6/1/2016

Freedom Motors

Executive Summary from Business Plan Supporting Regulation A+ stock offering



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Executive Summary

Freedom Motors (the "Company") has exclusively licensed the worldwide manufacturing and marketing rights to the Rotapower® rotary engine for all applications except aircraft and ducted fans. The Rotapower® engine is based on the Wankel rotary engine design and has a number of unique attributes including extraordinarily high power for its weight and volume, very low emissions, and no noticeable vibration. These characteristics have made it the engine of choice for many applications and resulted in letters of intent (LOI) and conditional orders for over 3.5 million engines (~ \$5 billion).

BACKGROUND OF THE ROTAPOWER ROTARY ENGINE

Rotary engines based on the Wankel principle operate with only two moving parts compared to over twenty in a competing 4-stroke piston engine. This lowers cost and greatly improves reliability. The Company was able to acquire the entire rotary engine assets of Outboard Marine Corporation (OMC), one of only two companies that ever mass produced rotary engines. This engine was used in their snowmobile which, to be price competitive with a 2-stroke piston engine, used inexpensive parts with engine design life of 250 hours. The actual life turned out to be much longer.

After Freedom Motors acquired its exclusive license, it undertook an extensive engine development and improvement program based on the successful OMC engine leading to the following results:

- Three patents issued and four more being processed
- Seals and wear surfaces with documented life of over 22,000 hours
- Power to weight ratio three times higher than competing piston engines
- Modular design allows stacking multiple rotors
- Operate on Diesel cycle
- Emissions low enough that in most cases a catalytic converter is not required
- Operate in any position
- Agreements to joint venture or sublicense engine production

ENGINE PRODUCTION STATUS

The Company has developed a family of Rotapower® engine models ranging from 2.5 to 450 horsepower. Many have been integrated and demonstrated in a wide variety of applications. The Company will initiate engine production using rotor displacements of 150cc and 530cc, however, its joint venture partners have identified applications utilizing 27cc and 650cc displacement rotors. Production will take place in two phases. The first phase will produce beta engines that will be provided to original equipment manufacturers (OEM). Completing beta and volume production start-up will require approximately nine months.

IMMEDIATE MARKET OPPORTUNITY

The world market for engines in the power range of the Company's various models is over 250 million engines per year. For many applications a high power to weight ratio, negligible vibration, and low cost are the most important criteria. Recreational, utility, transportation, and portable high power applications are the most immediate markets. The utility motor scooter/motorcycle market requires 75 million engines per year. The Company has set the very conservative goal of penetrating 0.05% (130,000) of the annual world engine market by production year five. If just one of the Company has created a number of joint venture partnerships where the partners would manufacture engines for their specific market and provide parts and/or engines to support the Company's engine production needs as required. This arrangement makes it possible to meet increased production if the current indicated demand materializes.

FUTURE MARKET OPPORTUNITY

There are many applications like gensets for hybrid cars, marine products, and commercial aircraft where in addition to the above attributes, achieving low fuel consumption and very low noise are particularly important. The company has successfully tested a patent pending compound version of its Rotapower® engine that captures much of the exhaust energy. As a result, fuel consumption, exhaust noise, and exhaust temperature are all very substantially reduced. For example, a compound version of the Company's 27cc displacement engine could meet the goal of various governments to have a very efficient (37%) and quiet (55dba) one kilowatt co-genset in every home with natural gas. In the US alone, this is 75 million homes at an estimated cost of \$240 billion.

PRODUCTION FUNDING REQUIREMENTS

Historically, raising capital through a Regulation A stock offering has been problematic due to the difficulty of finding an underwriter to help market the stock. A recent Regulation A+ rule change allows unlimited promotion of a pending stock offering under a "test the waters" campaign. This reduces the need for an underwriter. A number of Reg. A+ offerings have successfully raised \$15 million or more for products with far less demonstrated market demand than the Rotapower® engine. The Company's goal is to raise a total of \$10 million with \$5 million required to ramp up beta and volume production to 130,000 engines per year by production year five. The additional \$5 million will be used to accelerate the following engine development programs:

- Complete development and patent a compound version that reduces fuel consumption by 20% and eliminates 95% of exhaust noise (recovers exhaust energy).
- Complete development and patent a partial adiabatic compound version of its 27cc engine for a one kilowatt co-genset.
- Complete development and patent a rotor cooling system that allows a further increase in engine power to weight ratio.

These advanced developments should improve both market penetration and profit margins. For example, the basic 27cc Rotapower® engine is an attractive engine for use in the handheld power tool market where its small size and lack of vibration are important, but the engine needs to cost less than \$50 to be competitive, and consequently has a low profit margin. In contrast, a compounded version with its low fuel consumption and little noise makes it an ideal candidate for the demanding genset and co-genset market where an engine price of over \$1,000 could be warranted.

RETURN ON INVESTMENT

Upon meeting the Company's 5 year financial projections, based on very modest sales of its basic engines, the annual compound rate of return (ROI) on an investment at \$2.50 per share price would be 56.5% (p/e=20). However, once its advanced patent pending technologies are market ready, sales of engines by a present and growing list of joint venture partners or licensees should far exceed the Company's own very limited production goal.

		Displacement	HP*	Weight	Volume	Critical Parts
Briggs & Stratton Piston Engine	S.	100cc	2.5	28 lbs.	1.5R ³	8
Rotapower Engine	~	27cc or 54cc equiv.	3	4 lbs	.2fl ³	2

Comparison of Rotapower versus Common Engines

	Displacement	HP	Weight	Volume	Critical Parts
Vangard Piston Engine	570cc	18	90 lbs.	383	15
Rotapower Engine	 150cc or 300cc equiv.	18.5	25 lbs	.35ft ³	2

		Displacement	HP	Weight	Volume		Critical Parts
Kohler CH-1000 Piston Engine		1 liter	40	132 lbs.	4.5 ft ³	- A	15
Rotapower Engine	K)	530cc or 1060cc equiv.	50	48 bs.	1.1ft ³		2

* Nominal horsepower, higher horsepower available





Piston engine data from EPA Report No. NR-0106. Rotapower engine data verified by California Air Resources Board (CARB) and Dr. Andrew Burke of the Institue of Transportation Studies (ITS), UC Davis.

Applications Using Rotapower:



Hybrid fuel-electric vehicle (530cc)



All Terrain Vehicle - ATV (530cc)



Mini Jet Boat (1060cc)

Skycar®







Aviation - Related Applications





Most recent application



Motor Scooter (150cc)

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