Manufacturing Energy and Carbon Footprint
Sector: Computers, Electronics and Electrical Equipment (NAICS 334, 335)

Primary Energy, 2018

<table>
<thead>
<tr>
<th>Energy (TBtu = Trillion British Thermal Units)</th>
<th>Greenhouse Gas (GHG) Emissions (MMT CO$_2$e = Million Metric Tons Carbon Dioxide Equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td></td>
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<tr>
<td>Electricity</td>
<td></td>
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<tr>
<td>Steam</td>
<td></td>
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<tr>
<td>Combined</td>
<td></td>
</tr>
<tr>
<td>Losses</td>
<td>Total Emissions = Offsite Emissions + Onsite (Combustion + Process) Emissions</td>
</tr>
</tbody>
</table>

| Energy use data source: 2018 EIA MECS (with adjustments). For full information on references, definitions, assumptions, and other sectors, visit this webpage |

Last Revised: December 2021

Notes: Sector-wide aggregate data for year 2018; energy values rounded to nearest whole number

- Offsite generation shown on net basis (purchases, sales, and transfers accounted for) and includes onsite non-combustion renewable output
- Electricity export refers to sales and transfers offsite of electricity to utilities and other entities
- Feedstock energy excluded from primary, offsite, and onsite energy values and included in Energy for All Purposes
- Excess steam refers to the sales and transfer offsite or purging of surplus steam

Energy for All Purposes estimated at 403 TBtu
Includes primary energy plus net energy consumed for nonfuel purposes, including feedstock use

Prepared for the U.S. Department of Energy, Advanced Manufacturing Office by Energetics
Onsite Energy Use: 184 TBtu
Onsite Emissions: 9 MMT CO₂e

Fuel Types
- Natural Gas: 96%
- HGL (excl. natural gasoline): 2%
- Distillate and Residual Fuel Oils: < 1%
- Other Fuels: 1%

Onsite Generation
- Conventional Boilers: 0.7\% 0.5\%
- CHP/Cogeneration: 0.4\% 0.4\%
- Other Electricity Generation (excludes 0.1 TBtu renewable, non-combustion electricity output): 0.0\% 0.0\%

Process Energy
- Process Heating: 3.1\% 1.0\%
- Process Cooling and Refrigeration: 2.0\% 0.0\%
- Other Process Uses: 1.4\% 0.1\%

Electro-Chemical: 0.3\% 0.0\%

Machine Drive
- Pumps: 11
- Fans: 11
- Compressed Air: 4
- Materials Handling: 0
- Materials Processing: 3
- Other Systems: 1

Steam Distribution Losses: 3

Energy use data source:
2018 EIA MECS (with adjustments);
See webpage for details
Last Revised: December 2021

Notes:
- Sector-wide aggregate data for year 2018;
- Energy values and fuel type percentages rounded to nearest whole number
- Offsite generation shown on net basis (purchases, sales, and transfers accounted for) and includes onsite non-combustion renewable output
- * Refers to sales and transfers offsite of electricity to utilities and other entities
- * Refers to sales and transfers offsite or purging of surplus steam
- Feedstock energy excluded

Energy (TBtu = Trillion British Thermal Units)
- Fuel
- Electricity
- Steam
- Combined

Greenhouse Gas (GHG) Emissions
(MMT CO₂e = Million Metric Tons Carbon Dioxide Equivalent)

Onsite Emissions = Onsite Combustion Emissions + Process Emissions

Facility HVAC: 5.0\% 1.3\%
Facility Lighting: 1.3\% 0.0\%
Other Facility Support: 0.7\% 0.1\%
Onsite Transportation: 0.1\% 0.1\%

Other Nonprocess: 7.2\% 1.6\%

Electricity Export*: 0
Excess Steam*: 0

Total Onsite: 184
Total Process: 113

Footnote:
Feedstock energy excluded
Manufacturing Carbon Footprint
Sector: Computers, Electronics and Electrical Equipment (NAICS 334, 335)

Primary Energy Use: 393 TBtu
Total GHG Emissions: 24 MMT CO₂e

Fuel and GHG Emissions, 2018

Energy use data source: 2018 EIA MECS (with adjustments)
See webpage for details

Last Revised: December 2021

Notes:
Sector-wide aggregate data for year 2018; energy values rounded to nearest whole number; emissions values rounded to nearest tenth

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