**May the Wind Power Be With You**

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The Greenest of the Green Energies

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[Chun Go-eun](http://www.koreaittimes.com/source/chun-go-eun)



Samdal Wind Farm (33MW) in Jeju, Korea

**Greenest of the Green**

Global Wind Day is the day for promoting wind, its power, and possibilities to chane the world. In more than 75 countries around the world, wind farms are being operated to generate energy from a clean and renewable source. Real-time discussions are already being held via Facebook regarding the matter of this upcomming event. Korea IT Times interviewed Dr. Lee Rim-taig, chairman of Korea Wind Energy Industry Association, and the CEO of Halla Wind Energy Co. Ltd. He is also a chair of Hanshin Energy, the company that is currently operating the 33 Mw wind power station in Jeju Island, Korea since its completion on November 2009.

In the realm of green, sustainable energy, there is one type of green energy that really stands out as the greenest of the green - wind power.  What can be more environmentally-friendly than a huge metal fan blown by the wind?  There are no byproducts, no fish are harmed, and nobody has to breathe any smoke.  In fact, wind power has been utilized in Europe for hundreds of years, before even the invention of electricity.  The windmills of Denmark are famous worldwide.  Wind power has moved much beyond using simple windmills now, however, and has become one of the most impressive of the green energy sources.

Wind power currently creates 2.5 percent of the entire world's electricity, and is predicted to double every year for the immediate future. Some countries produce substantially more of their electricity using wind power, such as Denmark, which produces 21 percent of its electricity using wind turbines. Portugal, Spain, Ireland, and Germany also produce more than 10 percent of their electricity via wind power.

Wind turbines in a wind farm generally produce electricity. The wind turbines are used to generate electricity in the same way that gas or coal fired turbines generate electricity - they turn and produce a steady current.  There is some higher variability in wind turbine electricity generation, however, because the wind speed and direction is not always constant.  But generators can be depended on to fluctuate in a cycle, and often this cycle generally matches up to electricity usage.  Wind is often stronger at night when lights are needed and weakest during the day when less electricity is being utilized.  This means that wind generators are a good supplier for residential energy consumption.

The 2010 World Wind Energy Report, prepared by the World Wind Energy Association in Germany, describes in detail the current wind power situation worldwide.  The report separates wind power generation into offshore and onshore installations.  Offshore wind power generation is slightly more popular than onshore wind power generation, accounting for 64 percent of the total amount of wind power generation. Offshore wind power is also growing at a faster pace than onshore wind power generation, indicating that it is the favored son of wind power generation.  The country with the greatest amount of offshore wind power generation is the UK, which has just doubled its offshore wind power generation in 2010, bringing it up to 26 percent of its total wind capacity.  Second in offshore wind power generation is Denmark, which generates 23 percent of its wind power offshore.

Onshore wind power generation is also growing quickly throughout the world.  It is most popular in Europe, then Asia, and also in North America. The most dynamic progress in onshore wind power generation, however, is located in Asia.  Asia had the highest growth rates in onshore wind power generation for four years running.  In 2010 it was 50.6 percent.  In contrast, 2010 growth for North America was only 16 percent and for Europe 13 percent.

Asian growth in wind power is quite impressive.  31 percent of the global capacity for wind power is located in Asia, mostly due to China and India's investments in wind infrastructure.  Following them, Japan, Taiwan, and South Korea also substantially increased their wind power generation.

There is also wind turbine usage in Africa.  In 2010 the total wind power generation on the onshore was 0.5 percent of the worldwide capacity.  The onshore created 20 percent growth in wind power generation in 2010, unfortunately under the global average.  Most of the wind power projects are located in Egypt and Morocco.  Tunisia and South Africa follow those two leaders, but with substantially less infrastructure created.  The World Wind Energy Report suggested financial support for new wind energy projects on the onshore.

There is a little growth of wind power in Latin America, which was an increase of 30 percent in 2010.  This is above the global average but less than previous years in the region.  Brazil, Mexico, and Argentina are the three leaders in Latin America, with Uruguay, Cuba, and Chile following behind.  However, the Latin American market cannot be regarded as mature yet, and much development remains to be had, similar to Africa.

North America showed a sharp drop in wind power generation in 2010, mostly because of the sharp drop in wind power facility development in the United States.  The US halved its growth rate, causing North America to fall from the second fastest growing region to third.

**Future of Wind Power Industry**

The future of wind power is looking quite positive.  There are several major contributing factors to the steady growth of wind power.  The first is the ongoing emphasis on climate change and the pursuit of emissions-free energy solutions.  The second is the depletion of fossil fuels and nuclear resources.  This is reflected in the steadily increasing cost of oil, which hinders smaller countries the most.  The third one is the damages to the environment caused by fossil fuel resources.  Oil spills such as what happened in the Gulf of Mexico are a constant reminder of the financial and environmental cost of traditional energy resources. Fourth is the increasing awareness of the hazards of nuclear energy, especially in the presence of nuclear disasters. Fifth is an ever-increasing understanding of the actual maturity and benefits of renewable energies such as wind power. Finally, the last contributor is the further refinement of wind power as a viable source of energy that is competitive with other technologies.

In order to take advantage of these factors, it will always be important to steadily increase the industries, associations, and policies associated with wind power.  Initiatives such as the Korea Wind Energy Industry Association (KWEIA) led by Lee Rimtaig in Korea are essential for the further growth of wind power.  Also, cooperative agreements between organizations and countries such as the nine Memoranda of Understanding that Lee Myung-bak just set up between organizations in Korea and Europe for cooperation regarding wind power and other green energy technologies are essential to the growth of wind power both in Korea and abroad.

**Europe is a Focus**

President Lee Myung-bak just got back from a weeklong tour of Europe in order to set up cooperative agreements between the green power industries of several countries and Korea, in order to promote the development of these technologies both in Asia and in Europe.  The whole event was called a Green Growth Alliance, and President Lee couldn't have picked a better place for such an alliance.  Europe is a major hotbed of green power, especially wind power, as mentioned above.

Denmark's cultural heritage includes extensive use of wind power for hundreds of years.  The windmills of Denmark have already been mentioned, but today they are also the world's leader in offshore wind power generation.  The Danish company Megavind is at the center of this technology.  The company's three goals for the next ten years are clear.  They want to increase the electricity generation of offshore wind farms by 25 percent.  They want to reduce the cost of installing wind farms by 40 percent.  And they want to reduce the cost of operating offshore wind farms by 50 percent.  They are in the business of refinement, and by achieving these numbers they can make offshore wind power generation more financially appealing than any other kind of power generation.

But if you're looking for the onshore wind power generation, France is the country you should turn to.  France is predicted to be one of the top onshore wind power-generating countries by 2020.  France boasts 180 companies active in the wind energy business, many of which are world-leading components suppliers.  Converteam, for instance, is a company specializing in drives, converters and generators for wind turbines.  Stromag, another French company, designs and manufactures industrial disc brakes for wind turbines.  And Alstom Power produces the control and instrument components.  These companies are backed up by French engineering expertise, the expertise that comes from the 2nd best world aeronautics industry behind the US, and the 2nd best automotive industry in Europe, behind Germany.  The French are positioning themselves as the number one market to go to when you need foundations, towers, components, and blades for your wind power installations.

**Korea's Growing Industry**



Lee Rim-taig, chairman of Korea Wind Energy Industry Association, Hanshin Energy, and CEO of Halla Wind Energy Co. Ltd.

Europe then makes an excellent partner for Korea's rapidly emerging wind power industry.  Since the year 2000, Korea's wind power generation capacity has grown from 5.9 megawatts (MW) to 379.3 MW in 2010, an incredibly rapid growth.  This rapid growth has been fostered by economic incentives, which make the development of wind power plants in Korea financially viable.  Most recently, the Korean government switched from a feed-in tariff scheme to a Renewable Portfolio Standard scheme as of April 2010.  Under the Renewable Portfolio Standard, power-generating companies in Korea have an obligation to purchase or generate a certain portion of their energy from renewable energy sources, which will increase each year until 2020.

Now, it is true that wind power is still a small percentage of the total power generation in Korea.  The largest power generation is done with coal at 41.9 percent of the total electricity generated.  Next is nuclear power at 31.4 percent, followed by natural gas with 21.2 percent.  But under this new scheme, renewable energy sources will become much more prominent in the country within the next ten years.  This is essential for Korea's continued economic growth, because the country currently imports over 95 percent of its energy needs.  Becoming more self-sufficient in electricity generation will take a huge load off of Korea's import needs.

But South Korea doesn't simply want to become self-sufficient in their energy needs, the country is following its 50-year-old tradition in becoming a net exporter of the technologies it uses.  The heavy industry mainstays of the Korean economy - Hyundai Heavy Industry, Samsung Heavy Industry, Daewoo Shipbuilding and Marine Engineering, Doosan Heavy Industry, and other companies are all getting into the wind turbine manufacturing game.  Some companies such as Dongkuk S&C and CS Wind are already supplying wind tower components to Vestas, Siemens, and GE.  Other companies such as Pyongsan, Taewoong, Hyunjin Materials, and Younghun Base Materials are also supplying wind turbine components abroad.  The stage is set for Korean manufacturing to assemble a fully domestic wind turbine manufacturing industry and to make this industry one of the now-infamous Korean economic growth engines.  All the industry needs is further cooperation between experts in the field, and a viable market in which to sell its finished products.  This paints Lee Myung-bak's recent visit to Europe in greater detail.

**Banding Together for Wind Domination**



from left) Lee Rim-taig, chairman of the KWEIA; Lee Myung-bak, President of Korea; Lars Løkke Rasmussen, Prime Minister of Denmark; Jan Hylleberg, CEO of Danish Wind Industry Association

One of the greatest future aids for the Korean wind power industry may have just been created by President Lee.  He set up a Memorandum of Understanding (MOU) between the Korea Wind Energy Industry Association and the Danish Wind Industry Association.  The two organizations consist of hundreds of different wind power related companies, and the MOU aims to get the organizations to play the role of matchmaker between the members of both organizations.  This is the essential component of an enhanced cooperation between the two countries.  They will work together to promote the advancement of both onshore and offshore wind energy.  In 2012, there will be a European Wind Energy Association event in Copenhagen, and both associations will promote mutual cooperation there.  Also, there will be a push to get the Global Wind Energy Council to hold their 2013 expo in Seoul, in which further cooperation between the two countries will be pursued.  The two organizations pledged to work together to reduce the cost of wind energy as outlined by the company Megavind, and to encourage other cooperative events when they can be arranged.  The MOU was signed by both Dr. Lee Rimtaig of the Korea Wind Energy Industry Association and Mr. Jan Hylleberg of the Danish Wind Industry Association.

The KWEIA's main stated aims are fourfold.  First, it of course aims to promote the growth of the wind power industry in Korea through mutual cooperation among wind power companies and organizations everywhere.  Second, the KWEIA works towards domestic energy independence by utilizing wind power in the best way possible.  Third, the organization works to hit the government's renewable energy portfolio target, carbon emission reduction goals, and environmental protection initiatives.  And finally, it aims to help its country's economy by promoting the domestic export of the wind power industry and generally increasing the size of the wind power industry in Korea.  In order to pursue these goals, it pursues the policies and legislation that will best support them, organizes events to promote the wind power industry, raises awareness and distributes information about the wind power industry, and promotes international cooperation with domestic wind power companies.  For more information, you can visit the web site at [www.kewia.or.kr](http://www.kewia.or.kr/).

**Wind power is really good for Korea.  Here's why...**

Wind power generation can potentially be the best long-term solution for Korea.  The country is surrounded on three sides by water, and is very mountainous.  Mountains and shorelines are the best theoretical spots for wind power generation.  Anywhere along the shoreline is generally considered a great place for wind power generation, while the passes between mountains often contain steady, strong winds that can be exploited for excellent wind power generation.   Satellite analysis of offshore wind power generation areas in Korea highlight the waters off the southern tip of Korea surrounding Cheju Island, as areas of the strongest and steadiest wind.  Also, southeast waters off the coast near Busan can also be best utilized for wind power generation.  Onshore, pretty much any mountain range on the peninsula can be capped with a long string of wind turbines, providing steady electricity to the countryside.  All in all, wind power might be the ideal solution for Korea's energy woes, and 10 or 20 years from now the country may very well be the global leader in wind power generation.

Wind power is a rapidly-growing segment of renewable energy generation, and Europe and Asia stand to be the leaders in its adoption and usage now and in the future.  President Lee Myung-bak is making an excellent strategic move to stitch together the two areas and push forward Korea's capabilities in the wind power sector, anticipating its dramatic rise in demand.  Dr. Lee Rimtaig stands at the head of the Korea Wind Energy Industry Association, ready to do his best to lead Korea's future in this best of the green energies.

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