

HO 130003_Example Energy Balance of a Small Food Processing Unit

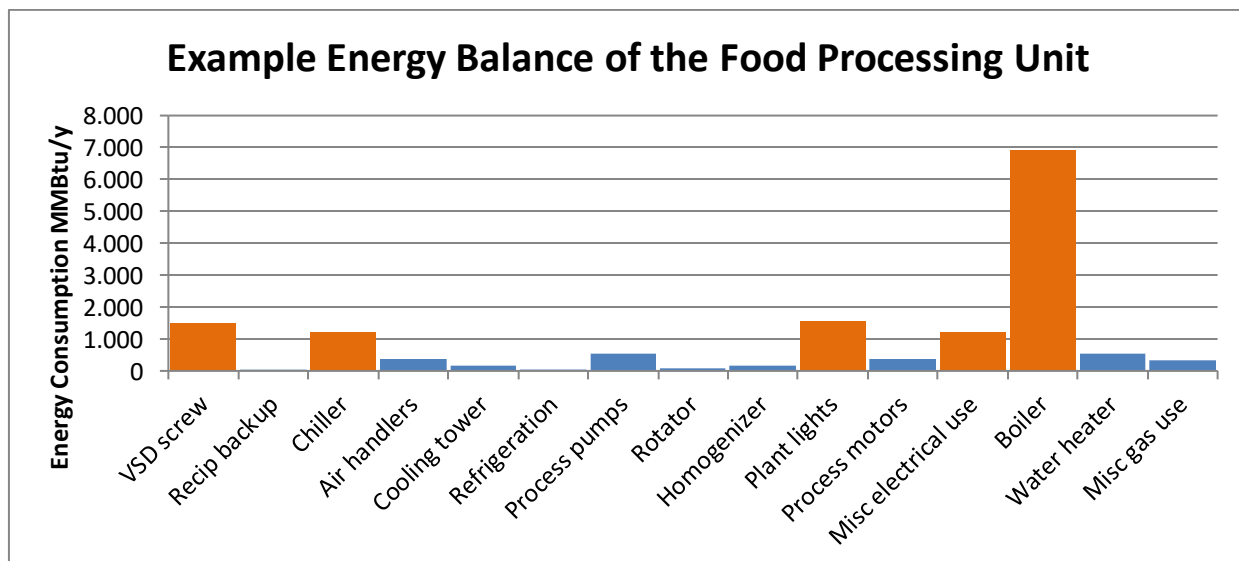
Source: 2011 Georgia Tech Research Corporation and U.S. Department of Energy

Enterprise Annual Energy Usage

Source	Usage	Units
Natural gas	7,770	MMBtu
Electricity	2,119,800	kWh
Combined Btu	15,003	MMBtu

Energy Users

Description	Size	Units	Oper. Hr/y	Load	kWh/y	MMBtu/y	% total
Electrical Usage							
VSD screw	125	HP	8,760	0.5	439,177	1,498	10.0%
Recipe backup	50	HP	500	0.7	14,506	49	0.3%
Chiller	100	tons	8,760	0.5	350,400	1,196	8.0%
Air handlers	20	HP	8,760	0.75	108,916	372	2.5%
Cooling tower	15	HP	8,760	0.45	49,012	167	1.1%
Refrigeration	3	tons	8,760	0.5	10,512	36	0.2%
Process pumps	50	HP	6,600	0.6	164,120	560	3.7%
Rotator	20	HP	3,300	0.4	21,883	75	0.5%
Homogenizer	40	HP	3,300	0.4	43,765	149	1.0%
Plant lights	69	kW	6,600	1	455,400	1,554	10.4%
Process motors	50	HP	6,600	0.4	109,413	373	2.5%
Misc. electrical use					352,695	1,203	8.0%
Natural Gas Usage							
Boiler	25	bHP	6600	0.35		6,909	46.1%
Water heater	300000	Btuh	8760	0.2		526	3.5%
Misc. gas use						335	2.2%
Plant total						15,003	100.0%



List of Significant Energy Uses

Significance Criterion (example): All consumers above 1,000 MMBtu/year are considered as SEUs

SEUs	MMBtu/y	Relevant Variables	Further Considerations
Boiler	6,909	Ambient Temperature Production Volume	
Plant lights	1,554	Day-light availability Production Volume	
VSD screw	1,498	Ambient Temperature Relative Humidity Production Volume	
Misc. electrical use	1,203	Unknown	Too much unaccounted load. Need further investigation and monitoring.
Chiller	1,196	Ambient Temperature Relative Humidity Production Volume	