

2019 SUSTAINABILITY DATA REPORT

EMPLOYEES	2016	2017	2018
Employees			
Number of Employees	6,039	6,086	6,625
North America	3,534	3,506	4,273
Europe	79	82	94
Asia	2,426	2,498	2,258
Employee Health & Safety			
Work-Related Fatalities	0	0	0
Hours Worked (millions of hours)	13.8	13.3	14.0
Recordable Work-Related Injuries and Ill Health Cases ¹	89	65	59
Injury Cases	69	59	57
Ill Health Cases	20	6	2
Recordable Work-Related Injuries and Ill Health Rates ²	1.29	0.98	0.84
Injury Rates	1.00	0.89	0.81
Ill Health Rates	0.29	0.09	0.03
High-Consequence Recordable Work-Related Injuries and Ill Health Cases ³	1	0	0
Injury Cases	1	0	0
Ill Health Cases	0	0	0
High-Consequence Recordable Work-Related Injuries and Ill Health Rates ¹²³	0.01	0.00	0.00
Injury Rates	0.01	0.00	0.00
Ill Health Rates	0.00	0.00	0.00
Contract Employees⁴			
Work-Related Fatalities	0	0	0
Recordable Work-Related Injuries and Ill Health Cases ¹	6	13	5
Injury Cases	6	13	4
Ill Health Cases	0	0	1
High-Consequence Recordable Work-Related Injuries and Ill Health Cases ³	0	0	0
Injury Cases	0	0	0
Ill Health Cases	0	0	0





ENVIRONMENT		2016	2017	2018
Energy Use				
Total Energy Purchased	MWh	449,432	456,804	490,405
Electricity purchased	MWh	363,111	367,578	403,757
Other energy purchased	MWh	86,321	89,226	86,647
Estimated Renewable Energy Purchased	MWh	•	•	66,084
Direct purchase of renewable energy for electricity (e.g., wind, solar)	MWh	0	0	1,215
Estimated renewable energy purchases based on local utilities' energy grid mix	MWh	•	•	64,869
Estimated Other Carbon-Free Energy Purchased	MWh	•	•	101,358
Direct purchase of other carbon-free energy for electricity (e.g., nuclear)	MWh	0	0	0
Estimated other carbon-free electricity purchased based on local utilities' energy grid mix	MWh	•	•	101,358
Estimated Non-Renewable Energy Purchased	MWh	86,321	89,226	322,962
Estimated non-renewable electricity purchased based on local utilities' energy grid mix	MWh	•	•	236,315
Natural gas purchased	MWh	86,140	88,814	85,871
Diesel purchased	MWh	172	247	497
Liquefied petroleum gas (LPG) purchased	MWh	8	0	0
Gasoline purchased	MWh	0	165	150
Propane gas purchased	MWh	•	•	129
Heat, Steam, Cooling Purchased	MWh	0	0	0
Heat purchased	MWh	0	0	0
Steam purchased	MWh	0	0	0
Cooling purchased	MWh	0	0	0
Energy Sold	MWh	0	0	0
Electricity sold	MWh	0	0	0
Heat sold	MWh	0	0	0
Steam sold	MWh	0	0	0
Cooling sold	MWh	0	0	0





ENVIRONMENT		2016	2017	2018
Greenhouse Gas (GHG) Emissions				
Scope 1 GHG Emissions (by GHG Type)	metric tons CO ₂ e	181,882	214,202	255,500
CO ₂	metric tons CO ₂ e	15,645	16,182	15,736
CH ₄	metric tons CO ₂ e	48	45	68
N ₂ O	metric tons CO ₂ e	2,761	3,092	3,691
HFCs	metric tons CO ₂ e	22,610	14,232	14,252
PFCs	metric tons CO ₂ e	35,445	49,567	57,906
SF ₆	metric tons CO ₂ e	91,173	115,798	133,868
NF ₃	metric tons CO ₂ e	7,323	4,577	4,985
Fluorinated Heat Transfer Fluids (HTFs)	metric tons CO ₂ e	6,877	10,709	24,994
Scope 1 GHG Emissions (by Facility)	metric tons CO ₂ e	181,882	214,202	255,500
Durham, NC, USA	metric tons CO ₂ e	102,215	111,699	121,025
RTP, NC, USA	metric tons CO ₂ e	74,823	98,984	116,633
Alston Ave, NC, USA	metric tons CO ₂ e	17	44	34
Weck Drive, NC, USA	metric tons CO ₂ e	69	56	68
Racine, WI, USA	metric tons CO ₂ e	2,289	2,418	1,987
Morgan Hill, CA, USA	metric tons CO ₂ e	Not yet owned	Not yet owned	15,012
Huizhou, China	metric tons CO ₂ e	2,469	1,001	741
Scope 2 (Location-Based) GHG Emissions	metric tons CO ₂ e	174,860	160,159	172,376
Durham, NC, USA	metric tons CO ₂ e	101,528	88,963	102,185
RTP, NC, USA	metric tons CO ₂ e	14,828	13,117	13,864
Alston Ave, NC, USA	metric tons CO ₂ e	1,090	529	223
Weck Drive, NC, USA	metric tons CO ₂ e	245	222	216
Racine, WI, USA	metric tons CO ₂ e	5,631	4,813	4,689
Morgan Hill, CA, USA	metric tons CO ₂ e	Not yet owned	Not yet owned	0
Huizhou, China	metric tons CO ₂ e	51,538	52,515	51,198
Scope 2 (Market-Based) GHG Emissions	metric tons CO ₂ e	•	129,102	140,955
Durham, NC, USA	metric tons CO ₂ e	•	106,847	119,230
RTP, NC, USA	metric tons CO ₂ e	•	15,754	16,188
Alston Ave, NC, USA	metric tons CO ₂ e	•	635	260
Weck Drive, NC, USA	metric tons CO ₂ e	•	267	253
Racine, WI, USA	metric tons CO ₂ e	•	5,599	5,036
Morgan Hill, CA, USA	metric tons CO ₂ e	Not yet owned	Not yet owned	0
Huizhou, China	metric tons CO ₂ e	•	•	•





ENVIRONMENT		2016	2017	2018
Greenhouse Gas (GHG) Emissions				
Scope 3 GHG Emissions	metric tons CO ₂ e	3,346	215,062,546	220,057,978
Purchased goods and services	metric tons CO ₂ e	•	•	•
Capital goods	metric tons CO ₂ e	•	•	•
Fuel-and-energy-related activities not included in Scope 1 or 2	metric tons CO ₂ e	•	8,101	8,661
Upstream emissions of purchased fuels	metric tons CO ₂ e	•	•	•
Upstream emissions of purchased electricity	metric tons CO ₂ e	•	•	•
Transmission and distribution losses	metric tons CO ₂ e	•	8,101	8,661
Upstream transportation and distribution	metric tons CO ₂ e	•	•	•
Waste generated in operations, including disposal and transportation of waste	metric tons CO ₂ e	•	1,519	1,662
Business travel (does not include Asia employees)	metric tons CO ₂ e	3,346	2,925	3,422
Employee commuting (US employees only)	metric tons CO ₂ e	•	•	257
Downstream transportation and distribution	metric tons CO ₂ e	•	40,896	34,283
Processing of sold products	metric tons CO ₂ e	•	•	•
Use of sold products	metric tons CO ₂ e	•	215,000,000	220,000,000
End of life treatment of sold products	metric tons CO ₂ e	•	1,004	1,032
Upstream leased assets	metric tons CO ₂ e	Not relevant	Not relevant	Not relevant
Downstream leased assets	metric tons CO ₂ e	•	•	•
Franchises	metric tons CO ₂ e	Not relevant	Not relevant	Not relevant
Investments	metric tons CO ₂ e	Not relevant	Not relevant	Not relevant
Other (upstream contract manufacturers)	metric tons CO ₂ e	•	•	•
Other (downstream contract manufacturers)	metric tons CO ₂ e	•	•	•
GHG Offsets	metric tons CO ₂ e	1,105	210,005,108	220,000,938
Process optimizations (Scope 1)	metric tons CO ₂ e	•	4,417	390
Electricity optimizations (Scope 2)	metric tons CO ₂ e	1,105	691	541
Use of sold products compared to traditional technologies (Scope 3) ⁵	metric tons CO ₂ e	•	210,000,000	220,000,000
Employee use of EV charging stations at owned facilities (Scope 3)	metric tons CO ₂ e	•	•	7.5
Global Warming Potentials Used		AR4 100 year	AR4 100 year	AR4 100 year
Scope 1, 2 & 3 Emissions Third-Party Verified (limited verification)		No	Yes	Yes





ENVIRONMENT		2016	2017	2018
Other Air Emissions				
Particulate Matter (PM)	metric tons	•	•	2.9
Durham, NC, USA	metric tons	•	•	2.4
RTP, NC, USA	metric tons	•	•	0.3
Alston Ave, NC, USA	metric tons	•	•	<0.01
Weck Drive, NC, USA	metric tons	•	•	<0.01
Racine, WI, USA	metric tons	•	•	0.1
Morgan Hill, CA, USA	metric tons	Not yet owned	Not yet owned	< 0.01
Huizhou, China	metric tons	•	•	<0.01
Nitrogen Oxides (NOx)	metric tons	•	•	56.7
Durham, NC, USA	metric tons	•	•	51.6
RTP, NC, USA	metric tons	•	•	3.1
Alston Ave, NC, USA	metric tons	•	•	0.03
Weck Drive, NC, USA	metric tons	•	•	0.06
Racine, WI, USA	metric tons	•	•	1.7
Morgan Hill, CA, USA	metric tons	Not yet owned	Not yet owned	0.01
Huizhou, China	metric tons	•	•	0.2
Sulfur Dioxide (SO ₂)	metric tons	•	•	0.15
Durham, NC, USA	metric tons	•	•	0.12
RTP, NC, USA	metric tons	•	•	0.01
Alston Ave, NC, USA	metric tons	•	•	<0.01
Weck Drive, NC, USA	metric tons	•	•	<0.01
Racine, WI, USA	metric tons	•	•	0.01
Morgan Hill, CA, USA	metric tons	Not yet owned	Not yet owned	<0.01
Huizhou, China	metric tons	•	•	<0.01
Carbon Monoxide (CO)	metric tons	•	•	18.5
Durham, NC, USA	metric tons	•	•	15.1
RTP, NC, USA	metric tons	•	•	1.8
Alston Ave, NC, USA	metric tons	•	•	0.02
Weck Drive, NC, USA	metric tons	•	•	0.05
Racine, WI, USA	metric tons	•	•	1.4
Morgan Hill, CA, USA	metric tons	Not yet owned	Not yet owned	0.01
Huizhou, China	metric tons	•	•	0.04





ENVIRONMENT		2016	2017	2018
Other Air Emissions				
Volatile Organic Compounds (VOC)	metric tons	•	•	52.7
Durham, NC, USA	metric tons	•	•	24.7
RTP, NC, USA	metric tons	•	•	10.8
Alston Ave, NC, USA	metric tons	•	•	<0.01
Weck Drive, NC, USA	metric tons	•	•	<0.01
Racine, WI, USA	metric tons	•	•	1.4
Morgan Hill, CA, USA	metric tons	Not yet owned	Not yet owned	0.4
Huizhou, China	metric tons	•	•	15.3
Hazardous Air Pollutants (HAP) ⁶	metric tons	•	•	8.7
Durham, NC, USA	metric tons	•	•	5.9
RTP, NC, USA	metric tons	•	•	0.9
Alston Ave, NC, USA	metric tons	•	•	<0.01
Weck Drive, NC, USA	metric tons	•	•	<0.01
Racine, WI, USA	metric tons	•	•	0.07
Morgan Hill, CA, USA	metric tons	Not yet owned	Not yet owned	<0.01
Huizhou, China	metric tons	•	•	1.9
Toxic Air Pollutants ⁶	metric tons	•	•	9.3
Durham, NC, USA	metric tons	•	•	5.7
RTP, NC, USA	metric tons	•	•	1.2
Alston Ave, NC, USA	metric tons	•	•	<0.01
Weck Drive, NC, USA	metric tons	•	•	<0.01
Racine, WI, USA	metric tons	•	•	0.1
Morgan Hill, CA, USA	metric tons	Not yet owned	Not yet owned	0.3
Huizhou, China	metric tons	•	•	2.0





ENVIRONMENT		2016	2017	2018
Water Use				
Water Withdrawals (by Facility)	million gallons	523.3	546.3	555.2
Durham, NC, USA	million gallons	222.3	193.7	214.8
Third-Party Water	million gallons	187.8	168.7	181.3
Recycled Water	million gallons	34.4	25.0	33.5
Rain Water	million gallons	0.15	0.003	0.10
RTP, NC, USA	million gallons	34.8	39.6	41.3
Third-Party Water	million gallons	20.5	39.6	41.3
Recycled Water	million gallons	0	0	0
Rain Water	million gallons	0	0	0
Alston Ave, NC, USA	million gallons	0.02	0.28	0.07
Third-Party Water	million gallons	0.02	0.28	0.07
Recycled Water	million gallons	0	0	0
Rain Water	million gallons	0	0	0
Weck Drive, NC, USA	million gallons	0.03	0.03	0.03
Third-Party Water	million gallons	0.03	0.03	0.03
Recycled Water	million gallons	0	0	0
Rain Water	million gallons	0	0	0
Racine, WI, USA	million gallons	21.3	22.2	20.4
Third-Party Water	million gallons	21.3	22.2	20.4
Recycled Water	million gallons	0	0	0
Rain Water	million gallons	0	0	0
Morgan Hill, CA, USA	million gallons	Not yet owned	Not yet owned	0.2
Third-Party Water	million gallons	Not yet owned	Not yet owned	0.2
Recycled Water	million gallons	Not yet owned	Not yet owned	0
Rain Water	million gallons	Not yet owned	Not yet owned	0
Huizhou, China	million gallons	244.9	290.4	278.1
Third-Party Water	million gallons	191.7	217.8	179.3
Recycled Water	million gallons	53.2	72.6	98.8
Rain Water	million gallons	0	0	0





ENVIRONMENT		2016	2017	2018
Water Use				
Water Discharges (by Facility)	million gallons	355.7	332.8	404.2
Durham, NC, USA	million gallons	145.9	116.9	151.8
Third-Party Waste Water	million gallons	111.5	91.9	118.3
Recycled Water	million gallons	34.4	25.0	33.5
RTP, NC, USA	million gallons	20.5	23.4	24.4
Third-Party Waste Water	million gallons	20.5	23.4	24.4
Recycled Water	million gallons	0	0	0
Alston Ave, NC, USA	million gallons	0.02	0.28	0.07
Third-Party Waste Water	million gallons	0.02	0.28	0.07
Recycled Water	million gallons	0	0	0
Weck Drive, NC, USA	million gallons	0.03	0.03	0.03
Third-Party Waste Water	million gallons	0.03	0.03	0.03
Recycled Water	million gallons	0	0	0
Racine, WI, USA	million gallons	21.3	22.2	20.4
Third-Party Waste Water	million gallons	21.3	22.2	20.4
Recycled Water	million gallons	0	0	0
Morgan Hill, CA, USA	million gallons	Not yet owned	Not yet owned	0.2
Third-Party Waste Water	million gallons	Not yet owned	Not yet owned	0.2
Recycled Water	million gallons	Not yet owned	Not yet owned	0
Huizhou, China	million gallons	168.0	170.0	207.2
Third-Party Waste Water	million gallons	114.8	97.4	108.4
Recycled Water	million gallons	53.2	72.6	98.8
Water Consumed or Evaporated in Process (by Facility)	million gallons	167.6	213.5	150.9
Durham, NC, USA	million gallons	76.4	76.7	63.0
RTP, NC, USA	million gallons	14.3	16.2	16.9
Alston Ave, NC, USA	million gallons	0	0	0
Weck Drive, NC, USA	million gallons	0	0	0
Racine, WI, USA	million gallons	0	0	0
Morgan Hill, CA, USA	million gallons	Not yet owned	Not yet owned	0
Huizhou, China	million gallons	76.9	120.4	71.0





ENVIRONMENT		2016	2017	2018
Water Use				
Water Withdrawals (by Water Stress Regions) ⁷	million gallons	523.3	546.3	555.2
Third-Party Water	million gallons	435.6	448.6	422.8
Low Water Stress	million gallons	•	•	0
Low-Medium Water Stress	million gallons	•	•	0
Medium-High Water Stress	million gallons	•	•	422.6
High Water Stress	million gallons	•	•	0.2
Extremely High Water Stress	million gallons	•	•	0
Recycled Water	million gallons	87.6	97.6	132.3
Low Water Stress	million gallons	•	•	0
Low-Medium Water Stress	million gallons	•	•	0
Medium-High Water Stress	million gallons	•	•	132.3
High Water Stress	million gallons	•	•	0
Extremely High Water Stress	million gallons	•	•	0
Rain Water	million gallons	0.15	0.003	0.10
Low Water Stress	million gallons	•	•	0
Low-Medium Water Stress	million gallons	•	•	0
Medium-High Water Stress	million gallons	•	•	0.10
High Water Stress	million gallons	•	•	0
Extremely High Water Stress	million gallons	•	•	0
Water Discharges (by Water Stress Regions) ⁷	million gallons	355.7	332.8	404.2
Third-Party Wastewater	million gallons	268.1	235.2	271.9
Low Water Stress	million gallons	•	•	0
Low-Medium Water Stress	million gallons	•	•	0
Medium-High Water Stress	million gallons	•	•	271.6
High Water Stress	million gallons	•	•	0.2
Extremely High Water Stress	million gallons	•	•	0
Recycled Water	million gallons	87.6	97.6	132.3
Low Water Stress	million gallons	•	•	0
Low-Medium Water Stress	million gallons	•	•	0
Medium-High Water Stress	million gallons	•	•	132.3
High Water Stress	million gallons	•	•	0
Extremely High Water Stress	million gallons	•	•	0





ENVIRONMENT		2016	2017	2018
Water Use				
Water Consumed or Evaporated in Process (by Water Stress Regions) ⁷	million gallons	167.6	213.5	150.9
Low Water Stress	million gallons	•	•	0
Low-Medium Water Stress	million gallons	•	•	0
Medium-High Water Stress	million gallons	•	•	150.9
High Water Stress	million gallons	•	•	0
Extremely High Water Stress	million gallons	•	•	0
Waste Management				
Total Waste	thousand pounds	17,333	17,964	19,699
Reuse	thousand pounds	283	462	662
Recycle	thousand pounds	7,878	7,463	8,056
Composting	thousand pounds	12	46	89
Recovery, Including Energy Recovery	thousand pounds	556	1,616	2,212
Incineration	thousand pounds	145	76	136
Landfill	thousand pounds	3,375	2,853	3,002
Waste Water Treated	thousand pounds	5,084	5,448	5,542
Hazardous Waste	thousand pounds	2,388	2,779	3,536
Reuse	thousand pounds	0	0	0
Recycle	thousand pounds	414	185	90
Composting	thousand pounds	0	0	0
Recovery, Including Energy Recovery	thousand pounds	516	1,088	1,030
Incineration	thousand pounds	134	71	126
Landfill	thousand pounds	68	128	126
Waste Water Treated	thousand pounds	1,256	1,307	2,164
Non-Hazardous Waste	thousand pounds	5,447	6,199	5,545
Reuse	thousand pounds	283	462	313
Recycle	thousand pounds	1,001	688	294
Composting	thousand pounds	0	0	0
Recovery, Including Energy Recovery	thousand pounds	40	529	1,182
Incineration	thousand pounds	11	5	10
Landfill	thousand pounds	284	375	369
Waste Water Treated	thousand pounds	3,828	4,140	3,377



ENVIRONMENT		2016	2017	2018
Waste Management				
Solid Waste	thousand pounds	9,499	8,985	10,616
% Diversion from Landfill	%	68.2%	73.9%	76.4%
Reuse	thousand pounds	0	0	349
Recycle	thousand pounds	6,463	6,590	7,672
Composting	thousand pounds	12	46	89
Recovery, Including Energy Recovery	thousand pounds	0	0	0
Incineration	thousand pounds	0	0	0
Landfill	thousand pounds	3,024	2,349	2,506
Waste Water Treated	thousand pounds	0	0	0

• Indicates data was not yet calculated or available.

¹ Recordable Work-Related Injury-Illness is a work-related injury or ill health that results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness; or significant injury or ill health diagnosed by a physician or other licensed healthcare professional, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.

² Injury-Illness rates are calculated using 200,000 hours worked (Rate = cases/total hours worked * 200,000).

³ High-Consequence Recordable Work-Related Injury-Illness is a work-related injury or ill health that results in an injury from which the worker cannot, does not, or is not expected to recover fully to pre-injury health status within 6 months.

⁴ Contract Employee is any worker who is not a Cree employee but whose manager is and whose work and workplace may or may not be controlled by Cree.

⁵ The values reported represent what our products sold will save over their estimated lifetimes. Energy usage and GHG emissions from our products were compared to their less efficient alternative products to derive energy use savings. For lighting applications, our lighting and LED products were compared to non-LED lighting fixtures (e.g., metal halide lamps, fluorescent bulbs, etc.). For applications where LEDs are currently the standard choice we assumed no energy savings. Our power products, made from silicon carbide, were compared to similar products made from silicon. Our radio frequency products, made from silicon carbide, were compared to similar products made from either silicon or gallium-arsenide.

⁶ Hazardous air pollutants (HAP) are based on the US EPA list of HAP. Air pollutants are classified as toxic air pollutants per the regulations applicable at each facility.

⁷ All of Cree's global manufacturing facilities were assessed for water stress using the World Resources Institute Aqueduct Water Risk Atlas. Overall Water Risk identifies regions that have a higher exposure to water-related risks and represents an aggregated measure of all indicators from the individual water risk categories of Physical Risk Quantity, Physical Risk Quality and Regulatory & Reputational Risk:

- Low water stress indicates the facility(ies) scored 0 to 1 out of 5 for Overall Water Risk.
- Low to medium water stress indicates the facility(ies) scored 1 to 2 out of 5 for Overall Water Risk.
- Medium to high water stress indicates the facility(ies) scored 2 to 3 out of 5 for Overall Water Risk.
- High water stress indicates the facility(ies) scored 3 to 4 out of 5 for Overall Water Risk.
- Extremely high water stress indicates the facility(ies) scored 4 to 5 out of 5 for Overall Water Risk.

