



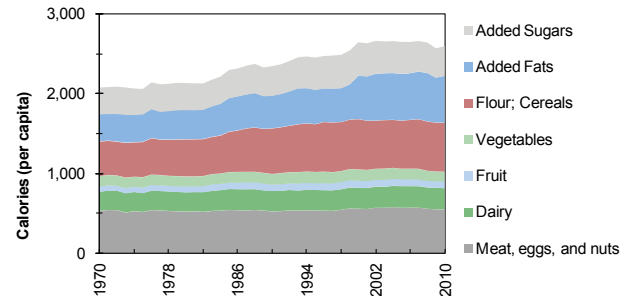
# U.S. Environmental Footprint

The U.S. population is expected to grow from 324 million in 2016 to 416 million by 2060.<sup>1,2</sup> One way to quantify environmental impacts is by estimating how many Earths would be needed to sustain the global population if everyone lived a particular lifestyle. One study estimates it would take 5 Earths to support the current human population if everyone's consumption patterns were similar to the average American.<sup>3</sup> Pressure on the environment will increase unless consumption patterns are significantly adjusted to account for the finite natural resource base. Factsheets expanding on the topics below are available from the Center for Sustainable Systems.

## Food

- The average American's daily Calorie consumption increased from 2,039 in 1970 to 2,544 in 2010.<sup>4</sup>
- In 2003, the average American consumed 46 gallons of soft drinks, a 330% increase since 1947. Between 1970 and 2013, per capita milk consumption decreased 39%, down to 19 gallons per year.<sup>5</sup>
- The average American consumes about 22 teaspoons of added sugars and sweeteners per day; the American Heart Association recommends between 6 and 9 teaspoons daily for an average adult.<sup>4,6</sup>
- U.S. per capita consumption of added fats increased by 71% from 1970 to 2010.<sup>4</sup>
- More than 70% of U.S. adults are overweight or obese (body mass index of 25 or more), and approximately 17% of children age 2-19 are obese.<sup>7,8</sup>
- An estimated 21% of available edible food is wasted by U.S. consumers, 50% more than in 1970.<sup>9,10</sup> This food waste accounts for roughly 15% of the municipal solid waste stream and represents a loss of \$455 per person each year.<sup>10,11</sup>

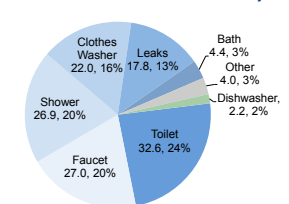
U.S. Daily Per Capita Caloric Intake by Food Type, 1970-2010<sup>4</sup>



## Water

- In 2010, total water withdrawals in the U.S. for all uses were estimated to be 355 billion gallons per day, 13% less than in 2005. The biggest uses are thermoelectric power (45%), irrigation (33%), and public supply (12%).<sup>12</sup>
- Water use per person was roughly 41% higher in western states than eastern states in 2010, mostly due to crop irrigation in the west.<sup>12</sup> Over 50% of water withdrawals occurs in 12 states, 11% in California.<sup>12</sup>
- The average North American household uses roughly 240 gallons of water per day for indoor and outdoor uses.<sup>13</sup>
- Households with more efficient fixtures and no leaks can drop their water usage to 40 gallons per person per day.<sup>13</sup>

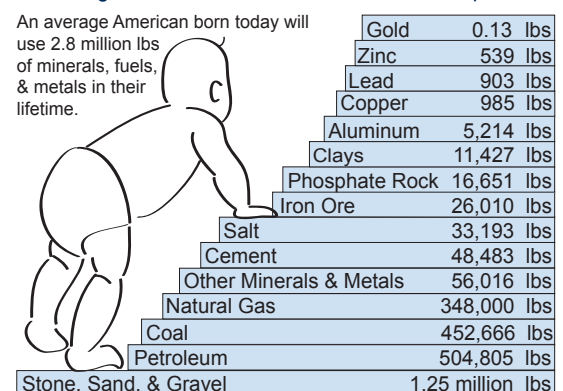
North American Household Water Use<sup>13</sup>  
Gallons Per Household Per Day



## Material Use and Waste Management

- In 2000, per capita consumption of all materials in the United States was 23.7 metric tons, 52% more than the European average.<sup>15</sup>
- In 1900, raw material consumption (non-fossil fuel or food) was less than 2 metric tons per person. By 2010, it had grown to over 8 metric tons per person.<sup>16,17</sup>
- In 2013, the average American generated 4.40 lbs of municipal solid waste (MSW) each day, with only 1.51 lbs recovered for recycling or composting.<sup>11</sup> For comparison, MSW generation rates (lbs/person/day) were 2.20 in Sweden, 2.98 in the U.K., and 3.71 in Germany.<sup>18</sup>
- In 2013, 34% of U.S. MSW was recovered for recycling or composting, diverting 87 million tons of material from landfills and incinerators—more than double the value from 1990.<sup>11</sup>
- Curbside recycling programs currently serve over 70% of people in the U.S., almost two-thirds of which are single-stream, meaning materials such as glass and paper are separated at the recycling plant.<sup>11</sup>

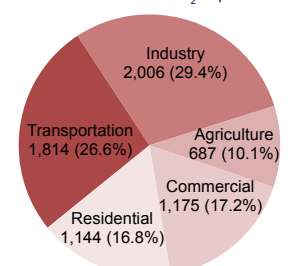
Average American Lifetime Material Consumption<sup>14</sup>



## Greenhouse Gases (GHG)

- In 2014, U.S. GHG emissions were 21.5 metric tons CO<sub>2</sub>-equivalent per person.<sup>19,20</sup>
- From 1990-2014, total annual U.S. GHG emissions increased by 7.4%. Emissions from electricity generation, one-third of the U.S. total, are allocated to sectors in the figure (at right) according to their electricity consumption.<sup>19</sup>
- In 2013, the Intergovernmental Panel on Climate Change (IPCC) concluded that "It is extremely likely (>95% certainty) that human influence has been the dominant cause of the observed warming since the mid-20<sup>th</sup> century."<sup>21</sup>
- By choosing energy efficient products to reduce electricity consumption and by making smart transportation choices, individuals can immediately reduce the greenhouse gas emissions they are responsible for.

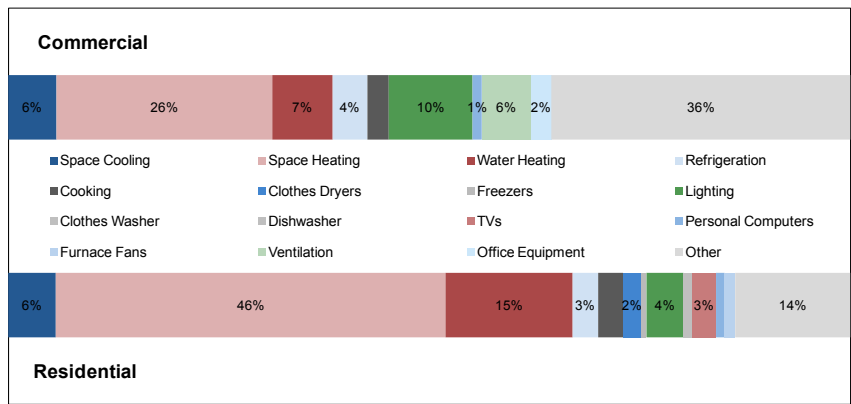
U.S. GHG Emissions, 2014<sup>19</sup>  
Million metric tons CO<sub>2</sub>-Equivalent



## Residential and Commercial Buildings

- Since 1950, average residential living trends in the U.S. have been towards bigger houses with fewer occupants:
  - Number of occupants per house decreased 25%.<sup>23,24</sup>
  - Single occupant houses increased from 9% to 28%.<sup>25,26</sup>
  - Living space per person increased 258%.<sup>23,27,28</sup>
  - House size increased 170%.<sup>27,28</sup>
- Significant energy savings could be realized by better insulating residential buildings to reduce the space heating and cooling loads, using energy efficient appliances, and using more efficient lighting in commercial buildings.
- Commercial building average site energy intensity per square foot decreased 6% from 115,000 Btu/ft<sup>2</sup> in 1979 to 107,700 Btu/ft<sup>2</sup> in 2010.<sup>29,30</sup>
- The amount of developed U.S. land increased by 59% from 1982 to 2012, making up 6% of total U.S. surface area in 2012.<sup>31</sup>

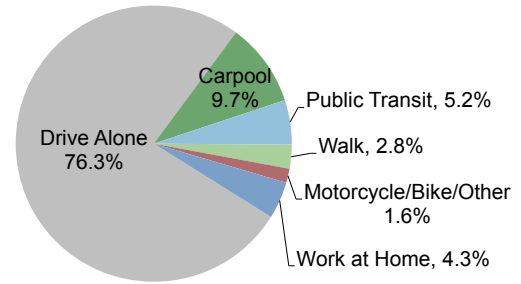
Commercial and Residential Buildings Primary Energy Distribution, 2014<sup>22</sup>



## Transportation

- In 2014, the U.S. had 260 million vehicles, 46.3 million more than licensed drivers.<sup>32</sup>
- Drivers traveled over 3 trillion vehicle-miles in the U.S. in 2014, a 96% increase since 1980.<sup>32</sup> This is equivalent to more than 6 million round-trips to the moon.<sup>33</sup>
- Compared to 1988 models, the average 2015 vehicle's weight increased by 24%, horsepower increased by 89%, and acceleration increased (i.e., 0-60 mph times dropped) by 38%.<sup>34</sup>
- Fuel economy surpassed 1988 levels in 2009 after years of decline.<sup>34</sup>
- The average vehicle occupancy for a passenger car is 1.5, compared to 26.9 for rail and 9.2 for a transit bus.<sup>35</sup>
- Congestion is a worsening urban problem, causing an additional 6.9 billion hours of travel time, 3.1 billion gallons of fuel use, and 60.7 billion pounds of CO<sub>2</sub> emissions by urban Americans in 2014.<sup>36</sup>

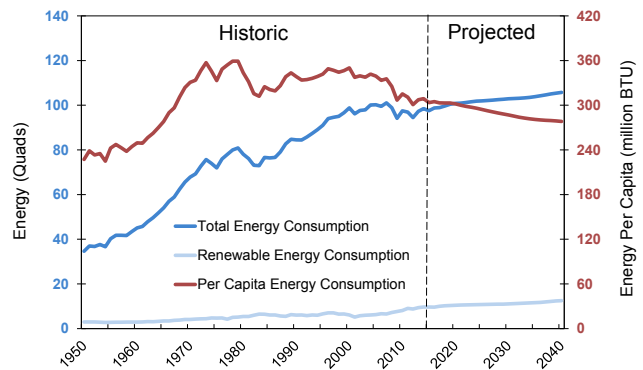
U.S. Modes of Transportation to Work in 2012<sup>35</sup>



## Energy

- In 2014, the U.S. spent \$1.4 trillion on energy or 8.0% of GDP.<sup>38,39</sup> When spread over the population, annual energy costs were \$4,374 per person.<sup>1,38</sup>
- More U.S. energy comes from petroleum than any other source, comprising over 36% of consumption.<sup>37</sup>
- Each day, U.S. per capita energy consumption includes 2.5 gallons of oil, 13.7 pounds of coal, and 234 cubic feet of natural gas. Residential daily electricity consumption is 11.9 kilowatt-hours (kWh) per person.<sup>37,40</sup>
- With less than 5% of the world's population, the U.S. consumes 18% of the world's energy and accounts for 16% of world GDP. In comparison, the European Union has 7% of the world's population, uses 16% of the world's energy, and accounts for 17% of world GDP; China has 19% of the world's population, consumes 20% of the world's energy, and accounts for 17% of its GDP.<sup>40,41</sup>

U.S. Energy Consumption: Historic and Projected<sup>22,37</sup>



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