

A Sustainable U.S. Population: When?

BY DELL ERICKSON

A sustainable United States will come. Yet, it must be asked, “what will future generations think of it”? The sustainability questions are when, and at what level of population, natural capital, and use of energy? Energy and population are inseparable, thus the energy question is this: “when will the United States population be enough?”

In answering that question, this article begins by outlining United States population growth, briefly mentions several implications, then discusses the sustainability of the U.S. using the U.S. ecological Footprint and energy situation.

The ability to pass on a high quality of life that provides for the present without compromising the ability to provide in substantially the same way for future generations requires that we live in a sustainable manner, husband resources, and preserve and protect ecological systems. Population pits natural systems against consumption of natural capital and environmental systems in order to meet demands for food, land, water, and energy. A society that fails to balance resource use or degrades the ecological life-support systems upon which it depends is not sustainable.

The Frightening Energy of United States Population

The current United States population policy is unlimited immigration driven growth. On the other hand, the National Commission on Population Growth and the American Future in 1972 concluded,¹

... no substantial benefits will result from further growth of the nation’s population,

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rather the gradual stabilization of our population through voluntary means would contribute significantly to the nation’s ability to solve its problems.

Looking back only 200 years (1800) the population of the United States was only 5 million. In 50 years more, it had reached about 23 million. It reached 75 million in 1900, doubling again by 1950 to 150 million. The U.S. population in less than an average person’s lifetime has more than doubled, from about 132 million in 1940 to 295 million in 2004, about 2.25 times the size in only 64 years. With immigration unimagined by the National Population Commission, another century landmark, 300 million, has now been surpassed and is increasing, depending on the number of illegal aliens, by 3.5 to 6 million additional residents each year.²

By the year 2050, within the lifetime of current school-age children, the U.S. population is projected to nearly double again, reaching more than 500 million. Those with good genetics born soon could live in a land of 1.3 billion Americans by the end of the current century (US Census Bureau 2004, update). The U.S. is now the third largest nation and heading pell-mell for today’s population of China or India. Unlike those two nations, there is no program in place to slow, stop, or reduce the U.S. population to a sustainable number. This Third World growth rate is the highest rate of any developed country.

U.S. population growth is illustrated by the graph on the following page, which is based on Census 2000 data.

The “Former” trendline (lowest/blue) reflects growth under the low Census projection. It includes domestic and immigrant fertility plus yearly immigration of 250,000. It is labeled “Former” because it illustrates U.S. growth prior to current immigration practices. The “Mid” trendline is the Census 2000 middle projection—including significant immigration. The “Current” trendline (upper/red) illustrates the U.S. population under current growth policies (the Census “high” projection).

It is important to note that all energy and population growth above the “Former” or low trendline is due to immigration.³ The graph illustrates precisely what American citizens need to see and understand.

The “Current” trendline does not consider the Administration’s immigration and amnesty proposals. At a minimum, the proposed immigration legislation imply at least a two million per year increase in immigration. A rigorous analysis concludes that legal immigration would leap seven-fold to more than five million per year and result in approximately 103 million legal immigrants over the next twenty years. The maximum

number could be as high as almost 200 million.⁴ In other words, the Mid and Current trendlines must be shifted a great deal higher under the Administration’s proposals.

When is enough, enough? Select a point on the upper graph trendline that is a suitable growth and resource objective. Now backup 50 years. That is the time the U.S. needs to implement population policies to achieve the energy and growth objective. In order to stop U.S. growth at approximately 400 million, population programs to achieve that goal were required to be in place in the year 2000.

The energy, environmental, economic, and social concerns now present will be intensified and increasingly intractable as the nation moves to the right side of the graph. For a nation interested in a sustainable economy and environment, this is the worst possible scenario. Tightening resources and the decline of eco-systems, loss of wildlife, biodiversity, and natural areas, increasing pollution,

and sprawling cities,⁵ have already reached serious conditions because of the immigration-driven U.S. population.

Land use and development decisions are being driven by population pressures. Most of the original U.S. wetlands have been drained and turned into farmland or have been developed and those that

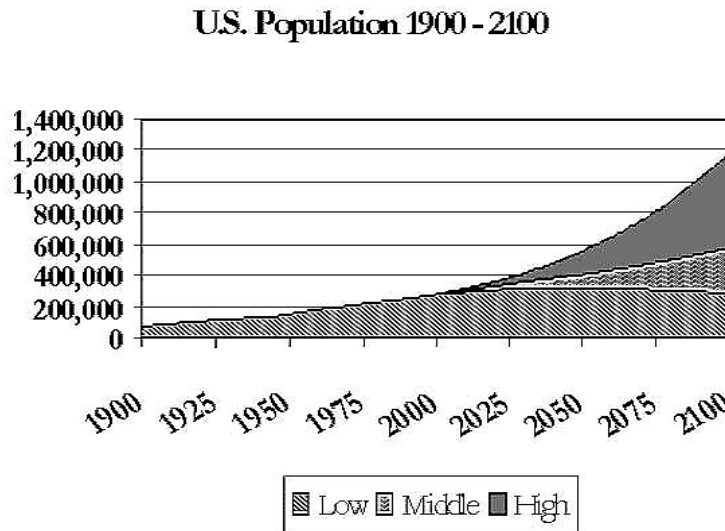
remain are under unrelenting pressure. Already rivers and lakes are overused and groundwater use exceeds recharge by 25 percent, with a critical situation in the southwest states. United States population growth results in an annual loss of approximately three million acres of natural areas and farmland. Most of the original U.S. mixed species (old growth) forests have been

logged and only small parcels remain—in museum-like fashion. Only miniscule remnants of native tall grass prairies have not met the fate of the plow or livestock ranching.

It is policy. Change U.S. population policies soon and these frightening projections do not happen.

Ecological Footprint and Sustainability

The combination of biological systems and development impacts is described by some scientists as the “Footprint.”⁶ Briefly stated, the Footprint is consumption. It is the biological human carrying capacity equivalent of the well known environmental $I = PAT$ formula. Impact = population(P) x living standard (AT).⁷ When the Footprint or consumption exceeds the region’s biological productive capacity, there is an ecological deficit and the area (the United States or Planet Earth) is not sustainable—the local



Minnesotans For Sustainability:
www.mnforsustain.org/united_states_population_growth_graph.htm

or global ecological capacity and Footprint is above the balance of population and capacity. This is the lesson of Easter Island.⁸

Nations consuming capacities in excess of their domestic capacities must employ the resources of other nations, perhaps depriving those nations the possibility of reaching their chosen balance point. Exporting biological capacity is a sovereign national decision carried out because the nation believes it to be in their best interest. A consequence can be that neither the deficit nor the apparently surplus

were to follow the UN’s policy of redistributing people, a self-defeating spiral of importation of additional capacities, acres of productive land in this example, will be required to match any increase in population.

A crucial reason is that population sustaining basic oil and natural gas resources are rapidly diminishing.

Energy Resources: PeakOil and the Natural Gas Cliff

Resource wars?¹⁰
Addicted to oil?

Above all else, an energy policy is a population policy. Populations grow by increasing energy consumption. Unless the U.S. population and economic growth reach a plateau, increasing demands for oil and natural gas will continue even as supply diminishes. As energy resources fall, the population must decline in lockstep. Thus, either immigration must stop and total fertility fall

or the United States will experience a continually deteriorating economy and environment.

The two primary sources of energy for industrialized societies are oil and natural gas. The world’s production of oil is now peaking and will soon begin its inexorable decline. The arrival of PeakOil signals *the end of the brief cheap petroleum era*. The world’s reliance on cheap oil implies that almost every sector of every society will be affected—everything from transportation to electricity to food production and clothing and plastic products.

Contrary to those declaring the world is running out of oil, there remains to be extracted about as much oil as has been consumed through all of history. Thus, there is time, a little, to adjust. The remaining oil however, will be increasingly costly, more difficult to extract, and due to lower quality, require increasing processing. In addition, the world is using substantially more oil every day

Ecological Carrying Capacity Balances for Selected Nations⁹

Nation	Ecological Deficit (1997)	Balance Population Level	Population Above Balance (2006)*
A	B	C	D
Mexico	-85.7%	52,300,000	55,200,000
India	-60.0%	606,000,000	489,300,000
Germany	-178.9%	29,300,000	53,100,000
United Kingdom	-205.9%	19,100,000	44,500,000
United States	-53.7%	174,400,000	124,000,000

Current population minus Col C. Current population from CIA *World Factbook*, July 20, 2006 < <https://www.cia.gov/cia/publications/factbook/index.html> >.

exporting nation is practicing sustainable long-term policies.

Almost a decade ago, 1997, the world exceeded its ecological carrying capacity by 39 percent or more than 2.3 billion people. If the world’s average Footprint at the time were the goal, the result would be that the world could support roughly 3.5 billion inhabitants. The UN currently projects the world’s population at 2050 to be between nine and ten billion. In order for that population to be sustainable, the highest average possible living standard would be a Footprint of approximately 0.8, about today’s living standard and Footprint of profoundly unfortunate Ethiopia.

The following table demonstrates that both high and low Footprint nations can be in serious sustainability circumstances.

Currently the U.S per capita Footprint is approximately 24 acres, or a 12-acre per person deficit. In terms of consumption, if the United States

than in any previous era.

World production of conventional oil peaked in December 2005 and U.S. production of oil and natural gas peaked in the early 1970s.¹¹

Expensive non-conventional sources and imports make up the difference. Beginning in another two years or so, perhaps sooner, the world will begin to experience irreversible 2-3 percent annual declines in oil.¹² According to Chevron-Texaco, 33 of the 48 major oil-producing nations are currently in production declines.

Russia, Mexico and OPEC account for almost 60 percent of world oil production and will have a plunge of over three million barrels per day within three years. A significant exporter to the U.S., Mexico's Cantarell reservoir is dropping 1 percent per month after peaking in late 2004. One result is that Mexico will also cease oil exports to the U.S. and likely become an oil importer within three years.^{12,13}

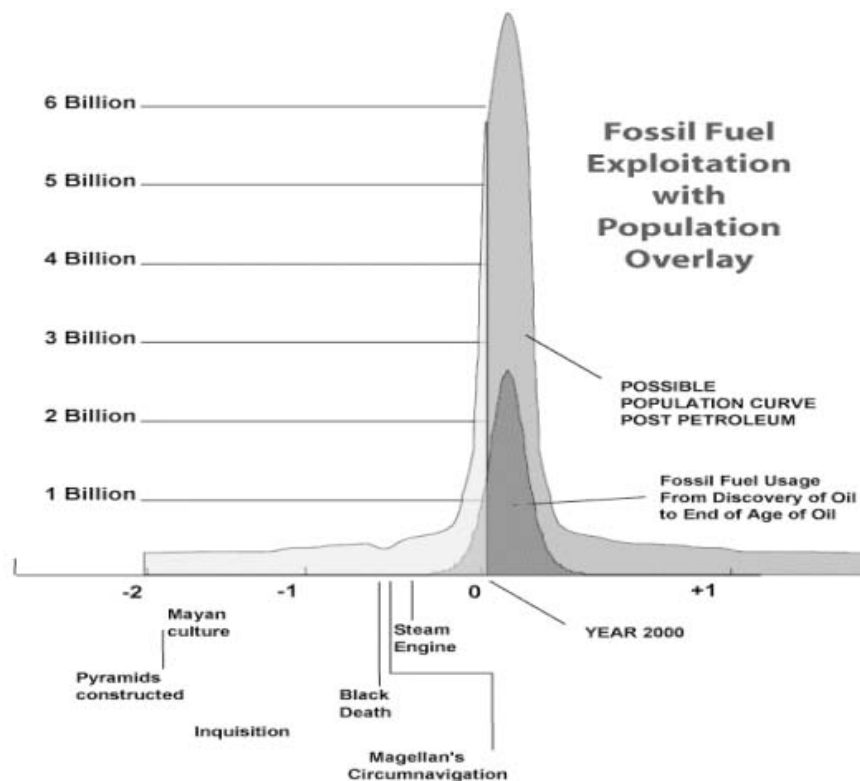
Moreover, worldwide discovery peaked in the mid 1980s and despite the best available exploration technology, today only about a single barrel of oil is discovered for roughly every four or five extracted.¹⁴ With many now in decline, the major reservoirs were discovered more than fifty years ago in the 1960s. The North Sea and the North Slopes of Alaska were discovered thirty years ago and today are in significant production declines. The consumers of this oil are increasing, yet, as stated

previously, population levels follow energy.

A serious environmental consequence is mounting pressure to develop remote and protected areas such as the Gulf of Mexico, Alaska National Wildlife Refuge, and the Rocky Mountains.

The following graph overlaying world population and oil production illustrates the preceding.

The graph unmistakably illustrates the brief fossil fuel era, that the peak in oil extraction is upon us, and suggests possible population repercussions



EROEI.com.

See: <http://eroei.com/solutions/population.html>

if resources are unsustainably consumed. It also suggests the benefits of lower resource consumption with lower population levels and rates of growth.

The dilemmas are evident. Moreover, the magnitude of the trends indicates that there are no alternative energies remotely capable of replacing fossil fuels.

Because of its healthier environmental impacts—with backing from environmentalists—electricity generation using natural gas has been the dominant source of new generation. There are also those who claim that if we start running out of oil, the shortfall can be replaced with natural gas.

However, North American natural gas has gone over what is fittingly called the “natural gas cliff”. The more natural gas consumers in the U.S., the more difficult it is to deal with the situation. Canadian conventional natural gas extraction peaked in 2003, the U.S. in 1972. Despite increases

in non-conventional gas, Canadian and U.S. natural gas production has commenced an irreversible and steep decline. Falling North American natural gas supply implies much higher electricity and home heating costs now and rationing in the near future.¹⁵

Although storage reservoirs remain high at this time (due to several years of mild weather), injections to natural gas storage has been low since May. For the first time this decade, two weekly summer *declines* in storage occurred when normally a build of 60-80 Bcf is made.¹⁶

Forty-five new LNG ports and additional LNG ships for each facility are planned to replace, temporarily, the natural gas decline. This implies that roughly every 100 miles of the U.S. coastline could have an enormous LNG facility. The facilities will require immediate construction, be prohibitively expensive, subject to terrorism, and environmentally harmful. And only temporarily address natural gas demands of U.S. growth.

The relationships between United States consumption of ecological carrying capacity and rising energy demand from growth in an era of declining resources has not been adequately addressed by the nation. ■

End Notes

1. *Population And The American Future: The Report Of The Commission On Population Growth And The American Future*, John D. Rockefeller 3rd, Chairman, March 27, 1972. U.S. Government Printing Office. See report at < http://www.mnforsustain.org/pop_rockefeller_72.htm >;

-For an explanation of how and why the population issue became a secondary matter, see, "The Environmental Movement's Retreat From Advocating U.S. Population Stabilization (1970-1998): A First Draft of History", Roy Beck and Leon Kolankiewicz. The long version is recommended. See at < http://www.mnforsustain.org/author_beck_roy.htm >.

2. Population projections, data, and sustainability issues are at < http://www.mnforsustain.org/united_states_population.htm >;

-See, *Minnesota's Energy Future?*, Dell Erickson, October 20, 2003. In addition to a discussion of fossil and alternative



Current immigration policies encourage ever greater numbers of newcomers, which prohibit sustainable population levels decades into the future.

energy resources, the work contains historical and projected United States (and Minnesota) population information. See < http://www.mnforsustain.org/erickson_dell_minnesotas_energy_future_part_1.htm >;

-For a critique of the Census Bureau's projections see, "Projections are only as good as their assumptions. The Bureau's assumptions of the course of future fertility and migrations certainly invite criticism." "A Faulty Demographic Roadmap to the Future", B. Meredith Burke, Spring 2000. See at < http://www.mnforsustain.org/burke_m_faulty_roadmap_2000_census.htm >.

3. "U.S. immigration and population growth", SUSPS (formerly Sierrans for U.S. Population Stabilization). See at < <http://www.susps.org/overview/immigration.html> >;

-Immigration numbers. "How many illegal aliens are in the U.S.?, Reference", The American Resistance. See at < http://www.theamericanresistance.com/ref/illegal_alien_numbers.html >;

-Billing itself as, "THE #1 Site For Real-time Immigration Statistics", ImmigrationCounters.com. See at < <http://immigrationcounters.com/> >;

-The September 20, 2004 Time Magazine issue reported 20 million illegal aliens with three million entering annually. See, "Who Left the Door Open?", *Time Magazine*, Sept. 12, 2004.

4. "Senate Immigration Bill Would Allow 100 Million New Legal Immigrants over the Next Twenty Years", Robert Rector, The Heritage Foundation, WebMemo #1076, May 15, 2006. See at < <http://www.heritage.org/Research/Immigration/wm1076.cfm> >. The analysis is of the Comprehensive Immigration Reform Act (CIRA, S.2611).

5. Sprawl: Authors Roy Beck and Leon Kolankiewicz in an excellent research report concluded that, "at a minimum, 50% of national sprawl is due to population growth". See < <http://www.numbersusa.com/interests/urbansprawl.html> >.

6. Our Ecological Footprint: Reducing Human Impact on the Earth; Mathis Wackernagel and William Rees, 1996. New Society Publishers, P.O. Box 189, Gabriola Island, B.C., Canada V0R 1X0. Note pages 85, 88, and 97.

-Also, "Revisiting Carrying Capacity: Area Based Indicators of Sustainability," William E. Rees, *Population and Environment*: Volume 17, Number 3, Human Sciences Press, Inc. January 1996.

7. I = PAT: See definition at < <http://www.mnforsustain.org/population.htm> >. If each American (population in total or each unit of increase) has the footprint equal to 25 other world residents, the correct implication is that reducing the number of Americans is 25x more important than similar demographics in lower footprint nations.

8. See, "Easter's End", Jared Diamond, August 1, 1995. See at < http://www.mnforsustain.org/easter_island_diamond_j.htm >; and, "The Lessons of Easter Island", Clive Ponting, 1992. See at < http://www.mnforsustain.org/ponting_c_the_lessons_of_easter_island.htm >.

9. "Sustainable Population Levels Using Footprint Data", Dell Erickson, March 20, 2000. See at < http://www.mnforsustain.org/erickson_d_determining_sustainable_population_levels.htm >.

Table 2. "Using the nations in the Wackernagel and Rees study illustrates that population growth does not contribute to increases in individual well-being, per capita GDP." "Even at its relatively high current standard of living the U.S. could sustain a population of 174 million without impacting the global capacity or FP;"

-Garrett Hardin's famous essay "Living on a Lifeboat" stimulates thought about implications for the U.S. A ship sinks. The lifeboat is full (metaphor for the U.S.) but there are more in the water. See at < http://www.mnforsustain.org/hardin_g_living_on_a_lifeboat.htm >.

10. "The Coming Conflict: Natural Resources are Fuelling a New Cold War", Erich Follath, *Spiegel*, August 18, 2006. See < <http://service.spiegel.de/cache/international/spiegel/0,1518,429968,00.html> >; and See, "The New Cold War: The Global Battle for Natural Resources", Erich Follath, *Spiegel*, August 18, 2006. See < <http://service.spiegel.de/cache/international/spiegel/0,1518,408932,00.html> >.

11. See itemized natural gas storage data at *AmericanOilman* < <http://americanoilman.homestead.com/GasStorage.html> >;

-See EIA weekly storage data and graph at < <http://tonto.eia.doe.gov/oog/info/ngs/ngs.html> >;

-See "Natural Gas" at, Minnesota's Energy Future?, Dell Erickson, October 20, 2003. < http://www.mnforsustain.org/energy_natural%20_gas.htm >.

12. *Peak Oil Review*, Tom Whipple, Editor, Association for the Study of Peak Oil & Gas, Vol.1 No. 29, July 24, 2006. See at < <http://www.peakoil.ie/peakoil> >;

-For a state-by-state brief summary of prospects for major oil producers, see, "Commentary: Chris Skrebowski on OPEC trends and CERA's new report", Chris Skrebowski, Editor, *The Petroleum Review*. See at *Peak Oil Review*, Vol.1 No. 32, August 14, 2006.

13. *Peak Oil Review*, Tom Whipple, Editor, Association for the Study of Peak Oil & Gas, Vol.1 No. 30, July 31, 2006. See at < <http://www.aspo-usa.com/PORArchives.cfm> >.

14. Association for the Study of Peak Oil and Gas, < <http://www.peakoil.net/> >. For a graph of the growing gap between discovery and production, see at < <http://www.peakoil.ie/peakoil> >.

15. "What CNBC Didn't See: 'Addicted to Oil' Commentary Analysis", Jim Puplava and John Loeffler, *The Big Picture*, Financial Sense Newshour, Transcript of July 15, 2006. See at < <http://www.financialsense.com/fsn/BP/2006/0715.html> >.

-See also, "Is oil production crashing?", Oil Scoop, George Ure, August 5, 2006. "Ghawar + Cantarell crashing means explosive increases in oil prices." See at < <http://urbansurvival.com/week.htm> >.

16. "Gas inventory drops. Blip or the beginning of a trend?", Michael Vickerman, August 1, 2006. *Renew Wisconsin*. From, *Energy Bulletin: Natural Gas*. See at < <http://www.energybulletin.net/18825.html> >.