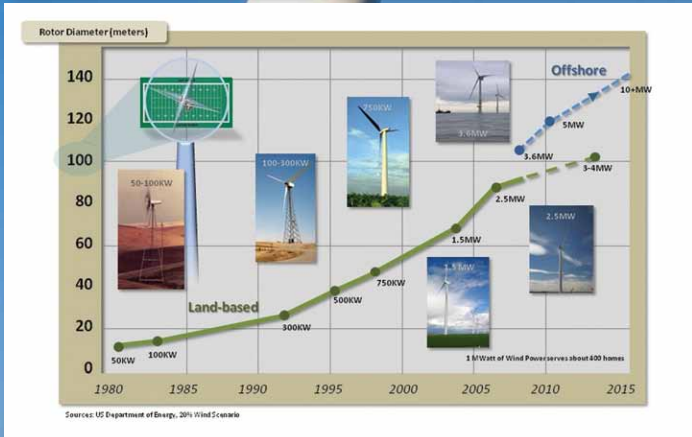


New Innovations

in 19th Century Technology

Electromagnetics: A Key to a Sustainable Energy Future

BY ANGELA LAZAZZERA



From the earliest breakthroughs, such as motors, generators, and even the telegraph (all based on electromagnetics) there have been no major changes in the fundamental science that designed these early, yet revolutionary inventions that transformed our world. That is all about to change. A company, right here in Brevard, is at the forefront of a discovery that will radically transform the fundamentals of electromagnetics and how they can be applied in the not-so-distant future to benefit the global yearning for sustainable energy resources.

Founded in 1995, Advanced Magnet Lab (AML) has developed a portfolio focused on proprietary magnet technology and the software that enables it to perform through its own manufacturing processes. In 2002, AML made a radical discovery, which changed the basic fundamentals of electromagnetics and the way in which they can be applied to industries that are revolutionizing the entire magnetic industry. Coined Double-Helix™, this patented technology enables magnetically driven applications to be significantly more compact, efficient, reliable, and cost effective.

Today, according to Vernon G. Prince, AML's general manager, "We are focused on markets (primarily offshore wind turbines) where Double-Helix™ can leapfrog existing solutions. Our technology is literally a game changer in the field of electromagnetics." He doesn't hesitate to give credit to Rainer Meinke, AML's Chief Scientist and Inventor, who has led a staff, of a multitude of parallel partners, in this magnetic masterpiece of science. Proprietary software is being used to optimize the "magnetic field" without being constrained by conventional magnetic shapes, sizes or limitations in material choices. Subsequently, automated manufacturing is used to produce magnets at low cost, combined with high precision – addressing critical medical and energy applications which are still using 18th Century technical methodologies.

Mr. Prince expressed that, "AML's strategy is to manufacture, license and spin-off technology in large and growing global markets." Magnets based on Double-Helix™ technology are being packaged in slightly different ways to solve problems in uniquely different arenas. Some examples include:

- 1) Medical – magnets for cardiac intervention, therapy and cancer treatments;
- 2) Energy – rotors and stators for power generation and use;
- 3) Space / Defense – launch and propulsion concept demonstrations.

In all cases, AML's technology enables a more precise definition, quality and control of the magnetic field, while also reducing the size, cost and complexity of the process. Think of an MRI machine five years ago, compared to one today and you'll get the picture.

As expressed by Mark Senti, president of AML, "This is a very opportunistic technology – magnets are everywhere. Our business challenge is how to best optimize the business opportunity with a technology that we're developing locally, but will be utilized on a global basis."

The world of possibilities before them with the invention of the superconductor Double Helix™ technology presented a fundamental decision. How will this invention be applied to the future? Realizing they were, according to Mark Senti, "in the right place, with the right technology, at the right time," they decided to make the breakthrough from current applications to the world of environmental technology. This produced the newest dimension/division of AML, "AML Energy."

Think of a Brevard version of T. Boone Pickens. AML Energy has created the inner-working magnetic technology machine that will allow wind turbines to function through magnetic technology, without the need for oil-based, internal engines. Efficient cooling technology is being developed through partnering companies. AML's focus is the manufacturing and deployment of clean, scalable and efficient generators and motors for large-scale SUSTAINABLE energy systems. Offshore wind turbines will deliver power to the densest population areas with the shortest transmission lines and are the only viable option for these turbines to reach their full potential at sizes able to power extremely large areas at 99% transferable efficiency.

AML recently announced their clean energy plan www.amlcleanenergy.com – to address the global hunger for clean, sustainable and efficient energy systems. Central to this plan is the manufacturing and deployment of large-scale "clean" generators and motors generated by AML's Double-Helix™ technology. It is, at this very moment, being applied to power large wind turbines. These systems will harvest offshore wind energy and will generate enough electricity to power over 4,000 homes from a single wind turbine.

Vernon Prince said it in a nutshell, "This is a clean, diverse and very large industry, with the potential to be the next industrial revolution and has the potential to foster significant business development on Florida's Space Coast."

For the sake of our environment, let's hope the wind is at their backs. ♦

Wind Energy Facts and Future

The **Department of Energy** believes that it is feasible for the United States to generate **20%** of its electricity needs using Wind Power by the year **2030**. Wind Power at this level would support over 500,000 jobs and reduce greenhouse emissions by an amount equivalent to taking 140 million automobiles off the road.

Some Wind Energy Facts ...

- Wind is the fastest growing Renewable Energy source in the U.S. Electricity supplied by wind has been growing at a rate of 31% per year over the past 7 years.
- Wind is one of the lowest cost Sustainable Energy sources and can provide consumers with electricity at prices that are competitive with coal and gas.
- In 2008, the U.S. became the #1 Wind Power producer in the world at over **20 GWatts** of installed power generation capacity. 20 GWatts is enough electricity to supply over **8 Million** homes.
- Offshore wind turbines, located a few miles off the coast, will be a significant contributor to the "20% Wind by 2030" scenario.
- States with long coastlines stand to significantly benefit from offshore wind due to the abundance of "ideal" wind conditions along the coast and the proximity of the power source to densely populated areas where the power is used.

AML Energy, is executing a plan to develop and manufacture a new breed of **Large Scale, Electrical Generators** for offshore wind turbines using its advanced magnet technologies. Each wind turbine contains one of these generators, located within the wind turbine tower, connected to the rotating turbine blades. These generators will play a key role in realizing the scenario of "20% Wind by 2030."

- The AML Energy design will be 25% of the weight and 50% of the size of current technology resulting in much lower cost of the entire wind turbine.
- The new generators will eliminate complex and high-maintenance components found in conventional generators thereby increasing reliability and reducing maintenance costs.
- Future wind turbines will grow to over 200 meters in height and produce enough power out of one turbine to supply 4,000 homes. New generator technologies, such as those being developed by AML Energy, will be required to convert the large amount of wind energy harvested by these giant turbines to useable electricity.

Please contact **AML Energy**, for more information regarding our Clean Energy Plan, our potential Economic Development impact on Florida and Investment Opportunities.

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Sources: DOE 20% Wind Scenario Report (July, 2008)
EWEA Pure Power Report (April, 2008)
DOE Renewable Energy Data Book (September, 2008)

