Primary Energy, 2014

Offsite Energy
- Fuel: 102
- Electricity Generation: 557
- Steam Generation: 3
- Generation and Transmission Losses: 367

Onsite Energy
- Onsite Generation (excludes 0.1 TBU renewable, non-combustion electricity output):
  - Electricity: 49
  - Steam: 38
- Steam Distribution Losses: 8
- Onsite and Steam Generation Losses: 11

Process Energy
- Process Losses: 84

Nonprocess Energy
- Nonprocess Losses: 33
- Electricity Export*: 24.5
- Steam Export*: 1.6

Total Primary Energy Use: 662 TBU
Total Combustion Emissions: 36 MMT CO₂e

Notes:
- Sector-wide aggregate data for year 2014; 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.

Energy for All Purposes estimated at 663 TBU
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

Last Revised: September 2018

### Onsite Energy Use, 2014

#### Onsite Energy Use: 294 TBtu

#### Onsite Combustion Emissions: 6 MMT CO₂e

<table>
<thead>
<tr>
<th>Energy Use Data Source</th>
<th>2014 EIA MECS (with adjustments); see page 1 of 2 for reference link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last Revised:</td>
<td>September 2018</td>
</tr>
<tr>
<td>Notes:</td>
<td>Sector-wide aggregate data for year 2014; energy values and fuel type percentages rounded to nearest whole number</td>
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<td>Offsite generation shown on net basis (purchases, sales, and transfers accounted for) and includes onsite non-combustion renewable output</td>
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<td>* Refers to sales and transfers offsite of electricity to utilities and other entities</td>
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<tr>
<td></td>
<td>Feedstock energy excluded</td>
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### Fuel Types

<table>
<thead>
<tr>
<th>Fuel Type</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas</td>
<td>88%</td>
</tr>
<tr>
<td>Coal</td>
<td>4%</td>
</tr>
<tr>
<td>HGL (excl. natural gasoline)</td>
<td>4%</td>
</tr>
<tr>
<td>Distillate and Residual Fuel Oils</td>
<td>3%</td>
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<tr>
<td>Other Fuels</td>
<td>&lt; 1%</td>
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</tbody>
</table>

### Combustion Emissions

<table>
<thead>
<tr>
<th>Energy (TBtu)</th>
<th>294</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel</td>
<td>0</td>
</tr>
<tr>
<td>Electricity</td>
<td>0</td>
</tr>
<tr>
<td>Steam</td>
<td>0</td>
</tr>
<tr>
<td>Combined</td>
<td>294</td>
</tr>
</tbody>
</table>

| Total Emissions                  | 8.5         |
| Onsite Emissions                 | 190         |
| Nonprocess Emissions             | 39          |

### Energy Flow Diagram

- **Fuel Types**
  - Natural Gas: 88%
  - Coal: 4%
  - HGL (excl. natural gasoline): 4%
  - Distillate and Residual Fuel Oils: 3%
  - Other Fuels: < 1%

- **Combustion Emissions**
  - Total: 294 TBtu
  - Onsite: 190 TBtu

- **Nonprocess Energy**
  - Facility HVAC: 4.2 TBtu
  - Facility Lighting: 1.2 TBtu
  - Other Facility Support: 2.7 TBtu
  - Onsite Transportation: 0.3 TBtu
  - Other Nonprocess: 0.5 TBtu

- **Electrical Use**
  - Machine Drive: 20 TBtu
    - Pumps: 99 TBtu
    - Fans: 15 TBtu
    - Compressed Air: 16 TBtu
    - Materials Handling: 11 TBtu
    - Materials Processing: 33 TBtu
    - Other Systems: 4 TBtu

- **Steam Distribution Losses**: 8 TBtu