# INTEL ENVIRONMENTAL GOALS



**CEWG Oct 16th, 2019**

**Erika Edgerly & Sarah Chavez**
**Full Intel CSR Report**

# GIVING BACK IN NEW MEXICO: INTEL INVOLVED

**$13 MILLION**
Donations to New Mexico nonprofits and schools since 2012

**800+**
Employee volunteers in the community last year

**200+**
New Mexico nonprofits and schools supported

# INTEL SUPPORTS NEW MEXICO'S ECONOMY

**$15** BILLION
CAPITAL INVESTMENTS
SINCE 1980

**$200** MILLION
ANNUAL SPEND WITH
NEW MEXICO-BASED SUPPLIERS

**1,200** EMPLOYEES
HIGHLY TECHNICAL
WORKFORCE

**62%**
EMPLOYEES HIRED LOCALLY
SINCE 1995

# BY 2020, INTEL WILL

## Take steps to reduce the environmental impact of our operations

**GHG EMISSIONS:**
Reduce direct greenhouse gas emissions by 10% per unit from 2010 levels.

**WATER:**
Reduce water use on a per unit below 2010 levels.

**ENERGY:**
Achieve cumulative energy savings of 4 billion kWh from 2012 to 2020.

**WASTE REDUCTION & RECYCLING:**
- Achieve zero hazardous waste to landfill.
- Achieve 90% non-hazardous waste recycle rate.

## And drive dramatic increases in the energy-efficient performance of our products

**GREEN CHEMISTRY:**
Implement enhanced green chemistry screening and selection process for 100% of new chemicals and gases.

**GREEN BUILDINGS:**
Design all new buildings to a minimum of LEED Gold level between 2015 and 2020.

**PRODUCT ENERGY EFFICIENCY:**
Increase the energy efficiency of notebook computers and data center products 25x by 2020 from 2010 levels.

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# 2018 PERFORMANCE SUMMARY & GOALS

### (PG 25 & 26)

| Goal | Progress By the End of 2018 | Status |
|---|---|---|
| Reduce direct greenhouse gas (GHG) emissions by 10% on a per unit basis by 2020 from 2010 levels. | 32% reduction since 2010 | On track |
| Grow the installation and use of on-site alternative energy to three times our 2015 levels by 2020. | ~2.5x increase in installations | On track |
| Continue 100% green power in our U.S. operations and increase renewable energy use for our international operations from 2015 to 2020. | 100% U.S. and EU, 25% Israel, 71% globally | On track |
| Achieve cumulative energy savings of 4 billion kWh from 2012 to 2020. | 4 billion kWh saved | Achieved |
| Increase the energy efficiency of notebook computers and data center server products 25x by 2020 from 2010 levels.[1] | 8.5x (data center server products) and 14x (notebooks) since 2010 | At risk |
| Reduce water use on a per unit basis below 2010 level by 2020. | 23% reduction since 2010 | On track |
| Restore 100% of our global water use by 2025. | 86% returned and restored[2] | On track |
| Achieve zero hazardous waste to landfill by 2020.[3] | ~4% sent to landfill | At risk |
| Achieve a 90% non-hazardous waste recycle rate by 2020. | 90% recycled | Achieved |
| Design all new buildings to a minimum LEED* Gold certification between 2015 and 2020. | 48 buildings certified to date | On track |
| Implement an enhanced green chemistry screening and selection process for 100% of new chemicals and gases by 2020. | Initial assessment complete | On track |

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# NM PROJECTS

- Recycled water fed to cooling towers and scrubbers which reduced chemical treatment and optimized operations

- Increased efficiency of reverse osmosis system saving water

- Optimized cooling towers operation to save water

- 100% of calcium fluoride is now recycled

- Conversion of some make-up air handlers to optimize humidification process

- Optimized the chilled water plant to save energy

- New tools installed for the new memory technology included Intel water conservation and GHG reduction measures

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# WATER RESTORATION IN NEW MEXICO



**WATER RESOURCES RIO GRANDE PROJECT**
UPPER RIO GRANDE AND COMANCHE CREEK

- In partnership with Trout Unlimited and the National Forest Foundation

- Estimated restoration benefit of 109 million gallons per year

# QUESTIONS?

# BACK UP

# SUMMARY OF PAST PROJECTS DISCUSSED AND IMPLEMENTED AS RESULT OF CEWG DISCUSSIONS:

- Created the CEWG ➜ all sites now have a forum to listen to the community.
- Reduced isopropyl alcohol (IPA) emissions ➜ all sites have shared ideas on how to reduce IPA emissions.
- Compressed the preventative maintenance schedule on the thermal oxidizers cutting unabated downtime emissions by 70%.
- Improved cooling tower sampling and filtration to monitor bacteria and pH and reduced cooling tower biocide use by 70-80%.
- Increased the height of the thermal oxidizer stacks from 23.2 m to 30 m to finally 40 m.
- Automated the cooling tower biocide usage. ➜ all sites now have.
- Removed rain caps from boilers stacks.
- Replaced Durr thermal oxidizers with Munters thermal oxidizers:
  - More reliable
  - Added redundant units
  - Arranged the units so they weren't clustered together
- Created www.exploreintel.com including key regulatory documents ➜ all sites now have.
  - NM only site to have live data on operational status of thermal oxidizers and scrubbers

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# SUMMARY OF PAST PROJECTS DISCUSSED AND IMPLEMENTED AS RESULT OF CEWG DISCUSSIONS (CONT):

–Changed cooling tower biocide from sodium bromide to sodium chloride and eliminated ~2 tons per year of Bromoform which is a Hazardous Air Pollutant ➔ other sites are investigating.

–Implemented a 24/7 process for community members to call the site that includes a procedure for checking status of equipment and walking the site for any unusual activities

–Community planned and community observed sampling of stack emissions for crystalline silica, including sample analyses that did not involve Intel or an Intel contractor

–Improved our site emergency management process including providing emergency responders with Intel radios and conducting routine drills with all response agencies

–Implemented a process for equipment resale/recycle/donation.  This includes items such as loose scrap metal, tanks, boilers, desks, file cabinets, and shelves.

–Updated the emergency response procedures to include a community emergency manager notification process

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# SUMMARY OF PAST PROJECTS DISCUSSED AND IMPLEMENTED AS RESULT OF CEWG DISCUSSIONS (CONT):

–Sold an air separator from our nitrogen processing plant instead of recycling it

–Piloted a new vendor cleaning process for copper tool parts which was approved for use through our white paper process.  The cleaning process replaced nitric acid (HNO3) & sodium hydroxide (NaOH) chemical use and reduced emissions and hazardous waste at the vendor's facility.

–Reconfigured Oil Free Air dryer which reduced compressor load saving energy

–Optimized chiller operation in the North Energy Center saving energy

–Extended the life of ultra pure water filters saving water

–Optimized the softened water system to shut down and drain lines that are no longer in use saving water

–Changed water feed to CUB scrubbers to match all other scrubbers on site saving water

–Added NFC tags that allow technicians to scan the tag of waste lines on their phone and then enter the required regulatory information

# SUMMARY OF PAST PROJECTS DISCUSSED AND IMPLEMENTED AS RESULT OF CEWG DISCUSSIONS (CONT):

–Continued optimization of the softened water system and shut down and drained more lines that are no longer in use saving water

–Installed new chemical controller on cooling towers for more efficient operation resulting in saving water

–Changed the community and emergency manager notification process to ensure community emergency response managers are notified of an onsite incident whether or not external support was needed onsite

–Implemented paperless café program

–Increased recycling of calcium fluoride, a non-hazardous by-product from one of the waste treatment systems

–Water restoration project with Trout Unlimited & National Forest Service Foundation

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# SUPPLIER ENVIRONMENTAL IMPACT

By partnering with our suppliers to decrease their waste generated, water usage, and greenhouse gas emissions, we reduce our own environmental impact, lower supply chain risk, and can decrease costs. We also partner with our tier 1 chemical and gas suppliers on green chemistry initiatives.

## Reducing Waste

Our procurement teams work with our logistics and packaging suppliers to drive changes in the materials we use to ship products. Our long-term vision is to achieve a high percentage of sustainable packaging for all inbound, outbound, and return shipments.

Our event marketing teams also provide planning guides, training webinars, and mentorship to suppliers to reduce the environmental impact of Intel events.

## Reducing Greenhouse Gas Emissions and Water Use

We decrease the greenhouse gas emissions related to our transportation and logistics network by optimizing packaging to reduce the quantity and weight of ship-ments, and by increasing local sourcing. Intel is at the forefront of standardizing transportation $CO_2$ reporting within the industry through collaboration with organiza-tions such as the Global Logistics Emissions Council.

In 2018, we asked 83 tier 1 suppliers that have higher environmental impacts to participate in the CDP Supply Chain survey and submit data on their own carbon and/or water footprints. All 83 of the suppliers completed the survey, and 99% of them made their responses public, giving both Intel and other constituents information about the environmental performance of our supply chain. Using CDP's global standard maximized the reporting

benefit while minimizing the burden placed on suppliers who are responding to multiple customers. Intel was the only stakeholder requesting this disclosure for 27% of the 83 suppliers.

In 2018, Intel also required these suppliers to set struc-tured climate targets for the first time, and 79% did so. We learned that at least 54% of the 83 suppliers either expect to set a science-based target in the next two years or have already set one. Using this information helps to ensure that we are focusing on the largest climate change impacts. We also sent the CDP water questionnaire to 45 suppliers that are located in water-stressed regions. We achieved a 100% response rate, with 98% of the 45 suppliers publicly sharing their responses.

As a result of our efforts, we were in the top 2% of participating companies to attain a Leadership (A) score in CDP's Supplier Engagement Rating.

## Green Chemistry

Green chemistry involves designing chemical products and processes in ways that minimize the use and creation of hazardous materials. Intel has set a collaborative goal for our chemical and gas suppliers to demonstrate their efforts to select the greenest materials to enable our technology. In support of this goal, we have been working with our suppliers to implement "green" screening of all ingredients to ensure that the most benign materials are chosen. Building on a 2017 pilot program, we launched an early adopter program in 2018 that increased supplier participation in chemical screening and reviews by 180%. Our focus was on increasing suppliers' integration of processes to perform green chemistry screening during chemical formulation.

We also continued to provide webinars and green chemistry screening criteria to help our suppliers and achieve our goal. In addition, we participate in the RBA's Chemical Management Task Force to develop industry-wide chemical management initiatives that can be propagated through the RBA membership and partnerships, including the Clean Electronics Production Network (CEPN). CEPN focuses on the use of chemicals in the supply chain and reducing risks to workers through the use of safer chemicals and the proper management of all chemicals.

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**GOAL**

**GREEN CHEMISTRY**

Implement an enhanced green chemistry screening and selection process for 100% of new chemicals and gases by 2020.

**Our Progress:** On track

We continue to promote green chemistry awareness in our supply chain. A 2017 green chemistry pilot program that we conducted with select chemical suppliers showed that screening criteria and process were more important than a specific screening tool. As such, through an early adopter program in 2018, we focused on building supplier capability to apply screening criteria and integrate a chemical selection process during chemical formulation.

In 2019, to meet our 2020 green chemistry goal, we will scale and expand the early adopter program to all chemical and gas suppliers to implement our green chemistry screening criteria and alternative assessment process.

The Internet of Things is rapidly expanding in the area of building automation. Working with ecosystem partners, Intel is advancing solutions for smart building energy management, predictive maintenance of HVAC and other building systems, facility safety and security, and more.

We are developing the foundation for a plug-n-play ecosystem that includes sensors, network connectivity, and advanced analytics options that will allow us to rapidly and cost effectively deploy Internet of Things solutions. Working with Intel engineers, IT, and Internet of Things partners, we have several proof-of-concept projects and pilots underway, including:

- Wireless water meters for rainwater capture.
- UPW analytical cart wireless monitoring.
- Wireless power meters for non-critical office building circuits.
- An app that helps employees adjust office temperature in their work areas. Read more.

https://blogs.intel.com/csr/2018/10/smart-and-green-technology-improving-employee-experiences/

https://blogs.intel.com/iot/2016/06/07/intel-iot-solutions-transforming-smart-buildings-ground/