



**LG Electronics USA**  
**Environmental Assessment:**  
**Green MOU Annual Report**  
**July 30, 2014**



**Environmental Protection Agency**  
**Region 2**

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## Accomplishments

### Reductions of 163,844 MTCO<sub>2</sub>e



## Memorandum of Understanding

On December 20, 2012, LG Electronics USA (LGEUS) signed a broad Memorandum of Understanding (MOU) related to environmental stewardship with the company pledging to implement a number of green initiatives to help reduce its carbon footprint and further improve our planet's environment. This partnership between the United States Environmental Protection Agency (EPA) and LGEUS already has resulted in reducing energy, water and solid waste production across LG Electronics, Inc.'s (LG Electronics) U.S. operations.

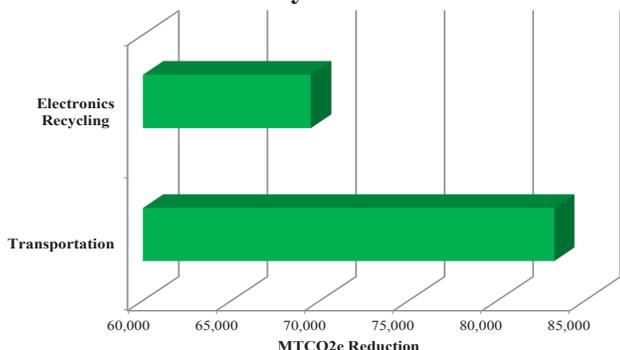
## Reduction in Environmental Footprint

This is the second Green MOU update documenting LG Electronics USA's green initiatives. The EPA has analyzed the submitted information and generated an environmental footprint reduction summary. The Green MOU results indicate that LGEUS has managed to **reduce its carbon footprint by an incredible 163,844 MTCO<sub>2</sub>e\* and saved an estimated \$1.9 million in operating expenses.** Under the Green MOU, LGEUS has achieved the second largest carbon footprint reduction in the first 18 months compared to all other Green MOU partners over the same period. Since the Green MOU signing, LGEUS has implemented a number of significant sustainable and green projects. These green practices are discussed in the narrative of this report and will provide additional significant carbon footprint reduction during the subsequent periods of the Green MOU.

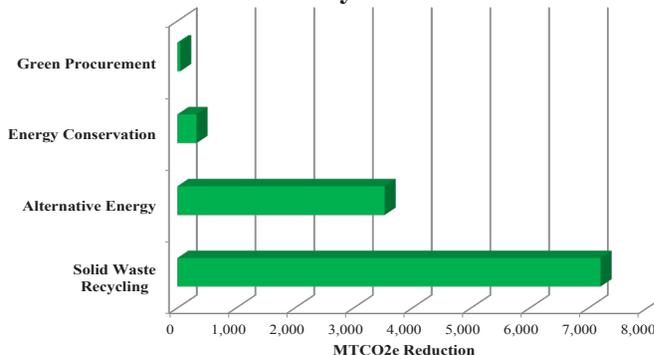
\*Metric Ton Carbon Dioxide Equivalent

Environmental Metrics	Total Sector (MTCO <sub>2</sub> e)
Energy Conservation	324.9
Alternative Energy	3,529.7
Solid Waste Recycling	7,206.4
Green Procurement	47.3
Electronics Recycling	69,436.0
Transportation	83,300.4
Total (MTCO <sub>2</sub> e)	163,844.7

### Primary Initiatives



### Secondary Initiatives



## Measurement and Continuous Improvements

EPA uses these environmental conversion models to calculate metric tons of carbon dioxide equivalents:

Greenhouse Gas Equivalencies (GHG) Calculator converts GHG reductions into scenarios that can be easily communicated to the public.

eGRID Version 1.1 (2007) and the EPA Pollution Prevention (P2) GHG Conversion Tool which convert standard metrics for electricity, green energy, fuel use, chemical use, water use, and sustainable materials management into MTCO<sub>2</sub>e.

The EPA WARM Model which helps calculate GHG emission reductions from several different waste management practices, including source reduction, recycling, combustion, composting and landfilling.

The EPA Pollution Prevention (P2) Cost Calculator estimates cost savings associated with GHG reductions.

Certain environmental data points cannot be converted to MTCO<sub>2</sub>e because scientific models do not currently exist.

As methodologies improve, environmental assessments will be updated to include any new GHG reduction estimates.

## Accomplishments

Reductions of 163,844 MTCO<sub>2</sub>e

## Greenhouse Gas Equivalencies

What does the reduction of 163,844 MTCO<sub>2</sub>e represent ?  
The organization's effort is equivalent to any one of the following:

- Annual greenhouse gas emissions from 34,494 vehicles



- Carbon dioxide emissions from 18,436,446 gallons of gasoline



- Carbon dioxide emissions from 381,034 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 14,949 homes for one year



- Carbon dioxide emissions from 6,826,863 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 2,169 tanker trucks



- Carbon dioxide emissions from burning 879 railcars' worth of coal (over 13.3 miles long)





Environmental Metrics	Dec 2012 MOU	June 2013 Update	June 2014 Update	Total Conversion (MTCO <sub>2</sub> e)	Cost Savings (est.)
<b>Energy Conservation/Energy Star</b>					
<b>Total Savings (MTCO<sub>2</sub>e)</b>	<b>35.6</b>	<b>17.8</b>	<b>271.5</b>	<b>324.9</b>	<b>\$57,183</b>
Miscellaneous Energy Conservation	50,000 kwh	25,000 kwh		53.4	\$9,398
Web Based Energy Competition					
Motors and Transformers					
Lighting Project Fixtures (estimates)			381,362.6 kwh	271.5	\$47,785
High Temp Hot Water Pipe Replacement					
HVAC, Chiller & Electrical					
Bulb Replacement (CFLs)					
Bulb Replacement (LEDs)					
Gas Savings					
Fuel Oil Savings					
Steam Savings					
<b>Alternative Energy</b>					
<b>Total Savings (MTCO<sub>2</sub>e)</b>		<b>1,349.5</b>	<b>1,627.3</b>	<b>3,529.7</b>	<b>(\$773)</b>
On-Site Solar					
On-Site Wind					
On-Site Geothermal					
On-Site Combined Heat and Power					
Purchase of Green Energy/Green Power (for previous calendar year)		1,895,364 kwh	2,285,591 kwh	3,529.7	(\$773)
<b>Water Conservation/WaterSense</b>					
<b>Total Savings (MTCO<sub>2</sub>e)</b>				<b>0.0</b>	<b>\$0</b>
Miscellaneous Water Conservation					
Low Flow/Hands Free Faucets					
Low Flow Toilets					
Low Flow Shower Heads					
Low Flow Urinals					
Waterless Urinals					
<b>Solid Waste Recycling</b>					
<b>Total Savings (MTCO<sub>2</sub>e)</b>	<b>2771.5</b>	<b>765.0</b>	<b>3669.9</b>	<b>7,206.4</b>	<b>\$91,481</b>
Mixed Recyclables (includes Wastewise)	50.4 tons	8.7 tons	130 tons	529.5	\$7,564
Pallets Waste Avoided / Wood Recycled	24.2 tons	3.1 tons	11.82 tons	96.2	\$1,565
Steel Recycled Offsite during Deconstruction					
Concrete / Asphalt Recycled during Deconstruction					
Recycled C&D Waste (construction waste)					
Cardboard (construction/non-construction/sharp containers)	712.5 tons	202.5 tons	908.41 tons	5,670.8	\$72,936
Mixed Metal (construction/non-construction)	7.6 tons	0.85 tons	2.128 tons	42.0	\$423
Paper, Mixed					
Plastic, Mixed (bottles,construction/non-construction,sharp containers)	21 tons	4.4 tons	80.23 tons	103.5	\$4,225
Can / Bottle Recycling					
Mixed Organics					
Food Donation (Waste diversion)			3,765 lbs	0.4	\$75
Biosolids and Food Waste Recycling / Composting					
Fluorescent Bulbs					
Ceiling Tiles Recycled					





Environmental Metrics	Dec 2012 MOU	June 2013 Update	June 2014 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Synthetic Turf					
Native Plants					
Leaves Composted					
<b>Electronics Recycling</b>					
<b>Total Savings (MTCO2e)</b>	<b>7.2</b>	<b>29,577.4</b>	<b>39,851.3</b>	<b>69,436.0</b>	<b>\$1,735,667</b>
Recycling of Electronics (for previous calendar year)		18,484.06 tons	24,907.09 tons	69,425.8	\$1,735,646
Re-Use/Donation of Used Computers					
Toner/Ink Recycling and Use of Recycled Ink	754 lbs	302 lbs		10.1	\$21
Battery Recycling					
<b>Mass Transit</b>					
<b>Total Savings (MTCO2e)</b>				<b>0.0</b>	<b>\$0</b>
Miles Avoided					
<b>Transportation</b>					
<b>Total Savings (MTCO2e)</b>	<b>14,863.3</b>	<b>3,373.8</b>	<b>65,063.3</b>	<b>83,300.4</b>	<b>\$0</b>
Hybrid Vehicles					
Electric Vehicles					
Biodiesel Vehicles					
Commuter Gas Savings					
Clean Construction Vehicles					
LNG Vehicles					
Alternate Fuel Vehicles (Zipcar)					
Intermodal Transport	3,499,539 mi	1,256,184 mi	5,771,954 mi	5,825.9	
Smartway Transporters	22,256,845 mi	4,507,631 mi	153,829,423 mi	77,474.5	
Bike Racks					
<b>LEED Projects</b>					
<b>Total Savings (MTCO2e)</b>				<b>0.0</b>	<b>\$0</b>
Silver - 30%					
Gold - 40%					
Platinum - 45%					
<b>Misc. - Further Clarification</b>					
<b>Total Savings (MTCO2e)</b>					
NOX (equipment only)					
NOX (includes vehicles)					
<b>MTCO2e Savings</b>					
<b>Total (MTCO2e)</b>	<b>19,044.1</b>	<b>35,088.4</b>	<b>110,508.8</b>	<b>163,844.7</b>	<b>\$1,886,379</b>
Energy Conservation	35.6	17.8	271.5	324.9	\$57,183
Alternative Energy	1,349.5	1,349.5	1,627.3	3,529.7	(\$773)
Solid Waste Recycling	2,771.5	765.0	3,669.9	7,206.4	\$91,481
Green Procurement	17.0	4.9	25.4	47.3	\$2,821
Electronics Recycling	7.2	29,577.4	39,851.3	69,436.0	\$1,735,667
Transportation	14,863.3	3,373.8	65,063.3	83,300.4	\$0

Life's Good When You Live Green!



2014

## LG Electronics Additional Green MOU Accomplishments

### EPA ENERGY STAR Partner of the Year Awards for 2014

LG Electronics earned EPA's highest product manufacturer award in April 2014 for the company's continued leadership in protecting the environment by manufacturing and promoting products with superior energy efficiency as well as educating consumers on the important, positive effects that energy-efficient behaviors can have on the environment.

*-2014 ENERGY STAR Partner of the Year-Sustained Excellence Award*

*-2014 ENERGY STAR Partner of the Year-Climate Communications Award*

-Nearly 65% of LG Electronics overall product line was ENERGY STAR qualified in 2013.

-LG Electronics increased percentage of total sales dollars that were ENERGY STAR qualified in 2013 by more than 13 percent from 2012.

-LG Electronics sold more than 1.6 million products awarded the ENERGY STAR Most Efficient 2013 designation, and increased the number of "ENERGY STAR Most Efficient" models available by 55% from 2012.

**LED Lighting:** LGEUS has begun roll out of a lighting retrofit program to replace inefficient lighting with LG Electronics' super-efficient LED troffers across multiple U.S. facility locations.

**Office Energy Savings Campaign:** LGEUS launched an office energy savings "Turn It Off" campaign in collaboration with EPA's "Do 1 Thing Energy Star" initiative.

-With EPA in Washington, LGEUS developed stickers with "Turn It Off" message to encourage colleagues to turn off lights and office equipment during non-working hours or when not in use to save energy.

LGEUS has begun project activities to install a solar power array in San Diego, CA that will generate 84 MWH/year of on-site renewable power.

### EPA WasteWise Program

-EPA's Sustainable Materials Management (SMM) – Electronics Challenge member since 2012.

-Pledged SMM Gold Certification.

-LGEUS has sent 99.84% by weight of the total amount of used electronics collected from all waste streams to third party certified recycling vendors.

-LGEUS is taking measures to increase the total amount of used electronics voluntarily taken back in non-regulation states. For example, in 2013, LGEUS collected more than 500,000 pounds at voluntary recycling events throughout the year.

### Product Stewardship

LGEUS uses only e-Steward and R2 certified e-waste recyclers for its U.S. national take-back program. LGEUS has been an e-Stewards enterprise member of the Basal Action Network (BAN) since 2011 and has served on the e-Stewards Leadership Council, a multi-stakeholder advisory process to promote product stewardship and the responsible management of electronic equipment at end of life, since April 2013.

### Environmentally Friendly Purchasing

LGEUS has increased its spend on recycled office supply products by about five percent since joining the EPA's Green MOU program, and participates in a "go green" initiative implemented by its office supply vendor to reduce delivery-associated greenhouse gas emissions by reducing the number of delivery work days and trips in New Jersey.

### Environmental Education

**Sustainability Newsletters:** LGEUS regularly distributes the "Live Green at LG" newsletter to approximately 1,400 U.S. employees.

•Includes employee spotlights detailing how colleagues are bringing their green to work.

•Provides environmental facts and tips on how to live a greener lifestyle at work and at home.

**Go Green Night:** LGEUS hosted an evening event dedicated to environmental awareness at a local school, including raising awareness about the importance of recycling, water conservation, energy efficiency and climate change.

**Earth Day:** LGEUS was an invited speaker at a local PTA meeting to discuss LG Electronics' green activities and share the EPA's Team ENERGY STAR message and resources.

### Team ENERGY STAR activities

Earth Hour 2014: LG Electronics and its employees teamed up to "Use Their Power" for Earth Hour. LG Electronics powered off its Times Square Billboard in New York City and the lights in facilities around the world (including its global headquarters in Seoul, South Korea and North America headquarters in New Jersey), while employees got creative and shared how they spent Earth Hour in a contest sponsored by the LGEUS Green Team.