



Consumer
Technology
Association™

CES® 2020 Green Guide



Introduction



The Consumer Technology Association (CTA)[®] is proud to present the eighth annual CES[®] Green Guide. It provides a self-guided tour highlighting a selection of the show's innovative companies and their environmentally-friendly products. The guide also highlights the tech industry's success in advancing energy efficiency, responsible recycling and sustainable materials management.

CTA is the owner and producer of CES[®], the largest, most influential tech event in the world. The effects of greater sustainability at CES, through its operations and the companies and solutions it spotlights, are vast and global. Within the guide is a look at CTA's commitment to grow its sustainability efforts at CES 2020 through a broad array of green initiatives - helping to reduce waste, repurpose materials and give back to the local community.

Making CES Green

Here is what we accomplished at CES 2019:

Over **1,400 tons** of materials were recycled at the LVCC and Sands/Venetian.

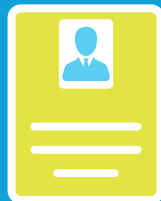


More than **1.7 million sq. ft.** of carpet were reused or recycled after the show.

100% OF VINYL BANNERS

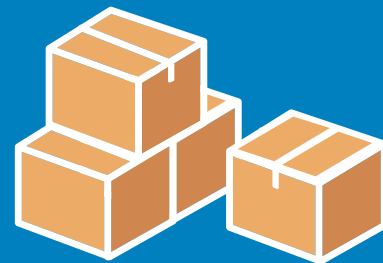
were diverted from the landfill, totaling over **24,000 sq. ft.**

All booth ID signs and aisle signs used at the show were recycled, diverting more than **12,000 sq. ft.** of material from the landfill.



CTA donated \$15,000 to Green Our Planet to build four additional garden classrooms throughout the Clark County School District in Nevada.

Since 2009, CTA has donated more than **\$700,000** to sustainability and educational initiatives in the Las Vegas community.



Exhibitors collectively donated more than **312,000 pounds** of materials to Goodwill, Habitat for Humanity, Opportunity Village, Teachers Exchange and HELP of Southern Nevada.

Company Highlights



Best Buy

Best Buy aims to be a good steward of the environment, through our operations, services and products. We operate the most comprehensive e-waste recycling service in the U.S. and have collected more than 2 billion pounds of e-waste for recycling since 2009. We have reduced carbon emissions in our operations by 51 percent (over a 2009 baseline), and have committed to reaching 75 percent by 2030, which puts us on the trajectory to be carbon neutral by 2050. We are also committed to providing an assortment of sustainable technology, including ENERGY STAR® certified products and have set a goal to help customers reduce product carbon emissions by 20 percent, saving them \$5 billion on utility costs by 2030.



Google

By 2020, 100 percent of all shipments of Made by Google hardware going to or from Google's direct customers will be carbon neutral.

The Nest Mini enclosure is made from 35% post-consumer recycled plastic, and the fabric covering is made from 100% recycled plastic bottles. The process provides a second use for the bottles, so they don't end up in landfills. In fact, one half-liter bottle can make enough textiles for two Nest Mini speakers.

The Nest Wifi router enclosure is made from 45% post-consumer recycled plastic, and the point enclosure is made from 40% post-consumer recycled plastic.

Exhibiting at LVCC Central Plaza, CP-1



LG Electronics USA

Among many innovations for greener living highlighted at CES® 2020, LG Electronics is demonstrating its "ThinQ Home" energy management dashboard on 2020 LG AI-enabled smart TVs. LG also is unveiling dozens of ENERGY STAR® certified kitchen and laundry appliances, led by advanced new artificial intelligence-infused washing machines. (Earning CES 2020 Innovation Awards are new energy efficient LG products, including a laptop computer, refrigerator and clothes washer.) LG's leadership in product stewardship is underscored by the EPA's highest honor in the "Sustainable Materials Management" Electronics Challenge presented to LG during CES. "Sustainability is a core business principle at LG Electronics," says Thomas Yoon, President and CEO, LG Electronics North America. "We believe LG

has a shared responsibility to protect the environment by reducing our environmental impact while enhancing the quality of life for consumers. We call this 'Innovation for a Better Life,' and it means both responsible recycling and developing innovative greener products like those introduced at CES."

Exhibiting at LVCC Central Hall, Booth #11100



Microsoft

Microsoft has a longstanding commitment to increase the sustainability of its products and its supply chain. Its mission is to empower every person and every organization on the planet to achieve more by creating technologies that positively impact people, communities, and organizations. Microsoft's approach to sustainability includes eco-friendly product design and packaging, responsible sourcing and manufacturing, creating more energy efficient devices and investing in end-of-life programs. Microsoft's Surface personal computing devices are environmentally compliant (including meeting restricted substance requirements) in each country where placed on the market and use packaging materials which contain up to 77% recycled fiber materials and are 100% recyclable. These devices also meet the energy efficiency requirements of the US Environmental Protection Agency's ENERGY STAR® program.

SAMSUNG



Samsung

Headquartered in Ridgefield Park, NJ, Samsung Electronics America, Inc. (SEA) is a recognized innovative leader in consumer electronics, mobile devices and enterprise solutions. A wholly owned subsidiary of Samsung Electronics Co., Ltd., SEA is pushing beyond the limits of today's technology and providing consumers and organizations with a portfolio of groundbreaking products in appliances, home entertainment, Internet of Things, mobile computing, smartphones, virtual reality, wireless infrastructure and wearables.

Energy efficiency is a core value for Samsung, both in its products and its manufacturing processes. For example, Samsung's new ENERGY STAR "Most Efficient" WF8500V Front Load Washer exhibited at CES 2020 delivers high performance, takes the guesswork out of laundry, makes the chore less stressful and saves time. Its advanced Wi-Fi connectivity, smart voice control features via Galaxy mobile phones, large capacity and wide assortment of wash cycle options ensures a laundry experience that's both personalized and powerful – plus it delivers industry leading water savings and energy efficiency. Products that make the ENERGY STAR Most Efficient list deliver cutting edge energy efficiency along with the latest in technological innovation. They represent the year's very best for energy savings and environmental protection.

Exhibiting at LVCC Central Hall, Booth #15006



TCL

TCL's bold, industry-leading environmental sustainability goals are attracting attention as America's fastest-growing TV brand assists local communities by doubling its electronics recycling program for the fifth straight year. Recognized by the EPA for its remarkable recycling contributions, TCL will again receive EPA's top-tier honor during the SMM Challenge awards ceremony at CES for the second consecutive year. TCL has signaled its commitment to promote electronics recycling with local community collection events planned throughout 2020.

Exhibiting at LVCC Central Hall, Booth #12930



Wal Mart

Sustainability is at the heart of Walmart's mission to do right by people across the supply chain and across the planet. We're committed to powering 50% of our operations with renewable energy, sourcing 20 key commodities more sustainably, and achieving zero waste to landfill from our operations in key markets by 2025. In 2017, we launched Project Gigaton, a global effort that invites suppliers to join Walmart in a commitment to avoid 1 billion metric tons of emissions in our collective value chains by 2030.

Exhibiting at LVCC, South Hall 3, Booth #32031

Green Programming at CES

JAN
6

Smart Tourism

Monday, Jan. 6, 10:15-11:15 AM. Location: LVCC North Hall N258

Destinations worldwide struggle when tourist waves hit, during high season, or during special events and festivals. Technologies such as IoT, mobile, cloud computing and artificial intelligence can assist decision-makers in enhancing efficiency, sustainability and the user experience.

JAN
7

Disruptive Tech for Disrupting Climate Change

Tuesday, Jan. 7, 1:00 – 2:00 PM. Location: Westgate, Level 1, Ballroom F

Presented By World Bank: We are witnessing a parallel rise in the effects of climate change and the use of disruptive technologies such as 5G, artificial intelligence, blockchain, drones, cloud computing and IoT. We explore how the application of disruptive tech can transform the way we build countries' resilience to disasters and climate change.

Revolutionizing Package Design

Tuesday, Jan. 7, 1:00 – 2:00 PM. Location: LVCC, South Plaza, 62200

Intelligent and active packaging is booming. With printed electronics and nanotechnology at its core, consumers benefit from enhanced labeling information, eye-catching visuals, product preservation and protection, authentication and security.

Energy Management Solutions: Smart Home Crossover

Tuesday, Jan. 7, 2:00 – 3:00 PM. Location: Venetian, Level 4, Marcello 4406

Smart energy solutions deliver cost and energy savings, driving the early popularity of smart thermostats. Learn the next stage for energy management solutions in the smart home, including crossover use cases that will attract new consumers.

JAN
8

The AG Tech Ecosystem

Wednesday, Jan. 8, 10:15 - 11:15 AM. Location: Westgate, Level 1, Ballroom F

As the food and agriculture industry faces adversity, technology is rising to the challenge. Entrepreneurs and industry visionaries will explore how advanced agricultural tech is tackling problems resulting from climate change, population growth and more.

2020: The Year We Adopt Home IoT Solutions

Wednesday, Jan. 8, 9:00 – 10:00 AM. Location: Venetian, Level 4, Marcello 4406

2020 will be the year our homes are filled with more than just smart speakers. Trends on the rise include smart screen command centers, smart mirrors, smart-enabling devices for your basic devices and energy efficiency expansion.

JAN

8

Renewable Energy Takes Center Stage

Wednesday, Jan. 8, 11:30 – 12:30 PM. Location: Westgate, Level 1, Ballroom F

Renewable energy is poised to revolutionize the world's energy supply. Visionaries and venture capitalists have invested billions in clean energy while cities are targeting higher goals of renewable energies to help combat climate change.

Building Smart Cities of the future

Wednesday, Jan. 8, 11:30 – 12:30 PM. Location: LVCC, North Hall, N262

Infrastructure is critical to enhance quality of living in cities. Smart technologies can transform cities and help solve challenges related to the environment, health, safety and affordability. What does it take to plan, build, secure and manage a smart city?

EPA SMM Electronics Challenge Awards Presentation

Wednesday, Jan. 8th, 1:30 – 2:00 PM. Location: LVCC, Grand Hall, CTA Center Stage

Join the EPA in their Awards Ceremony, hosted by Peter Wright, Assistant Administrator, Office of Land and Emergency Management, recognizing companies under the SMM Electronics Challenge. Recognition is given in two categories: Tier and Champion. CTA is honored to have EPA host the Awards Ceremony at CES on the CTA Center Stage.

The Reality of Smart City Development

Wednesday, Jan. 8, 1:00 – 2:00 PM. Location: Westgate, Level 1, Ballroom F

The smart city market is expected to grow to over \$158 billion in 2022. Coming advancements are expected to make everyday life more efficient through traffic patterns and air quality, emergency preparedness, wayfinding and optimal energy consumption.

JAN

9

Climate Change: The Burning Platform for Automotive

Thursday, Jan. 9, 10:15 – 11:15 AM. Location: LVCC, North Hall, N256

As climate change becomes the most pressing global issue, the automotive industry needs to move faster toward a cleaner, electric future. Hear BCG and top auto industry leaders discuss the challenges and opportunities in the new world of electric vehicles.

Energy Efficiency and Compliance for Modern A/V Design

Thursday, Jan. 9, 3:30 – 4:30 PM. Location: LVCC, South Plaza, Design & Source Stage

The U.S. Department of Energy, the State of California and others have a close eye on the energy usage of A/V products. Speakers will show results from energy testing of a suite of products and discuss the necessary specifications for developers and manufacturers.

Eureka Park Climate Change Innovator Awards



The third-annual Eureka Park Climate Change Innovator Awards at CES recognizes exhibitors and emerging innovations in Eureka Park that help improve the environment and the lives of consumers. These innovators were selected for their products' or technologies' potential to reduce greenhouse gas emissions if widely adopted or implemented. All winners are located in Eureka Park Marketplace (Sands, Hall G).





ST Engineering Innosparks Pte Ltd

The Airbitat Compact Cooler is the world's coldest portable evaporative cooler that brings deep cooling to compact spaces. Powered by Reevac™ Deep Cooling Technology, Airbitat is 50% more effective in delivering cool air versus conventional coolers, and 80% more energy-efficient compared to air-conditioning of a similar capacity. Exhibiting at booth #52502



SUNLEAVS

SUNLEAVS is a smart energy innovation associated with a social network, specifically designed to accelerate the world-wide energy transition efforts by enabling groups of consumers to share common solar energy production facilities and share the electricity produced among them. Exhibiting at booth #50215



RideSVP

RideSVP – The Green Carpool Network connects drivers and passengers to carpool on city-to-city trips in an affordable, social and green way. It is an on-line collaborative platform where regular people planning to drive out of town register their vacant seats for others to book. Exhibiting at booth #53553



Green Systems Automotives

Green Systems Automotives developed an innovative, connected and integrated Flexfuel conversion device specifically designed and engineered for powered two-wheelers that drastically reduce their greenhouse gas emissions. Exhibiting at booth #50017



Omniplay Technologies

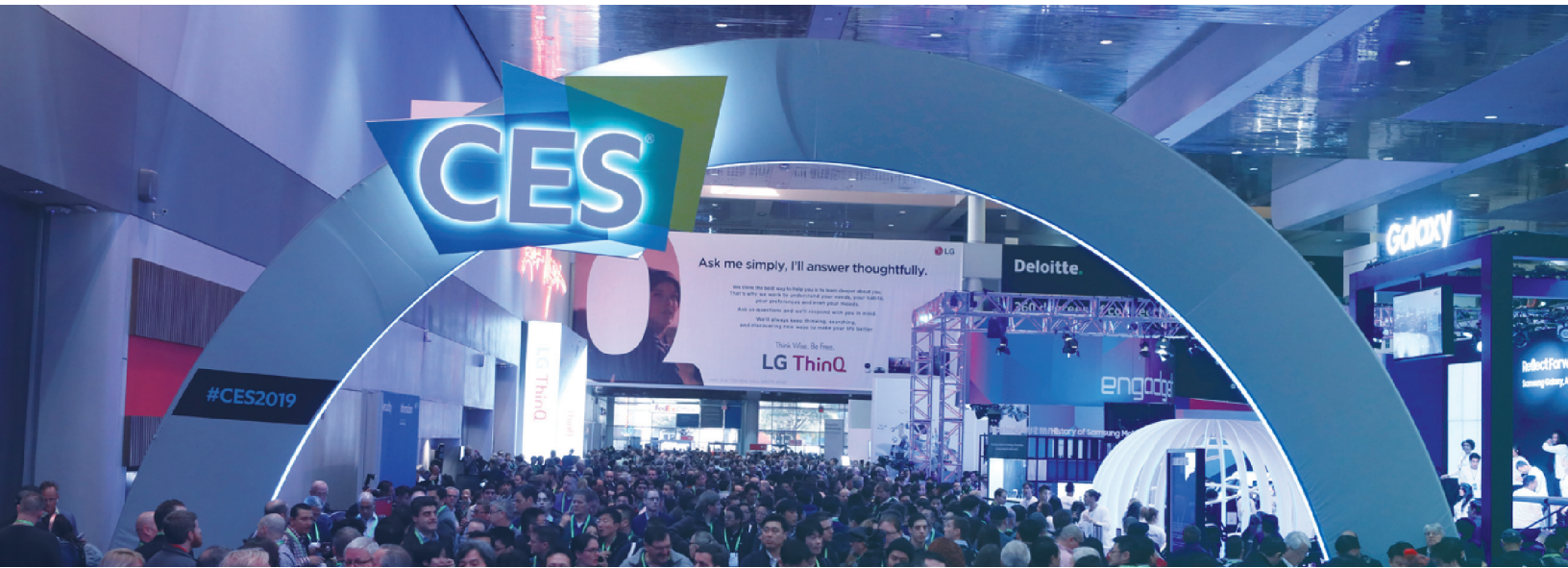
Omniplay has leveraged years of research in materials science to develop Mekal, a unique solution to manufacturing high-performance and high-resolution electronics, such as displays, sensors for IoT and wearable applications, and microcontrollers, using traditional micro/nano-fabrication methods but in a flexible form factor. Exhibiting at booth #52513



Edgehog

Edgehog's solar panels, with an average 15% higher output than commercial competitors, directly address local power generation needs from IoT sensors to roof-top solar panels. The bio-inspired innovation lays in the ultra-transmissive cover glass and is agnostic to solar cell innovations. Exhibiting at booth #52518

Industry Sustainability



CES features the latest advancements in tech and innovation. As you tour the exhibit halls, you'll see just how far our industry has come in its commitment to improve sustainability, advance energy efficiency and reduce its impact on the environment.

Through innovation and robust competition, today's tech devices are faster, smarter and more energy efficient than ever before. Each year, the industry's progress toward greater energy efficiency saves consumers millions of dollars while reducing greenhouse gas emissions. One CTA study shows that even as TV displays have become larger with higher resolution and more features, their energy consumption declined 76 percent from 2003 to 2015.

Tech products are also more efficient and capable than ever before. According to a recent study, tech devices now use fewer materials today than they did 20 years ago – even though the number and type of products available to consumers have significantly grown. This triumph in material reduction is driven by three important trends: technological shifts, the convergence of multi-functional devices and increased use of lightweight materials.

Finally, be sure to check out **GreenerGadgets.org**, an online resource for consumers with tips and tools to help you save energy and recycle responsibly.