
The Vac-Pac
Orange Team

Overview

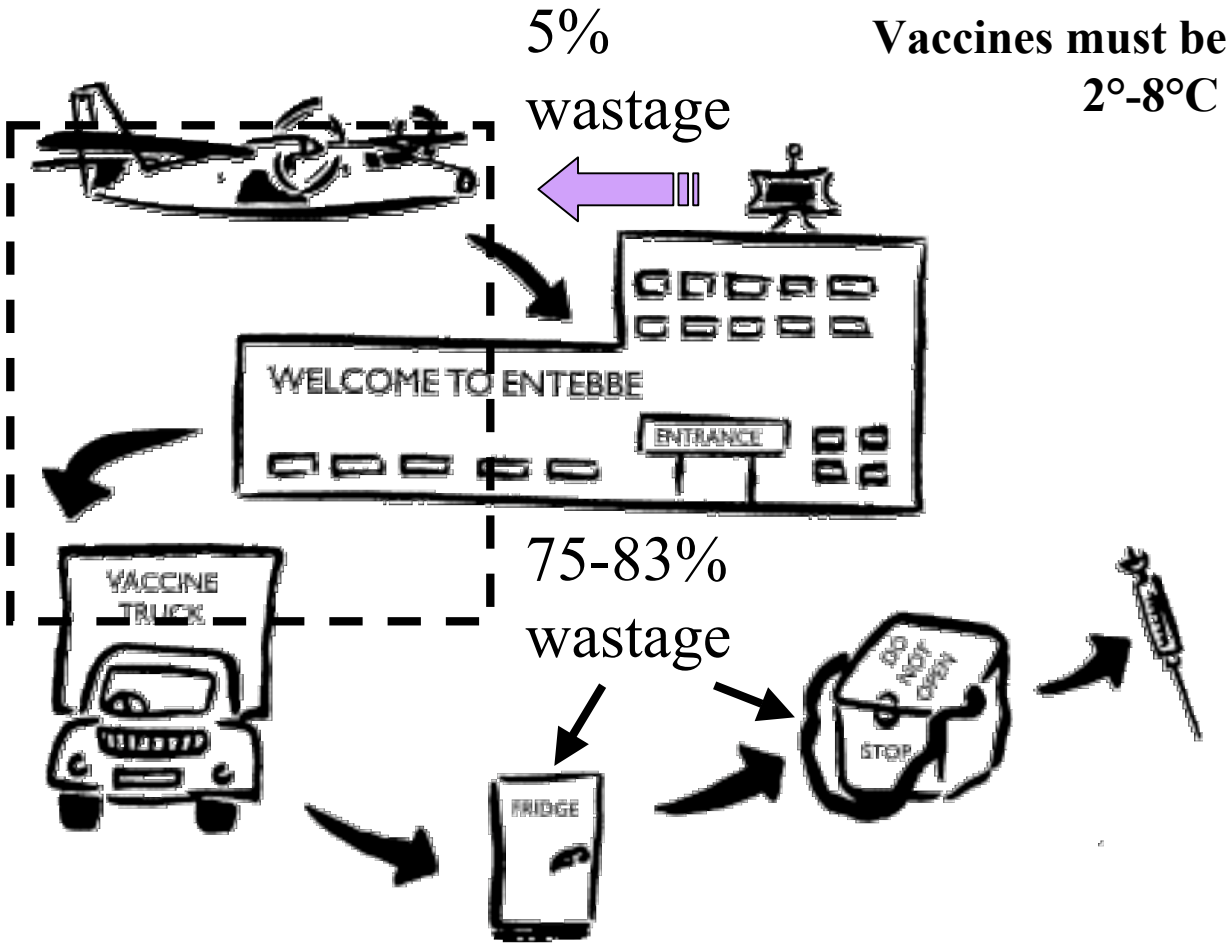
- The challenge
  - Need for better vaccine storage during travel
- The solution
  - Vac-Pac description
- Performance
  - Test data
  - Comparison to competitors
- Plan for future
  - Business Plan
  - Financials

Background

- Over 4.3 Million[1] deaths from vaccine-preventable diseases each year
- Current Cold Chain methods/materials out-of-date, in disrepair
- Limited funds for equipment and personnel
- UNICEF 90% of vaccine purchases

[1] Estimates from WHO (Jan 2004)

Improving the Cold Chain



Vaccines must be stored at 2°-8°C

Wastage = Thermally Damaged Vaccines

Technical Challenges

- Cooling
  - Cold life
  - Temperature Control
- Comfort
  - Wearable form
  - Practical for long distance treks
- Constraints
  - Weight
  - Cost

Cooling System

- Stirling Cooler
  - Coefficient of Performance of 1.2
  - Environmentally friendly
- Feedback Temperature Control
  - Maintains a temperature of 5±2°C
  - Moderates power use

Capacity

- Designed to hold 1200 doses
  - Current vaccine coolers hold < 100 doses
  - Increases outreach session time-span
- Cold Life
  - 18-24 hours on a fully charged battery
  - Multiple recharging options
    - IC engine
    - Car battery
    - AC Outlet
    - Solar panels

Vaccine Storage

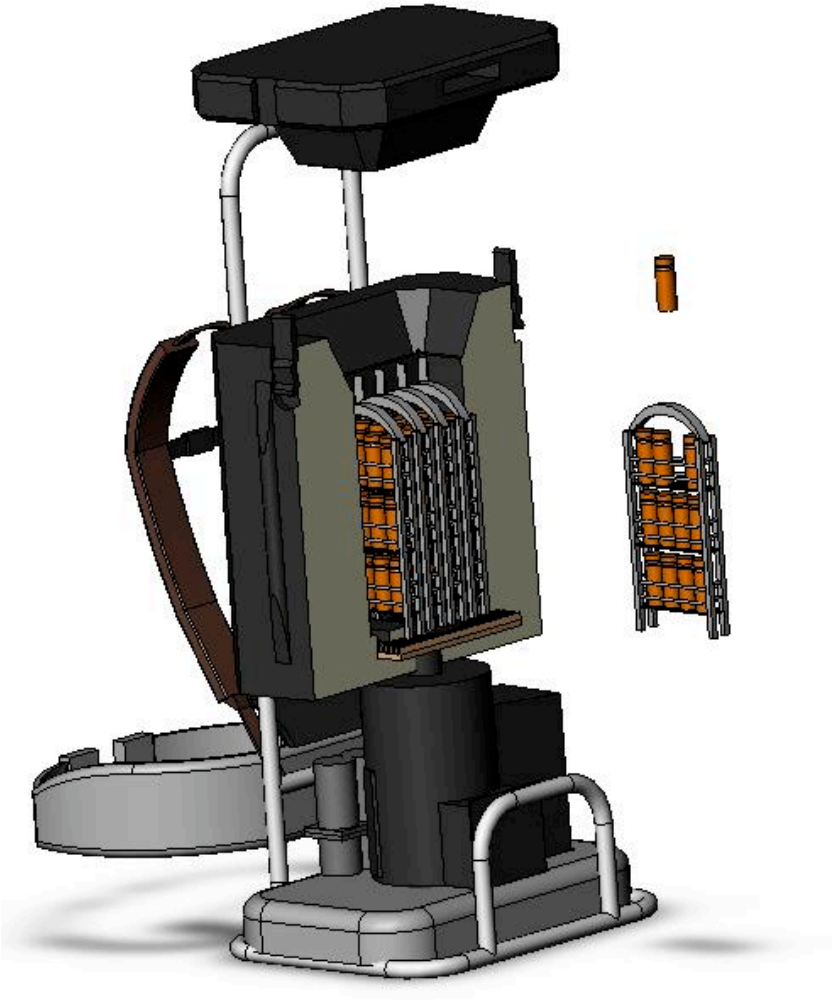
- Rack system
  - Vaccines are stored upright
  - Easy to access
  - Minimum vaccine movement
  - Accommodates the most common vial sizes based on vial size specifications given by WHO

Human Factors

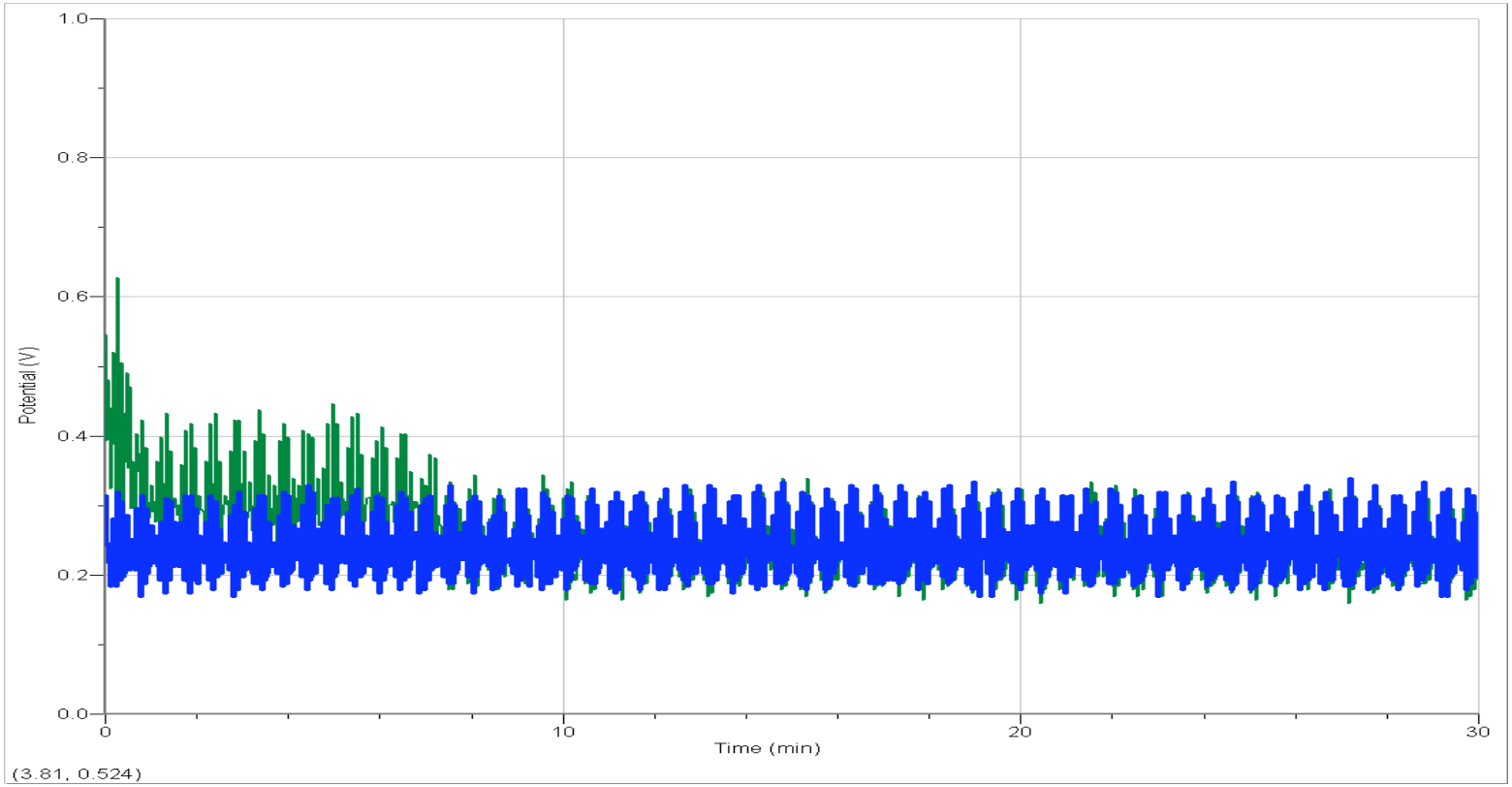
- Form
  - Back pack – hands free
  - Simple Interface
- Ergonomics
  - Center of mass behind the shoulder blades for maximum comfort[2]
  - Modeled after a hiking backpack
  - Comfortable weight under 35 pounds

[2] “Mountaineering : The Freedom of the Hills”

The Vac Pac



Test Data



Test Data

Competition

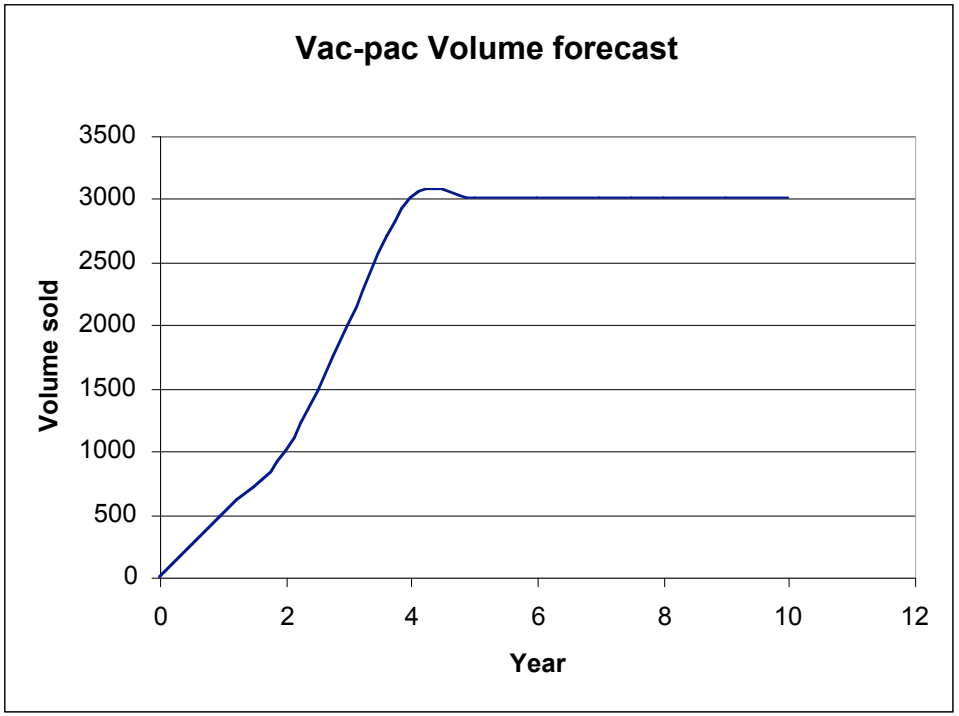
	EST Global	Thermos	China Med	Twinbird Cooler	Vac-Pac
Powered Cold life	N/A	N/A	N/A	Infinite	Infinite
Unpowered Cold life	21 hrs	10 hrs	< 2 hrs	< 4 hrs	18-24 hrs
Powering Versatility	N/A	N/A	N/A	12 V DC only	4 modes of input
Portability	Hand-held	Hand-held	Hand-held/ Shoulder strap	Hand-held	Hands-free Backpack
Temperature Monitoring & Control	Passive (PCM)	No	No	Active	Active
Storage Capacity	.793 L	4.3 L	5.3 L	25 L	4.7 L
Weight	7.25 lb	13.2 lb	15 lb	77 lb	35 lb
Price	~$100	< $20	< $10	~$1400	$1195

Business Model

- Price $1,195
  - Pays for itself in 20 months
- Customers
  - NGOs such as UNICEF, WHO and Doctors without Borders

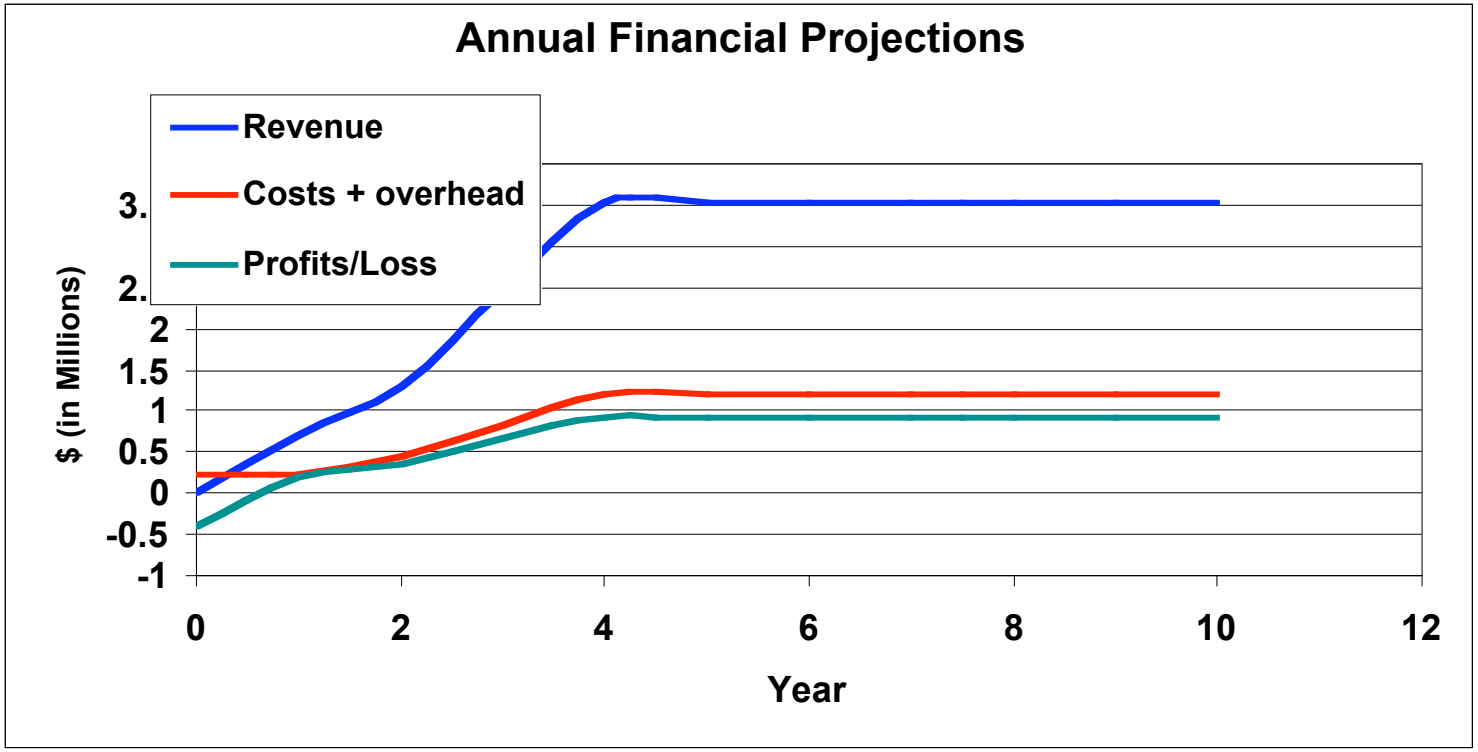
Over 265,000 health centers worldwide can benefit from our Vac-Pac! At 5% market placement…

Financial Breakdown



Item	Cost
Stirling	$186
Racks	$3
Inner case	$2
insulation	$31
plastics	$12
frame	$18
controls	$18
battery	$92
Labor	$36
Total Cost	$399
Wholesale Price	**$1,195.00**

Financial Projections



Financial Highlights

- Initial Investment
  - $405,000
- Break even by Q7
- Full production volume
  - 3,000 units/year by 2010
- Return on investments
  - $2.6 million in profits by 2010

Thank You!!

- Florian Altmann
- Ela Ben-Ur
- Jit Bhattacharya
- Joe Cronin
- Darcy Duke
- Dick Fenner
- Bob Gertsen
- Steve Haberek
- Barbara Hughey
- Maureen Lynch
- Dave Meeker
- Bob Nuttall
- KC Puaa
- Warren Seering
- Scott Spence
- David Wallace
- Student Shop
- DEKA R&D
- Enetron Inc.
- Global Cooling
- Granite Gear
- Tropicool
- Twinbird Co.

Questions?

The Team

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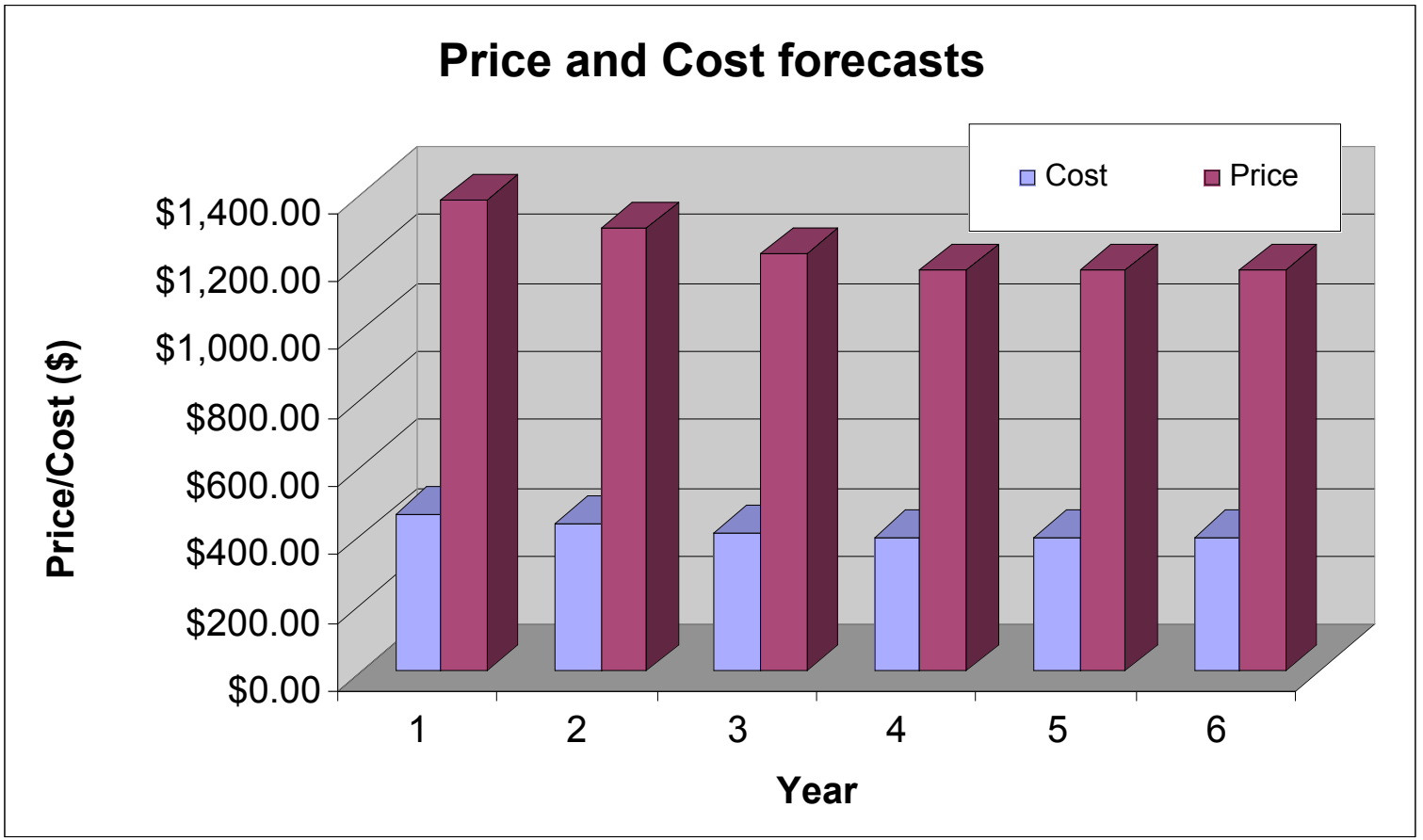
Manufacturing Projections



Profit/Loss Analysis

5% Market Share

Year	0	1	2	3	4	5	6	7
Volume Sold	0	500	1,000	2,000	3,000	3,000	3,000	3,000
Revenue	$0	$689,600	$1,297,499	$2,445,580	$3,525,000	$3,525,000	$3,525,000	$3,525,000
Costs + overhead	$239,972	$239,972	$445,760	$832,813	$1,216,947	$1,216,947	$1,216,947	$1,216,947
SG&A	$165,504	$165,504	$311,400	$586,939	$846,000	$846,000	$846,000	$846,000
NEBT	$0	$284,124	$540,340	$1,025,827	$1,462,053	$1,462,053	$1,462,053	$1,462,053
Tax/Expenses	$0	$103,440	$194,625	$366,837	$528,750	$528,750	$528,750	$528,750
NEAT	-$405,475.67	$180,684.33	$345,714.70	$658,990.47	$933,303.00	$933,303.00	$933,303.00	$933,303.00

3% Market Share

Year	0	1	2	3	4	5	6	7
Volume Sold	0	500	1,000	2,000	2,000	2,000	2,000	2,000
Revenue	$0	$689,600	$1,297,499	$2,445,580	$2,445,580	$2,445,580	$2,445,580	$2,445,580
Costs + overhead	$239,972	$239,972	$445,760	$832,813	$832,813	$832,813	$832,813	$832,813
SG&A	$165,504	$165,504	$311,400	$586,939	$586,939	$586,939	$586,939	$586,939
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Tax/Expenses	$0	$103,440	$194,625	$366,837	$366,837	$366,837	$366,837	$366,837
NEAT	-$405,475.67	$180,684.33	$345,714.70	$658,990.47	$658,990.47	$658,990.47	$658,990.47	$658,990.47

@ 3%, Total Returns by 2010: $2,097,894.77