

HAS THE LEFT MISSED THE BOAT ON CLIMATE CHANGE?

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INTRODUCTION

Has the radical left missed the boat on climate change? What a ridiculous question. What an outrageous insinuation!

What the Left Has Got Right

Has not the radical left been a lonely voice of wisdom insisting that climate change, as well as other forms of environmental deterioration, cannot be avoided if we fail to replace the economics of competition and greed -- a.k.a. capitalism -- with the economics of equitable cooperation -- a.k.a. true socialism? Aren't we the ones who point out that capitalism is an economic way of life that has no future because it will soon destroy the biosphere?

Growing numbers of people are beginning to realize that capitalism is the uncontrollable force driving our ecological crisis, only to become frozen in their tracks by the awesome implications of the insight.... If one believes that capital is not only basically unjust but radically unsustainable as well, the prime obligation is to spread the news, just as one should feel obliged to tell the inhabitants of a structurally unsound house doomed to collapse of what awaits them unless they take drastic measures.... The belief that there can be no alternative to capital is ubiquitous -- and no wonder given how wonderfully convenient the idea is to the ruling ideology. That, however, does not keep it from being nonsense, and a failure of vision and political will. -- Joel Kovel --

Those who live in a mental framework which presumes that capitalism is the end of economic history are forever doomed to be surprised by the kind of crisis unfolding today. On the other hand, we on the radical left understand that of all the economic systems devised by humans, capitalism is the manic-depressive patient. Exuberance, unbridled optimism and euphoria followed by gloom, listlessness and depression is the natural state of capitalism. But no matter how often the cycle is repeated the patient always believes the latest boom will last forever, only to feel foolish again when the bubble bursts. And no matter how often the patient reverts to manic behavior when taken off regulatory medications, the economic psychiatric establishment eventually succumbs to the pleas of exuberant businesses to be freed from regulatory restraints, and takes the patient off meds during the "ups," only to rediscover that the patient must be put back on meds when s/he "crashes."

This pattern has been repeated so often that two schools of thought have emerged within the “psychiatric” establishment known as mainstream economics. One school -- the Neoliberal, Free Market A Team -- proclaims the patient cured when its depression recedes, and proceeds to prescribe the dismantling of all restraints and regulations. Only when the patient once again crashes does pressure build for replacing the A Team with a different group of economist doctors from the Keynesian B Team. The B Team specializes in policy restraints to dampen market euphoria and strong anti-depressant medications to pull the economy out of its doldrums.

However, even a cursory medical examination reveals that the environment suffers during both phases of capitalism’s manic cycling. During the euphoric stage accelerating “through-put” of non-renewable and partially renewable resources, and accelerating waste disposal into ever more stressed ecosystems has subjected the natural environment to increasing strain. Moreover, during this phase popular euphoria over the short-run benefits of economic growth has allowed the A Team to squash any serious attempts to impose environmental regulatory protections. When euphoria succumbs to stagnation economic insecurity trumps all other concerns, and environmental protection has traditionally been shoved onto the backburner by B Teamers who are brought in with a mandate to mitigate the damage from decelerating economic growth to corporate profits and people’s livelihoods, not to prioritize protecting the environment.

The case that capitalism *means* environmental destruction can be made more precisely, and in a way that makes clear that even a competently regulated, finely tuned capitalism where inequalities of wealth and income have been reduced would fail to adequately protect the natural environment. Even if initial endowments of productive assets were distributed equally, and even if capitalist economies could move seamlessly from one general equilibrium to the next in response to changes in human knowledge and preferences -- as it does in the fantasies graduate students in mainstream economics programs are tutored in – the environment would remain at risk for the following reasons: (1) Markets would still over produce goods whose production and/or consumption generate negative external effects and consequently generate too much pollution. (2) Markets would still under produce privately provided public goods and therefore provide insufficient incentives for parties to reduce emissions and protect the environment. (3) Since rates of profit would normally be higher than a socially responsible rate of time discount, private owners would still extract natural resources faster than is socially desirable. (4) Markets for labor and consumer goods would still create perverse incentives that push people against their best interests to take too much of their productivity gains in the form of increased individual consumption and too little in the form of more environmentally friendly collective consumption and leisure time. And finally, (5) markets would still fail to generate the information necessary to know how high corrective environmental taxes and subsidies should be while spawning powerful political lobbies with an interest in underestimating the size of necessary correctives. Only the radical left understands all this and continues to challenge the hegemonic ideology designed to deny these truths.

What the Left Has Got Wrong

But for all our wisdom about why climate change will not be averted in the long run unless capitalism is replaced, too many I like to think of as “the best of the left” have dealt themselves out of serious discussions about policy responses to climate change by denouncing all efforts to “put a price on carbon.” By dismissing carbon taxes and cap and trade policies as “pretend solutions,” insisting they merely postpone climate change at best, and at worst divert political energy away from the only real solution -- overthrowing capitalism -- too many on the radical left have unwisely abandoned to others a critical debate over policy solutions to combat climate change in the here and now.

As representatives of people’s movements and independent organizations, we reject the claim that carbon trading will halt the climate crisis. History has seen attempts to commodify land, food, labor, forests, water, genes and ideas. Carbon trading follows in the footsteps of this history and turns the earth’s carbon-cycling capacity into property to be bought or sold in a global market. Through this process of creating a new commodity - carbon - the Earth’s ability and capacity to support a climate conducive to life and human societies is now passing into the same corporate hands that are destroying the climate.... We denounce the further delays in ending fossil fuel extraction that are being caused by corporate, government and United Nations’ attempts to construct a “carbon market,” including a market trading in “carbon sinks”.... In conclusion, “giving carbon a price” will not prove to be any more effective, democratic, or conducive to human welfare, than giving genes, forests, biodiversity or clean rivers a price. – October 2004 Durban Declaration –

It is one thing to play the role of Kafka and point out the ultimate absurdity of putting prices on different parts of a natural environment which is, in fact, a single interconnected ecosystem that all life, including human life, depends on. It is another thing to “denounce” those who seek to increase the price of carbon emissions from zero, which it is at present, to a much higher price in order to force emitters who respond to market forces not moral appeals to take into account the damage their carbon emissions cause. It is one thing to insist that nature should belong to no one and everyone. It is another thing to sit on the sidelines when corporations are being awarded property rights to emit carbon dioxide while ordinary citizens receive none. It is one thing to point out that human beings should *plan* how to use and preserve the natural environment in a democratic and equitable way -- bearing in mind that we are dealing with ecosystems whose complex dynamics we do not fully comprehend -- rather than leave those decisions to be made very poorly by market forces.¹ It is another thing to ignore the fact that decisions about how to use the environment are actually made, and will continue to be made for some time, by market forces where key prices -- the price of carbon chief among them -- are completely out of whack, and where the least responsible and deserving among us are taking personal advantage of this mis-pricing. Finally, it is one thing to say: “I don’t want things decided by market forces and market prices.” It is quite another thing to say: “Even though things are being decided by market forces and market prices I don’t care

what those prices are, and those who attempt to get prices ‘right’ are doing nothing more than rearranging deck chairs on the Titanic.”

Anyone who believes global capitalism will be replaced by a global eco-socialism within the next decade is delusional. This is not to underrate ongoing social transformations in Venezuela, Ecuador, Bolivia and other Latin American countries as well. This is not to belittle the work of diverse groups from around the world who have rekindled interest in participatory, democratic alternatives to neoliberal capitalism, many of whom have shared their visions and experiences at World Social Fora over the past decade. And this is not to underestimate the power of greed and ideological rigidity to drive a ruling class to mismanage their system so badly as to put its future at risk.² But while it remains hard to predict how badly neoliberal global capitalism will be mismanaged, and how quickly the environmental crisis will accelerate, we can predict that launching a viable economic system of equitable cooperation through participatory democratic planning requires a level of popular consciousness and organizational and political power that will require decades to build starting from where we are today. Being realistic about time frames does not mean abandoning our conviction that we humans are capable of correcting our errors and forging new economic institutions to help us develop more democratic, equitable, and sustainable habits. But anyone who thinks we will be able to replace global capitalism with a new economic system based on participatory democracy that is environmentally and socially sustainable in the near future is out of touch with political reality.

Unfortunately, the environment cannot wait that long for anti-capitalists and socialists to get our act together and win majoritarian support for our “real” solutions. Environmental destruction is proceeding on its own time schedule and the next decade will be critical. Greenhouse gas emissions not only must be reduced, they must be reduced by a lot, and they must be reduced quickly. If carbon dioxide equivalents were stabilized at 450 to 500 parts per million there would still be a better than fifty percent chance that the mean global temperature would rise by 2 degrees Celsius -- which is widely believed to constitute “dangerous climate change.” Moreover, even if we stabilized at 450 to 500 ppm there would still be a twenty percent chance that the mean global temperature would rise by 3 degrees Celsius -- which would launch us into waters nobody in their right mind should want to think about how to navigate. The scientific community says this means we need reductions of 80 percent (or more) by the year 2050 (or sooner.) Which means that much of the reductions must be done even while capitalism persists. Short of protests by unarmed citizens who shut down the majority of coal mines and oil wells in the world permanently, this can only happen in capitalist economies if governments order large mandatory reductions, put a high tax on carbon, or put a low cap on emissions by printing a small number of permits.

“Commodifying land, food, labor, forests, water, genes, ideas, and the earth’s carbon-cycling capacity into property rights to be bought and sold in a global market” is, unfortunately, not the worst thing that can happen. Continuing to allow the wealthy to appropriate the global commons *without charge* is much worse because it leads to even greater over exploitation and even greater wealth inequality. Moreover, if “the earth’s

carbon cycling capacity” is commodified – as it shortly will be -- it matters a great deal who gets to own this new “commodity.” As explained below, a carbon tax or cap and trade program where all permits are sold at auction at least awards every citizen an equal share of the new wealth. But this is not how permits have been awarded in the past. With one recent exception, cap and trade programs have always distributed permits according to what is called “the grandfather system” which awards the new wealth to those who are already wealthier as explained below. Unless those who fight for economic justice change the balance of power, this is exactly what will happen when the greatest distribution of new wealth in the history of capitalism is doled out in the form of carbon emission permits.

Prospects for our species (and others) does ultimately hinge on whether global capitalism is replaced by a completely different economic system, a system of participatory economic planning by the associated producers and consumers themselves, with no elite who prey on their fellow humans and the natural environment. And the sooner this happens the safer and better off both humans and the environment will be. But our collective destinies also rest on how fast we move to avert cataclysmic climate change in the next decade or two, and how equitably the costs of doing so are distributed. The crucial point is this: While lamentable, the fact is that for the next decade or more, most people will be living in a system dominated by giant corporations driven by market forces. (1) How far and fast we move to reduce atmospheric greenhouse gas concentrations while the capitalist albatross is still around our necks will go a long way toward determining our chances of restoring balance to the biosphere. (2) Whether the policies implemented to accomplish this while capitalism persists ameliorate or further aggravate existing economic inequalities will greatly affect our chances of replacing the economics of competition and greed with a sustainable economics of equitable cooperation later.

POLICY ALTERNATIVES: A PRIMER

Because misconceptions are commonplace, a basic tutorial on the logic of different policies to reduce greenhouse gas emissions in capitalist economies is useful. Suppose the US government decides to reduce carbon dioxide emissions by 10% next year.

Regulation

The regulatory approach would be to order every source inside the US emitting carbon dioxide to reduce its own emissions by 10%. Economists object to this approach for two sensible reasons: (1) This policy fails to minimize the cost to society of achieving a 10% reduction in overall emissions if there are differences in abatement costs among sources. For example, suppose one source emitting carbon dioxide can reduce emissions for half what it costs another source to reduce its emissions. It is inefficient to require the second source, for whom abatement costs are higher, to reduce emissions by the same percentage as the first source, for whom abatement costs are lower. Requiring both sources to reduce emissions by the same percentage generates a higher overall cost than if the source who can

reduce emissions more cheaply did all the abatement until its abatement costs were no longer lower than those of the source whose abatement costs were initially higher. Because there are significant differences in abatement costs among different sources this criticism of the regulatory approach to reducing carbon dioxide emissions is well taken. (2) Ordering all sources to reduce emissions by 10% provides no incentive for any source to implement a new technology that could reduce its emissions by more than 10% -- no matter how cheap it might be. Since there are new technologies available that would permit some sources to reduce their emissions at comparably low costs by considerably more than 10% this objection is also well taken.

There is an additional problem with the regulatory approach mainstream economists seldom point out, but which should be of concern to those of us on the Left. The regulatory approach does not make sources who, in our example, continue to emit 90% of the carbon dioxide they emitted the previous year, pay for the cost their emissions continue to impose on the rest of us. In other words, the regulatory approach does not implement the “polluter pays” principle environmentalists champion with good reason. In effect the regulatory approach draws an arbitrary line. It says that the last 10% of emissions from each source is so damaging that it must be outlawed completely, whereas the first 90% of emissions costs society nothing, and therefore sources should be free to emit 90% of their previous levels without payment or apology. But this is not consistent with the facts. The fact is that as long as all sources wish to emit more carbon dioxide in the aggregate than is consistent with climate stability, whenever anyone emits any carbon dioxide it imposes a cost on society. In effect the regulatory policy excuses 90% of socially costly emissions. Another way to look at the issue is that the regulatory approach implicitly grants sources a legal property right to emit 90% of what they had been emitting, but confiscates what had been their de facto property right to emit the last 10%. In other words, regulation creates a valuable new legal property right, gives 90% of this property right to those emitting carbon dioxide, reserves only 10% of the new property right for the rest of us, and bars everyone from selling their new property right no matter how beneficial a deal they might be offered.

A second kind of regulation mandates use of particular technologies and outlaws use of other technologies. For example, all new power plants could be required to include a certain scrubber in their smoke stacks, and existing plants might be given a specified time to add scrubbers. New buildings could be required to include new insulation or sealants for energy conservation. Or, particular chemicals could be banned in new refrigerators and air conditioning units. When the best response takes a particular form which the government can easily determine, or when businesses are failing to make changes even though they will prove profitable over time this kind of regulation has been very effective.³ One can reasonably argue that the most successful environmental policies to date have usually been of this kind. However, when there are many different ways to achieve an environmental objective, when least cost means are different for different sources, and when businesses are responding more or less sensibly to price signals using a price mechanism to induce businesses to find their own least cost means of compliance has obvious advantages.

Taxes

An alternative way to achieve a 10% reduction is to impose a tax on carbon dioxide emissions. The government would have to use trial and error to find the level to set a carbon tax to achieve an overall reduction in emissions of 10%. However, there is a carbon tax – some number of dollars per ton of carbon dioxide emitted -- that would achieve a 10% overall reduction in carbon dioxide emissions in the US.⁴

The logic of a carbon tax is to force producers to take into account the cost to society of their carbon dioxide emissions, just as they have to take into account the cost of using labor and scarce raw materials. Labor and resource markets make producers pay for the labor and raw materials they use, but unless the government levies a carbon tax nobody has to pay for the damage their emissions cause.⁵ Consequently, in absence of a carbon tax producers ignore the social cost of their emissions in order to maximize their profits. A carbon tax seeks to "internalize" this otherwise neglected negative "external" effect so producers will take it into account.

When all who emit carbon dioxide pay the same tax per unit of emission those with lower abatement costs will find it in their interest to reduce emissions more than those with higher abatement costs. This means a carbon tax distributes reductions among emitters in a way that minimizes the cost of achieving the overall 10% reduction. It also means all sources have an incentive to develop new technologies to further reductions no matter how much they have already abated.

A carbon tax explicitly makes “polluters pay.” It forces those who wish to emit greenhouse gases to pay the rest of us (in the form of a carbon tax) for using a scarce, valuable resource – space in the upper atmosphere where carbon too much carbon is already stored. At least in theory, each citizen of the United States has an equal claim on the tax revenues of the federal government. So implicitly a carbon tax awards 100% of what was formerly an ambiguous property right that was habitually appropriated by emitters without asking permission – the right to release carbon dioxide into the atmosphere -- to each and every citizen of the United States on an equal basis.

Tradable Emission Permits

While commonly misunderstood, each half of this policy is quite simple. *Emission Permits:* Anyone emitting carbon dioxide is required by law to own permits to do so. If I am emitting 246 tons, and if a permit allows me to emit one ton, then I must own 246 permits. If I own 246 permits but emit more than 246 tons I am in violation of the law -- just as I would be if I caught 6 trout when my fishing permit only allowed me to catch 5 trout -- and I am subject to whatever punishment for violation is established as part of the carbon permit law. *Tradable:* Anyone who owns a permit is free to sell it to anyone they choose, and anyone who wants to buy a permit is free to buy it from anyone who is willing to sell it to them. In other words, there is a “free market” for the permits to emit carbon where everyone is “free” to strike any mutually agreeable deals they wish.

So if the United States government wants to reduce carbon emissions by 10% all it has to do is print up 10% fewer permits than the number of tons of carbon emitted in the United States last year. However, declaring these permits to be “tradable” in a “free market” is not the same as deciding how to distribute the permits in the first place. Many assume that when the government says there will be a market for emission permits it means the government will sell the permits at an auction where all are free to come to buy. But this is not the only possibility, and unfortunately has almost never been the case. Prior to 2008 the bulk of pollution permits were always given away free of charge to firms emitting the pollutant.⁶ The procedure used is called the “grandfather system” which awards permits for free to polluters based on their share of past emissions. If, for example, a company was responsible for 28% of all carbon emissions last year under the grandfather system it would receive without charge 28% of all the permits printed. Another way to think of how the grandfather system works is that every source of carbon emissions in our example would receive without charge permits sufficient to cover 90% of whatever amount they emitted the previous year. That would be their windfall wealth gain which they are free to use as they please. They could use all their permits themselves, or sell some of them on the “free market” if they decide to reduce emissions by more than 10%, or add to the permits they received free in the initial grandfather distribution through purchases in the permit market if they decide to emit more than 90% of what they emitted last year.

In many respects tradable carbon permits will lead sources to behave in the same way a carbon tax does. If I want to emit more carbon dioxide I have to have more permits. If I don't own enough permits, I have to buy more in the carbon permit market -- which is costly. But even if I own enough permits to pollute as much as I want, it is still costly for me to emit carbon dioxide because the more I emit the fewer carbon permits I can sell for a profit to others on the permit market. Under both a carbon tax and cap and trade permit program there is an "opportunity cost" to emitting more carbon dioxide. And if the price of a permit to emit one ton of carbon dioxide is the same as the tax on a ton of carbon dioxide, the opportunity cost of emitting more carbon dioxide is the same in both cases. In other words, at least in theory, tradable carbon permits yield the same efficiency advantages as carbon taxes – they minimize the overall cost of achieving a 10% reduction in carbon dioxide emissions.⁷ Like a carbon tax, a tradable carbon permit program provides incentives to develop cleaner technologies to reduce one's “carbon footprint” since lower emissions leaves fewer carbon permits to buy (or more permits to sell). And firms with low abatement costs will reduce more than firms with high abatement costs since the former will find it cheaper to reduce emissions and avoid having to buy as many permits (or be able to sell more permits), while the latter will find it cheaper to continue polluting and pay for the extra permits (or sell fewer excess permits.)

As a matter of fact, there is one version of tradable carbon permits that, at least in theory, yields exactly the same results as an equivalent carbon tax. If the government auctioned off 100% of the carbon permits, and if the permit market were perfectly competitive and immediately reached its equilibrium price, the results of the two policies would not only be “equivalent” they would be identical. In both cases every source would reduce its emissions by exactly the same amount because the opportunity cost of failing to reduce emissions would be the same – pay a tax or buy a permit for the same amount as the tax. In

both cases every source would pay the government exactly the same amount – in one case in taxes and in the other case by purchasing permits at the auction. And in both cases the government would collect the same amount of total revenue – in one case as tax revenue and in the other case as proceeds from a permit auction.

Not surprisingly, since in theory the results of cap and trade permit programs where all permits are auctioned are identical to equivalent emission tax programs they both implement the “polluter pays” principle and distribute new property rights in exactly the same way. Anyone who wants to emit carbon dioxide must pay for that privilege by purchasing a permit to do so at a government auction. A carbon cap and trade program takes an ambiguous property right – the right to release carbon dioxide into the atmosphere – and explicitly transforms it into a legal property right. Whereas this “right” was formerly appropriated by any who wished because nobody objected, under a cap and trade program the property right is encapsulated in carbon permits. If 100% of the permits are auctioned off the property right is explicitly awarded to all citizens on an equal basis since all citizens, at least in theory, have an equal claim on the revenues of the federal government. While more explicit, this is the same distribution of new property rights implicit in an equivalent carbon tax program.

However, if permits are given away free of charge – as they always have been with the single exception of the recent North East Regional Greenhouse Gas Initiative -- the new, legal property right is awarded to whoever receives them. Under the grandfather system the new property rights are awarded to those who are emitting carbon in proportion to their share of past emissions. The fact that those who receive the permits under the grandfather system may choose to sell them or buy more of them on the “free permit market” simply means that those who have been explicitly awarded this new wealth are legally free to do with it as they please.

A Caveat: Truth in Labeling

Once one understands policies there is really no need to label them. But unfortunately in a world where labels are often more important than substance, this is not the case. Regulation is routinely labeled “command and control” while taxes and cap and trade policies are invariably described as “market-based” or “market friendly” solutions. These are the labels used not only in the media but also the labels accepted and used by all but a few professional economists. However, this is nothing more than a Madison Avenue propaganda ploy to denigrate regulation which has often proven effective and is efficient when sources face similar reduction costs or technological solutions are obvious, to avoid admitting that unregulated markets often serve us badly, and in general, to turn a liability into an asset. The facts are: Markets systematically miscalculate environmental consequences – a serious liability -- and emission taxes and cap and trade policies, like regulation, are forms of government intervention designed to mitigate this market failure. The obvious conclusions are: Absent government intervention the market decision making process will grossly mistreat the environment, and taxes and cap and trade policies, like regulation, are *government intervention-based solutions to free market problems*.

THE CASE FOR CARBON TRADING

Which brings us to the bridge many on the radical left balk at crossing: If we cap emissions should we allow trading, and if so, how much and what kind of trading?

Domestic Trading: In the North East Regional Greenhouse Gas Initiative and the Western Climate Initiative should participating states be allowed to trade emission credits? Should individual sources in one state be allowed to trade credits with sources in other states? Should regional initiatives treat sequestration increases as equivalent to emission reductions? Should any future national cap and trade program in the US limit the kind of trading or the extent of trading?

International Trading: If we cap emissions in different countries – as the Kyoto Protocol does for more developed countries (MDCs) classified as “Annex 1” signatories – should we allow trading of emission credits between Annex 1 governments? Should we allow trading between individual sources in one Annex-1 country and sources in other Annex-1 countries? Should we allow trading between sources in Annex 1 countries (whose emissions are capped) and sources in less developed countries (LDCs) classified as “non-Annex 1” signatories whose emissions are not capped under Kyoto? Should we allow a source in one country to forego a required emission reduction by purchasing a credit from a project in another country which increases carbon sequestration?

Many on the radical left have strongly criticized carbon trading in general, and denounced full trading and trading that involves credits for sequestration in particular. The radical left has often opposed trading credits even between countries whose emissions are capped -- where one country meets its reduction quota under Kyoto by purchasing carbon credits from another country that reduces emissions even further than required by Kyoto. The radical left has generally denounced allowances -- where instead of reducing its own emissions a company pays for reduction in emissions in another country. The radical left is especially critical of permitting companies in countries where emissions are capped to buy emission credits from projects in countries where emissions are not capped *in lieu* of reducing their own emissions. And the radical left is almost unanimous in its denunciation of offsets – where instead of reducing its own emissions a company pays for a project to increase carbon sequestration in another country.

Below I carefully examine whether or not various objections have any basis. For the most part I find the criticisms not to be valid. Moreover, because carbon trading can lower the cost of achieving emission reductions considerably and thereby facilitate lowering emission caps even further, I believe many on the radical left have boxed themselves into an awkward corner they need to come out of if they expect those battling to avert climate change in the here and now to take them seriously. I propose that instead of criticizing carbon trading the radical left should: (1) demand a few key changes in cap and trade programs to eliminate perverse incentives present in existing laws and treaties, so we can then (2) endorse full carbon trading.⁸

The *Prima Facie* Case for Trading: Why Efficiency Matters

All empirical studies estimate large differences in reduction costs between different sources, both within and between countries. As explained in the tutorial above, this implies that prohibiting trading significantly inflates the overall cost of achieving reductions. But why should the radical left care about reducing the costs of combating climate change? Aren't these costs for polluters, who are our enemies not our allies? Why should the radical left prioritize efficiency when others so often use it for evil purposes?

Efficiency should take a back seat to two more important issues: (1) Will the policy prove effective at reducing emissions sufficiently to prevent climate change? And (2) will the policy distribute the costs of doing so fairly? Unlike many mainstream analysts, the radical left does understand that effectiveness and fairness are more important than efficiency. And when others wield efficiency like a cudgel at the expense of effectiveness or fairness we should continue to point out that efficiency is only a secondary issue. However, while efficiency may be secondary this does not mean it does not play an important role in averting climate change – and this is where many on the radical left have been most wrong. Regulation, taxes, and permits are costly for corporate sources -- which is why corporations routinely lobby to minimize the size of any mandated reductions, minimize the size of any carbon tax, and maximize the number of emission permits. But these policies also impose costs on society as a whole. The easiest way to understand that all three policies impose costs on people other than corporations is to remember that corporations always try to pass higher costs on to their customers in the form of higher prices, and whenever demand is not infinitely elastic they are able to do so, at least in part. More generally, there are what we call “social costs” associated with reducing carbon emissions which are far from insignificant. Going without bread or milk for two days until next week’s shopping trip because gas prices are higher is a minor inconvenience. Replacing your old furnace, washing machine, or clothes drier with new, energy efficient home appliances can cost thousands of dollars. A Toyota Prius costs more to buy than a Ford Focus because building a hybrid engine that gets 50 mpg costs more right now than building a traditional engine that gets 25 mpg.

Of course the social benefits of reducing emissions in the form of damage avoided because climate change is averted are much greater than the social costs incurred in doing so -- which is why it is efficient to reduce emissions and terribly inefficient to continue to fail to do so! But especially in the short-run, while we are still developing new technologies and ways to produce and consume without burning large quantities of fossil fuels, it is foolish to pretend there are no social costs associated with reducing emissions. For the foreseeable future it will cost more to transport ourselves, more to heat and cool our homes and businesses, and more to produce everything that requires energy including much of our food once we “put a price on carbon.” *The best reason to search for policies that minimize these social costs is we will be able to make more reductions, and make them sooner, the lower the cost.* In other words, anyone interested in hastening and deepening abatement – which is anyone seriously concerned about climate change – should be very much in favor of making sure abatement is done efficiently. Yes, corporations lobby for efficiency to save

themselves money. But just because we don't prioritize saving corporations' money does not mean we should not support efficient abatement.

That is the *prima facie* case for embracing carbon trading -- whether we are talking about regional cap and trade policies like the North East and Western initiatives within the US, a national cap and trade program under consideration by the Obama administration and Congress, or a new international treaty to follow Kyoto in 2012. Carbon trading lowers reduction costs which makes it easier to lower caps on emissions.⁹ What arguments do critics offer against carbon trading? Which arguments hold no water? Which arguments make valid points in the context of existing laws and treaties? How might laws and treaties be modified to eliminate ill effects from carbon trading?

A Ton of Carbon is a Ton of Carbon is a Ton of Carbon

One argument against emissions trading reduces to the claim that not all emissions are equivalent. But this is not true in the case of carbon dioxide. For many pollutants how much damage is caused and who suffers the damage depends on where the source is located. For example, when a ton of sulfur dioxide is emitted from a power plant on the eastern shore of Long Island it damages people mostly in Europe, but very little since it is diluted considerably when carried across the Atlantic Ocean by prevailing winds from the west. However when a ton of sulfur dioxide emitted from a power plant in eastern Ohio is carried by the same prevailing winds from the west it does a great deal of damage to large population concentrations in Pennsylvania, New York, and New Jersey. In this case critics are correct to point out that reducing emissions by a ton on Long Island is not equivalent to reducing emissions by a ton in Ohio. And critics are correct to point out that this is a problem with the current US sulfur dioxide cap and trade program which treats them as if they were equivalent by allowing a ton of emissions reduction in Long Island to replace a ton of emissions reduction in Ohio. Environmental economists refer to this problem as "hot spots" which can occur whenever pollutants are "non-uniform" -- i.e. when effects differ depending on the source. But carbon dioxide is a perfect text book case of a "uniform" pollutant where it makes no difference whether a ton of carbon is emitted by automobiles driving on the streets of Chicago or by a power plant on the outskirts of Beijing because the damage is the same whenever a ton of the gas reaches any part of the upper atmosphere surrounding the earth. In other words, it makes no difference where we reduce carbon emissions as far as the damage they cause is concerned, which means our only concerns should be (a) how much it costs to reduce emissions from different sources, and (b) who pays those costs. The "trade" part of a cap and trade policy for carbon emissions works to allocate the reductions to wherever they cost the least. Who pays for the reductions can be determined independently from where reductions occur, as discussed below.

Many on the radical left also object to trading emissions reductions for increases in sequestration, again arguing that the two are not equivalent. But this is also not true in the case of carbon dioxide, the major greenhouse gas. What causes climate change is increases in the concentration of greenhouse gases in the atmosphere. Science tells us it is *net* emissions, not simply emissions, which matter. It is the carbon cycle -- where natural

processes emit carbon dioxide and other natural processes sequester carbon dioxide -- that human activity has pushed dangerously out of balance, and it is balance in the carbon cycle we must restore. Since taking one ton of carbon out of the atmosphere, known as sequestration, reduces concentration levels by exactly the same amount as cutting carbon emissions by one ton, the two are completely equivalent.¹⁰ Again, since there is no difference in benefits our only concerns should be cost and who pays. And again, allowing for trading lowers costs, and who pays can be determined independently from where emissions or sequestration occurs. Think of it this way: If one is willing to pay a certain amount to reduce a ton of carbon emissions this year one should also be willing to pay the same amount -- neither a penny more nor less -- to increase sequestration of a ton of carbon this year. Leaving any measurement problems aside for the moment, there is no more reason to ban trading sequestration increases for emissions reductions than there is to ban trading of emission reductions that occur in different places.

Effective Monitoring and Enforcement Are Necessary for Any Policy

Critics argue that if monitoring and enforcement is inadequate permit programs will fail to deliver expected reductions. But if sources can get away with claiming they have emitted less carbon than they actually have, mandatory reduction programs and tax programs will also fail to deliver expected reductions. If sources can get away with under reporting emissions so they do not have to purchase as many permits as they should, we obviously have a problem. But sources will under report emissions if they can to avoid fines under a regulatory program, and sources will under report emissions if they can to reduce their tax liability under a tax program. In other words, whatever deficiencies exist in monitoring and enforcement mechanisms yield the same negative consequences no matter which of the three policies is used.

Conservative proponents of cap and trade programs -- so-called “free market environmentalists” in particular – treat carbon markets as if they were “self-monitoring” like markets for other commodities. These enthusiasts would have us believe that like markets for apples, where buyers can be relied on to monitor the quality of the apples they pay for, buyers of carbon credits, allowances, and offsets can be relied on to make sure that what they are paying for is a real reduction in emissions or increase in sequestration rather than a fake or an over exaggeration. This is completely untrue. Those who buy carbon credits, allowances, and offsets care not a whit if what they buy actually represents a real reduction in emissions or increase in sequestration elsewhere as long as they receive credit for what they bought. So while monitoring and enforcement issues are no greater for cap and trade policies than they are for regulatory and tax policies, carbon trading is hardly “self-monitoring.”

This difference between a carbon market and other markets is crucial and gives rise to many of the valid criticisms of carbon trading as carried out today. This difference means that the accreditation process in carbon markets must be carefully scrutinized. But more importantly it means cap and trade programs must be designed to minimize negative consequences when accreditation fails to prevent cheating, and a “policeman” should be found for the accreditation process who will be adversely affected if cheating does take

place. In this regard changes in some existing cap and trade programs are crucial, as proposed below.

Increase Pressure on MDCs by Lower Caps not Bans on Trading

Many on the left see trading credits, allowances, and offsets as loopholes permitting the more developed countries to weasel out of making necessary adjustments to their carbon burning domestic economies and unsustainable life styles. They argue that what is required is to put maximum pressure on MDCs -- where carbon emissions per capita are highest and therefore conversion to carbon neutrality is most urgent -- to replace fossil fuels with renewables and develop new habits of consumption. They argue that preventing MDCs from trading maximizes pressure for them to change, whereas allowing them to trade enables them to postpone domestic transformations that are necessary.

It is true that we want to put maximum pressure on MDCs to change their unsustainable economic way of life. It is true that climate change will not be averted unless the energy and transportation sectors in the world's "advanced" economies are completely transformed and the energy efficiency of buildings is increased dramatically. It is true that the sooner these and other monumental tasks are tackled the better our chances of avoiding catastrophic climate change will be. And it is also true that Kyoto has failed to launch the advanced economies on this path. But it is foolish to blame carbon trading for this failure. Yes, pressure on MDCs to transform their unsustainable economies must be increased, but the way to increase the pressure is to lower their caps, not to make it more difficult for them to meet their caps – which is what bans on trading do. In the end MDC governments will have to regulate, tax, subsidize, cap and trade, as well as spend massive sums on economic conversion projects. The way to induce them to launch a "Green New Deal" is to lower their caps dramatically in the international treaty that will follow Kyoto while simultaneously making it as cheap as possible for them to meet lower caps by facilitating full carbon trading. Moreover, since trading makes reductions easier, it increases the likelihood of winning the crucial political battles that lie ahead to lower caps even more. As far as the climate is concerned, lower caps is all that matters.

Carbon Trading Under Kyoto: Myth vs. Reality

In a true cap and trade program aggregate emissions are capped. The Eastern and Western regional programs are true cap and trade programs because each state has accepted a mandatory cap on emissions from all sources within the state, and therefore emissions from all participating States *en toto* is also capped. Presumably any national cap and trade program in the US will also set (increasingly stringent) caps on aggregate, annual US carbon emissions. The Kyoto Protocol, however, is not a true cap and trade program. Because emissions are capped only for Annex 1 countries but not for non-Annex 1 countries, global emissions are not capped under Kyoto. Critics complain that this feature of Kyoto is highly problematic because it means that when "cheating" goes undetected by those who administer the Clean Development Mechanism (CDM) of the protocol, carbon trading undermines the treaty's ability to reduce overall, global emissions. This claim that carbon trading under Kyoto's CDM mechanism is a scam, and

for this reason Kyoto only deceives people into thinking we are addressing climate change when in fact we are not is important to examine carefully.

Trading Between Annex-1 Countries: If Annex-1 governments meet their treaty obligations then it is impossible for any trading between Annex-1 governments or trading between individual sources in Annex-1 countries to undermine the overall emissions reductions those countries agreed to – no matter how much chicanery is involved in the trading. This is an important point many left critics fail to understand.

Under Kyoto each Annex-1 country has agreed to reduce emissions from within its national territory by a certain number of tons. The percentage reductions for different Annex-1 countries are not all the same, but under Kyoto both France and Canada, for example, have agreed to reduce emissions by some number of tons. Suppose the government of France fails to meet its commitment by ten million tons, and purchases ten million tons of carbon reductions from Canada to make up the difference. In other words, France buys ten million “Certified Emission Reductions” or CERs from Canada.

If these ten million CERs really represent a reduction of ten million tons of carbon emissions in Canada, i.e. they are legitimate not fake, then total emissions reduction in Canada and France together are exactly what they would have been had the countries not traded CERs. However, critics point out that France has no reason to make sure the CERs purchased from Canada are real not fake. Moreover, if the government of Canada can sell CERs that are fake why would it not happily do so? And if neither buyer nor seller has any incentive to prevent scam trading, why won't cheating be rampant and the integrity of the treaty undermined?

This is where the “if” in bold italics in the first sentence of the above paragraph is critical. If Canada meets its treaty obligations then even if it sells completely bogus CERs to France the integrity of the treaty will not be undermined – i.e. total emissions reductions in Canada and France combined will still be exactly as planned under the treaty. Why? Because the Kyoto treaty requires Canada to reduce emissions by a certain number of tons minus any CERs Canada purchases plus any CERs Canada sells. So total reductions will be as planned whether or not the CERs Canada sells France are real or bogus. If Canada sells only CERs representing real reductions obviously the integrity of the treaty is preserved. But if Canada can be compelled to meet its treaty obligations, since Canada will have to make up for any fake CER sales by real reductions in emissions somehow, somewhere in Canada, even if Canada sells bogus CERs the integrity of the treaty is preserved regardless.

What will force Canada to meet its treaty obligations? In one sense the answer is that nothing can make any country meet its obligations under any international treaty it signs because there is no world government to enforce compliance. However, even in absence of a world government there are many international treaties that are meaningful because signatories do abide by the terms of their agreement. When it would be to the advantage of a signatory to cheat on its commitment here are two key components to effective international treaties: (1) How transparent is non-compliance? In particular, does the

treaty organization have means of verifying compliance that are difficult for signatories to gainsay? (2) Are there penalties that impose significant costs on countries if the treaty finds them in non-compliance? I think the jury is still out regarding Kyoto and the second issue. My own view is that this is where the greatest problems may arise, but because 2012 has not yet arrived it is impossible to know whether enforcement of the Kyoto Protocol will prove effective. But means of verifying compliance that are difficult for signatories to contest is necessary to secure compliance in any case, and in this regard I think we can make sensible judgments. We are not talking here about the ability of the Executive Board of the CDM to evaluate Project Design Documents (PDDs) accurately and award CERs accordingly. The issue is whether or not the Kyoto treaty can verify if countries, who are the treaty signatories, have met their reduction quotas.

*The key is the international treaty organization must be able to measure aggregate, annual emissions from Canadian territory in 2012.*¹¹ Once this is done, any Canadian sales of CERs are added to those measured emissions, and Canadian purchases of CERs are subtracted. The international treaty simply compares the resulting number to the cap Canada committed to when it agreed to (a) its percentage reduction, and (b) a figure for Canadian emissions in 1990. If measured emissions in Canada, plus CERs the Canadian government sold, minus CERs purchased by the Canadian government is higher than Canada's cap, the government of Canada is in violation of its treaty obligations and subject to whatever sanctions have been established. Most commentators believe that measuring Canadian emissions in 2012 will not be a daunting task. In particular, measuring national emissions in 2012 faces none of the difficulties involved in measuring "additionality" and "leakage" that create nightmares for the CDM Executive Board. There is no "base-line" problem because there is no need to create a hypothetical scenario corresponding to what would have happened had a particular project not been undertaken. The base-line for measuring national compliance is the level of actual national emissions in 1990. That is what actual annual emissions in 2012 will be compared to. Moreover, while Canada may question the initial estimate of its 2012 emissions and petition for adjustments, most observers believe that arriving at an agreement between countries and the Kyoto treaty about what their actual national emissions are in 2012 will not prove overly difficult. In other words, most experts believe Kyoto has adequate means of verifying national emissions in 2012 that will prove difficult for governments to deny. In this case, the incentive for the government of Canada not to sell fake CERs is that it will have to come up with real reductions to compensate for those fake CERs or face sanctions for violating its treaty obligations.

What if a private company in Canada sells a fake CER to a private company in France in the international carbon market? If the company in France can purchase a CER for less than it would have cost to reduce its own emissions, it will be happy to do so. And if the company in Canada can reduce emissions for less than the price of a CER it should be happy to reduce emissions to sell for a CER. In this case the real reduction in Canada matches and substitutes for the absence of a reduction in France, and aggregate reductions are the same as if the company in France had reduced its own emissions. Moreover, the company in France is still paying for the reduction –when it buys the CER – it is just paying less than it would have cost it to reduce emissions itself. But what if the

Canadian company sells a fake CER to a company in France, i.e. the Canadian company does not actually reduce its emissions at all, or reduces emissions by less than is certified? As long as the CER is certified and the company in France receives credit for a reduction, the French company will not care that the CER is bogus. The buyer in this case cannot be relied on to “self-monitor” the integrity of the exchange. And the less the Canadian company has to actually reduce emissions to get the CER accredited, i.e. the more bogus the CER, the more profitable the deal is for the Canadian company.

Critics of carbon trading between private parties correctly point out that there is no incentive for private buyers and sellers to self-monitor the legitimacy of the CERs they trade. In this respect the market for CERs is not like the market for apples, as explained above. But what critics fail to realize is that as long as trades are between private parties located in Annex-1 countries bogus trading cannot undermine the goal of achieving the treaty’s planned *reductions provided both governments are forced to meet their treaty obligations*. Moreover, as explained above, all the treaty must do to verify country compliance is: (1) measure emissions for the country in 2012 accurately (2) subtract all CERs purchased by the government **and** purchased by any private parties in the country, (3) add all CERs sold by the government **and** sold by any private parties in the country, and (4) compare the result to the cap the country agreed to. *Securing what we might call the “integrity” of the treaty reduces to the ability to measure annual emissions from the national territory of countries in 2012 and force governments to comply with the caps they agreed to.*

Governments of Annex-1 countries have good reason to prevent private parties located in their national territory from selling bogus CERs because this will make it more difficult for the government to meet its treaty obligations. But even if CERs are not “additional,” i.e. reductions above and beyond what would have occurred anyway, and even if CERs create “leakage,” i.e. the reduction causes an increase in emissions elsewhere in the country, sale of bogus CERs does not erode emissions reductions for the country as a whole because the treaty will measure national emissions in 2012 and require the country to make up for any bogus CER sales with real reductions elsewhere.

Trading Between Annex-1 and Non-Annex-1 Countries: Critics point out that Kyoto allows for governments and companies in Annex-1 countries which are capped to purchase CERs from governments and companies in non-Annex-1 countries where emissions are not capped through the CDM. Surely this kind of carbon trading undermines the effort to reduce global emissions since countries with caps can avoid domestic reductions by purchasing CERs from countries which are permitted to increase emissions without limit. Critics have a valid argument if the CDM accreditation process fails to work as it is supposed to. However, if the accreditation process accomplishes its mission, carbon trading through the CDM mechanism is not problematic.

The CDM Executive Board (EB) is supposed to grant CERs only to projects in non-Annex-1 countries if (a) the project represents a real reduction in greenhouse gas emissions, (b) the reduction is “additional,” i.e. above and beyond what would have occurred had the project not taken place, and (c) the project does not create “leakage,” i.e.

the project does not cause an increase in emissions elsewhere that would not have occurred had the project not happened. Determining (b) and (c) requires establishing what is called a “base line,” i.e. a hypothetical scenario of what would have happened had the project never occurred, which is obviously the most problematic part of the exercise. However, to the extent that the CDM EB -- with the help of Designated National Authorities (DNAs) in non-Annex-1 countries, and professional private contractors called Designated Operational Entities (DOEs) – only approves “Project Design Documents” (PDDs) which meet the three criteria above, carbon trading through the CDM does not undermine global emission reduction targets. Instead, it merely lowers the cost of reductions and distributes the efficiency gain from doing so between MDC purchasers and LDC sellers of CERs.

Under Kyoto there is a cap on Canadian emissions but not on Mexican emissions. Suppose a company in Mexico sells a CER to a company in Canada. Further suppose the CDM EB did its job and the project is reduction is real, additional, and causes no leakage. So far the trade reduces global emissions by the same amount as had the Canadian company reduced emissions itself and the project in Mexico never occurred. The only difference is that the reduction took place in Mexico.¹² However, since there is no cap on net emissions in Mexico isn't it possible that Mexican emissions will increase? Isn't it possible that rather than achieving a reduction in global emissions by mandating a reduction inside Canada, instead we get no reduction in emissions in Canada because the Canadian company instead bought an allowance from Mexico, and even though the Mexican company that sold the CER did reduce its emissions more than it would have otherwise, and even though this did not cause an increase in emissions somewhere else in Mexico, nonetheless, other sources in Mexico will increase emissions leaving us with no reduction, or even an increase in global emissions?

With no cap on Mexican emissions this could happen. However, it is not trading that causes this problem, it is the lack of a cap on Mexican emissions that makes it possible for emissions in Mexico to increase. Since so many progressives have misunderstood this issue let's examine it more carefully at the risk of belaboring the obvious. For those who are still not convinced that permitting trading between countries with caps and without caps does not erode global reductions as long as CERs are legitimate according to CDM guidelines, let us consider what would happen if no trading were allowed between sources of emissions in Canada and Mexico. Mandated reductions for wealthy, industrialized countries, no mandated reductions for developing economies, and no trading is what some on the radical left favor. Under such a program where no trading is allowed we would get reductions in emissions from sources in Canada, but there would be no reason for sources in Mexico to do anything different than they were going to do anyway. If sources in Mexico were going to reduce emission they would still reduce them. If they were going to increase emission they would still increase them. If they were not going to change emissions they would still not change them. It is possible that global emissions would fail to decline because emissions in Mexico might increase by more than emissions decline in Canada. But this is obviously not because we allowed trading – since we did not allow trading in this scenario. Instead, it is because we failed to cap emissions in Mexico. Moreover, both Mexico and Canada would be worse off because

trading was prohibited. Sources in Canada would have to pay more to reduce their own emissions than it would cost them to buy CERs from Mexico. And sources in Mexico would be unable to profit from selling CERs for more than it cost them to reduce their emissions. In sum, no useful purpose is served by prohibiting trading as long as CERs are “real,” “additional,” and do not cause “leakage.”¹³

But some CERs clearly have not been legitimate. CERs have been awarded for projects which do not provide additional reductions and for projects where reductions replace reductions elsewhere. It is not easy to establish a hypothetical base line scenario, determine how much more a project reduced emissions than they would have fallen anyway, much less be sure the project did not cause an increase in emissions someplace else in the country. And if CERs are not “legitimate,” i.e. if the accreditation process fails to carry out its difficult mandate successfully, then criticisms of trading through the CDM are valid. If a CDM approved project does not represent “additional” emission reductions, or creates “leakage,” trading will cause global reductions to be less than planned since non-Annex-1 countries without caps do not have to make up for any short-fall due to sales of illegitimate CERs with real reductions elsewhere. Moreover, since governments of non-Annex-1 countries selling CERs have no incentive to police the legitimacy of CERs sold by their residents, and since the buyers and sellers of CERs never have any incentive to guarantee that the CER represents a real, additional emission reduction, there is every reason to be concerned.

A great deal has been written criticizing carbon trading under the CDM of the Kyoto treaty. Most of the valid criticisms expose cases where CDM authorities failed to ensure that reductions were additional and without leakage, in which case their failure does undermine achieving even the insufficient global emissions reduction planned under Kyoto. However, much of the criticism is not compelling. Most critics fail to acknowledge dramatic improvements in monitoring after the first year of the program, including a significant tightening of standards. Many critics wrongly criticize what they consider “over paying” for CERs as “inefficient” when the price paid for CERs actually has no bearing on efficiency but only on equity.¹⁴ Radical critics also make no attempt to compare the beneficial effects of the majority of CER trades which are legitimate with any ill-effects from the minority of CER trades that are not. More importantly, radical critics fail to consider obvious ways to correct the flaws in Kyoto that make carbon trading through the CDM mechanism problematic. Three changes in a new international treaty to follow Kyoto would render all objections to full international carbon trading moot, including objections to selling credits for sequestration increases.

Caps for All

As explained above, even trading bogus CERs between Annex-1 governments or private parties within Annex-1 countries cannot undermine global reductions as long as national, annual emissions are monitored accurately. Problems only arise when governments or private parties in non-Annex-1 countries where national emissions are not capped sell bogus CERs to governments or private parties in Annex-1 countries with caps. The

obvious solution is to cap emissions in all countries, i.e. eliminate the distinction between Annex-1 and non-Annex-1 countries altogether.

Critics object that this is not fair. They say it is not fair to cap emissions of poor countries who are least responsible for causing climate change and least able to bear the costs of curtailing climate change. Critics, as well as governments in poor countries, argue this effectively prevents poor countries from developing and catching up with the developed economies. Some even argue that the only positive part of the Kyoto framework is that it caps only emissions for industrialized countries while leaving poor countries room to develop. Every one of these arguments against capping emissions in every country is absolutely correct if the caps are wrong. However, none of these arguments against capping emissions everywhere holds true if caps are set equitably.

Equally restrictive caps for all is unfair. But sensible people, and even sensible governments, understand this. The European Union has assigned lower caps to more developed member countries like Germany and France and higher caps to less developed members like Portugal and Ireland in its plan to meet EU commitments under Kyoto. Once it is understood that capping everyone does not mean the same cap for everyone it is apparent that equity can be achieved at the same time that erosion of global emission reductions resulting from failure to cap emissions in all countries is prevented. As a matter of fact, there is no reason we cannot allow very poor countries to increase emissions, as long as the increase is capped. Of course the more we allow developing countries to increase emissions before reaching their cap, the lower caps must be on industrialized countries to meet a given level of global reductions. But the answer is simple: Capping all countries is the only way to guarantee that we will meet our global emissions reduction goal. And equity can easily be achieved by varying the caps for different countries as much as equity requires – including allowing emissions increases in the poorest countries.

Cap Net Emissions Not Emissions

At the international conference on climate change in Rio de Janeiro in 1992 attendees wisely recognized that it was net emissions – carbon emitted minus carbon sequestered -- that mattered. However, in the intervening years between Rio and Kyoto what was hammered out were agreements about percentage reductions in emissions to be achieved by 2012 for different industrialized countries, not reductions in net emissions. As a result problems have arisen with sequestration offsets. For example, the US argued at the Kyoto meetings that it deserved credit for sequestration from US standing forests and from agricultural practices which sequester carbon soils. In some estimations this would have cut the amount the US was required to reduce its carbon emissions by almost half of what had been agreed to in difficult international negotiations over required emission reductions for different industrialized countries. Canada and other MDC countries presented similar petitions. If these petitions for sequestration credit had been granted the reduction in global emissions envisioned at Kyoto would have been seriously eroded. If the shortfall in global emissions reductions would have been matched by an equal increase in global sequestration there would have been no problem, since it is net

emissions that matter. But opponents pointed out correctly that much of the credit being asked for was not for an increase in sequestration, instead credits were being demanded for a great deal of sequestration that would have taken place in any case. The problem was that percentage reductions were negotiated for emissions rather than net emissions, and then petitions for sequestration credit in lieu of emission reductions came in after the fact.

Capping net emissions in the national territory of a country -- rather than capping only emissions -- would also solve an important problem arising from projects in non-Annex-1 countries selling CERs for sequestration increases. Under Kyoto's CDM if a project increases carbon sequestration it can receive CERs. So creating a tree plantation can qualify for CERs because it is easy to demonstrate that new trees planted are sequestering carbon that would not have been sequestered had the trees not been planted. But the CDM EB does not grant CERs for carbon sequestered by existing forests that are conserved because it is difficult to know whether or not the forest would have been preserved in any case. This creates a perverse incentive to replace existing forests with tree plantations in non-Annex-1 countries. There is no financial compensation for conserving existing forests because additionality cannot be easily demonstrated, whereas logging the forest for commercial gain and replanting with fast growing seedlings for sequestration credits turns a double profit because additionality can be demonstrated.¹⁵ Even if we do not take other environmental benefits from forest conservation into account, this is very counterproductive simply from the perspective of net carbon emissions. If the original forest is preserved intact it continues to store large quantities of carbon and also sequester more carbon each year. On the other hand, if the existing forest is logged off and young trees are planted in its place, net emissions will be higher and occur sooner. The young trees may sequester more carbon than the original forest, but any increase in annual sequestration pales in comparison to the release of carbon that immediately accompanies deforestation. From a net carbon emission perspective it is almost always better to conserve existing forests than destroy forests even when deforestation is followed by replanting.¹⁶

But what if net emissions were capped in the country in question? In this case since the international treaty would hold the government responsible for national net emissions, the government would have an incentive to discourage activities that increase net emissions and encourage activities that decrease net emissions within its borders. The international treaty needn't dictate to governments how they go about doing this. Since conservation generally yields fewer net emissions than deforestation followed by replanting, national governments would be foolish not to make sure that conservation was also financially more attractive. Capping national net emissions provides the proper incentive for governments to find ways to discourage deforestation, and eliminates the perverse incentive to destroy and replant that currently exists under Kyoto in countries without caps who can sell sequestration offsets. Again, the solution is simple: Cap net emissions in all countries. Of course to be fair the caps on net emissions for poor countries should be considerably more lenient (higher) than the caps on net emissions for richer countries. But the precedent for taking equity into account in setting different percentage reductions for different countries has already been established in every phase of the Kyoto

negotiations. The only difference here is to negotiate different reductions in *net* emissions for rich and poor countries instead of different reductions in emissions only.

Need a New Sheriff

Kyoto has chosen the wrong way to police carbon trading. As hard working, honest, and professionally competent as the MDC Executive Board (EB) and the Designated Operational Entities (DOEs) they work with may be, the MDC is still an international bureaucracy subject to the pressures all international bureaucracies respond to. In the end they have nothing at stake but their salaries and reputations. Meanwhile they are subject to political pressures from different sides. On the one hand, those concerned with preserving the integrity of global reductions apply political pressure for the MDC to tighten standards and deny certification to questionable projects. On the other hand, those who would sell or buy CERs, any governments who lobby for business interests operating in their territory, and those who favor the income flows from MDCs to LDCs CER sales generate apply political pressure on the MDC to increase the volume of CER trading.

If an international bureaucracy were the only policemen we could find to monitor the legitimacy of international carbon trades, we would have no recourse but to accept whatever outcome results from this predictable tug of war, or abandon carbon trading among private parties and forego the considerable cost reductions legitimate trading provides. However, fortunately there is a better policeman available. Once net emissions are capped in all countries, not only are planned global reductions secured, the governments of all countries have a powerful incentive to prevent private parties within their borders from selling bogus CERs in the international carbon market. It is in the interest of countries to keep private parties from selling more CERs in the international carbon market than the amount by which a project reduces emissions or increases sequestration above and beyond what would have occurred had the project not been undertaken because if country governments fail to prevent this it is those governments or their citizens who will suffer the adverse consequences when national net emissions are capped.

So besides capping emissions in every country, besides capping net emissions rather than only emissions, we need to appoint a new sheriff to serve as the final arbiter for carbon trading between private parties – a sheriff with something at stake more than reputation if sellers receive more CERs for a project than the amount by which the project actually decreases net emissions above and beyond what would have taken place otherwise. Under an international treaty that enforces caps on net emissions in all countries, national governments and the citizens they represent are the ones who lose when residents are certified to sell more CERs than they should be. No doubt national governments will appreciate all the assistance they can get from the professional staff of an agency of the international climate treaty with expertise in establishing base lines and measuring additionality and leakage. But it is national governments who should be put in charge of final approval for projects within their own borders seeking to sell CERs in international carbon markets.¹⁷

In sum, it is important to protect the integrity of a climate treaty from difficult problems that arise in monitoring the integrity of private carbon trading. Problems inherent in measuring and monitoring the integrity of sales of individual carbon credits are much greater than measuring national, annual, net carbon emissions. Measuring the latter faces none of the dilemmas of establishing a hypothetical base line necessary to measure additionality and detect leakage, which measuring the former requires. Measuring actual national net emissions for countries also faces none of the problems associated with permanence of emission reductions or sequestration increases, nor problems that arise because the timing of reductions and sequestration matters. Since all these problems intrude when making judgments about equivalences for individual trades it is advantageous to protect the integrity of the climate treaty from problems associated with monitoring carbon trading between private parties. For all these reasons we should cap net emissions for all countries and make monitoring and enforcing national caps the top priority of the international treaty organization. Having done so, it is also important to be sure that those who have the most to lose if bogus carbon trading occurs are the ones in charge of final approval for carbon trading between private parties. Once annual, national, net emissions are capped for all countries, national governments or their designated authorities should have final approval over all proposals by their residents who wish to sell credits in the international carbon market.

THE IMPORTANT ISSUES

Will the Response be Effective? The important environmental issue is how much overall reduction in net green house gas emissions will be achieved how quickly. Will we reduce overall net emissions by enough, and soon enough, to overcome inertia and stabilize atmospheric concentrations of greenhouse gases at levels that prevent serious climate change, or will we fail with cataclysmic consequences? We should heed the overwhelming consensus in the scientific community that reductions on the order of 80 percent, or more, by the year 2050, or sooner, are required to avoid an unacceptable risk of cataclysmic climate change. And should scientists revise their estimates in light of new data about warming trends we should quickly adjust our reduction targets accordingly. In short, will the response be *effective*?

Will the Response be Fair? The important social justice issue is how the largest distribution of new wealth in human history will be carried out. Any policy that reduces greenhouse gas emissions sufficiently to avert climate change will create a new form of wealth whose magnitude will be literally unprecedented. Up until now nobody has “owned” the “right” to put greenhouse gases into the atmosphere. Anybody who wished to simply did so – with no questions asked. But now that we know human economic activity is increasing the concentration of greenhouse gases in the atmosphere to the point where cataclysmic climate change is approaching at an alarming speed, it is apparent that the legal “right” to put carbon dioxide into the atmosphere is of great value. Some researchers estimate that if global emissions are reduced sufficiently to avert climate change the global market value of emission permits for one year would equal one trillion dollars. If the US reduced emissions enough each year to achieve an 80% reduction by 2050 some estimate that the

value of permit sales could reach \$300 billion per year. That is a lot of wealth being doled out to someone. Right now that wealth is being stolen by people whose carbon footprint is higher than average from people whose footprint is lower than average.

Will carbon emission rights be distributed globally in a way that further aggravates or reduces existing inequalities of wealth and income between countries? That will be determined by how low or high the caps are set for countries at different levels of economic development by a global climate treaty. Will carbon emission rights be distributed inside the US in a way that reduces existing inequalities, or will the wealthy pull off the greatest asset swindle since the Robber Baron days of Western land give-a-ways to the railroad trusts? That will be decided by whether we distribute the new wealth to everyone on an equal basis -- as both a carbon tax and a 100% auction permit program do -- and thereby reduce wealth inequality, or whether we distribute permits for free on the grandfather basis and thereby make wealth inequality even more obscene than it already is in the US.

These are the two big prizes attention needs to be focused on. For the most part the environmental movement has done its job of focusing attention on the first issue -- will reductions be sufficient, and therefore will the response be effective. When vested interests and politicians come up with half-hearted proposals there have been loud objections from the environmental movement -- with climate scientists playing a truly exemplary role. This is not to say that environmentalists have won the day -- far from it. But environmental scientist with help from environmental NGOs have played an important role in making the public aware when proposals intended to lull a concerned public into complacency are woefully inadequate to the task at hand.

Unfortunately the Left has done a comparatively poor job of focusing attention in a useful way on the second issue -- will the burdens and benefits of combating climate change over the next few decades be distributed fairly or unfairly? The Left has not effectively focused attention on fairness because our voice has not been heard. In part this is not our fault. The Left is excluded to a greater degree than the scientific environmental community by the mainstream media and political networks that frame policy options. In part, however, our exclusion has been self-inflicted because many on the radical left have taken an indefensible position regarding efficiency, dismissed taxes and permit programs as unworthy of discussion, and criticized those who participate in policy debates for distracting attention from "real" solutions, namely overthrowing global capitalism.

Auction All Permits in Domestic Cap and Trade Programs: The effects on wealth and income distribution of a cap and trade program in the US are largely determined by the initial distribution of permits. Permits are new wealth. If they were distributed in direct proportion to peoples' wealth and income status, the cap and trade program would be regressive. If they were distributed in inverse proportion to peoples' wealth and income the program would be progressive. However, distributing permits directly to individuals is not presently under discussion in the US. Instead the debate is over what percentage of permits to distribute to large corporate emitters of greenhouse gases for free, and what percentage to sell at auction.

All permits should be sold at auction and none should be given away to sources free of charge. The most important battle for environmental organizations is to minimize the number of permits printed – because this maximizes the probability of averting climate change. The most important battle for progressive organizations and the radical left is to maximize the percentage of permits that are sold at auction – because this will make the distributive effects of the cap and trade program as progressive as we can hope for. As explained in the tutorial above, a 100% auction is the equivalent of giving every citizen an equal number of permits which reduces wealth inequality to some extent. However, after permits are sold at auction there is another way to make a cap and trade program more progressive which is receiving some political traction. Revenues from auctioning permits can be used to give rebates to the poor to shield them from higher energy, transportation, and food costs. And unlike giving emission permits to individuals which is not under discussion, using revenue from permits sold at auction to give rebates to those most in need of protection from higher energy costs is on the bargaining table today. In other words, the best chance to make a domestic cap and trade program progressive is to insist on a 100% auction and then argue for designating some of the revenue as rebates for the poor. But first permits must be sold at auction to provide revenue for rebates.

THE U.S. POLICY DEBATE TODAY

For those who continue to shun the actual debate over climate change policies it is irrelevant where that debate stands and why. But for those on the Left who become convinced they have something to contribute it is helpful to know about a few particulars.

Corporations in fossil fuel industries and their allies in the United States have mounted a powerful campaign in which they have literally bought the services of scientists and economists, as well as “opinion makers” and politicians. This war against doing anything effective to prevent the onset of climate change is waged on three fronts. First, they deny that climate change is taking place, or that if it is, that it has human causes. Second, they underestimate the negative consequences of failing to prevent climate change, exaggerate the social costs of acting to do so, and argue that significant preventive measures are therefore unwarranted. Third, they argue for policies that minimize the share of the costs of combating climate change corporations bear by claiming policies that minimize the cost to corporations are most efficient and therefore best serve the public interest.

While the “do-little lobby” wages a well financed battle on all three fronts at all times, they have recently made a Machiavellian change in strategy on the third front at the national level. Traditionally the “proactive progressive lobby” has favored hefty federal carbon taxes to combat climate change, which the do-little lobby has steadfastly opposed. Recently the do-little lobby has done an about face and come out in favor of a carbon tax instead of a cap and trade program, while the proactive progressive lobby has taken up the cause of cap and trade. For any who want to play a role in the policy debate it is important to understand why.

The proactive progressive lobby has traditionally favored the tax approach because it makes the polluters pay, because it automatically gives each citizen an equal share of the

new wealth created by putting a price on carbon, and because it does not create a market for a new commodity -- carbon emission permits. Because we understand that market thinness and market power will be problems in real world permit markets, and because we understand that uncertainty and speculative motives can create dysfunctional market bubbles and crashes adversely affecting both efficiency and equity, we have traditionally favored taxes over tradable permits. It is easy enough for economic theorists to assume away real world problems and deduce that if permit markets worked perfectly they would yield the same outcomes as pollution taxes. But since permit markets will not equilibrate instantaneously, and because large players will buy and sell strategically -- for example, buying up permits to limit entry of new firms into their industry -- a permit program will inevitably be less efficient than an equivalent pollution tax, and probably will be less fair even if 100% of the permits are initially sold at auction. In other words, tradable pollution permits have serious “technical” or “practical” disadvantages whenever convenient assumptions about markets prove unwarranted, whereas there is no new market where things can go wrong when we impose a tax on carbon.

Meanwhile, our opponents in the do-little lobby have traditionally favored a cap and trade program where the cap is only slightly lower than current emissions and permits are distributed on a grandfather basis -- claiming that more dramatic reductions would be too disruptive to business, and that energy prices would not rise as much if permits were given away free to major emitters instead of being sold at auction. It mattered little that this policy differs only marginally from a “business as usual” scenario and therefore would do little to combat climate change. As a matter of fact that was its real purpose, and many refer to those I call the do-little lobby the “business as usual lobby.” It also mattered little that mainstream economic theory teaches that the rise in energy prices will be the same whether permits are distributed for free or sold at auction, or how well progressive economists explained the common sense of why energy prices will rise the same in either case. (See Sheeran and Barrett 2008.) None of this mattered because for decades the do-little lobby was successful peddling their snake oil in Congress, preventing meaningful climate change policy from being considered, and setting the stage for their clients to capture a massive distribution of newly legalized wealth in exchange for a marginal adjustment in their fossil fuel guzzling ways. So why have the two camps recently flip-flopped positions?

Thanks mostly to climate scientists the tide of public opinion has turned regarding the magnitude and speed of emission reductions that are necessary. As a result, opinion has changed enough in mainstream political circles so there is now a chance that a new Congress and Administration could pass a meaningful climate change bill. Talk of an 80 percent reduction in US emissions by 2050 is common and has become politically feasible. Many in the proactive progressive lobby have wisely jumped on this new opportunity to embrace a program that lowers caps every year to yield a massive reduction by 2050. The proactive lobby has even raised the possibility of a greater reduction target and an earlier date. Moreover, the progressive wing of the environmental lobby has correctly identified selling permits at auctions as opposed to grandfather give-a-ways as its most important policy fight, and both lobbies have discovered the public is receptive to auctioning permits and opposed to giving them away to businesses for free.

This sudden shift in the political landscape has terrified the do-little lobby which has decided that a new President and Congress might embrace their policy framework – cap and trade – but in a form they never imagined. They suddenly realized they might be forced to make drastic reductions in emissions but receive none of the new wealth that reductions create. Moreover, the do-little lobby saw themselves in danger of being outflanked in the political debate since they had long favored cap and trade over other policy approaches. This is the recent turn of events that compelled those calling the shots in the do-little lobby to do an about face and come out in favor of a very small carbon tax. The do-little lobby now believes their best chance of forestalling a significant bill is if it takes the form of a carbon tax which they believe could be kept low because “new taxes” are still unpopular with the public and frighten politicians running for office. The proactive progressive lobby on the other hand now sees its best chance for an effective and fair climate bill in the form of severe caps where 100% of permits are sold at auction.

WHAT THE LEFT CAN CONTRIBUTE

Continue to Insist that Capitalism is the Problem: We should continue to explain how and why capitalism is the major cause of climate change. Not technology *per se*, not population growth *per se*, not human greed *per se*, but the central pillars of capitalism are the underlying cause of climate change. Private ownership of the means of production and coordination via market forces reward those who adopt environmentally destructive technologies and life styles and penalize those who attempt to develop new, sustainable habits. We must bring this message to as many ears as possible, and tailor our explanations more effectively for different audiences. As always, neither concise statements crafted to grab attention nor longer treatises designed to answer the doubts of intelligent skeptics should be formulated using concepts and rhetoric foreign to all but a small Left priesthood.

Acknowledge that Climate Change Must and Can be Fought While Capitalism Persists: However, we must distinguish between the *true* message that capitalism is the root source of the problem from the *false* message that pursuit of effective and fair policies to combat climate change is pointless as long as capitalism persists. The decision about how much and how fast to lower the cap on carbon emissions, and what percentage of permits to sell at auction will go a long way toward deciding (a) if the planet will remain habitable, and (b) whether human society will descend further into barbarism or we will engage in equitable cooperation to avert climate change and proceed along that trajectory as the twenty-first century progresses. Unfortunately, much of the Left has not positioned itself to positively affect these decisions. But it is not too late to join the battle. It is not pointless because the major battles still lie ahead. And it is not pointless for the Left to join the debate even though we are marginalized by the major media and ignored by mainstream environmental NGOs because nobody else can be relied on to insist that climate change be prevented in ways that are equitable. But to be taken seriously the Left must stop dismissing the importance of minimizing the cost of combating climate change, and must stop rejecting out of hand policies and mechanisms that do so. Just because our enemies make false claims about efficiency and abuse efficiency for evil purposes is no reason the Left should not put the cause of efficiency to good use. The more we lower the

cost of reducing net emissions the lower the efficient level of net emissions becomes, and the quicker we can get there. Moreover, every cost reducing mechanism can be designed to reduce rather than aggravate inequalities provided there is sufficient popular pressure brought to bear.

Insist that Scientists, not Economists, Determine Necessary Reductions: For a number of reasons we should insist that scientists who study the climate, not economists, are the experts who are best suited to advise us how much reduction in net emissions is warranted. (1) The scientific community is more likely to be right than economists, much less politicians or the business community. (2) The scientific community is miraculously speaking with a single voice, whereas other communities are a cacophony of wildly contradictory advice. (3) The scientific community uses the logic of insurance which is better suited to treating climate change where uncertainties are great and the downside is unthinkable than the alternative logic of cost benefit analysis favored by economists and currently by EPA guidelines. People want to know what reductions are required to make them reasonably safe. Weighing costs and benefits is something sensible people do only when they already feel safe. In other words, the scientists have instinctively used the appropriate methodology whereas economists and politicians have been bogged down in an inappropriate framework. And finally, (4) the scientists have recently proven to be our best negotiators, able to get us the best deal! An 80% or greater reduction in emissions by 2050 or sooner is now a realistic possibility. Nothing even close to that was on the table until recently. We need to embrace the incredible coup the scientific community has pulled off.

Economists should only be consulted about how best to achieve the level of emission reductions recommended by scientists. Economists have no productive role to play in the discussion over the level of reductions we need to achieve. But economists can play a useful role regarding how to achieve reductions. They can make recommendations about how to minimize the overall social costs of achieving the necessary level of global reduction in net carbon emissions, and progressive economists can make helpful recommendations about how to distribute those costs in ways that reduce rather than further aggravate existing global inequities.

Stop the Mindless Trashing of Carbon Trading: Evaluating the predictable effects of alternative policy interventions in a market system to identify the most fair and efficient among them is not the same as endorsing the market system or claiming the market system is capable of yielding fair and efficient outcomes. I am a self-declared “market abolitionist” which means I am convinced that there is no role for markets in a desirable economy – an economy that is democratic, fair, efficient, and sustainable. (See Hahnel 2007 and 2008.) Moreover, I have argued at great length that a desirable non-market economy is perfectly possible. (See Albert and Hahnel 1991, 1992a, 1992b, 2002, and Hahnel 2005.). But we do not yet live in a non-market economy, and those who ignore this unfortunate fact of life do so at their peril.

In theory carbon taxes are the best approach – which is why it was initially favored by the progressive proactive lobby, including yours truly. However, we were unable to win

consideration for a high enough tax to come close to achieving an 80% reduction in carbon emissions. The scientific community on the other hand has moved an 80% reduction smack into the middle of the bargaining table today. In other words, we can win a much better deal in the form of a cap than we proved able to win in the form of a tax. That's why we should now go with a cap. And once we have printed permits to cap emissions and insisted on competent monitoring and enforcement mechanisms necessary for any program to be effective, we should also support full trading of permits.

Get on Board: At this point the best policies to avert climate change in the here and now are clear enough. The radical left needs to get on board and fight for them instead of standing on the shore and throwing rocks at the boat as it sets sail.

Globally we should support caps on net emissions for all, with lower caps for wealthy countries and higher caps permitting modest emission increases for poorer countries. Globally we should put national governments in charge of approving international sales of carbon credits by projects within their borders, and then support full trading of credits, allowances, and offsets. As long as there are caps on *net* emissions for *all* countries an international treaty only needs to measure annual *net* emissions *for countries* in order to ensure that the level of global reductions in net emissions agreed to is, in fact, achieved. Effective penalties for countries who fail to meet their treaty obligations will still be required, but approving credits traded between private parties in different countries becomes a concern for the governments of those who would sell credits. When net emissions are capped for a country the government of that country has powerful incentives to police the legitimacy of credits sold by private parties in the international carbon market, and the integrity of the international treaty commitment to the level of reduction in global net emissions agreed to is protected in any case. Kyoto ends in 2012 and negotiations for beyond Kyoto are already underway – at meetings just concluded in Poland and in Copenhagen in the spring of 2009. This is the direction Leftists should seek to push those global negotiations.

Inside the United States realpolitik now dictates supporting a cap and trade program geared toward greater than 80% reductions ASAP with 100% of permits sold at auction. Once the new wealth has been secured for the public we should insist that part of the revenue from permit sales be used to shield the poor from the effects of rising energy prices, and the remainder should be used to subsidize conservation and renewables as part of a massive federal program to orchestrate the make-over of the US economy needed to reach carbon neutrality. Revenues from permit auctions can help finance a Green New Deal needed to keep today's recession from turning into tomorrow's depression while providing necessary public investment funds to transform the economy to avert climate change. The idea of a Green New Deal is gaining political traction. The Obama campaign consistently pushed the idea which they inherited from Al Gore, and since being elected Obama has backtracked less on his commitment to a Green New Deal than he has on any of his other campaign promises.

Not only does the Left need to get on board to avoid greater marginalization, the biosphere and three quarters of humanity who are currently excluded from the climate

change debate need the Left on board if we are to right the ship in a way that also advances the cause of equitable cooperation.

Organize Exemplary Mass Actions Without Trashing Reform Work: Leaving fossil fuels in the ground is, of course, the only way to prevent climate change. And since urgency and dedication are a major part of what is required for success, “Keep the Oil in the Soil and the Coal in the Hole” campaigns which organize citizens to engage in civil disobedience at mine sites and company headquarters with this demand are an important, positive catalyst. It is unwarranted and counter productive for mainstream environmental NGOs to criticize those who organize or engage in these heroic campaigns. But as in the case of all reform campaigns within capitalism, civil disobedience is only one part of an effective strategy to reduce carbon emissions sufficiently to avert climate change. Unless we force governments to adopt an effective carbon tax or cap and trade policy, peaceful demonstrators engaging in civil disobedience at mines will be rounded up and arrested by armed police and military personnel to no avail. Therefore, it is also unwarranted and counter productive for those engaging in civil disobedience to criticize those working for an effective and fair international treaty to combat climate change, or those working to force their own governments to adopt carbon taxes or cap and trade policies that are effective and equitable.

Build a Progressive-Environmental Alliance: To turn environmental destruction into environmental restoration two things are necessary: (1) Existing incentives to abuse the environment must be replaced by effective incentives to protect and restore it. (2) A political coalition determined enough and powerful enough to make these changes must be built. Whether one calls it a red (for Left) green, or a blue (for blue collar) green alliance, or some other name, there is no place for major corporations or free market ideology in the kind of political coalition needed. Changing environmental destruction into restoration requires challenging freedoms corporations take for granted and implementing policies that curb the rule of market forces. Once this is recognized, it should be apparent that tackling the second task by trying to make the coalition attractive to corporations and adopting a pro-market ideology is ultimately self-defeating. While pro-market rhetoric may open access to some ears, and concessions to corporations like the grandfather system of distributing emission permits may reduce their opposition somewhat, this approach will never produce a coalition that will protect the environment. Instead, it further empowers the very forces driving environmental destruction in the first place.

The coalition to protect the environment must be built from those who are most harmed by environmental destruction, i.e. the vast majority of ordinary people, and particularly the poorest among them. Because they are less powerful, poor communities are generally less successful in the political game of NIMBY. Therefore poor communities are usually the greatest victims of environmental destruction. (See chapters 5,6,7 and 8 in Martinez-Alier 2002). But poor people and ordinary people need jobs, housing, transportation, and an affordable source of energy -- as well as environmental protection and restoration. If the environmental movement makes demands that threaten vital interests of ordinary people it will never build a sufficiently powerful coalition to protect and restore the

environment. And unless the environmental movement supports progressive movements fighting to meet people's other needs, it can hardly expect those movements to rally to its cause and contribute enough political muscle to move the environmental agenda forward.

There are always transition costs whenever any economy undergoes a massive transformation. The change from a carbon based economy to a carbon neutral economy will be an economic transformation of epic proportions. It is because the benefits of the transformation far exceed the costs that failing to make the conversion would be a monstrous case of social irrationality. But that does not mean that everyone will enjoy greater benefits than costs irrespective of how the transition is carried out. It only means that it is theoretically possible to sufficiently compensate losers from the winnings of winners so that all gain and none lose.

The key is recognizing that there will be significant costs as well as benefits associated with moving from unsustainable to sustainable patterns of work and consumption, and making sure that programs protect ordinary people we need in the environmental coalition from being the ones who have to bear those costs whenever possible. If coal miners and automobile workers are compensated while being retrained for new jobs that are not environmentally destructive, they will be less likely to oppose putting a price on consuming carbon. If new affordable housing in old city neighborhoods is available because it is subsidized, young families who need decent housing will not oppose zoning measures preventing suburban sprawl from gobbling up farms and green space surrounding metropolitan areas. If public transportation is convenient and cheap people will be less likely to demand wider highways as the solution to grid lock. If revenues from the sale of carbon permits are rebated to poor and lower middle class families they will be less likely to oppose policies needed to wean the economy off fossil fuels. Averting climate change, and environmental protection in general is efficient not because there are no costs, but because the benefits outweigh the costs. It is just as important for strategists to come up with policies that fully compensate different categories of ordinary people who might otherwise be harmed by reducing carbon emissions, as it is for them to come up with policies that reduce emissions sufficiently. Otherwise there will never be a coalition strong enough to impose policies that actually prevent cataclysmic climate change.

APPENDIX: CONFESSIONS OF A MARKET ABOLITIONIST

Why, Professor Hahnel, if you call yourself a “market abolitionist” are you urging the radical left to support creating a market for carbon? Won’t this commodity market be the biggest market in the history of the world? Won’t the market for carbon permits dwarf today’s oil market? Won’t the financial sector create a horrible cocktail of subsidiary markets around the carbon market, including carbon futures markets, markets for carbon swaps, and derivatives based on fluctuations in the price of carbon? Won’t carbon futures and swaps be packaged together with sub-prime mortgages and default swaps in opaque packages of securitized financial instruments that nobody understands, but eventually everyone will come to mistrust?

The honest answer to all these questions is: “Yes... all this could happen if capitalist finance remains unregulated and wildly out of control as it has been.” However, if net emissions in all countries are capped then even if the carbon market functions badly, and even if an unregulated financial sector inserts carbon permits into its murky, toxic, financial soup, and even if it becomes impossible to verify that what has been chopped up and divided, bought and sold, repurchased and resold, and packaged in a myriad different forms and combinations with dozens of other questionable assets are, in fact, real emission reductions rather than fakes, the effectiveness of the climate treaty will not be undermined in any case. No matter how much of a mess is made of an international carbon market, and no matter how much the carbon market becomes integrated into a dysfunctional international financial system, global net emissions reductions cannot be eroded if net emissions are capped in all countries. Measuring total emissions and total sequestration occurring within each country’s national territory within a calendar year is relatively straightforward and non-controversial. Therefore, as long as a treaty imposes penalties on countries for failure to meet their national net emission cap commitments sufficient to deter non-compliance the integrity of the treaty is safe from financial market shenanigans.

This is not to say that a global carbon market will not have negative repercussions in other regards. Just as any real commodity market behaves differently from the idealized model in mainstream textbooks, no doubt a real carbon market will be plagued by speculative dynamics, bubbles, “false trading” at non-equilibrium prices, and strategic behavior by large players -- all leading to inefficiencies and inequities. (See Hahnel 2007). Moreover, even if markets functioned perfectly, trading would increase inequalities among participants no matter how much mainstream economic theory tries to ignore this predictable effect of market exchange even under competitive conditions. (See Hahnel 2006). Worse still, carbon permits, carbon permit futures, and a multitude of financial derivatives based on carbon permit prices will inevitably be integrated into complex financial instruments that comprise today’s highly unstable, terribly inefficient, and grossly inequitable international financial system. All of which is why a carbon tax is preferable to an equivalent cap and trade policy -- precisely because a carbon tax does not create a major new market subject to all the problems market enthusiasts deny, ignore, or downplay. But for reasons explained above we can’t get an equivalent carbon tax right now – internationally or domestically here in the US. The scientific community has

positioned us to get a much deeper emission reduction through cap and trade than we can get in the form of a carbon tax. A carbon tax high enough to yield an 80% reduction by 2050 is not on the bargaining table because tax phobia in the US runs way too high. So the bottom line is we have no choice but to support a cap and trade program and the market for carbon permits that implies if we want to significantly reduce carbon emissions in the US. Moreover, the best deal to be hoped for internationally is a new post-Kyoto treaty where (different) caps are set on net emissions for all countries, full international trading is permitted in order to minimize the cost of achieving a level of global reductions sufficient to avert climate change, but carbon trading is policed by national governments who under these rules have an incentive to deny certification for bogus projects. This means we have to accept an international carbon market. We have to risk that bad things will happen with a carbon market or give up on preventing catastrophic climate change.

But however badly markets for carbon permits perform, and however much carbon permits become integrated into a dysfunctional financial system, both domestically and internationally, the integrity of net emission reductions both nationally and globally will be preserved, and any injurious consequences from carbon and financial market malfunctions will be no different from what occurs already in financial markets and markets for other internationally traded commodities.¹⁸

END NOTES

¹ Of course as socialists have long known, humans should also plan how to use our human and produced capital in democratic and equitable ways rather than leave those decisions to be made badly by market forces!

² It is truly mind boggling that lessons Keynes pounded into the heads of economists and politicians about the necessity of financial regulation in the aftermath of the stock market and banking crisis that triggered the Great Depression have been studiously *unlearned*, making possible the financial disaster that is occurring as I write this article in the fall of 2008.

³ Many radicals who criticize using price signals to change behavior recommend instead that the government simply require particular changes. If they are correct in their choice of which behaviors should change in what ways, this may be an effective way to proceed. And in some cases their recommendations for what practices to mandate and ban to combat climate change may be quite sound (see Lipow.) However, the fact that not all those who profess to technological expertise always agree on what they recommend, or which recommendations should be prioritized and mandated first, suggests that technological regulation may not be as obvious as its supporters usually assume.

⁴ The concept of “equivalent” pollution policies is very useful. “Equivalent” means that the policies result in the same overall reduction in emissions. What this “tutorial” explores are possible equivalent policies to reduce carbon dioxide emissions. A regulation approach mandating a 10% reduction in emissions from every source, a carbon tax set at a level that achieves a 10% overall reduction in emissions, and a cap and trade program where permits allowing for only 90% of last year’s total emissions are printed up are *equivalent* policies – they

all achieve the same 10% overall reduction in emissions. However, while these three policies all achieve the same overall emission reduction, with one exception they differ in other important respects we examine in this section.

⁵ Of course proponents of capitalism persist in the myth that labor and resource markets yield prices for different kinds of labor and scarce natural resources that closely approximate their true, social opportunity costs. Critics of capitalism have pointed out a number of compelling reasons why this is *not* the case. (See Hahnel 2002 and Hahnel and Albert 1990).

⁶ The first exception was the North East Regional Greenhouse Gas Initiative where virtually all permits were recently sold at auction. But selling permits at auction instead of giving away permits free of charge to sources has hardly become the new precedent. In its current draft the Western Climate Initiative – the Eastern Initiative’s West Coast cousin -- still calls for giving a large percentage of permits away free of charge to major carbon emitters in Western states. Europe still gives away most carbon permits free of charge to emitters. And winning the fight to auction permits instead of giving them away for free inside the Obama Administration and in the US Congress for any national cap and trade program will be a major battle.

⁷ Only if the actual permit market functioned like the ideal market in mainstream economic text books would a cap and trade policy be as efficient as an equivalent pollution tax. In the likely event that the permit market was not perfectly competitive or failed to reach its equilibrium price instantaneously, a tax policy would be superior to an equivalent cap and trade policy on efficiency grounds. This issue is discussed further below.

⁸ This would require a complete about face for many on the radical left. I go to some length to present the case carefully below and look forward to responding to critical reactions sure to come.

⁹ Since there is a strong *prima facie* case for carbon trading, I believe when we discover problems we should first look for ways to improve monitoring and eliminate perverse incentives, and only limit or ban carbon trading where incentive compatible, enforceable procedures prove impossible to design.

¹⁰ While increasing sequestration by a ton is obviously equivalent to reducing emissions by a ton since both decrease atmospheric concentration by one ton, there are important considerations to take into account when allowing sequestration to trade for emissions reduction. If an emission reduction is permanent while an increase in sequestration is only temporary, then they are clearly not equivalent. Also, if the entire emission reduction occurs now while the bulk of the sequestration increase occurs later, then they are not equivalent because reducing atmospheric concentration levels sooner reduces the likelihood of climate change more than equal reductions that occur later.

¹¹ Agreement on 1990 emissions for countries has already been secured. So it is only agreement on countries’ emissions during 2012 that remains at issue.

¹² While the location of where reduction takes place has changed, the trade has not changed who pays for the reduction. The Canadian company has paid for the reduction -- presumably less than it would have cost to make the reduction itself -- but nonetheless, the Canadian company has paid for the reduction even though the reduction took place in Mexico.

¹³ Many left critics fail to understand that carbon trading of legitimate CERs under the CDM not only reduces the cost of compliance for MDC governments and sources – which is good not bad – it also provides a substantial benefit to LDCs. LDC sellers of CERs and MDC buyers of CERs divide the efficiency gain from reducing emissions in the LDC rather than the MDC between them. The higher the price paid for CERs the more of the efficiency gain goes to LDCs, the lower the price of CERs the more of the efficiency gain goes to MDCs. The CDM generates a flow of income from North to South that would stop if the CDM were shut down.

¹⁴ Radicals who would shut the CDM down altogether often cite the work of a non-radical, Michael Wara, at the Stanford Program on Energy and Sustainable Development and Stanford Law School who supports an “improved” Clean Development Mechanism. Wara strongly criticized the CDM EB certification of CERs for capturing and destroying HFC-23 at refrigerant plants and N₂O at plants producing Teflon in the first year of the program. His criticism largely reduces to complaining that MDC buyers paid much more for these CERs than it cost sellers to make the emission reductions, which Wara describes as “inefficient.” It is ironic that radicals would cite work whose major criticism was that too much of the efficiency gain from CER trades went to sellers in LDCs and too little was captured by MDC buyers. (See Wara 2006 and Wara and Victor 2008.)

¹⁵ It is unlikely the CDM EB would approve CERs for a project proposal to clear cut an existing forest and replace it with a tree plantation. However, if the project proposal were to create a tree plantation on land that had already been clear cut it might well be approved. A change in ownership might prove necessary to secure approval, but that is hardly an insurmountable hurdle in today’s business world!

¹⁶ Besides often serving as carbon sinks, standing forests also provide other important environmental services. As habitats for endangered species they are crucial in efforts to protect bio-diversity. They are also water purifiers and soil protectors. Any policy that fails to provide positive incentives for forest conservation is seriously flawed. A policy that creates perverse incentives to destroy forests is criminally incompetent.

¹⁷ Very little would be required to make this change. At present Designated National Authorities (DNAs) in non-Annex-1 countries must approve Project Design Documents (PDDs) before they are submitted to the MDC for evaluation and possible certification. However, in countries without caps there is no incentive for DNAs to disapprove projects even if they are not legitimate. As a result DNAs routinely rubber stamp proposals – or worse still, rubber stamp projects in exchange for bribes. However, once net emissions are capped in all countries, governments would be foolish to allow their DNAs to rubber stamp bogus projects, as explained above. Besides capping net emissions in all countries, I recommend that after PDDs are evaluated by the MDC EB and awarded CERs, DNAs *then* have the power to approve or nix the deal.

¹⁸ In the aftermath of the worst financial crisis since the Great Depression real financial reform may now be possible. There is no guarantee we will succeed in reforming the financial sector and regulating its interconnected parts in competent ways. And if we fail to tame finance we will remain bogged down in the present crisis far longer than necessary and be destined to return again soon. However, if we do relearn the lesson the generation of the Great Depression once learned before us, that free market finance is an accident waiting to happen, then protecting the carbon market from the machinations of financial wizardry may be within reach.

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