



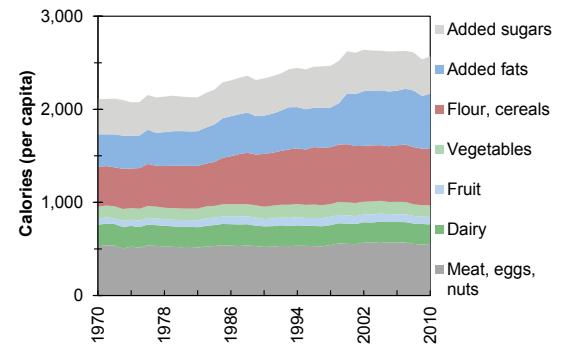
# U.S. Environmental Footprint

The U.S. population is expected to grow from 318 million in 2014 to 420 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 certain 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 limited natural resource base. A suite of factsheets expanding on the topics below are available from the Center for Sustainable Systems.

## Food

- The average American's daily Calorie consumption increased from 2,109 in 1970 to 2,568 in 2010.<sup>4</sup>
- In 2003, the average American consumed 46 gallons of soft drinks, a 330% increase since 1947. Over this same period, per capita milk consumption decreased 45%, down to 22 gallons per year.<sup>5</sup>
- The average American consumes about 25 teaspoons of added sugars and sweeteners per day; the American Heart Association recommends between 5 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 68% 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 26% of available edible food is wasted at the consumer level, 50% more compared to Americans 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>

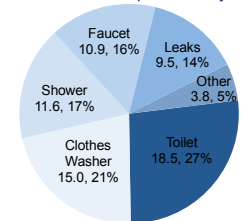
U.S. Daily Per Capita Caloric Intake<sup>4</sup>  
by Food Type, 1970-2010



## Water

- In 2005, total water withdrawals in the U.S. for all uses were estimated to be 410 billion gallons per day. The biggest users are thermoelectric power (49%) and irrigation (31%).<sup>12</sup>
- Water use per person was roughly 44% higher in western states than eastern states in 2005, mostly due to crop irrigation in the west.<sup>12</sup>
- Domestic water use was less than 12% of total water use in 2005.<sup>12</sup>
- The average American household uses nearly 70 gallons of water per person per day for bathing, cleaning, and other uses at home. Households with more efficient fixtures and no leaks could drop their use to 45 gallons per person per day.<sup>13</sup>

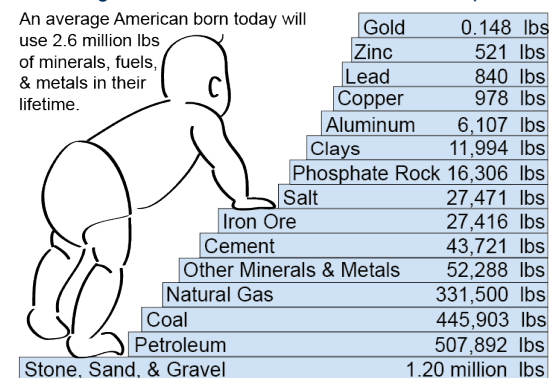
U.S. Household Water Use<sup>13</sup>  
Gallons Per Capita Per Day



## Material Use and Waste Management

- In 2000, the 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.<sup>16,17</sup> By 2010, it had grown to over 8 metric tons per person.<sup>16,18</sup>
- In 2012, the average American generated 4.38 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 2.42 in Canada, 3.62 in Germany, and 3.2 in the UK.<sup>19</sup>
- In 2012, 35% of MSW generated in the U.S. 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>
- More than 9,800 curbside recycling programs served the U.S. population in 2011, compared to 8,875 in 2002.<sup>20</sup>

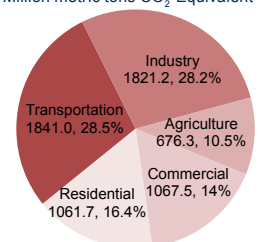
Average American Lifetime Material Consumption<sup>14</sup>



## Greenhouse Gases (GHG)

- In 2012, U.S. GHG emissions were 20.8 metric tons CO<sub>2</sub>-equivalent per person.<sup>18,21</sup>
- From 1990-2012, total annual U.S. GHG emissions increased by 4.7%. 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>21</sup>
- In 2007, the Intergovernmental Panel on Climate Change concluded that “most of the observed increase in global average temperatures since the mid-20th century is very likely (> 90% certainty) due to the observed increase in anthropogenic greenhouse gas concentrations.”<sup>22</sup>
- By choosing energy efficient products to reduce electricity consumption and by making smart transportation choices, every individual can immediately help reduce the greenhouse gas emissions they are responsible for.

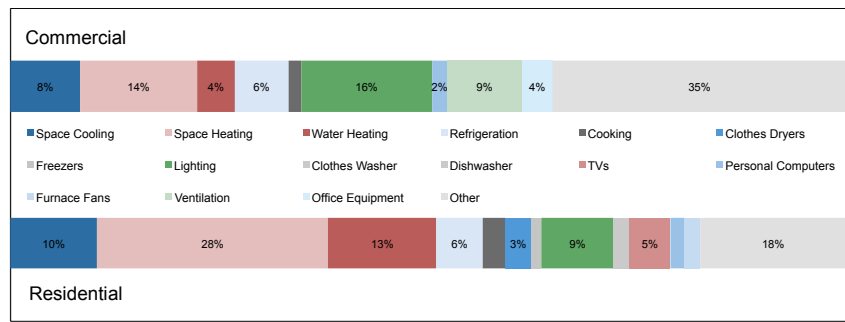
U.S. GHG Emissions, 2012<sup>21</sup>  
Million metric tons CO<sub>2</sub>-Equivalent



## Residential and Commercial Buildings

- From 1950 to 2012, U.S. average residential living trends have been toward bigger homes and fewer occupants:
  - Number of occupants per house decreased 24%.<sup>24,25</sup>
  - Single occupant homes increased from 9% to 27%.<sup>26,27</sup>
  - Living space per person increased 236%.<sup>24,29</sup>
  - Home size increased 15%.<sup>24,29</sup>
- Significant energy savings could be realized by better insulating residential buildings to reduce the space heating and cooling loads, by utilizing energy efficient appliances, and by using more efficient lighting in commercial buildings.
- Commercial building average site energy intensity per square foot decreased 6% from 115,000 Btu/sq ft in 1979 to 107,700 Btu/sq ft in 2010.<sup>30,31</sup>
- The amount of developed U.S. land increased by 58% from 1982 to 2010, making up 6% of total U.S. surface area in 2010.<sup>32</sup>

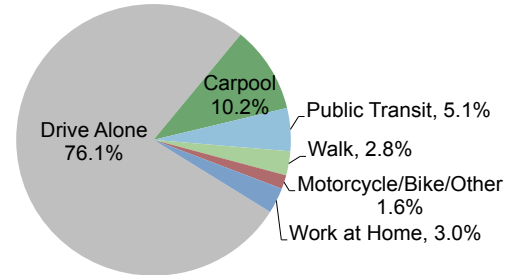
Residential and Commercial Buildings Primary Energy Distribution, 2013<sup>23</sup>



## Transportation

- In 2012, the U.S. had 245 million vehicles, 41 million more than licensed drivers.<sup>33</sup>
- Drivers traveled nearly 3 trillion vehicle-miles in the U.S. in 2012, a 38% increase since 1990.<sup>33</sup> This is equivalent to more than 6 million round-trips to the moon.<sup>34</sup>
- Compared to 1988 models, the average 2013 vehicle's weight increased by 23%; horsepower increased by 87%; and acceleration increased (0-60 mph times dropped) by 27%.<sup>35</sup>
- Fuel economy just surpassed 1988 levels in 2009 after years of decline.<sup>35</sup>
- The average vehicle occupancy for a passenger car is 1.55, compared to 27.1 for rail and 8.9 for a transit bus.<sup>36</sup>
- Congestion is a worsening urban problem, causing an additional 5.5 billion hours of travel time, 2.9 billion gallons of fuel use, and 56 billion pounds of CO<sub>2</sub> emissions by urban Americans in 2011.<sup>37</sup>

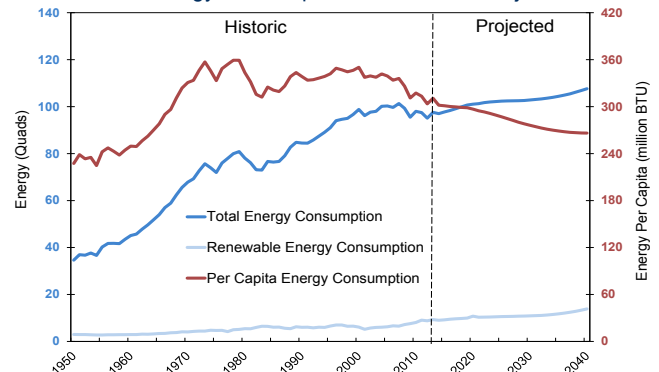
Modes of Transportation to Work in the U.S.<sup>36</sup>



## Energy

- In 2012, the U.S. spent about \$1.4 trillion on energy, or 8.3% of GDP.<sup>38,39</sup> Annual energy costs in 2010 were \$3,895 per person.<sup>1,38</sup>
- More U.S. energy comes from petroleum than any other source.<sup>30</sup>
- Each day, U.S. per capita energy consumption includes 2.5 gallons of oil, 16 pounds of coal, and 226 cubic feet of natural gas. Residential daily electricity consumption is 12.5 kilowatt-hours (kWh) per person.<sup>42</sup>
- With less than 5% of the world's population, the U.S. consumes 19% of the world's energy and accounts for 19% of world GDP. To compare, the European Union has 7% of the world's population, uses 16% of the world's energy, and accounts for 18% of world GDP; China has 19% of the world's population, consumes 20% of the world's energy, and accounts for 15% of its GDP.<sup>40,41</sup>

U.S. Energy Consumption: Historic and Projected<sup>23,42</sup>



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