

Beyond Lithium (and Other Poisons)

by Don Fitz

Are songs of praise to electric cars leaving out a critical stanza? Lithium batteries are essential for electric cars, which corporations push as an “environmentally friendly” method of transportation. When progressives give an approving nod to electric cars, they reveal a serious lack of understanding of environmental cooptation .

Eye-closing and ear-covering to inherent problems with toxic chemicals is not limited to lithium. It reverberates throughout discussions of “extraction,” or removing elements from the Earth. Policies of expanding extractivism in progressive Latin American countries bring up a host of contradictions: How do the short-term benefits of financial gain from extraction compare to its long-term destructiveness? What options are available for reducing poverty without increasing mining, logging and GMO monocultures? Could the climate change effects of extraction actually hurt the world’s poor more than helping them? How can struggles against extractivism chart a path to economies based on human need rather than corporate profits?

The lithium fantasy

Let’s get back to the overrated promise of lithium. It is not unusual to read that lithium batteries contain no toxins and that mining the metal is “an environmentally benign process.” [1] In reality, lithium affects the use of water by organisms, especially those with nervous systems. Obtaining it via underground reservoirs of dissolved salts known as salar brines is harsh on creatures in any desert-like environment where it is extracted. [2]

In order for batteries to function, lithium must be used with chemicals that are even more toxic. Friends of the Earth (FOE), Europe states: “The release of such chemicals through leaching, spills or air emissions can harm communities, ecosystems and food production. Moreover, lithium extraction inevitably harms the soil and also causes air contamination.” [3]

Electric vehicles (EVs) appear to have a lower environmental impact **only** if an evaluation limits itself to the **use phase** of the product (driving). This does not happen when the **manufacturing phase** is included because producing lithium batteries requires lots of electricity. [4]

Though lithium mining may seem like a panacea to Bolivia’s economic difficulties, the long list of minerals that have been mined out in that country waves a cautious flag. Lithium mining could last for a much shorter period of time than often anticipated because its use in electronic devices could cause demand for it to soar. Or, if a substitute chemical process were to be discovered, a crash in prices could pull the rug out from under lithium production.

Other effects of lithium mining cannot be quantified monetarily. These include the destruction of nature and the loss of cultures if indigenous people are pushed off of their land. Huge concentrations of

lithium occur in “beautiful and ecologically fragile places, such as The Salar de Uyuni in Bolivia.” [5]

The greatest disaster of producing lithium for EVs encompasses all others: An electric car is still a car. The car is one of the most destructive machines that capitalism has foisted upon us. Rather than endorsing corporate advertisements, social justice activists should be working with genuine environmentalists who are designing (and, in some cases, implementing) transportation systems to replace the individually owned car.

Why extraction?

No one denies that there are good reasons for removing minerals from the Earth. Mining is the starting point of complex economic systems. It allows societies to produce things that are needed for survival.

In a capitalist society, that creates jobs for working people. Distributing part of the wealth from increased extraction has greatly improved the lives of countless poor people in the “pink tide” (progressive, but not necessarily socialist) countries of Latin America.

Becoming defensive about extractivist policies can lead to underestimating the poisoning of workers and communities.

In Ecuador, 15% of the Gross Domestic Product (GDP) is now funding roads, health centers, schools and hospitals. [6] Education spending has doubled since Rafael Correa came to power. “Anyone who has traveled to Ecuador can attest to the dramatic improvement in its roads. Poverty rates are now one third lower. Child mortality has fallen.” [7]

Improvements in Bolivia have been no less dramatic. As a result of a four-fold increase in royalties and taxes, 80% of profits from extraction go to the government. [8] This has led to a steep decline in income inequality, with Bolivia's Gini index dropping from 0.56 to 0.47 in 2011. [9]

The fundamental problem is that extractivism as a method of obtaining wealth is increasing.

Less well-known are changes in Bolivia's transportation infrastructure, which include a new municipal bus program and an outstanding urban cable car system called the *Teleférico*. Roughly 100,000 users go between La Paz and El Alto every day. [10]

Why not extraction?

These very real advantages of extraction go hand-in-hand with disadvantages. Most overlooked is the inability of capitalism to separate producing goods that people need from the creation of gargantuan quantities of toxic junk that threaten humanity's future.

A narrow focus on increasing extraction can result in the misguided belief that it is the only way to create jobs and wealth for poor countries. Becoming defensive about extractivist policies can lead to underestimating the poisoning of workers and communities.

Lithium shows how silent denial of negative effects can lend support to fake "green" options. No mineral is used in isolation. Its environmental and health consequences can only be measured accurately by evaluating the totality of its interaction with other substances and the social consequences of its being mined and used to expand consumerism. Dependence on any type of extraction leaves a country vulnerable, both to a sharp decline in market values, and to effects of the mineral being exhausted or replaced by another substance.

The fundamental problem with policies of "pink tide" governments is not that extraction occurs but that extractivism as a method of obtaining wealth is increasing. In Bolivia, there is "intensified exploitation of the country's natural resources, principally from fossil fuel production, mining, and the growth of large-scale, mono-crop agriculture." [11]

We all agree that extraction is required for producing life's necessities. No one denies that a country that has been dependent on extraction for centuries cannot immediately wean itself. The "anti-extractivism" view is simply that activities such as mining should decrease, even if slowly. "Pro-extractivists" advocate that countries increase extraction rapidly, regardless of the consequences.

Complexity

The most challenging question is whether increasing extraction today can lay the foundation for decreasing extraction tomorrow. According to the

argument, increased revenue from extraction allows countries to diversify their economies into manufacturing and other areas, which leaves them less dependent on international capital. Ecuador's Director of Planning and Development Pablo Muñoz insists that "Reducing poverty is the government's first priority, the second is changing the systems of production..." [6]

Unfortunately, if the international price of an extracted commodity falls, a country focusing on extraction will have a difficult choice. In order to obtain the same return it will have to either lower wages or intensify the rate of mineral exploitation. Poor countries may not be as free from international financial institutions as is often implied.

Raul Zibechi documents that in June 2014, "Ecuador delivered half of its gold reserves to Goldman Sachs as collateral for a loan of \$400 million dollars, thus a return to foreign financing, with no risk to the lender..." [12] Market forces can be devastating for forest protection. As the prices for commodities such as oil plunge, forest cover could be threatened by countries' attempting to maintain economic growth by driving deeper into the jungle. [13]

As of now, it seems highly dubious that a country can increase its addiction to resource extraction and wake up one morning with the addiction cured.

Exiting Poverty

Many countries, especially Venezuela, Bolivia and Ecuador have used revenue from extraction to improve the quality of life of millions. But could there be other paths to the same goal? There are several interrelated questions:

1. Could there be enough wealth remaining in the hands of the richest 1% in "pink tide" countries to eliminate poverty by redistributing that wealth?

It makes no sense to increase the production of fossil fuels in a world that desperately needs to reduce burning them.

2. Could poverty be dramatically reduced by changing production to create what people need rather than manufacturing playthings for the rich?
3. Could poverty be dramatically reduced by redesigning manufacture to produce goods that endure rather than being designed to fall apart, fall out of fashion, or become obsolete?
4. Is there evidence that the amount of wealth added by extraction exceeds the value that should be subtracted by the tangible effects of poisoning land and people for centuries or millennia?
5. Is there evidence that wealth added by extraction exceeds the value that should be subtracted by the intangible effects of destroying native cultures and disrupting ecosystems for eternity?

For a rampant increase in resource extraction to be a viable policy, it would be necessary to demonstrate **both** that there are no economic alternatives **and** that the total improvements exceed the cost of increased illnesses, dislocations, human suffering, cultural extermination and species extinction.

Denial: Economic reality

It is unfortunate when progressives deny (or ignore) obvious realities, such as there being limits on the amount of destruction that can occur before ecosystems and economic systems collapse. The usually knowledgeable Federico Fuentes claims that it is “ludicrous” to suggest that supporting extraction of fossil fuels by progressive governments means supporting burning them. [14]

This extractivism denial makes it useful to review elementary economics:

1. If a country extracts fossil fuels to increase its in-

The horrendous plagues visited first upon the poor are where climate change denial meets extractivism denial.

come, it must sell those fuels.

2. In order to sell fossil fuels, the country must have a buyer.
3. Purchasers buy virtually all fossil fuels so that they can be burned.
4. Burning fossil fuels contributes to climate change.

When the Green Party of Greece first discussed merging into the left political party SYRIZA, it presented programmatic proposals which included “independence from fossil fuels within 20 years, addressing desertification by supporting forests, protection of fisheries ... SYRIZA accepted every one of the policies.” [15] Two opposites could not be reconciled if SYRIZA-type governments spread throughout Europe and “pink tide” governments spread throughout poor countries. It makes no sense to advocate that some countries increase the production of fossil fuels in a world that desperately needs to reduce burning them.

Denial: Climate change and the world’s poor

Climate change will lower food production. Many farms and coastal cities will disappear. Infrastructure will deteriorate. “The poor will face ever-increasing deprivation.” [16] Most climate-related deaths “will be due to diminished food production, increased disease, heat waves, loss of employment, fires, floods and storms.” [17]

Many of those in Latin America, and the Caribbean will succumb to the spread of tropical diseases. Warming will likely increase not only well-known diseases such as malaria and tuberculosis. There are already over a billion people who suffer “Neglected

Tropical Diseases” such as “river blindness” and dengue. These are mainly poor people in Latin America and sub-Saharan Africa. The horrendous plagues visited first upon the poor and then upon all of humanity are where climate change denial meets extractivism denial.

The very fabric of life could begin to unravel as ocean acidification and the “sixth great extinction” advance. We know that 80% of fossil fuels must stay in the ground if CO2 emissions are to raise temperatures less than 2°C. Otherwise, self-perpetuating and interconnected feedback loops will make the planet unbearable.

Denial often appears as a passive failure to address what climate change means for economic reorganization. Extractivist programs designed to lift people out of poverty will almost certainly have environmental effects which grind them (or their descendants) into a vastly worse form of poverty.

Denial: Struggle

Extractivism denial can take the form of trivializing efforts to challenge it. People across the globe are unfurling an incredible variety of tactics to oppose oil drilling, fracking, logging, land grabs, GMO monocultures, mining of coal, gold, uranium and many other types of extraction.

Some progressive extractivists heap scorn on genuine concerns. In a radio speech, Ecuador’s Rafael Correa emphasized “we will not let that childish left, with its feathers, its ponchos, destabilize the process of change.” [18] Federico Fuentes believes that referring to “the enormity of movements” opposing extraction is “an exaggeration at best.” He says that Bolivia has many more protests over economic issues such as wages and basic services. [14]

“Massive struggle” includes a massive power of ideas driving the struggle as well as a massive number of people who participate. In early struggles against US slavery, abolitionists were outnumbered by those seeking to ameliorate it. Abolitionists changed history—today, no one identifies with ameliorationism.

A few decades later, the revolutionary Industrial Workers of the World (IWW) had 150,000 members at its high point while the reformist American Federation of Labor counted millions. The IWW occupies an “enormous” place in labor history because of its inspiration for a new society. [19] In the late 1960s, Students for a Democratic

People across the globe are unfurling an incredible variety of tactics to oppose extraction.

Society had an enormous impact on halting US violence against Viet Nam. The millions who voted for the Democratic Party had little to no effect.

When concerns over economic and environmental oppression merge with a common program

for a better life in the future as well as now, their combined strength will be greater than either movement by itself. Right now, “it is the indigenous societies of the world, who are amongst the most oppressed, despised, ‘primitive’ and disadvantaged of all peoples, who are in the lead when it comes to ecological concern for the future of the planet.” [20]

Clamping down

Many of the “pink tide” governments have been charged with silencing or manipulating opponents as they increase the rate of extraction. In particular, Rafael Correa is accused of centralizing power by

Rafael Correa is accused of centralizing power by dividing social movements.

dividing social movements. [21] In Ecuador, there are hundreds of indigenous leaders and activists charged with doing the same things as those who brought Correa to power. [12]

Ben Dangl believes that there is a serious undermining of grassroots power in Bolivia. “A new Mining Law passed by the MAS-controlled congress ... criminalizes protest against mining operations, and gives the mining industry the right to use public water for its water-intensive and toxic operations, while disregarding the rights of rural and farming communities to that same water.” [22]

The government in Venezuela is admirably critical of US pressure, but not so much of its own oil extraction. When the United Nations Conference of the Parties [COP20] planned to meet in Lima, Peru in December, 2014 to adopt a toothless approach to climate change, the Venezuelan government invited 200 representatives to an alternative conference. Its method of reaching decisions was criticized as being top-down and ignoring views that could embarrass Venezuelan extractionism. The conference’s final document omitted the key demand of leaving 80% of fossil fuels in the ground and references to limiting global temperature rises. [23]

The Left may be strongly united in many struggles as long as a right-wing government is in power. Though distressing to many, it is hardly novel for the Left to become divided when a progressive government takes the reins and some apologize for whatever mistakes that government makes. [24]

Remembering our spiritual grandparents

None of the progressive governments in Latin America has a perfect environmental record. Yet, the tremendous steps they have taken to overcome poverty and challenge US hegemony is something that progressives throughout the world support. It is no less vital to point out the very real problems that accompany increased resource extraction.

When first participating in anti-Viet Nam War events, I remember older radicals claiming that to pull people out of poverty the USSR had to have nuclear power plants. Since it had abolished capitalism, nukes would be so safe that they could be built inside of big cities. Then there was Chernobyl. If the mistake of nukes reappears in the form of expanded resource extraction, history will not repeat itself as farce, but as catastrophic ecological devastation.

Don Fitz is editor of *Green Social Thought: A Magazine of Synthesis and Regeneration* and produces Green Time TV in St. Louis, Missouri.

Endnotes

1. Fletcher, S. (2011) *Bottled Lightning: Superbatteries, Electric Cars, and the New Lithium Economy*. Hill and Wang.
2. Hyde, M. (May 15, 2011, The Value and Dangers of Lithium for Living Organisms, <https://marthalhyde.wordpress.com/?s=lithium>)
3. Spence, K. (January 19, 2014). Tesla Motors’ Dirty Little Secret Is a Major Problem, *The Motley Fool*. <http://www.fool.com/investing/general/2014/01/19/tesla-motors-dirty-little-secret-is-a-major-proble.aspx>
4. Braun, P. (November 14, 2013). Don’t look so smug: Your Tesla Might Be Worse for the Environment than a Gas Car, *Digital Trends*. <http://www.digitaltrends.com/cars/hold-smugness-tesla-might-just-worse-environment-know/>
5. Chambers, N. (November 16, 2010). The Path to Lithium Batteries: Friend or Foe? *TreeHugger*. <http://www.treehugger.com/clean-technology/the-path-to-lithium-batteries-friend-or-foe.html>
6. Poverty in Ecuador Falls 12 Points in 7 Years. (July 16, 2014). *Granma*. <http://www.granma.cu/idiomas/ingles/ouramerica-i/16jul-Poverty%20in.html>
7. Emersberger, J. (August 26, 2014), About Some of the Left Critiques of Rafael Correa, *ZNet*. <http://zcomm.org/znetarticle/about-some-of-the-left-critiques-of-rafael-correa/>
8. Fidler, R. (October 6, 2014). How Bolivia Is Leading the Global Fight against Climate Disaster, <http://links.org.au/node/4094>
9. Beunder, A., & de Kleijn, L. (November 6, 2014). Bolivian Authoritarianism: Not Just a Right-wing Charge, *Roar Magazine*. <http://roarmag.org/2014/11/bolivia-authoritarianism-mas-elections/>
10. Watson, K. (December 26, 2014). Indigenous Bolivia Begins to Shine under Morales, *BBC News Latin America & Caribbean*. <http://www.bbc.com/news/world-latin-america-29686249>
11. Williams, C. & Olivera, M. (January 28, 2015) Can Bolivia Chart a Sustainable Path Away From Capitalism? *Truthout*. <http://truth-out.org/news/item/28778-can-bolivia-shatter-the-vice-of-capitalism>
12. Zibechi, R. (January 21, 2015). The “Citizen’s Revolution” vs Social Movements, *Upside Down World*. <http://upsidedownworld.org/main/ecuador-archives-49/5189-ecuador-the-citizens-revolution-vs-social-movements>
13. Miroff, N. (January 6, 2015) Commodity Boom Extracting Increasingly Heavy Toll on Amazon Forests, *The Guardian*.

- <http://www.theguardian.com/environment/2015/jan/06/commodities-latin-america-amazon-deforestation>
14. Fuentes, F. (October 31, 2014). What Will It Take To Go Beyond “Extractivism?” *teleSUR*. <http://www.telesurtv.net/english/opinion/What-Will-It-Take-to-Go-Beyond-Extractivism-20141029-0049.html>
 15. Ramsey, A. (January 28, 2015). Greece: SYRIZA, the first Green government in Europe? *Links International Journal of Socialist Renewal*. <http://links.org.au/node/4269>
 16. Klare, M.T. (January 8, 2015). Carbon Counterattack. *TomDispatch.com*. http://www.tomdispatch.com/post/175940/tomgram%3A_michael_klare%2C_perpetuating_the_reign_of_carbon/#more
 17. Alperowitz, G. (November 10, 2014). Pessimism about Climate Change Does Not Justify Inaction, *Al Jazeera America*. <http://america.aljazeera.com/opinions/2014/11/climate-change-naomiklein.html>
 18. Escobar, R. (November 12, 2014). The Irregular Path of Progressive Governments, *Latinamerica Press*. <http://lapress.org/articles.asp?art=7098>
 19. Lynd, S. (November 21–23, 2014). What Really Happened to the Wobblies. *Counterpunch*. <http://www.counterpunch.org/2014/11/21/what-really-happened-to-the-wobblies/>
 20. Kernan, M. (September 5–7, 2014). The World Bank’s Development Model and Indigenous Peoples, *Counterpunch*. <http://www.counterpunch.org/2014/09/05/the-world-banks-development-model-and-indigenous-peoples/>
 21. Self, A. (November 18, 2014). Social Movements and Leftist Governments in Latin America: Confrontation or Co-option? *Upside Down World*. http://upsidedownworld.org/main/index.php?option=com_content&view=article&id=5127:book-review-social-movements-and-leftist-governments-in-latin-america-confrontation-or-cooption-&catid=30:international&Itemid=60
 22. Dangi, B. (October 8, 2014). Why Evo Morales Will Likely Win Upcoming Elections in Bolivia. *Counterpunch*. <http://www.counterpunch.org/2014/10/08/why-evo-morales-will-likely-win-upcoming-elections-in-bolivia/>
 23. Doebbler, C.J. (November 13, 2014). The Social Precop on Climate Change, *Counterpunch*. <http://www.counterpunch.org/2014/11/13/the-social-precop-on-climate-change/>
 24. One of the strongest supporters of extractivist governments is Federico Fuentes, whose position on opposition forces seems to vacillate. In a 2014 article he charged that countering pro-extractivism/anti-extractivism viewpoints “has been used to foster divisions.” After I quoted him in an article the same year, he responded that “surprisingly” I accused him of claiming that opposition forces were “divisive.” When I referred to his statement that “NGOs have been working to stoke rather than resolve tensions,” he responded that “Fitz falsely accuses me” of saying that opposition forces were “being manipulated by anti-environmental NGOs.” It is not clear if Fuentes has changed his position or does not remember what he previously wrote. See Fuentes (2014) and Fitz, D. (Fall, 2014). Progressive Extractivism: Hope or Dystopia? *Green Social Thought*, pp. 14–15. <http://greensocialthought.org/wp-content/uploads/2014/07/gst65-1-6-Don-Fitz1.pdf>.

Green Capitalism Will Fail (from inside front cover)

Nonetheless, the summary does acknowledge that greenhouse gas emissions accelerated during the 2000–2010 decade as compared to the 1970–2000 period. It declares, with “high confidence,” that half of all anthropogenic carbon dioxide emissions since 1750 (the dawn of the Industrial Revolution) have been discharged in the past 40 years. Worse, population and economic growth have outstripped gains in efficiency; thus, greenhouse gas emissions have increased despite increased efficiency and conservation in energy usage. Continuing on this trajectory will have potentially catastrophic consequences, the summary says (p. 9):

Without additional efforts to reduce emissions beyond those in place today, emissions growth is expected to persist driven by growth in global population and economic activities. Baseline scenarios, those without additional mitigation, result in global mean surface temperature increases in 2100 from 3.7 °C to 4.8 °C compared to pre-industrial levels (median values; the range is 2.5 °C to 7.8 °C when including climate uncertainty) (high confidence).

... greenhouse gas emissions accelerated during the 2000–2010 decade ...

Many of the world’s cities would be under water, or well on their way to being under water, should such heating occur. The temperature range of the preceding paragraph represents atmospheric concentrations of 750 to 1,300 parts per million of carbon dioxide equivalent. To instead hold that concentration to 450 ppm will require a monumental undertaking—the concentration is already 400 ppm. The IPCC thus concludes that the level of greenhouse gases will actually rise above the 450 mark, then be brought down to that level under its scenario for capping the concentration at 450 ppm in 2100.

To achieve a goal of 450 ppm in 2100 would require that greenhouse gas emissions be “40 to 70% lower globally” in 2050 than in 2010 and “near zero” in 2100. How to

achieve this? The report makes these recommendations:

- Further rapid improvements of energy efficiency.
- Reduce the carbon intensity of electricity generation.
- Increase the use of renewable energy technologies, which would require subsidies.
- Increased use of nuclear energy.
- The development of carbon dioxide capture and storage technology, in particular “bioenergy with

carbon dioxide capture and storage” (BECCS) by the year 2050.

The last of these is the key to the IPCC’s belief that techno-fixes are the way to save the day. But there is ample reason to throw cold water on this optimism.

Bioenergy likely to increase global warming

BECCS is defined as the capture and sequestration of the carbon produced by bioenergy processes. The carbon dioxide would be “captured” before it escapes into the atmosphere and “permanently” stored underground or underwater, thereby removing it from the air and negating its greenhouse effects. One problem with BECCS is that the technology is

There are significant costs associated with carbon-capture technologies

not yet viable. Another is that the very idea that BECCS would lead to reduced atmospheric carbon dioxide is a false premise.

A Biofuelwatch study prepared by Rachel Smolker and Almuth Ernsting reports that there are significant costs associated with carbon-capture technologies. They write (p. 2):

High costs are associated with capturing ... compressing and transporting [carbon] (including building new CO₂ pipelines) and pumping it underground, and major technical challenges are associated with the majority of [carbon dioxide capture and storage] proposals. Storing CO₂ below ground requires access to underground spaces, beneath both ocean and land areas. Current mapping of geological formations, with the expectation that these spaces will be accessed, is setting the stage for a new form of “underground” land grab. Resistance has already begun with communities opposing the injection of CO₂ into the ground beneath them.

The Biofuelwatch study reports that the IPCC, among others, counts flooding oil reservoirs with carbon dioxide to extract otherwise inaccessible oil as BECCS. Hardly “carbon-neutral!” The authors write (p. 2):

Crucially, the promotion of [carbon dioxide capture and storage], including BECCS for climate change mitigation and geo-engineering, coincides with the oil industry’s fast-growing demand for cheap continuous supplies of CO₂. ... [F]looding oil reservoirs with CO₂ allows for the recovery of a far higher proportion of oil than would be possible with conventional means.

In a separate report, Ms. Smolker, writing in *Truthout*, challenges the science behind assumptions that BECCS projects will reduce greenhouse-gas emissions:

Virtually nobody still contends that corn ethanol is “carbon neutral.” Yet the premier BECCS project that is often referred to is an ADM corn ethanol refinery in Decatur, Illinois. In fact, when emissions from indirect impacts are included in analyses, along with a complete assessment of the impacts from growing, harvesting, fertilizer and chemical use etc., most bioenergy processes actually cause more emissions even than the fossil fuels they are meant to replace. ... [W]e know already from the current scale of biofuel and biomass demand—just look at the current corn ethanol debacle—that it is driving loss of biodiversity, higher food prices, land grabs and other damages. Scaling up bioenergy to the extent that would be required to supposedly reduce global CO₂ levels would be a disastrous backfire.

A Partnership for Policy Integrity study found that biomass electricity generation, which relies primarily on the burning of wood, is “more polluting and worse for the climate than coal, according to a new analysis of 88 pollution permits for biomass power plants in 25 states.” The partnership’s director, Mary Booth, wrote:

The biomass power industry portrays their facilities as “clean.” But we found that even the newest biomass plants are allowed to pollute more than modern coal- and gas-fired plants, and that pollution from bioenergy is increasingly unregulated.

The problem here is far deeper than wishful thinking. Optimistic scenarios such as the IPCC report rest on assumptions that the world can reduce

Economic growth of 2.5% is necessary simply to maintain the unemployment rate where it is ...

its greenhouse gas emissions, cut pollution and enjoy another century of consumer-fueled economic growth *while business as usual goes on*. But that is not possible.

Short-term scramble for survival trumps the long term

The capitalist system requires continual growth, which means expansion of production. Its internal logic also means that its incentives are to use more energy and inputs when more efficiency is achieved—the paradox that more energy is consumed instead of less when the cost drops. Because production is for private profit, growth is necessary to maintain profitability—and continually increasing profitability is the actual goal. If a corporation doesn’t expand, its competitor will and put it out of business.

Because of the built-in pressure to maintain profits in the face of relentless competition, corporations continually must reduce costs, employee wages not excepted. Production is moved to low-wage countries with fewer regulations, enabling not only more pollution but driving up energy and (cont. on p. 48)