

An ecosocialist path to limiting global temperature rise to 1.5°C

Richard Smith¹ [System Change Not Climate Change]

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The wildfire that wiped out Paradise, California, viewed from space. The fire took 85 lives, 11 remain missing, and it destroyed 13,972 homes, 528 commercial buildings and 4,293 other structures. [NASA]

Abstract

After decades of empty promises, backsliding, and failed cap and trade and carbon tax schemes, we now find ourselves facing a climate emergency: either we drastically suppress global CO₂ emissions, and soon, or global warming will soar beyond any human power to restrain it, ecologies, farming and fishing will collapse and then civilization itself, perhaps before the century is out. To date, all efforts to suppress emissions have foundered on the contradiction between the need to prioritize economic growth over saving the environment. Given capitalism, climate change will kill us in the long run but reversing economic growth will kill us in the short run – and so we keep kicking the can down the road until now we find ourselves at the precipice. This paper proposes a four-point Emergency Plan to suppress both emissions and economic growth in the United States without precipitating economic collapse – by nationalizing the fossil fuel industrial complex with buyouts to phase out fossil fuels, creating a WPA-style jobs program to guarantee re-employment for redundant fossil fuel workers, launching an emergency system-wide transition to renewables, and downsizing the U.S. industrial economy, reducing our “carbon footprint” on planet earth by closing and retrenching superfluous and harmful industries. While this process must of course begin within the framework of capitalism, I envision the from-

¹ Thanks to David Klein, Nancy Holmstrom, Bill Tabb, Ted Franklin, Marie Venner, and William Neil for their helpful suggestions and criticism. I remain responsible for the remaining errors and inadequacies of this paper.

below struggle to “decarbonize” the economy leading to increasingly radical demands for popular control over economic and political decision-making across the economy tending in the direction of ecosocialism. Indeed, that is, in my view, the essence of the message of the amazing Sunrise children’s crusade against Democrats and Republicans in the U.S. Congress who refuse to back Alexandria Ocasio-Cortez’s Green New Deal.² The specifics of this model are geared to the U.S. economy and wouldn’t be applicable to industrialized countries where fossil fuels are either absent or already nationalized. But the essential idea of asserting popular power to prioritize people and planet over growth and profit and of de-growing much of our over-industrialized economies is widely applicable.

I. The IPCC Report “Global Warming of 1.5°C” and the imperative to immediately suppress fossil fuel production

The much-awaited report from the UN’s top climate science panel describes the enormous gap between where we are and where we need to be to prevent dangerous levels of global warming. The 2015 Paris climate accord committed industrial nations to reduce their emissions sufficient to keep global temperatures within a 2°C rise over pre-industrial levels. In the final accord, highly vulnerable island nations and faith communities represented at the UN pressed the authors to include the 1.5°C limit as an aspirational target in the final draft of the accord with 2°C as the backup target.

Soaring GHG emissions over the past five years, rising atmospheric CO₂ concentrations, ice-cap retreats, intensified storms, forest fires above the Arctic circle, and die-offs of the world’s coral reefs have all raised concerns about what even a little bit more warming would bring. Parts of the planet including the Arctic and many inland areas, have already warmed beyond 1.5°C. California is on fire most of the year. The worst hurricanes are twice as severe (more precipitation, slower passage, greater wind speeds) than they used to be. And this is just a start. Rapid climate breakdown is one reason why climate scientists now think that the goal just five years ago of limiting warming to 2°C “increasingly seems disastrous in this context.”³ The Paris pledges were never sufficient even to keep warming below 3°C let alone 2°C. Few of the signatories have even managed to meet the low bars they set for themselves. The world’s largest countries including China, the U.S., and Canada have us on track to a 4-5°C warming. As CO₂ concentrations continue growing, preventing runaway warming is going to require ever deeper, truly draconian cuts in emissions, which will mean great economic disruption. IPCC estimates already show us needing to achieve a near vertical drop in emissions in the early 2020s. Every day we delay getting off of fossil fuels increases the probability that we won’t be able to save ourselves.

The 2018 IPCC special report painted a stark portrait of how quickly the planet is heating up and called on governments to take *immediate* steps to suppress emissions:

² Paul Blest, “Dianne Feinstein is not happy with kids asking her to vote for the Green New Deal,” Splinter News, February 22, 2019: <https://splinternews.com/dianne-feinstein-is-not-happy-with-kids-asking-her-to-v-1832833216>. And here are Sunrise kids occupying Senator McConnell’s office on February 25, 2019: <https://www.facebook.com/sunrisemvmt/videos/994371184095235/>

³ Chris Mooney and Brady Dennis, “Climate scientists are struggling to find the right words for very bad news,” *Washington Post*, October 3, 2018: https://www.washingtonpost.com/energy-environment/2018/10/03/climate-scientists-are-struggling-find-right-words-very-bad-news/?utm_term=.7507997aa8fe&wpisrc=nl_green&wpmm=1.

“If emissions continue at current rate, atmosphere will warm by as much as 2.7° Fahrenheit, or 1.5° Celsius, above preindustrial levels by between 2030 and 2052. Further, warming is more extreme further inland of large water bodies. [To keep temperatures from rising beyond 1.5° degrees] anthropogenic CO₂ emissions [must] decline by about 45% *worldwide* from 2010 levels by 2030 ... [This] would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems ... These systems transitions are unprecedented in terms of scale ... and imply deep emissions reductions in all sectors, a wide portfolio of mitigation options and a significant upswing in those options.”⁴

Preventing ecological collapse requires transforming the world economy at a speed and scale that “has no documented historic precedent.”⁵ What would this take? Myles Allen, Oxford University climate scientist and an author of the report said “It’s telling us we need to reverse emissions trends and turn the world economy on a dime.” To prevent 2.7 degrees of warming “greenhouse emission must be reduced by 45 percent from 2010 levels by 2030, and by 100 percent by 2050. Use of coal as electricity source would have to drop from 40 percent today to 1-7 percent by 2050.”⁶ Drew Shindell of Duke University, another author of the report said: “It would be an enormous challenge to keep warming below a threshold of 1.5 degrees... What might that look like? In part, it would include things such as no more gas-powered vehicles, a phaseout of coal-fired power plants and airplanes running on biofuels,” he said. “It’s a drastic change,” he said. “These are huge, huge shifts... This would really be an unprecedented rate and magnitude of change.”⁷

In response to the report, UN Secretary General António Guterres warned world leaders to “**Do what the science demands before it’s too late.**”⁸

II. Capitalist priority to growth and profits over people and planet

Given this unprecedented existential crisis one might expect governments would responsibly meet this climate emergency with emergency plans to prevent ecological collapse bold proposals for “deep emissions reductions in all sectors,” for “far-reaching transitions in energy, land, infrastructure, and manufacturing” and so on. After all, the 2018 IPCC 1.5°C report makes clear that on present trends we could be facing the collapse of agriculture in California, the Great Plains, India, China much of Africa, mass famine, submerging cities, destruction of the world’s last forests and worse, possibly as soon as 2040, well within the lifetimes of many leaders today and certainly their children’s and ours. On February 5th U.K. Met Office meteorologists warned that the climate is warming so fast that global temperatures

⁴ IPCC, “Global Warming of 1.5°”(October 7, 2018):

http://report.ipcc.ch/sr15/pdf/sr15_headline_statements.pdf.

Note, the subsequent 9th UNEP Emissions Gap Report 2018 states up to a 55% cut over the time line: “In contrast, global GHG emissions in 2030 need to be approximately 25 percent and 55 percent lower than in 2017 to put the world on a least-cost pathway to limiting global warming to 2°C and 1.5°C respectively” (UNEP, 2018: p. xv): <https://www.unenvironment.org/resources/emissions-gap-report-2018>.

⁵ Ibid. Also Coral Davenport, “Major report describes a strong risk of crisis as early as 2040,” *New York Times*, October 7, 2018.

⁶ Davenport, “Major report” op cit.

⁷ Mooney and Dennis, “Climate scientists struggling,” op cit.

⁸ Somini Sengupta, “Projection on climate is ominous. Now what?” *New York Times*, October 10, 2018.

could exceed 1.5°C, the lowest of the Paris targets set for the end of the century, in *five years*.⁹

What's more, the solution to our climate crisis is astonishingly simple and doesn't require any new tech breakthroughs. The first step is to stop doing what we're doing: immediately begin shutting down fossil fuel production, stop new drilling, stop producing and registering fossil fuel-powered vehicles, drastically curb air travel, ration fossil fuels, curtail manufacturing and construction. The second step is to force through an immediate transition to renewable energy across the economy (and do what we can to enable this transition around the world).

A. Where are the bold proposals?

Yet we hear no bold proposals to meet the challenge from any governments – not from European socialist parties, not from Canadians or Australians (the leading exporters of the world's dirtiest fuels), certainly not from the Chinese (the world's largest polluters who, moreover, are now abandoning the limits on coal-burning they just imposed last year in order to restore growth in the face of the trade war),¹⁰ let alone from the Trump administration. Trump's response to his own government's prediction of a 4°C warming by 2100 is "the planet's fate is sealed" so we may as well abandon Obama's federal fuel-economy standards for cars and light trucks and "burn baby burn".¹¹ To the extent we hear any proposals at all, it's just renewed calls for more of the same carbon taxes, the same fantasy tech fixes like carbon capture and storage that have manifestly failed to staunch emissions to date.¹² Why is that?

The reason why no government dares take the obvious steps to save the humans is because no one has come up with a magic fix to suppress emissions without suppressing economic growth and profits. Given capitalism, economic growth and profit maximization must be systematically prioritized over all other considerations including emissions reduction or companies will fail, the economy will collapse, and mass unemployment will be the result: global warming may kill us in the long run but economic collapse will kill us in the short run. This is the ultimate contradiction of capitalism: We have to destroy our children's tomorrows to hang onto our jobs today.

That's why from the very first climate negotiations around the Kyoto Protocol in the 1990s, all efforts to contain emissions have been subordinated to maintaining economic growth. Year after year, decade after decade, for 21 straight years to COP21 at Paris in 2015, UNFCCC annual summit negotiations invariably collapsed in failure and acrimony. Despite the pleas of climate scientists, desperate submerging Pacific islanders, Africans, Indians and others who contribute few emissions but suffer disproportionately from global warming-induced drought and crop failures, no industrial nation has been willing to accept binding emissions limits

⁹ Jonathan Watts, "Met Office: global warming could exceed 1.5C within five years," *Guardian*, February 6, 2019: <https://www.theguardian.com/environment/2019/feb/06/met-office-global-warming-could-exceed-1-point-5-c-in-five-years>.

¹⁰ Jane Cai, "Northern China's clear air get lost in the smog of the trade war," *South China Morning Post*, November 15, 2018: <https://www.scmp.com/news/china/politics/article/2172956/northern-chinas-clean-air-targets-get-lost-smog-united-states>.

¹¹ Juliet Eiooperin et al., "Trump administration sees a 7-degree rise in global temperatures by 2100," *Washington Post*, September 28, 2018: https://www.washingtonpost.com/national/health-science/trump-administration-sees-a-7-degree-rise-in-global-temperatures-by-2100/2018/09/27/b9c6fada-bb45-11e8-bdc0-90f81cc58c5d_story.html?utm_term=.ff9927f10914.

¹² For example, Jim Snyder and Mark Drajem, "FutureGen's demise means carbon capture for coal faces woes," *Bloomberg*, February 5, 2015: <https://www.bloomberg.com/news/articles/2015-02-05/futuregen-s-demise-shows-carbon-capture-for-coal-faces-long-road>.

because they all understand that caps would suppress economic growth. As George Bush Sr. infamously told the 1992 Climate summit, “The American way of life is not negotiable.” And if America will not accept binding emissions caps, why should China? Facing growing protests over their do-nothing annual summits, the only thing negotiators at Paris could agree on was to stop holding their embarrassing annual farces (henceforth they agreed to meet every five years instead) and contrive another “agreement” in which industrial countries pledged to reduce their emissions somewhat some day but are under no legal obligation to do so – prompting James Hansen, the world’s foremost climate scientist, to complain that

“It’s a fraud really, a fake. It’s just bullshit for them to say: ‘We’ll have a 2°C warming target and then try to do a little better every five years’. It’s just worthless words. There is no action, just promises. As long as fossil fuels appear to be the cheapest fuels out there, they will continue to be burned.”¹³

B. Halting global warming requires degrowth, substantial de-industrialization

If there’s no magic tech fix then phasing out fossil fuel consumption has to mean shutting down or at minimum, drastically retrenching companies, beginning with the fossil fuel producers like Peabody Energy (coal), Exxon Mobil, Chevron, but continuing down the petrochemical food chain through the fossil fuel dependent industries. After all, it’s easy to blame the fossil fuel companies for global CO₂ emissions.¹⁴ Environmental groups have focused too narrowly on fossil fuel producers, their pipelines and such, while ignoring the downstream industrial and personal consumers. Not to put too fine a point on it but the oil producers don’t burn the oil. We burn the oil producing, processing, transporting and refrigerating food, driving our cars, building our homes, heating and cooling our homes, manufacturing this and that, jetting off on vacations, and so on. Fossil fuels are pervasive. As this table shows, fossil fuel emissions are produced across the entire economy.

Total U.S. Greenhouse Gas Emissions by Economic Sector in 2016

Transportation	28.5%
Electricity	28.4%
Industry	22%
Commercial & Residential	11%
Agriculture	9%

Source: EPA: <https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions>.

¹³ Oliver Milman, “James Hansen, father of climate change awareness, calls Paris talks ‘a fraud’”, *Guardian*, December 12, 2015: <https://www.theguardian.com/environment/2015/dec/12/james-hansen-climate-change-paris-talks-fraud>. And it was not just Hansen. The “Paris pledge” drew blistering condemnation from scientists around the world. See Tom Bawden, “COP21: Paris deal far too weak to prevent devastating climate change, academics warn,” *Independent*, January 8, 2016: <https://www.independent.co.uk/environment/climate-change/cop21-paris-deal-far-too-weak-to-prevent-devastating-climate-change-academics-warn-a6803096.html>.

¹⁴ As does, for example, Tess Riley, “Just 100 companies responsible for 71% of global emissions, study says,” *Guardian*, July 10, 2017.

If governments in the industrialized economies had listened to climate scientists in the 1980s and taken steps then to radically suppress emissions, perhaps we wouldn't be in the desperate fix we find ourselves in today. But they didn't. They dithered, stalled, insisted on market "solutions" that were really designed to fail with the result now, after decades of "green capitalism" we find ourselves facing an existential crisis that admits of only one proximate solution: state intervention to slam the brakes on emissions by shutting down the emitters. If we're serious about suppressing fossil fuel emissions, then we have to drastically retrench and in some cases completely shut down thousands of downstream fossil fuel-dependent companies in transportation, petrochemicals and plastics, manufacturing, construction,¹⁵ agribusiness, tourism and more in the U.S. alone. In cases like plastics, disposable products and others, we would have to virtually abolish entire industries because there's just no other way to suppress their emissions and make them sustainable.

1. *Transportation, now the leading source of CO₂ emissions in the U.S.*

Transportation emissions are surging because cars, trucks, planes, trains, and ships are burning more fossil fuels as we commute, travel, and ship more goods.



Airliners line up for take-off at Los Angeles International airport, June 2001.

[Photo: PBS]

Aviation emissions are the fastest-growing source of transport sector CO₂ emissions. Air travel is booming around the world, growing by 10% in recent years and projected to double over the next twenty years, driven by cheap flights, Airbnb, and a growing global middle class. Surging economies are also lifting air-cargo demand, up 9% in 2017 (Amazon and FedEx overnight deliveries, strawberries delivered from Chile to New York in January, etc.). Though

¹⁵ I was surprised to discover that the construction industry where I worked for many years is the largest single consumer of (petrochemical-derived) plastics and plastic packaging, accounting for about a third of all plastics production in the U.S. Though not always visible in buildings, they're used in a wide and growing range of applications including weather insulation, piping, window frames, protection and finishes. The majority of construction waste is also plastic. Roma Saini, "Plastic waste! Why all the fuss?," Willmot Dixon Interiors, February 14, 2018: <https://www.willmott Dixoninteriors.co.uk/plastic-waste-fuss/>.

aircraft fuel economy has increased, every gain in efficiency engineers wring out of engines, airframes and so on, is quickly overwhelmed by ever more planes. In result, since 1990, global aviation emissions have doubled and absent some tech miracle, could double again in the next 20 years as air traffic grows. As of 1999, aviation emissions accounted for just 3.5% of global CO₂ emissions, but on present trends they could account for 15% by 2050.¹⁶ That would significantly dent improvements won in other sectors like power generation. Furthermore, it is estimated that 4.9% of global radiative forcing, including cirrus cloud effects, was attributable to aviation.¹⁷ And in the case of aircraft, unlike power plants, there is no practical tech fix for this problem in the foreseeable future. Airplanes lack the alternatives available for road and sea transport like renewable electricity, hydrogen or lower-emitting natural gas, which aren't dense enough to provide the huge amounts of energy needed for take-off. Replacing jet kerosene with biofuels would just compete with food production and accelerate global deforestation, replacing one problem with others.¹⁸ Electric batteries are still too heavy for large aircraft so there are no electric airliners on anyone's drawing boards. Both solar-power or hydrogen-power are still in the realm of sci-fi, or at best far-off dreams, for commercial passenger jets.¹⁹

For the present, the only way to radically suppress emissions is to stop flying so much, ground planes, sharply cut back and ration air travel, and sharply reduce aircraft manufacturing. That means drastically retrenching Boeing, retrenching or closing down United Airlines, Delta, etc. with all that implies. That's a big problem. But global warming is a bigger problem. Look at California: Swaths of the state are on fire blanketing northern and southern California with toxic smoke-filled air that's as bad as Beijing or Bombay with serious long-term health implications.²⁰ And this is with just a 1°C warming. Imagine what California will look like with a 2°C or 3°C let alone a 4°C warming.

2. Auto-related emissions are the largest share

Auto emissions account for 80 percent, of transportation-related GHG emissions in the U.S, 28 percent of all anthropogenic emissions in California.²¹ Auto emissions are surging despite the advent of all-electric and hybrid cars because electric-car sales comprise such a tiny share, less than 2% of current sales, gasoline-powered auto sales are surging, and especially because of the industry and consumer preference for ginormous gas-hog SUVs and 6-7,000 pound "light" trucks which have become the biggest selling "cars" in the U.S. today – so much so that Detroit has all but abandoned producing ordinary automobiles, especially gas-sippers.²²

¹⁶ IPCC, *Aviation and the Global Atmosphere: A Special Report of the International Panel on Climate Change* (Cambridge: Cambridge University Press, 1999), chapter 9:

<http://www.grida.no/climate/ipcc/aviation/index.htm>.

¹⁷ Bethan Owen et al., "Flying into the future: aviation emissions scenarios to 2050," *Environmental Science Technology*, 44 (2010), pp. 2255-2260.

¹⁸ Abrahm Lustgarten, "Palm oil was supposed to help save the planet. Instead it unleashed a catastrophe," *New York Times*, November 20, 2018:

<https://www.nytimes.com/2018/11/20/magazine/palm-oil-borneo-climate-catastrophe.html>.

¹⁹ Sara Stefanini, "Biofuel options for aviation running low," *POLITICO*, January 16, 2018:

<https://www.politico.eu/article/biofuel-options-for-aviation-running-low-sustainable-aviation/>.

²⁰ Julie Turkewitz and Matt Richtel, "Air quality in California: devastating fires lead to new danger," *New York Times*, November 16, 2018.

²¹ Oliver Milman, "Vehicles are now America's biggest CO₂ source but the EPA is tearing up regulations," *Guardian*, January 1, 2018:

<https://www.theguardian.com/environment/2018/jan/01/vehicles-climate-change-emissions-trump-administration>.

²² Jaime Condliffe, "Cheap gas and big cars are killing Obama's fuel economy push," *MIT Technology Review*, July 19, 2016: <https://www.technologyreview.com/s/601929/cheap-gas-and-big-cars-are-killing->



The San Diego Freeway ((Highway 405), Los Angeles

Environmentalists like Bill McKibben think the solution is simply to replace America's half-billion fossil fuel-powered cars with a half-billion solar and wind-powered electric cars.²³ There's a place for electric cars in a sustainable society but that's not *the* solution. Why? First, because the bulk of all the pollution produced over the life cycle of any vehicle, gasoline or electric-powered, is generated *before it leaves the showroom*, in the production of the car (the extraction and transport of raw materials, the steel, aluminum, rubber, plastics, fabrics, leather, adhesives, electronic components and so on that go into the car, the manufacturing process itself) and in the final disposal of the car. A German cradle-to-grave study found that gasoline-powered cars emit 56 percent of their pollution before they ever hit the road, and 4 percent after they are junked.²⁴

Producing electric cars is even more polluting than producing gasoline-powered cars, a lot more. Take Elon Musk's Tesla S which he touts as a "zero emission vehicle". That's false advertising. The Tesla could emit zero CO₂ emissions during its "driving" life phase if it were always charged with 100% renewable energy, which it is not because the national grid is still, on average, 65% powered by fossil fuels and likely to remain so for decades to come. But even if it were, when emissions from its production and disposal phases are taken into account, it would be more accurately described as a "50% lower emissions vehicle" – at best. In a life cycle comparison of GHG emissions from electric vs. gasoline cars, the Union of Concerned Scientists found that BEVs [battery electric vehicle] release significantly more emissions (15 percent more for a mid-size Nissan Leaf, 68 percent more for the full-size Tesla

[obamas-fuel-economy-push/](#). Rober Ferris, "Ford is basically giving up on US car business, and GM is not far behind," CNBC, April 26, 2018: <https://www.cnbc.com/2018/04/26/ford-is-basically-giving-up-on-us-car-business-and-gm-is-not-far-behind.html>.

²³ Bill McKibben, "World at War," *The New Republic*, August 15, 2016:

<https://newrepublic.com/article/135684/declare-war-climate-change-mobilize-wwii>.

²⁴ See John Whitelegg, "Dirty From Cradle to Grave," (1993) a translated summary of the German study: <http://www.worldcarfree.net/resources/free.php>. Union of Concerned Scientists, *Cleaner Cars from Cradle to Grave* (November 2015): <http://www.ucsusa.org/sites/default/files/attach/2015/11/Cleaner-Cars-from-Cradle-to-Grave-full-report.pdf>.

S) during their production phase than comparable gasoline vehicles, mostly due to materials and fabrication of the lithium-ion batteries.²⁵ The UCS study still concludes that

“From cradle to grave, BEVs are cleaner. On average, BEVs representative of those sold today produce less than half [47–49%] the global warming emissions of comparable gasoline-powered vehicles, even when the higher emissions associated with BEV manufacturing are taken into account” (p. 1).

So BEVs are cleaner by half, but nowhere near zero emissions. What’s more, electric cars typically weigh 25% more than comparable gasoline-powered cars because of those batteries. With its 1,200 pound 85 kWh battery, the full-size luxury Tesla Model S weighs 4,960 pounds, nearly 1,300 pounds heavier than a comparable gasoline-powered Cadillac CT6 or Mercedes-Benz C 300. To compensate, Musk specifies aluminum for the body and chassis of the Tesla. But aluminum smelting is extremely energy intensive – releasing 10 times more CO₂ emissions than steel production.²⁶ So if producing the aluminum body and chassis generates 10 times more CO₂ emissions than producing steel Cadillacs or Mercedes-Benz, and then you consume 25% more energy (from our still mainly fossil fuel-powered grid) to drive your 5,000 pound Tesla S a few miles to work or pick up some bags of groceries at the mall than if you drove a lighter-weight gasoline-powered car, how “green” is that? What quantity of emissions, if any, are you really saving? And that’s just the Model S sedan. The new Tesla Model X SUV is so obese with its 6,768 pound Gross Vehicle Rating that it’s actually *illegal to drive over the Brooklyn Bridge* because the bridge has a posted vehicle weight limit of 3 tons. Who knew that Americans would one day be climbing into 3-ton passenger cars to go pick up a quart of milk?²⁷

²⁵ Union of Concerned Scientists, *Cleaner Cars from Cradle to Grave* (November 2015), pp. 3, 5: <http://www.ucsusa.org/sites/default/files/attach/2015/11/Cleaner-Cars-from-Cradle-to-Grave-full-report.pdf>

²⁶ Geoffrey Brooks, “The trouble with aluminum,” *The Conversation*, May 24, 2012: <https://theconversation.com/the-trouble-with-aluminium-7245>. Also: C.A. Ungureanu et al., “Life-cycle cost analysis: aluminum versus steel in passenger cars” (2007): http://www.phinix.net/services/Carbon_Management/Life-cycle_Cost_Analysis.pdf.

²⁷ Lloyd Alter, “New Tesla Model X is too heavy to legally drive over the Brooklyn Bridge,” *Treehugger*, February 25, 2016: <https://www.treehugger.com/cars/new-tesla-model-x-too-heavy-legally-drive-over-brooklyn-bridge.html>. Elon Musk is not alone. There are at least 8 other cars currently sold in the U.S. that are also illegal to drive across the Brooklyn Bridge, and probably many other bridges across the country which are similarly rated for cars and light trucks: the Chevy Silverado 2500HD: 7,552 lbs., the Ram 2500 Power Wagon Laramie: 7324 lbs., the Nissan Titan Crew Cab S: 6,709 lbs., Ford -250 Super Duty Super Cab: 6,230 lbs., Lincoln Navigator L: 6,609 lbs., Cadillac Escalade ESV: 6,040, Lexus LX570: 6,000 lbs., Toyota Sequoia: 6,000 lbs. But not to worry, you won’t risk a summons if you’re driving your Rolls-Royce Phantom Drophead Coupe: 5,995 lbs or your Land Rover LR4: 5941 lbs. or your Bentley Mulsanne: 5,519 lbs. or your Porsche Cayenne S E-Hybrid: 5,809 lbs. Who knew that “cars” would one day weigh more than 3 tons? Even the Cadillac Coup de Ville land yachts of the mid-1950s weighed only 4,400 pounds. Will Sabel Courtney, “8 cars that legally can’t cross the Brooklyn Bridge,” *The Drive*, January 18, 2016: <http://www.thedrive.com/new-cars/1720/8-cars-that-legally-cant-cross-the-brooklyn-bridge>.



Lincoln Navigator: 6,609 lbs (also illegal to drive over the Brooklyn Bridge). [Photo: The Drive]

Given the foregoing it's difficult to see how replacing a half-billion fossil-fueled-powered cars with half-a-billion 1,200 pound heavier, somewhat less-polluting electric cars, is going to save the world. For what it's worth, here's my vote for THE WORLD'S MOST ECOLOGICAL CAR:



1953 Chevrolet Bel Air (3,600 lbs).

[Photo: author]

This is 1953, or thereabouts, Chevrolet Bel Air (in Havana). Nineteen fifty-three Chevrolets got 14.4 miles per gallon, a bit better than the current 2018 Chevy Impala, rated at 14.0 mpg city driving (and note that this is after *more than half a century* of Detroit fuel economy improvements).²⁸ But the mileage isn't so important. What's important is that this car has a massively smaller carbon footprint than any Tesla or Prius or Volt because *it was only produced once and Cubans have been (rather stylishly) driving it for 66 years*. Since the U.S. imposed its blockade on Cuba in 1962, we Norte Americanos have gone through at least 6 or 8 cars with all the pollution resulting from their production and disposal, while the Cubans have thriftily and ecologically repaired those old cars and kept them on the road (not their own choice to be sure, but nonetheless).

If the bulk of CO₂ emissions from cars are produced before the car leaves the showroom then, obviously, *the best way to suppress vehicle emissions is to produce as few cars as we need and make them last as long as possible*. But of course that runs directly counter to the needs of the capitalist auto industry which must seek to maximize sales by driving repetitive consumption, the faster the cycle the higher the profits. Ever since the 1920s, the auto industry has been based on designed-in and advertising-driven obsolescence as the industry ritually pushed “new” but trivially different models each year. Detroit's Holy Grail was to get you to trade in your “old” car every year. They used to focus on style – grills and tailfins – and of course they've always pushed the biggest “fully loaded” models like the ponderous Cadillac Escalades and Lincoln Navigator barges one sees all over my home town New York City – “big car big profit, small car, small profit”. Today they've ramped up the technology larding their cars with high-tech features and gadgets: hybrid or all-electric motors, driver assist, AppleCarPlay, rear cameras, even interior cameras, dangerously distracting infotainment systems (Unsafe at any speed!), radar, automatic braking, computerized suspensions, heated (and massaging) seats, heated steering wheels, mood lighting, and more. Much of this high-tech is rapidly obsolesced, can't be upgraded, or is prohibitively expensive or impossible to repair.²⁹ Rapid tech obsolescence and the high cost of high-tech repairs is driving consumers to lease cars short-term instead of buying them, and short-term use is accelerating disposal of perfectly good but “obsolete” vehicles.³⁰ That brand new 2018 Fiat 500e electric car with its 84 mile range will be obsolete in a year or two as new models boast figures well into the triple digits. Like your perfectly functional iPhone 5 that Apple refuses to upgrade because they'd rather you to buy the latest model, chances are it will become e-car waste, junked long before it's worn out. The replacement battery for a Tesla S costs \$44,000, more than half the base cost of the car (\$75,000). How many people are going to buy a second-hand Tesla that needs a \$44,000 battery? Especially when the 2022 model will have double or triple the range? If the shift to electric cars ends up shortening the life cycle of cars, that could drive up resource consumption and CO₂ emissions from automobile production, just as it has done with phones, computers, and appliances, instead of reducing it. But industry consultant McKinsey & Co.

²⁸ <https://www.fueleconomy.gov/feg/noframes/38824.shtml>. 1953 Chevy convertible: https://www.automobile-catalog.com/make/chevrolet_usa/full-size_chevrolet_3gen/full-size_bel_air_1gen_convertible_coupe/1953.html. Note also that the '53 Chevy weighed just 3,600 pounds vs. 5,000 for the Tesla 6.

²⁹ I recently had to replace a headlight on my 2004 Volvo station wagon. That lightbulb, which of course today comes with built-in electronics, cost me \$1450. The car has a Bluebook value of around \$4,000 so replacing both headlights would cost almost as much as the car is worth – for lightbulbs! And for all the electronics, it's not apparent to me that those headlights illuminate the road any better than the standard \$35 sealed-beam bulbs on my old VW Beetle.

³⁰ Jack Flemming, “Cars full of tech that get outdated fast – so people are leasing, not buying,” *Los Angeles Times*, July 7, 2017. Charlie Sorrel, “New tech-filled cars break down more often than older cars, according to AAA,” *Fast Company*, July 22, 2016: <https://www.fastcompany.com/3062006/new-tech-filled-cars-break-down-more-often-than-older-cars-according-to-aaa>.

cheers on disposable cars, predicting that “technology-driven trends”, “shorter lifecycles” and “faster replacement rate” will drive up profits.³¹

In short, the entire auto industry – electric or gas-powered – is completely unsustainable. We don't need an auto industry that produces tens of millions of cars a year. The solution to minimizing pollution is to redesign the entire *transportation system* on the basis of rational social needs, not individual vehicles, not individual corporate profit, to minimize resource consumption instead of maximizing it. The only way to suppress emissions from the auto industry is to drastically reduce vehicle production, ban the production of needlessly obese SUVs and giant pickup trucks (except for those with a demonstrated need for such work-vehicles), vastly expand many modes of public transit and biking, discourage private ownership of cars and encourage the use of shared vehicles. And to the extent that we need cars, if we're going to conserve resources and minimize pollution we would have to make them small, simple, durable energy-sippers, endlessly re-buildable, easily upgradeable.³² Such radical but necessary changes would demolish Detroit's business plan. But either we save GM and Ford and Tesla for a few decades till we collapse, or we save the humans, which is it to be?

3. *Death by plastic*

Suppressing emissions from petrochemicals, plastics, pharmaceuticals, and industrial farming: According to a recent International Energy Agency (IEA) report, rapidly growing greenhouse gas emissions from the petrochemical industry – which includes plastic, fertilizer, and pharmaceutical companies – are eroding climate gains from reductions in other sectors such as electricity generation. Fatih Birol, executive director of the IEA told the *New York Times* “When we look at the years to come, the petrochemical sector is by far the largest driver of global oil demand growth, much higher than cars, much higher than trucks, aviation, and shipping.”³³

The exponential production of plastics since WWII, especially single-use disposable plastic packaging, bags, synthetic fabric microfibers, microplastics used paints, cosmetics and other products, is turning the world's oceans into seas of plastics, wiping out marine creatures, seabirds, mammals. According to one study, plastic trash will soon outweigh all the fish in the oceans.³⁴ We can't strain the oceans. Here again, there's no market solution for any of this. There's no tech fix either. Plastic recycling is no solution.³⁵ The only solution is to just stop making most plastics: abolish production of disposable bottles, plastic packaging, disposable plastic shoes, clothes, microfibers and micro plastics if they can't be rendered sustainable.

³¹ McKinsey & Company, “Automotive revolution – perspective towards 2030,” January 2016: <https://www.mckinsey.com/~media/mckinsey/industries/high%20tech/our%20insights/disruptive%20trends%20that%20will%20transform%20the%20auto%20industry/auto%202030%20report%20jan%202016.ashx>.

³² Like, say, VW Beetles: Christopher Ross, “The vintage Volkswagen beetle goes electric,” *Wall Street Journal*, April 23, 2015.

³³ Kendra Pierre-Louis, “Greenhouse gas emissions from plastics are predicted to rise,” *New York Times*, October 4, 2018: <https://www.nytimes.com/2018/10/04/climate/climate-change-plastics.html>.

³⁴ Rex Weyler/Greenpeace, “The ocean plastic crisis,” October 17, 2017: <https://www.greenpeace.org/usa/the-ocean-plastic-crisis/>. Lauren McCarthy, “Report warns that plastics will soon outweigh fish in world's oceans,” *Common Dreams*, January 19, 2016: <https://www.commondreams.org/news/2016/01/19/report-warns-plastics-will-soon-outweigh-fish-worlds-oceans>. Leah Messinger, “How your clothes are poisoning or oceans and food supply,” *Guardian*, June 20, 2016.

³⁵ Matt Wilkins, “More recycling won't solve plastic pollution,” *Scientific American*, July 6, 2018: https://blogs.scientificamerican.com/observations/more-recycling-wont-solve-plastic-pollution/?utm_source=pocket&utm_medium=email&utm_campaign=pockethits.

The EU has just approved a ban on single-use plastics, though this is subject to member approval so can't be assumed. Plus, inexcusably, this would not take effect till 2021 (sorry, whales and seabirds). British MPs have called for a ban on microplastics used in cosmetics.³⁶ These are important steps but far from what we need to be doing right now. After all, we lived without all this disposable plastic junk in the 1940s and '50s and we weren't living in caves. We can have the "convenient" throwaway economy or we can have a habitable planet. We can't have both.



Sperm whale dies off Indonesia, November 21, 2018 from ingesting 13 pounds of plastic garbage including 115 plastic cups, a pair of flip-flops, 4 plastic bottles, 25 plastic bags, yards of plastic string etc. Another died off Thailand on June 3rd after swallowing 80 plastic bags. Still another died off Spain in April after ingesting 60 pounds of plastic trash, fish netting and garbage bags.³⁷ And those are just the ones that have been reported in one year. No one knows how many others died, or how many smaller creatures, dolphins, fish, sharks, sea birds, turtles and such perish every day from ingesting our trash, not to mention our toxic chemicals. [Photo: Inertia]

4. Death by toxics

Same with toxic chemicals. We face an out-of-control global toxics crisis, the result of largely unregulated production and irresponsible management of toxic chemicals: wanton spraying of toxic pesticides of large swaths of the planet, irresponsible dumping of chemicals, irresponsible production and marketing of untested, unsafe chemicals including household "miracle" products from Teflon to flame retardants, falsely alleged to be safe but in fact are

³⁶ Ceylan Yeginsu, "European parliament approves ban on single-use plastics," *New York Times*, October 25, 2018. John Vidal, "Microplastics should be banned in cosmetics to save oceans, MP says," *Guardian*, August 23, 2016.

³⁷ Matthew Haag, "64 pounds of trash killed a sperm whale in Spain, scientists say," *New York Times*, April 12, 2018; Dylan Heyden, "Dead sperm whale that washed up in Indonesia ingested 13 pounds of plastic," *Inertia*, November 19, 2018: <https://www.theinertia.com/environment/dead-sperm-whale-that-washed-up-in-indonesia-ingested-13-pounds-of-plastic/>. Rosie Perper, "A whale died after swallowing 80 plastic bags in Thailand," *Business Insider*, June 3, 2018: <https://www.businessinsider.com/thailand-whale-died-swallowed-plastic-bags-2018-6>.

carcinogenic, poisoning our waters, farms, food, and other life forms.³⁸ No doubt in any modern industrial society we are going to need some toxic chemicals. But we need to rationally and democratically plan what we need and what we can do without. This can't be left up to private corporations with a vested interest in their own products.³⁹ Chemical production should follow the Precautionary Principle such that chemicals are produced only after they've been proven safe, and safe handling procedures have been installed so that the public and nature are protected – as for example, the protocols set up by the NGO Safer Chemicals Healthy Families⁴⁰ – instead of the system we have now in which chemical companies flood the market with thousands of new chemicals each year with little or no regulation and we and other species become their test guinea pigs.⁴¹ If chemical companies like Monsanto, Dow Chemical, and 3M, or factory farming operations like ConAgra, Tyson, and Perdue can't be redesigned and restructured to produce safe, ecologically sustainable products, safe and sustainable foods, then what choice is there but to close them down and secure their chemists and production workers alternative employment elsewhere?

Last year, China stopped accepting our plastic waste, paper waste, and electronic e-waste. This put the West, with our throwaway economies, on notice, forcing us to reconsider all the superfluous packaging, disposable electronics, and waste produced by capitalism. The trash crisis calls out for a radical solution and the radical solution is, again, all too obvious. As the Los Angeles Times recently editorialized, "*California has a recycling crisis. The only way to solve it is to stop making so much trash.*"⁴² If jobs will be lost, profit will be lost, so be it. We ecosocialists have a plan for that (Part IV below).⁴³

5. Ships and their "supersized pollution problem"

Tourism is yet another growing contributor to CO₂ emissions, accounting for nearly a tenth of emissions and growing fast. Cheap fares, Airbnb, and the growing global middle class spur

³⁸ Tiffany Kary and Christopher, "Cancer-linked chemicals manufactured by 3M are turning up in drinking water," *Bloomberg*, November 2, 2018: <https://www.bloomberg.com/graphics/2018-3M-groundwater-pollution-problem/?srnd=premium>. Elizabeth Grossman, "Flame retardant exposure poses a significant health risk to women," *Truthout*, May 28, 2016: <https://truthout.org/articles/flame-retardant-exposure-poses-a-significant-health-risk-to-women/>. Abraham Lustgarten, "How the EPA and the Pentagon downplayed a growing toxic threat [Teflon]," *Truthout*, July 14, 2018: <https://truthout.org/articles/how-the-epa-and-the-pentagon-downplayed-a-growing-toxic-threat/>.

"Evaggelos Vallianatos, "Spraying poisons, chasing ghosts," *Counterpunch*, November 15, 2018: <https://www.counterpunch.org/2018/11/15/spraying-poisons-chasing-ghosts/>. Samuel S. Epstein, *Toxic Beauty* (Dallas: Benbella Books, 2009) (toxins in cosmetics and personal care products). Philip and Alice Shabecoff, *Poisoned Profits: The Toxic Assault on Our Children* (New York: Random House 2008), Phil Brown and Edwin J. Mikkelsen, *No Safe Place* (Berkeley: University of California Press, 1990), etc.

³⁹ Marie-Monique Robin, *The World According to Monsanto: Pollution, Corruption, and the Control of the World's Food Supply* (New York: New Press, 2009); Robert Kenner, *Food, Inc.* (Magnolia Pictures, 2008), etc.

⁴⁰ Safer Chemicals Healthy Families at <https://saferchemicals.org>. See further discussion of this point and other sources and organizations in Smith, *Green Capitalism: The God That Failed* (London: World Economic Association Press, 2016, pp. 45-46).

⁴¹ Vicky Xiuzhong Xu, "Palau bans many kinds of sunscreen, citing threat to coral," *New York Times*, November 2, 2018.

⁴² May 26, 2018: <http://www.latimes.com/opinion/editorials/la-ed-recycling-crisis-20180526-story.html>. Yet instead, so far at least, instead of suppression production, cities are burning the plastic trash. Brilliant. Oliver Milman, "Moment of reckoning" US cities burn recyclables after China bans imports," *Guardian*, February 21, 2019: <https://www.theguardian.com/cities/2019/feb/21/philadelphia-covanta-incinerator-recyclables-china-ban-imports>.

⁴³ On green manufacturing and its limits, see Smith, *Green capitalism*, pp. 85-90.

the growth.⁴⁴ And not just planes. Cruise ships are by far the biggest per-capita polluter in the history of travel. One large cruise liner puts out more, and far filthier, emissions in a day than 5 million cars (the equivalent of all the cars in Beijing). The coastal provinces of China, the Los Angeles basin, and Mediterranean Europe are smothered under layers of bunker fuel fumes.⁴⁵ Here again, with no solar-powered cruise ships on the horizon, the only way to suppress emissions from this staggeringly wasteful and polluting industry is to shut it down.

Suppressing shipping emissions: Cruise ships are bad enough. But the bulk of shipping emissions today come from the thousands of container ships that course between China and the U.S. and Europe. Since China joined the WTO in 1991 the volume of world shipping has quadrupled⁴⁶ and the bulk of that is container ships full of mostly disposable products produced by police-state shackled, semi slave-labor in China's Special Exploitation Zones – all manner of plastic junk, disposable shoes, clothes, tools, and household goods, quickly obsolesced electronics and so on – products that in a rational sustainable economy would never be produced in the first place.⁴⁷



Who really needs all this?

As of 2015, shipping emissions accounted for 3% of global CO₂ emissions but are projected to grow by 250% by 2050 when they will account for 17% of global emissions.⁴⁸ The shipping

⁴⁴ Farhad Manjoo, "'Overtourism' and the role of technology," *New York Times*, August 29, 2018. Zach Wichter, "Paris beckons as a fare war turns Europe into a bargain," *New York Times*, July 3, 2018.

⁴⁵ John Vidal, "The world's largest cruise ship and its supersized pollution problem," *Guardian*, May 21, 2016: <https://www.theguardian.com/environment/2016/may/21/the-worlds-largest-cruise-ship-and-its-supersized-pollution-problem>. Janet Wilson, "California fights shipping pollution as international shippers push back," *Inside Climate News*, October 2009: <https://insideclimatenews.org/news/20091012/california-fights-shipping-pollution-international-shippers-push-back>.

⁴⁶ Linda Qiu, "China's growth fuels boom in world shipping traffic," *National Geographic*, November 27, 2014: <https://news.nationalgeographic.com/news/2014/11/141126-shipping-traffic-oceans-china-trade-environment/>.

⁴⁷ Note, China became a full member of the WTO in 2001. On production of disposable products by disposable workers in China, see my "China's communist-capitalist ecological apocalypse," *Real-World Economics Review* no. 71 (2015): <http://www.paecon.net/PAEReview/issue71/Smith71.pdf>.

⁴⁸ Editor, "Shipping emissions 17% of global CO₂, making it the elephant in the climate negotiations room," *Transport and Environment*, November 23, 2015:

industry has stalled on suppressing emissions because, as with aviation, there's no currently available replacement for fossil fuel-powered propulsion for large vessels.⁴⁹ Electric boats may be possible someday, but not today, and not soon enough to replace diesel in the brief timeframe of the decade or so we have to radically suppress emissions before it's too late. Shipping industry analysts report that

“While improved battery technology has helped the new generation of electric European ventures get afloat, long-haul, ocean-going vessels currently do not have the option of docking regularly to plug in small batteries – meaning that they are unlikely to become completely electrified in the near future... With current limitations on technology, it seems that electrification will be limited to small craft undertaking short, ferry-type voyages.”⁵⁰

Thus for the present, the only way to suppress shipping emissions is to stop shipping so much stuff around the world. No major container companies are registered in the United States but the U.S. is the biggest consumer of container-shipped goods from China. Thus the best way for the U.S. to suppress shipping emissions is to stop importing China's disposable products whether manufactured by Chinese or Western companies.⁵¹ Radical? Extreme? No doubt. But what's the alternative? How else can we suppress maritime emissions in the brief time we have left?

Yet, to introduce note of caution here, even if electric container ships were available today, given capitalism, this would most likely just accelerate the destruction of our world because the problem is not shipping. The problem is the capitalist driver of ever-growing shipping. For example, China's domestic and export overproduction is based on relentless looting of global natural resources to feed the gaping maw of its industrial engines. From New Guinea and Indonesia to Congo to the Amazon, China is strip-mining the planet, mostly to produce products neither the Chinese nor we really need.⁵² Electrifying China's export shipping could speed this destruction. The only way to suppress it is to shut down China's engines of overproduction.⁵³

<https://www.transportenvironment.org/press/shipping-emissions-17-global-co2-making-it-elephant-climate-negotiations-room>.

⁴⁹ Phil McKenna, “An ambitious global effort to cut shipping emissions stalls,” *Inside Climate News*, October 26, 2018: https://insideclimatenews.org/news/26102018/shipping-emissions-heavy-fuel-oil-greenhouse-gases-imo-agreement-international-maritime-organization?utm_source=InsideClimate+News&utm_campaign=6a145bd76a-&utm_medium=email&utm_term=0_29c928ffb5-6a145bd76a-327531169.

⁵⁰ Jess Smee, “Are electric vessels the wave of the future in shipping?” *Deutsche Welle*, March 20, 2018: <https://www.dw.com/en/are-electric-vessels-the-wave-of-the-future-in-shipping/a-43046309>.

⁵¹ As I've argued elsewhere (Smith, *RWER*, issue 71; and *Green Capitalism: The God That Failed*, World Economics Association Books), we can never have sustainable economies until we banish the production of designed-to-be-obsolete, disposable products from plastic shoes to iPhones to Chevrolets and Teslas. The bulk of what we manufacture from China to the U.S. is not produced to meet the needs of people but to meet the needs of industries to sell and sell again to people. When such products are, instead, produced to be durable, repairable, rebuildable, upgradeable and shareable, we will not need anything like the size of manufacturing industries we have today and virtually all the manufactured goods the U.S. economy truly needs can easily be produced in the U.S. and at prevailing U.S. wages.

⁵² See the many papers by Professor William Laurance and his associates at TESS Centre for Tropical Environmental & Sustainability Science, James Cook University: Queensland and their publication ALERT: <http://alert-conservation.org>. For example, “Is the global era of massive infrastructure projects coming to an end? *YaleEnvironment360*, July 10, 2018: <https://e360.yale.edu/features/is-the-global-era-of-massive-infrastructure-projects-coming-to-an-end>. And again, Smith, “China's communist-capitalist ecological-apocalypse, op cit.

⁵³ Smith, *China's Engine of Ecological Apocalypse* (Verso 2019).

In sum, “de-growing” so much of the economy, wrenching down and phasing out polluting, harmful, wasteful and useless industries would certainly be “huge,” “unprecedented shifts.” But isn’t this exactly the sort of “systems transitions ... unprecedented in terms of scale” that we need to be making?

C. Why carbon taxes fail

Three years on from Paris nothing has changed: Soaring emissions, shocking increases in CO₂ concentrations, arctic fires and floods notwithstanding, governments, economists, even climate scientists continue to proffer the same old market-based fake solutions: steeper carbon taxes, unproven, impossibly expensive “carbon removal” technologies, and fabulist geoengineering schemes.⁵⁴ Everything but the obvious – “deep emissions reductions in all sectors” at “unprecedented speed and scale.”

The UN IPCC scientists themselves called for steep increases in carbon taxes, pushing governments “to set a price high enough to spur truly deep as reductions in carbon emissions.”⁵⁵ I contend that this approach is hopelessly untenable. Both cap-and-trade schemes and carbon taxes grew out of the Reagan-era Milton Friedmanite hostility to government “command and control” and the preference of Reagan, Clinton and subsequent governments for market solutions to all problems. The idea was to incentivize businesses and consumers instead of imposing state-mandated quotas or rationing.

1. Theory and practice

The carbon tax idea was straightforward: tax fossil fuels and consumers and companies will seek non-fossil fuel alternatives. As taxed coal-fired power plants and fossil fuel-powered motor vehicles became more costly to operate relative to untaxed (and even subsidized) renewable energy and electric cars, over time coal and gas-fired power plants and petrol-powered motor vehicles would fade from the scene. The theory seemed compelling, even obvious in the abstract world of economic modeling.⁵⁶ In the real world, they’ve completely failed to significantly suppress emissions. The whole idea was doomed from the start.⁵⁷

⁵⁴ Brad Plumer, “Scientists push for a crash program to scrub carbon from the air,” *New York Times*, October 24, 2018. Cf. Howard J. Herzog, “Why we can’t reverse climate change with ‘negative emissions’ technologies,” *The Conversation*, October 9, 2018: <http://theconversation.com/why-we-cant-reverse-climate-change-with-negative-emissions-technologies-103504>.

⁵⁵ Brad Plumer, “U.N. climate report urges putting a price on carbon,” *New York Times*, October 9, 2018.

⁵⁶ It might seem surprising that leading oil companies like ExxonMobil, Chevron, BP officially *support* carbon taxes. They do so because they understand that at some point governments are going to impose some kind of tax on carbon emissions and they want the best deal they can get if they have to be taxed at all. They’ve deeply resisted “cap and trade” schemes, effectively dooming them everywhere, because cap and trade would impose a limit to growth. Carbon taxes are the lesser evil. So long as carbon taxes are modest, they pose no existential threat to their business because they impose no cap on production, no limit to growth. They’re just another cost of doing business, like other taxes, and one that can be passed on to the consumer. Meanwhile, growth can continue. BP’s 2018 Energy Outlook projects that global energy demand will grow by a third between now and 2040. BP and the other oil giants aim to cash in on that growth. That’s why the day after the IPCC report was released, ExxonMobil contributed a million dollars to jumpstart a carbon tax program. They’re not fools. They’re not looking to put themselves out of business. They’re looking to maximize returns, to grow their business while posing as good corporate citizens, paying their taxes (if they have to), contributing to the “solution.” See: Ben Gamien, “Big oil companies want a price on carbon. Here’s why,” *The Atlantic*, June 1, 2015: <https://www.theatlantic.com/politics/archive/2015/06/big-oil-companies-want-a-price-on-carbon-heres-why/446637/>. Smith, *Green Capitalism*, pp. 59-64. Ed Crooks, “ExxonMobil gives \$1m to campaign for a carbon tax,” *Financial Times*, October 9, 2018: <https://www.ft.com/content/9665a09a-cba9-11e8-b276-b9069bde0956>.

⁵⁷ See my discussion of this in *Green Capitalism*, pp. 61-64.

The fault lay in the economics: If the tax is too light, it fails to suppress fossil fuels enough to help the climate. But if it's heavy enough to really suppress them, then companies and consumers balk and resist the tax – because without any safety net for businesses and consumers, the entire burden falls on them, so they rationally resist – to save profits and jobs. Thus to date, the only carbon taxes that have proven acceptable to governments and the voting public are those which are too light to do the job. More than 40 governments including EU, California and British Columbia have imposed taxes on carbon but none has put more than a trivial dent in emissions.⁵⁸ A report from the Organization for Economic Cooperation and Development (OECD) found that the average carbon price across 42 major economies was around \$8 per ton in 2018 (that's equal to 7 cents on a gallon of gasoline) – “far below the level that the IPCC scientists say is necessary to address climate change.”⁵⁹ No government will set a price high enough to spur truly deep reductions in carbon emissions because they all understand that this would force companies out of business, throw workers out of work, and possibly precipitate recession or worse. What government wants that?

The carbon tax “blueprint for destroying the world economy” (Heritage Foundation)

Given relentlessly growing emissions, and given the failure of modest carbon taxes to suppress fossil fuel production to date, the desperate IPCC climate scientists called on governments to impose truly draconian taxes – on the order of \$135 to \$5,500 per ton or more – whatever it takes to suppress fossil fuel consumption enough to keep global warming below 1.5°C.⁶⁰

The pro-market Heritage Foundation, not surprisingly, skewered this recommendation arguing that taxing industries by anything like these numbers “would bankrupt families and businesses and trigger a global economic disaster.” The IPCC plan, they said is “a blueprint for destroying the world economy.”⁶¹ In point of fact, given capitalism, they're right about that. In a world of abstract models, the carbon tax strategy works perfectly. But in the real world, with real investors and real employees – *and without a rationally planned, carefully managed drawdown and phase-out combined with guaranteed state support for the investors and guaranteed “just transitions” for the affected workers*, the imposition of draconian carbon taxes would bankrupt some of the largest companies in the world, precipitate a stock market crash, throw millions out of work, and most likely “destroy the world economy”. Voters intuitively understand this. That's why they just voted down the carbon tax in Washington State. And if voters won't pass Washington's trivial \$15 a ton tax (equal to 13 cents on a gallon of gasoline), why would scientists think they would pass a tax of \$135 (or \$1.20 on the gallon), let alone \$5,500 a ton (\$48.95 a gallon)?⁶² To ask the question is to answer it.

⁵⁸ For example, Food and Water Watch, *The British Columbia Carbon Tax: a Failed Experiment in Market-Based Solutions to Climate Change*, October 24, 2016:

<https://www.foodandwaterwatch.org/insight/british-columbia-carbon-tax-failed-experiment-market-based-solutions-climate-change>. Also: Lenore Taylor, “The carbon tax is dead and there is nothing

credible to take its place,” *Guardian*, July 16, 2014 (on the failed Australian tax).

⁵⁹ Plumer, “Putting a price on carbon,” op cit.

⁶⁰ Plumer, “Putting a price on carbon,” op cit.

⁶¹ Heritage Foundation, “IPCC climate report merely a blueprint for destroying the world economy,” October 17, 2018: <https://www.heritage.org/energy-economics/commentary/un-climate-report-merely-blueprint-destroying-the-world-economy>.

⁶² Hat tip to Professor David Klein for the ton-gallon conversions. Climate scientist James Hansen has proposed a variation on this theme, his “carbon tax and dividend” scheme. Under this plan, consumers would pay a \$1 tax per gallon on gasoline but they would receive a “dividend” check for the amount they were taxed back from the government at the end of the year. Painless! Great! The folly of this scheme is that if there's no pain there's no gain. The average American driver consumed 656 gallons of gasoline in 2016. If he or she were to get a refund of the \$656 carbon tax, what's to prevent them from spending

Imposing the entire cost of driving out fossil fuels onto companies and consumers without providing them alternatives and a safety net is hardly a winnable plan. Just the opposite: it's guaranteed to turn people against the whole project.

Just look at France. Président Macron wanted to promote an "ecological transition" and "liberate households from dependence on petrol" – a legitimate objective in itself – but as a former investment banker he naturally preferred to use market incentives and penalties to do the job instead of *dirigiste* state intervention and planning. So he imposed a carbon tax on petrol, arguing that raising the price of fuels would force consumers to reduce their use of cars and/or buy more fuel-efficient vehicles or electric cars. Those with oil heating would likewise replace boilers that use oil with wood-burning or gas boilers. Instead, he got insurrection. Hundreds of thousands of French workers donned "yellow vests" and have been protesting across the country every weekend since November.

Why? First off, rising housing costs in recent decades, especially in Paris and other big cities, have forced more and more workers to move out to the suburbs or even rural villages. Far from urban public transit networks, they have no choice but to drive to work. Macron's banker buddies can easily afford to go buy a Tesla to drive into the city from their weekend chateaux. But French workers have been squeezed by stagnant salaries and sharply rising social taxes in recent years, so few of them can afford to replace their home heating boiler (5,000 euros and up) let alone go out and buy even the least expensive electric car sold in France, a Renault Zoe at 27,000 euros. Macron's (flat) carbon tax squeezed them even harder making that "ecological transition" even less affordable. It's not that French workers are bone-headed and don't care about the environment. It's that Macron's carbon tax puts the burden on those who can least afford it and doesn't suppress emissions anyway. Further, while Macron abolished the wealth tax on the rich – stoking endemic class hatred (this is France after all)⁶³ – he simultaneously halved the energy transition tax credit (CITE) that subsidized households to install more efficient boilers. And while levying carbon taxes on those who can least afford it, many of France's most polluting industries including maritime and air transport, are exempted.⁶⁴ Little wonder 77% of French people support the Yellow Vests and despise the arrogant banker-président who despises the "gilets jaunes" as "a hate-filled mob."

2. But if carbon taxes worked, what then?

Yet the foregoing are the least of the problems with the carbon tax strategy. For suppose governments actually adopted those draconian carbon taxes. After all, the whole point of carbon taxes is not just to reduce consumption somewhat. That's not going to stop global warming. The point is to drive fossil fuels out of the market and replace them with renewables. Draconian taxes would certainly drive them out – but would precipitate economic chaos and collapse in the process. ExxonMobil, BP, Shell and so on, among the biggest companies in the world, would be bankrupted. So would the industrial fossil fuel consumers: refineries and distributors, petrochemical companies, auto manufacturers, airplane manufacturers, airlines, tourist hotels, shipping companies, synthetics producers, plastics and disposable industries

that refund on, say, a new flat-screen TV (the production of which produces lots of CO₂ emissions), or a Jet-Blue round trip flight to Cancun, \$268 from NYC (far more emissions than their car produces in a year) either of which they could easily afford with that tax refund? No pain – but no gain either.

⁶³ Richard Greeman, "As Macron prepares new repressive measures yellow vests and red unions strike together," Portside, February 15, 2016: <https://portside.org/2019-02-15/macron-prepares-new-repressive-measures-yellow-vests-and-red-unions-strike-together>.

⁶⁴ Maxime Combes, "Yellow vests" Macron's fuel tax was no solution to climate chaos," *rs21*, December 4, 2018: <https://www.rs21.org.uk/2018/12/04/the-yellow-vests-why-macrons-fuel-tax-was-no-solution-to-climate-chaos/>.

and more from Europe to China. In short, making carbon taxes “work” would result in chaos, mass unemployment and “destroy the world economy”.

The patent bankruptcy of the carbon tax strategy to “get us off fossil fuels” points to the need for comprehensive solutions – indeed *dirigiste* government planning and large-scale expenditures to transform the entire economy in a sustainable direction instead of simple one-shot taxes. If Macron really wants to suppress transportation and provincial home heating-generated CO₂ emissions, he’s going to have to discourage urban sprawl by consolidating cities, creating more affordable housing in and near the cities, stop building endless express motorways and ring roads, expand rail, express bus and other public transit to existing suburbs, encourage car sharing and other ways to reduce what in California they call “vehicle miles traveled.”⁶⁵ At minimum, if he wanted to help suburban, rural and small-town families get off fossil fuels, he could have subsidized replacement home heaters by doubling or tripling the energy tax credit instead of halving it. He could have instituted a “cash-for-clunkers” program to take petrol cars off the roads and give workers cheap electric cars and home chargers. He could set up free electric bike stations in inner suburbs. There are lots of ways he could directly suppress emissions. But none of them are market solutions. All of them require direct government planning and subsidies.

III. FDR’s “command-and-control” economy that worked

If the U.S. government really wanted to suppress emissions it could simply ration fossil fuels like FDR did during WWII when he rationed private consumption to divert maximum supplies to the war effort. They could inaugurate a crash program to phase out fossil fuels. They could simply order America’s private companies to shut down private vehicle production and change their production output from fossil fuel vehicles to, say, electric cars, public transit, wind turbines, solar power plants, just as FDR ordered GM, Ford and other companies to stop producing private cars and start producing tanks, bombers, fighter planes, artillery, machine guns, ammunition, just as he ordered Packard to build fighter aircraft and PT boat engines, just as he ordered Chrysler to build diffusers to process uranium for atomic bombs. And so on. FDR’s virtual takeover of the commanding heights of American industry during WWII was tantamount to a temporary nationalization but his “command and control” was accepted by labor and capital and it succeeded – brilliantly – providing the industrial base to win the war.⁶⁶

We would no doubt require the declaration of an emergency comparable to WWII to win the approval of Congress and the American people. The war against fascism certainly qualified as an emergency. Even so, fascism killed tens of millions but it did not threaten the extinction of life on earth. Global warming threatens extinction. Is saving the humans, not to mention the whales, less of an emergency than saving General Motors or Boeing or Apple? If Roosevelt could turn the economy on a dime to meet the emergency of WWII, why can’t we do the same today? If we don’t organize an emergency industrial shutdown and retrenchment of unnecessary production, superfluous manufacturing, superfluous electricity usage, wasteful over-consumption, nature is going to do it for us in a most unpleasant manner.

⁶⁵ Alissa Walker, “When electric isn’t good enough,” *Curbed*, October 24, 2018:

<https://www.curbed.com/a/texas-california/electric-cars-climate-change-sacramento-california>.

⁶⁶ Arthur Herman, *Freedom’s Forge* (New York: Random House, 2012); A.J. Baime, *The Arsenal of Democracy* (Boston: Mariner, 2015).

Yet today we can't get a fair public debate on the need for state intervention in the economy because since the age of Thatcher and Reagan, Milton Friedman's maxim "capitalism good, government bad" has been the reigning ideology of Republicans and Democrats, Tories and Labour alike. Since the 1980s Friedmanite economists and their Koch-funded think tanks have produced a relentless stream of propaganda "proving" that "command and control" or almost any "government intervention" is "bad" and "can't work".⁶⁷ Reagan told us businesses don't want to be ordered about and told what to do like FDR did. They want to be "incentivized." Since the 1980s Republicans and Democrats alike have steadily whittled away and gutted government regulation and control wherever possible,⁶⁸ clearing the way for Trump's *coup de grâce* at the EPA this past year. In the process, their "market solutions", like carbon taxes, have completely failed to staunch emissions.

IV. The ecosocialist path to 1.5°C sustainability

We ecosocialists have a practical answer. We accept the science that to prevent runaway global warming "greenhouse emission must be reduced by 45 percent from 2010 levels by 2030, and by 100 percent by 2050." We agree with the IPCC that this will require "deep emissions reductions in all sectors." We agree that it will require "far-reaching transitions in energy, land, infrastructure, and manufacturing," that it will require "systems transitions" (indeed, more than they imagine). And we understand that this must all be done at "unprecedented speed and scale." "We understand that we desperately need to **do what the science demands before it's too late**".⁶⁹

But we also understand that imposing drastic cuts in fossil fuel production has to translate into industrial shutdowns and retrenchments across the economy. There is just no way around this. We reject the carbon-tax-to-collapse scenario. Instead, we propose a strategy of rationally planned, democratically managed, wind-down and phase-out of fossil fuels and a coordinated transition to renewable energy that avoids economic collapse and guarantees reemployment for the affected workers. Our strategy for the United States is based on a four-point:

⁶⁷ For a critique of this hypocrisy and nonsense see Richard Smith, "Six theses on saving the planet," *Next System Project*, 2017: <https://thenextsystem.org/six-theses-on-saving-the-planet>, PDF pp. 20ff.

⁶⁸ For example, President Obama's much-ballyhooed program to "double vehicle fuel efficiency by 2025" was a con job, custom designed to service Detroit's desire to build humongous cars by including a gaping loophole based on "vehicle footprints" which let the Big Three and others build ginormous gas-hog trucks and SUVs – Sierras and Ticonderogas and Denalis and Armadas and Suburbans that get worse gas mileage than Cadillac land yachts of the 1950s – but still meet their "fleet mileage" targets (As I noted elsewhere, "Your typical 1955 Cadillac coupe DeVille got 12.9 mpg in city driving whereas your typical 2013 Cadillac Escalade gets 10 mpg in the city... and this is after *six decades* of Detroit's fuel economy "improvements": *Green Capitalism: the God That Failed*, p.131). Thus Obama let the industry push gas-hogs at the expense of gas-sippers while his "drill baby drill" program to frack the whole country conveniently supplied so much cheap gas that Americans all but abandoned small cars in favor of giant over-accessorized gas-hogs which have become the biggest sellers. In result, U.S. vehicle fleet mileage actually declined under Obama. Brilliant. Worse, it "incentivized" Detroit to abandon producing actual cars altogether. By spring 2018, Detroit auto companies announced they would stop producing economical small cars to focus on producing their profitable luxury hogs. So much for "win-win" market solutions. Roger Ferris, "The steadily disappearing American car," *CNBC News*, April 6, 2018: <https://www.cnbc.com/2018/04/06/the-steadily-disappearing-american-car.html>.

⁶⁹ See the extensive discussions of this topic at <http://systemchangenotclimatechange.org>.

Emergency plan to meet the climate emergency:

1. Declare a State of Emergency to suppress fossil fuel use: ban all new extraction, ration gasoline, ban production of new fossil-fuel vehicles. Nationalize the fossil fuel industry to phase it out. We propose to do this by means of a government buyout at fair value (fair to both owners and society). Nationalize downstream fossil fuel industrial consumers from pipelines, refineries, distribution networks to autos, aviation, airlines, shipping, petrochemicals, some manufacturing, some tourism and others whose business is irreversibly based on fossil fuels and which without a government buyout would be bankrupted.

2. Institute a new federal Public Works Administration-style jobs program (on the model of the Works Progress Administration, Civilian Conservation Core and other programs set up under FDR) to re-employ every worker in the fossil fuel-related industries at equivalent pay and benefits in other useful but low-emission work. Those workers in coal, oil, plastics, toxic chemicals and so on, deserve jobs, just not the jobs they have now.

3. Launch an emergency state-directed program to phase-in renewable electric generation, replace fossil-fuel powered transportation with electric propulsion, discourage individually-owned vehicles, and encourage public transit, shared vehicles, bicycles and other non-fossil fuel modes of transportation.

4. Develop emergency plans to phase out wasteful, destructive and polluting industries from arms production to needless toxics, chemicals, pharmaceuticals etc, disposables like single-use plastics, designed-to-be obsolesced iPhones, cars etc., and useless inventions.⁷⁰ Develop emergency plans to shift from fossil-fuel dependent factory farms to fully-organic agriculture.

A. The argument for nationalization

If fossil fuel companies can't reverse their suicidal growth-to-bust trajectory, then what alternative is there but to nationalize them, socialize them, put them under public ownership to phase them out?⁷¹ We say to Democrats, Republicans, capitalists, and pro-fossil fuel trade

⁷⁰ "Alexa has 80,000 skills and none you need," *Bloomberg Business*, March 18, 2019, pp. 22-23.

⁷¹ I'm hardly alone here. Others have also argued for nationalization to phase-out fossil fuels. See Carla Skandier, "Nationalize the fossil fuel industry," *In These Times*, November 17, 2017:

http://inthesetimes.com/article/20700/nationalize-the-fossil-fuels-industry-carbon?mc_cid=117a3e6cbd&mc_eid=e653bfe46a; and "Quantitative easing for the planet," *The Next*

System Project, August 30, 2018: <https://thenextsystem.org/learn/stories/quantitative-easing-planet>. Also Peter Gowan, "A plan to nationalize fossil fuel companies," *Jacobin*, March 2018:

<https://www.jacobinmag.com/2018/03/nationalize-fossil-fuel-companies-climate-change>.

whereas Gowan looks to hiring freezes, voluntary redundancies, and welfare state and union-run retraining schemes "to smooth out the transition as much as possible," I argue for iron-clad government-funded job guarantees at comparable pay and benefits for laid off fossil fuel workers. Given the need for immediate and rapid shutdowns and retrenchments, nothing less than this has a chance of winning worker support in those industries. Thirdly, this plan insists on a parallel and coordinated emergency phase-in of renewables to replace the industries we need to phase out. Fourthly, this plan calls for transitioning to broad democratic planning.

unions too, “If you have a better strategy to save the planet, where is it?” As *Juliana vs. United States* (the Our Children’s Trust suit which is now working its way through the courts) contends, the federal government has a responsibility to preserve a habitable planet to maintain “life, liberty, property” for the next generations. The plaintiffs argue that preserving a habitable planet requires that the government immediately begin enforcing strict limits on CO₂ emissions, immediately develop plans to phase out of fossil fuel production, and ban all further extraction (Section 7 p. 80ff).⁷² Since the companies can’t put themselves out of business because they have a legal and fiduciary responsibility to their shareholders, not to society, the only way to effect the phase-out of fossil fuels without precipitating economic collapse is for the government to nationalize the companies so we can dismantle them and redeploy their capital and labor with as little economic pain as possible.

“Hang the capitalists?”

That’s why I propose to nationalize them via federal buyouts. Many on the Left ask with justification, “why should we pay to buy out the fossil fuel capitalists who already have too much money and who after all, are directly responsible for global warming?” Indeed, some call for trying fossil fuel executives for crimes against humanity.⁷³ I’m all for that – but I’m for buying out the shareholders. For three reasons: First, as noted above, the oligarchs drill the oil but they don’t burn it, or much of it. We all bear responsibility for that. Second, roughly a quarter of fossil fuel stocks are held by pension funds, i.e. workers. Ecosocialists are not in the business of expropriating workers. Third, and most importantly, the timeframe: speed is of the essence. The Left does not have the power to expropriate the fossil fuel companies and we can’t afford to waste decades waging a class war we can’t win. With just a decade or so to suppress emissions by 50%, we need to make the transition as smooth and fast as possible. The path of least resistance is to buy out the corporations and the capitalists – a hostile buyout perhaps, but a buyout nonetheless.

Of course politicians will holler about the cost. The cost is significant but surprisingly affordable, a bargain actually. As of December 2018, the ten largest American oil and gas companies claimed a combined value in 2018 of \$968.1 billion (Exxon Mobil is valued at \$344.5 billion, Chevron \$239 billion, ConocoPhillips \$79.3, and the others from \$68 to \$33 billion).⁷⁴ The two major coal companies have trivial net worth (Peabody at \$3.6 billion, Arch at \$1.5 billion). But the IEA says that in truth, the world’s fossil fuel industries are worth a fraction of their claimed value because most of their assets – the oil and gas and coal in the ground – are fast becoming valueless “stranded assets” as electric utilities and vehicle manufacturers shift to renewable power and because of growing political pressure to “leave it in the ground.”⁷⁵ Given their looming existential profits crisis, the companies might actually welcome a buyout. But if society is to pay a fair price for those companies, their nominal retail value would have to be discounted by the harm their production has already done to people and planet. On any fair assessment, that would leave these companies owing the government, not the other way around. Yet even at their current retail value, just under a trillion dollars, by the standards of wasted U.S. expenditures, this is easily affordable.

⁷² Our Children’s Trust, *Juliana v. United States*, Youth Climate Lawsuit:

<https://www.ourchildrenstrust.org/juliana-v-us>.

⁷³ Kate Aronoff, “It’s time to try fossil-fuel executives for crimes against humanity,” *Jacobin*, February 5, 2019: <https://jacobinmag.com/2019/02/fossil-fuels-climate-change-crimes-against-humanity>.

⁷⁴ Statista: <https://www.statista.com/statistics/241625/top-10-us-oil-and-gas-companies-based-on-market-value/>.

⁷⁵ Julian Ambrose, “IEA warns \$1.3 trillion of oil and gas could be left stranded,” *Telegraph*, March 20, 2017.

President Trump just *gave away* \$2.3 *trillion* in tax cuts to the rich this year alone.⁷⁶ Just rescinding that inexcusable giveaway would cover the cost of nationalizing the entire fossil fuel producing industry and leave enough left over to buy out the bulk of America's fossil fuel-burning industries as well including Boeing, the major airlines, the American auto industry, the worst polluting chemical industries, and leave billions to spare. Boeing's net worth is \$95 billion, the seven largest U.S. airlines have a combined market capitalization of \$130 billion, the American auto industry, Ford, GM and Tesla (excluding Chrysler which was bought by Italy's Fiat in 2011), has a combined value of \$277 billion, the big dirty three of Dow-Dupont, Monsanto, and 3M combined are worth \$225 billion. The government could buy all these companies, even without discounts for their social and environmental crimes, for a paltry \$727 billion. Add in the bulk of private and shareholder-owned gas and electric utility sector, 20 companies with a combined market value of \$557 billion, and the government could buy up all of America's fossil fuel producers and the bulk of its fossil fuel-burners for \$2.26 trillion and still have some change left after rescinding Trump's tax giveaway to the rich.⁷⁷ In effect, we buy out the fossil fuel capitalists with their own money. What's not to like about that – from the standpoint of the working class?

As to the cost of replacing fossil fuel infrastructure with renewables, Stanford's Professor Mark Jacobson estimates the capital cost of building renewable energy to supply electricity generation, heating, cooling, and power an all-electric ground transportation system at \$9.5 trillion for the U.S. or \$950 billion per year amortized over, say, the ten year conversion plan envisioned by the Green New Deal Resolution No. 109 now before the House of Representatives. That's around a third more than our imperial war department spends (\$686 billion for 2019) bombing and wrecking countries around the world.

Furthermore, it's important to note that the Jacobson study also maintains that the "levelized cost of energy" (including upfront capital costs, fuel cost over time, operation and maintenance over time, and decommissioning cost) for a renewable energy powered system is about 90% less over the lifespan of the system than the fossil fuel-powered systems it would replace, meaning the capital costs would be offset for society by large savings in the day-to-day cost of energy (not to mention savings in healthcare, reduction in mortality and so on that would also accrue from a transition to renewables).⁷⁸

Of course there are many ways to pay for this. We could rescind the dozens of other needless tax cuts and handouts to the rich since the days of Reagan. We could impose the fines on the banks that Obama and Trump failed to impose.⁷⁹ We could restore the progressive tax structure we use to have before Reagan as Rep. Ocasio-Cortez has called for. We could

⁷⁶ David Rogers, "POLITICO analysis: At \$2.3 trillion cost, Trump tax cuts leave big gap," *POLITICO*, February 28, 2018: <https://www.politico.com/story/2018/02/28/tax-cuts-trump-gop-analysis-430781>.

⁷⁷ Sources: company financial statements. Utilities: Statista: <https://www.statista.com/statistics/237773/the-largest-electric-utilities-in-the-us-based-on-market-value/>.

⁷⁸ Jacobson et al., "Matching demand with supply at low cost in 139 countries among 20 world regions with 100% intermittent wind, water, and sunlight (WWS) for all purposes," *Renewable Energy*, 123 (2018), Table 4, Case C (with heat pumps), p. 245:

<https://web.stanford.edu/group/efmh/jacobson/Articles//CombiningRenew/WorldGridIntegration.pdf>

Table 4 does not break out the capital cost for the U.S. from North America. But Jacobson says that "The capital cost for the U.S. + Canada is \$11.3 trillion. The U.S. is 84% of this, or \$9.5 trillion." (personal communication, 2/25/18). House Resolution 109:

<https://www.congress.gov/bill/116th-congress/house-resolution/109/text?q=%7B%22search%22%3A%5B%22congressId%3A116+AND+billStatus%3A%5C%22Introduced%5C%22%22%5D%7D&r=80&s=1>.

⁷⁹ Ben Protes et al., "Trump administration spares corporate wrongdoers billions in penalties," *New York Times*, November 3, 2018.

impose wealth tax as in France as Sen. Warren has proposed, and so forth. We could gut the imperial war budget (around three-quarters of a trillion a year). According to the most recent study, by the end of 2019, the U.S. government will have spent a staggering \$5.9 trillion on its illegal criminal wars in Afghanistan, Iraq and Syria since September 11, 2001⁸⁰ – wars that were never fought for democracy and certainly not for defense since none of those countries attacked us but were, instead, imperial wars to protect “our” oil under “their” sand.⁸¹ In short, there are many ways to pay for the transition from fossil fuels to renewables without massively indebting future generations.

B. The argument for a new Public Works Administration-style jobs program

Under capitalism, closing and retrenching companies means throwing workers out on the street. We’re socialists. We don’t accept that. If capitalists won’t provide the jobs then it’s the government’s responsibility to do so. We face an existential threat to our survival and the only way to prevent collapse is to shut down the industrial emitters. It’s not the workers’ fault if the industries they work in need to be closed or cut back to save our children and theirs. They deserve jobs, different jobs, better jobs. If society is going to abolish their present jobs then it owes them new jobs with comparable pay and benefits. This is not only morally right as a “just transition” but it’s also the only way we can win the support of those workers in the struggle for the common good.

There’s no end of low-carbon work to be done, starting with the buildout of renewable energy. As Carla Skandier writes, “The good news is that the energy transition requires a lot of workers. An investment of US\$ 200 billion annually in renewable energy and energy efficiency, as estimated by economist Robert Pollin and others, could create 4.2 million jobs in the US, a net gain of 2.7 million when jobs lost from the fossil fuel sector are counted.”⁸² Beyond this we will need to create jobs in environmental restoration, infrastructure repair and upgrades, expansion of public transit, commuter biking, development of share-vehicle commuting, heating and environmental retrofitting, upgrading and improving our schools, expanding medical care, expanding services and facilities for our retired workforce, expansion of organic farming, and more. If private corporations can’t figure out how to make a profit doing these then society through *our* government must employ them – just as FDR’s New Deal public works programs of the 1930s built tens of thousands of projects – dams, electric utilities, airports, highway systems, bridges, tunnels, new railways, gorgeous train stations, glorious city halls and post offices, incredibly beautiful parks, beautiful public schools, modern hospitals, public universities and more.⁸³ FDR’s construction programs built the bulk of this country’s national infrastructure that we still rely on today. And if in the midst of the Great Depression, the government could afford to provide full-time government-funded jobs for tens of millions of workers from 1933 through the 1940s, becoming the nation’s largest employer by far, our immensely wealthier society and government can easily afford to re-employ the millions of workers from the fossil fuel-based industries to construct a permanently sustainable economy.

⁸⁰ Neta C. Crawford, “US Budgetary Costs of the Post-9/11 Wars through 2019: \$5.9 Trillion Spent and Obligated,” Watson Institute: Boston University, November 4, 2018: https://watson.brown.edu/costsofwar/files/cow/imce/papers/2018/Crawford_Costs%20of%20War%20Estimates%20Through%20FY2019%20.pdf.

⁸¹ Though in truth, money saved here should first be paid out in reparations for the hundreds of thousands of people the U.S. military murdered and the countries we’ve wrecked.

⁸² “Quantitative easing,” op cit.

⁸³ Nick Taylor, *American-Made: The Enduring Legacy of the WPA: When FDR Put the Nation to Work* (New York: Bantam, 2008). Joseph Maresca, *WPA Buildings: Architecture and Art of the New Deal* (Atglen, PA: Schiffer Publishing Ltd., 2016).

C. The imperative of economic planning and democratic management

After they wrecked the economy and plunged us into the Great Depression in 1929, America's capitalists couldn't pull themselves together to restore economic growth. In 1932 Franklin D. Roosevelt campaigning on a state-interventionist, help-the-poor "NewDeal," won a landslide victory over "do-nothing" Herbert Hoover who was deservedly blamed for letting the Depression get as bad as it did and reviled for his failure to intervene to rescue the economy and the citizenry. Over the next decade President Roosevelt turned the government into the biggest economic engine and the biggest employer in U.S. history, creating a state-directed capitalism, organizing a powerful state planning apparatus, setting up federal employment programs, and superintending construction of the country's first basic social safety net – transformations that handed him three more landslide victories in 1936, 1940, and 1944. Roosevelt and Congress established the National Resources Planning Board (NRPB) in 1933 to organize public works programs to put people back to work, revive the economy, and modernize our infrastructure. This was the first and so far only national planning agency in U.S. history. It evolved from public works planning to broader social and economic planning and then to mobilize and direct resources for the war effort. Regional planning groups were created in New England and the Pacific Northwest. Most states established planning agencies while planning boards emerged in many cities. Capitalist ideological hostility to economic planning per se – they couldn't stand the threat of a good example – eventually forced Congress to abolish the national board in 1943. But NPRB legacies included wartime and postwar planning, the first version of the G.I. Bill of Rights, the Second (Economic) Bill of Rights (a manifesto for postwar liberalism), an institutionalized policy planning process via the Council of Economic Advisors, and the annual federal budget process established by the Employment Act of 1946.⁸⁴

The climate emergency, the existential crisis we face is to say the least, far more dire and urgent than the Great Depression. And here again, capitalism has no solution to the crisis it created because the capitalist solution to everything is the same growth that drove us to this precipice in the first place. That's why we argue that the only way to brake the drive to collapse is to socialize the commanding heights of the economy. We don't need to nationalize the entire economy. Small producers, worker co-ops, family farmers, mom & pop shops, restaurants and so on are not killing the planet. Large corporations are killing the planet. They can't help themselves. To preserve a habitable world we need to take them under public ownership so we can abolish the harmful companies and rationalize, reprioritize and restructure production to create a permanently sustainable, if somewhat less industrialized, economy.

D. System change not climate change

It's perhaps conceivable, taking FDR's war-emergency industrial reordering as a precedent, that the three-point plan just described for fossil fuels buyout-nationalization, state-directed transition to renewables, and creation of a large federal jobs program, could be enacted within the framework of capitalism, though the result would be a largely state-owned economy. Roosevelt created his state-directed capitalism with only modest, if latent and increasing ruling class resistance because, first, he revived a broken capitalism from the depths of the worst depression in history and saved it from communism, secondly, he never needed to actually nationalize the industries he effectively took over because he was paying their

⁸⁴ Marion Clawson, *New Deal Planning: The National Resources Planning Board* (Johns Hopkins University Press, 1981). Jess Gilbert, *Planning Democracy* (New Haven: Yale University Press, 2015).

owners handsomely to expand and grow their companies, if by producing different products, and thirdly, this was all just a temporary encumbrance, limited to the duration of World War II.

We face the opposite problem: we face a booming capitalist economy at the top of its form with a powerful entrenched ruling class in full command of their economy and their state. What's more, we need to nationalize industries not to grow them but to phase many of them out, retrench others, and transform some like GM from an automaker into, say, a wind-turbine maker or a train manufacturer, and permanently. Given the "unprecedented scale" of the problems we face, given the "far-reaching transitions in energy, land, urban and infrastructure ... and industrial systems" we need to make, and given the speed with which we need to make these changes, it's difficult to imagine how this could be done within the framework of any capitalism. Private ownership of the means of production, profit maximization, and market competition have been the leading drivers of global ecological collapse and pose the main barrier to the rational re-organization, restructuring and reprioritization of the economy we need to make to save the humans. The depth and urgency of our climate crisis cries out for something like an immediate transition to ecosocialism. We don't have many decades left before it's too late to bother trying.

The IPCC climate scientists tell us we have just a dozen years or so to rein in our growth-to-bust economic system and come up with an effective pollution-suppression plan and mechanisms to staunch CO₂ emissions. Ocean scientists tell us we need a "Five-Year Plan" to save the oceans.⁸⁵ We need global plans to save the oceans, save the forests, save species from going extinct.⁸⁶ This requires generalized large-scale economic planning. These problems can't be solved by private corporations competing in an anarchic market.⁸⁷ Saving the world requires the sort of large-scale economic planning that only governments can do. We need to replace market anarchy with rational planning and management of a mostly, though not necessarily entirely, publicly-owned economy.⁸⁸

E. Planning for the common good requires democracy.

Rational planning requires democracy. Polls show that 69% of Americans (85% of those ages 18-29), 71% of Chinese, 87% of Europeans, nine-in-ten Ugandans, Tanzanians, South Koreans, Chileans, and Brazilians want binding limits imposed on CO₂ emissions.⁸⁹ Corporations don't want binding limits. Well, why don't we get to vote on such questions? We don't need to be experts. Corporate boards aren't composed of experts. They're composed of major investors and politically influential VIPs who solicit experts to advise them, then vote to decide what they want to produce and sell, and hire engineers to figure out how to get it done. Why can't society do the same – but in the interest of the common good? We need to establish democratic institutions to plan and manage our social economy -- planning boards at local, regional, national and international levels. We have plenty of examples from the Paris

⁸⁵ Jenna Iacurci, "Report Calls for Five-year Plan to Save World's Over-fished Oceans," *Nature World News*, June 24, 2014: <http://www.natureworldnews.com/articles/7735/20140624/reportcalls-for-five-year-plan-to-save-worlds-over-fished-oceans.htm>.

⁸⁶ Damian Carrington, "Humanity has wiped out 60% of animal populations since 1970, report finds," *Guardian*, October 29, 2018.

⁸⁷ Richard Smith, "How did the common good become a bad idea? The eco-suicidal economics of Adam Smith," in idem, *Green Capitalism* op. cit.

⁸⁸ Smith, "Six theses," op cit.

⁸⁹ Yale University, "Americans support limits on CO₂," May 28, 2014: <http://climatecommunication.yale.edu/publications/americans-support-limits-on-co2/>. Bruce Stokes et al./Pew Global, "Public support for action on climate change," Pew Research Center, November 2015: <http://www.pewglobal.org/2015/11/05/2-public-support-for-action-on-climate-change/>.

Commune to Polish Solidarity in 1980. We have the example of FDR's National Resources Planning Board – established by an elected president and congress. And as Greg Palast and co-authors describe in their book on regulation of public utilities, we have a working prototype right now:

“Unique in the world ... every aspect of US regulation is wide open to the public. There are no secret meetings, no secret documents, individuals, industrial customers, government agencies, consumer groups, trade unions, the utility itself, even its competitors. Any and all citizens and groups are invited to take part: Everyone affected by the outcome has a right to make their case openly... In public forums, open to all citizens, the principles of social dialogue and transparency come to life. It is an extraordinary exercise in democracy – and it works.”⁹⁰

We see no reason why this cannot be scaled up to the whole economy. If the major U.S. political parties offer no solution to the climate crisis, if they abdicate their responsibility to preserve a habitable planet for our children, then it's up to the American left to provide vision and leadership in this struggle – and right now that looks to be the DSA, the Democratic Socialists of America (of which I am a proud member). As Maria Swart wrote to members on October 23rd:

“Limiting global warming below 2 degrees is going to take a monumental mobilization of people from all walks of life, demanding that our lives matter more than corporate interests. Neither Republicans nor Democrats have risen to the task of leading this effort. In the absence of their political leadership, we must rise to the occasion.”

V. From FDR to AOC: the Green New Deal

Congressional Representative-elect (D. New York) Alexandria Ocasio-Cortez (aka AOC), the whip-smart self-confident 28 year-old DSA-er who won office on the Democratic ticket, rose to the occasion, drafting a proposed Plan published in early November for a Green New Deal she put before Congress in January 2019. The Plan called for the achievement within 10 years from start of execution the following:⁹¹

- 1) 100% of national power generation from renewable sources,
- 2) building a national, energy-efficient, “smart” grid,
- 3) upgrading every residential and industrial building for state-of-the-art energy efficiency, comfort and safety,
- 4) decarbonizing the manufacturing, agricultural and other industries,
- 5) decarbonizing, repairing and improving transportation and other infrastructure,
- 6) funding massive investment in the drawdown and capture of greenhouse gases,

⁹⁰Greg Palast, Jerold Oppenheim, and Theo MacGregor, *Democracy and Regulation: How the Public can Govern Essential Services* (London: Pluto Press, 2003), pp. 1-4.

⁹¹Select Committee for a Green New Deal (November 2018): <https://ocasio2018.com/green-new-deal>.

- 7) making “green” technology, industry, expertise, products and services a major export of the United States, with the aim of becoming the undisputed international leader in helping other countries transition to a completely carbon neutral economies and bringing about a global Green New Deal.

AOC’s Green New Deal does not stop with decarbonization. She writes that

“The Plan ... shall recognize that a national, industrial, economic mobilization of this scope and scale is a historic opportunity to virtually eliminate poverty in the United States and to make prosperity, wealth and economic security available to everyone participating in the transformation. In furtherance of the foregoing, the Plan (and draft legislation) shall:

- 1) provide all members of our society, across all regions and all communities, the opportunity, training and education to be a full and equal participant in the transition, including through a job guarantee program to assure a living wage job to every person who wants one;
- 2) take into account and be responsive to the historical and present-day experiences of low-income communities, communities of color, indigenous communities, rural and urban communities and the front-line communities most affected by climate change, pollution and other environmental harm;
- 3) mitigate deeply entrenched racial, regional and gender-based inequalities in income and wealth (including, without limitation, ensuring that federal and other investment will be equitably distributed to historically impoverished, low income, deindustrialized or other marginalized communities);
- 4) include additional measures such as basic income programs, universal health care programs and any others as the select committee may deem appropriate to promote economic security, labor market flexibility and entrepreneurship; and
- 5) deeply involve national and local labor unions to take a leadership role in the process of job training and worker deployment.”

1. What’s said and what’s not said

To be sure, the process of “decarbonization” outlined above is abstract, lacks specifics, and is far from fully worked out. Most obviously, it’s hard to imagine how the government could decarbonize fossil-fuel producers and industrial consumers without taking them into public hands. What’s not said is that decarbonization has to translate into shutdowns and retrenchments of actual companies. How does one decarbonize ExxonMobil or Chevron or Peabody Coal? To decarbonize them is to bankrupt them. Further, the same is true for many downstream industrial consumers like Boeing, United Airlines, Duke Energy, Dow Chemical, Dupont, General Motors and others. These companies live and breathe fossil fuels. Someday there may be electric airliners but not in the foreseeable future. And it’s the near term, the next decades that are the most critical. Given the imperative need to radically suppress CO₂ emissions from aviation, the only way to do that in the here and now is to drastically reduce flying and thus aircraft production: ground many if not most planes, and ration flying, reduce or eliminate most air freight. But there is no mention of shutdowns, retrenchments, buyouts or nationalization. That will need to be addressed if the GND Plan is to move from the abstract to the concrete.

Perhaps the biggest weakness of AOC's GND from an ecosocialist perspective is that it's not based on the fundamental understanding that an infinitely growing economy is no longer possible on a finite planet. There's no acknowledgement of the imperative need to "de-grow" the overproducing overconsuming economies of the industrial North including China. There's no acknowledgement of the imperative need to abolish entire unsustainable industries from bottled water to toxic pesticides to disposables to arms manufactures and many others. This too is going to have to be addressed if the GND aspires to create a truly sustainable economy.

2. "Decarbonization": a self-radicalizing transitional demand

And yet, the audacity and breadth of the technical and socio-economic transformations here envisioned call to mind nothing so much as the economic and social revolution that FDR's New Deal brought about (albeit within the framework of capitalism), and goes beyond him in some respects. Occasio-Cortez may be just 28 but she is a bold, feminist, anti-racist, and socialist-inspired successor to FDR. With this Green New Deal she's taking the global warming discussion to a new level, changing the conversation and challenging the political economy. She's not calling for cap and trade or carbon taxes or divestment or any other "market solutions". She's issuing a full-throated call for "decarbonization", in effect throwing the gauntlet down to capitalism and challenging the system because, as we know, there is no way to decarbonize an economy based on endless growth, endless resource consumption, and thus inevitably, endless pollution and CO₂ emissions. Thus the push for decarbonization must inevitably raise the question of nationalization because, how else can government enforce the retrenchments and shutdowns needed to save the planet without precipitating economic collapse? The nationalization of the coal and oil producers, the obvious first targets, would in turn raise the question of what to do about all the industries that are based on fossil fuels – autos, aviation, petrochemicals, plastics, construction, synthetics, manufacturing, shipping, tourism, and so on. And consideration of how to decarbonize those industries would in turn raise larger questions about what society should or shouldn't produce, and who should decide such questions – private companies or society as a whole through democratic processes. Thus as I see it, the push for decarbonization is simultaneously a push for an increasingly radical democratization and that in turn could open the way to a transition to some form of ecosocialism – because at the end of the day, that's the only way to reconcile the jobs vs. environment dilemma.

3. Government good, capitalists not so much

AOC's Plan pushes us in that direction even though it's situated entirely within the framework of capitalism. Firstly, her Plan is a definitive break with the Reagan-Thatcher-Friedman doctrine that "capitalism good, government bad," that the best role for government is to "get out of the way and just incentivize the private sector" that has been the religious dogma of the ruling class and its puppets in congress since the 1980s. Instead, the Plan calls for robust expansive government to drive the needed changes, for two reasons: (1) scale and (2) time:

No. 1: "The level of investment required will be massive. Even if all the billionaires and companies came together and were willing to pour all the resources at their disposal into this investment, the aggregate value of the investments they could make would not be sufficient." Besides, "private companies are wary of making massive investments in unproven research and technologies; the government, however, has the time horizon to be able to patiently make

investments in new tech and R&D, without necessarily having a commercial outcome or application in mind at the time of the investment.”

No. 2: “The speed of investment required will be massive. Even if all the billionaires and companies could make the investments required, they would not be able to pull together a coordinated response in the narrow window of time require to jump-start major new projects and major new sectors.”

AOC explicitly rejects the Reaganite claim of the superiority of the private sector and the efficacy of incentives:

“We’ve also seen that merely incentivizing the private sector doesn’t work – e.g. the tax incentives and subsidies given to wind and solar projects have been a valuable spur to growth in the US renewables industry but, even with such investment-promotion subsidies, the present level of such projects is simply inadequate to transition to a fully carbon neutral economy as quickly as needed... we’re not saying there isn’t a role for private sector investments; we’re just saying that the level of investment required will need every actor to pitch in and that the government is best placed to be the prime mover.”

4. There is no Plan B

Secondly, AOC makes a powerful and explicit case for state planning: She calls for a new Select Committee “with a 360° view” to serve the specific function of “examin[ing] emerging issues that do not fit clearly within existing standing committee jurisdictions or cut across jurisdictional boundaries.” The Select Committee requires “a mandate to develop a plan for the transformation of our economy to become carbon neutral.” Having its own Select Committee

“ensures constant focus on climate change as the standing committee deals with that and many other issues of the day – such as wild fires in California, infrastructure, clean water issues, etc. First, they would put together the overall plan for a Green New Deal – they would have a year to get the plan together, with the plan to be completed by January 1, 2020. The plan itself could be in the form of a report or several reports. Second, they would also put together the draft legislation that actually implements the plan.”

Her request for a new Select Committee was shot down but this is only the beginning of a long battle.

This is not yet FDR’s Planning Board, nor as presently envisioned would it have the power to nationalize industries, nor is it clear that it would even have the power to order companies to stop producing, say, cars, and shift to producing wind turbines *à la* FDR. But as the environmental crisis deepens, as it becomes more and more urgent to effect radical change, fast, it will soon become apparent that nationalization with buyouts is the only way to force the pace of decarbonization and reallocate capital and labor to the sustainable projects we need.

Of course all this sounds wildly utopian at the moment and this Plan is sure to go nowhere under Trump and the Republican Senate. But it won’t seem so extreme in a few years as the western states burn up, as Florida sinks under the waves, as food production across the

Great Plains and California begins to collapse, as temperatures reach Saharan levels in the Southwest – and as people everywhere look for government to “do what the science demands before it’s too late.” There is no Planet B. Let’s hope with a developing vision and that monumental mobilization around this Green New Deal we can derail that dystopia and build an ecosocialist civilization to save the human race.

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