What is the Problem ?

This paper concerns itself with the pressing issue of securing low cost, abundant energy for the US, and indeed the world, while at the same time, forging solutions to the associated problems of global warming, security of supply, and financial growth and stability. This is an immense issue, and the problems resist a simple statement.

For the sake of both brevity and clarity, we will attempt to summarize the problem below, without exploring the details of each facet of it. Thus we may list the issues as follows:

Financial Impacts of Energy Costs

Energy costs are already high by historic standards. It has become obvious to everyone that these prices are only the beginning of what is to come.

As fossil fuels become more scarce, energy costs will inevitably rise much higher. In addition, world population increases will continue, leaving more people to compete for an increasingly scare resource. Obviously, this will drive prices higher still.

Continued terrorist acts will produce both real and perceived threats to the lines of supply. This will act to make the costs of energy not only high but also unstable and unpredictable. This level of unpredictability will carry its own level of instability into the financial markets.

It is obvious that high and unpredictable fuel costs will impact the financial performance of the Nation, and the financial well-being of every person. This is enough to greatly reduce the standard of living of every person in the US and the world.

This problem is already serious. Many businesses have failed that would not have otherwise. Other businesses are forced to cut costs sharply, costing thousands of persons their jobs and security.

Manufacturing businesses are under particular stress. They are forced to enter into an unhealthy cycle of international competition that ultimately costs manufacturing jobs in total, and lowers everyone's standard of living. Expansion of business and thus creation of jobs is greatly impeded, to say the least.

Farmers pay an especially high price when energy costs soar. While farmers must use energy rich fertilizers and fuel consuming heavy equipment to produce

vital food supplies, they find it increasingly difficult to recover these costs. The future of the family farm is seriously threatened, while even the largest farms are under intense financial pressure.

Adequacy of Supply:

As our population continues to increase, and as we act to preserve and improve the quality of life of each of our citizens, there is an obvious need for greater supplies of energy. We may fairly say that there is a minimum per capita energy requirement that must be met.

It is at the least improbable that any efforts at stabilizing population growth would ever succeed to the extent of ending, or even significantly reducing the population growth rate. As it stands now, only a great disaster would have the potential to accomplish this. Obviously, we would seek to avert such a disaster.

Given the inevitability of population growth, it follows that the secured supply of energy must increase in like manner, or serious disruptions will occur. Although energy conservation is of great value, and is to be sought after, it ultimately is not the answer, as the continued growth of the population will finally overwhelm any possible conservation regimen.

However, domestic production of energy in the US from fossil fuels peaked long ago. Alternatives that have been pursued up until now such as Nuclear, have come with their own huge costs, and have proven inadequate or grossly undesirable. Thus we have been led to the importation of vast amounts of foreign fossil fuels.

Ultimately, this cannot be sustained. Not only will we destroy life on the planet through the unconstrained use of the remaining fossil fuels, but these fuels are finite in supply. They will run out. There is no question of this, it is simply a matter of time. Thus, as matters now stand, there is no assured path to an adequate supply of energy in the US for the future.

Security of Supply

At present, the US, and indeed the world's energy supply is heavily dominated by fossil fuels. There are significant nuclear and hydropower resources, but these are not likely to expand much beyond their current levels of contribution. In the case of Hydro this is because many of the best resources are already developed, while there is strong opposition to overdeveloping those few which remain. Nuclear power expansion is almost impossible, given the huge costs, waste issues, and universal opposition to such a course. Of course one of the greatest concerns here is also that nuclear technology may also be misused to create weapons.

Since fossil fuels will therefore be the dominant source of energy unless something else is done, it can be seen that security of supply will be a major issue. This is because of the obvious fact that most of the world's remaining dwindling supply of fossil fuels lies in the hands of countries which are unstable at best, and openly hostile to the interests of the US at worst.

However much we may act to "stabilize" these countries, this situation is basically unalterable. These regions will never be the stable, democratically ruled nations we would wish them to be. Nor will their policies ever come to favor the US to the extent we would wish.

As a result, Terrorism, whether state sponsored or not, will remain a way of life in these countries. This will threaten the stability of energy supplies coming from these countries no matter what else is done. Furthermore, the official policies of these countries will certainly always favor their own financial and political interests at the expense of those of the US. Thus, even before the supplies run out, their availability to the US is a matter of grave doubt.

Global Warming

Many persons once scoffed at the idea that human activity was gravely altering the climate of the earth. Early adopters of this belief were derided as being alarmists, and ill-informed crackpots.

This is no longer the case.

An overwhelming body of scientific evidence now exists which proves conclusively that global warming is a fact. Indeed, many are beginning to believe that it not only exists, but has already progressed much further than even the believers had thought.

It is now well understood that the consequences of uncontrolled global warming would be catastrophic. Entire island nations would be wiped out. Coastal regions of all countries, including of course the US, would be devastated. Coastal cities, including New York and many others, could find themselves partially or completely destroyed.

If the use of fossil fuels is allowed to continue, and even expand, up until such use is finally ended by running out of these fuels, then the worst possible scenarios foreseen for global warming will take place.

This will leave us without fuel, precisely at the time when immense populations, and a grossly unstable environment, will scream out for the expenditure of massive amounts of energy to offset the destructive effects of global warming,

and to preserve our very lives in the face of these effects. Consideration of global warming alone, without the other great issues of supply, security, and finance, would lead us to the obvious conclusion that we must not allow the unrestricted use of fossil fuels to continue beyond the present times.

What are the Benefits of Fixing these Problems?

The benefits are overwhelming. We list a few of them here, in no particular order.

There will obviously be a very significant and very large increase in the wealth and prosperity of all Americans. With an unlimited supply of secure and inexpensive energy available, all members of our society will share in the wealth this will create.

The enhanced competitiveness of American industry and business will result in the natural creation of many millions of new, high paying jobs. If we are wise, we will make our investments in American Industry and Business, thus keeping this wealth at home.

The US will enjoy complete energy independence. No other nation or group of persons will be able to threaten our supplies. Nor will they be able to affect the pricing of energy in this country. The energy we use will be not only unlimited, but infinite in terms of its long term supply, and never increasing in price nor subject to shortages or price manipulation.

With an unlimited energy supply, We will be able to accomplish virtually any project we desire. Ultimately, one can do anything desired, if one can control the necessary energy reserves.

There will be an end of wars fought over energy; over oil supplies. No more of our troops need die in foreign lands in an ultimately futile attempt to assure ourselves of a share of dwindling foreign energy supplies.

There will be an end to global warming. None of the new energy supplies will in any way emit any greenhouse gasses. This of course is aside from any fuels burned on an occasional basis by the backup generators. However the size of this use will be incidental compared to today's levels and can be done using carbon neutral fuels.

There will be a vast reduction in pollution. No more acid rain, or mercury emissions or the like from power plants and factories. All new sources will be completely clean.

With no need for foreign supplies, physical security for America can be much more readily assured. We can control access across our borders as completely as we may desire.

There will be no need for us to police the world or use military force to assure our supply of energy. Military action can be limited to that required to assure our physical security and of course in pursuit of human rights.

Much more could be written about the benefits, but at this point the point is made. The benefits are tremendous, and extend across all parts of society and business.

How do We Pay for it ?

We approach affordability from two directions. On the one hand, during the short and intermediate term efforts, the costs of various options to fossil fuels will have been greatly reduced through technology developments and through economies of scale. On the other hand, fossil fuels will have become far more costly, because of population growth demanding larger supplies in spite of efficiency and conservation gains, and because of their relative scarcity.

Various estimates have been made, and indicate that when all costs, both Military and Commercial, are considered, and when all losses are added, that we are spending more than 1 Billion dollars per day on pacification of the middle east, protection of their peoples and our own from terrorism, and to prevent destruction of vital infrastructure. This spending is also intended to help maintain our access to world oil supplies, and also to protect them from attack by others or from being controlled by elements hostile to the interests of the US.

Of course this effort is doomed to eventual failure. And it comes not only at great financial cost but also at a great cost in lives and suffering.

The suggestion is obvious. By a phased elimination of our reliance on the dwindling supply of foreign oil, we will save billions of dollars. This money can be invested very profitably at home, in the blossoming renewable energy field. Economies of scale will further lower costs. Vast profits would be made by investing in renewable energy sources and selling the energy.

This project would be easily affordable with billions of dollars per year available for it. No new taxes would be required. The jobs it creates would be permanent. The revenues from the power generated would ultimately make even more resources available to the project. Best of all, no one would be at risk serving in a doomed cause in a foreign country.

In Conclusion.

Our proposal has three phases, short, intermediate, and long term.

In the short term, efforts would focus on conservation, developments of alternative fuels using available resources, and the beginning of a renewable energy infrastructure.

In the Intermediate term, the alternative fuels would be produced in greater quantities and their use extended to more areas. Conservation would be taken to the next level. The first truly large scale renewable energy systems would also be built, providing meaningful amounts of clean power, and economies of scale not seen before in this industry.

Our long term proposal is to build a completely new US power system, based 100 % on renewable energy sources. This would build upon the gains and progress already made.

These renewable sources are to be solar photovoltaic and wind energy, plus solar thermal energy, with carbon neutral biomass fuels available in reserve, in highly efficient heat engines used to level loads and for backup.

All energy needs of the US would be met using electrical energy generated at several central sites, and delivered over a rebuilt grid structure.

The amount of energy delivered would be many times more than what we use today and many times the amount that we need for any foreseeable future. Our energy supply would thus be unlimited in any practical sense, and extremely low in cost.

This would enable complete freedom of energy use, with no negative side effects such as global warming or pollution.

Our energy supply would be completely secure and totally under our own control.

We would pay for it by reaping the savings from greatly declining use of expensive fossil fuels. We would have instead invested in renewable energy resources whose operation yields enormous profits. The need to stabilize large regions of the world would be over, or completed. We would save lives and suffering, create millions of new jobs, and usher in an era of unprecedented US prosperity.