

Dell Inc

TEEA 2016 Winner: Pollution Prevention



Initiative makes advancements in sustainable products and packaging in electronics industry.

From its inception, Dell has been a leader in the electronics industry at implementing innovative projects to negate the need for raw materials in the production process. However, no project is more imperative than its recent initiative to advance the circular economy for sustainable products and packaging. Dell's advancements involve a three-part initiative to recreate new computer parts through plastics recycling, develop new products from the reuse of carbon fiber, and utilize new-to-market sustainable packaging materials. Dell has seen not only economic benefits from this project, but environmental benefits as well via conservation of water, waste minimization, and reduction in air pollution.

Dell started the closed-loop project by using recycled-content plastics from the open market in its desktops and monitors and by creating a strong global takeback program for its used electronics. This past year, Dell brought these efforts together and became the first to recycle old electronics into plastic resin that is molded into new parts. This process reduces the need for virgin material (ABS resin), thus decreasing the emission of hazardous substances from making this resin. It also closes the loop on materials otherwise destined to be down-cycled or landfilled. Since 2013, 2,500 tons of plastics have come from this process.

Opportunity came knocking once again when Dell began recycling carbon fiber. The carbon-fiber initiative repurposed a material that was lightweight and durable, but did not have a viable market for reuse. Since partnering with a global supplier of engineering thermoplastics, Dell is able to use excess carbon fiber and scrap raw materials in its new products. Since late 2015, their partnership is expected to divert 495 tons of waste from disposal.

Dell has been an innovator in using materials from nature for packaging, having pioneered the use of rapidly renewable bamboo as a replacement for foam trays and mushrooms grown as a replacement for foam cushions. This creation of boxes and cushions made from wheat straw uses 40 percent less energy and 90 percent less water than using traditional chemical pulping for production of corrugated cardboard. In addition, it reduces air pollution when wheat farmers sell their wheat straw instead of burning it. Since 2009, Dell has avoided over 15,500 tons of packaging and saved \$53 million.

In each case, Dell is looking for ways to turn materials normally considered waste into a viable raw material. Its closed-loop initiative is keeping plastics truly recycled back into new parts for Dell computers. The carbon-fiber initiative repurposed a material that did not have a viable reuse market. And, with its packaging efforts, the company identified renewable and regenerative sources for materials. In each case, collaboration and creative design merged with innovative procurement to succeed.