

# GE Environmental Report – China (2013)

Environment, Health and Safety (EHS) commitments are a priority for GE, no matter where it operates in the world. GE China has specific requirements for protecting the environment, and safeguarding the health and safety of its employees, including: (a) complying with applicable Chinese laws and GE's policies; (b) providing employees with a safe and healthy working environment; (c) Assessing EHS legal and reputational risks impacts before starting or changing a business activity, venture or process in China; (d) to the extent reasonably practicable, reducing the generation, use and release of toxic and hazardous materials; (e) disclosing GE China Environmental Report publicly; and (f) continuously improving the EHS management system and performance as an integral part of GE's operational strategy.

GE China releases this Environmental Report publicly as part of its strategy to meet these requirements and promote EHS awareness in China. Compliance with China's laws and regulations is at the core of GE's EHS policy, and a precondition for any operation or investment in China. GE uses local EHS regulatory guidelines and self-assessment checklists, developed for national regulations on air, water, waste and other environmental areas, to ensure compliance with EHS requirements during China's rapid economic transformation. This enables GE China to operate responsibly and increase its business in China's growing market.

Starting in 2004, GE began collecting greenhouse gas (GHG) emissions data for its worldwide operations. In 2006, GE began gathering waste generation and water consumption data. In 2009, GE China released the "GE Environmental Report – China (2008)" disclosing environmental performance data for the first time and demonstrating GE's commitment to environmental information transparency. This report presents key environmental data for GE China operating facilities in 2013.

## I. Data Sources

In 2013, GE had 24 manufacturing facilities (wholly owned or majority stake) in China, a reduction of 1 from 2012: one facility was closed and another facility was sold, while a different facility was started and began reporting environmental data from 2013. This report gathers environmental data from Pollutant Discharge Registration Forms submitted to government agencies or daily environmental monitoring/management by the 24 facilities in 2013. Greenhouse gas (GHG) emission data were collected from GE's internal reporting system.

In order to better represent real changes in environmental impacts caused by increasing production capacity, or affected by acquisitions and divestitures, this report tracks Environmental Release Intensities, or ratios between environmental impact and GE China Output<sup>1</sup>. This metric

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<sup>1</sup>China Output: revenues from all GE China facilities' production, including sales in China and overseas, but imports to China and China's service revenues excluded.

reflects environmental impact per unit of manufacturing revenue, allowing for historical comparisons and reflecting productivity and material efficiency against production increases, which resulted from effective environmental program implementation.

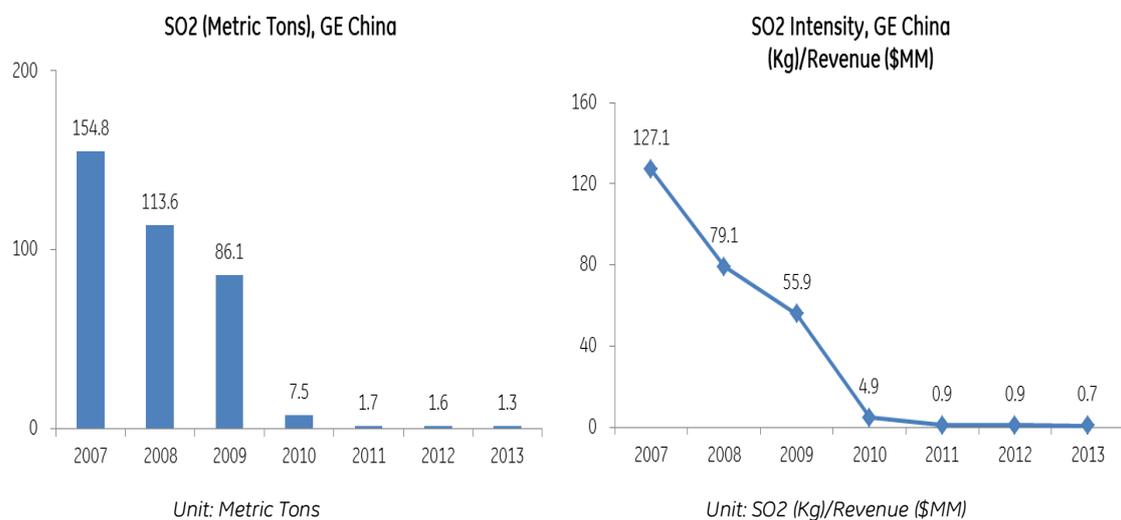
Data in this Report excludes GE Advanced Materials Business (Plastics, Silicone and Quartz) facilities, which were sold between 2007 and 2008. It also adjusted historical data to exclude other facilities which were divested or sold since 2007.

## II. Key Environmental Indicators

As in past years, this report covers sulfur dioxide (SO<sub>2</sub>), greenhouse gases (GHG), fresh water use, chemical oxygen demand (COD) and hazardous waste. In addition, nitrogen oxides (NO<sub>x</sub>) and ammonia nitrogen (NH<sub>3</sub>-N) were added as targeted pollutants in line with China's 12<sup>th</sup> 5-year Environmental Protection Plan.

### 1. Air: Sulfur Dioxide (SO<sub>2</sub>) Emissions

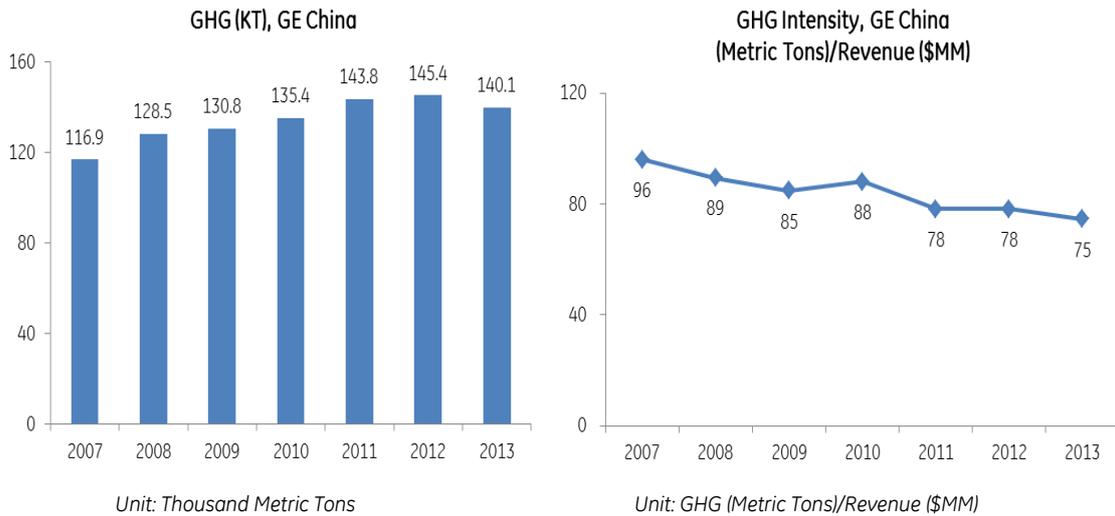
In 2013, sulfur dioxide (SO<sub>2</sub>) emissions from GE China facilities were 1.33 metric tons, a 20% decrease compared with 2012 emissions. SO<sub>2</sub> emissions have been continuously reduced since 2007. The emissions of 2013 reached less than 1% of the level in 2007, both of total emissions and intensity.



SO<sub>2</sub> emissions have been significantly reduced by GE operations in China through the steady replacement of coal, heavy oil or diesel-fired combustion equipment with natural gas systems. Progress has been historically driven by GE Lighting facilities, which had successfully replaced all heavy oil industrial furnaces with natural gas by May 2010. There are two main reasons for the emission reduction from 2012 to 2013: (1) a facility emitting SO<sub>2</sub> was closed in 2013, and (2) oil consumption for heating was lower due to a shorter winter heating season in East China 2013.

## 2. Air: Greenhouse Gas (GHG) Emissions

GE China's 2013 greenhouse gas (GHG) emissions were 140 thousand metric tons of carbon dioxide equivalents (CO<sub>2</sub>e), a decrease of 3.4% from 2012. Our emission intensity decreased by 3.8%. Since 2007, GHG intensity has been dropping steadily, which is due to energy saving efforts by GE China Operations in these years.



GE China's GHG emissions arise from electricity use and the consumption of fossil fuels during manufacturing. GE China has been displacing carbon intensive fuels with cleaner fuels—heavy oil to natural gas for example. Upgrading these combustion systems increased our fuel efficiency and reduced our CO<sub>2</sub> emissions.

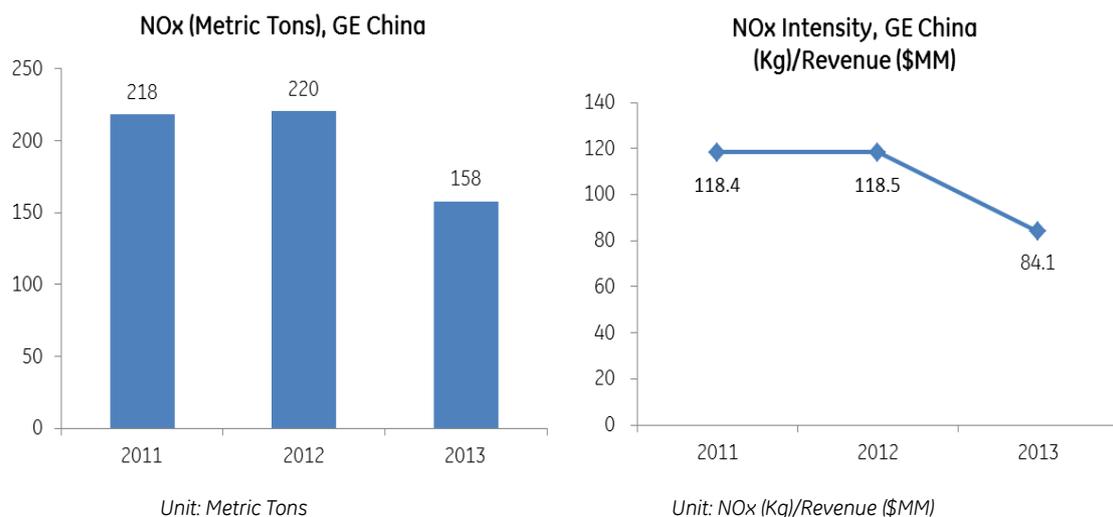
GE is also a strong proponent of "Treasure Hunts," or competitions that leverage the expertise and creativity of GE employees to identify energy-saving opportunities. Very good results have been achieved via "Treasure Hunts" across GE China facilities in 2013. For example, Lighting Shenhua Site modified the glass kiln from 60 cubic meters to 52 cubic meters, which saved 2800 metric tons of carbon dioxide equivalents in 2013.

More information on GE's GHG inventory, including methodology, Quality Control/Assurance processes, baseline verifications, and the extent to which GE follows the World Resources Institute (WRI)/World Council for Sustainable Development (WBCSD) GHG Protocol can be found at <http://www.gesustainability.com/building-things-that-matter/energy-and-climate/ecomagination-ghg-goal/>

## 3. Air: Nitrogen Oxide (NOx) Emissions

Since 2011, GE China began to track and analyze NOx emissions. GE China facilities released 158 metric tons of NOx in 2013, down 28% from 2012, while the emission intensity is down 29%. The

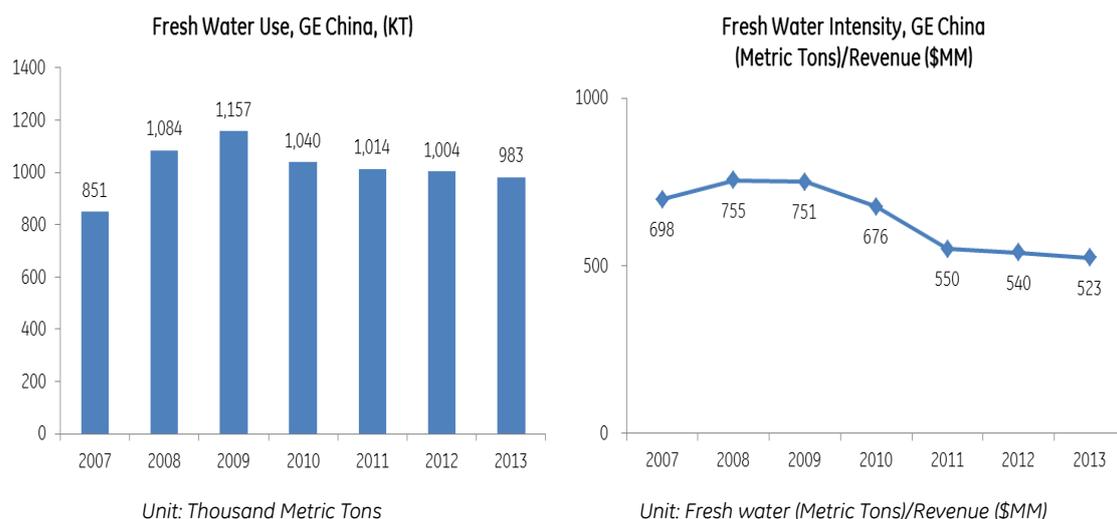
reduction is mainly from the modification of the glass kiln at GE Lighting facility.



GE China NOx emissions are driven primarily by the combustion of lighting industrial glass furnaces and the material oxidized under high temperature.

#### 4. Water: Fresh Water Use

GE China used 983 thousand metric tons of fresh water<sup>2</sup> in 2013, a 2.1% decrease from 2012. Fresh water use intensity also saw a decline of over 3.1%. Since 2008, GE China's fresh water use intensity has been continuously decreased despite the expansion of GE China business. The fresh water use intensity of 2013 decreased by 31% from 2008.



Through "Treasure Hunts", opportunities for fresh water saving and waste water reduction have been identified. Simple methods, such as leakage inspection and repair of water facilities, pipes

<sup>2</sup>Fresh water use includes public potable water, process and domestic water, as well as non-contact cooling waters from freshwater sources.

and valves in 2013, contributed to the continuous reduction of fresh water use in GE China sites. In 2008, GE announced a global water reduction goal for manufacturing operations – a 20% reduction by 2012 from a 2006 baseline. In early 2009, GE further proposed a 25% water reduction goal by 2015, which has been fulfilled in 2011.

As part of our Ecomagination goal to reduce our freshwater consumption, GE has a special program for those locations that consume more than 15 million gallons of freshwater a year. These locations account for approximately 90% of GE's total freshwater usage. GE's Global Research Center reviewed the 70 sites that used more than 15 million gallons of freshwater in 2013 against the Maplecroft Water Stress Index. Fourteen sites were identified as being in potentially extremely water-scarce regions (Water Stress Index (WSI)  $\geq 0.8$ ; Maplecroft rating of 'Extreme'), and 17 additional sites were identified as being in areas with a medium level of water scarcity (WSI between 0.40 and 0.8; Maplecroft rating of 'High'). Overall, 1.44 billion gallons, or 19% of the total freshwater consumption in 2013, were consumed in water-scarce areas. The increase in the number of sites categorized in water-scarce areas was associated with the use of improved scarcity data in the Maplecroft model and the effects of new acquisitions in the GE portfolio. GE's consumption of freshwater in water-scarce areas decreased 1.2% in 2013 versus 2012.

Of most concern to us were the sites in developing countries that historically have had less ability to react in the event of an actual water shortage. For example, our research center in Bangalore, India, is in a region that Maplecroft categorizes as one with extreme water scarcity. The facility underwent a major upgrade of its wastewater treatment system, installing GE technology (a membrane bioreactor using Zee-Weed ultrafiltration membranes), plus other changes that have reduced per capita water usage by 35% between 2006 and 2012.

As was the case in 2012, five of GE's sites that are categorized as being located in extremely water-scarce areas are in the Greater Shanghai region of China. These Shanghai-area sites' usage in 2013, compared to total water usage in the region, is minute. But we expect to see additional opportunities to reduce usage at these sites.

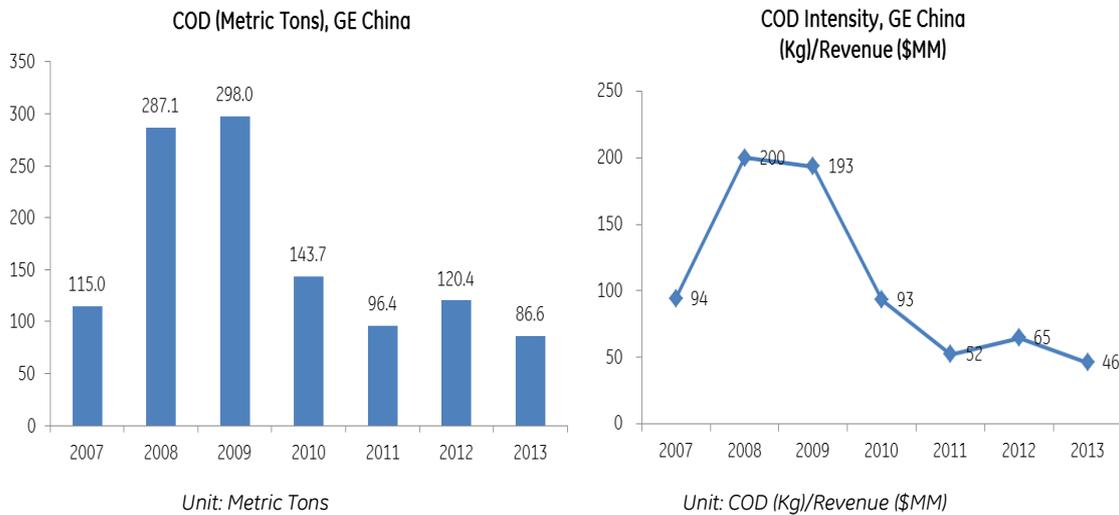
In recent years, GE has designed many other tools to help facilities implement water saving measures and assess the benefit on water saving. To learn more about this initiative, please visit: <http://www.gecitizenship.com/our-commitment-areas/environment-health-safety/environmental-disclosures/water-use/>

## **5. Water: Chemical Oxygen Demand (COD)**

GE China facilities discharged 87 metric tons of COD in 2013, a decrease of 35 tons from 2012. This is due to the variation between year-over-year monitoring results at some GE China sites.

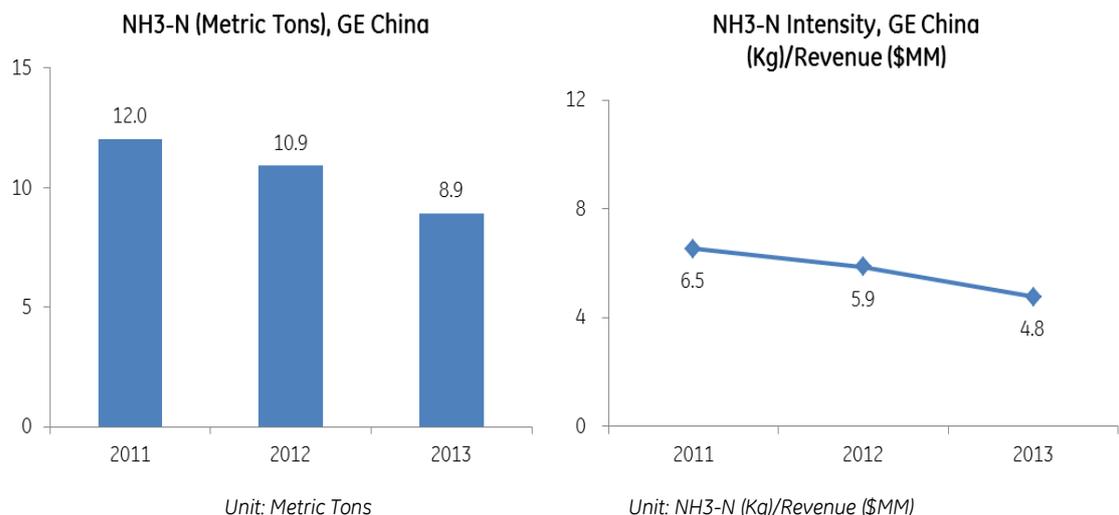
All of the COD discharged by GE China 2013 was sent to local industrial park or municipal waste

water treatment plants for further treatment before discharge to a natural water body.



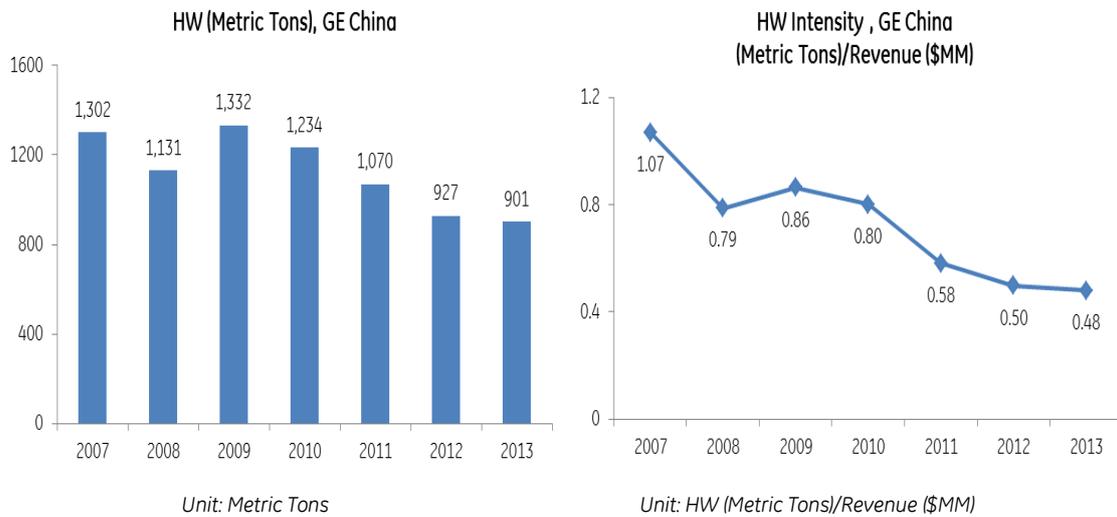
## 6. Water: Ammonia-Nitrogen (NH<sub>3</sub>-N)

NH<sub>3</sub>-N discharge is mainly generated from sanitary wastewater streams. From 2011, all sites in GE China began tracking and analyzing NH<sub>3</sub>-N discharge. There was a total of 8.9 metric tons of NH<sub>3</sub>-N discharged in 2013, an 18% reduction from 2012. The reduction is due to control of NH<sub>3</sub>-N with introduction of a MBR system as well as the year-over-year variation of monitoring results.



## 7. Hazardous Waste

In 2013, GE China facilities generated 901 metric tons of hazardous waste, a decrease of 2.8% from the prior year. Similarly, 2013 hazardous waste generation intensity dropped by 4.0%.



Some hazardous waste was generated from the introduction of new process lines, or overhaul or dismantlement of equipment; Most GE facilities have also been improving industrial processes to further reduce environmental impact. For example, using more environmental friendly chemicals during industrial cleaning processes has reduced the generation of hazardous waste. GE facilities have continued to make progress in waste management, through the optimization of raw material inputs, waste identification and segregation. For example, GE Aviation Suzhou Site reduced 30 metric tons of hazardous waste through the replacement of one coolant. Moreover, GE China implements GE global Waste Vendor Qualification Program, which requires all hazardous waste vendors to meet GE internal standards in addition to regulatory requirements.

### III. Environmental Awards

In 2013, GE continues to be a steady recipient of EHS recognition from government authorities, nonprofit organizations and media outlets for outstanding EHS leadership or management system. Below listed are some examples:

#### GE Healthcare

- GE Healthcare Shanghai Diagnostics was awarded as the “Environmental Integrity Enterprise”(环保诚信奖) by Shanghai Pudong New District Environmental Protection and Urban Appearance Bureau in June 2013 in recognition of the site’s excellent performance on encouraging employees to participate in environmental protection activities, and enhancing conservation, environmental and ecological awareness.
- In July, 2013, GE Healthcare Wuxi site received the “Environment Social Awareness Award” (环境社会责任奖) which is issued annually by Wuxi New District EPB to honor the

site's active role in social welfare activities like fulfilling social responsibility, strengthening education in ecological civilization, enhancing employees' awareness of conservation, environmental protection, and ecological culture, and carrying out ecological and environmental protection activities.

#### GE Power & Water (P&W)

- GE Power & Water Wuxi site has passed the ninth Clean Production Audit in Jiangsu Province in September, 2013.

#### GE Oil & Gas (O&G)

- GE Oil & Gas Xinhua site was awarded the prize "Outstanding Contribution to the Construction of National Eco-industrial Demonstration Zone" (建设生态工业国家示范性园区突出贡献奖) in recognition of the site's outstanding contribution to actively participating in environmental protection activities and promoting a conservation culture.

#### GE China Technological Center

- Appreciated by Shanghai Energy Conservation Office, CTC's high-efficient and energy-saving refrigeration station project was awarded 176,500 RMB to honor their outstanding contribution to energy conservation.

#### *Remark*

*There are some minor changes on historical intensity data. When we prepared this report in Apr, 2014, we identified and corrected the mistake made by one GE China site when submitting revenue numbers in the past years. This correction doesn't have impact on the overall trend of intensity of all environmental indicators.*