



The Art of Taking Apart. The washing machine dismantling line at Panasonic's Eco Technology Center can dismantle various types of washing machines simultaneously, which has led to dramatic improvements in operational efficiency.

Panasonic Corporation

Planning for the Entire Life Cycle of Products

GLOBAL GIANT PANASONIC has set the standard for many electronics; today, the company employs people in 170 countries and makes over 300,000 products. The company's ambitious sustainability agenda is encompassed in an Environmental Action plan called Green Plan 2018, in anticipation of the company's 100th anniversary.

"As a global corporation, we take a comprehensive approach to sustainability," says David Thompson, director of Panasonic's Environmental Department. Each product must meet the environmental regulations and standards of the country in which it will be sold. Then, improvements are sought in at least one of five areas: decreased contributions to global warming, effective utilization of resources, reduced use of hazardous chemicals, increased water conservation, and enhancement of biodiversity. [The company is working with the World Wide Fund for Nature (WWF) on this last goal, particularly around the issue of deforestation.] A product that satisfies one of these five criteria and achieves significant progress from the last iteration or model is designated a Green Product. If a product outperforms all others in the industry, it is designated a Superior Green Product.

"And if a product exhibits ground-breaking technology, we'll designate it a Super GP," says Thompson. He cites the super-thin insulation for refrigerators, created by using recycled spun glass from cathode ray tubes and vacuum sealed,

SUSTAINABILITY GOALS

Green Plan 2018. Panasonic's stated initiatives address key environmental challenges and specific goals for 2018:

- **CO₂ Emissions:** Reduce by 46 percent or more (per basic unit of weight).
- **Recycling-Oriented Manufacturing:** Achieve recycled resource utilization of 16 percent or more; achieve zero waste emissions at production facilities.
- **Water Conservation:** Increase products that save water; reduce water use at production facilities and increase use of recycled water.
- **Impact and Use of Hazardous Chemicals:** Develop alternative technologies for environmentally hazardous substances; discontinue use of hazardous substances in products.
- **Biodiversity Conservation:** Increase products that contribute to conservation; promote green procurement for wood.
- Other initiatives focus on collaborating with stakeholders—employees, customers, people in communities, to develop products that create environmental value.

■ **Eco-Leaders**

COMPANY PROFILE

Founded: 1918

Headquarters: Osaka, Japan

Divisions/Companies: A spectrum of electric/electronic equipment and related products categorized into five segments: Appliances; Eco Solutions; AVC Networks; Automotive & Industrial Systems and Other

Scope: Parent Panasonic Corp. and 504 consolidated subsidiaries in and outside of Japan; 293,742 employees worldwide

as an example.

The *WhisperGreen* ventilation fan exemplifies the company's commitment to creating products that contribute to health, quality of life and reduced environmental impact. The *WhisperGreen* fan removes "bad air" from tight houses via a highly efficient DC motor. It's also made without PVC, which satisfies part of the company's Management of Chemical Substances in Products goal of eliminating the use of PVC resins in many products.

MANAGING WASTE

E-waste is a huge issue globally. Panasonic has joined with Sharp, Toshiba and other manufacturers to create an infrastructure for collecting and recycling e-waste; a separate company, Electronics Manufacturers Recycling Management Company (MRM) manages it. Today, 30 manufacturers across the U.S. participate in the program, and 120 million pounds are collected annually. While the bulk comes from the 25 states with mandated e-waste recycling, Panasonic has implemented voluntary collection in other states as well.

The company is also working to develop recycling technology and holds 10 patents related to deconstructing products and extracting materials. The Panasonic Eco Technology Center (PETEC) in Japan serves as a laboratory for testing these processes.

"We bring in design engineers and let them work at the plant to they can see what it's like to disassemble their products, which will inform design improvements that make disassembly more efficient," says Thompson.

One of the issues with designing complicated products that will hopefully enjoy long lives is anticipating advances in recycling technology at the end of a product's life cycle. Thompson cites cathode ray tubes as an example: The company achieved producing CRTs with 15 percent recycled content (from recycled CRTs), but three years later stopped making them altogether. Panasonic has set a goal of increasing the percentage of recycled components in its products to 16 percent by 2018—up from 15.7 percent, currently.

LEADING THE CHARGE TO RENEWABLES

"At Panasonic, we wanted to conceptualize a carbon-free lifestyle," says Thompson. To that end, the company develops technologies that



(Energy) Star Products. Panasonic's *WhisperGreen* Ventilation Fan combines a highly efficient motor, "smart" sensors and LED light to create an ultra-efficient and quiet fan/light combo. A condensation sensor tells the fan to turn on once the relative humidity exceeds a threshold, and a motion sensor activates the fan when someone enters the room.

can create and store energy, as well as those that allow households to better use and manage energy: highly efficient solar panels, lithium ion batteries and fuel cells for residential applications. Panasonic is the top electric vehicle (EV) battery manufacturer in the world. The company is teaming up with Toyota to upgrade batteries in its hybrid *Prius*; its batteries are also going in the *Tesla S Model*, which Thompson believes may be "the car that brings EV from idea to reality."

The company also produces home energy management systems and sensing technology. *EcoNavi* is used in A/C systems in Japan; this smart technology can tell where a person is—or even if the person has left the room—and adjust the direction and level of the cooling accordingly. Panasonic also monitors usage in its own facilities. Several hundred facilities participate in the company's Green Factory Program. Each facility must apply for this recognition, which is based on 15 factors, including reductions in emissions, hazardous chemicals, waste and water use.

Finally, Panasonic has made a corporate commitment to provide education to its 300,000 employees, in order to engage and mobilize them around sustainability. The company also has public outreach and environmental education programs. ■



The Next Generation. Panasonic held an eco-learning program titled, "Create & Store Energy to Change Our Future," at University of California, San Diego earlier this year. The event was a collaboration effort between Panasonic, UCSD, and the Gates Millennium Scholars. Over 100 fourth graders attended the event, which included a tour of the biomimicry research lab.