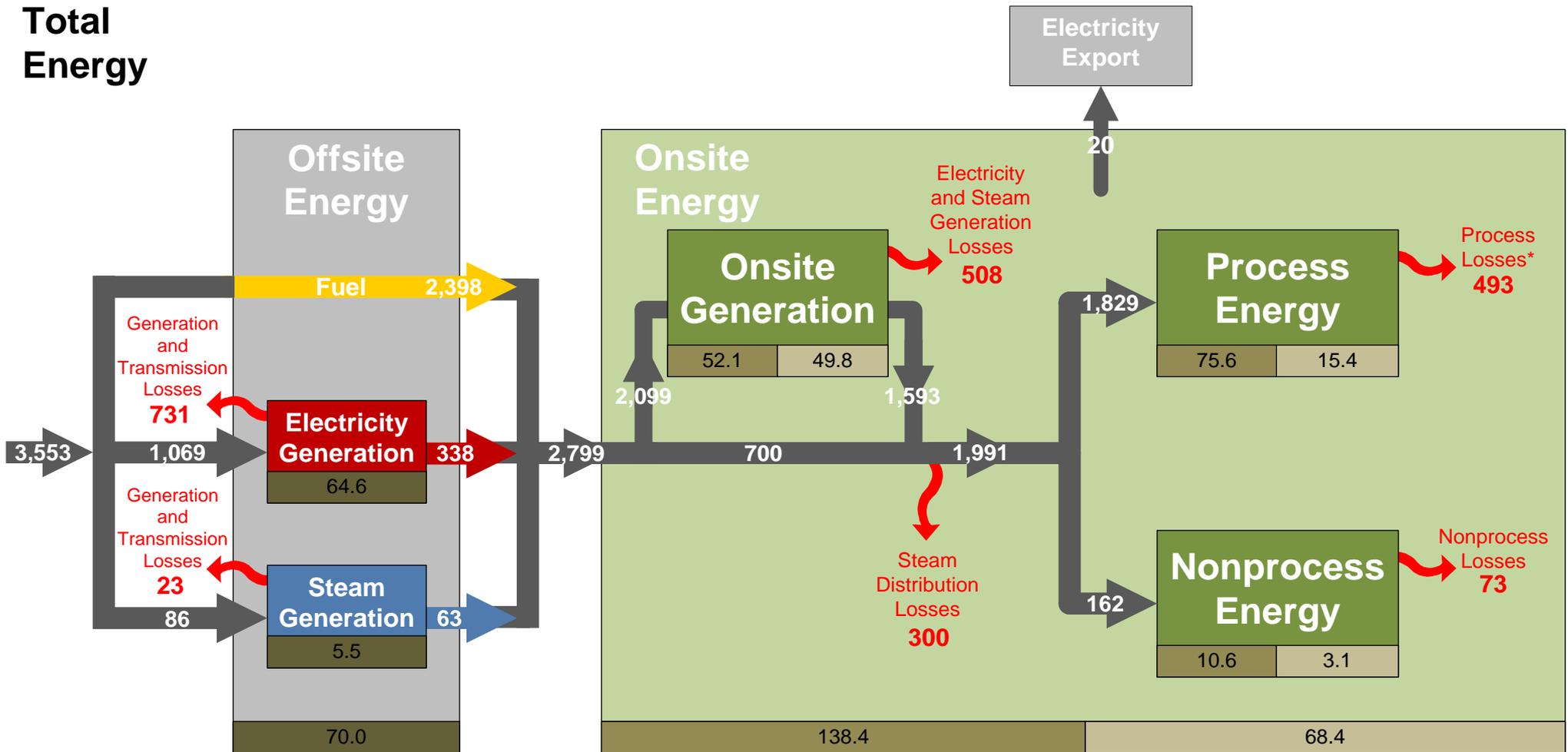


Manufacturing Energy and Carbon Footprint
Sector: Forest Products (NAICS 321, 322)

Total Primary Energy Use: 3,553 TBtu
Total Combustion Emissions: 138 MMT CO₂e

Total Energy



Energy Use (TBtu)	All Energy
	Fuel
	Electricity
	Steam
	Losses
Combustion Emissions (MMT CO ₂ e)	Offsite
	Onsite
	Total
Total = Onsite + Offsite	

* Exhaust losses from process heating are not estimated

Data source: 2006 MECS

Published: August 2010, revised December 2010

Units: TBtu = Trillion British Thermal Units

MMT CO₂e = Million Metric Tons Carbon Dioxide Equivalent

Notes: Feedstock energy not included

Energy values <0.5 TBtu shown as 0

Manufacturing Energy and Carbon Footprint

Sector: Forest Products (NAICS 321, 322)

Onsite Energy Use: **2,799 TBtu**
 Onsite Combustion Emissions: **68 MMT CO₂e**

Onsite Energy

Onsite Generation

Conventional Boilers
 13.0 | 10.7

CHP/ Cogeneration
 39.0 | 39.0

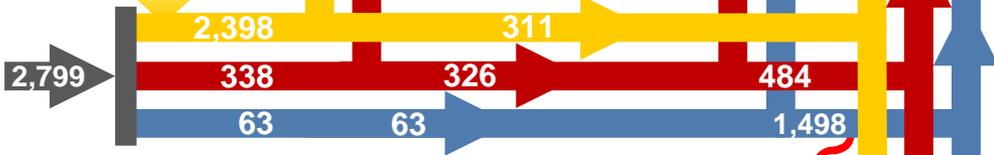
Other Electricity Generation**
 0.2 | 0.2

52.1 | 49.8

Steam Generation **451**
 Electricity Generation **57**

Fuel Type	% of Total
Pulping Liquor or Black Liquor (byproduct fuel)	35%
Biomass	24%
Natural Gas	23%
Coal	10%
Distillate and Residual Fuel Oils	5%
Waste Oils/Tars and Waste Materials (byproduct fuel)	1%
Petroleum Coke (byproduct fuel)	1%
LPG and NGL	< 0.5%
Other Fuels	< 0.5%

Fuel Types



Process Energy

Process Heating
 21.3 | 13.6

Process Cooling and Refrigeration
 1.1 | 0.1

Other Process Uses
 1.0 | 0.4

Electro-Chemical
 0.6 | 0.0

Machine Drive
 51.7 | 1.3

Machine-Driven Systems

Pumps	169
Fans	107
Compressed Air	25
Materials Handling	40
Materials Processing	115
Other Systems	75
Total	75.6 15.4

Exhaust Losses*

Nonprocess Energy

Facility HVAC
 4.7 | 1.3

Facility Lighting
 3.3 | 0.0

Other Facility Support
 0.9 | 0.1

Onsite Transportation
 1.8 | 1.6

Other Nonprocess
 0.1 | 0.1

10.6 | 3.1

Electricity Export **20**

Energy Use (TBtu)	All Energy
	Fuel
	Electricity
	Steam
Combustion Emissions (MMT CO ₂ e)	Offsite
	Onsite
	Total
Total = Onsite + Offsite	

* Exhaust losses from process heating are not estimated

** Onsite, renewable, non-combustion generation contributes 3 TBtu

Data source: 2006 MECS

Published: August 2010, revised December 2010

Units: TBtu = Trillion British Thermal Units

MMT CO₂e = Million Metric Tons Carbon Dioxide Equivalent

Notes: Feedstock energy not included

Energy values <0.5 TBtu shown as 0