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**Individual Carbon Emissions Reduction and
Personal Independent Energy Solution R&D and Prototype**

Introduction

If you heat water on your stove, it warms more quickly with a lid on the pot. When it's reached the desired temperature, it's not sufficient to merely remove the lid, so that the energy escapes faster. You've got to turn off the heat. You must stop putting more energy into it. We can't turn off the Sun. We can't turn off volcanoes or prevent all wildfires. There are other natural phenomena that we can't turn off. Our responses to Global Warming are limited to the things we do that contribute to it.

Global Warming is acknowledged as a growing threat to life as we know it. We of the Planet Earth, to the extent that we have caused this danger, must face it together. The heat that's produced from stored [mostly] carbon energy sources is probably the primary cause of Global Warming and certainly the only one over which we have any control. The increased thermal efficiency of the air blanket, caused by the movement of carbon from within the solid Earth to the atmosphere, retards the outflow of heat from the Planet and slows our rotation on our axis,* to be sure. Worse, every molecule containing carbon releases energy in the form of heat as it's emitted. There's also energy input to our system each day from the Sun. Beyond the heat and light we come by naturally, it's the stored energy extracted from carbon sources, plus more from geothermal and nukes, that can be reduced. Those latter three, the stored energy sources, are the cause of the extraordinary warming that we can moderate.

* Dubious? Conservation of angular momentum is what accelerates or decelerates the rotational velocity of a spinning skater, as the arms are extended or retracted. The effect of our skyscrapers and carbon emissions on the length of the day may be very small and not the only factors, but the slowing is measurable. Anything that displaces mass outward from the center of the Earth will retard our Planet. - <http://www.slate.com/id/2133359/>

This seems so obvious that it requires some reflection to understand why so many scientists and engineers seem not to have noticed that it's the energy, the extra heat we add to the system from millions or billions of years old *stored* sunlight that is the starting point of the oncoming Global Warming Catastrophe. To concentrate on the carbon we add to the atmosphere and ignore the heat, is self destructive and self delusional. Have the thinkers simply been stampeded with the herd that seeks more energy at great profit for producers and any cost to ourselves? Are the technical leaders as greedy and foolish as the rest or are their salaries, grants and bourgeois lifestyles hitched to the pleasure and whims of bankers and investors?

Subjugation by neo-aristocracy makes the bourgeoisie more like the rest of US commoners than they want to believe. Our lives are ruled by the elite investor class. Whether or not we're lucky enough to be among the shrinking middle classes, we're most of US in this together. We must face the fact that the Planet is getting warmer and that it's the energy we add to the environment, which doesn't come in each day's ration of sunlight over which we have no control, that is the villain. We must see that the Law of Conservation of Matter and Energy is universal. It even rules the economy that rules US. The conservative physical universe is the ultimate zero sum game.

The floating ice that melts won't raise the sea level. Archimedes taught the world about buoyancy a few years ago. However the glaciers in the Andes and elsewhere, and the Greenland ice cap will raise the oceans, whether the solid water melts or merely slides into the sea.[ibid] But there are more immediate disasters looming. The glaciers in South America, whose summer melt feeds the rivers on which millions depend for life, are shrinking. Glaciers in Peru are melting so quickly that by 2015 almost all of them may have disappeared.¹ Six million live in the city of Lima, Peru alone. More rural high country agricultural peoples, who've lived there thousand of years and haven't benefited at all from the energy we use, will no longer be able to support their lives, even if they move to the cities first. - John Vidal [Cities in peril as Andean glaciers melt](#) - Ten percent of the world's population live in low lying coastal areas. If the sea rises one meter 600 million people may be displaced or severely

impacted.² Not everyone is a cynical conservative or brain dead libertarian who would simply let this happen.

Why don't the honest non co-opted scientists and engineers say that it's not just the carbon? The carbon emissions aren't the critical part of the disaster. It's the energy emissions, which carbon emissions accompany in the case of fossil fuels, that are heating the global environment. Carbon is a red herring, when we concentrate on it and ignore the energy we put into the environment. Carbon cap and trade is an associated distraction and a non solution that forgives the rich for the evil they do. It allows them to use the wealth they've taken from the community that produced it, to buy the permission to pollute even more.³

Carbon energy sources are sunlight that was stored in the Earth millions or billions of years ago. Though more recently stored, even the wood or other biomass that's burned provides heat from past sunlight. The nukes were made in stars. Geothermal was packed in by gravity long ago. Only sunlight that's incident on Earth today gives energy and heat that will be here anyway. Winds are a manifestation of today's ration of solar power – or at least they used to be. The energy in the tides is an immediate effect of gravity. No matter what transduction such energies undergo, or don't, their contribution to global warming remains the same. They are inevitable. We have no control over the Sun, Stars and Moon. The immediate energy they give US is the baseline. We can and must control our usage of stored energy – especially that which comes from hydrocarbons, which have the additional ill effect of increasing the thermal efficiency of the atmosphere.

“Real alternative fuels are non carbon based. Only energy produced by burning non carbon based fuels minimizes the contribution to the average temperature of the atmosphere.” - from /home/agk/literature/musings/2006/notes_08-06.wpd – this is the earliest reference that I've found, which was written by me, to the differentiation of carbon [stored] energy and incident sunlight - August 3, 2006

So we see that the carbon added to the atmosphere by burning [especially] fossil fuels is directly proportional to the heat/energy that causes the increase of the average temperature of the global environment. We also see that the carbon released with the heat, mostly in the form of CO² but with heavier and more detrimental molecules as well, helps to retard the outflow of energy through our thin blanket of air. Make no mistake. It's the heat we add to the environment, not the retardation of thermal flow to space by carbon, that is the prime threat.

I've heard it said that there's not enough energy in sunlight to supply our needs. That assertion is probably very specious. What's true is that we don't know how to extract it. So, using the technology of the day in which the statement was made, not enough energy from the Sun could be generated to provide for our often extravagant usage. How much energy is spent by tornadoes and hurricanes? The wind is powered by the Sun. All the plant and animal growth is powered by the Sun. But the sheople keep saying that we can't continue functioning as we do with solar energy. Does that mean that if we're a self destructive species we must continue on that suicidal path set forth by our progenitors and the wealthy patrons who despoil the community for personal gain?

I'll recap. The established energy producers, scientists, engineers and most politicians and the public are convinced that we need to use even more energy to continue our way of life. Most also concede that global warming is real and needs attention. The “common wisdom” [an oxymoron] is that the warming can be stemmed by the reduction of carbon emissions. Such speciousness ignores the actual cause of higher temperatures, which is the heat emissions that are the reason for carbon emissions and are part and parcel to any use of energy stored in past years. This is the part for which we are responsible and over which we have control.

Not all energy that's input to our global ecosystem can be controlled. There's little chance we

can stem the instantaneous flow of solar energy. That is the baseline of global energy accrual by the Planet. It is the use of stored sunlight that is causing the extraordinary global warming. It was put up hundreds of millions of years ago, when it comes from fossil fuels like coal, oil or natural gas; billions for nukes, made in stars, and the gravitational accumulation that accounts for geothermal. And it is that usage that we can and must control. If not, we may find ourselves with no sustainable lifestyle. So what can we do about it?

Coming soon: prototype solar electric installation that diminishes dependence on centrally planned power systems and reduces carbon pollution and energy emissions from stored sources.

¹ <http://www.guardian.co.uk/commentisfree/2008/jul/13/climatechange.colombia>

<http://www.ens-newswire.com/ens/apr2008/2008-04-28-01.asp>

<http://www.reuters.com/article/scienceNews/idUSN0725512820070607>

<http://www.scidev.net/en/news/peru-may-lose-glaciers-by-2015.html>

² <http://news.bbc.co.uk/2/hi/science/nature/7935159.stm>

³ Cap and Trade that allots Carbon credits to polluting industries and allows trade among themselves exacerbates the “market solution” fraud that is at the root of all of our problems and the greatest existential threat to the survival of the Human Race and Life in general on the Planet Earth. But if the license to pollute was given to we consumers, whose desires [demand] usually get the blame for any shortcomings of capitalism, we could sell them to the producers who profit by ecological destruction in the first place. Additionally, this would stimulate production and the real economy would benefit.

End of Introduction

Many people complain that they can't afford enough solar power to supply all their energy needs. So they conclude to do nothing. That's bright! But did you know that every kWh of electricity you produce with solar or wind reduces annual carbon emissions from coal fired power plants by 0.61 kg or about 1.33 lb? The DOE/EPA reported the emissions of CO² from the 3.69 trillion kWh produced in the US in 1999. Three 130W solar panels at \$700 per can, in the Sunbelt, average at least [probably significantly more] 2.4 kWh/day. Multiply that by 365.256 days per year and 10 million families doing it. The total of 8.7 billion kWh is only a small percentage of the 3.69 trillion produced. But there are at least 100 million families [economic units] in America. If all of US did it we'd be producing more than 2% of the overall power and a much greater percentage of the non commercial energy.

"In 2005, the average monthly residential electricity consumption was 938 kilowatt hours (kWh), according to the Energy Information Administration." - [electric usage](#)

Dividing 938 kWh by 30.44 days per month gives 30.82 kWh per day. Now our three 130W panels account for 7.79% of our electricity. The cost of \$700 per panel is high and the output estimate is low. Cumulatively 10 million families with such relatively small installations can reduce carbon emissions by 5.3 billion pounds or 2.7 million tons. Since only 40 % of the energy of coal can be converted to electricity, the rest contributes directly to carbon and energy emissions. The 2.7 million tons of carbon we save with solar becomes 6.6 million tons not emitted by burning coal to produce that electricity. And none of the 6150 kWh per ton that coal adds, to the energy emissions that warm the globe, are put there by solar energy.

The stored energy that runs our cars, heaters, air conditioners or lights, ends up as heat in the environment. Only 40% or so of the energy in coal is realized in the kilo watt hours of electricity produced. That loss, which isn't really lost it just goes directly into the air, doesn't count the energy used to mine and transport the coal, build the power plant or the line losses in the grid distribution system, all of which end up in the environment too.

The energy from coal is: "The thermal energy content of coal is 6,150 kWh/ton. Although coal fired power generators are very efficient, they are still limited by the laws of thermodynamics. Only about 40 percent of the thermal energy in coal is converted to electricity. So the electricity generated per ton of coal is 0.4 x 6,150 kWh or **2,460 kWh/ton.**" -

<http://science.howstuffworks.com/question481.htm> OK, now really, what can we do to reduce both carbon emissions and the important part: heat emissions from ancient stored sunlight?

Individuals can decrease dependence on centralized power production, while they eliminate the line losses from power plant efficiency restraints, grid distribution, mining and transportation energy losses and reduce CO² and especially the heat emissions from stored energy, by building as much solar and wind electric generation capacity as they can manage. If we only reduce our grid usage by as much as each of US can afford, the cumulative effect will be enormous. And the monster we have allowed to dominate US will be diminished, as one of if not the prime threat to our survival. If the energy masters won't cooperate, at least we can clean up our personal environment a little. We'll be more self sufficient and independent. The evil empire's power will wane. Our electric bills will be reduced. The price of solar panels and windmill generators will come down with mass production. We'll be able to further reduce our dependence on the centrally planned and controlled economy of electric power producers, as we break up and take over their monopolies, by our individual efforts.

Every kWh we produce at home is one less we must buy at 10 – 20 cents per.¹ The cost of solar is coming down. "Solar electricity to reach cost parity with coal-based power by 2010"

By Ann Steffora Mutschler, Senior Editor -- Electronic Business, 4/9/2007 -- "By 2010, leading solar electricity providers in Spain will be able to produce solar electricity for as low as 10 cents per kilowatt-hour (kWh)" <http://www.edn.com/article/CA6432171.html> Produce some of your own. It's that many less BTUs or kWh [3412 BTU/kWh] of avoidable heat energy in the atmosphere and don't forget the 0.61 kg of CO². Be independent. Reduce centralized energy production, profits and

inefficient often broken distribution systems that add unnecessarily to cost in dollars and in their contribution to the Global Warming Catastrophe.

I'll be throwing some more numbers at you but most of them will concern the prototype individual solar electric generation and personal carbon emissions reduction system. I may also repeat and augment some that I've already mentioned.

¹ DOE table - cost /kWh by region of US:

http://www.eia.doe.gov/cneaf/electricity/epm/table5_6_a.html

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Outline of what follows the introduction:

Compare available energy from Hydrogen, natural gas, ethanol, gasoline and coal. Check out real efficiencies. Remember, hydrogen must come from solar to be clean and non stored source.

Electricity production is a big factor. Show energy/heat release per unit of various fossil fuels. Maybe nukes and other numbers like geothermal.

Show carbon and kWh emission with conversions to kcal and BTU etc from fossil fuels.

Assert that each kWh produced by solar, wind and tides reduces heat and carbon emissions by an average of or fuel by fuel.

Describe the ICER-PIES system – the prototype I use to run this computer, net link, refrigerator etc. - for reduction of harm to the Planet and setting the course to survivability. Show data gathered.

Note how H₂ is generated by hydrolysis and the gasoline usage reduction possible with H₂ turbines or fuel cell electric. Compare heat output of H₂ combustion to stored energy sources that unnaturally warm the atmosphere. Only solar sourced H₂ is most beneficial.

On the news hour 3/17/09, they talked about fusion energy and the big laser they've built to try to set off the reaction. Some say they probably won't get as much out as they put in with the laser. Everyone, even the scientists and good guys, keep saying we must have more energy so lets clean it up. They seem to be blind to the obvious. More energy means more heat into the environment, especially the atmosphere.

Forget T. Boone. The natural gas, like any other energy, including nukes and geothermal, was stored by gravity, suns or sunlight of the past, as far back as millions or billions of years ago. The problem isn't too little energy. It's too much stored energy released into the atmosphere. Most of it also releases carbon, which adds to the air's thermal efficiency or blanket effect. But it's the heat itself that causes global warming, no matter how well the gases surrounding the surface of our Planet retain it. Only solar, wind and tides provide energy that is everyday input and has been the only balanced energy source our Planet has ever had. The heat we produce from sunlight will be here one way or the other, whether we use it or not. Only solar, wind and tidal sources do not contribute to global warming. But back to the immediate economic crisis.

The addition of stored energy is almost the reverse of the economic problem. The economic reality is that we produce no goods to trade nor do we pay our consumers to produce them. We've relied on debt at all levels from consumer, to Wall St, banking and government to keep the perpetual motion of money without goods to substantiate it going. Today they say fanout or secondary effect of spending, instead of Friedman's delusional velocity of money. They've put US into a hole of debt and the stimulus, unless it seizes money and property concentrated with rich investors over the past forty years and uses it to create real goods in America and pays consumers to make them, can only dig the hole deeper. [Repatriation of outsourcer's money to invest would exacerbate the crime. And it would never be invested in a helpful way.] Though, since most consumers sorely need a break from systematic looting, we could spend it now and tax investors later. [see Nader, ../debt crisis 2/13/09]

ICER-PIES

Individual carbon Emissions Reduction with Personal Independent Energy Solutions

[I want to patent a system to reduce the introduction of superfluous and unnatural mass, especially carbon, and heat to the atmosphere.]

In 2004 the per capita average of carbon emissions from the production of electricity in the USA was 5610 kg. We don't share equally in the consumption of that electricity. To most of US energy is an expense that produces no monetary return. The biggest consumers profit by the energy they buy. However we can more easily reduce our individual carbon emissions than we can get the economic elites to reduce their profits. We can't afford to wait for the big boys to come up with a solution to global warming. We must do what we can now. It pleased me when I realized that I could reduce the profits of some of the worst offenders. I can install a photo-voltaic electric system to reduce, if not eliminate my carbon emissions and my electric bill. The use of such energy not only reduces greenhouse gases. It also reduces the heat added to the atmosphere by energy consumption. Instead of energy stored within the Earth, it uses an outside source of newly produced energy that comes into our system every day.

I've wondered why everyone talks only about the thermal insulation efficiency of the atmosphere. Because no matter how much energy the atmosphere traps or doesn't, the amount of energy we put there, from sources store in the Earth, increases the temperature of the system. If we use energy stored in hydrocarbons, that includes coal by the way, or even nukes or geothermal, we're adding heat from sources that were locked up by nature millions or billions of years ago. The only really "clean energy" is solar, including wind, and gravitational, the tides and hydroelectric, that are input to our system every day by the sun. Using such methods we merely transform energy and no more is released to the atmosphere than would be if we didn't intercede in the natural process.

Independent and truly alternative energy production is not only environmentally friendly but is supportive of economic freedom. Partly because of that, the fascination with alternative energy, especially when produced by photovoltaic cells, took hold of me long ago. The science of PV is interesting and the mathematical symmetry of the atom is aesthetically pleasing. Using solar cells, the equations are always balanced. The use of fossil fuels, which are stored sunlight from millions of years ago, can never balance today's energy equation of input and output. Whether or not CO2 adds to the thermal efficiency of the atmospheric insulation, almost all the carbon based molecules we burn add heat and mass to the air above US.

Biomass is a little better than releasing the ancient stored sunlight in coal and oil but it still takes carbon rich mass from the soil to put into the air that the combustion heats. The cultivation of the fuel takes a lot of energy, possibly more than it yields. Though the carbon will be recycled when the next crop grows, biomass generated heat may not be so easily dispersed. It is important to many that to convert food to fuel is immoral, because it raises the price of food. Too many people are underfed already. But moral issues aside, only solar and direct derivatives like wind and water power can maintain a sustainable energy equilibrium. If imperfect, the solar solution is still the best that's possible given today's technology. If we try to use more energy than we receive from the Sun, we will ultimately run short, while we immediately add surplus heat and mass to the atmosphere.

[conservation of angular momentum] I've mentioned the mass added to the atmosphere several times so far.

So how much can we individually reduce carbon emissions and unnatural heating of the surface and atmosphere of the Earth?

[Brochure #: DOE/EIA-X012](#)

Release Date: May 2008

Next Release Date: May 2009

Has entertaining graphics; dumbed down but contains good data among its distractions.

[copied to /home/cppp/CO2-redux/research/Chapter1.htm; relevant images in ../images]

/home/cppp/CO2-redux/research 11/7/08 good data. Web pages include:

<file:///home/cppp/CO2-redux/research/Carbon%20Counter%20-%20Fight%20Climate%20Change.html>

see also: [epa climate change emissions calculator](#)

/home/cppp/CO2-redux/research 11/7/08 good data including co2emiss.pdf [also ../lit../research/energy/co2emiss.pdf] which contains the numbers on the index card in notes from last summer which calculate personal emissions.

Potential emissions reduction by use of photo-voltaic cells, batteries and inverter to reduce dependency on central power distribution, which uses mostly hydrocarbon or other stored sunlight from ages past for generation.

Calculations

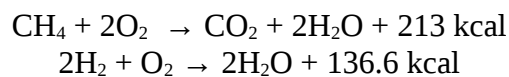
0.61 kg carbon/kWh

Typical domestic power consumption by income.

Savings in emission electric bill per solar unit [panel, amp/hours of battery storage, inverter and

misc costs. Over ten years compared to today's electric bill.] Plus invaluable savings in carbon emissions and growth of independence.

When T. Boone Pickens, the billionaire geologist, says that we can't run 18 wheelers on batteries or fuel cells, he may be stating a momentary truth based on the technologies widely in use today in the trucking industry. To infer from the statement that electric motors cannot run big trucks is absurdly false. Freight trains are driven by electric motors. The electricity is generated using diesel engines. The real question is: can enough molecules of hydrogen be stored to release sufficient energy to be used to generate the electricity, whether by advanced fuel cells, hydrogen turbines or whatever. I need to review basic chemical thermodynamics and potential, in order to compare hydrogen to natural gas. The use of the latter for trucks, I believe, is Pickens's economic interest speaking. If he was more interested in American fuel autonomy, he would promote coal or nuclear power plants and European style all electric trains. Concern for our Planet is mitigated by the use of Hydrogen.



CH₄ is the main component of natural gas. Its combustion produces 213 kcal per mole. H₂ combustion produces 137 kcal per mole.

If the H₂ is produced by electrolysis using PV, no heat is placed in the atmosphere that wouldn't be there anyway. Nor is any mass taken from within the Earth and placed over US. When we burn hydrocarbons we bury ourselves.

Concern for our Planet, which is concern for ourselves, indicates the use of Hydrogen and Solar electricity stored for short term as Hydrogen that's generated by electrolysis from PV or other ways not dug out of the Earth and put into the atmosphere to bury ourselves.

After words:

Carbon cap and trade will create some billionaire traders. It will allow the moneyed and powerful classes to continue to pollute - with a clear conscience. Those who's business is non polluting will trade their pollution allotments, which are irrelevant to their activities. If you think those allotments won't be assigned, you don't understand the nature of free market capitalism. Anything that can be twisted, perverted, corrupted or abused, will be. Murphy and 50+ years of observation have told me that. There will be no reduction of carbon emissions from the implementation of cap and trade. There will only be money diverted from real solutions into the bank accounts of do nothing brokers and traders. Nothing new in this. Nothing out of the ordinary.

The fall of 2008 shows the tragic flaw of market solutions. The agents who participate significantly in the market will abuse the community for individual profit. The invisible hand, guided only by mindless greed, will produce "unforeseen" collective effects. Unforeseen by the elites and the wholly owned bourgeois sellouts, sycophants and corporate clones, who don't wish to see them. Anyone with a clear, strong and autonomous mind, will not fail to foresee this "too" predictable outcome.

The history of the past 227 years exposes cycles of concentration of wealth leading to debt saturation, which, when the nature of the pyramid scam of finance is subconsciously noticed, creates [rational] panics, followed by recession or depression. A genuine understanding of the zero sum equation is what's needed to break this cycle of stupidity and greed of the ruling class, which inevitably leads to recession and/or collapse of the economy. Only liberal economist Adam Smith and his neoliberal incarnation, Milton Friedman, could have been so obtusely incompetent as to have predicted otherwise for "free market capitalism." Capitalism arose as a result of the freedom of the few to concentrate the "Wealth of Nations" among themselves, at the expense of the communities they exploit

for individual gain. Carbon cap and trade is more of the same failed market's solution to problems that the economic elites don't begin to understand.

To seek a solution by pandering to the failed theories of meritocracy, which were never anything but rationalization for neo-aristocracy, is self destructive. Those who proudly offer it are the same as narcissistic morons whose stupidity and greed engineered the financial collapse and the global warming and environmental catastrophe that looms like a vision of extinction. Cap and trade will be a license to pollute by the rich and Situation Normal [AFU]. Its fatal flaw is its failure to address the fundamental problem, which is the warming caused by the heat pollution that accompanies the carbon emissions. That's just like the for profit brokers' and banks' failure to notice that outsourcing and their greed and successful re-concentration of wealth over the past forty to fifty years [the Friedman coincidence] is the economic doom that has the potential to preclude auto salvation from eco destruction.

Hydrogen storage and fuel cell transportation.