Intel Environmental Goals

Presented to CEWG on 9/19/2018

Mindy Koch and Sarah Chavez

http://csrreportbuilder.intel.com/PDFfiles/CSR-2017_Full-Report.pdf

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.

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

2017 Performance Summary & Goals

	Goal	Progress By the End of 2017	Status
Environmental Sustainability	Reduce direct greenhouse gas (GHG) emissions by 10% on a per unit basis by 2020 from 2010 levels.	20% reduction since 2010	On track
	Grow the installation and use of on-site alternative energy to three times our 2015 levels by 2020.	2x increase in installations	On track
	Continue 100% green power in our U.S. operations and increase alternative energy use for our international operations from 2015 to 2020.	100% U.S. and EU, 73% globally	On track
	Achieve cumulative energy savings of 4 billion kWh from 2012 to 2020.	3 billion kWh saved	On track
	Increase the energy efficiency of notebook computers and data center server products 25x by 2020 from 2010 levels.[1]	8x since 2010 (data center server products)	On track (data center server products) At risk (notebook computers)
	Reduce water use on a per unit basis below 2010 level by 2020.	10% reduction since 2010	On track
	Restore 100% of our global water use by 2025.	18%[2] progress	On track
	Achieve zero hazardous waste to landfill by 2020.[3]	3% sent to landfill	On track
	Achieve a 90% non-hazardous waste recycle rate by 2020.	85% recycled	On track
	Design all new buildings to a minimum LEED* Gold certification between 2015 and 2020.	46 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

Sampling of NM Projects

2017 completed projects

- 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

2018 projects in progress

- Implemented paperless café program
- Increased recycling of calcium fluoride, a non-hazardous by-product from one of the waste treatment systems
- Modification of factory humidification
- Evaluation underway to optimize the chilled water plant to save energy
- Water restoration project with Trout Unlimited & National Forest Service Foundation

Governor Susana Martinez Announces Intel Moving New Memory Technology Development to Rio Rancho, Adding Over a Hundred Jobs

Rio Rancho, NM – Today, Governor Susana Martinez announced that Intel Corporation is moving technology development for its 3D XPoint memory technology to its facility in Rio Rancho. The move includes the addition of over a hundred jobs at Intel's Rio Rancho site.

"Since day one we've been committed to making New Mexico a great place to do business and now Intel is adding more jobs and bringing new opportunities to New Mexico," said Governor Martinez. "That's why we've continued to make New Mexico competitive with our surrounding states – because it shows results for our families and communities."

In 2015, Intel and Micron Technology announced the development of 3D XPoint, a new class of storage and memory technology that is faster, denser and non-volatile. This past July, Intel and Micron announced that technology development beyond the second generation of 3D XPoint memory media will be pursued independently. Now Intel is actively working on this transition, which includes moving technology development for 3D XPoint to its facility in Rio Rancho.

"Intel has developed a technology leadership position delivering a broad portfolio of Intel® Optane™ SSD products based on 3D XPoint™ memory media across client and data center markets, and we want to thank Gov. Martinez and the state of New Mexico for their continued support of our business," said Katie Prouty, New Mexico Plant Manager, Intel Corporation.

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

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

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

placed on suppliers who are responding to multiple customers. In 2017, 100% of 87 first-tier suppliers completed the CDP Climate Change Questionnaire, and 95% of those companies made their responses public. We also launched the CDP water questionnaire with 47 suppliers that are located in water-stressed regions and achieved a 94% response rate. Of the suppliers who completed the water questionnaire, 57% were first-time responders and 85% publicly shared their responses. As a result of our efforts, we attained a Leadership (A) score in CDP's Supplier Engagement Rating.

We also began requiring first-tier suppliers to set carbon reduction goals. Performance to this expectation will be measured during the 2018 CDP reporting year.

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 suppliers to demonstrate their efforts to select the most "green" materials to enable our technology.

In support of this goal, we have been working with our suppliers to conduct thorough chemical screening and reviews. In 2017, we completed this survey with all of our main chemical suppliers. We also held informative webinars and conducted a small-scale pilot using industry tools to determine the most effective strategies for implementing the green chemistry goal.

GOAL

GREEN TRANSPORTATION

Establish an 85% "green" Intel ground transportation fleet by 2019.

Our Progress: Sunsetted

In 2017, we made progress on our green ground transportation initiatives and achieved our highest recorded percentage in a given quarter of 28-plus miles-per-gallon and hybrid vehicle usage of 75% (Q3 2017). However, our ground transportation management model is evolving and we are reevaluating our goal moving forward. We remain committed to fuel efficiency and ensuring continued focus from our supply chain on green alternatives and goals.

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

To meet our 2020 green chemistry goal, we sought to understand the current green chemistry awareness in our supply chain by completing a detailed supplier survey. In addition, Intel held webinars to share and educate our supply chain on our view of green chemistry and alternatives assessments. We researched numerous industry screening tools, selected one, and piloted it with some key chemical suppliers. The learnings were shared among the pilot participants and incorporated into our plans for the next phase of implementation. In 2018, we will expand the pilot to incorporate more suppliers and tools, and will work toward a collaborative alternative assessment system.