is highly recyclable. The primary benefit of recycling aluminum is vast energy reduction since aluminum scrap recovery only requires 5% of the energy needed for raw extraction and produces 95% less greenhouse gas emissions [9]. However, conventional production of virgin aluminum, currently used in the Revolve, is highly energy-intensive and environmentally intrusive. By Year 5, Zephyrus will create partnerships with sustainable metal suppliers, such as Alcoa, to enhance the company's triple bottom line [10].

Ripstop nylon is also recyclable and can even be "repeat recycled", allowing the material to be processed and reused at the same quality instead of being "downcycled" into a lower quality product [8]. Zephyrus's current design utilizes nylon made from virgin materials; however, in the future Zephyrus hopes to move toward nylon made from recycled materials [11]. Recycled nylon uses less energy and diverts waste from landfills.

In the future, if Zephyrus is able to utilize recycled materials in the design of the Revolve, it will decrease the company's environmental footprint by reducing energy consumption, waste production, water use, and greenhouse gas emissions. The company will also work with a recycler to capture all scrap nylon fabric, reducing waste to landfill. Prior to Year 3, a full life cycle analysis will be conducted for the Revolve. The LCA will analyze all environmental effects of the product and help to find ways to make development and manufacturing processes more efficient, allowing Zephyrus to cut costs and enhance sustainability.

Ownership and Management Team

Zephyrus is a unique company based on a love for the outdoors and a realization of the power of renewable energy. It is employee-owned, allowing for company growth and providing a direct incentive to employees to produce top-quality work. Zephyrus will be formed as an LLC, ensuring legal protection to its employees and providing financial and tax advantages such as pass-through taxation.

In order to realize its objectives, Zephyrus will need a strong management team to make executive decisions to guide the company. The Board of Directors includes individuals with experience and knowledge. Jeremy Webb will be Zephyrus's CEO, with Zachary Weber supporting him as CFO. Kelsey Wokasch will be the COO, and Alex Dell will further Zephyrus's societal image as Marketing Director.

The People of Zephyrus

Zephyrus will be a company run by highly skilled workers that share a passion for renewable energy. Zephyrus will strive to create a diverse workplace, encouraging the recruitment, development, and advancement of individuals of all races, genders, and sexualities.

Because Zephyrus will manufacture its own products, ensuring the health and safety of their workers will be vital in their operations. All new employees will be required to complete an initial comprehensive health and safety training in addition to annual training sessions throughout their career with Zephyrus. The company will measure total recordable incident rates (TRIR) each year, striving for an average TRIR of 2.5 or lower over the first five years of operation [12].

Product Development and Operations

Promoting a state-of-the-art product will require vast advertising and exposure to inform customers and get them interested in portable wind energy. In order to continue creating a product that consumers will love, Zephyrus will remain connected with its market base through social media outlets. To allow full focus on marketing and production of the Revolve, Zephyrus will assemble all products at a

central warehouse with basic machinery and utilize a third party for storage and shipping.

Marketing Plan

White, horizontal axis models have become the typical wind turbine standard. Therefore, the Revolve's unique design will allow it to stand out among other wind energy products. Its vertical structure will transcend the public's understanding of wind power; the way it spins elegantly and quietly in the wind will be a graceful display, rather than a nuisance. Its customizable colors allow it to appeal to a wider audience and also add to its captivating look.

To further boost marketing, Zephyrus will be uniquely involved with its customer base. Marketing in the first year will include creating a fan base through media outlets such as Twitter and Facebook. Social media is a low-cost endorsement method and has the ability to spread product information to millions of people for minimal cost. Incentives will be posted on the social media sites, such as discount codes and free shipping for a "Like" on the Facebook page. Additionally, if a customer gives ten referrals, that individual can apply a credit towards accessorizing products such as a new nylon fabric blade replacement. Zephyrus will also make advances for the Revolve to be promoted in environmentally focused outdoor recreation journals such as Greentech Media, Outside, Backpacker, and Discover.

The Revolve will start off being primarily sold through the company website to provide higher returns on sales and reach a broader consumer base. After Year 3, Zephyrus will begin moving sales to independent shops and websites that specialize in outdoor equipment, such as realgoods.com. However, in Zephyrus's fifth year of operation, annual product sales are estimated to surpass 30,000, justifying a shift in market focus to selling the Revolve in select retail stores such as REI, Cabela's, and Bass Pro Shops.

Despite the Revolve's simplicity, it is anticipated that users will have questions concerning power production and operation. Therefore, a customer service department will be available to the public during business hours, allowing Zephyrus to maintain good relations with their consumers. A clear, concise

brochure with operation instructions and troubleshooting details will also be packaged with the turbine to address any frequently asked questions. Several short videos will be published to retail distributors showing them how to properly set up the Revolve, as well as how to ensure optimal power generation so that they can better sell the product to potential customers. In order for Revolve users to fully utilize the product's capability, Zephyrus will stream live wind data from the National Digital Forecast Database on the company website [13]. The company will also explore creating a phone app for live wind data streaming for the users who are away from a computer. All of these resources will help minimize confusion and discrepancies, and allow the Revolve to be successfully introduced to the public.

Another factor in retaining customers is properly handling damaged turbines. A limited lifetime warranty will be attached to every wind turbine sold, allowing the product to be replaced "free of charge" to a consumer if unavoidable damage to the interior mechanics occurs. Within the first six months of purchase, a full refund will be allowed. In addition, a refurbishing program will allow customers to exchange turbines that appear to have diminished power potential. A take-back program for any damaged fabric will be installed, and Zephyrus will work towards recycling the old nylon material into new turbine wings using a third party recycler.

Product Goals and Pricing

Zephyrus's goal in creating the Revolve turbine is to bring affordable wind energy to consumers, filling a current market need. There are few wind turbines that are truly addressing the issue of portable power in a unique, consumer-friendly form.

Preliminary research, including customer surveys (Appendix B), has suggested that 31% of consumers are willing to spend \$150-200 for a portable wind turbine. Material costs per turbine are approximately \$117. Therefore, taking into consideration operational costs, the Revolve will be initially sold for \$175. However, once production reaches full-scale and materials are purchased in bulk orders, it is likely that the price will be lowered to increase market opportunity.

Operating Plan

Legal risks will be dealt with primarily through disclaimers that are prominently displayed on the product's packaging and website, warning customers of potential dangers associated with operating the turbine improperly and alleviating the company from legal allegations from user devices being charged by the Revolve. Liability insurance will be purchased for \$1 million in coverage in case of any damage caused by the product. To protect against product idea infringement and contradicting intellectual property claims, Zephyrus will apply for a utility patent on the Revolve's fabric blade design.

A comparison of regional shipping costs, rental rates, and labor wages for various states was completed to decide on a central warehouse location (Appendix B). Based on the results, a corporate warehouse will be located in Colorado due to its central national location and large outdoor demographic.

From the start of operations, all product assembly will be completed by Zephyrus employees and finished products will be stored and shipped from the company's central warehouse. Production machinery will include a 3D printer, lathe, and sewing machine. Since units produced in Year 2 and on will exceed predicted warehouse storage capacity, they will be stored and shipped from a third party distributor. As production ramps up due to market demand, additionally machinery will be purchased to keep up with consumer orders. Inventory and customer orders will be tracked and recorded with POS MAID, low cost inventory management software. The company will also purchase SolidWorks software for analysis and modeling purposes.

Financial Plan

A study by ABI Research on portable electronics predicted that global sales of smartphones and tablets would reach approximately 780,000 by 2013 and continue to grow exponentially [14]. As portable electronic devices need to be charged, these estimates, combined with a growing interest in outdoor activities, show great promise for the Revolve's potential market. To predict Zephyrus's demand forecast, ABI's estimates on portable electronic sales were combined with online survey results of consumer's willingness to pay the set price for this product (Appendix B). Assuming that the customer survey data

has a normal distribution, a 99% lower confidence interval gives a global market share of 1.3%. Therefore, taking into account the estimated participation in outdoor activities, the financial analysis (Appendix C) assumes Zephyrus will start with a market share of 0.05% of ABI's estimated global smartphone and tablet sales and increase 0.02% each year of operation, reaching the predicted 1.3% by Year 5. This is a conservative estimate considering the Revolve will be able to charge much more than smartphones and tablets, including GPS devices, cameras, water purifiers, and so on.

Analysis shows that Zephyrus will require \$45,000 in initial capital investment, which will be funded through a small business loan. This cost includes rental space, machinery, primary marketing and branding, and a patent application. In the first year of sales the company will see a negative net income of \$24,000 and gross profit of \$88,000. By the end of Year 5, sales are estimated to reach 37,000 units giving a \$530,000 net income. The company's primary expense derives from the acquisition of materials for production, with each unit's materials costing \$117. This price is based on individual turbine production; therefore, it is extremely likely that the cost will decrease from bulk purchasing once mass production is reached.

Closing Remarks

With the introduction of the Revolve, a uniquely marketable wind turbine, Zephyrus will become a pioneer of the portable charger industry. Growing markets for outdoor activities, renewable energy, and electronic devices create a favorable environment that will allow the company to reach 37,000 in product sales by their fifth year of operation, garnering a net worth of over \$500,000.

Appendix A – References

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Appendix B – Customer Survey Results and Warehouse Analysis

What collapsed size would be acceptable for a portable wind turbine that could charge a laptop overnight?



What would you be willing to pay for a portable wind turbine that could charge a cell phone or camera overnight?

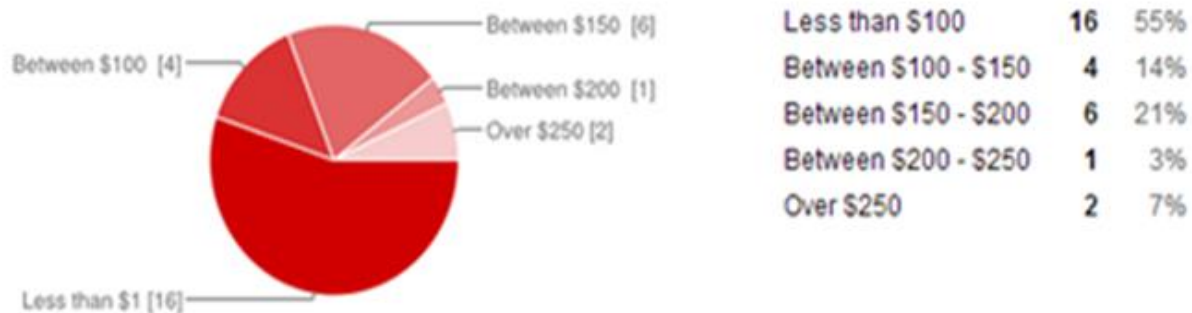


Figure 3: Customer survey results based on an online poll conducted by Zephyrus

Location	City	\$/1000ft^2	Units	S&H to Colorado (80401 Weight	S&H to So Cal (90 Weight	S&H to Northwest (99 Weight	Labor	# hours	Total
Washington	Spokane	\$5,000.00	1,000.00	\$17.61 28.71	\$17.61 44.96	\$16.73 13.25	\$14.38	40	\$2,094.12
California	Sacrame	\$5,000.00	1,000.00	\$17.61 28.71	\$15.20 44.96	\$21.49 13.25	\$13.41	40	\$2,010.03
Colorado	Denver	\$7,000.00	1,000.00	\$12.86 28.71	\$17.61 44.96	\$21.49 13.25	\$13.81	40	\$1,998.01
Nevada	Las Vega	\$9,000.00	1,000.00	\$21.49 28.71	\$13.78 44.96	\$21.49 13.25	\$13.54	40	\$2,062.78

*All Shipping estimates made for 5lbs : 30" by 7" by 7" through UPS

State	Populatic	Regions
		West 51.73%
Midwest		Northwest 15.24%
Colorado	5.268367	Midwest 33.03%
Wyoming	0.582656	
Nebraska	1.868	
Oklahoma	3.85	
Utah	2.900872	
Montana	1.015	
Texas***	26.448	

Northwest	
Washington	6.971
Alaska	0.735123
Oregon	3.93
Idaho	1.612
West	
California	38.332
Nevada	2.79
Arizona	6.626

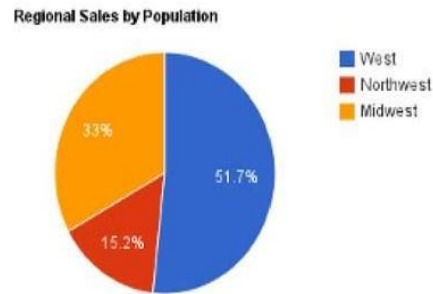


Figure 4: Analysis of shipping/labor costs and population for warehouse location

Appendix C – Financial Analysis

Assumptions for financial analyses:

- \$20/hour rate for marketing and branding. \$10/hour rate for labor
- Labor estimates based on individual prototype construction time
- Warehouse operating expenses include utilities, taxes, CAM, and insurance
- Shipping prices based on UPS rates for 5 lb. package
- Patent price includes application and attorney fees
- LLC filing fees include application and accountant fees
- Product liability insurance covers \$1 million in damage
- Loan (\$45,000) assumed to have an interest rate of 9%. Repayment costs calculated over 10 years
- Taxes not included in financial analyses. LLC provides a tax pass-through, therefore individual owners are responsible for paying taxes on company earnings.

Table 1: Machinery and Software Prices

Item	Cost
Lathe	\$3,000.00
Sewing Machine	\$150.00
3D Printer	\$2,000.00
SolidWorks Software	\$2,000.00
POS Maid Software	\$59.00

Financial Statements for Year 1

Zephyrus	
Income Statement - Year 1	
Revenues and gains	
Sales revenues	\$ 316,223.25
Cost of goods sold	\$ 227,228.99
Gross profits	\$ 88,994.26
Expenses and losses	
Labor costs	\$ 54,209.70
Packaging expenses	\$ 7,227.96
Marketing and branding expenses	\$ 10,000.00
Building and machinery expenses	\$ 19,609.00
Patent and liability fees	\$ 15,355.00
Loan repayment	\$ 6,840.48
Total expenses and losses	\$ 113,242.14
Net income	\$ (24,247.88)

Zephyrus			
Balance Statement - Year 1			
Assets		Liabilities and Shareholders' Equity	
<i>Current Assets:</i>		<i>Current Liabilities:</i>	
Cash and Cash Equivalents	\$88,994.26	Wages Payable	\$13,400.00
Prepaid Expenses	\$13,400.00	Interest Payable	\$4,050.00
Total Current Assets	\$102,394.26	Total Current Liabilities	\$17,450.00
<i>Fixed Assets:</i>		<i>Long-term Liabilities:</i>	
Production Machinery	\$4,414.07	Long-term Debt	\$45,000.00
Depreciation	\$735.94		
Intangibles	\$26,414.00		
Total Fixed Assets	\$31,564.00	Total Long-term Liabilities	\$45,000.00
		Reinvested Funds	\$71,508.26
Total Assets	<u>\$133,958.26</u>	Total Liabilities	<u>\$133,958.26</u>

Zephyrus

Cash Flow Statement - Year 1

	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
Cash on Hand (beginning of month)	\$ -	\$ 6,921.20	\$ 4,055.34	\$ 1,189.47	\$ 2,411.92	\$ 3,634.37	\$ 6,900.97	\$ 10,167.58	\$ 13,434.18	\$ 16,700.79	\$ 26,483.85	\$ 23,617.98
CASH RECEIPTS												
Cash Sales	\$ 3,162.23	\$ 15,811.16	\$ 15,811.16	\$ 31,622.33	\$ 31,622.33	\$ 39,527.91	\$ 39,527.91	\$ 39,527.91	\$ 39,527.91	\$ 28,460.09	\$ 15,811.16	\$ 15,811.16
Loans and Transfers	\$ 45,000.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL CASH RECEIPTS	\$ 48,162.23	\$ 22,732.37	\$ 19,866.50	\$ 32,811.79	\$ 34,034.24	\$ 43,162.27	\$ 46,428.88	\$ 49,695.48	\$ 52,962.09	\$ 45,160.88	\$ 42,295.01	\$ 39,429.15
CASH PAID OUT												
Cost of Goods Sold	\$ (11,361.45)	\$ (11,361.45)	\$ (11,361.45)	\$ (22,722.90)	\$ (22,722.90)	\$ (28,403.62)	\$ (28,403.62)	\$ (28,403.62)	\$ (28,403.62)	\$ (11,361.45)	\$ (11,361.45)	\$ (11,361.45)
Packaging Expenses	\$ (361.40)	\$ (361.40)	\$ (361.40)	\$ (722.80)	\$ (722.80)	\$ (903.50)	\$ (903.50)	\$ (903.50)	\$ (903.50)	\$ (361.40)	\$ (361.40)	\$ (361.40)
Purchases (machinery, computer database)	\$ (7,209.00)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Advertisement	\$ (833.33)	\$ (833.33)	\$ (833.33)	\$ (833.33)	\$ (833.33)	\$ (833.33)	\$ (833.33)	\$ (833.33)	\$ (833.33)	\$ (833.33)	\$ (833.33)	\$ (833.33)
Rent and Operating Expenses	\$ (1,033.33)	\$ (1,033.33)	\$ (1,033.33)	\$ (1,033.33)	\$ (1,033.33)	\$ (1,033.33)	\$ (1,033.33)	\$ (1,033.33)	\$ (1,033.33)	\$ (1,033.33)	\$ (1,033.33)	\$ (1,033.33)
Wages	\$ (4,517.48)	\$ (4,517.48)	\$ (4,517.48)	\$ (4,517.48)	\$ (4,517.48)	\$ (4,517.48)	\$ (4,517.48)	\$ (4,517.48)	\$ (4,517.48)	\$ (4,517.48)	\$ (4,517.48)	\$ (4,517.48)
Insurance (liability, patent)	\$ (15,355.00)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Loan Repayment	\$ (570.04)	\$ (570.04)	\$ (570.04)	\$ (570.04)	\$ (570.04)	\$ (570.04)	\$ (570.04)	\$ (570.04)	\$ (570.04)	\$ (570.04)	\$ (570.04)	\$ (570.04)
TOTAL CASH PAID OUT	\$ (41,241.03)	\$ (18,677.03)	\$ (18,677.03)	\$ (30,399.88)	\$ (30,399.88)	\$ (36,261.30)	\$ (36,261.30)	\$ (36,261.30)	\$ (36,261.30)	\$ (18,677.03)	\$ (18,677.03)	\$ (18,677.03)
Cash Position (end of month)	\$ 6,921.20	\$ 4,055.34	\$ 1,189.47	\$ 2,411.92	\$ 3,634.37	\$ 6,900.97	\$ 10,167.58	\$ 13,434.18	\$ 16,700.79	\$ 26,483.85	\$ 23,617.98	\$ <u>20,752.12</u>

Detailed Income Statements Year 0-Year 5

Year 0 - Capital Investment Costs	Unit Cost	Quantity	Unit/Frequency	Total Cost
Building Lease	\$(3.97)	2000	Sq. Ft.	\$(7,940.00)
Warehouse Operating Expenses	\$(2.23)	2000	Sq. Ft.	\$(4,460.00)
Total Machinery	\$(5,150.00)	1	One Time	\$(5,150.00)
Marketing and Branding	\$(20.00)	500	Hours	\$(10,000.00)
Software and Computer Database	\$(2,059.00)	1	One Time	\$(2,059.00)
Patent	\$(13,330.00)	1	One Time	\$(13,330.00)
LLC Filing Fees	\$(1,025.00)	1	Year	\$(1,025.00)
NET				\$(43,964.00)
Income				\$(43,964.00)

Year 1	Cost	Quantity	Unit/Frequency	Total Cost
Materials	\$(117.25)	1807	Turbine	\$(211,869.58)
Labor	\$(10.00)	5421	Hours	\$(54,209.70)
Materials Shipping	\$(17.00)	903	Per 2.5 lbs.	\$(15,359.42)
Packaging	\$(4.00)	1807	Turbines	\$(7,227.96)
Product Liability Insurance	\$(1,000.00)	1	Year	\$(1,000.00)
Loan Repayment	\$(570.04)	12	Months	\$(6,840.48)
Product Sales	\$175.00	1807	Turbines	\$316,223.25
NET				\$19,716.12
Income				\$(24,247.88)

Year 2	Cost	Quantity	Unit/Frequency	Total Cost
Materials	\$(117.25)	3399	Turbine(s)	\$(398,517.62)
Labor	\$(10.00)	6798	Hour(s)	\$(67,977.42)
Building Lease	\$(3.97)	2000	Sq. Ft.	\$(7,940.00)
Warehouse Operating Expenses	\$(2.23)	2000	Sq. Ft.	\$(4,460.00)
Materials Shipping	\$(17.00)	1699	Per 2.5 lbs.	\$(28,890.40)
Small Business Warehouse Base Cost	\$(25.00)	1	Year	\$(25.00)
Small Business Warehouse Unit Cost	\$(2.50)	3399	Turbine(s)	\$(8,497.18)
Marketing	\$(20.00)	50	Hour(s)	\$(1,000.00)
Packaging	\$(4.00)	3399	Year	\$(13,595.48)
Product Liability Insurance	\$(1,000.00)	1	Turbine(s)	\$(1,000.00)
LLC Filing Fee	\$(100.00)	1	Year	\$(100.00)
Loan Repayment	\$(570.04)	12	Months	\$(6,840.48)
Product Sales	\$175.00	3399	Turbine(s)	\$594,802.43
NET				\$55,958.84
Income				\$31,710.95

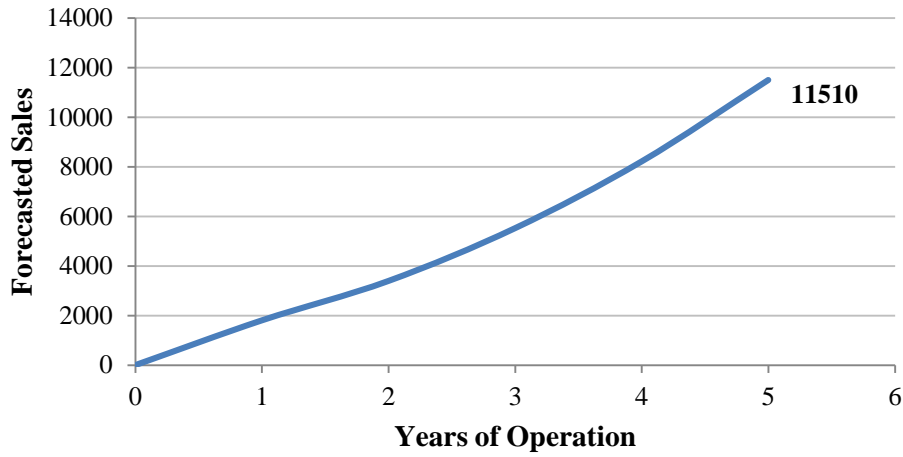
Year 3	Cost	Quantity	Unit/Frequency	Total Cost
Materials	\$(117.25)	5528	Turbines	\$(648,203.14)
Labor	\$(10.00)	11057	Hours	\$(110,567.70)
Building Lease	\$(3.97)	2000	Sq. Ft.	\$(7,940.00)
Warehouse Operating Expenses	\$(2.23)	2000	Sq. Ft.	\$(4,460.00)
Materials Shipping	\$(17.00)	2764	Per 2.5 lbs.	\$(46,991.27)
Small Business Warehouse Base Cost	\$(25.00)	1	Year	\$(25.00)
Small Business Warehouse Unit Cost	\$(2.50)	5528	Turbines	\$(13,820.96)
Marketing	\$(20.00)	50	Hours	\$(1,000.00)
Packaging	\$(4.00)	5528	Turbines	\$(22,113.54)
Patent Renewal Fee	\$(1,600.00)	1	Year	\$(1,600.00)
Product Liability Insurance	\$(1,000.00)	1	Year	\$(1,000.00)
LLC Filing Fee	\$(100.00)	1	Year	\$(100.00)
Loan Repayment	\$(570.04)	12	Months	\$(6,840.48)
Product Sales	\$175.00	5528	Turbines	\$967,467.38
NET				\$102,805.28
Income				\$134,516.23

Year 4	Cost	Quantity	Unit/Frequency	Total Cost
Materials	\$(117.25)	8223	Turbines	\$(964,131.98)
Labor	\$(10.00)	16446	Hours	\$(164,457.48)
Building Lease	\$(3.97)	2000	Sq. Ft.	\$(7,940.00)
Warehouse Operating Expenses	\$(2.23)	2000	Sq. Ft.	\$(4,460.00)
Machinery	\$(3,150.00)	1	One Time	\$(3,150.00)
Materials Shipping	\$(17.00)	4111	Per 2.5 lbs.	\$(69,894.43)
Small Business Warehouse Base Cost	\$(25.00)	1	Year	\$(25.00)
Small Business Warehouse Unit Cost	\$(2.50)	8223	Turbines	\$(20,557.19)
Marketing	\$(20.00)	50	Hours	\$(1,000.00)
Packaging	\$(4.00)	8223	Turbines	\$(32,891.50)
Product Liability Insurance	\$(1,000.00)	1	Year	\$(1,000.00)
LLC Filing Fee	\$(100.00)	1	Year	\$(100.00)
Loan Repayment	\$(570.04)	12	Months	\$(6,840.48)
Product Sales	\$175.00	8223	Turbines	\$1,439,002.95
NET				\$162,554.90
Income				\$297,071.14

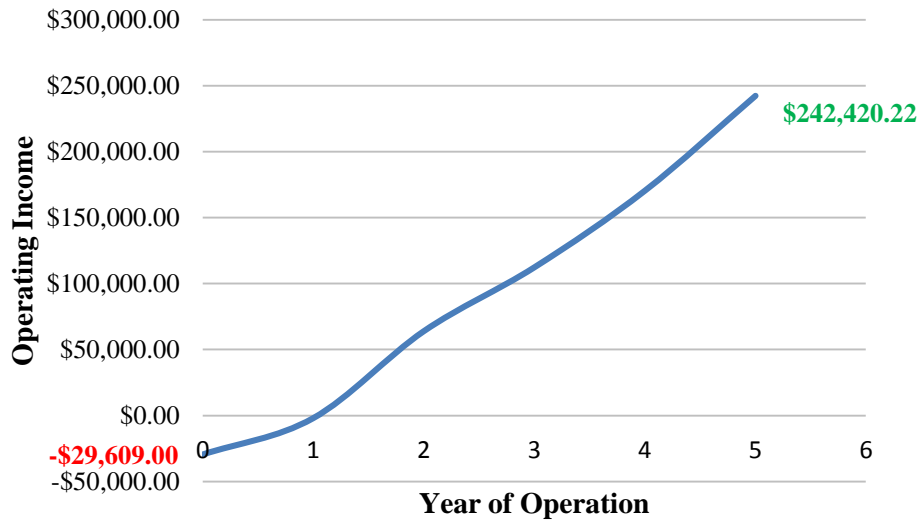
Year 5	Cost	Quantity	Unit/Frequency	Total Cost
Materials	\$(117.25)	11510	Turbines	\$(1,349,509.98)
Labor	\$(10.00)	23019	Hours	\$(230,193.60)
Building Lease	\$(3.97)	2000	Sq. Ft.	\$(7,940.00)
Warehouse Operating Expenses	\$(2.23)	2000	Sq. Ft.	\$(4,460.00)
Machinery	\$(2,000.00)	1	One Time	\$(2,000.00)
Materials Shipping	\$(17.00)	5755	Per 2.5 lbs.	\$(97,832.28)
Small Business Warehouse Base Cost	\$(25.00)	1	Year	\$(25.00)
Small Business Warehouse Unit Cost	\$(2.50)	11510	Turbines	\$(28,774.20)
Marketing	\$(20.00)	250	Hours	\$(5,000.00)
Packaging	\$(4.00)	11510	Turbines	\$(46,038.72)
Product Liability Insurance	\$(1,000.00)	1	Year	\$(1,000.00)
LLC Filing Fee	\$(100.00)	1	Year	\$(100.00)
Loan Repayment	\$(570.04)	12	Months	\$(6,840.48)
Product Sales	\$175.00	11510	Turbines	\$2,014,194.00
NET				\$234,479.74
Income				\$531,550.88

Financial Graphs Year 0-Year 5

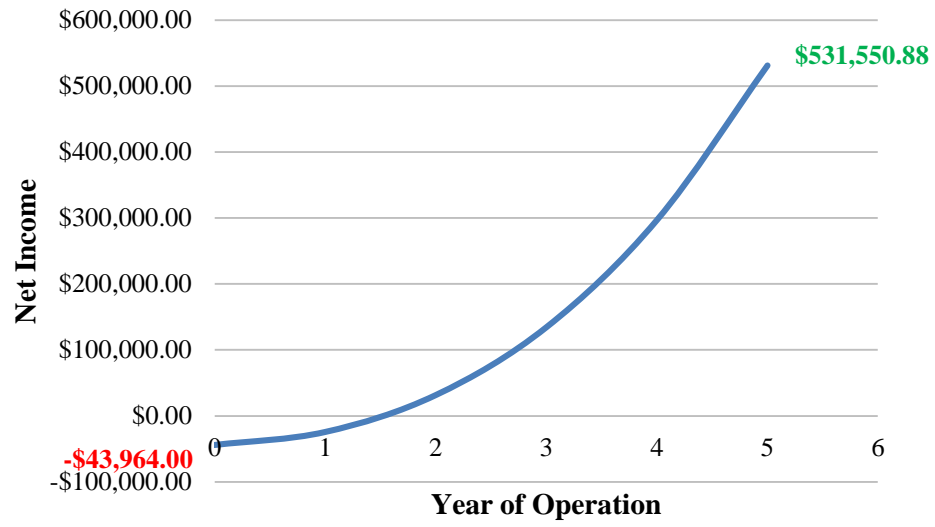
Demand Forecast for the Revolve



Zephyrus's Operating Income



Zephyrus's Net Income



Data to calculate all expenses were found from various sources, listed below.

Patent: IPWatchdog

<http://www.ipwatchdog.com/2011/01/28/the-cost-of-obtaining-patent/id=14668/>

Lathe Machinery: Grainger

http://www.grainger.com/product/JET-Mini-Lathe-42W820?s_pp=false

Sewing Machine: Google

https://www.google.com/shopping/product/2593258387728511699?es_sm=93&client=psy-ab&q=sewing+machine&oq=sewing+machine&pbx=1&bav=on.2,or.r_qf.&espv=210&biw=1920&bih=1019&bvm=pv.xjs.s.en_US.9CjFb4DKbRI.O&tch=1&ech=1&psi=RUI0U763AdSgqWGFnYHgAg.1395934406142.5&ei=OkY0U4bKNYXWrQGqy4GwCg&ved=0CJUBEKkrMAA

3D Printer: Microsoft

http://www.microsoftstore.com/store?SiteID=msusa&Locale=en_US&Action=DisplayProductSearchResultsPage&result=&keywords=3D+printer

Product Liability Insurance: The Produce News

<http://producenews.com/news-dep-menu/test-featured/7945-liability-insurance-how-much-is-enough>

Packaging Costs:

<http://www.delinebox.com/>

Warehouse: LoopNet

http://www.grainger.com/product/JET-Mini-Lathe-42W820?s_pp=false

Shipping: The UPS Store

<http://www.theupsstore.com/ctc/pages/estimate-shipping-cost.aspx>

LLC Fees: Nolo

<http://www.nolo.com/legal-encyclopedia/colorado-form-llc-31823.html>

Machine Depreciation: Seattle Central

<http://seattlecentral.edu/faculty/moneil/Lectures/macrs.htm>

Loan Repayment: Sure Payroll

<http://www.surepayroll.com/calculator/commercial-loan-calculator.asp>

Operating Income: Business Sense

http://www.businesssense.com.ph/operating_income_vs_net_income

Financial Analyses

<http://www.investopedia.com/>

<http://www.accounting101.org/>

http://www.diffen.com/difference/Balance_Sheet_vs_Income_Statement

<http://www.bizfilings.com/toolkit/sbg/finance/your-financial-position/creating-balance-sheets-income-statements.aspx>

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