A Radical Approach to the Climate Crisis - A Personal CO_2 Budget

By Pat Murphy, Plan Curtail
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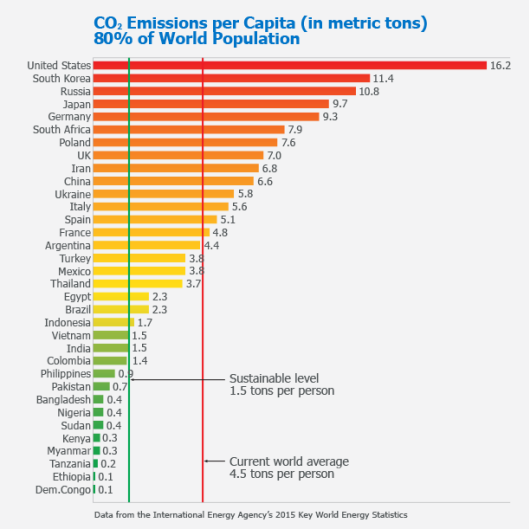
Plan Curtail is intended to provide information for an alternative approach to the climate change crisis. It differs from the popular view that "efficiency" and "renewables," if fully implemented, can provide a complete solution. That view implies that the current standard-of-living of developed countries need not be reduced. It also implies that other countries can also achieve the first world living standard.

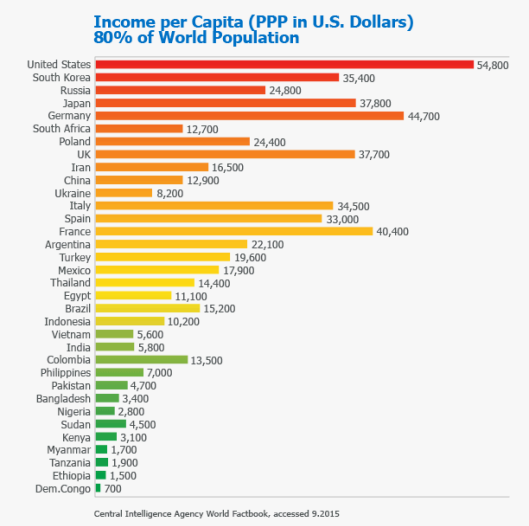
Our view is that efficiency and renewables are basic to human survival but that they are only one part of a solution. Our efforts must also include cutting back, or curtailing, of energy use and CO_2 emissions. To do this effectively will take planning – thus our name, *Plan Curtail*.



We feel strongly that it is important to focus on personal responsibility for CO_2 reductions. For this reason, we provide numerical models of CO_2 generation for the major categories of personal use – homes, transportation, and food – which account for 67% of U.S. greenhouse gas emissions. The goal of this website is to help individuals to develop a personal strategy to reduce their CO_2 emissions.

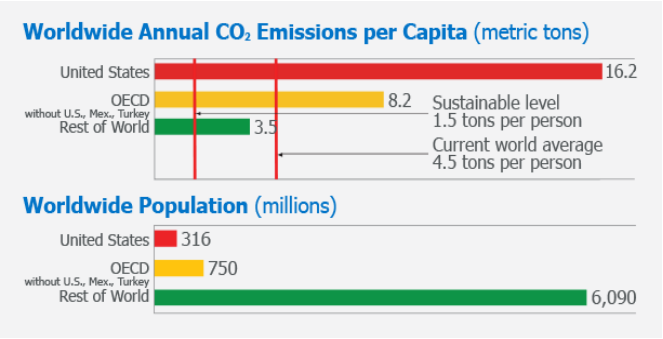
This graph illustrates the importance of this approach. It shows that the people of the wealthiest nations are producing much higher amounts of CO_2 per person compared to those of poorer nations.

Data for these two charts extracted annually from "Key World Energy Statistics," an annual report by the International Energy Agency (IEA).

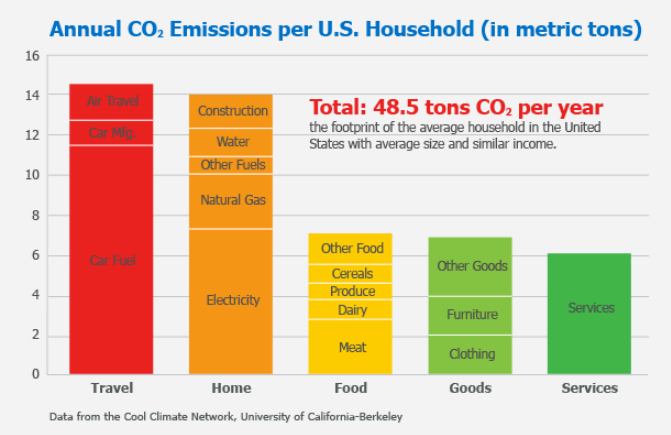


The correlation between income and energy use is also important. This graph of "Income per Capita (PPP in U.S. Dollars) – 80% of the World Population," is ordered to parallel the CO_2 per capita graph above. The overall shape of the graph shows an association between income and energy consumption with some exceptions. France skews the graph because its CO_2 per capita is less than China's and Spain's, yet its income per capita is higher. This is due to its use of nuclear power. Russia and former Soviet Bloc countries show the result of the economic collapse and dissolution of the early 1990s. (For the third graph in this series "Metric Tons of Energy Used," go to About Us and "My Story.")

With world governments and the International Panel on Climate Change agreeing on the need for dramatic cuts in CO_2 emissions (80% by 2050), population and CO_2 emissions must be considered.



This graph shows the large reduction people in the U.S. must achieve to reach the sustainable level of 1.5 metric tons of annual CO_2 emissions per person. It also shows that a small percent of the world's population is emitting most of the CO_2.



A second level of information shows the breakdown of emissions into five major categories, which are reflected in the Plan Curtail website structure. The website's initial focus will be on housing, transportation, and food. The two categories of goods and services will be developed later.

Personal consumption is responsible for 67% of the U.S annual CO_2 emissions.

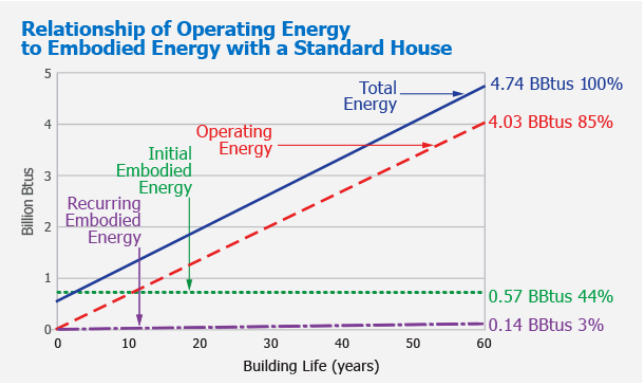
The focus for Plan Curtail will differ from some popular points of view.

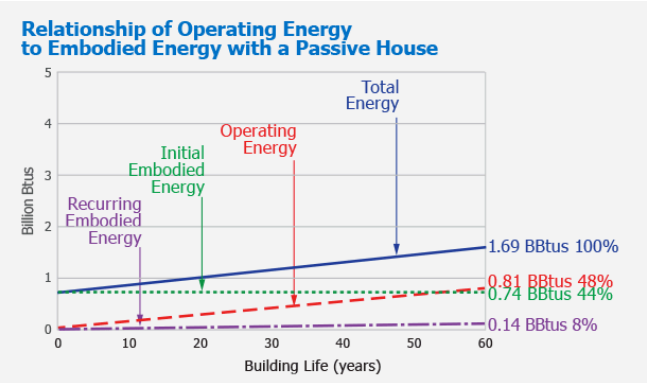
Cars: The electrification of transport is de-emphasized because plug-in cars today generate no less CO_2 than conventional hybrids. Instead the use of ride sharing is emphasized along with high MPG hybrid cars (ones that achieve at least 50 MPG).

Homes**:** Green building, such as LEED (Leadership in Energy and Environmental Design) by the United States Green Building Council, is deemphasized for the same reason – the CO_2 reductions are not significant enough. The same applies to the National Green Building Standard, developed by the National Association of Home Builders, as well as many local and regional green building programs.

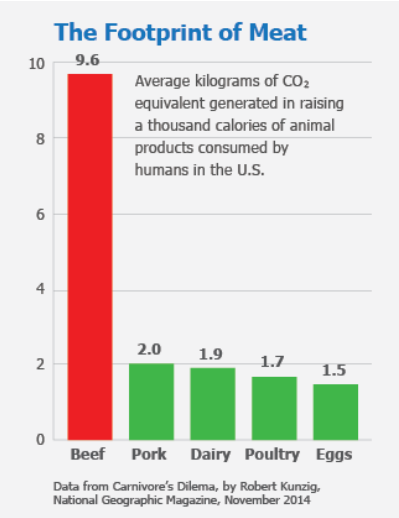
Rather than green building, energy-efficient building is emphasized, as represented by standards such as Germany's Passivhaus (Passive House) program, with its 80% reduction in heating and cooling energy use, the EPA's Energy Star V3.0, and the DOE's Zero Energy Ready Home program.

The two charts below illustrate Life Cycle Assessment of a standard home and a one built to passive house standard. They show a home's energy use over its lifetime, which includes initial construction, on going maintenance, and operation. The left chart shows standard construction and the right chart represents a home built to the passive house standard. Note that by increasing initial construction cost and CO_2 emissions, operating costs and CO_2 emissions from living in the building are greatly reduced.





There are 115 million existing homes in the U.S. and most will need to be retrofitted to a high energy-efficiency standard. Retrofitting, rather than new construction, is a major focus of Plan Curtail. The DOE's Weatherization Assistance Program and the EPA's Home Performance with Energy Star are models of such retrofitting. Passive House also includes information on deep-energy retrofitting, and includes many examples in Europe.

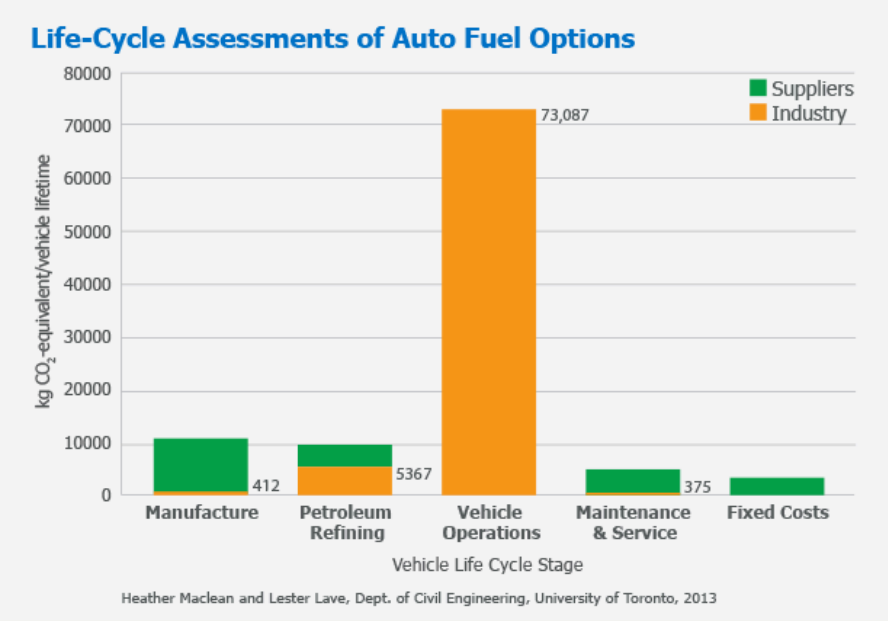


Food: Plan Curtail's focus is on changing one's diet to avoid foods with a high CO_2 production content. This kind of CO_2 analysis of food is being done in countries such as Sweden and England. For example, Life Cycle Assessment (LCA) shows that beef is one of the major greenhouse gas emitters. In addition, good land practices that foster healthy soil and retain organic material in the soil will be emphasized.

There are many steps individuals can take to reduce their food CO_2 emissions; learn about food production and gardening, eat more seasonally, stop eating manufactured groceries, instead prepare your own food, use a pressure cooker, start canning, eat less pre-frozen food, stop eating grain-fed animals, eat locally grown food. In the film, *The Power of Community*, Faith Morgan used Cuba as an example to show what a culture can do to make local food production viable via new land use policies. John Morgan, my brother-in-law notes, "My food is now at least 95% from my own production or locally produced. It partly comes to choices and simplifying. My breakfast oats and a few luxury items are the main exceptions."

The Importance of Life Cycle Assessment (LCA)

In the U.S., an over emphasis on initial cost has resulted in a limited short-term view. Little attention is given to the energy that will be used over a product's lifetime. As a result people buy appliances, houses, and cars that are energy inefficient and that lead to long-term additional energy use and more CO_2 emissions. In the case of food, the CO_2 emissions are mostly in production. In the case of buildings most of the CO_2 emissions are in operating a structure over its lifetime. Due to climate crisis we can no longer afford to only consider initial costs. LCA can help people understand the impact of their choices and resulting CO_2.



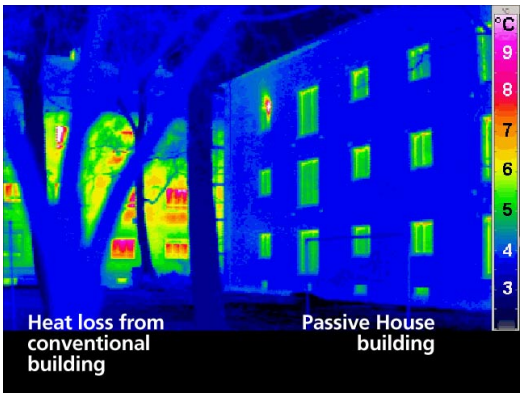
This is an example of vehicle LCA. Popular wisdom says that half the energy is expended in manufacturing; it is actually about 15%.

Most Americans still do not place a high priority on cutting CO_2. For those that do, the available options are often obscure, misrepresented and confusing. In terms of housing, few Americans have the technical skills to evaluate the myriad appliances, ways of building, or best steps to retrofit their homes. Car advertising is focused on power and size. Sales of conventional hybrids have flattened with the reduction in gasoline prices. Dietary changes are very difficult and government information is insufficient. Even though beef is one of the worst greenhouse gas culprits, its consumption continues to increase worldwide.

Life Cycle Assessment is the most significant energy assessment tool in use today. It is a discipline that had its beginnings in the 1960s and is being used more and more to analyze the CO_2 emissions of products from cradle to grave.

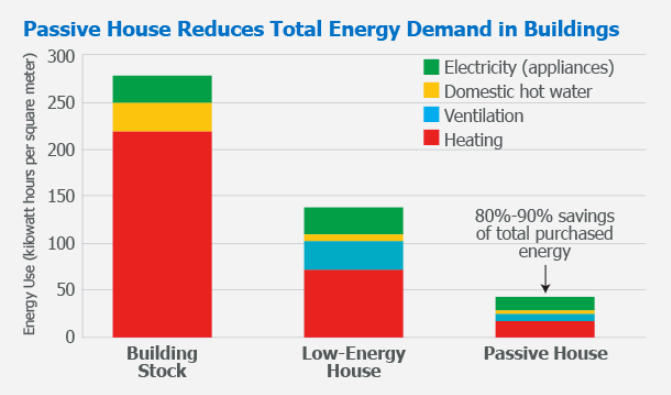
Why I Have Chosen This Approach

People attempting to make drastic reductions in their energy use are doing so in an environment where energy specialists are only a little ahead of the consumer in understanding CO_2 emissions and reductions. The result is too much raw information and data and too many conflicting claims. This can be paralyzing to the average person. Often the claims are provided by competing businesses with little experience in their energy savings proposals.



Plan Curtail will provide references to critical sources that are helpful in understanding the big emissions picture. It will also provide high quality resources, reducing the huge volume of information. For example, out of the thousands of government and industry reports concerning building and energy consumption only a few are extensive enough and clear enough to provide useful information. These will be referenced and the concepts and ideas they provide carefully explained, which will help people focus on specific reduction efforts.

There is general agreement by all nations that an 80% reduction of greenhouse gas emissions is required by 2050 for survival. Reductions to date have been important, but are as yet small in value and impact. A new and radical action plan is needed which must be based on a rigorous and complete assessment of all aspects of CO_2 generation. This requires a radical new mind set



from every citizen and a much deeper understanding of the details of energy use and CO_2 creation. This website is an effort to develop this understanding.

This graph's data and thermal image above are from Passive House Institute (accessed off Internet 2012).