

Confronting the obstacles to climate security

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<https://www.bbc.co.uk/news/science-environment-58073295>

Extreme weather: What is it and how is it connected to climate change?

Heatwaves, deadly floods and wildfires all mean people are experiencing the link between extreme weather and climate change.

*In part a result of Putin's Criminal War on Ukraine
(Shift from Russian natural gas to LNG exports):
"US fracking boom could tip world to edge of climate disaster"*

<https://www.theguardian.com/environment/2022/may/11/us-fracking-climate-fossil-fuel-gases>

140bn metric tons of planet-heating gases could be unleashed if fossil fuel extraction plans get green light, analysis shows

What is the main obstacle to preventing catastrophic climate change?





***Militarized Fossil Capital,
A Zombie stalking the planet,
ravaging humans and nature***

To solve climate, first achieve peace

“...the future of the planet is inextricably intertwined with international conflict.”

EDITORIAL

SCIENCE APRIL 1, 2022

***The Military Industrial (Fossil Fuel Nuclear
State Terror and Surveillance) Complex***

Or “MIC” for short, aka

the Molochian Instrument of Carnage

Or Moloch of Mass Murder...

In John Milton's *Paradise Lost*, Moloch is one of the greatest warriors of the fallen angels
"First MOLOCH, horrid King besmear'd with blood
Of human sacrifice, and parents tears,"
William Blake, 1809, *The Flight of Moloch*, watercolour, 25.7 x 19.7 cm. One of illustrations of *On the Morning of Christ's Nativity*, the poem by John Milton:



We are now living in the CAPITALOCENE

Humanity faces this challenge at the beginning of the 21st century:

Can the monstrous boulder of ***militarized fossil capital*** be pushed down the slope to its well-deserved sedimentary cemetery of prehistory on a path that minimizes the destruction of nature and humans?

*The Military Industrial (Fossil Fuel Nuclear State Terror and Surveillance) Complex (MIC) is a block to achieving **global cooperation** for rapid curb on global greenhouse gas emissions and a full transition to wind/solar power.*

As the instrumental arm of the Imperial foreign policy of the MIC, the Pentagon/NATO along with the \$2 trillion per year in military spending are the critical obstacles posed by the MIC, not the sizable, but widely exaggerated greenhouse gas emissions of the Pentagon itself (see my article:

<http://www.globalecosocialistnetwork.net/2022/04/10/revisiting-military-greenhouse-gas-ghg-emissions/>)

The MIC is likely the biggest single obstacle to preventing C3:

- 1) The MIC is the present core of global capital reproduction with its colossal waste of energy and material resources.
- 2) The integration of fossil fuel/nuclear industry in MIC.
- 3) The MIC's dominant role in setting the domestic/foreign policy agenda of the United States, with no evidence of weakening in the present administration.
- 4) **Pentagon as the “global oil-protection service”** for the U.S. imperial agenda (Klare), or even for the transnational capital class itself. Also protection service for strategic metals
- 5) The **Imperial Agenda** blocks the global cooperation and equity required to prevent C3.

A global solar transition replacing the present unsustainable energy supplies (80% from fossil fuels) must be parasitic on these supplies, just as the industrial fossil fuel revolution was parasitic on biomass energy, so-called plant power, until it replaced the former supply with sufficient capacity.

Mainly because of its lower greenhouse gas emission footprint compared to coal and natural gas, **the preferred fossil fuel to make a solar transition is conventional oil (excluding tar sands, and dangerous drilling on deep water continental shelves and in the rainforest). No more than 5% of proven oil reserves is needed to meet the warming IPCC target of 1.5 deg C; see our AIMS Energy paper). Exploration and development of new oil extraction sites should be vigorously opposed.**

Oil rich countries in the Mid-East and South America (e.g., Venezuela) will be valuable partners in this solar transition by providing the needed petroleum.

But a global regime of equity and cooperation is required!

Degrowth

in a renewable energy transition?

Positive contributions of degrowthers

Rethinking of economic growth under capitalism, critiquing its measure, the GNP/GDP, as well as pointing to capitalism's unsustainable use of natural resources, in particular fossil fuels in its production of commodities for profit generation regardless of their impact on the health of people and the environment.

Critique of eco-modernists who claim that simply substituting the right technology into the present political economy of capitalism will be sufficient to meet human and nature's needs.

But the degrowth solutions offered are highly flawed and their brand is not likely to be welcomed by the global working class, even as it attracts sections of the professional class.

“What should grow?”

The history of discussing growth from a socio-ecological point of view goes back at least 30 years. Walter Hollitscher, an Austrian materialist philosopher maintained, in discussions occurring in the late 1970s, that **the only thing which should definitely grow is the satisfaction of needs**. Basically, from a socio-ecological point of view **the question of growth or de-growth is simple: there cannot be a yes or no answer**. Some flows, stock, and activities should grow; others should not grow but decrease, for example, the production of weapons. It does not seem useful to use “de-growth” without indicating what should decrease, because the general use of the notion “de-growth” easily can easily also be understood as an undifferentiated attack on the standard of living and livelihood of many groups of people, especially **broad low-income sectors of society.** “

(p.33-34, Josef Baum (2011) In Search for a (New) Compass –How to Measure Social Progress, Wealth and Sustainability? In: The Left Between Growth and De-Growth Discussion Papers, Edited and introduced by Teppo Eskelinen, pp. 33-45, transform! european journal for alternative thinking and political dialogue, Hamburg)

David Schwartzman (2012) A Critique of Degrowth and its Politics, *Capitalism Nature Socialism* 23(1), 119-125.

“The concept of economic growth should be deconstructed, with in-depth consideration of its qualitative versus quantitative aspects, particularly its differential ecological and health impacts. Growth of what are we speaking? Weapons of mass destruction, unnecessary commodities, SUVs versus bicycles, culture, information, pollution, pornography, or simply more hot air? What growth is sustainable in the context of biodiversity preservation and human health, and which is not? Bonaiuti fails to confront these questions and instead lumps all growth into a homogenous outcome of the physical and political economy.” [bold added]

Citing: Mauro Bonaiuti (2012) Degrowth: Tools for a complex analysis of the multidimensional crisis. *Capitalism Nature Socialism* 23 (1): 30-50.

Degrowthers advocate for the goal of a “satisfactory” quality of life for most of humanity living in the global South*, in contrast to a higher standard for many in the global North, instead of demanding and mapping out a path to the highest state-of-the-science life expectancy/quality of life achievable for all children in their lifetime.

E.g., they point to Cuba as a model for what the global South’s energy consumption should be**, even though Cuba now suffers from energy poverty driven by the U.S. embargo/sanctions regime, with her life expectancy ranking close to the U.S. about 40th in the world.

*E.g., O'Neill DW, Fanning AL, Lamb WF, Steinberger JF (2018) A good life for all within planetary boundaries. *Nature Sustainability* 88 (95). **E.g., Mastini R, Kallis G, Hickel J (2020) For the Green New Deal to Work, It Has to Reject “Growth”, <https://inthesetimes.com/article/green-new-deal-decarbonization-economic-growth-climate-activists-climate-change>.

The misleading spectre of entropy;

*Georgescu-Roegen's thermodynamics as
foundational to the Degrowth discourse*

Should Georgescu-Roegen's thermodynamics be our guide?

*His interpretation of the entropy law is still widely cited by greens, degrowthers (e.g., Serge Latouche, Mauro Bonaiuti, Giorgos Kallis, and just published *The Future Is Degrowth*)*

See my critique at:

(1996) **Solar Communism**, *Science & Society* 60 (3): 307-331. Online at: http://www.redandgreen.org/Documents/Solar_Communism.htm.

(2008) **The Limits to Entropy: Continuing misuse of thermodynamics in environmental and Marxist theory**, *Science & Society* 72 (1): 43-62. Online at: [http://www.redandgreen.org/Documents/Limits to entropy final.htm](http://www.redandgreen.org/Documents/Limits_to_entropy_final.htm).

Georgescu-Roegen's fallacy was his conflation of isolated and closed systems:

“ A closed system (i.e., a system that cannot exchange matter with the environment) cannot perform work indefinitely at a constant rate” (1989).

Georgescu-Roegen claims to have discovered a fourth law of thermodynamics: "A. Unavailable matter cannot be recycled. B. A closed system (i.e., a system that cannot exchange matter with the environment) cannot perform work indefinitely at a constant rate" (Georgescu-Roegen, 1989, p. 304).

But the biosphere is essentially closed to transfer of matter, but not isolated with respect to energy flux, particularly solar energy.

The Earth's surface is open to energy transfer to and from space, but is effectively closed to mass transfer. Hence the use of fossil fuels and nuclear fission power to drive the economy can be transcended in our open Earth system by sufficient creation of a high-efficiency collection of the solar flux to Earth. *Global solar power will then pay its "entropic debt" to space as non-incremental waste heat, without driving us to tipping points towards catastrophic climate change, while facilitating recycling and industrial ecologies phasing out extractivism.*

His fallacious 4th law is at the root of Georgescu-Roegen's pessimism regarding solar energy replacing fossil fuels:

‘Georgescu-Roegen viewed the technology of the direct collection of solar radiation as "feasible" but not "viable"- possible to construct and operate, but only by continuing to rely on fossil fuel energy inputs: "All solar recipes known at are of the current and present parasites technologies therefore will cease to be applicable when their host is no longer alive" (1981, 70-71).’

Schwartzman D (1996) Solar Communism. *Science & Society* 60 (3): 307-331, citing Georgescu-Roegen N (1981) in *Energy, Economics, and the Environment*. ed. Herman E. Daly and Alvaro F. Umana, AAAS Selected Symposium 64, Boulder, Colorado: Westview Press.

“The global material and energy “throughput” has to degrow, starting with those nations that are ecologically indebted to the rest. Energy and material throughput have to degrow because the materials extracted from the earth cause huge damage to ecosystems and to the people that depend on them.”

(p.192, Giorgos Kallis (2019) Socialism Without Growth. *Capitalism Nature Socialism* 30 (2): 189–206; See our critique: David Schwartzman and Salvatore Engel-Di Mauro (2019) A Response to Giorgos Kallis’ Notions of Socialism and Growth. *Capitalism Nature Socialism* 30 (3): 40-51.

My critique

'A global renewable energy supply with greater capacity than now will be needed to confront the threat of dangerous climate change, as well as to eliminate the energy poverty now afflicting most of humanity.'

Actually, it would be their alternative — **a shift to a low-energy global economy — which would be a suicidal choice for humanity.** Such a transition would condemn most of the world to a future of energy poverty even worse than at present, and forgo the chance of creating the clean energy capacity to bring the atmospheric carbon dioxide level down below 350 ppm (it is now above 410 ppm)

“perpetual growth on a finite planet leads inexorably to environmental calamity”

(Monbiot, 2019)

This common assertion fails to deconstruct the qualitative aspects of growth, what is growing, what should degrow, under what energy regime?

Monbiot, George. 2019. “The Problem is Capitalism.”

<https://www.monbiot.com/2019/04/30/the-problem-is-capitalism>. See my critique at:

David Schwartzman (2019) Monbiot’s Muddle, *Capitalism Nature Socialism*, DOI: 10.1080/10455752.2019.1670905

The science of thermodynamics demonstrates:

a **solar** energy source is fundamental to truly green growth, industrial ecologies and phase out of extractive mining.

With respect to **material throughput**, we argue that it should *increase* globally in an ecosocialist transition as a culmination of a Green New Deal:

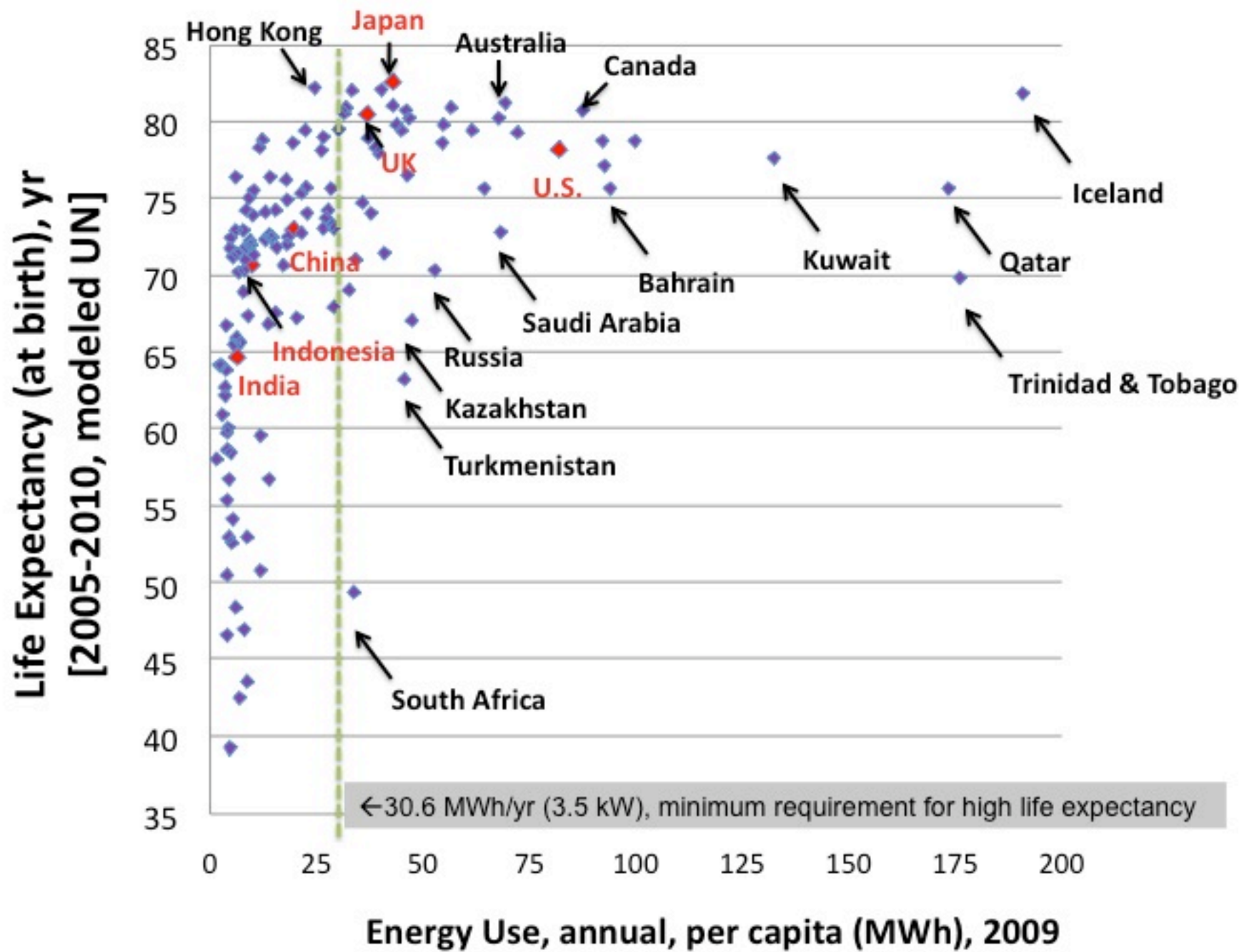
“In an ecosocialist transition, as at least we envision it, the plan would not be simply for degrowth, but for a complete phasing out of the Military-Industrial Complex (MIC). The disappearance of MIC would liberate vast quantities of materials, especially metals, for the creation of a global wind and solar power infrastructure.” p.42, Schwartzman and Engel Di Mauro (2019)

The social challenge

The state of *energy poverty* for most of humanity living in the global South,

conversely the *wasteful consumption of energy* in much of the global North, especially the U.S.

Smil (2003, 2008) estimates a minimum requirement of 3.5 kilowatt per capita for high HDI



Degrowth in the global North?

Yes, degrow the MIC and wasteful consumption particularly of the 1%, but we must confront the global North's historic responsibility for the threat of **Catastrophic Climate Change**. Hence, the global North must finance/help create the necessary solar energy infrastructure especially in the global South.

A 21st Century Solution

*Reduce and eliminate mining,
increase recycling using wind/solar
energy supplies*

*Ultimate transition to a global steady-
state economy, industrial ecologies
powered by wind/solar energy*

Extractivism is a very real challenge that must be confronted in a wind/solar transition terminating fossil fuels, to create a truly just process which protects the rights and health of indigenous people around the world, along with the workforce and communities affected.

There are significant future opportunities to limit mining in this transition, namely recycling the huge supplies of metals now embedded in the fossil fuel and military infrastructures, substituting common elements for rare ones (e.g., batteries using NaS, Fe/air etc.), enhancing public transit instead of relying on manufacturing hundreds of millions of electric cars. There are now significant energy savings in recycling metals instead of mining their ores:

“recycled aluminum metal (e.g., in the form of cans), which can be simply cleaned and re-melted, saving 94% of the energy that would be required to produce the aluminum from ore...”

As the renewable energy supplies grow globally using this energy to recycle would sharply reduce greenhouse emissions as well as mining. These opportunities reinforce the need for a renewable energy transition increasingly informed by an ecosocialist agenda, especially global demilitarization and social governance of production and consumption.

(<https://climateandcapitalism.com/2022/01/05/a-critique-of-degrowth/>)

Recycling and industrial ecologies powered by wind/solar power should greatly reduce the need for mining.

Recycling rates of the rare earth metals, including neodymium used in wind turbines, is currently very low, less than 1% (Reck and Graedel, 2012).

Increasing these rates, as well as **implementing alternative technologies**, could greatly reduce mining for these and other metals used in modern technologies. **Hence we can we anticipate a transition to post-extractivist future, parallel to the wind/solar transition.**

More energy is needed in the coming decades

“Incremental energy will be required for the following new challenges facing humanity:

- 1) ***Climate mitigation by carbon sequestration*** from the atmosphere into the soil and crust to bring down the atmospheric carbon dioxide level below the safe level of 350 ppm and maintaining it below this level (the atmospheric carbon dioxide level is now over 410 ppm.
- 2) ***The clean-up of the biosphere***, notably toxic metals and other chemical and radioactive waste from the nuclear weapons, energy, and chemical industries — a heritage of its long-term assault from the MIC, and other industrial wastes such as plastic particles in the ocean, threatening its ecosystems.
- 3) ***The repair and expansion of physical infrastructure*** such as electrified rail, and the creation of green cities globally,
- 4) ***Adaptation to ongoing climate change***, especially by the global South with its disproportionate impacts, even if warming could be kept to below 1.5 deg C.

All three imperatives will require very significant energy supplies from future wind/solar power, incremental to present uses.”

So, how much energy will humanity need?

Now humanity consumes the equivalent of 19 Tera Watt
(1 Tera Watt (TW) = 10^{12} Watts); 19 TW corresponds to primary energy consumption)

The present *primary* energy consumption level consistent with the highest achievable life expectancy is close to 3 kW/person (e.g., Italy, ranking 6th in life expectancy globally).

For the present global population of 7.9 billion x 3 kilowatt/person = 23.7 TW. This is 1.25 times the present global consumption level, but of course recognizing that a robust solar transition will reduce the energy needed per person to achieve the world standard level

A greater energy capacity than present will be required in the future:

Assuming a population level of 9 billion and an increase in the energy efficiency factor of 30%, we project a global primary energy consumption level goal for 2050 corresponding to a power level of 19 TW, the same as present. However, incremental energy supplies will be required for climate mitigation and adaptation as well as meeting other challenges that will increase this goal to no more than 1.5 times the present level, i.e., 29 TW.

(Source: <https://climateandcapitalism.com/2022/01/05/a-critique-of-degrowth/>)

Preventing Climate Catastrophe (warming above 1.5 deg C) requires:

Global demilitarization, solarization of energy supplies and agroecologies replacing industrial/GMO agriculture

To eliminate energy poverty and have the capacity to confront climate adaptation and mitigation, **more energy than now consumed is needed**

Renewable energy sources: wind power (mainly sited in oceans), photovoltaics and concentrated solar power

GDP and Decoupling ?

“Since GDP has been effectively critiqued by degrowthers as a measure of a sustainable economy, while recognizing the great negative impacts of high GDP economies dominated by fossil capital, the GDP level by itself is not necessarily an indicator of unwelcome economic growth. Qualitative analysis is needed. Are the components of the economy responsible for the GDP contributing to economic growth that is needed for addressing human and nature’s needs or are they promoting the increasing threat of climate catastrophe and ecosystem collapse? **Nevertheless, it is essential to recognize that decoupling economic growth from bad outcomes under capital reproduction in GGND will only be partially realized unless a robust ecosocialist transition is achieved. Hence it is no surprise that decoupling in capitalist economies has been so far at best very modest** [note 21].”

[21] Jason Hickel 2018, Why growth can’t be green,
<https://foreignpolicy.com/2018/09/12/why-growth-cant-be-green/>.

(Source: <https://climateandcapitalism.com/2022/01/05/a-critique-of-degrowth/>)

*Degrowth low-energy mitigation scenarios.**

They are characterized by low GDP, no negative emissions technologies other than enhancing soil carbon stores, and global reduction in energy consumption.

We argue that if implemented they would leave the global South with energy poverty, and the world with an insufficient global energy capacity for climate mitigation and adaptation, risking breaching the 1.5 deg C warming target.

In contrast, our scenario would entail a moderate to high GDP, creating high global wind/solar power capacity, and once sufficient wind/solar power is in place the likely implementation of direct air capture of carbon dioxide/permanent storage in the crust (our AIMS Energy paper)

* E.g., Arnulf Grubler et al. 2018, A low energy demand scenario for meeting the 1.5 °C target and sustainable development goals without negative emission technologies. *Nature Energy* 3: 515-527; Lorenz T. Keyßer and Manfred Lenzen 2021, 1.5 °C degrowth scenarios suggest the need for new mitigation pathways. *Nature Comm.* 12: 2676, doi.:10.1038/s41467-021-22884-9.

*Meeting this goal requires organizing a **transnational movement** strong enough to:*

- Defeat the imperial agenda of militarized fossil capital,
- Dissolve the Military Industrial (Fossil Fuels Nuclear State Terror and Surveillance) Complex,
- Implement an **Ecosocialist Global Green New Deal**, thereby opening up a post capitalist path to the **SOLARCOMMUNICENE**

A robust environmental/ecological/health protection regime for a solar transition driven by bottom-up societal management and control must be central in an ecosocialist agenda for transition.

Is this the case now? Of course not!

While ecosocialist class struggle is still too weak to prevent the deficiencies in this transition (e.g., big solar projects), as the global climate and energy justice movement gains strength, then the opportunity to create a sustainable and just solar transition will grow. But the creation of a wind/solar energy infrastructure should be welcomed now. **We cannot wait for the end of the rule of capital to start building this renewable energy infrastructure; it will be too late.**

I must emphasize that:

- 1) Business-as-usual market solutions, i.e., expecting *Green Capital* to deliver energy justice is a delusion (critique of ecomodernism).
- 2) Prevention of climate catastrophe will require radical changes in both the physical and political economies.
- 3) Social management of a robust solar transition is required at all scales, local to global, driven by multidimensional/transnational class struggle at every intersection with gender, "race", sexual orientation, ethnicity, citizenship status, religion, age, degree of able-bodiedness.
- 4) Similarly, a robust environmental/ecological/health protection regime driven by bottom-up societal management and control must be central in an ecosocialist agenda for transition.

*Mapping out a path to a just green recovery, to a **Global Green New Deal** and an **eco-socialist** transition leaving fossil capitalism in prehistory where it richly deserves to be.*

Potential Stages of a Global Green New Deal

1st NeoKeynesian (applying Modern Monetary Theory), Goal: defeat Militarized Fossil Capital, by a broad alliance including “green” capital

“Green” capital must be challenged all along the way, to optimize environmental, worker and community protection, while progressively eroding its power to manage this transition, until full social management is in place.

*Growing strength of organized labor from renewable energy/green infrastructure jobs, **the Global GND as an arena of transnational class struggle***

Growth of community control of renewable energy supplies, agroecologies replacing industrial agriculture.

Demilitarization and termination of fossil fuel consumption begins, freeing up vast resources, financing. Transfer of resources from the Global North to the South.

2nd Nationalization of Critical Sectors of the Economy, especially Energy

3rd Global ecosocialist transition led by the transnational working class and its allies

Pushing towards the ecosocialist horizon entails struggles for *democratic social management of society at all levels, more socialism, less capitalism.*

A fruitful strategic goal is the **Global Green New Deal**, *an area for multidimensional class struggle to prefigure the future in the present by expanding the commons, virtual and material.*

The reformability of really existing capitalism must be tested by actual class struggle, *in other words by defending and expanding democracy in the social, political and economic spheres.*

From the Capitalocene to the SOLARCOMMUNICENE, the Global Solar Commons

A socially governed global civilization realizing a 21st Century version of Marx's vision of Communism:

“From each according to her ability, to each according to her needs”

“Her” refers to both humans and nature (ecosystems)

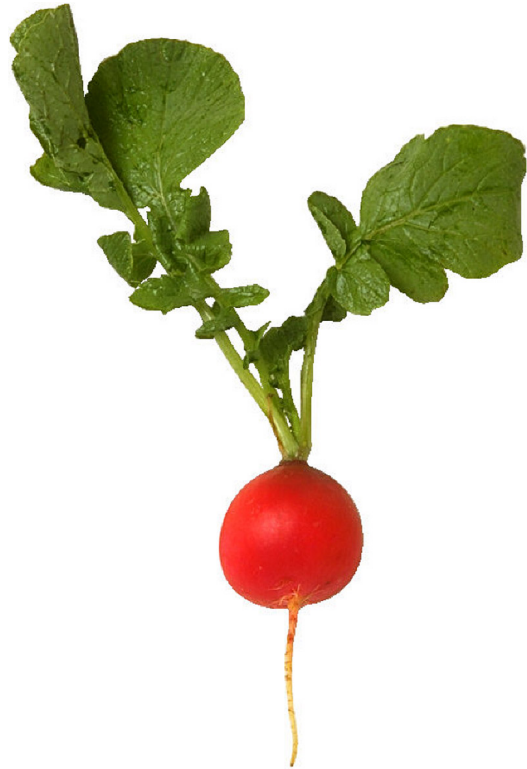
Only that nuclear reactor (H to He fusion in the Sun's core) 93 million miles away can make this possible!

*(see my critique of nuclear fission power in my CNS paper “Monbiot's Muddle”,
<https://www.tandfonline.com/doi/abs/10.1080/10455752.2019.1670905?journalCode=rcns20>, pdf available upon request, dschwartzman@gmail.com)*

Book Website:

<http://theearthisnotforsale.org>

Radical and Radish have the Same Root



Be as Radical as Reality Itself!

*Can the 1.5 °C warming target be met in a global transition to 100% renewable energy? **

Peter Schwartzman and David Schwartzman

Abstract: First, we recognize the valuable previous studies which model renewable energy growth with complete termination of fossil fuels along with assumptions of the remaining carbon budgets to reach IPCC warming targets. However, these studies use very complex combined economic/physical modeling and commonly lack transparency regarding the sensitivity to assumed inputs. Moreover, it is not clear that energy poverty with its big present impact in the global South has been eliminated in their scenarios. Further, their CO₂-equivalent natural gas emission factors are underestimated, which will have significant impact on the computed greenhouse gas emissions. Therefore, we address this question in a transparent modeling study: can the 1.5 °C warming target still be met with an aggressive phaseout of fossil fuels coupled with a 100% replacement by renewable energy? We compute the continuous generation of global wind/solar energy power along with the cumulative carbon dioxide equivalent emissions in a complete phaseout of fossil fuels over a 20 year period. We compare these computed emissions with the state-of-the-science estimates for the remaining carbon budget of carbon dioxide emissions consistent with the 1.5 °C warming target, concluding that it is still possible to meet this warming target if the creation of a global 100% renewable energy transition of sufficient capacity begins very soon which will likely be needed to power aggressive negative carbon emission technology. The latter is focused on direct air capture for crustal storage. More efficient renewable technologies in the near future will make this transition easier and promote the implementation of a global circular economy. Taking into account technological improvements in 2nd law (exergy) efficiencies reducing the necessary global energy demand, the renewable supply should likely be no more than 1.5 times the present level, with the capacity to eliminate global energy poverty, for climate mitigation and adaptation.

*<https://www.aimspress.com/article/doi/10.3934/energy.2021054>

Readings

Our book *The Earth is Not for Sale*, <https://www.theearthisnotforsale.org/>

My most recent book, *The Global Solar Commons*

(<https://www.theearthisnotforsale.org/solarcommons2021.pdf>)

My interview: <https://www.jamesgdyke.info/degrowth-ecosocialism-a-discussion-with-david-schwartzman/>:
Degrowth & Ecosocialism: a discussion with David Schwartzman and James Dyke, Assistant Director of the
Global Systems Institute, University of Exeter

My presentation "Degrowth in a renewable energy transition?", Global Systems Institute, *Univ. of Exeter* (April 4, 2022) based on <https://climateandcapitalism.com/2022/01/05/a-critique-of-degrowth/>, at https://theearthisnotforsale.org/dschwartzman_exeter42022.pdf

Our AIMS Energy article (November 2021):

Can the 1.5 °C warming target be met in a global transition to 100% renewable energy?

<https://www.aimspress.com/article/doi/10.3934/energy.2021054>

My most recent articles:

<http://www.globalecosocialistnetwork.net/2022/04/10/revisiting-military-greenhouse-gas-ghg-emissions/>

<https://thedcline.org/2022/01/31/david-schwartzman-revisiting-a-green-new-deal-for-dc-in-2022/>

<https://peopleandnature.wordpress.com/2022/02/17/roads-to-an-energy-commons-a-pamphlet/>