

## THE POST INDUSTRIAL CULTURE

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In our companion article, *Where Do We Go From Here*, we traced the source of climate change to the Industrial Revolution. The burning of coal and then oil fueled the myriad of new machines from locomotives to the coal fired electricity to run our offices and factories, to the automobiles to get there and to the trucks to transport the goods to and fro. But it also fueled the CO<sub>2</sub> concentrations in the atmosphere. We also traced the changes to agriculture because of the machines and cheap energy created by the Industrial Revolution. These changes created a lifestyle of a conspicuous consumption of energy in how we conduct our business and our leisure time and a diet of cheap meat, dairy and fish as well as easy access to other foods in the supermarkets where products were shipped all across the world to serve our western tastes. But these changes also created the severe degradation of our forests, our soils, our drinking water, our oceans and the other species that share our planet. Now our planet ecology (as well as its economy) is on the verge of collapse.

We stated in our companion article, “All those problems have the same root of cause and the solution to them must be based on the same root. The fact is, even if we can replace fossil fuels with alternative non-CO<sub>2</sub> emitting energy sources and with CO<sub>2</sub> emitting but closed carbon cycle sources (which we can’t and never will), unless we change the exploitive practices engendered from the Industrial Revolution to our natural environment, we face consequences that are more horrific than ever experienced by mankind. Because of the loss of rain and the destruction from storms from climate change, the mismanagement of our arable lands, the despoiling of our soils, the pollution of our drinking water, and the trashing of our oceans we face mass starvation on a scale that make death from war and genocide a minor footnote to history.”

The purpose of this article is to describe the society that can emerge from these circumstances.

Much of what will happen will happen whether or not we plan or take remedial action. In Kashmir, for instance, the source of the Jhelum river is the Kolahoi glacier which is drying up because of global warming. That river serves the Lidder valley which feeds and supports the livelihoods of millions of people. It is estimated that it will dry up in ten years. That valley will become like the nearby Ladahh which is desert. There is nothing we can do to save that valley. Those millions of people will have to leave or even starve.

We must do things to save the valleys and the oceans and soils and the other drinking water basins that we can. The US is responsible for 22% of all CO<sub>2</sub> emissions causing global warming. The US is a leading contributor, along with the other western nations, because of its meat, dairy and fish consumption, the despoiling and inefficient use of arable land (wasting all that corn production for feed), the pollution of drinking water

(here as well as in countries that bring products here), to the deforestation caused by the growth of pastureland (because of global trade), and the over fishing in our oceans. Other western nations have already started the transition to a postindustrial society, so its time the US did it as well.

In 1949, the Energy Information Agency (EIA) started taking statistics on energy consumption in the US. According to table 2.1a of the EIA, Energy Consumption by Sector, 1949-2006, in 1949 the US used 31,981,503 Bbtu for all sectors while in 2006 it estimated a use of 99,872,921 Bbtu. In 1949, there were 149,188,130 persons in the US which represented an energy use of .21 Bbtu/person (31,981,503/149,188,130). In 2006, there were 298,754,819 persons in the US which represented an energy use of .33 Bbtu/person (99,872,921/298,754,819). Thus, between 1949 and 2006, each person increased his/her energy use (society wide) by 57.1%. There is no reason why we can't return to a use of .21 Bbtu/person in the near future. Expressed in watts/hour, .33 Bbtu is the equivalent of 11,079 w/hr/person (330,000 Kbtu/8,760/hr/day/3.4 btu/w). .21 Bbtu is the equivalent of 7,050 w/hr/person (210,000 Kbtu/8,760/hr/day/3.4 btu/w).

From a Climate Change perspective, the 11,079 w/hr/person in the US represents 43,000 pounds of CO<sub>2</sub> /person annually into the atmosphere, a total of 13.1 trillion pounds. This is the 22% of the total annual global emissions previously mentioned. Bringing our per person energy use back to 1949 levels would represent a savings of 4.76 trillion pounds of CO<sub>2</sub>/year from going into the atmosphere. That is significant.

Switzerland, representing the lifestyle of most of Europe was consuming 6,250 w/hr/person in 2000, even less than our 1949 levels. Now, because of their energy efficiency program "The 2,000 Watt Society", Switzerland has already reduced the average energy use per person to 5,900 w/hr/person. The Swiss lifestyle can hardly be called poor or restricted or undesirable.

So what do we have to do to bring our energy use back to 1949 levels and what do we have to do to stop the exploitation of the world's resources? The answer is that we have to create a new post industrial culture, a culture that naturally limits our use of energy, the use of machines and where they operate. That limit is what the world's resources can tolerate. Our atmosphere cannot tolerate the unlimited spewing of pollutants into it. Our land cover cannot tolerate the loss of forests necessary to absorb those pollutants. Our soils can not tolerate the unlimited exploitation of the nutrients that took ice ages to create. Our oceans can not tolerate the unlimited exploitation of its fish and other resources.

But the US is not a totalitarian or even a socialist state. It cannot by edict stop the combines from exploiting those huge corporate private farms, those trawlers from overfishing those international waters and those logging companies from harvesting all those virgin forests in the private lands of the northwest. We need to create realistic regulations but we've seen, in the financial meltdown we've just experienced, that regulations are not enough. In the US, we need the market place to dictate the changes. We need to promote a post industrial culture that is supported by the market place.

The primary market change that will promote the post industrial culture is the price for fossil fuel. As the cost of fossil fuel goes up, everything changes. People naturally conserve. When it goes up enough, then alternative energies become more cost effective. When it goes up enough, the cost of beef, dairy and fish will go up and people will seek alternatives. When it goes up enough, the cost of manufacture and transportation will make those industrialized products and packaged goods from all over the world cost ineffective. Government can speed the changes along by supporting the alternatives and stop subsidizing the miscreants.

So what changes need to be supported?

The first change, of course, is we need to change our energy superstructure. We need to electrify our society; our automobiles, mass transit, buildings and factories; and strengthen our transmission and distribution network. We need to power this network from non-CO2 producing sources such as wind, wave, solar, hydro and geothermal generators and from closed carbon cycle sources such as biofuels.

Second of all, we need to change how and what we eat. We need to obtain our food locally. The food we eat cannot be so energy intensive. We cannot afford the tractor's, combines, harvesters, irrigators, sprayers, tillers, balers, synthetic fertilizers, pesticides, herbicides, dryers, millers, cutters, sorters, bakers, packagers, warehouses, refrigerators, transporters and retailers used to get food to our plate. We cannot afford (and our planet cannot afford) all that meat, dairy and fish. We need to grow what we can ourselves and/or buy from local sources. We do not need packaged prepared goods (they are no good anyway). We need to change our agriculture. We need smaller farms. Today, in the US, there are more prisoners than there are farmers. Today, one pig farm in Utah is so large that its sewerage is greater than the city of Los Angeles. We need to replace fossil fuel based fertilizers with organic substitutes. We need to replace pasture land with land that can grow fuel, trees or more efficient foods. We need to replace arable land devoted to feed crops and devote them to food and fuel crops. We need to replace CO2 producing and soil exhausting farming practices with no-till and soil restoration techniques such as composting.

Third of all, we need to change our land use patterns: we need to decentralize. In 1956, President Eisenhower endorsed the Federal Highway Act, calling for the construction of a network of interstate highways. The new interstates created the suburbs and crippled public transportation systems. Because the fuel we use for transportation will be so costly (both in money and in environmental costs), we need to use our vehicles less. The suburbs need to be transformed into independent communities and we need to bring mass transit to them. We need to change how we work. The internet age allows us to communicate and conduct commerce without travelling. We need to be home more to rear children and take care of our elderly.

Fourth of all, we need to change our built environment. We must change our older buildings and design our new buildings to be energy efficient. We need better insulation,

more efficient appliances, and better and more efficient climate control. We need to avoid CO<sub>2</sub> producing fuels and employ solar hot water, PV and geothermal sources of energy. We need to avoid fossil fuel based materials and use natural materials that last.

And lastly, and most importantly, we need to change our economy. The hyperactivity required in the globalized economy of the last 30 years is just not sustainable. The last fiscal year (9,2008) showed a deficit of \$455 billion (9/2008) representing 3.2% of GDP. The GDP is then \$14.2 trillion for 2008. That doesn't take into account the financial crisis the world is now facing. In 2009, because of the bailout (which will cost \$250 billion, the weak economy and the stimulus (now expecting to be \$150 billion), we expect the deficit to be \$1 trillion or more. That will represent 7% of GDP, the highest in recent memory. The economy will be on the edge at that number. The national debt is \$5.4 trillion; 38% of GDP. These deficits add to the national debt. Right now we are borrowing to cover the national debt. Our economy is just a massive pyramid scheme.

A depression can be characterized by economic paralysis. Our recent financial meltdown was the closest to a depression since 1929. We need to think about means of supporting economic activity that doesn't hurt the environment: economic stimulation (such as the green revolution) not environmental exploitation. We must make a transition from hypercapitalism (reflected in the bloated GDP of today) to a free-market capitalism that more closely reflects the ideas of Adam Smith. This will be gradual as we must pay down that debt. When we pay it off, we must never get into that situation again.

In the end, the post industrial culture will be economically and environmentally sustainable. We will spend less for food, for childcare, for transportation, for taxes, for utilities and for housing and have a better quality of life in the process. We will save the atmosphere, the oceans, the land and the people that live on it. But, unfortunately, the world will have to go through a lot of pain to get there.