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HOT MONEY

How Free Market Fundamentalism Helped Overheat the Planet

"We always had hope that next year was gonna be better. And even this year was gonna be better. We learned slowly, and what didn't work, you tried it harder the next time. You didn't try something different. You just tried harder, the same thing that didn't work."

–Wayne Lewis, Dust Bowl survivor, 2012[1]

"As leaders we have a responsibility to fully articulate the risks our people face. If the politics are not favorable to speaking truthfully, then clearly we must devote more energy to changing the politics."

–Marlene Moses, Ambassador to the United Nations for Nauru, 2012[2]

During the globalization wars of the late nineties and early 2000s, I used to follow international trade law extremely closely. But I admit that as I immersed myself in the science and politics of climate change, I stopped paying attention to trade. I told myself that there was only so much abstract, bureaucratic jargon one person could be expected to absorb, and my quota was filled up with emission mitigation targets, feed-in tariffs, and the United Nations' alphabet soup of UNFCCCs and IPCCs.

Then about three years ago, I started to notice that green energy programs—the strong ones that are needed to lower global emissions fast—were increasingly being challenged under international trade agreements, particularly the World Trade Organization's rules.

In 2010, for instance, the United States challenged one of China's wind

power subsidy programs on the grounds that it contained supports for local industry considered protectionist. China, in turn, filed a complaint in 2012 targeting various renewable energy programs in the European Union, singling out Italy and Greece (it has also threatened to bring a dispute against renewables subsidies in five U.S. states). Washington, meanwhile, has launched a World Trade Organization attack on India's ambitious Jawaharlal Nehru National Solar Mission, a large, multiphase solar support program—once again, for containing provisions, designed to encourage local industry, considered to be protectionist. As a result, brand-new factories that should be producing solar panels are now contemplating closure. Not to be outdone, India has signaled that it might take aim at state renewable energy programs in the U.S.[3]

This is distinctly bizarre behavior to exhibit in the midst of a climate emergency. Especially because these same governments can be counted upon to angrily denounce each other at United Nations climate summits for not doing enough to cut emissions, blaming their own failures on the other's lack of commitment. Yet rather than compete for the best, most effective supports for green energy, the biggest emitters in the world are rushing to the WTO to knock down each other's windmills.

As one case piled on top of another, it seemed to me that it was time to delve back into the trade wars. And as I explored the issue further, I discovered that one of the key, precedent-setting cases pitting "free trade" against climate action was playing out in Ontario, Canada—my own backyard. Suddenly, trade law became a whole lot less abstract.

Sitting at the long conference table overlooking his factory floor, Paolo Maccario, an elegant Italian businessman who moved to Toronto to open a solar factory, has the proud, resigned air of a captain determined to go down with his ship. He makes an effort to put on a brave face: True, "the Ontario market is pretty much gone," but the company will find new customers for its solar panels, he tells me, maybe in Europe, or the United States. Their products are good, best in class, and "the cost is competitive enough."[4]

As chief operating officer of Silfab Ontario, Maccario has to say these

things; anything else would be a breach of fiduciary duty. But he is also frank that the last few months have been almost absurdly bad. Old customers are convinced the factory is going to close down and won't be able to honor the twenty-five-year warranty on the solar panels they purchased. New customers aren't placing orders over the same concerns, opting to go with Chinese companies that are selling less efficient but cheaper modules.* Suppliers who had been planning to set up their own factories nearby to cut down on transport costs are now keeping their distance.

Even his own board back home in Italy (Silfab is owned by Silfab SpA, whose founder was a pioneer in Italian photovoltaic manufacturing) seemed to be jumping ship. The parent company had committed to invest around $7 million on a custom piece of machinery that, according to Maccario, would have created solar modules that "have an efficiency that has not been reached by any manufacturer in China and in the Western world." But at the last minute, and after all the research and design for the machinery was complete, "It was decided that we cannot spend the money to bring the technology here," Maccario explains. We put on hair nets and lab coats and he shows me an empty rectangle in the middle of the factory floor, the space set aside for equipment that is not coming.

What are the chances he would choose to open this factory here today, given all that has happened, I ask. At this, all attempts at PR drop away and he replies, "I would say below zero if such a number exists."

With his finely tailored wool suit and trim salt and pepper goatee, Maccario looks as if he should be sipping espresso in a piazza in Turin, working for Fiat perhaps—not stuck in this concrete box with an unopened yogurt on his desk, across the street from Imperial Chilled Juice and down the road from the ass end of an AMC multiplex.

And yet in 2010, the decision to locate the company's first North American solar manufacturing plant in Ontario seemed to make a great deal of sense. Back then the mood in Ontario's renewable sector was positively giddy. One year earlier, at the peak of the Wall Street financial crisis, the

* China has of course emerged as the world's dominant supplier of inexpensive modules, and in that role has helped to drive dramatic drops in solar prices. It has also flooded the market with cheap panels in recent years, contributing to a global oversupply that has outpaced demand.

province had unveiled its climate action plan, the Green Energy and Green Economy Act, centered on a bold pledge to wean Canada's most populous province completely off coal by 2014.[5]

The plan was lauded by energy experts around the world, particularly in the U.S., where such ambition was lagging. On a visit to Toronto, Al Gore offered his highest blessing, proclaiming it "widely recognized now as the single best green energy [program] on the North American continent." And Michael T. Eckhart, then president of the American Council on Renewable Energy, described it as "the most comprehensive renewable energy policy entered anywhere around the world."[6]

The legislation created what is known as a feed-in tariff program, which allowed renewable energy providers to sell power back to the grid, offering long-term contracts with guaranteed premium prices. It also contained a variety of provisions to ensure that the developers weren't all big players but that local municipalities, co-ops, and Indigenous communities could all get into the renewable energy market and benefit from those premium rates. The catch was that in order for most of the energy providers to qualify, they had to ensure that a minimum percentage of their workforces and materials were local to Ontario. And the province set the bar high: solar energy developers had to source at least 40–60 percent of their content from within the province.[7]

The provision was an attempt to revive Ontario's moribund manufacturing sector, which had long been centered on the Big Three U.S. automakers (Chrysler, Ford, and General Motors) and was, at that time, reeling from the near bankruptcy of General Motors and Chrysler. Compounding these challenges was the fact that Alberta's tar sands oil boom had sent the Canadian dollar soaring, making Ontario a much costlier place to build anything.[8]

In the years that followed the announcement, Ontario's efforts to get off coal were plagued by political blunders. Large natural gas and wind developers ran roughshod over local communities, while the government wasted hundreds of millions (at least) trying to clean up the unnecessary messes. Yet even with all these screwups, the core of the program was an undeniable success. By 2012, Ontario was the largest solar producer in Canada and by 2013, it had only one working coal-fired power plant left. The local

content requirements—as the "buy local" and "hire local" provisions are called—were also proving to be a significant boost to the ailing manufacturing sector: by 2014, more than 31,000 jobs had been created and a wave of solar and wind manufacturers had set up shop.[9]

Silfab is a great example of how it worked. The Italian owners had already decided to open a solar panel plant in North America. The company had considered Mexico but was leaning toward the United States. The obvious choices, Maccario told me, were California, Hawaii, and Texas, all of which offered lots of sunshine and corporate incentives, as well as large and growing markets for their product. Ontario—overcast and cold a lot of the year—wasn't "on the radar screen," he admitted. That changed when the province introduced the green energy plan with its local-content provisions, which Maccario described as a "very gutsy and very well intended program." The provisions meant that in communities that switched to renewable energy, companies like his could count on a stable market for their products, one that was protected from having to compete head-to-head with cheaper solar panels from China. So Silfab chose Toronto for its first North American solar plant.

Ontario's politicians loved Silfab. It helped that the building the company purchased to produce its panels was an abandoned auto parts factory, then sitting idle like so many others. And many of the workers the company hired also came from the auto sector—men and women from Chrysler and the autoparts giant Magna, who had years of experience working with the kind of robotic arms that are used to assemble Silfab's high-tech panels. When the plant opened, Wayne Wright, a laid-off autoworker who landed a job as a production operator on the Silfab line, spoke movingly about his seventeen-year-old son, who told him that "finally" his dad's new job would be "creating a better future for all the younger kids."[10]

And then things started to go very wrong. Just as the U.S. has acted against local renewable supports in China and India, so Japan and then the European Union let it be known that they considered Ontario's local-content requirement to be a violation of World Trade Organization rules. Specifically, they claimed that the requirement that a fixed percentage of renewable energy equipment be made in Ontario would "discriminate against equipment for renewable energy generation facilities produced outside Ontario."[11]

The WTO ruled against Canada, determining that Ontario's buy-local provisions were indeed illegal. And the province wasted little time in nixing the local-content rules that had been so central to its program.[12] It was this, Maccario said, that led his foreign investors to pull their support for factory expansion. "Seeing all those, for lack of a better term, mixed messages . . . was the straw that broke the camel's back."

It was also why many plants like his could well close, and others have decided not to open in the first place.

Trade Trumps Climate

From a climate perspective, the WTO ruling was an outrage: if there is to be any hope of meeting the agreed-upon 2 degree Celsius target, wealthy economies like Canada must make getting off fossil fuels their top priority. It is a moral duty, one that the federal government undertook when it signed the Kyoto Protocol in 1997. Ontario was putting real policies in place to honor that commitment (unlike the Canadian government as a whole, which has allowed emissions to balloon, leading it to withdraw from the Kyoto Protocol rather than face international censure). Most importantly, the program was working. How absurd, then, for the WTO to interfere with that success—to let trade trump the planet itself.

And yet from a strictly legal standpoint, Japan and the EU were perfectly correct. One of the key provisions in almost all free trade agreements involves something called "national treatment," which requires governments to make no distinction between goods produced by local companies and goods produced by foreign firms outside their borders. Indeed, favoring local industry constitutes illegal "discrimination." This was a flashpoint in the free trade wars back in the 1990s, precisely because these restrictions effectively prevent governments from doing what Ontario was trying to do: create jobs by requiring the sourcing of local goods as a condition of government support. This was just one of the many fateful battles that progressives lost in those years.

Defenders of these trade deals argue that protections like Ontario's buy-local provisions distort the free market and should be eliminated. Some green energy entrepreneurs (usually those that purchase their products from

China) have made similar arguments, insisting that it doesn't matter where solar panel and wind turbines are produced: the goal should be to get the cheapest products to the consumer so that the green transition can happen as quickly as possible.

The biggest problem with these arguments is the notion that there is any free market in energy to be protected from distortion. Not only do fossil fuel companies receive $775 billion to $1 trillion in annual global subsidies, but they pay nothing for the privilege of treating our shared atmosphere as a free waste dump—a fact that has been described by the *Stern Review on the Economics of Climate Change* as "the greatest market failure the world has ever seen." That freebie is the real distortion, that theft of the sky the real subsidy.[13]

In order to cope with these distortions (which the WTO has made no attempt to correct), governments need to take a range of aggressive steps—from price guarantees to straight subsidies—so that green energy has a fair shot at competing. We know from experience that this works: Denmark has among the most successful renewable energy programs in the world, with 40 percent of its electricity coming from renewables, mostly wind. But it's significant that the program was rolled out in the 1980s, before the free trade era began, when there was no one to argue with the Danish government's generous subsidies to the community-controlled energy projects putting up wind turbines (in 1980, new installations were subsidized by up to 30 percent).[14]

As Scott Sinclair of the Canadian Centre for Policy Alternatives has pointed out, "many of the policies Denmark used to launch its renewable energy industry would have been inconsistent with . . . international trade and investment agreements," since favoring "locally owned cooperatives would conflict with non-discrimination rules requiring that foreign companies be treated no less favourably than domestic suppliers."[15]

And Aaron Cosbey, a development economist and trade and climate expert who is generally supportive of the WTO, rightly notes that the promise of local job creation has been key to the political success of renewable energy programs. "In many cases the green jobs argument is the deciding factor that convinces governments to dole out support. And such requirements, if attached to subsidies or investment privileges, violate WTO obligations."[16]

Which is why governments adopting these tried-and-tested policies—of which there have been far too few—are the ones getting dragged into trade court, whether China, India, Ontario, or the European Union.

Worse, it's not only critical supports for renewable energy that are at risk of these attacks. Any attempt by a government to regulate the sale or extraction of particularly dirty kinds of fossil fuels is also vulnerable to similar trade challenges. The European Union, for instance, is considering new fuel quality standards that would effectively restrict the sales of oil derived from such high-carbon sources as the Alberta tar sands. It's excellent climate policy, of the kind we need much more, but the effort has been slowed down by Canada's not so subtle threats of trade retaliation. Meanwhile, the European Union is using bilateral trade talks to try to circumvent longstanding U.S. restrictions on oil and gas exports, including a decades-old export ban on crude oil. In July 2014, a leaked negotiating document revealed that Europe is pushing for a "legally binding commitment" that would guarantee its ability to import fracked gas and oil from North Dakota's Bakken formation and elsewhere.[17]

Almost a decade ago, a WTO official claimed that the organization enables challenges against "almost any measure to reduce greenhouse gas emissions"—there was little public reaction at the time, but clearly there should have been. And the WTO is far from the only trade weapon that can be used in such battles—so too can countless bilateral and regional free trade and investment agreements.[18]

As we will see later on, these trade deals may even give multinationals the power to overturn landmark grassroots victories against highly controversial extractive activities like natural gas fracking: in 2012, an oil company began taking steps to use NAFTA to challenge Quebec's hard-won fracking moratorium, claiming it robbed the company of its right to drill for gas in the province.[19] (The case is ongoing.) As more activist victories are won, more such legal challenges should be expected.

In some of these cases, governments may successfully defend their emission-reducing activities in trade court. But in too many others, they can be relied upon to cave in early, not wanting to appear anti–free trade (which is likely what is behind Ontario's quiet acceptance of the WTO's ruling against its green energy plan). These challenges aren't killing renew-

able energy; in the U.S. and China, for instance, the solar market continues to grow impressively. But it is not happening fast enough. And the legal uncertainty that now surrounds some of the most significant green energy programs in the world is bogging us down at the very moment when science is telling us we need to leap ahead. To allow arcane trade law, which has been negotiated with scant public scrutiny, to have this kind of power over an issue so critical to humanity's future is a special kind of madness. As Nobel Prize–winning economist Joseph Stiglitz puts it, "Should you let a group of foolish lawyers, who put together something before they understood these issues, interfere with saving the planet?"[20]

Clearly not. Steven Shrybman, an international trade and public interest lawyer who has worked with a broad range of civil society groups to defend against these trade challenges, says that the problem is structural. 'If the trade rules don't permit all kinds of important measures to deal with climate change—and they don't—then the trade rules obviously have to be rewritten. Because there is no way in the world that we can have a sustainable economy and maintain international trade rules as they are. There's no way at all."[21]

This is exactly the sort of commonsense conclusion that has the Heartlanders so very scared of climate change. Because when people wake up to the fact that our governments have locked us into dozens of agreements that make important parts of a robust climate change response illegal, they will have an awfully powerful argument to oppose any such new deals until the small matter of our planet's habitability is satisfactorily resolved.

The same goes for all kinds of free market orthodoxies that threaten our capacity to respond boldly to this crisis, from the suffocating logic of austerity that prevents governments from making the necessary investments in low-carbon infrastructure (not to mention firefighting and flood response), to the auctioning off of electric utilities to private corporations that, in many cases, refuse to switch over to less profitable renewables.

Indeed the three policy pillars of the neoliberal age—privatization of the public sphere, deregulation of the corporate sector, and the lowering of income and corporate taxes, paid for with cuts to public spending—are each incompatible with many of the actions we must take to bring our emissions to safe levels. And together these pillars form an ideological wall that

has blocked a serious response to climate change for decades. Before delving more deeply into the ways the climate crisis calls for dismantling that wall, it's helpful to look a little more closely at the epic case of bad timing that landed us where we are today.

A Wall Comes Down, Emissions Go Up

If the climate movement had a birthday, a moment when the issue pierced the public consciousness and could no longer be ignored, it would have to be June 23, 1988. Global warming had been on the political and scientific radar long before that, however. The basic insights central to our current understanding date back to the beginning of the second half of the nineteenth century, and the first scientific breakthroughs demonstrating that burning carbon could be warming the planet were made in the late 1950s. In 1965, the concept was so widely accepted among specialists that U.S. president Lyndon B. Johnson was given a report from his Science Advisory Committee warning that, "Through his worldwide industrial civilization, Man is unwittingly conducting a vast geophysical experiment. . . . The climatic changes that may be produced by the increased CO_2 content could be deleterious from the point of view of human beings."[22]

But it wasn't until James Hansen, then director of NASA's Goddard Institute for Space Studies, testified before a packed congressional hearing on June 23, 1988, that global warming became the stuff of chat shows and political speeches. With temperatures in Washington, D.C., a sweltering 98 degrees Fahrenheit (still a record for that day), and the building's air conditioning on the fritz, Hansen told a room filled with sweaty lawmakers that he had "99 percent confidence" in "a real warming trend" linked to human activity. In a comment to *The New York Times* he added that it was "time to stop waffling" about the science. Later that same month, hundreds of scientists and policymakers held the historic World Conference on the Changing Atmosphere in Toronto where the first emission reductions were discussed. The United Nations' Intergovernmental Panel on Climate Change (IPCC), the premier scientific body advising governments on the climate threat, held its first session that November. By the following year,

79 percent of Americans had heard of the greenhouse effect—a leap from just 38 percent in 1981.[23]

The issue was so prominent that when the editors of *Time* magazine announced their 1988 "Man of the Year," they went for an unconventional choice: "Planet of the Year: Endangered Earth," read the magazine's cover line, over an image of the globe held together with twine, the sun setting ominously in the background. "No single individual, no event, no movement captured imaginations or dominated headlines more," journalist Thomas Sancton explained, "than the clump of rock and soil and water and air that is our common home."[24]

More striking than the image was Sancton's accompanying essay. "This year the earth spoke, like God warning Noah of the deluge. Its message was loud and clear, and suddenly people began to listen, to ponder what portents the message held." That message was so profound, so fundamental, he argued, that it called into question the founding myths of modern Western culture. Here it is worth quoting Sancton at length as he described the roots of the crisis:

> In many pagan societies, the earth was seen as a mother, a fertile giver of life. Nature—the soil, forest, sea—was endowed with divinity, and mortals were subordinate to it. The Judeo-Christian tradition introduced a radically different concept. The earth was the creation of a monotheistic God, who, after shaping it, ordered its inhabitants, in the words of Genesis: "Be fruitful and multiply, and replenish the earth and subdue it: and have dominion over the fish of the sea and over the fowl of the air and over every living thing that moveth upon the earth." The idea of dominion could be interpreted as an invitation to use nature as a convenience.[25]

The diagnosis wasn't original—indeed it was a synthesis of the founding principles of ecological thought. But to read these words in America's most studiously centrist magazine was nothing short of remarkable. For this reason and others, the start of 1989 felt to many in the environmental movement like a momentous juncture, as if the thawing of the Cold War and the awakening of the planet were together helping to birth a new consciousness,

one in which cooperation would triumph over domination, and humility before nature's complexity would challenge technological hubris.

As governments came together to debate responses to climate change, strong voices from developing countries spoke up, insisting that the core of the problem was the high-consumption lifestyle that dominated in the West. In a speech in 1989, for instance, India's President R. Venkataraman argued that the global environmental crisis was the result of developed countries' "excessive consumption of all materials and through large-scale industrialization intended to support their styles of life."[26] If wealthy countries consumed less, then everyone would be safer.

But if that was the way 1989 began, it would end very differently. In the months that followed, popular uprisings would spread across the Soviet-controlled Eastern Bloc, from Poland to Hungary and finally to East Germany where, in November 1989, the Berlin Wall collapsed. Under the banner "the End of History," right-wing ideologues in Washington seized on this moment of global flux to crush all political competition, whether socialism, Keynesianism, or deep ecology. They waged a frontal attack on political experimentation, on the idea that there might be viable ways of organizing societies other than deregulated capitalism.

Within a decade, all that would be left standing would be their own extreme, pro-corporate ideology. Not only would the Western consumer lifestyle survive intact, it would grow significantly more lavish, with U.S. credit card debt per household increasing fourfold between 1980 and 2010.[27] Simultaneously, that voracious lifestyle would be exported to the middle and upper classes in every corner of the globe—including, despite earlier protestations, India, where it would wreak environmental damage on a scale difficult to fathom. The victories in the new era would be faster and bigger than almost anyone predicted; and the armies of losers would be left to pick through the ever-growing mountains of methane-spewing waste.

Trade and Climate: Two Solitudes

Throughout this period of rapid change, the climate and trade negotiations closely paralleled one another, each winning landmark agreements within a

couple of years of each other. In 1992, governments met for the first United Nations Earth Summit in Rio, where they signed the United Nations Framework Convention on Climate Change (UNFCCC), the document that formed the basis for all future climate negotiations. That same year, the North American Free Trade Agreement was signed, going into effect two years later. Also in 1994, negotiations establishing the World Trade Organization concluded, and the new global trade body made its debut the next year. In 1997, the Kyoto Protocol was adopted, containing the first binding emission reduction targets. In 2001, China gained full membership in the WTO, the culmination of a trade and investment liberalization process that had begun decades earlier.

What is most remarkable about these parallel processes—trade on the one hand, climate on the other—is the extent to which they functioned as two solitudes. Indeed, each seemed to actively pretend that the other did not exist, ignoring the most glaring questions about how one would impact the other. Like, for example: How would the vastly increased distances that basic goods would now travel—by carbon-spewing container ships and jumbo jets, as well as diesel trucks—impact the carbon emissions that the climate negotiations were aiming to reduce? How would the aggressive protections for technology patents enshrined under the WTO impact the demands being made by developing nations in the climate negotiations for free transfers of green technologies to help them develop on a low-carbon path? And perhaps most critically, how would provisions that allowed private companies to sue national governments over laws that impinged on their profits dissuade governments from adopting tough antipollution regulations, for fear of getting sued?

These questions were not debated by government negotiators, nor was any attempt made to resolve their obvious contradictions. Not that there was ever any question about which side would win should any of the competing pledges to cut emissions and knock down commercial barriers ever come into direct conflict: the commitments made in the climate negotiations all effectively functioned on the honor system, with a weak and unthreatening mechanism to penalize countries that failed to keep their promises. The commitments made under trade agreements, however, were enforced by a dispute settlement system with real teeth, and failure to comply would land governments in trade court, often facing harsh penalties.

In fact, the hierarchy was so clear that the climate negotiators formally declared their subservience to the trading system from the start. When the U.N. climate agreement was signed at the Rio Earth Summit in 1992, it made clear that "measures taken to combat climate change, including unilateral ones, should not constitute . . . a disguised restriction on international trade." (Similar language appears in the Kyoto Protocol.) As Australian political scientist Robyn Eckersley puts it, this was "the pivotal moment that set the shape of the relationship between the climate and trade regimes" because, "Rather than push for the recalibration of the international trade rules to conform with the requirements of climate protection . . . the Parties to the climate regime have ensured that liberalized trade and an expanding global economy have been protected against trade-restrictive climate policies." This practically guaranteed that the negotiating process would be unable to reckon with the kinds of bold but "trade-restrictive" policy options that could have been coordinated internationally—from buy-local renewable energy programs to restrictions on trade in goods produced with particularly high carbon footprints.[28]

A few isolated voices were well aware that the modest gains being made in the negotiations over "sustainable development" were being actively unmade by the new trade and investment architecture. One of those voices belonged to Martin Khor, then director of the Third World Network, which has been a key advisor to developing country governments in both trade and climate talks. At the end of the 1992 Rio Earth Summit, Khor cautioned that there was a "general feeling among Southern country delegates . . . that events outside the [summit] process were threatening to weaken the South further and to endanger whatever positive elements exist in" the Rio agenda. The examples he cited were the austerity policies being pushed at the time by the World Bank and the International Monetary Fund, as well as the trade negotiations that would soon result in the creation of the WTO.[29]

Another early warning was sounded by Steven Shrybman, who observed a decade and a half ago that the global export of industrial agriculture had already dealt a devastating blow to any possible progress on emissions. In a

paper published in 2000, Shrybman argued that "the globalization of agricultural systems over recent decades is likely to have been one of the most important causes of overall increases in greenhouse gas emissions."[30]

This had far less to do with current debates about the "food miles" associated with imported versus local produce than with the way in which the trade system, by granting companies like Monsanto and Cargill their regulatory wish list—from unfettered market access to aggressive patent protection to the maintenance of their rich subsidies—has helped to entrench and expand the energy-intensive, higher-emissions model of industrial agriculture around the world. This, in turn, is a major explanation for why the global food system now accounts for between 19 and 29 percent of world greenhouse gas emissions. "Trade policy and rules actually drive climate change in a very structural way in respect of food systems," Shrybman stressed in an interview.[31]

The habit of willfully erasing the climate crisis from trade agreements continues to this day: for instance, in early 2014, several negotiating documents for the proposed Trans-Pacific Partnership, a controversial new NAFTA-style trade deal spanning twelve countries, were released to the public via WikiLeaks and the Peruvian human rights group RedGE. A draft of the environment chapter had contained language stating that countries acknowledge climate change as a global concern that requires collective action and recognize the importance of implementation of their respective commitments under the United Nations Framework Convention on Climate Change (UNFCCC)." The language was vague and nonbinding, but at least it was a tool that governments could use to defend themselves should their climate policies be challenged in a trade tribunal, as Ontario's Clean was. But a later document showed that U.S. negotiators had proposed an edit: take out all the stuff about climate change and UNFCCC commitments. In other words, while trade has repeatedly been allowed to trump climate, under no circumstances would climate be permitted to trump trade.[32]

Nor was it only the trade negotiators who blocked out the climate crisis as they negotiated agreements that would send emissions soaring and make many solutions to this problem illegal. The climate negotiations exhibited their own special form of denial. In the early and mid-1990s, while the first climate protocol was being drafted, these negotiators, along with the Intergovernmental Panel on Climate Change, hashed out the details of precisely how countries should measure and monitor how much carbon they were emitting—a necessary process since governments were on the verge of pledging their first round of emission reductions, which would need to be reported and monitored.

The emissions accounting system on which they settled was an odd relic of the pre–free trade era that took absolutely no account of the revolutionary changes unfolding right under their noses regarding how (and where) the world's goods were being manufactured. For instance, emissions from the transportation of goods across borders—all those container ships, whose traffic has increased by nearly 400 percent over the last twenty years—are not formally attributed to any nation-state and therefore no one country is responsible for reducing their polluting impact. (And there remains little momentum at the U.N. for changing that, despite the reality that shipping emissions are set to double or even triple by 2050.)[33]

And fatefully, countries are responsible only for the pollution they create inside their own borders—not for the pollution produced in the manufacturing of goods that are shipped to their shores; those are attributed to the countries where the goods were produced.[34] This means that the emissions that went into producing, say, the television in my living room, appear nowhere on Canada's emissions ledger, but rather are attributed entirely to China's ledger, because that is where the set was made. And the international emissions from the container ship that carried my TV across the ocean (and then sailed back again) aren't entered into anyone's account book.

This deeply flawed system has created a vastly distorted picture of the drivers of global emissions. It has allowed rapidly de-industrializing wealthy states to claim that their emissions have stabilized or even gone down when, in fact, the emissions embedded in their consumption have soared during the free trade era. For instance, in 2011, the *Proceedings of the National Academy of Sciences* published a study of the emissions from industrialized countries that signed the Kyoto Protocol. It found that while their emissions had stopped growing, that was partly because international trade had allowed these countries to move their dirty production overseas. The researchers concluded that the rise in emissions from goods produced in de-

veloping countries but consumed in industrialized ones was *six times* greater than the emissions savings of industrialized countries.[35]

Cheap Labor, Dirty Energy: A Package Deal

As the free trade system was put in place and producing offshore became the rule, emissions did more than move—they multiplied. As mentioned earlier, before the neoliberal era, emissions growth had been slowing, from 4.5 percent annual increases in the 1960s to about 1 percent a year in the 1990s. But the new millennium was a watershed: between 2000 and 2008, the growth rate reached 3.4 percent a year, shooting past the highest IPCC projections of the day. In 2009, it dipped due to the financial crisis, but made up for lost time with the historic 5.9 percent increase in 2010 that left climate watchers reeling. (In mid-2014, two decades after the creation of the WTO, the IPCC finally acknowledged the reality of globalization and noted in its Fifth Assessment Report, "A growing share of total anthropogenic CO_2 emissions is released in the manufacture of products that are traded across international borders.")[36]

The reason for what Andreas Malm—a Swedish expert on the history of coal—describes as "the early 21st Century emissions explosion" is straightforward enough. When China became the "workshop of the world" it also became the coal-spewing "chimney of the world." By 2007, China was responsible for two thirds of the annual increase in global emissions. Some of that was the result of China's own internal development—bringing electricity to rural areas, and building roads. But a lot of it was directly tied to foreign trade: according to one study, between 2002 and 2008, 48 percent of China's total emissions was related to producing goods for export.[37]

"One of the reasons why we're in the climate crisis is because of this model of globalization," says Margrete Strand Rangnes, executive vice president at Public Citizen, a Washington-based policy institute that has been at the forefront of the fight against free trade. And that, she says, is a problem that requires "a pretty fundamental re-formation of our economy, if we're going to do this right."[38]

International trade deals were only one of the reasons that governments

embraced this particular model of fast-and-dirty, export-led development, and every country had its own peculiarities. In many cases (though not China's), the conditions attached to loans from the International Monetary Fund and World Bank were a major factor, so was the economic orthodoxy imparted to elite students at schools like Harvard and the University of Chicago. All of these and other factors played a role in shaping what was (never ironically) referred to as the Washington Consensus. Underneath it all is the constant drive for endless economic growth, a drive that, as will be explored later on, goes much deeper than the trade history of the past few decades. But there is no question that the trade architecture and the economic ideology embedded within it played a central role in sending emissions into hyperdrive.

That's because one of the primary driving forces of the particular trade system designed in the 1980s and 1990s was always to allow multinationals the freedom to scour the globe in search of the cheapest and most exploitable labor force. It was a journey that passed through Mexico and Central America's sweatshop maquiladoras and had a long stopover in South Korea. But by the end of the 1990s, virtually all roads led to China, a country where wages were extraordinarily low, trade unions were brutally suppressed, and the state was willing to spend seemingly limitless funds on massive infrastructure projects—modern ports, sprawling highway systems, endless numbers of coal-fired power plants, massive dams—all to ensure that the lights stayed on in the factories and the goods made it from the assembly lines onto the container ships on time. A free trader's dream, in other words—and a climate nightmare.

A nightmare because there is a close correlation between low wages and high emissions, or as Malm puts it, "a causal link between the quest for cheap and disciplined labor power and rising CO_2 emissions." And why wouldn't there be? The same logic that is willing to work laborers to the bone for pennies a day will burn mountains of dirty coal while spending next to nothing on pollution controls because it's the cheapest way to produce. So when the factories moved to China, they also got markedly dirtier. As Malm points out, Chinese coal use was declining slightly between 1995 and 2000, only for the explosion in manufacturing to send it soaring once again. It's not that the companies moving their production to China

vanted to drive up emissions: they were after the cheap labor, but exploited vorkers and an exploited planet are, it turns out, a package deal. A desta-ilized climate is the cost of deregulated, global capitalism, its unintended, et unavoidable consequence.[39]

This connection between pollution and labor exploitation has been true ince the earliest days of the Industrial Revolution. But in the past, when vorkers organized to demand better wages, and when city dwellers orga-ized to demand cleaner air, the companies were pretty much forced to im-rove both working and environmental standards. That changed with the dvent of free trade: thanks to the removal of virtually all barriers to capital ows, corporations could pick up and leave every time labor costs started sing. That's why many large manufacturers left South Korea for China in ıe late 1990s, and it's why many are now leaving China, where wages are imbing, for Bangladesh, where they are significantly lower. So while our othes, electronics, and furniture may be made in China, the economic odel was primarily made in the U.S.A.

And yet when the subject of climate change comes up in discussion in ealthy, industrialized countries, the instant response, very often, is that it's l China's fault (and India's fault and Brazil's fault and so on). Why bother ıtting our own emissions when everyone knows that the fast developing :onomies are the real problem, opening more coal plants every month ıan we could ever close?[40] This argument is made as if we in the West e mere spectators to this reckless and dirty model of economic growth. s if it was not our governments and our multinationals that pushed a odel of export-led development that made all of this possible. It is said if it were not our own corporations who, with single-minded determina-ɔn (and with full participation from China's autocratic rulers), turned the :arl River Delta into their carbon-spewing special economic zone, with e goods going straight onto container ships headed to our superstores. All the name of feeding the god of economic growth (via the altar of hyper-nsumption) in every country in the world.

The victims in all this are regular people: the workers who lose their :tory jobs in Juárez and Windsor; the workers who get the factory jobs Shenzhen and Dhaka, jobs that are by this point so degraded that some ıployers install nets along the perimeters of roofs to catch employees

when they jump, or where safety codes are so lax that workers are killed in the hundreds when buildings collapse. The victims are also the toddlers mouthing lead-laden toys; the Walmart employee expected to work over the Thanksgiving holiday only to be trampled by a stampede of frenzied customers, while still not earning a living wage. And the Chinese villagers whose water is contaminated by one of those coal plants we use as our excuse for inaction, as well as the middle class of Beijing and Shanghai whose kids are forced to play inside because the air is so foul.[41]

A Movement Digs Its Own Grave

The greatest tragedy of all is that so much of this was eminently avoidable. We knew about the climate crisis when the rules of the new trade system were being written. After all, NAFTA was signed just one year after governments, including the United States, signed the United Nations Framework Convention on Climate Change in Rio. And it was by no means inevitable that these deals would go through. A strong coalition of North American labor and environmental groups opposed NAFTA precisely because they knew it would drive down labor and environmental standards. For a time it even looked as if they would win.

Public opinion in all three countries was deeply divided, so much so that when Bill Clinton ran for president in 1992, he pledged that he would not sign NAFTA until it substantively reflected those concerns. In Canada, Jean Chrétien campaigned for prime minister against the deal in the election of 1993. Once both were in office, however, the deal was left intact and two toothless side agreements were tacked on, one for labor and one for environmental standards. The labor movement knew better than to fall for this ploy and continued to forcefully oppose the deal, as did many Democrats in the U.S. But for a complex set of reasons that will be explored later, having to do with a combination of reflexive political centrism and the growing influence of corporate "partners" and donors, the leadership of many large environmental organizations decided to play ball. "One by one, former NAFTA opponents and skeptics became enthusiastic supporters, and said so publicly," writes journalist Mark Dowie in his critical history

the U.S. environmental movement, *Losing Ground*. These Big Green oups even created their own pro-NAFTA organization, the Environmen- l Coalition for NAFTA—which included the National Wildlife Federa- on, the Environmental Defense Fund, Conservation International, the ational Audubon Society, the Natural Resources Defense Council, and e World Wildlife Fund—which, according to Dowie provided its "un- quivocal support to the agreement." Jay Hair, then head of the National 'ildlife Federation, even flew to Mexico on an official U.S. trade mission lobby his Mexican counterparts, while attacking his critics for "putting eir protectionist polemics ahead of concern for the environment."[42]

Not everyone in the green movement hopped on the pro-trade band- agon: Greenpeace, Friends of the Earth, and the Sierra Club, as well as any small organizations, continued to oppose NAFTA. But that didn't atter to the Clinton administration, which had what it wanted—the abil- to tell a skeptical public that "groups representing 80 percent of national nvironmental] group membership have endorsed NAFTA." And that was portant, because Clinton faced an uphill battle getting NAFTA through ongress, with many in his own party pledging to vote against the deal. an Adams, then director of the Natural Resources Defense Council, suc- ctly described the extraordinarily helpful role played by groups like his: 'e broke the back of the environmental opposition to NAFTA. After we tablished our position Clinton only had labor to fight. We did him a big vor."[43]

Indeed when the president signed NAFTA into law in 1993, he made pecial point of thanking "the environmental people who came out and rked through this—many of them at great criticism, particularly in the vironmental movement." Clinton also made it clear that this victory was out more than one agreement. "Today we have the chance to do what our ents did before us. We have the opportunity to remake the world." He plained that, "We are on the verge of a global economic expansion. . . . ready the confidence we've displayed by ratifying NAFTA has begun to ar fruit. We are now making real progress toward a worldwide trade agree- nt so significant that it could make the material gains of NAFTA for our untry look small by comparison." He was referring to the World Trade ganization. And just in case anyone was still worried about the envi-

ronmental consequences, Clinton offered his personal assurance. "We will seek new institutional arrangements to ensure that trade leaves the world cleaner than before."[44]

Standing by the president's side was his vice president, Al Gore, who had been largely responsible for getting so many Big Green groups on board. Given this history, it should hardly come as a surprise that the mainstream environmental movement has been in no rush to draw attention to the disastrous climate impacts of the free trade era. To do so would only highlight their own active role in helping the U.S. government to, in Clinton's words, "remake the world." Much better, as we will see later on, to talk about light bulbs and fuel efficiency.

The significance of the NAFTA signing was indeed historic, tragically so. Because if the environmental movement had not been so agreeable, NAFTA might have been blocked or renegotiated to set a different kind of precedent. A new trade architecture could have been built that did not actively sabotage the fragile global climate change consensus. Instead—as had been the promise and hope of the 1992 Rio Earth Summit—this new architecture could have been grounded in the need to fight poverty and reduce emissions at the same time. So for example, trade access to developing countries could have been tied to transfers of resources and green technology so that critical new electricity and transit infrastructure was low carbon from the outset. And the deals could have been written to ensure that any measures taken to support renewable energy would not be penalized and, in fact, could be rewarded. The global economy might not have grown as quickly as it did, but it also would not be headed rapidly off the climate cliff.

The errors of this period cannot be undone, but it is not too late for a new kind of climate movement to take up the fight against so-called free trade and build this needed architecture now. That doesn't—and never did—mean an end to economic exchange across borders. It does, however, mean a far more thoughtful and deliberate approach to why we trade and whom it serves. Encouraging the frenetic and indiscriminate consumption of essentially disposable products can no longer be the system's goal. Goods must once again be made to last, and the use of energy-intensive long-haul transport will need to be rationed—reserved for those cases where goods cannot be produced locally or where local production is more carbon-

tensive. (For example, growing food in greenhouses in cold parts of the nited States is often more energy intensive than growing it in warmer gions and shipping it by light rail.)[45]

According to Ilana Solomon, trade analyst for the Sierra Club, this is ɔt a fight that the climate movement can avoid. "In order to combat cli-ate change, there's a real need to start localizing our economies again, and inking about how and what we're purchasing and how it's produced. And ıe most basic rule of trade law is you can't privilege domestic over foreign. ɔ how do you tackle the idea of needing to incentivize local economies, ing together local green jobs policies with clean energy policies, when ıat is just a no-go in trade policy? . . . If we don't think about how the conomy is structured, then we're actually never going to the real root of ıe problem."[46]

These kinds of economic reforms would be good news—for unemployed orkers, for farmers unable to compete with cheap imports, for communi-es that have seen their manufacturers move offshore and their local busi-esses replaced with big box stores. And all of these constituencies would e needed to fight for these policies, since they represent the reversal of the hirty-year trend of removing every possible limit on corporate power.

rom Frenetic Expansion to Steady States

Challenging free trade orthodoxy is a heavy lift in our political culture; ınything that has been in place for that long takes on an air of inevitability. But, critical as these shifts are, they are not enough to lower emissions in ime. To do that, we will need to confront a logic even more entrenched han free trade—the logic of indiscriminate economic growth. This idea ıas understandably inspired a good deal of resistance among more liberal climate watchers, who insist that the task is merely to paint our current growth-based economic model green, so it's worth examining the numbers behind the claim.

It is Kevin Anderson of the Tyndall Centre for Climate Change Research, and one of Britain's top climate experts, who has most forcefully built the case that our growth-based economic logic is now in fundamental conflict

with atmospheric limits. Addressing everyone from the U.K. Department for International Development to the Manchester City Council, Anderson has spent more than a decade patiently translating the implications of the latest climate science to politicians, economists, and campaigners. In clear and understandable language, the spiky-haired former mechanical engineer (who used to work in the petrochemical sector) lays out a rigorous road map for cutting our emissions down to a level that provides a decent shot at keeping global temperature rise below 2 degrees Celsius.

But in recent years Anderson's papers and slide shows have become more alarming. Under titles such as "Climate Change: Going Beyond Dangerous . . . Brutal Numbers and Tenuous Hope," he points out that the chances of staying within anything like safe temperature levels are diminishing fast. With his colleague Alice Bows-Larkin, an atmospheric physicist and climate change mitigation expert at the Tyndall Centre, Anderson argues that we have lost so much time to political stalling and weak climate policies—all while emissions ballooned—that we are now facing cuts so drastic that they challenge the core expansionist logic at the heart of our economic system.[47]

They argue that, if the governments of developed countries want a fifty-fifty chance of hitting the agreed-upon international target of keeping warming below 2 degrees Celsius, and if reductions are to respect any kind of equity principle between rich and poor nations, then wealthy countries need to start cutting their greenhouse gas emissions by something like 8 to 10 percent a year—and they need to start right now. The idea that such deep cuts are required used to be controversial in the mainstream climate community, where the deadlines for steep reductions always seemed to be far off in the future (an 80 percent cut by 2050, for instance). But as emissions have soared and as tipping points loom, that is changing rapidly. Even Yvo de Boer, who held the U.N.'s top climate position until 2009, remarked recently that "the only way" negotiators "can achieve a 2-degree goal is to shut down the whole global economy."[48]

That is a severe overstatement, yet it underlines Anderson and Bows-Larkin's point that we cannot achieve 8 to 10 percent annual cuts with the array of modest carbon-pricing or green tech solutions usually advocated by Big Green. These measures will certainly help, but they are simply not

ıough. That's because an 8 to 10 percent drop in emissions, year after year, virtually unprecedented since we started powering our economies with ɔal. In fact, cuts above 1 percent per year "have historically been associ:ed only with economic recession or upheaval," as the economist Nicholas tern put it in his 2006 report for the British government.[49]

Even after the Soviet Union collapsed, reductions of this duration and ɛpth did not happen (the former Soviet countries experienced average ınual reductions of roughly 5 percent over a period of ten years). Nor did ıis level of reduction happen beyond a single-year blip after Wall Street :ashed in 2008. Only in the immediate aftermath of the great market crash f 1929 did the United States see emissions drop for several consecutive ɛars by more than 10 percent annually, but that was the worst economic :isis of modern times.[50]

If we are to avoid that kind of carnage while meeting our science-based missions targets, carbon reduction must be managed carefully through hat Anderson and Bows-Larkin describe as "radical and immediate de-rowth strategies in the US, EU and other wealthy nations."*[51]

Now, I realize that this can all sound apocalyptic—as if reducing emis-ons requires economic crises that result in mass suffering. But that seems ɔ only because we have an economic system that fetishizes GDP growth bove all else, regardless of the human or ecological consequences, while ıiling to place value on those things that most of us cherish above all—a ecent standard of living, a measure of future security, and our relationships ıith one another. So what Anderson and Bows-Larkin are really saying is ıat there is still time to avoid catastrophic warming, but not within the ıles of capitalism as they are currently constructed. Which is surely the est argument there has ever been for changing those rules.[52]

Rather than pretending that we can solve the climate crisis without rock-ıg the economic boat, Anderson and Bows-Larkin argue, the time has come ɔ tell the truth, to "liberate the science from the economics, finance and

And they don't let developing countries like China and India off the hook. According to their rojections, developing countries can have just one more decade to continue to increase their emis-ons to aid their efforts to pull themselves out of poverty while switching over to green energy ɔurces. By 2025, they would need to be cutting emissions "at an unprecedented 7 per cent" a year s well.

astrology, stand by the conclusions however uncomfortable . . . we need to have the audacity to think differently and conceive of alternative futures."[53]

Interestingly, Anderson says that when he presents his radical findings in climate circles, the core facts are rarely disputed. What he hears most often are confessions from colleagues that they have simply given up hope of meeting the 2 degree temperature target, precisely because reaching it would require such a profound challenge to economic growth. "This position is shared by many senior scientists and economists advising government," Anderson reports.[54]

In other words, changing the earth's climate in ways that will be chaotic and disastrous is easier to accept than the prospect of changing the fundamental, growth-based, profit-seeking logic of capitalism. We probably shouldn't be surprised that some climate scientists are a little spooked by the radical implications of their own research. Most of them were quietly measuring ice cores, running global climate models, and studying ocean acidification, only to discover, as Australian climate expert and author Clive Hamilton puts it, that in breaking the news of the depth of our collective climate failure, they "were unwittingly destabilizing the political and social order."[55]

Nonetheless, that order has now been destabilized, which means that the rest of us are going to have to quickly figure out how to turn "managed degrowth" into something that looks a lot less like the Great Depression and a lot more like what some innovative economic thinkers have taken to calling "The Great Transition."[56]

Over the past decade, many boosters of green capitalism have tried to gloss over the clashes between market logic and ecological limits by touting the wonders of green tech, or the "decoupling" of environmental impacts from economic activity. They paint a picture of a world that can continue to function pretty much as it does now, but in which our power will come from renewable energy and all of our various gadgets and vehicles will become so much more energy-efficient that we can consume away without worrying about the impact.

If only humanity's relationship with natural resources was that simple.

/hile it is true that renewable technologies hold tremendous promise to ›wer emissions, the kinds of measures that would do so on the scale we eed involve building vast new electricity grids and transportation systems, ften from the ground up. Even if we started construction tomorrow, it ·ould realistically take many years, perhaps decades, before the new sys-ems were up and running. Moreover, since we don't yet have economies owered by clean energy, all that green construction would have to burn a ›t of fossil fuels in the interim—a necessary process, but one that wouldn't ›wer our emissions fast enough. Deep emission cuts in the wealthy nations ave to start immediately. That means that if we wait for what Bows-Larkin escribes as the "whiz-bang technologies" to come online "it will be too ttle too late."[57]

So what to do in the meantime? Well, we do what we can. And what we an do—what doesn't require a technological and infrastructure revolution—to consume less, right away. Policies based on encouraging people to con-ume less are far more difficult for our current political class to embrace than olicies that are about encouraging people to consume green. Consuming reen just means substituting one power source for another, or one model f consumer goods for a more efficient one. The reason we have placed all f our eggs in the green tech and green efficiency basket is precisely because ›ese changes are safely within market logic—indeed, they encourage us to › out and buy more new, efficient, green cars and washing machines.

Consuming less, however, means changing how much energy we actually se: how often we drive, how often we fly, whether our food has to be flown › get to us, whether the goods we buy are built to last or to be replaced in wo years, how large our homes are. And these are the sorts of policies that ave been neglected so far. For instance, as researchers Rebecca Willis and lick Eyre argue in a report for the U.K.'s Green Alliance, despite the fact ›at groceries represent roughly 12 percent of greenhouse gas emissions in ›ritain, "there is virtually no government policy which is aimed at chang-›g the way we produce, incentivising farmers for low energy farming, or ow we consume, incentivising consumption of local and seasonal food." imilarly, "there are incentives to drive more efficient cars, but very little is one to discourage car dependent settlement patterns."[58]

Plenty of people are attempting to change their daily lives in ways that o reduce their consumption. But if these sorts of demand-side emission

reductions are to take place on anything like the scale required, they cannot be left to the lifestyle decisions of earnest urbanites who like going to farmers' markets on Saturday afternoons and wearing up-cycled clothing. We will need comprehensive policies and programs that make low-carbon choices easy and convenient for everyone. Most of all, these policies need to be fair, so that the people already struggling to cover the basics are not being asked to make additional sacrifice to offset the excess consumption of the rich. That means cheap public transit and clean light rail accessible to all; affordable, energy-efficient housing along those transit lines; cities planned for high-density living; bike lanes in which riders aren't asked to risk their lives to get to work; land management that discourages sprawl and encourages local, low-energy forms of agriculture; urban design that clusters essential services like schools and health care along transit routes and in pedestrian-friendly areas; programs that require manufacturers to be responsible for the electronic waste they produce, and to radically reduce built-in redundancies and obsolescences.*[59]

And as hundreds of millions gain access to modern energy for the first time, those who are consuming far more energy than they need would have to consume less. How much less? Climate change deniers like to claim that environmentalists want to return us to the Stone Age. The truth is that if we want to live within ecological limits, we would need to return to a lifestyle similar to the one we had in the 1970s, before consumption levels went crazy in the 1980s. Not exactly the various forms of hardship and deprivation evoked at Heartland conferences. As Kevin Anderson explains: "We need to give newly industrializing countries in the world the space to develop and improve the welfare and well-being of their people. This means more cuts in energy use by the developed world. It also means lifestyle changes which will have most impact on the wealthy. . . . We've done this in the past. In the 1960s and 1970s we enjoyed a healthy and moderate lifestyle and we need to return to this to keep emissions under control. It is a matter of the well-off 20 percent in a population taking the largest cuts. A

* A law passed by the European Parliament that would require that all cell phone manufacturers offer a common battery charger is a small step in the right direction. Similarly, requiring that electronics manufacturers use recycled metals like copper could save a great many communities from one of the most toxic mining processes in the world.

ore even society might result and we would certainly benefit from a lower rbon and more sustainable way of life."[60]

There is no doubt that these types of policies have countless benefits sides lower emissions. They encourage civic space, physical activity, mmunity building, as well as cleaner air and water. They also do a huge nount to reduce inequality, since it is low-income people, often people of lor, who benefit most from improvements in public housing and public ansit. And if strong living-wage and hire-local provisions were included transition plans, they could also benefit most from the jobs building and nning those expanded services, while becoming less dependent on jobs dirty industries that have been disproportionately concentrated in low-come communities of color.

As Phaedra Ellis-Lamkins of the environmental justice organization reen for All puts it, "The tools we use to combat climate change are the me tools we can use to change the game for low-income Americans and ople of color. . . . We need Congress to make the investments necessary upgrade and repair our crumbling infrastructure—from building seawalls at protect shoreline communities to fixing our storm-water systems. Doing will create family-sustaining, local jobs. Improving our storm-water infra-ucture alone would put 2 million Americans to work. We need to make re that people of color are a part of the business community and work-rce building these new systems."[61]

Another way of thinking about this is that what is needed is a funda-ental reordering of the component parts of Gross Domestic Product. GDP traditionally understood to consist of *consumption* plus *investment* plus *vernment spending* plus *net exports*. The free market capitalism of the past ree decades has put the emphasis particularly on consumption and trade. ıt as we remake our economies to stay within our global carbon budget, need to see less consumption (except among the poor), less trade (as relocalize our economies), and less private investment in producing r excessive consumption. These reductions would be offset by increased vernment spending, and increased public and private investment in the frastructure and alternatives needed to reduce our emissions to zero. Im-icit in all of this is a great deal more redistribution, so that more of us can e comfortably within the planet's capacity.

Which is precisely why, when climate change deniers claim that global warming is a plot to redistribute wealth, it's not (only) because they are paranoid. It's also because they are paying attention.

Growing the Caring Economy, Shrinking the Careless One

A great deal of thought in recent years has gone into how reducing our use of material resources could be managed in ways that actually improve quality of life overall—what the French call "selective degrowth."* Policies like luxury taxes could be put in place to discourage wasteful consumption.[62] The money raised could be used to support those parts of our economies that are already low-carbon and therefore do not need to contract. Obviously a huge number of jobs would be created in the sectors that are part of the green transition—in mass transit, renewable energy, weatherization, and ecosystem restoration. And those sectors that are not governed by the drive for increased yearly profit (the public sector, co-ops, local businesses, nonprofits) would expand their share of overall economic activity, as would those sectors with minimal ecological impact (such as the caregiving professions, which tend to be occupied by women and people of color and therefore underpaid). "Expanding our economies in these directions has all sorts of advantages," Tim Jackson, an economist at the University of Surrey and author of *Prosperity Without Growth*, has written. "In the first place, the time spent by these professions directly improves the quality of our lives. Making them more and more efficient is not, after a certain point, actually desirable. What sense does it make to ask our teachers to teach ever bigger classes? Our doctors to treat more and more patients per hour?"[63]

There could be other benefits too, like shorter work hours, in part to create more jobs, but also because overworked people have less time to engage in low-consumption activities like gardening and cooking (because they are just too busy). Indeed, a number of researchers have analyzed the

* In French, "decroissance" has the double meaning of challenging both growth, *croissance*, and *croire*, to believe—invoking the idea of choosing not to believe in the fiction of perpetual growth on a finite planet.

very concrete climate benefits of working less. John Stutz, a senior fellow at the Boston-based Tellus Institute, envisions that "hours of paid work and income could converge worldwide at substantially lower levels than is seen in the developed countries today." If countries aimed for somewhere around three to four days a week, introduced gradually over a period of decades, he argues, it could offset much of the emissions growth projected through 2030 while improving quality of life.[64]

Many degrowth and economic justice thinkers also call for the introduction of a basic annual income, a wage given to every person, regardless of income, as a recognition that the system cannot provide jobs for everyone and that it is counterproductive to force people to work in jobs that simply fuel consumption. As Alyssa Battistoni, an editor at the journal *Jacobin*, writes, "While making people work shitty jobs to 'earn' a living has always been spiteful, it's now starting to seem suicidal."[65]

A basic income that discourages shitty work (and wasteful consumption) would also have the benefit of providing much-needed economic security in the front-line communities that are being asked to sacrifice their health so that oil companies can refine tar sands oil or gas companies can drill another fracking well. Nobody wants to have their water contaminated or have their kids suffer from asthma. But desperate people can be counted on to do desperate things—which is why we all have a vested interest in taking care of one another so that many fewer communities are faced with those impossible choices. That means rescuing the idea of a safety net that ensures that everyone has the basics covered: health care, education, food, and clean water. Indeed, fighting inequality on every front and through multiple means must be understood as a central strategy in the battle against climate change.

This kind of carefully planned economy holds out the possibility of much more humane, fulfilling lifestyles than the vast majority of us are experiencing under our current system, which is what makes the idea of a massive social movement coalescing behind such demands a real possibility. But these policies are also the most politically challenging.

Unlike encouraging energy efficiency, the measures we must take to secure a just, equitable, and inspiring transition away from fossil fuels clash directly with our reigning economic orthodoxy at every level. As we will

see, such a shift breaks all the ideological rules—it requires visionary long-term planning, tough regulation of business, higher levels of taxation for the affluent, big public sector expenditure, and in many cases reversals of core privatizations in order to give communities the power to make the changes they desire. In short, it means changing everything about how we think about the economy so that our pollution doesn't change everything about our physical world.