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Forward. In February 2008 I was approached by Paul expressing an interest in having my opinion on a book he was working on dealing with Peak Oil. I have heard of the concept before but was intrigued. I agreed to work with Paul to see his ideas brought to light. I have enjoyed the work he's done and hope to continue to work with Paul on continuing chapters. I believe his work will be a survivalists answer as to what to do and how to do it. We don't need to be left out shivering in the bush if we are prepared ahead of time.

I hope you enjoy Paul Olson's work as I introduce you to his first chapter.

Yours truly

Joel Akin Sanctuary/Earth House

Community and Family Survival During the First One Hundred Years of the Post Petroleum Era

**Without abundant cheap petroleum,
life will never again be the way it was**

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This is the first of a series of interrelated articles, each part of a much larger story of community survival in the Post Petroleum Era, written as a lengthy research paper and manuscript, describing a scenario that will probably be very similar to the real one that is likely to unfold over the next several years as the price of oil and gasoline rise beyond the reach of the general population in the United States and of the world. It will be helpful to those who are interested and motivated in charting a new

course for their own lives, the lives of their families, and the survival of their communities through the chaos and ethos of an unknown and uncertain but painful future. This topic has already been very well researched by the US government since at least the 1960's with their results being classified, so everything contained in these articles was assembled using unclassified material openly available on the Internet or in the public libraries as well as relying on the personal experience and knowledge in the engineering and construction fields by the author.

The topic was chosen because some would consider its content to be "politically incorrect" since it does not have a desirable and happy ending nor does the author ever say that family and community survival can be done quickly, cheaply, or easily. In addition, the author says that a minimum of two thirds of the national population is virtually certain to die within a very short period of time after the petroleum crash begins – words that no one wants to hear. There are many survivalists who offer much nicer stories with a happier ending, their ending being, "and they emerged from their bunker in the remote wilderness after one year, and finding that all was once again well with society and the environment, lived happily ever after". This series of articles says that struggle for survival by the few and the determined is going to be a hard, difficult, expensive, and arduous, and it will always be that way. Society and the environment will never again return to the way it was in the year 2000 when the price of a barrel of "sweet, light crude" from the Middle East had just risen to a whopping \$28.36 per barrel from its 1999 price of \$17.46 per barrel, and the average price of a gallon of gasoline at the pump had jumped to an astronomical \$1.48 per gallon from its 1999 average price of only \$1.22 per gallon during the last days of the Democratic Administration of President Bill Clinton. Those happy days, which marked the end of the Clinton Democratic administration and the beginning of the Texan oilman, George W. Bush's Republican Administration, are long gone and will never return. Today, in 2008, as we near the end of that Bush Republican Administration, the giant oil companies have prospered like no one would ever have thought possible as the price of gasoline has risen about 2 ½ times from its 1999 price to over \$3.00 per gallon, and is now on its way to \$4.00 per gallon. This series of articles advocates that families and communities prepare, not for the short term or even a survival duration of one year, but instead prepare for the long haul of one hundred years.

The topics that will be covered in this series of articles are shown on the next page. The first articles will cover family and community survival in general and the last series of articles will go into greater technical detail about specific topics and provide many answers to difficult questions.

Community and Family Survival During the First One Hundred Years of the Post Petroleum Era

August – December 2005 with ongoing continued fine-tuning in 2006-2008

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"Global oil-production peak" or "Peak Oil" means the turning point, a year when the world produces the most oil it will ever produce in a given year and, after that, yearly production will inexorably decline regardless of demand or cost per barrel. Cheap and abundant oil and energy made possible a

tripling of the world's and US populations to 6.5 billion in 2007 from 2.0 billion people that existed in 1927; and without this oil and abundant cheap energy, the huge world and national populations that exist today can not be sustained. In recent years many experts in various disciplines and professions have begun expressing deep concerns about:

- 1) the United States having already passed “peak oil production” in 1970, and the world having passed “Peak Oil” sometime between the years 2000 and 2005 (depending on which information source your use), and
- 2) the certainty of running out of “cheap, easy to obtain, natural petroleum” sometime in the very near future and certainly within the first one quarter of the twenty-first century, with insufficient quantities of synthetic fuels and alternative fuels such hydrogen fuel cells and solar power actually available, in place, and operational to totally replace more than about fifteen percent of that petroleum.

The tragic consequence of this is that the entire world will very likely soon be plunged into a traumatic and catastrophic transition and life altering transformation into a Post-Petroleum Era, during which time the new maximum carrying capacity of the United States will plummet to less than one half of today's present population of more than 300 million people. Similarly, at the same time, the total carrying capacity of the entire world will also be catastrophically reduced to somewhere between 500 million and something less than 3 billion (*depending on which expert's figures you choose to use and the quality of life that you define*) from today's world population of more than 6.5 billion (2008).

For additional information on this topic, visit the following internet sites:

- [Peak Oil: Life After the Oil Crash](http://www.lifeaftertheoilcrash.net) at www.lifeaftertheoilcrash.net
- [DIE OFF - a population crash resource page](http://www.dieoff.org) at www.dieoff.org
- [ASPO - The Association for the Study of Peak Oil and Gas](http://www.peakoil.net) at www.peakoil.net
- [Hubbert Peak of Oil Production](http://www.hubbertpeak.com) at www.hubbertpeak.com
- “Welcome to the End of the Oil Age – The Twilight of Oil” at www.eclipsenow.org/index.html
- This site may not be functional.
- Do an Internet search for yourself on the topic “Peak Oil” for additional information and verification.

Anytime the leading world experts in population and energy are speaking about a reduction in population of the United States through natural or involuntary means of more than one hundred fifty million US citizens over a very short span of time of only a few years or less, they are talking about undergoing a national and world catastrophe of horrific proportions and unimaginable magnitude. While these experts may only write about how many people will be able to survive and live with a decent quality of life and an adequate standard of living in the “Post Petroleum Era”, the flip side of their coin about which they are keeping very mum is how many Americans must or will die, “must be terminated”, or must and will otherwise “die with assistance” to achieve their new, much lower

carrying capacity that may provide a minimal subsistence quality of life for those Americans who are able to survive.

If you research [“peak oil” AND “carrying capacity” AND petroleum AND survival AND sustainable] on the Internet, you will find massive amounts of information available on the Internet and elsewhere, but more than 99 percent of that information was written by architects, sociologists, psychologists, philosophers, journalists, and others of a similar ilk who have never had calluses on their hands from having performed a hard day’s manual labor. They discuss the problem from afar and present their “thoughts and feelings” from the sanctity and safety of their ivory towers, making you aware that a global and national crisis does exist that is going to explode upon all of humanity sometime in the near future. But very few of these writers offer more than a smattering of useful, technical information that you can actually put your hands on and personally use to help understand and survive the upcoming crisis. The few that do provide any useful information are often very narrowly focused or have a personal agenda or single minded special interest that they are touting, such as “solar energy”, or “learning to live green” as being the answer to all of your survival problems. As it turns out, there is no one, single, simple answer to survival in the Post Petroleum era. It will take many sources of energy and food, as well as an entire community of people with diverse backgrounds, skills, and abilities cooperating, collaborating, and working together, and helping each other, just to survive.

Personal, family, and community survival in the post-petroleum era will depend on our ability to adapt and cope with totally new and unfamiliar situations, and to create new and imaginative solutions. Family and community survival in the post petroleum era will be like a large, mature tree with many branches, each representing one of those unfamiliar situations or problems and showing several possible solutions. I have taken the time to explore many of those branches far enough out from the main trunk to determine where they lead and what primary issues are that they each contain without going into minute detail. In the process of exploring, researching, and putting this manuscript together, I have learned so much, not only many facts, but how they are interrelated and interwoven, and how they each help form a tiny part of the whole picture of community survival. This manuscript pulls together for the very first time that I am aware of, information from many different and diverse sources that is relevant to personal and community survival, and adds a significant amount of additional, new, and fresh information from the author’s own personal experience and perspective as a professional civil engineer in the construction field. It briefly examines the significance of some of the information presented by many experts in various relevant and diverse fields, and offers solutions, pearls of wisdom gleaned from personal experience, and some technical details that are applicable to the long term survival of small, remote, rural communities to that small number of people who had the wisdom, foresight, and willingness to properly prepare themselves and their families. It also offers many references in support of further investigation. The solutions offered in this manuscript reflect my technical background as a civil engineer who has spent many years “working in the field” in construction. It is much more technical and “hands-on” than philosophical, yet is easy to read and understand. However, it does not offer sufficient details to allow anyone to immediately start developing “plans and specifications” using this manuscript alone as their sole source of reference.

Such a technical survival handbook would require more than ten thousand pages of highly technical and detailed information, and would need to be frequently researched, revised, and updated by a diverse team of experts in various fields. It must be remembered that none of us know all that we need to know or possess all of the answers for personal, family, and community survival in the post petroleum era. Only by sharing our collective knowledge and wisdom, honed by personal experience, can we synergistically move forward.

In today's modern society, we have only one source of water – the local water company. We do not need any other sources or backup sources because the water company is reliable and able to supply 100 percent of our daily needs any time, all the time. Similarly with the electric company, the sewer company, and most other suppliers, services, and solutions to our daily wants and needs. But in the post petroleum era, rarely will any one solution or source of anything be totally reliable, satisfactory, or adequate, nor will it be likely to be able to fulfill and satisfy 100 percent of any of our needs.

Most systems and solutions that we create in our post petroleum environment will have serious shortcomings and will fail to live up to our full expectations and highest hopes for them. They will each have their problems and deficiencies; and each system will be able to satisfy only a portion of any given requirement, and that will be just part of the time. The reason being that we are plunging headlong and unprepared into an entirely new and totally different lifestyle that requires totally different technology than we are used to, technology that neither we, nor any of our relatives, friends, neighbors, nor anyone else we know has ever experienced or lived before, or knows very much about. We do not have any proven models to use, nor any tried and true, success stories to fall back on. We cannot go to Home Depot and purchase a \$100,000 post petroleum era home survival kit that has been developed, tested, improved and proven over many years of customer use, and is a standard for everyone in the community. Everything we do and all of our learning will be by trial and error, with many more errors, trials, and tribulations than successes initially until we complete an arduous and expensive multi-year learning curve. We will be reinventing the wheel, many times over, and sometimes we will find that it is more square than round, as we try to assemble all of the “**modernized appropriate sustainable technology**” that will be necessary to sustain our homes and families, our cottage industries, and indeed our communities and our civilization for the next one hundred years. Unfortunately, many isolated pockets of people and communities all over the world, past, present and future, will also be working to reinvent those same wheels. That is why it is so very important to have your home, family compound, community, and all of the associated cottage industries up and running, and fully operational a good ten years or more before the actual petroleum crash ever begins.

Since the primary goal and purpose of moving to, or creating, such a community will be “community and family survival for the next one hundred years”, as few restrictions as possible should be placed upon such an effort. Examples of such non-beneficial restrictions that some people seeking to survival have placed upon themselves and others who wish to move into their communities include the following.

- 1) Some communities believe they should be strictly vegetarian or “vegan” since animals require

valuable acreage that could better be used to grow food to feed human beings. Meat may become only a valuable byproduct of animals, but you try surviving without leather for shoes and clothes, or try carrying coal fifty miles on your back for your wife to cook with, while your neighbor passes you on the road, driving a heavy duty ore wagon that carries five thousand pounds of coal per trip and is pulled by a team of horses, then uses those same horses to plow his many acres of farm fields while you try to work your fields with only a garden hoe and a shovel. Any community that tries to live without the use of petroleum or sufficient quantities of bio-fuels, and without using animal power, will likely find themselves forced to live life as it was back in the Pre-Neolithic Stone Age or the Mesolithic Stone Age, a period prior to 8,000 BC. If you fall into this group, you had better start researching the skills and technology of the Mesolithic Stone Age people because that is how you will be living after your supplies are exhausted.

2) Some people interested in post petroleum survival are trying to accurately recreate small communities and living conditions exactly as they existed 150 years ago. They have the right idea that you must recreate and use technology that you understand and can maintain, repair, and rebuild yourself, but survival means that you must take advantage of and make use of everything at your disposal including all of your present day knowledge, skills, and materials to create the most survivable and sustainable environment that you can for yourself. This means creating “**Modernized Appropriate Sustainable Technology**” (MAST) that not only closely resembles that of the past but also incorporates modern knowledge, craftsmanship, and technology that can be repaired, rebuilt, or totally manufactured new by one or more of the various highly skilled and specialized cottage industries in your region, which may include cottage industries in nearby communities.

“MAST” is a phrase or term that I have created and thus you are not likely to find this exact phrase on the Internet. In short, MAST means that if you think you have a better idea and can improve upon some old technology of the past; hey, go for it!!. That is what survival in the Post Petroleum Era is going to be all about. We are not a bunch of historical “re-creationist who believe that we must stick strictly with authentic originals or exact replicas of those originals.

“Appropriate technology” and “sustainable technology” are very important modern day buzz words among post petroleum aficionados and have many shades of meaning among their various adherents. Some people use them to mean simple technology that each individual family can make and do for themselves from locally available native materials that are on hand and require little processing. This is one definition of the Neolithic Stone Age. But I prefer to use the term, “**Modernized Appropriate Sustainable Technology**” or MAST to include technically complex machinery, equipment, tools, supplies, and consumer goods that sometimes require the use of highly processed and refined local materials, and that may require the highly advanced and specialized knowledge and skills of expert craftsmen in various cottage industries throughout your geographical region in which your community actively trades.

3) Many people believe that you should set up your survival community starting from the very first day to survive using only what you can make for yourself, but I don't. I believe you should bring as

much and as many carefully selected supplies and resources with you from the petroleum era as possible. Even if you can not recreate them, they will buy you extra time to get through the post petroleum transition period and will ease your misery. Some can be used for barter to trade for other goods and supplies that you had no idea that you would really be needing. You and the community will be able to use this extra time to correct many of your mistakes, to greatly lengthen the transition period, and to smooth out some of the rough spots in that transition period.

There are two kinds of products that you will be able to bring forward with you from the petroleum era – those whose function will be able to be replicated by some cottage industry, and those whose functions can not be replicated. If any supplies that you bring with you fall into this second group AND are absolutely critical to the very survival of you and your family, then you and your family are going to die when they wear out or break down. An example of this are necessary life sustaining medicines.

Some examples of supplies that may fall into this second group of non-replaceable supplies although they may not be absolutely critical to your survival are: A) toxic gas detectors for mines. They are used to detect oxygen levels in mines and to detect the presence and levels of several poisonous or toxic gases. The batteries that power them have a shelf life of about 5 years. If the community can develop portable fuel cells that can be used to power these gas meters, then their useful life might be extended to perhaps twenty years before their advanced electronics breaks down. After that, the miners may have to resort to using caged canaries like they did a hundred years ago to determine mine safety unless they can develop better plans. Another similar item are B) light bulbs of any type. I do not know of any cottage industries that can manufacture light bulbs from locally available materials, so when the lights finally blink out in the underground homes, families will be forced to rely on their “solar light tubes”, and on lanterns and candles that burn bio-fuels manufactured by your bio-fuels cottage industry. When that time comes, some families could die from carbon monoxide poisoning caused by using open flame fixtures in areas with insufficient ventilation. A third important category of non-replaceable items are C) photovoltaic solar cells and solar panels. These typically have a useful life of about twenty to thirty years, then they will cease functioning and will become useless junk. I do not know of any cottage industry that will be capable of manufacturing working photovoltaic solar cells from the sand that lays on the ground beneath their feet – or of restoring and rejuvenating existing solar cells.

As a result of all of your efforts being focused on careful and meticulous planning, designing, creating, constructing, and operating a successful first-of-its-kind community in which you and your neighbors will hopefully be able to survive independently of the rest of the nation and world for the next one hundred years, we will almost always need to develop in each item of planning, a primary system that will intermittently supply most of some specific need, but with the understanding that it is likely to be unreliable and subject to interruptions and problems, and that we will also require a secondary solution and sometimes even a tertiary solution to meet the remainder of any given need or requirement. Further, in estimating how much resources your family and your community will require to meet each need, you are virtually certain to greatly underestimate your requirements because you will be

calculating for an ideal or perfect environment where everything works perfectly as it is suppose to and produces at the optimum all of the time, or you will be working with a limited budget that will only allow you to complete some tiny fraction of what you actually require, like fifty percent of the total preparations.

Since any community that is designed for or is preparing for post petroleum survival will be blazing new areas of science and technology, often for the first time, Murphy's Law, an axiom of engineers and scientists, will apply in full force. It says "if anything can go wrong, it will". There will be a thousand and one problems and unexpected situations that will occur including breakdowns, glitches, parts needed that are not available, incompatibilities, much more demand than predicted, etc. Thus, in virtually every aspect of post petroleum survival – food, energy, transportation, shelter, warmth, etc. -- we will need to have or develop multiple solutions, multiple systems, redundancy in those systems, and completely separate backup systems and solutions. In addition, your community will always be subject to being sacked, raided, pillaged, and burned out, with everything being destroyed or stolen. If your community is sacked and pillaged, and totally destroyed, at some point, one or more times after the crash, you will have to have the buried and hidden resources necessary to rebuild and restore the community and its cottage industries, and to get the community back on its feet. If there is a community system in place, we will also need a backup or supplemental system for the family compound or family home. ¶ This concept of needing to develop multiple and redundant systems and solutions as well as backup systems and solutions to virtually every aspect and need with the understanding that no one system or solution will be fully satisfactory or be able to reliably fulfill 100 percent of any of our requirements is VERY IMPORTANT. But even that is not sufficient. Systems will wear out, fail, break down, not meet our expectations, or our needs will outgrow them.

One example of this concept will be your generation of electrical power. You will need multiple systems to generate your electrical power because each system will have its limitations and no one system will be able to generate electrical power all of the time. In addition, none of them will work as well as you had expected or hoped, and you will find that you have overestimated what the amount of power each system will produce and the number of hours each month it will be producing, and greatly underestimated your electrical requirements and those of the community. These generating systems will include: (1) photovoltaic tracking solar arrays which are limited to midday hours on clear days when the sun is high in the sky, (2) wind turbines which only work when the wind is blowing faster than ten miles per hour, (3) low head hydro generators, (4) steam powered generators using concentrating solar collectors and mirrors, and incinerators that burn the community trash, wood, coal, and anything else, and (5) any other means of electrical power generation that you can imagine, plus several types of power storage systems. Even with multiple and redundant systems in place, your final result is likely to be intermittent, unreliable, less than totally satisfactory, and too little in quantity. You will long for the days past when your commercial power company could reliably supply you with all of the cheap electricity that you wanted. Remember, **always plan for contingencies and backup systems and multiple solutions in every aspect of your post petroleum survival environment.**

It is because even the best laid plans and the best designed systems will at times, usually at the wrong

times, reveal the presence of serious problems, flaws, and shortcomings. Those communities, family compounds, and homes that are going to prepare themselves for survival in the post petroleum era, will need to have their total and complete systems up and fully operational at least ten years before the crisis erupts. This will give them sufficient time to remediate some of the problems and shortcomings that they discover, and to understand and accept their limitations on those problems that they are unable to address.

As you will discover when you read this manuscript, the author has made a serious effort to often present several solutions to various problems, and was sometimes grasping at straws and brainstorming to create unconventional but workable solutions. The many solutions presented here are not the only possible solutions, nor are they necessarily the best solutions. No doubt, some are probably overly simplistic and may not even be practical, but they are solutions none-the-less, and they do serve as positive starting points to stimulate and encourage further thinking on the part of the reader, hopefully motivating him to do his own research in much greater depth, and to find and develop better ideas, solutions, and answers if he is not satisfied with the ones presented here. This manuscript also serves to alert the reader to many of the possible pitfalls as well as some of the finer points, problems, and technical details that he might otherwise overlook or not be aware of. The author intentionally follows the assumption that preparing for a “worst case scenario” offers the best opportunity for long term (one hundred years) survival given the many unknowns and uncertainties in today’s world of 2008.

But the scenario presented in this manuscript is not the only possible scenario, given the existing realities and known facts of today’s world as the basis and starting point for possible future outcomes. You could reduce the world populations through worldwide thermonuclear war. You could have rogue nations and brutal, tyrannical dictators, or rogue armies killing and pillaging their way across the landscape. Enslaving of the impoverished could become commonplace. There are several possible future scenarios that could result from today’s real world, but most of them are too terrible to even contemplate, and are very likely to be far worse than the one I have presented in this manuscript. The scenario I have presented offers one possible, workable, viable, and achievable solution that can save a small percentage of people - those who might choose to follow it.

While this manuscript may sound pessimistic and gloom and doom, worst case scenario, I can not imagine that any person would be happy, cheerful, and optimistic while saying that in all likelihood, about two thirds of all Americans are likely to die or will need to die in what is likely to be an involuntarily or assisted termination if they do not die quickly on their own in the initial riots, and that he and his family are likely to be among them since he lives in a major metropolitan area. To those in remote, rural areas who are in a position to survive, my advice is to prepare yourselves to be able to cut your umbilical cord of dependence on the national economic-industrial infrastructure, and to prepare yourself, your family, and your community for a worse case scenario of possibly 100 years duration. If the struggle for survival turns out to be less challenging or of shorter duration than the worst case scenario that you had prepared for, well, you will have been prepared for that too. To make only modest preparations and have reality prove to be far worse, far more devastating, or of much

longer duration than anyone had ever anticipated can only result in tragic consequences. It is always better to be over-prepared, especially when your life and the lives of all of your family and your entire community depend on it, and when the probability of the occurrence sometime in the next 5-15 years - almost certainly before the year 2015 - of a known major world-wide disaster that is now looming ominously over yonder horizon appears to be about 99 percent – or is virtually certain to happen, given that the United States and most of the rest of the world have not made any serious efforts to develop and implement alternative sources of energy and petroleum substitutes in quantities sufficient to replace most of the national or world's petroleum, or made any other efforts to wean themselves off of the petroleum opiate, nor have they made any effort at all to reduce their total population.

The following question has been asked of me several times by different people; “just how bad will a worst case scenario be in my particular situation”? There are a thousand answers to this question, and each answer will be correct for some people somewhere. It all depends on who they are, where they live, how strong their desire to survive is, how much time, effort, and money are they willing to put into their own survival preparations, the quality of their wisdom, judgment, and decision making ability that they apply to the preparation and implementation of their plans, what they have already done in the way of preparations for themselves, and how much their neighbors within several miles of them are doing.

If a national government is benevolent, altruistic, paternalistic, and caring of its people, as appears to be true in some countries, such as Denmark, Brazil, and New Zealand, then it will “offer its citizens a parachute”, making it possible for all to survive with only a moderate degradation in their current standard of living at the end of the world economic-energy crash. But it is likely to include some significant economic hardship, and a lot of belt tightening and scaling back of many of the nonessentials and luxuries in life that they have previously enjoyed. Such a government would likely put everybody on a dramatic energy rationing program starting today in preparation for the coming worldwide economic-industrial crash, allowing each family perhaps no more than 25-75% of the average energy that all families normally consumed during the prosperous times of the Petroleum Era. For those who complain about needing their Hummer or giant, gas-guzzling SUV to commute to work and not being able to continue to do so on the meager ration of fuel that they have been allotted, the government will say, “learn to ride an “electric assisted bicycle” during the good weather and a “light electric vehicle” (LEV) during the inclement weather. Learn to carpool and share your petroleum ration, or to use mass transit, or walk. Ride a bicycle or rollerblade”. And for every complaint, the government will say, “Hey, Mate! Better get use to it!! That is the way life is going to be from now on.”

It is highly unlikely that all of the various alternative fuels and substitutes combined will ever be able to replace more than 15 - 25 percent of the total petroleum fuel currently being used. For those who absolutely insist on purchasing more petroleum beyond what is authorized on their government, counterfeit-resistant ration card, there will be fuel available but only at a very high price – perhaps \$10 per gallon, \$50 per gallon, \$200 per gallon, or even \$1,000 per gallon. The point is, there is some price that can be set for petroleum fuel that people will not be able to afford, and they will learn to make do

with what they receive in rations. That is likely to mean abandoning their own vehicles and a dramatic change in their own lifestyles, regardless of whether or not they are prepared and willing to change or to become energy conservative. But such extreme measures just may be sufficient to avert the extreme catastrophic crisis that is the assumed basis for this manuscript.

Unfortunately, in the United States, our Republican controlled Whitehouse under President George W. Bush has failed miserably to exercise any meaningful leadership, gumption, commitment, courage, or initiative at all during the period of 2000 to 2008 in dealing with the coming energy crisis and the need to establish an aggressive, believable, and realistic program for energy conservation and switching to alternative energies. It only provides occasional “lip service” without demonstrating any real, meaningful and serious commitment. This is a defeatist’s attitude on the government’s part from the very beginning and strongly suggests that there is unlikely to be any such parachute for Americans. It appears that every American is likely to be left to fend for himself and make his own way, much like the poorest twenty percent of the population in New Orleans were left to fend for themselves as best they could for the first several days following Hurricane Katrina in late August 2005, after the Bush administration had intentionally dismantled the top executive layers of FEMA (the Federal Emergency Management Agency), gutted its experienced and knowledgeable leadership and top management, then raided its financial appropriations to help pay for his “hobby war” in Iraq which has turned out to be a real, money draining fiasco. Under such circumstances most Americans will perish by virtue of being unprepared, trusting in their government leaders to provide guidance, leadership, and rescue and relief programs that will take care of them in their time of need as it always has in the past, and having disease, starvation, and urban and suburban anarchy, lawlessness, and riots overtake them. When you cannot depend on your own government for leadership, guidance, security, assurance, rescue, and assistance, and when you cannot depend on the national economic-industrial complex for normal, everyday support and the delivery of the daily necessities and supplies of life, then your most prudent course of action will be to untie yourself from your dependency on the national umbilical cord and to become totally independent of all resources and links to the world outside your local community, and learn to depend on only yourself, your neighbors, and your community to the fullest extent practical. When the national ship of State sinks, you do not want to be on it and go down with it.

In such circumstances if you have to be responsible for yourself, you will need to prepare you own lifeboat. When people begin thinking in these terms today, they usually think of either families who are building “energy self sufficient, self sustaining homes” using solar panels, wind turbine generators, and growing gardens, which certainly are good ideas and a good start towards self-sufficiency. Or they are thinking of a tiny segment of society that we commonly refer to as “survivalists” who predict a coming apocalypse in the near future, and stock a year’s worth of food, supplies, and weapons in a remote cave or underground bunker somewhere in the wilderness, then prepare to hunker down when the time comes. But both the self-sustaining home and the survivalist will need to continue generating a cash flow of hard currency to be able to continue paying their property taxes for as long as a local government exists, and they will still be dependent on mainstream society for certain basic essentials and periodic replenishment of their supply cache. The self-sustaining home has a continuing low monthly expense that is necessary to procure basic essentials beyond what they are able to produce for

themselves, and the survivalist must restock and re-supply himself every six to twelve months once he hunkers down and begins living off of his stores (while producing little or nothing to sustain himself or to trade or barter with others).

If a survivalist truly wants to disconnect himself from all elements of society and to become totally independent and isolated from society for many years, then he must produce, make, find, catch, and generate everything he needs, both now and into the distant future after most of his technology from “the outside world” breaks down, wears out, or is consumed. After a period of time and after most of his stores of supplies are depleted, he will need to lower his standard of living to a level of bare subsistence living – living totally off of the land on what ever he can gather, catch, or grow. His quality of life and lifestyle will become little more than that of a foraging, scavenging animal. This activity will consume virtually all of his time, strength, and energy from sunrise to sunset. He must gather more than he actually needs so he can preserve the extra food to feed and sustain himself through the winter months. Since subsistence survival is likely to demand all of his time and energy, he is unlikely to have any free time or energy to be innovative, creative, or to try to improve his standard of living.

After a period of time he is likely to meet a second survivalist. The second survivalist may have a garden and offer to trade some dehydrated and fresh vegetables for some of his dried meat and fish. This transaction will improve the quality of life for both survivalists since they will both be eating better and will be able to spend more time concentrating on what they do best, and will no longer need to spend countless hours of their time, energy, and resources trying to obtain those items that they can trade for.

Pretty soon they may meet a third survivalist who is a trapper and makes fur clothes and footwear. They both need clothes and footwear so one trades meat and fish and the other trades vegetables for fur clothes. And once again the quality of their lives improves. All three survivalists are now better off and spend less time trying to survive and eek out a meager existence.

Over time they may meet other survivalists, each with items to trade or barter, and the lives of all of them will continue to improve as they interact more with one another. But after awhile they will run into the problem that “A” wants to trade with “B” for his products, but “B” does not want what “A” has to offer. Instead, “B” wants what “C” has, and “C” wants what “A” has. Complications arise and a need for a rudimentary monetary, banking, and finance system arises, and one is created. As more and more survivalists enter the network of traders at periodic rendezvous and begin to cooperate and work together with one another to improve the quality of their lives, we suddenly realize that what they have created is a rudimentary system of cottage industries and public markets supported by a basic system of community banking and finance.

No family will be able to survive for more than about a year all hunkered down in their bunker or cave, protecting their stash of supplies by sitting at the front door with a shotgun in their lap ready to blast anyone who appears in their sights. It will take a community effort to survive – all for one and

one for all.

A pre-planned, organized, and coordinated version of this rudimentary cottage industry is what this manuscript advocates as offering the best possibility for long term survival for residents of any rural geographical region in the face of a long term, multi-year national disaster if the national economic-industrial system breaks down for an extended period lasting perhaps as long as one hundred years as a result of the predicted “end of cheap petroleum” and the ensuing national chaos, riots, and anarchy resulting in the predicted huge population die-off. And this is also why being a survivalist who plans to hunker down for up to one year all alone or with only his family in an isolated bunker or cave full of supplies in some remote wilderness area will not work. Each person’s best chances for long term survival rests with his becoming an integral, contributing member of a functional, organized, community’s local economic-social infrastructure.

For a community to become totally independent of all modern economic-industrial support systems means that the residents will have to go back in time to a period in history when they could understand the technology, and can construct it, repair it, and maintain it for themselves, or with the help of their neighbors. For that simpler time in history, I have chosen the pre-petroleum era of the horse and buggy, e.g. the 1800’s, using “Modernized Appropriate Sustainable Technology”, with some solar energy, wind turbines, and modern greenhouses thrown in, but without the established national economic-industrial-transportation infrastructure that was in place at that time and was an important and crucial element in their survival, growth, and success. There is no need to accurately recreate the past when there are some aspects of modern science, technology, and knowledge that we do understand and are able to apply and incorporate as enhancements to old technologies to improve our quality of life. I have chosen a level of technology that I believe most people can understand and work with if they and their neighbors were to diligently apply themselves to learning it, and set themselves up in various highly specialized cottage industries with the goal of untying their umbilical cord from the national economic-industrial complex and becoming totally independent of all outside resources for as long as is necessary until a national government that is willing to provide competent leadership and assume responsibility comes to power and once again provides that competent leadership and direction that this foundering Ship of State so badly needs.

When people think about their ideal location where they would like to set up their second home outside their megalopolis in preparation for the day when the big petroleum balloon finally bursts, they typically have several criteria in mind, and generally they are all very reasonable. They normally include the following.

- 1) Some place with mild winters where the summers do not get too unbearably hot for too long, and where there is 20 – 50 inches of rainfall annually, so you will not have any severe water problems.
- 2) You want rich, deep, fertile, loamy, rock-free topsoil for farming so you can grow luxurious gardens that are overflowing with an abundance and wide variety of fruits and vegetables with only a minimum of work required.

- 3) You want to be well away from the big cities because you expect them to become out-of-control war zones with criminal gangs and looters running amok.
- 4) You want to have plenty of woods nearby and some clean, clear, and unpolluted lakes or streams teeming with fish, and you would probably like to have some good hunting available nearby too.
- 5) You want to have a liberal county government and building department in power, one that will allow you to “go green” and to have some horses and other farm animals. Of course, you will also have a few chickens for meat and eggs, and a goat for milk.
- 6) You will want to construct a cabin on your site, or maybe set up a mobile home; connect to the utilities, dig a well, and set up a septic tank system. A septic tank system will mean that you do not want your ground water table to be any higher than about six feet below the surface at any time during the year.
- 7) You will want good neighbors who would be willing to show you the ropes about how to farm and how to grow a garden.
- 8) It would be nice to have a small town with a general store nearby so you can stop by and pickup any supplies that you may have forgotten or did not know you would need.

As they look at their maps, they see some pretty good candidate locations for their second homes in the wilderness areas in many states bordering the Atlantic coast, then across the middle latitude and southern states to slightly west of the Mississippi River where it becomes too dry. Parts of Colorado looks pretty good. Then you again pickup some nice territory in northern California and on up the Pacific Coast and on into British Columbia. The forested regions and mountain regions of the northern interior states get too cold in winter.

If I did not have to worry about the brutality and savagery of my fellow man, I would use the above criteria to find a great location where survival would be easy – and I would know that it would be a great place to live and settle in for the duration, but as it is, many of the unwary will unwittingly be lured into this deadly and fatal trap and to their deaths by equating survival when the crash begins with an ideal location for a summer cabin during the good times of the petroleum era when we lived in a safe and civilized society. The problem with these ideal locations is that they are where everyone will be going, including all of the criminals, gangs, looters, and pillagers – those who plan to steal from and live off of those who have prepared. They can and will pillage all year around in such a pleasant and rich environment – killing and looting from each other when the law-abiding families have been killed off. With two-thirds of the population having to die, it is going to be “dog-eat-dog”, “every man for himself”, “stick it to your neighbor before he sticks it to you and steals all of your supplies”. The unsuspecting will find that these supposed “Gardens of Eden” will become their fatal traps from which there will be no escape and no survival.

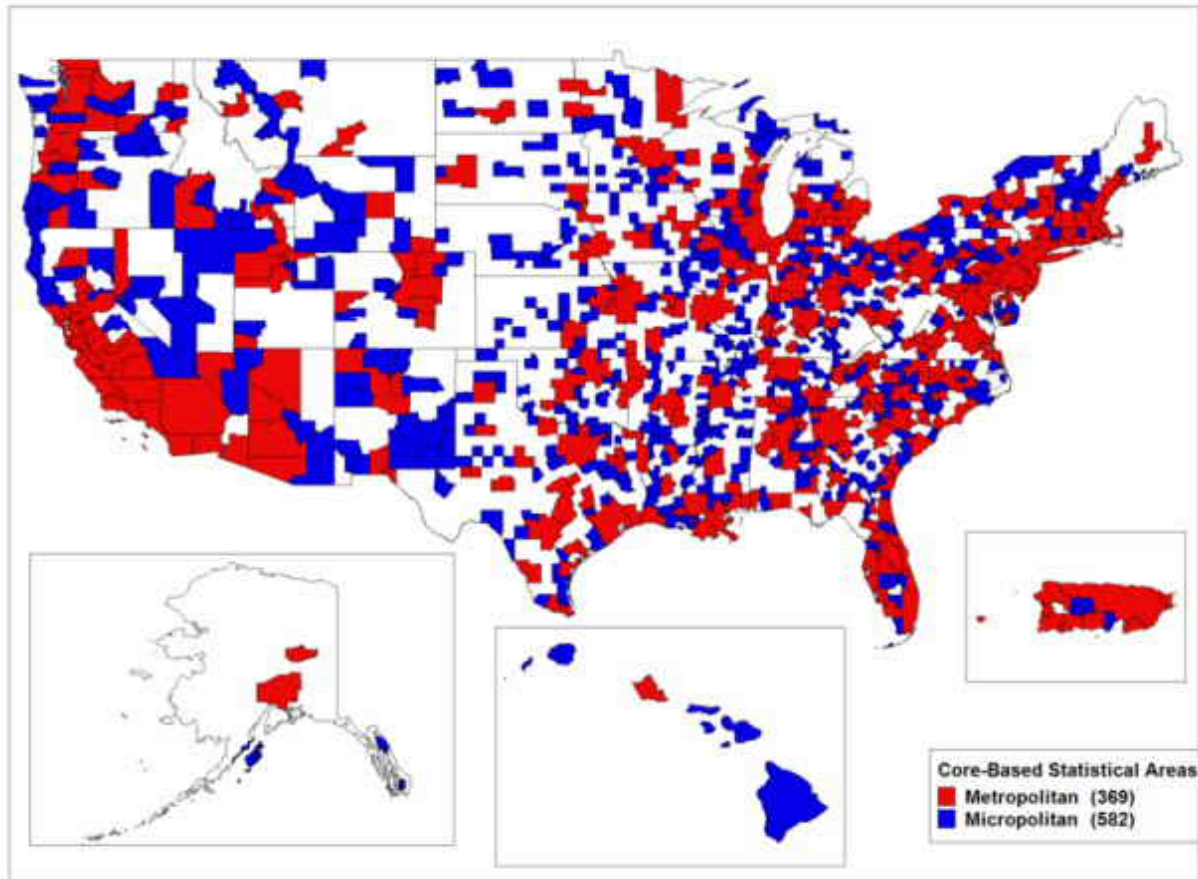
It turns out that in the case of the upcoming great petroleum crash and the ensuing riots and anarchy that will break out and rapidly spread all across the nation, the best places for a family to survive are actually going to be the worst, harshest, most brutal, and the most difficult and challenging places to live. The tougher it is to eek out even a bare subsistence living in a place, the better will be your chances of surviving there – up to a point. Most places along the northern US – Canadian boarder are going to be shut down in winter due to deep snows from November through February or March. There will be no movement and little or no pillaging during this time. If you do not have a huge, “highly visible” cache of supplies, but instead live off the land and make what you need when you need it, then you will not be attractive to pillagers. Few of those with criminal and hostile intentions will be interested in going up to northern Minnesota to pillage, because they know they will have to get out of there before winter sets in since they do not want to actually have to “work” to stay alive. The people in northern Minnesota will have to be extremely hardy and work hard every day, just to sock away enough supplies for their tough winters and to keep from freezing. There will be little time for them to enjoy the pleasures of life because death will always be stalking them and will always be just a few steps behind. This is no place for the faint of heart, the lazy, and the pillagers to go. They would be forced to either work or die. When they do come and want to know where your food supplies are, you will be able to point to your garden and say, “We still have to pick what we want for supper tonight, clean it, cut it up, cook it, and prepare it”. That is the kind of work that looters do not want. They will want to be able to steal something of value and run, or to kill the occupants of a house, then just sit around and live off their stores until they run out. But they will not want to have to go out and hoe a garden for their food. It is this very proclivity for hard work that will save the lives of the few hardy individuals and families who are willing to do this work and who choose to brave the brutally cold northern winters for a hundred years.

The **ideal** rural setting for you and your family if you really want to survive would be an existing rural community of 30-400 families (100 to 1500 residents ±) living within an area of 50-80 square miles (say, all families living within 4-5 miles of that central community and the community itself) and would contain the following characteristics:

1) It would be located well away from all areas of significant population, at least: 250+ miles away from any major metropolitan areas with populations of 1 million or more. (50) 200 miles away from any cities or metro areas with populations between 500,000 and 1 million. (47) 150 miles or more away from any medium centers of population of 150,000 to 500,000; (155) 100 miles away from any smaller centers of populations of 75,000-150,000 people (106), and 50 miles away from any cities and suburbs of between 25,000-75,000 people and, 25 miles away from small towns of 5,000-25,000 people, and

Number in parenthesis (##) is the number of cities and metropolitan areas falling into each category in 2005 according to the United States Census Bureau - http://en.wikipedia.org/wiki/List_of_United_States_metropolitan_areas . This site is still online as of February 2008 and lists the 565 largest communities in the US, with populations of 55,000 and higher.

The 582 “Micropolitan Areas” shown in blue (below illustration) are defined by the [United States Census Bureau](#) as a USA and have one or more adjacent [counties](#) or [county equivalents](#) that have at least one [urban cluster](#) of at least 10,000 population but less than 50,000, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties. The red are the 369 large Metropolitan areas with populations greater than 50,000. Your possible settlement areas will be within the white areas of the map.



http://en.wikipedia.org/wiki/Table_of_United_States_Micropolitan_Statistical_Areas

Such a community would be located well away from any major highways or interstates, preferably at least 20 miles down some lonely, desolate, isolated, little traveled, winding, gravel country road with no electrical power poles and lines, a road that would not look at all inviting to anyone who was not familiar with the territory, a road like the one in the photo on top of the

next page, that would discourage any rogue gangs of bandits and looters from wanting to explore it, looking for some quick and easy pickings.

Since it will be difficult to move building materials and supplies from the business district up a hill to your home or building site without a petroleum powered vehicle, it would be much better if you found or created a community on reasonably level ground, but well above any actual or potential flood plains.

While you might be tempted to select a home site high up in the mountains for your family's survival location, I would recommend you stay below 4,000± feet elevation. The effects of global warming must now be factored into your selection of a desirable location. With the polar ice caps melting, the huge quantities of fresh water pouring into the oceans is likely to upset the major Atlantic and Pacific ocean currents, and that will affect the weather all over the world in unpredictable ways. The summer snow line on the mountains could easily fall three thousand feet which would dramatically shorten any growing season and cause cooler days for anyone living high up in the mountains. Alternatively, the snow line could rise by 3,000 feet which would mean warmer days and a longer growing season, but it would also mean less rainfall, smaller or no summer snow packs remaining in the mountains to provide melt water for streams and rivers, less water in those streams and rivers, and drought conditions over areas that are not now experiencing water shortages and droughts. So select an area in which to set up your home where you can adapt to either condition without too much inconvenience or increased danger of starvation to your family.



If you were a stranger to this area and unfamiliar with the territory, looking for something to loot and pillage, just how many miles would you be willing to walk down this desolate dirt road, searching for and hoping to find some easy pickings? Maybe this road leads to ten acres of hayfield or to some old abandoned mine thirty miles down the road with nothing to pillage. Would it even be worth the effort? It is likely that this road will not be plowed in the winter and is probably closed from November through February. One thing that makes this road look so forbidding is that there are no **overhead power lines** on poles along the side of the road nor any other evidence of utilities – a dead giveaway that something to pillage exists down the road. Ideally, the utility lines would come in from a different location and not along side the road to your community, which would have a name like “Sagebrush Butte Trail”. Would anyone in their right mind want to walk ten miles down this road just to see if Sagebrush Butte Trail is really a trail, or maybe a community to pillage?

- Mountain ridges, valleys, and rivers often tend to run parallel to each other in one general direction such as northeast to southwest within specific large geographical regions. Typically, centers of population along with their major highways, interstates, and railroads often develop and expand in the directions of least resistance in these regions, which is along the valley floors, parallel to rivers and mountain ridges.
 - Criminal gangs interested in pillaging and looting would prefer to walk 500 easy miles along major highways and population corridors that follow the reasonably flat valley floors and population development, following the routes of least resistance, than travel 50 hard, difficult, and treacherous miles (the way the bird flies) climbing up and over steep mountain ridges, down the other sides, across streams and rivers without bridges, then up the side of the next mountain, etc. for fifty miles. The moral of the story is it is better to select an area in which to settle that has as many natural barriers, obstacles, mountains,

rivers, and treacherous miles as possible between your community and the nearest major centers of population with a minimum of roads and bridges directly linking your community to the major population areas.

- The next item to look at in selecting a location in which to settle, are lucrative targets of opportunity for the starving masses walking out of the cities. You do not want to be the only light, brightly beaconing in the middle of an otherwise dark and desolate dessert in the middle of a very black night. You want to have numerous visible, attractive, and lucrative targets of opportunity between you and the population centers so criminal gangs of pillagers will focus on them first instead of on you, and will hit them first. They may reach what they consider to be a point of diminishing returns where the desirable targets become fewer and fewer in number and they finally give up or die before reaching your community. As an example, consider the Eskimos of northern Alaska. They are probably pretty safe, because there are many targets of opportunity between the southern US. and their homes in northern Alaska for anyone intent on walking to northern Alaska to steal their ice igloos and whale blubber. With the many available targets of opportunity between the southern US. and northern Alaska, and the many treacherous miles in the northern part of that walk, I do not think anyone will be interested in trying. Besides, the meager payoff at the end would not be worth the great effort and danger involved – which brings me to my next point.
- If you make, produce, manufacture, or grow most everything that you need as you need it, with only a modest reserves that are “visible”, (you keep the bulk of your supplies hidden away, out of town, in buried storage) then you will not acquire a reputation of being a “Fort Knox” -- a treasure trove of massive visible storehouses full of supplies, food, and survival materials just waiting to be stolen. And if you do not have highly visible, massive warehouses full of stores, then you will be less attractive as a target to looters, pillagers, and rogue, out of control gangs of criminals and thugs.
- 2) The region would offer **significant topographical, biological, and geological diversity** within 5 miles (an area of 78.5 square miles), within 10 miles (314 sm), within 20 miles (1,257 sm), and
 - within 40 miles (5,026 sm). There would be highlands and mountainous areas with forests, hunting, and mine-able minerals; lowlands with farms and pasturelands; and clean, clear, unpolluted streams and maybe a river or lake, with fish. Among the mine-able minerals within 40-60 miles, there would be deposits of several different types of minerals including coal and metal ores, and clays for making bricks, cement, and pottery; and deposits of river sand for making concrete, glass, and other products. There would be quarryable limestone (very important) for smelting, making cement, pig iron, wrought iron, steel, and other products as well as for sewage treatment; and some accessible decent quality coal for making coke for use in making steel. There should be several existing or habitable mines of different types within forty to sixty miles of the community. There might be other accessible minerals that could be useful. The annual rainfall would be between 25 and 45 inches per year on the lowlands and valley farmlands, minimizing the need for irrigation. The soils in those farmland areas would be

rich and fertile, reasonably level, and free of rocks. The summer weather in the valleys and lowlands should be warm, sufficiently long (perhaps with the help of season extending greenhouses), and suitable for growing a wide variety of fruits, vegetables, grains, and hay, although it would be more desirable for the safety of your family and community if the winters were brutal, cold, harsh, miserable, and bitter to discourage outsiders and gangs of criminals from wanting to seriously consider making the effort to travel to your region for nefarious activities.

- 3) When you purchase your property, you also want to make sure that you purchase all of the associated surface and subsurface water rights, mineral rights, air rights, timber rights, and any other rights that are attached to your land. If you think you can do this, GOOD LUCK. It was discovered in the early 1900's that water and mineral rights could be stripped from the land and sold separately without decreasing the value of the surface land. So typically, across most of the US, water and mineral rights were separated from the land and sold in bulk to giant corporations. These corporations now have the right to drill for water, gas, or oil on your land, or to excavate for coal, gravel, or other minerals under your land. If you try drilling a water well on your land, or quarrying for limestone or gravel, you are likely to run afoul of the law for taking something that legally belongs to someone else.
- If their mining activities under your land threaten it with subsidence, then they can purchase your surface land and force you to move. Ideally, you would like for your deed of purchase to contain the Latin phrase "[Cuius est solum, ejus est usque ad caelum et ad inferos](#) ("To whomever owns the land, shall own the earth to its center and up to the heavens") or something to that effect such that you own all of the land and all of its associated rights including all: minerals, water, and natural elements and compounds, from your defined surface boundaries down to the center of the earth, and the air, sunlight, and natural, unpolluted precipitation that falls on said defined land from those defined boundaries, upwards to 500 feet above the ground". You do not want your neighbor to be able to block the sun that shines on your property beyond the trees and hills on his property that existed at the time you purchased your property, nor do you want polluted water flowing from his property onto yours, nor do you want him to divert any unpolluted and environmentally clean water that would have flowed naturally onto your property without your prior permission and agreement.
- There are several types of rights that you will want to obtain. These include:
- **Air rights:** Air rights are a type of development right in [real estate](#). Generally speaking, owning or renting land or a [building](#) gives one the right to use and develop the empty space above the property. County building ordinances typically control how high you can develop your land above the ground surface – i.e., the maximum height of the peak of the roof on your multistory house or business.
- Typically, in the "uncontrolled" category of airspace, any pilot can fly any aircraft as low as he wants, subject to the requirement of maintaining a 500 foot distance from any people or man-made structures, except for purposes of take off and landing, and not causing any hazard.

- [Subsurface rights](#) - rights to all oil, gas, and minerals under the property at all depths. Mineral rights, mining rights, oil rights, or drilling rights, are the rights to remove [minerals](#), [oil](#), and sometimes [water](#), that may be contained in and under some land. In jurisdictions that support such rights these may be separate from other rights to the land
- [Riparian water rights](#) or [Prior appropriation water rights](#) -- rights to surface and underground water flowing across property, ponded, or forming a boundary of the property. It is essential to the prior appropriated water rights holders downstream, that a significant percentage of any diverted water be returned to the stream channel, unpolluted, and not lost to groundwater flow or other causes.
- [Littoral rights](#) - rights to any ocean and beach forming a boundary to the property
- **Timber rights:** - rights to all trees on the property regardless of their species, height, size, or diameter.
- Thus a given property can have several owners where one person owns the surface and the right to build and live on the surface while other people or corporations own the various “rights” to the property. There are several steps you can take to try to acquire the rights to a piece of property.
 - These include acquiring the mineral rights and other rights which are generally as follows:
 - A) Find an area of interest and determine its legal description (i.e. Township, Range, Section, etc.)
 - B) Determine surface and subsurface ownership status as explained in *Manual for Determination of Status and Ownership, Arizona Mineral and Water Rights*
 - C) Acquire and maintain mineral rights as described in *Laws and Regulations Governing Mineral Rights in Arizona*. Acquiring the rights could get sticky and prohibitively expensive if the owning corporation wants to charge you for every cubic yard of limestone, sand and gravel, coal, or other minerals, water, or elements that underlie your property. What you would be doing would be creating a little pinhole of non-ownership in their fabric of hundreds of square miles of continuous ownership of the mineral rights in a given area. Creating pinholes in their map of ownership of mineral rights would not be something that they would be eager to do, unless they have already determined that there is nothing of potential value in your specified area and they see it as an opportunity to make a profit in the transaction. -- <http://mines.az.gov/Info/mineralrights.html>
 - These suggestions are for Arizona. Each state has its own laws, but most of them should be similar and the procedures for trying to acquire the rights should be similar. For additional information on land rights, see http://www.apacheenergy.com/body_water_rights.html#home
- 4) The community should not be located immediately downwind or downstream of serious potential hazards – i.e., burning major cities, volcanoes, large dams and reservoirs, factories that could pollute or contaminate your waterways, streams, and rivers, hurricanes, tidal waves, etc.

5) The regional population with whom you will be interacting should also be occupationally and

- educationally diverse as opposed to being homogeneous with similar interests, skills, and abilities. It is having a rich diversity in interests, skills, education's, and abilities that will provide the best mix for maximizing the chances of success for a wide variety of cottage industries – and the best chance for everyone and/or their descendants in the community to survive for the long term, independent of the rest of the country.
- Note: In some remote, rural regions a few of the residents are openly hostile towards outsiders and strangers because they are growing illegal crops such as marijuana or are involved in other illegal activities. Stay away from those rural areas where you are not welcome.

6) Ideally, every family will have paid off all of their debts and will have prepared themselves to live in total poverty with loss of employment and total loss of all income, and many should have

- prepared and set themselves up to live in an “energy self sufficient, self sustaining family compound” or family home with its own solar panels and wind turbine generator to supplement the community co-op generated power, and will grow a garden and raise a few chickens as described in Mel Moench’s book,
- “[Planet Earth Home - The Ultimate Self-Sufficient Home](http://www.planetearthhome.com/index_second.html)“, at
- www.planetearthhome.com/index_second.html . β *Listed at \$110 in 2006 – very expensive, but seems to have numerous favorable reviews.* Moench also has several other similarly expensive books on long term energy and food independence for the family. If you are interested in this book, see if you can find a copy at your public library and inspect it before you shell out the big bucks to purchase it.

This alone will not make a family and their relatives and tenants living within the family compound totally independent and self sufficient, but if done properly and diligently applied, may meet and provide more than 80 percent of their basic needs for which they would normally be depending on society. In an “**ideal**” **community** for surviving in the Post Petroleum Era, there would be many specialized and highly developed cottage industries using “**Modernized Appropriate Sustainable Technology**” that would be able to supply most of the remaining 20 percent of the critical needs of every family, supplement the 80 percent that they can do for themselves to improve the quality of their lives; and to construct new, and rebuild, maintain, repair, and lubricate all of the technology needed for production and self sufficiency. This is why individual families, family compounds, and communities will need specialized cottage

industries and each other to survive, and why most survivalists will eventually starve to death, or become renegade bandits, within one to three years, after their supplies and provisions have been exhausted and they are unable to obtain any more. If the co-op and community cottage industries fail to materialize, or are weak and fail to develop the depth, expertise, and critical mass required, then the family compounds will need to be much stronger and pick up the remaining 20 percent of their critical needs to the fullest extent possible, and trade or barter with other strong families and compounds.

Unfortunately, there is unlikely to be any law enforcement available except for what each community and family compound can muster for their own protection and maintenance of civil order. However, the most important part of long term survival in any major national and worldwide catastrophe will be neighbor helping neighbor in an organized fashion throughout the community and surrounding rural area. Mutual collaboration and cooperation among all of the residents of a community and between neighboring communities is what this manuscript emphasizes as being the key to community and family survival.

This manuscript makes many dire predictions about the “near future” in the United States, a future that is expected to have fully unfolded sometime before the year 2015 and certainly by 2025 at the very latest. These predictions are not written in stone and do not need to occur, but any serious predictions must begin with and build upon the realities of the present world today; since to arrive at any given “future”, you must proceed in a step by step fashion across the “continuous” span of time, from the existing “present” of today to that future, and each step at each point in time must be a logical consequence of and evolve from the previous step. Given the current facts and realities of our “present”, and the current course of public and political events, it appears that the most likely “future” will be one similar to that forecasted in this manuscript and is likely to contain many scenes and scenarios that are similar to those that I have predicted. Most of the more socially acceptable futures require or depend on specific present courses of action and events to either be occurring or to have already occurred that are just is not happening. And if the required “present” does not exist today, then it is virtually impossible for a “more socially acceptable future” that evolves from and depends of these fantasy “presents” to occur.

For example, one such requirement for survival that was first written about 1960 and re-verified and better defined and refined by various population experts in later years was that the “total population of the United States needed to be reduced to approximately 100 million by the year 2000 to achieve a carrying capacity that would sustain the population, allowing them to survive with a minimum of petroleum or synthetic fuels”. Population control and reduction has never happened, and it is now too late for it to happen in a socially acceptable manner. Thus, acceptable future near-term scenarios that are predicated on today’s population being much smaller can not happen.

Executive Summary:

The **argument** (*a reasoned justification of a point of view, a claim, a deduction, an opinion or an interpretation that leads to a conclusion.*) presented in this manuscript is based on deductive logic and on the assumption that the many energy experts and many population experts from all over the world very likely know what they are talking about, and acceptance of the conclusions they have drawn in common from their data and research as being correct. A few of their basic conclusions are now almost universally accepted by the mainstream scientific and technical communities as being tautologies or universal truths. Most of these experts have graduate degrees, many have PhD's. Many teach or do research at prestigious universities or work for major corporations, research organizations, or "think tanks". Many have written books, published numerous articles, and won major scientific awards. I have no doubt that they are all much more brilliant and better qualified in their respective fields of expertise than I am, so I shall not question the wisdom or correctness of their findings when virtually all of them agree on the main points but differ only in their interpretations of the significance of the details and finer points of their research in reaching their conclusions. For example, the most alarmists of the energy experts predict that the world will run out of inexpensive and affordable oil and gasoline before the year 2010. The most conservative and laid back of these experts say; "No, it will be at least 2030 before we will need to start worrying." While you can argue over their interpretation of the details, across the spectrum they are all in agreement that "we are going to run out of affordable oil and gasoline sometime in the first one third of the 21st century, or sometime in the next 25 years"!!! It is a composite synopsis of the two primary and most widely accepted generalized tautologies espoused by these experts, and using a rounded average of their time estimates, that I have used as the premise for my arguments in this manuscript. They are:

- **The world, and the United States, will run out of affordable oil and gasoline in the civilian sector sometime in the first quarter of the 21st century, probably before the year 2015.**
- **Without inexpensive oil and gasoline (or a satisfactory alternative in sufficient quantity) available to the civilian and farming sectors of society, the "carrying capacities" of both the entire world and of the United States will be reduced to approximately one third or less of their current populations.**
 - My starting point is the "double negation of the consequence" of statement 2. Remember from your English class – "A statement with two negatives modifying the same word or concept are the same as a positive statement about that word - a double negative is the same as a positive".
 - **2a. Without inexpensive oil and gasoline available to the civilian and farming sectors of society, a minimum of two thirds or more of the present populations of the world and of the United States will die before the year 2015!!**
- In addition to developing these statements, I have pulled in and incorporated into this manuscript a significant amount of relevant external technical information and government material (Executive Orders, etc.).

A few of the technical and scientific experts in the last half of the 1900's began predicting as far back as 1960, when the US. population was only 179 million, that if the US. was ever going to get down to a much smaller, sustainable population of approximately 100 million± in an orderly manner, it would need to begin immediately and do so quickly, and have accomplished it before the end of the last quarter of the twentieth century (1975-2000), and definitely be at some predetermined population level by the first years of the twenty-first century (2001-2010) to enable our descendants to survive with an adequate quality of life in a Post Fossil Fuels Era. The most famous of these early prophets was Dr. M. King Hubbert, a geophysicist, who in **1949** developed his now famous Hubbert curves, predicting the peak oil production and end of the various fossil fuels. Not only did we fail to listen to and heed the warnings of these early visionaries, and to recognize the significance of what they were prophesizing, but we have dramatically increased our population, fossil fuel consumption, the national debt, and personal debts. The increase in population is shown in the accompanying shown below is taken from <http://www.census.gov/prod/2002pubs/censr-4.pdf> . See also <http://www.hubbertpeak.com/hubbert/>

Total Population of the United States from 1950 forward:

Population

Year millions

1916 100.0 β The sustainable Post Petroleum Era level of population of the US in the early 2010's.

1950 150.7

1960 179.3 β Concerns were first expressed by a few visionary scientists about US. and world

overpopulation, and the eventual limitations in the carrying capacity due to future

depletion of petroleum and other carbon based fossil fuels as nonrenewable resources

- sometime in the 21st century. But nobody was listening or concerned. Their dire
- prophecies fell on deaf ears, probably because there have always been "alarmists"
- putting out prophecies of gloom and doom and "the coming end of the world". While
- 99 % are eventually proved wrong, there are always a tiny few who are lucky enough to
- 1968 **200.0** hit the mark, probably by pure chance and good luck, given enough time.

1970 203.2

1980 226.5

1990 248.7

2000 281.4

2006 **300.0** β Officially estimated and published by the US Census Bureau – November, 2006.

“An Earth Summit of world leaders and heads of state was held in Rio in June 1992, the largest ever such gathering of heads of state, who agreed that our impact on earth had to be reduced. Five months later a remarkable statement was issued — the World Scientists Warning to Humanity — signed by 1,600 senior scientists from all over the world, including more than half of all living Nobel Prize winners.”

The World Scientists Warning to Humanity – November 1992

“Human beings and the natural world are on a collision course... many of our current practices put at serious risk the future for human society ... and may so alter the living world that it will be unable to sustain life in the manner that we know. Fundamental changes are urgent ... No more than a few years remain (from 1992) before the chance to avert the threats we now confront will be lost and the prospects of humanity immeasurably diminished.”

At the time, no major American television network reported this Warning to Humanity, while the two prestigious newspapers, the New York Times and the Washington Post, pronounced it ‘not newsworthy’. Now, sixteen years later, there are many more people, greater resource consumption (and depletion), more vehicles, more deforestation, increasing biodiversity loss, less topsoil, less fresh water, etc., and an ever-widening gap between the haves and the have-nots — meaning that we are much further away from, and are very likely already beyond reach of “sustainability”, a requirement now generally recognized as being vital for our future well-being.”*

* **Derek J Wilson**, Wellington, Aotearoa New Zealand, September 2003, foreword to a speech he gave, “Where in the World are We Going?”, <http://www.derekjwilson.co.nz/speeches.html> The full statement, “Scientist Statement -- World Scientists' Warning to Humanity (1992)”, can be found in its entirety on the site sponsored by the “Union of Concerned Scientists” at <http://www.ucsusa.org/ucs/about/1992-world-scientists-warning-to-humanity.html> . The names of several hundred of the most prominent signers are listed at <http://deoxy.org/sciwarn.htm> . All three sites were still online as of February 2008.

Since we have not only failed to reduce our population downward from the 180 million of 1960 (today’s US. population is now more than 300 million), but have not even tried, the implication being that the time needed for an orderly and controlled, socially acceptable reduction of our population has long since expired, as implied in the 1992 Warning to Humanity issued by the World Scientists, and any population reduction can now only be accomplished in a disorderly manner through total social and societal collapse – through massive civil disorder and uncontrolled chaos, violence, anarchy, looting, rioting, killing, starvation, a total breakdown of law and order, and massive epidemics of highly virulent and contagious diseases and plagues throughout all of our urban areas.

Unfortunately, such a die-off will not take an even slice of 80 percent of our population across

the full spectrum of the American society, but instead is very likely to do quite the opposite. If you ever spend time in any typical, small town of one thousand or less population that is located well away from any other cities or major sources of employment, one thing that you will eventually hear is the lament that every year the best and brightest top three quarters of every high school graduating class (except for an occasional brighter student who plans to eventually takeover the family business or the family farm) permanently leaves the town for college, job training, work, or joins the military, and they never return. Have you ever heard of a Harvard MBA or Law School graduate going to some typical, sleepy, remote, little, backwater town with a population of 800 or less to set up shop? The reason the best and brightest minds usually leave their tiny, rural burghs all across America for the limelight of the big cities to seek their fortunes is the big cities are where the all of the action is; they are where the jobs, money, opportunities, and life are. Their departure leaves behind mostly the diehard redneck cowboys and farmers, and the local dregs of society and juvenile delinquents who graduated at the bottom of their class, or who dropped out of school and never graduated at all, and who know they can not compete for jobs in the big cities or get a job anywhere else, to stick around and populate the community, running the local lawn mower repair shop and the corner gas station. A large portion of such a town's population will likely be elderly retirees because the cost of living is often low, and they can make their meager social security checks stretch further.

Except for those affluent families who are able to flee to homes in other countries that are energy independent and self-sufficient, and a microscopic percentage who will be saved by the federal government, the coming die-off that will occur in all of our major metropolitan areas, in all of our cities -- large and small, and in all of our major centers of population all across the nation, and all of those smaller cities that are not able to grow sufficient food locally to support and sustain themselves, will wipe out virtually: à

- A. all of our college graduates and professionals, our teachers, professors, educators, scientists,
- and researchers;
- B. all of our high school, college, and university honor graduates and merit scholarship winners,
- C. all of our doctors, nurses, and other medical personnel;
- D. all of our architects, engineers, technicians, and skilled craftsmen and tradesmen;
- E. all of our factory workers and skilled manufacturing workforce,
- F. all of our financial bankers, brokers, and investment experts;
- G. all of our great athletes, coaches, and staffs in every sport,
- H. all of our “fine artists” and “performing artists”, dancers, ballets, operas, symphony

- orchestras, musicians, actors, entertainers, TV personalities, and other cultural and entertainment celebrities and icons,
- I. all of our supermodels and beauty pageant winners, and the Dallas Cowboy cheerleaders,
- J. all of the rich and famous who fail to flee in time to homes in certain other “safe and prepared” countries or islands in the ocean or Caribbean prior to the social meltdown and crash, and
- K. most of our most successful entrepreneurs and “risk takers”,
- L. most of our various “volunteers”.

In short, such a die-off will dramatically wipe out virtually all of our best and brightest, our most talented and gifted, our most productive, and our most desirable top two thirds of our national gene pool and genetic heritage, leaving behind as our survivors mostly a motley bunch of streetwise criminals and others with low-end IQ's who are more parasitic than productive in society. This dramatic loss of virtually all of America's “shakers and movers”, leaders, doers, and our most creative people who know how to “get things done” is going to have profound and dramatic consequences and impacts on our recovery and on the next thousand years of the future of the United States and of the world.

Specifically, among the consequences, only a very miniscule percentage of all survivors will have IQ's of 100 or higher, whereas today that figure is about fifty percent in North America. The average IQ of the surviving national US population is likely to drop from about 100 of today to somewhere between 75 and 90. While these people are capable of performing assigned basic tasks, they are not going to be the creative innovators, leaders, and entrepreneurs that we will so desperately need to lead our nation's survivors forth and to rebuild our broken country, depleted of resources and most everything else we will need to rebuild. The United States will likely become a poor, destitute, struggling, third world country, waiting for some other nation to step in and rescue it. And it is likely to remain that way for at least the next several hundred years. Just look at many of the struggling and starving African nations of today that at one time had glorious and prospering pasts at some point in their histories. Our nation's greatest treasure is its best and brightest minds, its most talented and skilled, top 25 percent of its population, virtually all of whom are certain to get wiped out in the upcoming calamity.

The various numbers that have been generated by the experts over the years have always been based on the assumption of a peaceful transition with all of the assets and existing resources needed for a recovery in the new Post-Petroleum Era remaining available and intact through the transition period. Such an idealistic, ivory tower scenario is not likely to happen. Who is to survive, and who is to die? You cannot talk 150-250+ million Americans into voluntarily laying down and dying if the government orders them to do so. When people finally realize what is

happening and that society and social order are collapsing, total national chaos, anarchy, and lawlessness are likely to erupt all across the nation with cities, resources, and forests being set ablaze. Martial law will be declared nation wide. Twenty-four hour curfew of unlimited duration and a total ban on all travel by any means are likely to be imposed. Many Executive Orders between #10955 and #13083, and others will be activated, suspending the US Constitution and federalizing ownership of everything including all of the people in the United States. If the riots and anarchy that envelope the entire nation do not provide a sufficiently quick mass “die-off”, the thirteen largest metropolitan areas are likely to supply the first 100 million people to be terminated if the military can keep them contained within their cities. A fast-acting, virulent epidemic will be the most likely means. For these people, and I am likely to be among them, I can only recommend they try praying.

The 50-100 million people in the United States who, it is hoped, will survive will most likely be among one of two groups. The first group will be high ranking government and military officials, their families and their staffs; many military soldiers and their families, the rich and powerful and their families, significant political donors and their families, and a few others who are lucky enough to have been hobnobbing with the right people at the right time, and some of the rich who have already purchased second homes in energy independent countries and have moved a significant and sufficient portion of their wealth and assets to those countries to allow them to continue living their present lifestyles for many more years.

The second group of survivors will be those who live in small, remote, rural communities, far removed from any major centers of population, and those who live even further out in remote wilderness areas – mostly farmers and ranchers -- who have prepared themselves and are capable of becoming totally self-sufficient and self-sustaining for a period of time that very well could stretch to more than one hundred years duration. Most of this manuscript deals with my advice to those who do live in those small, remote, rural communities, encouraging them to collaborate, cooperate, and to begin preparing themselves and their communities by working together in a synchronized and coordinated effort for the benefit of all to assure their common, mutual survival. The survival and the economic / industrial / financial recovery of the entire nation may depend upon the survival and viability of its many small and diverse, remote, rural communities, and their eventually being able to link their efforts together, and in so doing, to rebuild the nation.

However, it is not altogether inconceivable to imagine that in the social collapse, the resulting carnage, self destruction, and conflagration of our civilization, cities, and resources could be so savage, brutal, and complete that instead of 100 million Americans being able to survive into the Post Petroleum era, only a few thousand might actually survive, namely those who live, or perhaps only “survive”, as hermits in the most remote, forbidding, and uninhabitable, inaccessible, isolated wilderness areas of North America. Such a low point in US population would occur sometime between three months and ten years after the crash – more likely sooner rather than later. If that should come to pass, the next question would be, “are most of those

survivors a bunch of smelly men, who seldom bathe or change their clothes, with long, unkempt ponytails and scruffy, overgrown, lice infested beards, who envision themselves as being modern day mountain men, reminiscent of the “Jim Bridgers” of the old American West in the 1700’s and early 1800’s? Are there a similar number of nubile, fertile, and fecund young women with them?” Some educated visionaries see a significant possibility of every region of population self destructing in an unimaginable frenzy of carnage and brutality, with people destroying each other as well as any and all resources that others might use to survive, including destruction of the environment, lakes, streams, waterways, and forests to the fullest extent possible. The United States and the entire world could be turned into one massive holocaust* in such an uncontrolled frenzy of killing, arson, and total destruction.

(* In this case, the word *holocaust* is used in its original sense of the 1600’s when it meant large-scale destruction by a raging firestorm. It is derived from the Greek *holos*, meaning ‘whole’ as in holistic, and *kaustos* meaning ‘burnt’ as in caustic. Early use of the word meant a complete sacrifice by fire or a burnt offering.)

The prediction of 100 million survivors in the United States was predicated on the assumption that many of the human and physical assets of our cities and civilized society would remain intact, viable, and usable. But if those assets are destroyed and the skilled workers and entrepreneurs who know how to use them murdered, the maximum survivable population will, of necessity, be much much smaller. This manuscript is based on the assumption that while social conditions will become unimaginatively brutal, they will not become this bad. It is based on hope for that tiny percentage of the population who are willing to prepare themselves, their families, and their communities to survive the inevitable.

The way I would expect the petroleum crash to unfold would be as follows. For a period of several months (perhaps several years) prior to the actual crash many small, often unnoticed, and apparently unrelated events would occur.

1. There is public civil discontent and grumblings over the high and rising costs of gasoline, food, and the overall cost of living.
2. The rate and number of home foreclosures regularly begins setting new records almost every month.
3. The Feds begin making frequent and sometimes dramatic changes in the interest rates in an effort to stabilize a tumbling and jittery stock market.
4. The increasing and record numbers of unemployed and homeless begins getting noticed.
5. The federal government begins instituting emergency economic stimulus packages and/or tax cuts as visible “band aid” measures for its many previous failures.

6. Truckers go on strike demanding government relief from the high price of diesel fuel. The president enacts an injunction ordering them back to work.

7. National guard and reserve military soldiers are quietly called up to participate in “scheduled” military exercises related to domestic terrorism or civil disasters. They are quietly deployed and pre-positioned with equipment to various locations around the US.

8. A higher percentage than normal of the rich and famous, and the politically powerful quietly leave the country on extended vacations at about the same time. No one notices, because they are typically out of the country for several months every year anyway. Some initially send only their families out of the country while they stick around to take care of “business” here, with plans to join their families later.

9. The price of gold and gold futures, other precious metals, and certain other commodities skyrockets upward, setting new records almost every week as many of the rich try to cash out their US dollars, financial paper, and assets for gold and other precious metals which will retain their value in any country anywhere in the world at any time. Some foreign countries who are holding zillions of US dollars are also quietly trying to get rid of their US dollars which they recognize are likely to soon become worthless. While many financial analysts see what is happening in the financial markets, most fail to relate it as being a precursor to the imminent and impending worldwide petroleum crash and societal collapse which are just about to happen.

10. The military and government quietly orders extra petroleum and top off their fuel storage tanks, and petroleum depots and reserves all over the world.

11. There are other subtle events that occur that few take notice of as explained elsewhere in this manuscript.

12. The petroleum crash and social collapse finally occurs, spreading across the world within 48 hours or less.

Mass human carnage and mass conflagration on an unprecedented scale occur. The atmosphere becomes blackened with the soot and ashes of a world on fire. It fills with acrid smoke, particulate matter, toxins, carbon monoxide and carbon dioxide. This is bound to have a profound effect on global weather for several years, but just what effect I do not know. More than half of the people in the world are likely to die within the first week or two. By the end of sixty days, an eerie calm and quiet will have descended over much of the world along with the overwhelming stench of death. A few people will have buried themselves inside shelters and survived because they were lucky enough to have remained undetected by the out of control mobs above. As they emerge, they will find an apparently lifeless world and the strong stench of death everywhere, a world blackened and covered in a layer of ashes several inches thick for as far as the eye can see in every direction. A few burnt tree trunks and the broken skeletons of

what used to be glitzy office buildings of a modern, civilized society will be all that remain standing. There will be no birds and no animals, only ashen silence.

As they approach a nearby small river that only sixty days earlier had been bubbling crystal clear and cold, and was teeming with fish, they are hit by the foul and putrid stench of death. That smell of death is everywhere; they cannot escape it. They will find the surface of the now highly polluted and toxic water covered in debris, dead fish, animals, and human corpses. As they stir the surface with a stick, they will find the water underneath to be a sea of black, smelly anaerobic mud, washed down by rains and uncontrolled erosion. The bottom where fish use to lay their eggs will be covered in slime, and smelly anaerobic muddy ooze. The river is dead. It will quickly become apparent to the survivors that everything that will be available for their use in their quest for survival for the next one hundred years will be whatever they took with them into their bunker just sixty days earlier. I wish them luck.

If the people in any small, remote, rural community would have prepared as I explain in this manuscript, then they would have constructed a one quarter mile wide firebreak all around their community and around all of the nearby farms, and planted this firebreak in low crops, pasture, or native grasses and flowers, which they would have kept mowed fairly short. The fires might have come, but they would only have been putting out low walls of slow-moving, cooler flames in the short grasses in the wide firebreaks, and putting out spot fires started by firebrands falling from the sky. They would have saved their homes, their community, their farms and ranches, their cottage industries, and most of their resources. Following the fires, they will need to open some of the 55-gallon drums of seeds and began scattering these seeds of the local grasses, ferns, and flowers, perhaps mixed with mulch, humus, or peat moss to begin restoration of the environment as I explain elsewhere in this manuscript. Seeds of native trees would need to be planted and started in special starter beds, then later transplanted when they get to be 6-12 inches high. This effort might only be a drop in the bucket compared to what will need to be done, but getting started and doing something towards restoration of the environment will be a whole lot better than throwing up your arms in despair and doing nothing at all. And these people and this community will be on its way to surviving for the next one hundred years.

Overview

This manuscript briefly discusses “carrying capacity” using information provided by those who are far more knowledgeable than this author and arrives at a radical and shocking conclusion of how the new, lower post-petroleum era carrying capacity of the United States is likely to now be achieved – a conclusion that the “experts” seems to have conveniently and adroitly sidestepped and avoided talking about, especially since such a conclusion would likely automatically label anyone who espouses or even suggests it as a radical and extremist.

Most of this manuscript discusses in some detail how the families in any small, remote, rural village or community of a hundred to about fifteen hundred people anywhere in the United

States, but more applicably in the northern US. somewhere along the US. – Canadian boarder between the New England and Eastern Washington, with its frigid winters where it is much more difficult to survive, might survive the coming petroleum crash by each family establishing (or working in) a cottage industry, specializing in some aspect of community and personal survival, and untying themselves from the umbilical cord of dependency upon the rest of the US. and upon their dependency on any form of petroleum. This manuscript was intentionally designed around a frigid, northern tier state like Minnesota, North Dakota, or Montana because anyone in a milder, more temperate climate zone could then use this manuscript like a menu to pick and chose those elements that were applicable to his milder environment, and adapt and modify others to fit his specific situation and needs.

This (idealistic) plan is unique because it calls for a majority of families in a small community to cooperate and work closely together with other families in a synergistic, symbiotic, synchronized, coordinated, and collaborative effort of cottage industries for the mutual benefit of everyone, as if they all were members of one big family, all performing different tasks while sharing in the same benefits. While some may be performing menial tasks and others performing tasks that appear to be far more important, when people are just trying to survive, all work becomes important, and at the end of the day, all are to sit down at the same table, and partake and enjoy the same fruits of their combined labors. The Amish colonies appear to be a good example of such community cooperation and might well serve as models for “family compounds”. This mutual sharing of benefits is a very important concept in increasing the likelihood of survival of the entire community, because it runs counter to the prevailing, traditional American entrepreneurial tendency for the more successful people to say, “This is all mine. I worked hard for it and I earned it. You other people do not get to share in any of my good fortune.” Remember, the entire **co-op**, composed of all the people and families who contributed to the cause initially and thus became “charter members”, and those who made a suitable commitment and contribution at a later date, are all one big family who work for the common good of all, and who share the benefits among all.

All of the cottage industries will be custom designed using updated and “**Modernized Appropriate Sustainable Technology**”, with guidance and assistance provided by the co-op to fit the size, needs, and locally available resources within the local community and surrounding area, and are to collaborate and work closely together among themselves. Each member family chooses or is delegated a different cottage industry, and all cooperate and collaborate, and are fair and honest with each other instead of competing and trying to take advantage of one another. Working like one big family means some of the benefits are shared by everyone, regardless of who earned them. No cottage industry will be permitted to live in poverty while another accumulates most of the wealth unto himself and builds a big mansion at the top of the hill while the petroleum crash and national crisis are in progress – and that may be more than one hundred years in duration.

Instead, a community co-op council composed of elected cottage industry members and village

elders who are co-op members and who are respected for their wisdom and sense of fairness, is to determine among themselves and specify what percentage of wealth, credits, and/or resources each cottage industry and family is to put into the community coffers (as local taxes) and how it is to be divided and distributed among competing interests to achieve the optimum benefit to all. Not all taxable “wealth” will be in the form of cash or “community co-op credits”. Sometimes every family will receive a bushel of corn, a dozen eggs, and other produce or products that are in season or available at the time. Some “community credit” tax-receipt benefits will go to unpaid co-op members like the trash collectors, teachers, and medical personnel (*if you are lucky enough to have any*). Some will go as “aid and assistance” to those member families and cottage industries that did not prosper so well to make the benefits that each receives more equitable. It is likely that a successful co-op will set up a soup kitchen, food pantry, and food bank for the convenience of its members. Some tax receipts will go to mutually beneficial community projects like repair of infrastructure and repair of shared power generation resources. Some will go to correcting deficiencies in the system or into making some cottage industries more efficient and better able to fulfill their community roles, expectations, and obligations. Some may be used as “seed money” for new, approved, startup cottage industries that were spun off from a parent cottage industry, and some will go into an emergency reserve fund or for building up a hidden cache in case the community gets pillaged and/or burned out.

The important elements about this plan are 1) each cottage industry, which may be comprised of more than one family shop, is sized such that its capacity, which is the combined total capacities of all of the shops within each given cottage industry, is sufficient to fully supply the needs of the entire local community with some modest excess capacity left over to create goods and services to trade or barter with neighboring communities, and 2) it keeps the families in this village alive and productive for an indefinite period of time that could be as long as one hundred years with few or no resources required or available from outside the local community once the crash is underway. It has provisions for both those who produce products and for those who make, repair, and service the machinery and capital equipment used to manufacture those products. It requires intensive recycling and very often it offers the opportunity for synergism where the waste output of one cottage industry becomes the valued raw material as input to another cottage industry. This concept also reaches out and establishes trade and commerce with neighboring villages and communities. You cannot trade over a very wide geographical area in a horse drawn wagon, but that may be the best that can be done until the federal government lifts its harsh restrictions, reestablishes national trade, commerce, banking, transportation, and industry; and we all learn what the new formal and informal rules and lifestyle of the nation are going to be in the Post-Petroleum Era – if that ever happens. National recovery as an entire nation would be much easier and faster if many small communities were able to independently take care of themselves during the intervening years that the crash is in progress, and were able to reach out and help or assist neighboring communities during this period of national emergency. Helping one another and our fellow human beings is what nation building is all about.

Each cottage industry should stock, as a minimum, an estimated 21 year supply of those essential raw materials, supplies, parts, tools, resources, and equipment that will no longer be available once the crash is underway and martial law has been declared. At the end of two years, an objective and realistic assessment should be made of the national conditions, and a determination made as to just how much longer the ongoing national crisis is likely to continue. If there appears to be no end in sight, then stretching out the remaining 19-year supply would allow you to have an annual ration equal to ½ of the original estimates and to stretch your remaining supplies out to 40 years. If the nation still has not made a substantial national recovery and returned to a national civilized society with a democratic federal government by that time, one way or another, then the community and entire nation will be in even greater trouble if the survivors have not learned to function independently of their original 21-year supply of stored equipment. Everything that you bring with you from the Petroleum Era just buys you time and extends the period of transition to the time when you will have to live independently and without anything brought forward from the Petroleum Era.

We know that the nation will soon be undergoing a violent transition period to the Post Petroleum Era which will include a downsizing of the national population, but it is unknown what the duration and severity of this national and worldwide calamity will be. Consequently, it will be necessary for the cottage industry and co-op council to prepare realistic, working 1, 2, 5, 10, and 25-year operating plans. These plans will explain in detail what resources, skill levels, workers, equipment, supplies, raw materials, etc. will be necessary and available, and what resources will wear out, break down, or become depleted, and how the community will deal with each new crisis, shortage, and problem – and to review and update these plans every year. The plans will also address various possible scenarios, contingencies, and problems, the likelihood of each of these occurring, and how they will be resolved, solved, or dealt with. The most important uncertainty is the unknown duration of the economic crash. Each of the plans will include three scenarios, a pessimistic one, an expected one, and an optimistic one. The pessimistic and optimistic plans will define the upper and lower, or maximum and minimum boundaries of community resources and courses of action required at different points in time. If your planning is realistic, then review of each “last year’s” plans should show that you have progressed somewhere near your middle, “as expected”, or “most probable” plan. If you are always near the optimistic or pessimistic plan, then your planning every year is not realistic and you need to select new planners who can “get real”. Your survival is based up realistic evaluation of existing threats and realistic future expectations.

Other possible problems to include in your strategic, long term, operational plans include: drought, flooding, late freezes, plagues of grasshoppers, criminal gangs of raiders and pillagers, refugees from outside the community trying to move in and get a piece of your benefits without having paid any dues prior to the crash, and the (natural or unnatural (*as in killed by raiders*)) death of key leaders or key skilled people in the co-op or community. It should provide a community wide action plan as well as details about each specific cottage industry. Life is going to become much more difficult as non-replaceable resources, parts, supplies, people, and stored

necessities begin running out, wearing out, breaking down, or dying. Contingencies must be developed, tested, and debugged before they are needed and put on line. Thus, each multiyear operating plan must include projections as to what weak links are the most critical, the most likely to break, and become problems within each time period for each cottage industry, the effects if any of these links break, if there is a workaround solution, and what you should be doing at earlier dates in preparation to strengthen or mitigate the effects of those weak links. Weak links must include planning for the untimely deaths of key cottage industry specialists – your most knowledgeable and skilled people. Thus, every cottage industry should always be training new and younger workers and having them involved in apprenticeships and journeyman training to become “master craftsmen”, workers who will be prepared to carry on when their time comes. These strategic plans become your master plans of operation and are to be consulted for answers anytime there is a major policy problem in the community or within the cottage industries. By following and sticking to these well-thought out plans that were put together by the wisest and most knowledgeable members of the co-op council, individuals and communities will avoid making hasty decisions that they will later regret or being coerced into something they do not want by some smooth talking con artist.

Some cottage industries and skills will not require a massive investment of time, effort, or money to master while others will. Some may require two or more years of formal schooling or training plus a multiyear apprenticeship following the formal schooling. Some of these cottage industries will require very advanced and highly specialized knowledge and skills, which will be possessed by only a few people in the community. The blacksmith, farrier, machinist, metallurgist and foundry workers will have enormous responsibilities and a lot to learn. They may very well be the most important cottage industries in the community’s commitment to survival, and the most difficult and expensive to get approved by local building officials, set up, and operational. These skills and the products they produce will be vitally important. The blacksmith, farrier, machinists, metallurgist, and foundry workers must all be very intelligent, imaginative, creative, innovative, motivated, and strong self-starters. They will be working with old, obsolete technology and are likely be the people responsible for rebuilding it, updating and modernizing it, modifying it, and adapting it using today’s best knowledge to run on renewable energies and to use less energy. These metal trades cottage industries will be done by several families who will need to work closely together. The glass crafts will also have a lot to learn, absorb, and apply. They too will be reinventing their craft to run as small batch operations on renewable energy and limited locally available raw materials. They will be responsible for keeping all of the window panes in the greenhouses repaired and operational for the next one hundred years. Without these windows, there will be no greenhouses which would result in a dramatic reduction in the food supply. The co-op will likely need to get involved in fund raising and dues, and use some of their funds to pay for scholarships for training, and for seed money or startup funds for equipment for some of the more expensive cottage industries. The co-op will also likely be helping with the development of business plans and all of the preliminary efforts, training, and work required for start up of every cottage industry, and be there to provide guidance and assistance after they get going.

Every community is going to require a glass making cottage industry to supply window panes for greenhouses as well as jars and bottles for food preservation and medicines, and a complete metal trades set of cottage industries. If they cannot produce both glass and metal from shovels full of the earth beneath their feet, then after about 10 – 40 years, after everything they brought with them from the petroleum era wears out, they will need to begin living like the people did back in the “Neolithic Stone Age “ some 10,000 years ago, learning and using the pre-metal era skills of these Stone age ancestors. It was at that time that they began living in small villages, began farming, began domesticating farm animals, and began developing specialization of skills and cottage industries within the community.

When designing and setting up the cottage industries, a determination must be made of what resources are available within the local geographical region for each cottage industry, and what each will still require. Knowing what resources will be available within a given geographical region should be a key factor in deciding what geographical location or which existing community a new family would want to buy into and if they should set up a family compound, or construct an “intentional community”. A survey or inventory of all existing tools, equipment, machines, materials, and skills that currently exist within the community should to be taken, regardless of who owns them, and a determination made if they can be acquired, packaged, and used by each specific cottage industry. This is likely to involve some trading and exchanging, and a fair amount of purchasing of the necessary tools and equipment. Many times these requests are likely to be turned down because the items are currently being used or the owner is unwilling to consider parting with them. This action will result in a list of resources that are still required and must be purchased on the open market for each cottage industry. Everybody in town can keep their eyes and ears open for any resources on that master list that might be found and available for purchase.

This manuscript intentionally plans and prepares for a worst case scenario – the long haul survival needs of many years duration (plan for one hundred years duration) for small communities of one hundred to fifteen hundred people, more or less, including the surrounding farms and ranches within 5-10 miles of the central community. The plans and ideas presented herein will provide for only a limited, local “carrying capacity” that is, they are intentionally designed and planned to be limited in scope and capability to supplying the needs and serving a specific small, local community with a specified limited number of people. It provides little slack for nonproductive people, crime or criminal activity, or for a welfare community. Since there are only limited (and very likely “insufficient”) resources and money available for community and personal preparations prior to the crash, no one can afford to build significant overcapacity in one area at the expense of leaving another essential element necessary for survival under funded or not properly prepared. Thus, there is no provision or slack built in to accommodate hundreds or thousands of homeless, starving refugees from outside the local region seeking refuge and a safe haven in the community, refugees looking for food, work, shelter, and a piece of your survival resources and benefits for themselves and their families. It may be possible for a pre-planned and approved trickle of outside families (*probably limited to*

only invited relatives of local townsfolk) to move into the community and be absorbed into the local economy and cottage industries slowly over time, as apprentices and workers to facilitate a limited and controlled slow rate of growth and expansion of the various cottage industries. All of those who establish family compounds will have to include the number, ages, and skills of all of the people who will be living in their compounds in the community calculations for sizing the cottage industries. Surplus production of the cottage industries beyond what is needed to supply the local community will be used in trade or barter with neighboring communities in a controlled manner – i.e. “we will trade and barter only after we have taken care of the needs of the families in our own community and have a surplus of one or more products or commodities”. A significant amount of outside trade, sale of cottage industry products, and/or employment outside the local community will be necessary prior to the crash to establish and maintain a positive net cash inflow into the community which will be used to pay property taxes and mortgages, and to service debts – a cash outflow. That cash inflow will need to be several hundred thousand dollars annually above expenses.

These plans and ideas are likely to break down and fail when trying to apply them to a local or regional population of somewhere between 1500-5000 or more people – the exact minimum number depending what local resources are available, their quantity and quality, and how proficient the various cottage industries are at converting them into useful consumer and industrial products. Cottage industries, by their very design and nature, are inefficient, “job shop operations” and produce only “small batches” of specific products or services where each family owned shop is only capable of supplying the needs of a small population. This can be increased to some extent by having multiple families, each with their own shop, all producing the same goods or product, or collaborating and working together to establish a crude or basic assembly line operation where each shop produces a portion of the finished product, then passes it on to the next shop. At some increased level of population, which varies by industry and product, cottage industries will reach their maximum effective capacity, and will become inadequate, inefficient, or incapable of supplying a greater volume of goods and products. At such time the more efficient and cost effective (*at larger production volumes*) factories and mass production assembly line systems of production are required to produce the increased volume of goods required to supply larger populations or to provide for refugees. Because of their mass production volume, factories and assembly lines require raw materials and supplies from a much larger geographical region – which will require petroleum for long haul trucking or a government provided transportation infrastructure – which is precisely why this manuscript is limiting itself to small populations that are capable of becoming totally independent, self-sufficient, and self-sustaining through small, local cottage industries with acknowledged small capacities with all of their raw materials coming from the local area, and their total distribution of finished products sold and consumed within the local geographical area. No transportation beyond horse-drawn wagons is required.

Problems:

1) – The neurotic craftsman or cottage industry journeyman.

If a community really gets into the survival and preparation mode prior to the petroleum crash, has community meetings, and assigns skills, crafts, or cottage industries to various individuals and families to be learned and mastered based on their existing or known abilities, interests, skills, experience, and personal inventory of existing tools and equipment, it is very likely that at least one person will be asked to master a skill that is beyond his ability, or is not one of his higher aptitudes, or who has other problems as to why he does not or can not carry through on learning and mastering this assigned skill or cottage industry. Maybe he is just plain lazy, a natural laggard, has social, emotional, or personal problems; or is a habitual alcoholic. He may say he can handle it and you can count on him, but periodically show signs of frustration, hostility, anger, and rage when asked to do some quality work and he is not able to adequately perform or is criticized for low quality or late work.

2) -- The procrastinator

Another problem person will be the procrastinator who says he will be responsible for setting up a specific cottage industry, but after the crash is underway and you go to him and say, "I need 200 pounds of chicken feed today.", he will reply that he still needs to locate and purchase a few pieces of equipment, and he still needs a few months to get set up. He still has to locate a shop that he can rent and work out of, and he still needs to line up his suppliers. In short, he has not done a damn thing since he volunteered to be responsible for a specific cottage industry several years earlier, and he is full of apologetic excuses.

When the lives of the entire community may depend on specific cottage industries, you must take action to remedy the situation as soon as any substantial problems are detected or suspected. In such cases, the errant worker will have to be removed and directed towards something else, hopefully something with less responsibility that he can handle and where the lives of the community will not be so dependent on him, and a different person or family selected and assigned to learn and master his task, and to procure the necessary equipment and set up the entire operation. When the lives of the entire community could be at stake, you need to have competent, capable, reliable people and families at the helm in every skill and cottage industry, with the less capable assigned as their helpers, assistants, and apprentices.

Scenario – an Example

The price of gasoline has jumped \$0.50 overnight to \$9.50 per gallon. Unemployment is at an all time high of thirty percent and shows every sign of only getting worse - quickly. The value of the dollar on overseas markets is weak, shaky, and sinking. Several countries including China, India, Japan, and those in the Middle East are all giving strong indications of wanting to unload and dump their huge surpluses of U.S. dollars and call in their loans to the US government before they become totally worthless. The price of gold, silver, and other precious

metals have soared to astronomical values. Stock markets all over the world are plummeting. The American public is nervous and scared because all they are hearing on TV is bad economic and employment news worldwide and they all know that something bad is blowing in the wind. They can smell it. And they know that what ever that bad new is, it is going to bite them in the butt – real hard! They will not have to wait much longer.

A federal government announcer in a dark business suit suddenly breaks in on all TV and radio stations with a FLASH bulletin, sternly announcing that “martial law has been declared nation wide. The US Constitution has been suspended and many Executive Orders of specific numbers are now in effect. Further, everyone has 24 hours to return to their homes at which time all travel by any means will be suspended and banned, and enforced by military aircraft that are authorized to use lethal force on any body or any vehicle they see that is further than 15 miles from a population center, excluding rural farmers and villagers who must stay off the main highways. Expect many of these restrictions to remain in effect for a lengthy period (as long as 1-10 years)”.

What are you going to do? Well, you can start by filling up your gas tanks and any spare gas containers. And you better go to the grocery store and stock up on staples and canned goods. And a list of a thousand other things that you need to do suddenly pops into your mind. Get your family all together. Pack an emergency kit and suitcases in case you need to evacuate. What about legal documents and insurance?

After you wait in line for an hour, you suddenly discover the gas station will no longer accept credit cards or personal checks. It seems the credit card companies were all notified several hours prior to the government announcement and immediately suspended all credit cards for everyone effective at the time of the Government announcement. Government Intelligence had indicated that a large segment of the general public would very likely suddenly go on a wild spending spree and max out all of their credit cards and write bad checks during the last 24 hours in the hopes of never having to pay. They would view the emergency as an opportunity for a wild, uncontained, multi-thousand dollar free spending spree!!!

Now you run to the bank and wait another hour in line only to find the withdrawal limit has been set at \$500 per week. You run to the store only to find that most everything is already sold out, but you get what you can.

Come on!! Get real, man!!! Did you read and understand the initial scenario? It is likely to last 1-10 **years**, not days!!! Gasoline and food are not going to do you any good. There is an old saying, “You give a man a fish and you feed him for a day. You teach him how to fish and he will be able to feed himself for a lifetime.” We are talking about an ongoing global as well as a national disaster whose duration is going to last for many, many years – perhaps even as long as a hundred years. **To survive on your own for that many years, you must grow, produce, and make everything you will need from locally available materials.** Thus, you should not be

buying food, but instead you should be buying seeds and shovels. You should not be buying gasoline, but bicycles and equipment needed to make biofuel. You should not be worrying about how you are going to keep the house warm in winter, but instead be buying winter coats and blankets and comforters and forget about trying to keep the house warm.

Of course, the above scenario is fictitious. We do not know what the real scenario will be. The federal government has intensively researched, studied, and continually updated their results of the coming global oil crisis, beginning in about 1960 during the Eisenhower or Kennedy administration, and has classified most of the results of their studies and analysis. President Kennedy, at the direction of the FBI or one of the security agencies, issued the first several Executive Orders to deal with the tragic consequences that were predicted. While the details remain “Secret” or “Top Secret”, the headlines are ominously apparent: “We will run out of low priced petroleum sometime in the first quarter of the 21st century”, then at some point all Hell is likely to break loose in society, both nationally and worldwide. Martial law will be declared throughout the United States. Just how bad will it be? The government’s answer to that all important question is classified too, but if the government feels that the impact on our American society and national security will be so ominous and terrible, with no acceptable solution, that it must be kept secret from the American people, then you can rest assured that the looming petroleum crisis is going to be far far worse than anyone ever suspected or is willing to speculate.

What do we know about the real scenario? At some point in the not-so-distant future, probably well before the year 2015, the shortage of affordable gasoline is going to become acute. While the military will continue to receive its full allotment of petroleum for a while longer, the civilian sector will bear the brunt of the first shortages as they occur in the United States. Eventually gasoline availability will decline to only a trickle in the civilian sector. There will effectively be no affordable gas available. All petroleum powered vehicles and expensive SUV’s will become just so much useless junk cluttering the landscape and environment, with the exception of a few government vehicles that will still be authorized to receive gas and those belonging to the few people who are actively producing small quantities of biofuel of the proper type, grade, octane, and quality for their own personal use.

Without gasoline, employees are not going to be able to get to work and shoppers are not going to be shopping. In short, over a very brief span of time, most people will lose their jobs and income. Bills will not be getting paid, and the process of foreclosure and repossession of homes and properties will begin in a very big way. Many families will be forced out of their homes and into the streets, and will die homeless. Others will die of starvation, or as the result of riots and looting before they lose their homes. I don’t suppose it really makes much difference whether your family dies with a roof over their heads or without a roof.

So what does it mean to totally run out of cheap, affordable petroleum in the civilian sector? First of all, it means that you will never again use any of your petroleum powered

vehicles (*unless you are making your own biofuel*). They will all become just so much useless, worthless, pieces of junk cluttering the landscape!! Have you ever gone to a large supermarket early in the morning before it opens, and watched it? That is when many of the trucks are delivering food. But since there will be no gasoline or diesel, there will be no more deliveries of food to your local supermarket, nor deliveries of any kind to any other stores. Without gasoline, the farmers will not be able to work their fields, or bring their foods and produce to market. Thus, there will no longer be any food available anywhere in the cities, no matter how long you wait or how much you are willing to pay. Just how much food is required to feed a city every day?

The average person consumes 3-6 pounds of food every day. A Burger King cheese Whopper weighs 0.69 lbs, a medium fries weighs 0.26 pounds, and a medium soft drink is just over 1 pound for a total of almost 2 pounds! A cup of milk is 8 ounces or ½ pound. A can of soda pop or a medium size steak is 12 ounces or ¾ pound. Need I say more? All cities are giant living, breathing organisms. They need to be fed a continuous and steady diet of clean water, food, and energy every day to remain contented, happy, and peaceful. If you have a city and surrounding area with one million people, then they require at least 3-6 million pounds, or 1500-3000 tons, of food to be brought in to the city every day, day and night, 365 days a year, by truck and train, in every kind of weather. And that does not include the food that is wasted, unsold, or spoilage. This huge amount of food (and energy) per every one million people requires that food be brought into the cities from great distances by truck and railroad, and in some cases by ship, every day since no major cities are capable of producing that gigantic volume of food all year around in their adjoining hinterlands. These massive daily shipments of food will all come to a screeching halt when the gas crisis hits and domestic national security, and law and order break down.

And without food, civilization and civilized society are virtually certain to break down, except perhaps in the most disciplined of societies such as Japan. When the daily supply of food stops and centers of population do not receive their daily supply of manna, terrible things will definitely happen. Great metropolitan cities are like giant slumbering monsters, constantly needing to be nourished with the massive quantities of food and energy they need every day just to survive. If you do not continuously keep feeding them and keep them sated and satisfied, then they will awaken from their peaceful slumber in a great rage and fury, and will rise up in unprecedented violence, chaos, anarchy, looting, burning, and killing – devouring and destroying all who dare to stand in their path, and each other. In short, society and all law and order will collapse!! You do not want to be anywhere near a big city when it turns ugly – turns into a raging, furious, fire-breathing monster, or you too will also be consumed and destroyed in the out-of-control violence.

And don't expect FEMA (the U.S. Federal Emergency Management Agency) or any of the other government agencies to come rushing to the rescue of these big cities. It now appears that

those highly-paid, bureaucratic, cabinet level positions, and their deputies and top management positions have recently become “political plums” or what is commonly known as “to the victor goes the spoils”. These key cabinet posts and management positions have become the presidential spoils under the second Bush Administration. The President now doles out these top level cabinet positions, their deputies, and the top management positions within each agency as “plums” to reward his most incompetent and useless cronies and friends who are unemployed and unable to find work, but who have consistently been faithful to the party and have demonstrated their unwavering loyalty to him. In past times, we had presidents from both parties who would staff these important command level positions of authority and leadership with the most competent and responsible people they could find, but not any more. Read the news headlines below concerning Bush’s response to Hurricane Katrina and New Orleans..

September 3, 2005:

“[The Red Cross has been ordered to stay out of New Orleans](#). Critical firefighting equipment is [being left untouched](#). Chicago's offer of manpower and equipment is ["snubbed" by FEMA](#)”, according to the Mayor. FEMA ["forgets"](#) to tell the military to [airdrop food and water](#) to the survivors. [Northern Command has been ready for days](#), just waiting for the President to give the orders. [Feds delayed paperwork](#) giving permission for National Guard to act. Louisiana [begged for federal help on Sunday](#) in a formal request, but the Bush administration says they [didn't know anything about the problems until Wednesday](#). Meanwhile, [reporters apparently grow weary](#) of the [spin doctors](#).”

Posted by [dejah420](#) at 2:53 PM PST (186 comments total) <http://www.metafilter.com/mefi/44800>

(This link is still good as of February 2008. At this link the yellow sentences are additional links to further information)

Most of the electricity in the United States is generated using fossil fuels. Since there will be no more cheap gasoline, or natural gas, or fuel to deliver trainloads of coal, most electricity generation plants will cease operating, and the remaining electricity will be diverted to other uses by the government. If this happens in the dead of winter, then you will have no more heat or hot water, and no more lights. Many city water and sewer plants depend on electricity to run their pumps and for their general operation, thus most cities will lose their entire water supply and their entire sewerage systems.

This is just the tiny tip of the massive petroleum iceberg of what you will totally lose in terms of an industrial support system. As a result, **MOST AMERICANS ARE GOING TO DIE!!!** -- And fairly quickly. There will be no rescue or salvation in sight. Once the “petroleum crash” is underway, the “have-nots”, those Americans who have not prepared themselves, will begin ravaging and devouring their way across the landscape in all directions, like an unstoppable

plague of human locust emerging from the many giant centers of population that are no longer viable or sustainable, devouring, destroying, and killing everything in their paths, and preying on everyone they find and on each other; leaving only death, devastation, and destruction in their wake – globally, nationally, regionally, and locally. Only epidemics, disease, starvation, unsurvivable frigid, harsh winters, and time will be able to stop them.

The only Americans who will survive are likely to be those few who are favored by the government, many of those in the military, those who have been able to move to energy independent countries like Brazil and New Zealand, and those who are able to do for themselves in remote, rural areas, far away from any centers of population – centers that are likely to be consumed in total anarchy, chaos and riots, and go up in flames.

The lives of this last group are going to be tough, very tough, and will change dramatically after the crash gets underway. They will have to be flexible enough and sufficiently astute to determine the flow of events and go with it in adapting and making those necessary changes in their lives. How much total energy do they now use per year in all of its forms? They are not going to be able to replace but only a tiny fraction of all of that energy!! Instead, they will have to adapt and learn to make do in the following manner:

- They must learn to live on perhaps no more than 25% of the total energy that they now use. Extreme energy conservation and an extreme reduction in their total energy usage, and a total and extreme change in their way of life will be the name of the game for them.
- They will be totally responsible to themselves for capturing that 25±% of their energy needs by:
 - Passive and active solar energy collection systems – works great in summer but may not provide much during the few hours of winter daylight when the sun remains very low in the southern sky, even at its peak at noon.
 - Use of electric assisted vehicles that can be recharged using solar panels.
 - Use of animals for power and transportation.
 - Wind turbine power generation – likely to work best in winter when there is usually significantly more wind.
 - Windmills and waterwheels for the production of rotational mechanical power
 - Wood burning stoves and possible steam boiler generation of electricity.
 - Production of biofuels.
 - The use of low-head hydro for power generation.
 - Other energy capture.
 - There is likely to be very little energy available in the extreme northern states in the dead of winter when outdoor temperatures can plummet to 30°-50° F below zero. The hours of daylight will be short, and even if the sun does show, it will hang low in the southern

sky, producing light but very little warmth. The winds may not regularly blow strong enough to power a wind turbine. There will be little choice but to have previously prepared a healthy supply of firewood. Brainstorming ideas will also have to be considered such as:

- Building your homes far enough underground (UG) so that they will not freeze in winter, but instead will maintain approximately a constant temperature throughout the year – will need about 10-15 feet of earth overhead above the highest ceiling in the coldest regions of the country. The highest water table must get no higher than five feet below the lowest portion of your UG home during the year.
 - Collecting all of your autumn leaves and letting them compost during the winter in your basement to capture the latent heat given off by the oxidation taking place during the composting process.
 - Having all of the residents living in a house spend most of their time during the cold of winter in one small, well insulated room, with air ventilation equal to approximately 1/3 air change per hour, where the doors are closed, to capture the natural heat given off by each human and pet. Typically, sedentary adults give off approximately 400 BTU per hour of sensible and latent heat. This heat shows up as red in infra red viewers. Note: Sense the heat rises to the ceiling in the room, air ventilation should take place along the floor where the air is the coolest, thus little warm air will be vented out and lost, but everyone will likely suffer “cold feet”.
 - Wearing coats and warm clothes indoors.
 - Not throwing out the “grey” bath and laundry water until it is cold and has given up all of its available heat.
- This manuscript makes an educated guess at how bad the world petroleum catastrophe might be, and provides the basic outline and starting point for developing an action plan for the survival of small towns and communities all across the nation that are located a good distance from major centers of population; centers that are likely to become seething caldrons of anarchy, rioting, looting, arson, violence, and killing without any form of law enforcement or military available to intervene.

Some people are often eager to point to the big oil reserves in the “tar sands” of northern Alberta, Canada, but even that is not going to save us. It too is a non-renewable resource and is even more expensive than drilled oil to mine, process, separate the oil from the sand and soil, refine, and repair the environmental damage left behind by the open pit surface mines. And we must compete for it on the world oil markets along with China, Japan, India, and many other countries who will also be bidding for it, unless we want to go to war with Canada and claim it

exclusively for ourselves. There are no more huge reserves of cheap, easy to obtain, “sweet crude” just under the surface anywhere in the world.

Another recent hope for the avoidance of the petroleum catastrophe occurred in September 2006 when the Air Force announced that it had successfully tested a new synthetic fuel produced by a Tulsa-based company, Syntroleum, in two engines of a B-52 in a test flight out of Edwards Air Force Base in California. The new fuel can be made from either coal or natural gas, both non-renewable resources. Since this synthetic fuel can not be manufactured in sufficient bulk quantities to totally replace all of the natural petroleum now being used in the world for motor vehicles – trucks, cars, motorcycles, buses, trains, ships, airplanes, etc. – at best it can only delay the coming petroleum / economic catastrophe by a few months at most, but not any longer.

Since it is highly doubtful if alternative fuels, transportation, and engines can be developed and made economically available in sufficient quantity to all of the petroleum users in the world, the final answer, if a world petroleum catastrophe is to be averted, is likely to be along the lines of eliminating 99 percent of the world’s and the US’s dependence on all natural petroleum and non-renewable, carbon-based fuels through various combinations of the following:

- A) doing without (extreme conservation and rationing to account for 25-75% of the oil currently being used). We will very likely require at least a 50 percent reduction in the use of petroleum by reverting to human muscle power for local transportation of less than ten miles distance one way – walking, bicycles, pedal cars, roller blades, etc. along with a massive reduction in the number of travels and trips requiring the use of petroleum powered vehicles (or any other vehicles).
- B) using alternative transportation (riding bicycles, walking, riding a horse, etc),
- C) using mass transit and car pooling, where car pooling standards and requirements are likely to become mandated, along with the sharing of petroleum or fuel ration stamps.
- D) developing and using alternative and synthetic fuels to replace between 5 and 20 percent of the petroleum currently being used,
- E) developing and using new transportation using alternative forms of energy:
 - 1. Fuel cells,
 - 2. electric powered vehicles
 - 3. electric assisted (pedal) vehicles
 - 4. solar powered vehicles.
 - 5. animal powered vehicles.
 - 6. steam powered vehicles,
 - 7. Wind powered / wind assisted vehicles (sail boats, using a parachute sail to assist in the pulling of slow moving land vehicles (horse drawn wagons) when heading relatively down wind).
 - 8. Others
- This article introduced you to the upcoming petroleum crash and the serious social implications

including the expected breakdown of society and law and order. It gave you some idea of what will be required to survive and provided some details as to where best to select your survival site, probably someplace about which you would never have given any thought – which is just fine. Those who are into serious community survival hope that the rest of the US population will not think about settling in these recommended areas either.

The next article will get deeper into the mechanics of the petroleum crash and the expected scenario of what is likely to happen if human nature is left to take its natural course and there is only minimal intervention by the government – more to preserve remaining assets rather than to save lives. It will discuss the economic steps that you should be taking to keep the government and financial people off your back, the biggest of which is to “pay off all of your debts and bills and become debt free”.