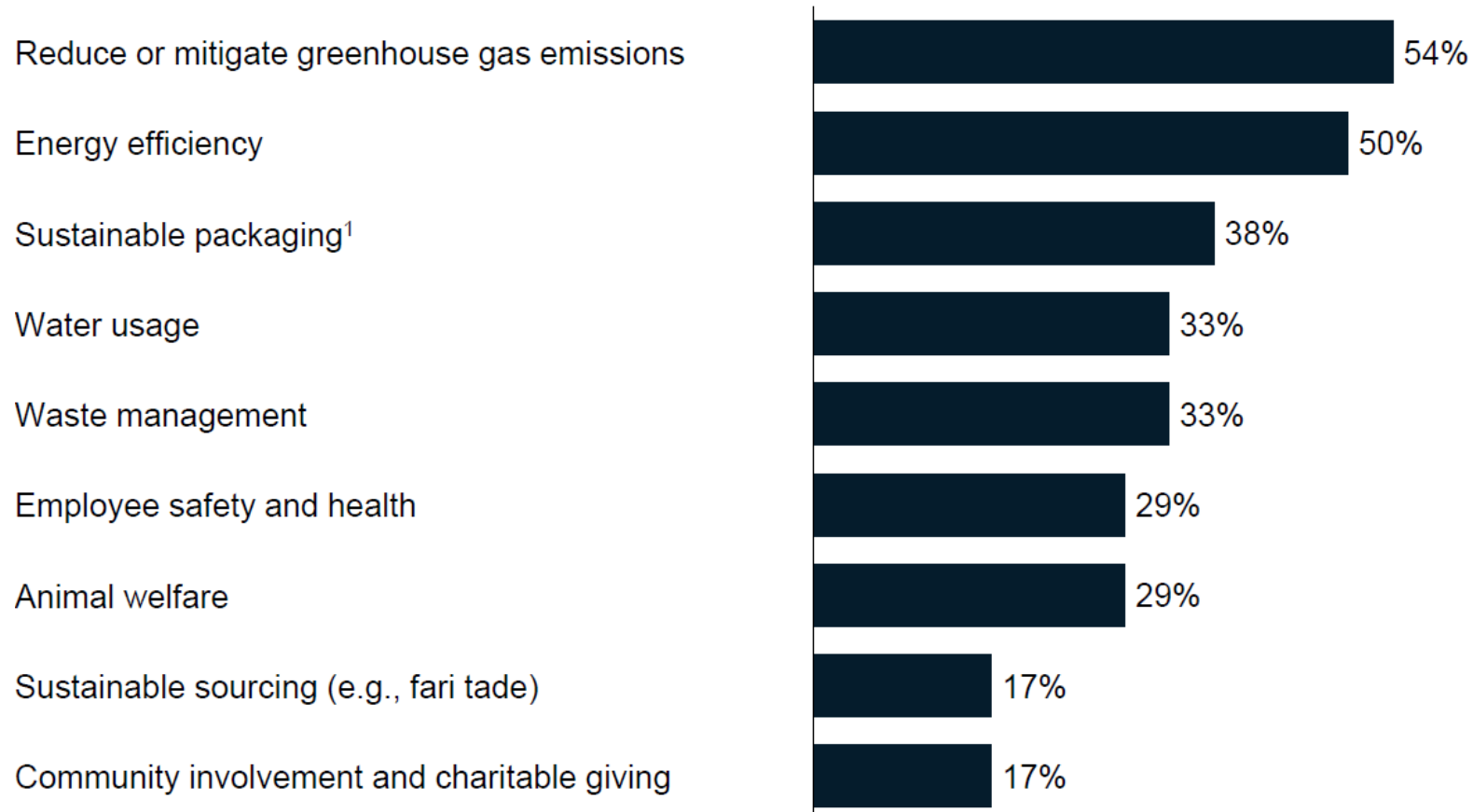


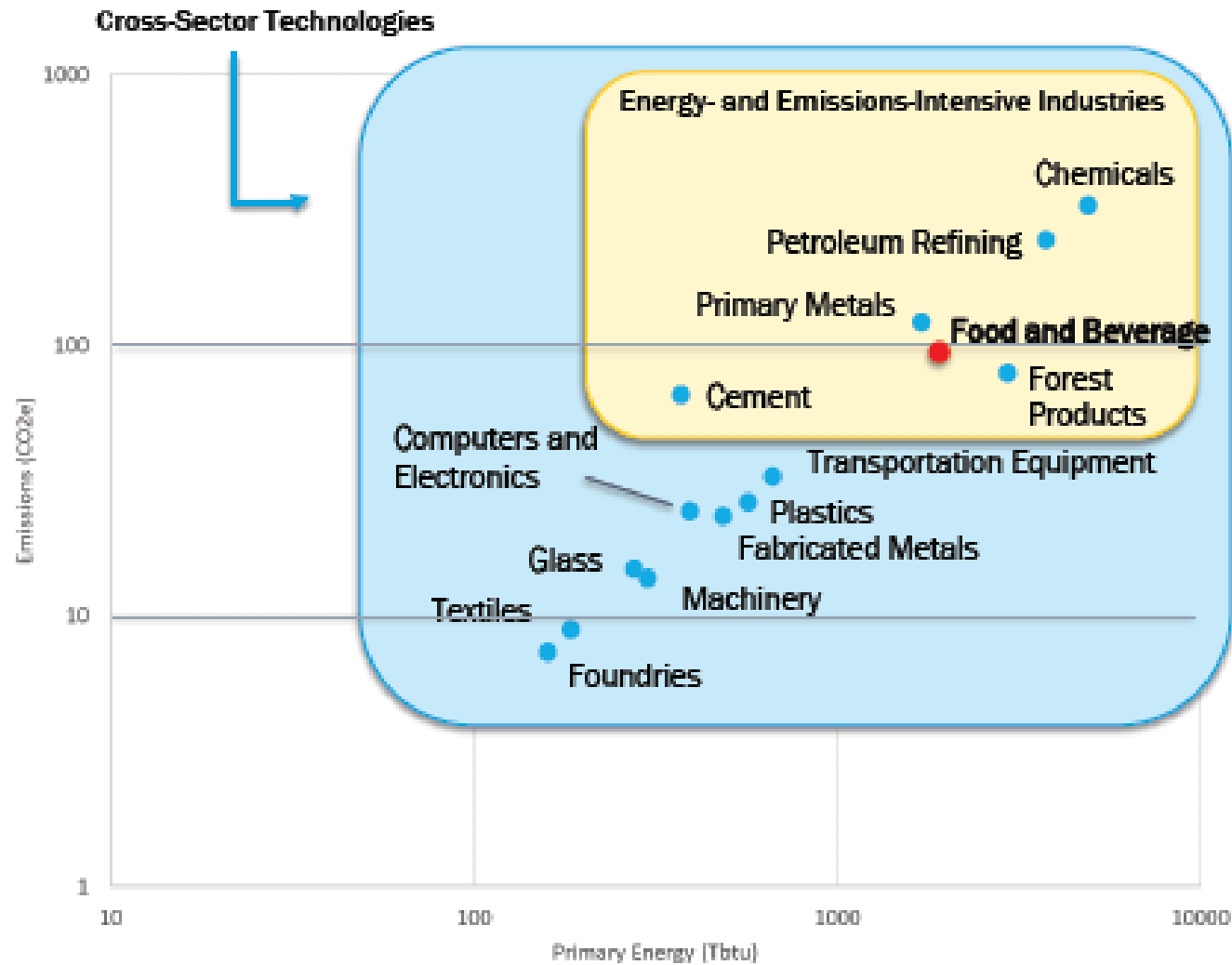
Why today's topic?



# Top energy and sustainability goals in the US food industry (source McKinsey)

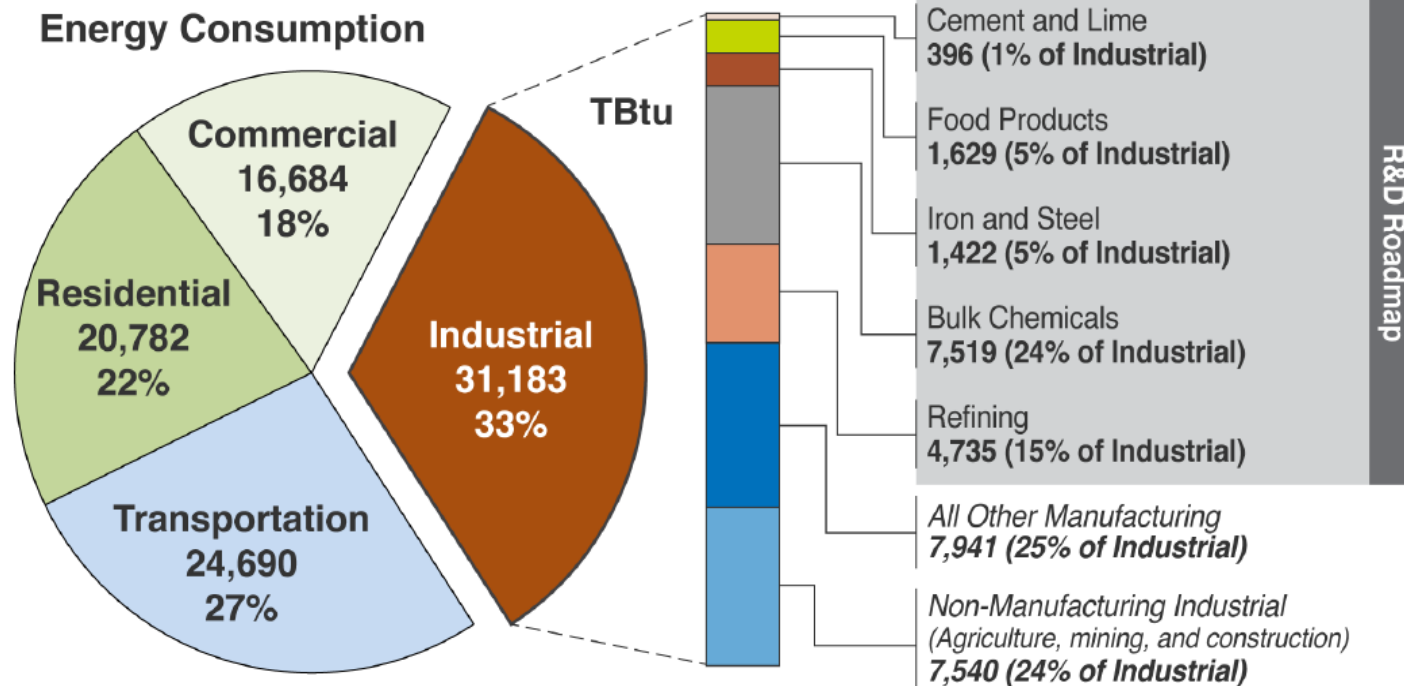


# Energy and Emission Intensity of Industrial Sectors



Source: US Dept. of Energy

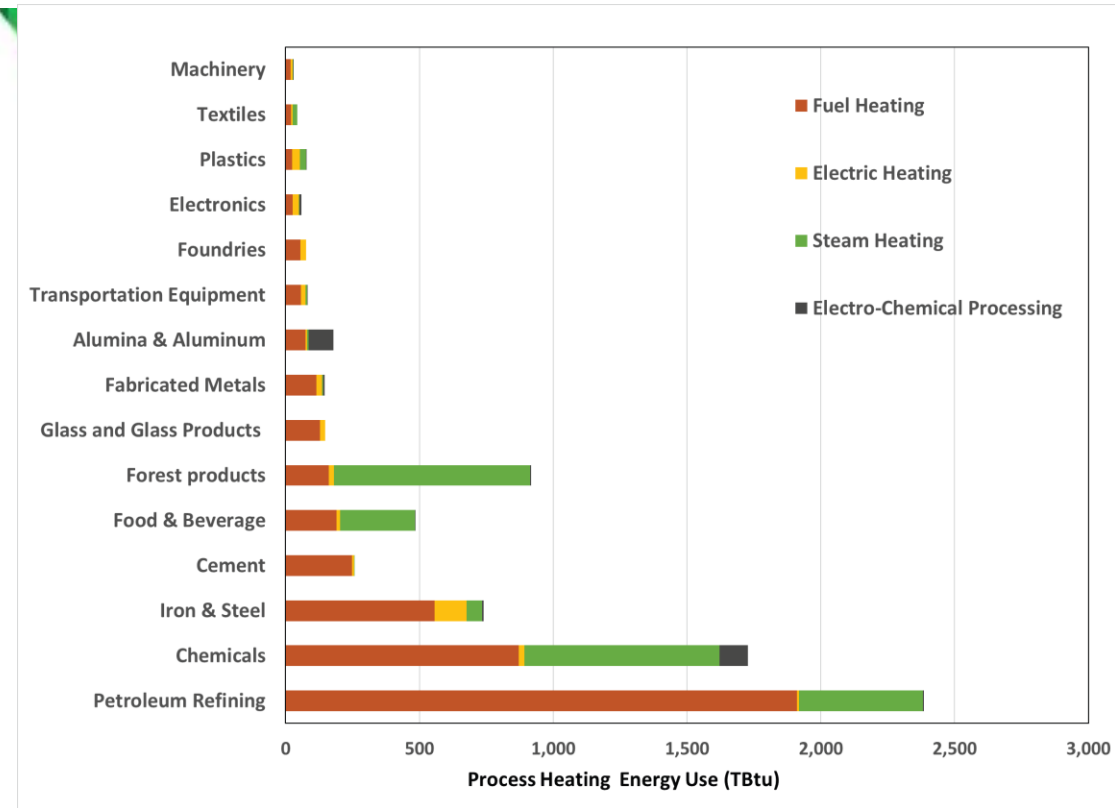
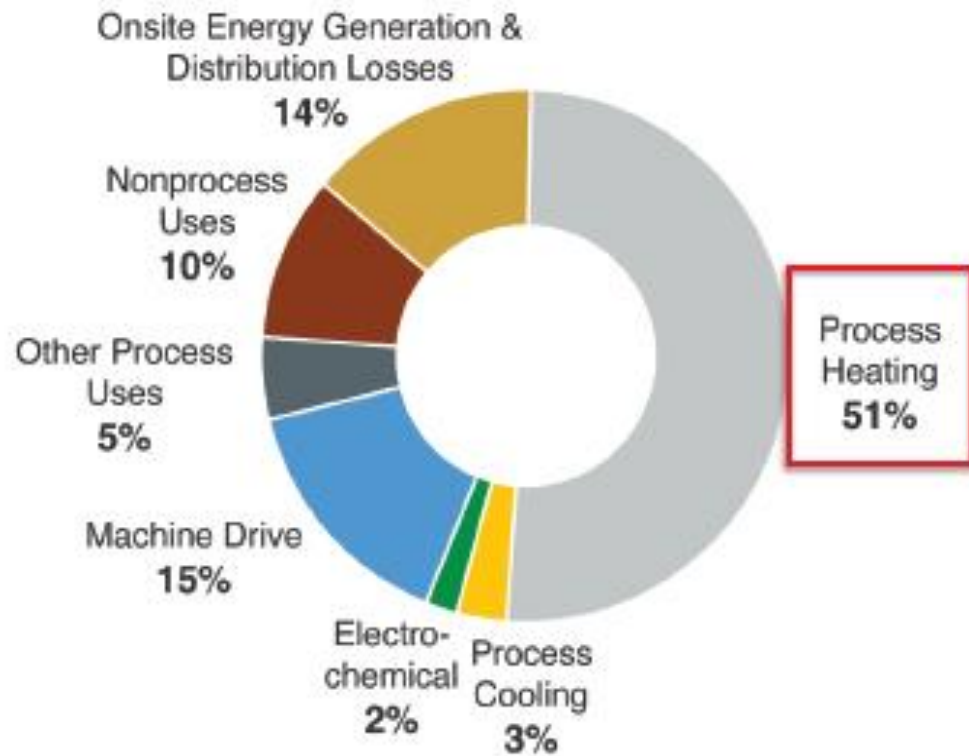
# Industrial energy



Source: US Dept. of Energy

# How energy is used in manufacturing

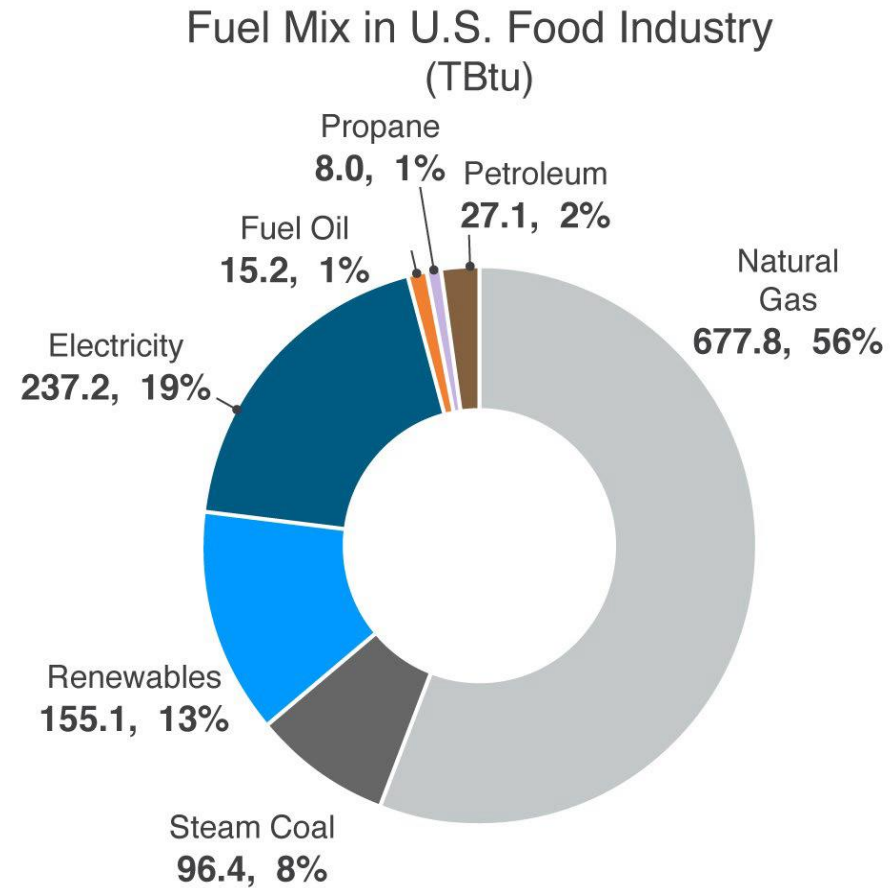
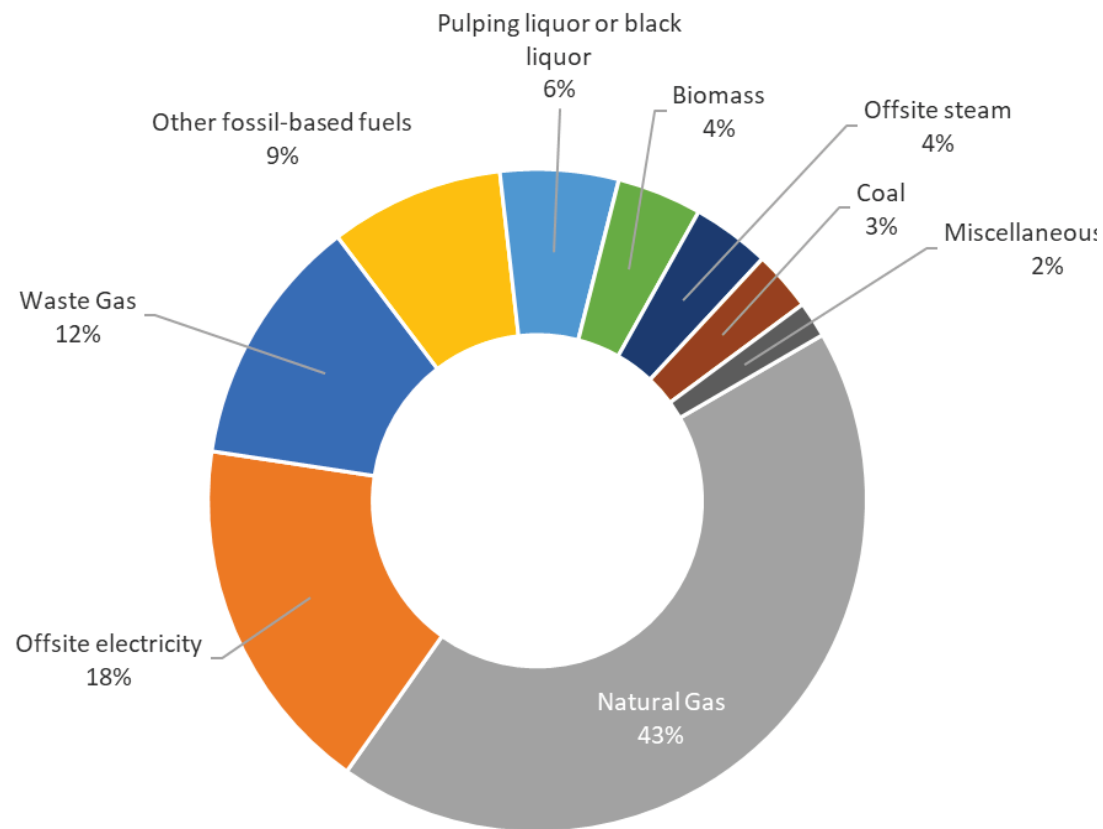
**Breakdown of Energy Use Onsite at Manufacturing Facilities, 2018<sup>2</sup>**



Source: US Dept. of Energy

<sup>1</sup>Decarbonization Roadmap  
<sup>2</sup>Manufacturing Energy and Carbon Footprint, 2018

# Fuels used for industrial heating



Source: US Dept. of Energy

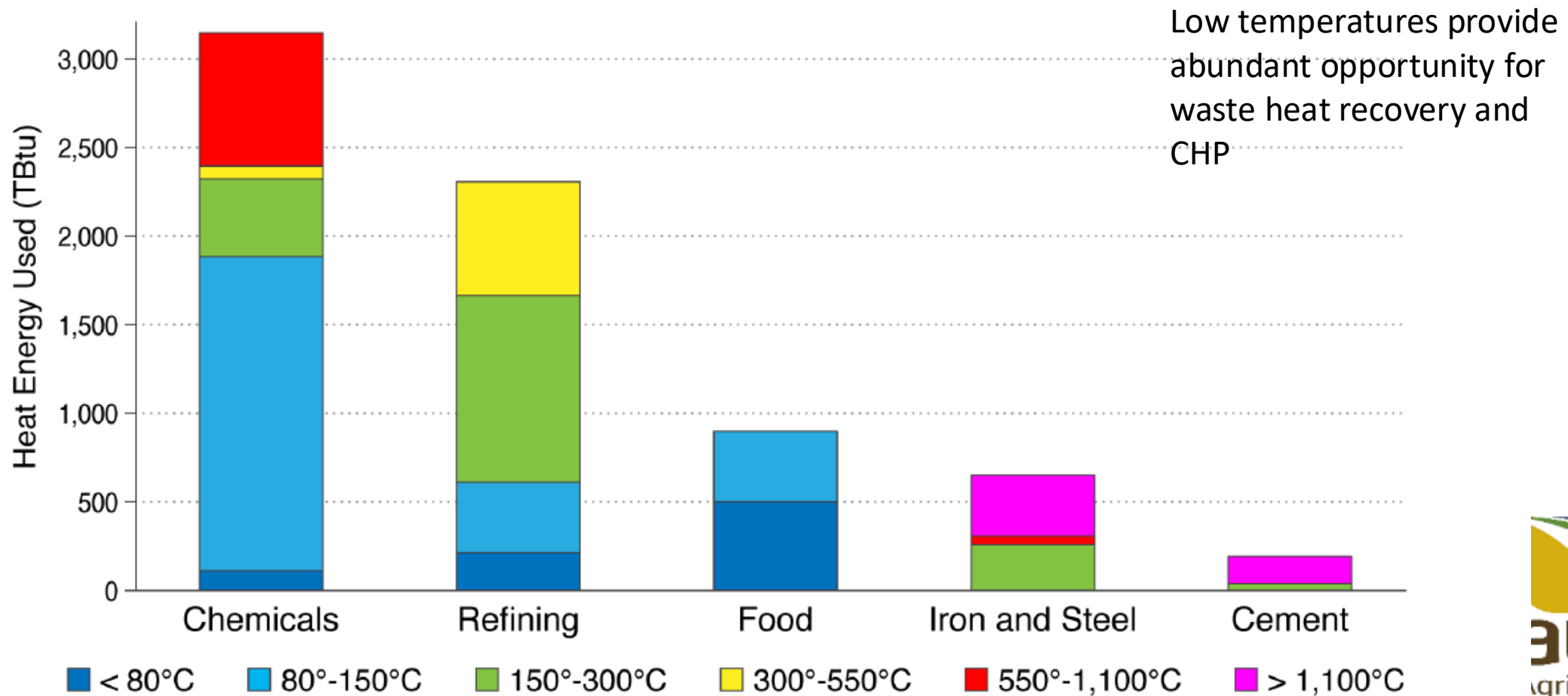
# Baked snacks alone consume almost 5.5 MMCF of natural gas

Product	# of lines in US	Est. Output (lb/hr)	Energy to bake (BTU/lb)	Annual nat gas in MCF
Cookies	236	1,750	500	1,000,667
Crackers	121	4,000	1,000	2,396,953
Pretzels	118	1,500	1,750	1,534,000
Other baked snacks	9	1,100	2,000	98,057
Pet treats	45	2,500	750	417,857

Source: Reading Bakery Systems



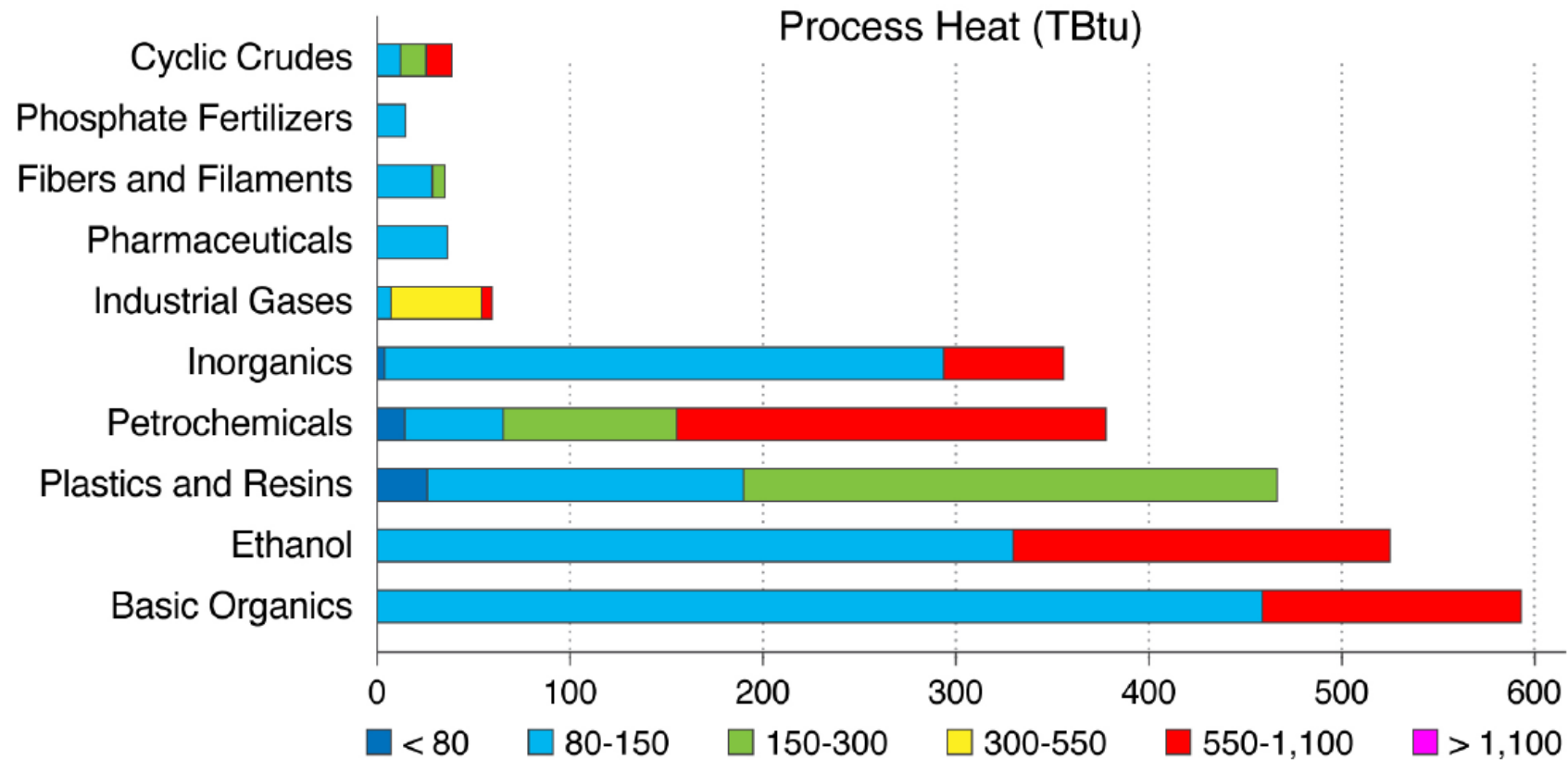
# Temperature intensity of various industries



Source: US Dept. of Energy

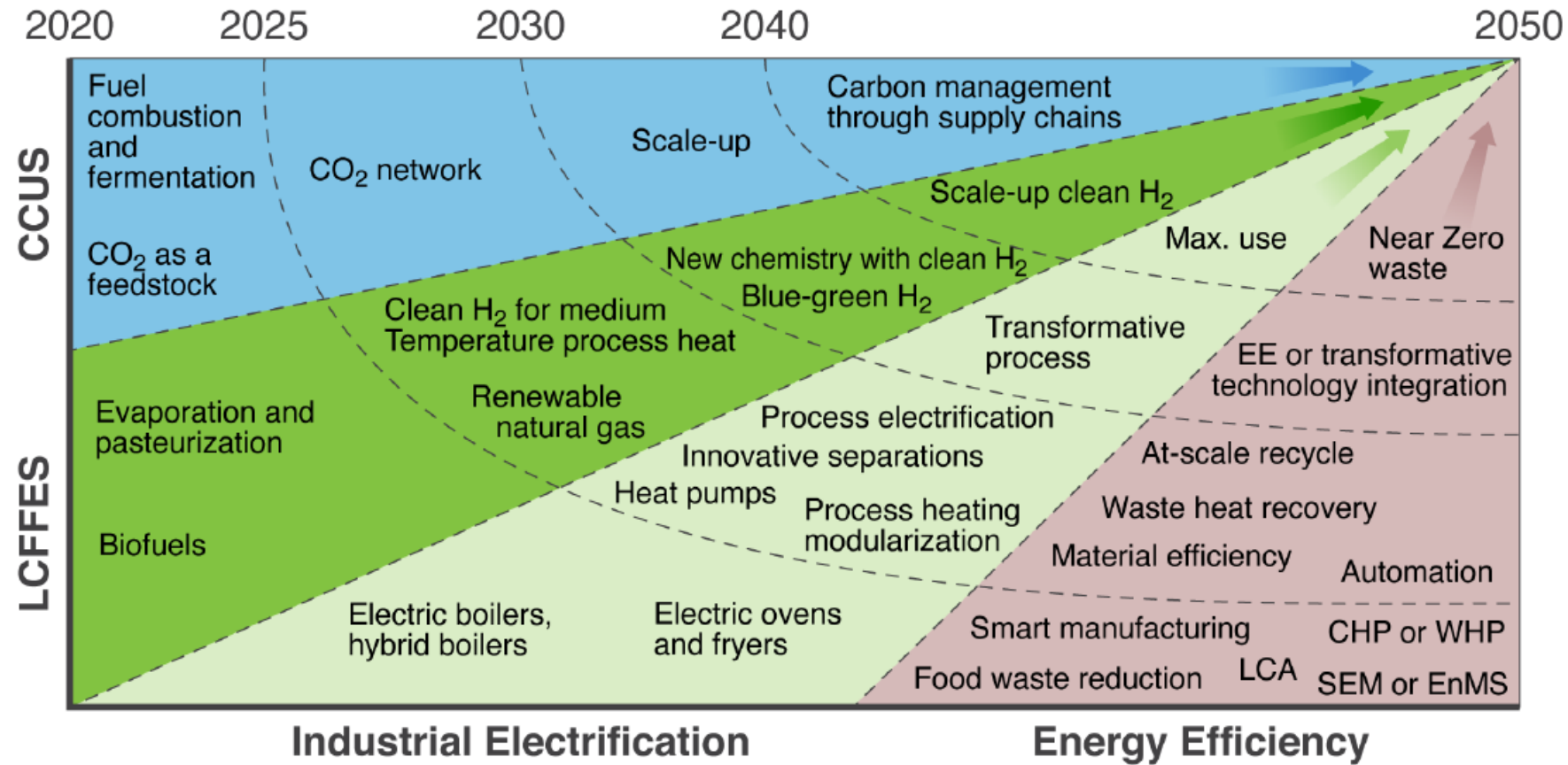


# Temperature intensity of chemical processing



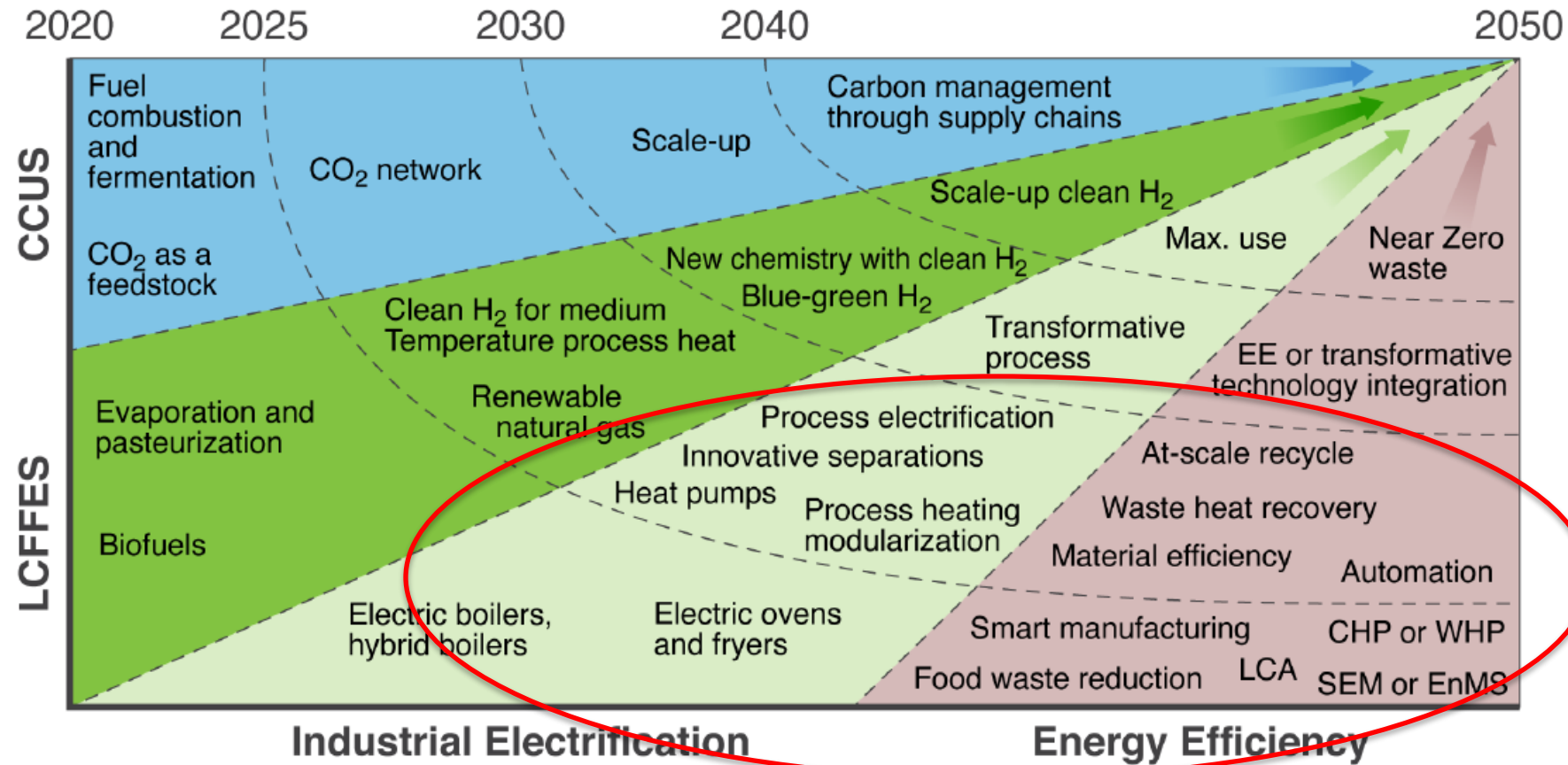
Source: US Dept. of Energy

# DOE Food industry decarbonization roadmap



Source: US Dept. of Energy

# Today's topics within the roadmap



Source: US Dept. of Energy

# Energy efficiency: doing more with less.

**1990 Ford 150: 15 mpg combined  
(Empty weight 4200 lbs)**



**2024 Ford 150: 20 mpg combined  
(Empty weight 5,500 lbs)**

