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## **Mitsubishi Electric's Compact Wind Lidar Approved by Dutch Energy Body**

**TOKYO, May 28, 2014** – [Mitsubishi Electric Corporation](http://www.mitsubishielectric.com) (TOKYO: 6503) announced today that the Energy research Centre of the Netherlands (ECN) has conducted tests to validate and subsequently approve Mitsubishi Electric's compact wind lidar as complying with European wind measurement standards. The lidar (portmanteau of "light" and "radar") is a remote sensing apparatus that projects a laser beam and then evaluates the reflected light to measure wind speed.



Fig 1: Rendition of lidar in the Field



Fig 2: Compact lidar for wind monitoring



Fig 3: Meteorological mast

Meteorological masts, which are used conventionally to assess local wind prior to constructing a wind farm, only measure wind at fixed points. Also, the growing size of commercial turbines is requiring increasingly taller masts, which is contributing to higher construction costs for meteorological masts.

Mitsubishi Electric's lidar, which uses a laser beam safe for human eyes, can measure wind remotely at multiple altitudes for accurate assessment and prediction of wind-turbine power generation. It also eliminates the need for costly meteorological masts.

## **Features of Compact Wind Lidar**

### **1) *Improved environmental tolerance for diverse operation***

- Increased tolerance to extreme environmental conditions, including water resistance to IP67 and temperatures down to -20 degrees Celsius.
- Motion compensation for offshore use to support floating wind turbines.

### **2) *Reduced power consumption and small profile for easy operation***

- User friendly weight of under 60 kg and power consumption of less than 100W.

### **3) *Third-party validation of performance by ECN***

- Data error less than 1% in comparison to standard IEC cup anemometer.
- Complies with lidar specifications for NORSEWInD, a large European project on offshore wind atlas.
- Data availability during operation is above 95% (accepted by ECN as reasonable).

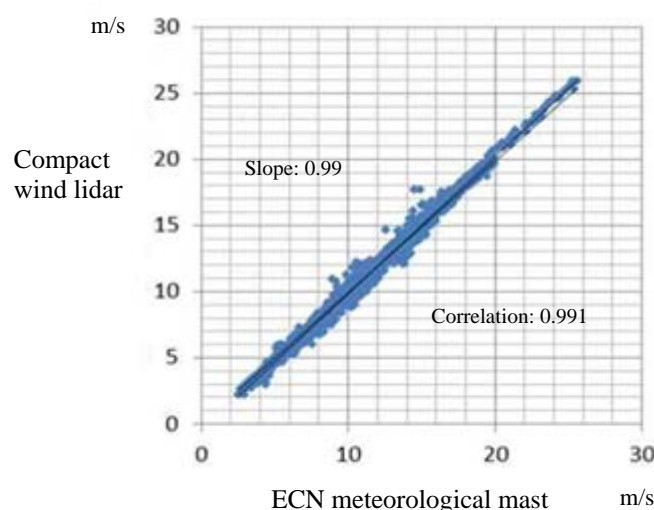
## **Future Plans**

Mitsubishi Electric will enter the global lidar market by launching commercial sales of its compact wind lidar this June. As the International Energy Agency advances towards international standards for lidars, Mitsubishi Electric looks forward to supplying advanced, reliable lidars worldwide for the further growth and development of wind power as a sustainable energy resource.

## **About ECN**

The Energy research Centre of the Netherlands (ECN), the largest institute of its kind in the Netherlands, is actively engaged in global projects with private industry, government and research institutes. ECN has branches in Petten, Amsterdam, Eindhoven, Brussels and Beijing. In addition to its world-leading research into wind energy, ECN also conducts sensor-performance validation services. The mission of ECN is to develop expertise and technology for sustainable energy management with and by the private sector.

## **Performance Validation by ECN**



The figure shows wind-speed measurements by Mitsubishi Electric lidar and cup anemometer. Values of the y-axis (lidar) and x-axis (cup anemometer) are almost identical, validating that the data accuracy of the lidar is nearly equivalent (error less than 1%) to a standard IEC cup anemometer.

Source: ECN (comparative measurements of Mitsubishi's compact wind lidar and meteorological mast 4 at ECN test site)

### **About Mitsubishi Electric Corporation**

With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation (TOKYO: 6503) is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavors to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,054.3 billion yen (US\$ 39.3 billion\*) in the fiscal year ended March 31, 2014. For more information visit <http://www.MitsubishiElectric.com>

\*At an exchange rate of 103 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2014