



LG Electronics USA, Inc.
Environmental Assessment:
Green MOU Annual Report
August 20, 2015



Environmental Protection Agency
Region 2

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Accomplishments

Reductions of 284,029 MTCO₂e



Memorandum of Understanding

On December 20, 2012, LG Electronics USA, Inc. (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 LGEUS U.S. operations.

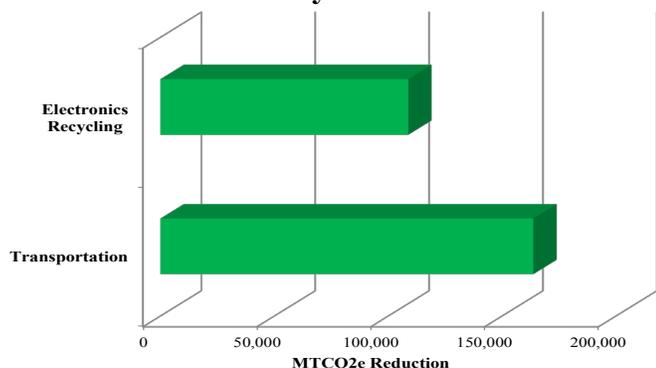
Reduction in Environmental Footprint

This is the third Green MOU update documenting LGEUS' 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 284,029 MTCO₂e*** and **saved an estimated \$3.2 million in operating expenses.** 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.

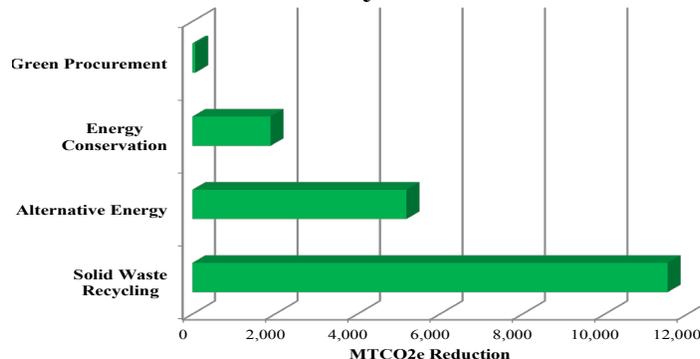
*Metric Ton Carbon Dioxide Equivalent

Environmental Metrics	Total Sector (MTCO ₂ e)
Energy Conservation	1893.4
Alternative Energy	5,190.8
Solid Waste Recycling	11,524.2
Green Procurement	70.5
Electronics Recycling	108,795.5
Transportation	156,554.4
Total (MTCO ₂ e)	284,028.8

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. This report utilized conversion factors developed from prior report(s).

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 MTCO₂e.

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 MTCO₂e 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 284,029 MTCO₂e

Greenhouse Gas Equivalencies

What does the reduction of 284,029 MTCO₂e represent ?
The organization's effort is equivalent to any one of the following:

- Annual greenhouse gas emissions from 59,796 vehicles



- Carbon dioxide emissions from 31,960,054 gallons of gasoline



- Carbon dioxide emissions from 660,533 barrels of oil consumed



- Carbon dioxide emissions from the energy use of 25,915 homes for one year



- Carbon dioxide emissions from 11,834,542 propane tanks used for home barbeques



- Carbon dioxide emissions from gasoline carried by 3,760 tanker trucks



- Carbon dioxide emissions from burning 1,523 railcars' worth of coal (over 23 miles long)





Environmental Metrics	Dec 2012 MOU	June 2013 Update	June 2014 Update	June 2015 Update	Total Conversion (MTCO _{2e})	Cost Savings (est.)
Energy Conservation/Energy Star						
Total Savings (MTCO_{2e})	35.6	17.8	271.5	1568.5	1,893.4	\$333,216
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	2,202,983 kwh	1,840.0	\$323,818
High Temp Hot Water Pipe Replacement						
HVAC, Chiller & Electrical						
Bulb Replacement (CFLs)						
Bulb Replacement (LEDs)						
Gas Savings						
Fuel Oil Savings						
Steam Savings						
Alternative Energy						
Total Savings (MTCO_{2e})		1,349.5	1,627.3	2,214.0	5,190.8	\$(1,347)
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	3,109,554 kwh	5,190.8	\$(1,347)
Solid Waste Recycling						
Total Savings (MTCO_{2e})	2791.1	770.0	3695.1	4268.0	11,524.2	\$146,607
Mixed Recyclables (includes Wastewise)	50.4 tons	8.7 tons	130 tons	59.74 tons	704.2	\$9,954
Pallets Waste Avoided / Wood Recycled	24.2 tons	3.1 tons	11.82 tons	302.5 tons	840.4	\$13,665
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	906.68 tons	8,517.9	\$109,203
Mixed Metal/appliances	7.6 tons	0.85 tons	2.128 tons	32.51 tons	202.4	\$1,723
Paper, Mixed						
Plastic, Mixed (bottles,construction/non-construction,sharp containers)	21 tons	4.4 tons	80.23 tons	27.75 tons	137.4	\$5,335
Can / Bottle Recycling						
Mixed Organics						
Food Donation (Waste diversion)			3,765 lbs		0.3	\$75
Biosolids and Food Waste Recycling / Composting						
Fluorescent Bulbs						
Ceiling Tiles Recycled						



Environmental Metrics	Dec 2012 MOU	June 2013 Update	June 2014 Update	June 2015 Update	Total Conversion (MTCO2e)	Cost Savings (est.)
Electronics Recycling						
Total Savings (MTCO2e)	7.2	29,577.4	39,851.3	39,359.6	108,795.5	\$2,719,594
Recycling of Electronics (for previous calendar year)		18,484.06 tons	24,907.09 tons	24,596 tons	108,779.4	\$2,719,486
Re-Use/Donation of Used Computers						
Toner/Ink Recycling and Use of Recycled Ink	754 lbs	302 lbs		617 lbs	16.1	\$108
Battery Recycling						
Transportation						
Total Savings (MTCO2e)	14,863.3	3,373.8	65,063.3	73,254.0	156,554.4	\$0
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	9,250,100 mi	7,545.9	
Smartway Transporters	22,256,845 mi	4,507,631 mi	153,829,423 mi	175,508,418 mi	149,008.5	
Bike Racks						
MTCO2e Savings						
Total (MTCO2e)	17,714.3	35,093.4	110,534.0	127,844.9	284,028.8	\$3,201,726
Energy Conservation	35.6	17.8	271.5	1,568.5	1,893.4	\$333,216
Alternative Energy	0.0	1,349.5	1,627.3	2,214.0	5,190.8	\$(1,347)
Solid Waste Recycling	2,791.1	770.0	3,695.1	4,268.0	11,524.2	\$146,607
Green Procurement	17.0	4.9	25.4	23.1	70.5	\$3,656
Electronics Recycling	7.2	29,577.4	39,851.3	39,359.6	108,795.5	\$2,719,594
Transportation	14,863.3	3,373.8	65,063.3	80,411.7	156,554.14	\$0

Life's Good When You Live Green!



2015

LG Electronics Additional Green MOU Accomplishments

EPA ENERGY STAR Partner of the Year Awards for 2015

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.

-2015 ENERGY STAR Partner of the Year-Sustained Excellence Award

-2015 ENERGY STAR Partner of the Year-Climate Communications Award

-Nearly 68% of LG Electronics overall product line was ENERGY STAR qualified in 2014.

-LG Electronics increased percentage of total sales dollars that were ENERGY STAR qualified in 2014 by more than 18 percent from 2013.

-LG Electronics sold more than 1 million products awarded the ENERGY STAR Most Efficient 2014 designation.

-Debuted the revolutionary LG EcoHybrid Heat pump Dryer - winner of the 2014 Energy Star Emerging Technology Award.

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, recently at the Ft Worth, TX Distribution Center and Englewood Cliffs, NJ offices.

On-site renewable: LEGUS completed construction of a photovoltaic parking canopy designed to generate 84 Mwh/year electric power at the San Diego Office.

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.

EPA WasteWise Program

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

-LGEUS achieved SMM Gold Certification by sending 100% by weight the total amount of electronics collected 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 2014, LGEUS collected almost 750,000 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 2014.

Environmentally Friendly Purchasing

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.

Team ENERGY STAR activities

Served as a major technology provider to provide appliance upgrades to a housing facility for homeless veterans for the EPA's first-ever community service theme. Introduced employees and their kids to a number of fun and engaging Team ENERGY STAR activities and games at LGEUS' annual "Bring Your Daughters and Sons to Work Day."