GENERAL COMPRESSION
Dispatchable Wind

Summary

General Compression (GC), a US-based corporation headquartered in Newton, Massachusetts, is developing a suite of technologies to increase the economic viability of wind as a renewable energy source, through improvements in its capture, storage, and use.

Value Proposition

Wind is a clean, renewable energy source that does not contribute to global climate change. Wind power technology has reached the point where wind energy is cost competitive with non-renewable energy sources. To achieve a primary impact on the power grid, a power generation product must exhibit reliability, predictability, and dispatchability — demands which put traditional wind technologies at a disadvantage due to their intermittency and short-term unpredictability. Combined with the lack of a cost-effective means to store large quantities of electricity, this disadvantage has prevented wind from becoming a mainstream energy source. GC will make wind power dispatchable by storing wind energy as compressed air and then converting it to mechanical or electrical power when desired. By enabling the wind power producer to sell power as required to satisfy power production commitments or during demand spikes, GC endeavors to transform wind into a reliable, cost competitive, and highly profitable mainstream power source.

Technology

General Compression's wind storage innovation is termed the Dispatchable Wind Power System (DWPS). At the heart of the DWPS is a proprietary compressor developed by Mechanology, Inc. (Attleboro, MA), for which GC holds the exclusive worldwide license for wind power applications. GC will substitute the compressor for the electrical generator and high ratio gearbox located in conventional wind turbine systems. Rather than creating electricity on the spot, the DWPS wind turbine drives the compressor to produce high-pressure air which is accumulated underground. The wind's energy is stored as compressed air, for later expansion and conversion to mechanical and/or electrical power. Storage options include geologic features such as salt domes, aquifers, or limestone caverns; or man-made depleted gas fields or mines; or networked pressure vessels.

Market Opportunity

GC is focusing its attention on four market opportunities, each of which represents a larger than $100B market: firming existing wind; new peak power (*'peak-wind'*); new baseload power (*'base wind'*); and new wind energy parks.

Firming Existing Wind Capacity — The DWPS offers the option for existing wind farms operating at ~30% capacity factor to increase transmission utilization rate to 90% or better. This enables operators to reap capacity payments and other premiums in addition to increased power output sold at high power prices.

New Peak-Wind Capacity — A DWPS configured as a peak power system, storing power during periods of low demand and dispatching during periods of peak demand, enables construction of new wind installations in lieu of fossil or nuclear generation. Additionally, because peak-wind installations can be erected in shorter time (2-3 years instead of 8-10 or more) with less susceptibility to fuel and regulatory risk, DWPS projects offer higher profit and lower development risk than conventional options.

New Base-Wind — The DWPS can be configured as a baseload system to optimize for the efficient use of transmission resources. These projects would deliver a constant, level power output 24/7 regardless of current wind conditions. This enables the construction of new wind installations that would be marginal or uneconomic as conventional wind farms.

Wind Energy Parks — GC has identified numerous locations around the world with outstanding wind resources but lacking local power demand and/or transmission capacity. In these places GC will assist in the development of integrated wind power and industrial developments where the DWPS will convert the 'stranded' wind into energy-intensive industrial products such as aluminum, fertilizer, steel, hydrogen, liquid air products, and synthetic gasoline.

Business Milestones

To date General Compression has raised $8.1M and established brand identity as the Dispatchable Wind company. The next two years will be dedicated to technology development and testing. DWPS turbine certification is scheduled for 2010, with commercial production beginning in 2011.

Management Team

CEO	David Marcus
President	Michael Marcus
Chairman	Eric Ingersoll
CTO –Turbine Dev't	Rahul Yarala
CTO – Power Generation	Michael Witzing
Chief Information Officer	Justin Aborn
Senior Dev't Officers	Jack Joyce
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