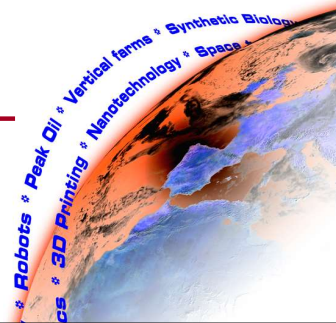


Midlands Green Innovation Network, October 26th 2023 (virtual delivery)

## Climate Change 3.0 & the Future of Sustainability

Christopher Barnatt  
@ChrisBarnatt



### About Me

- Over 30 years as an academic and content creator, working working freelance as a futurist since 1994.
- **Long-term proponent of taking measures to reduce climate change and to be mindful of limited natural resources . . .**
- **BUT . . .**

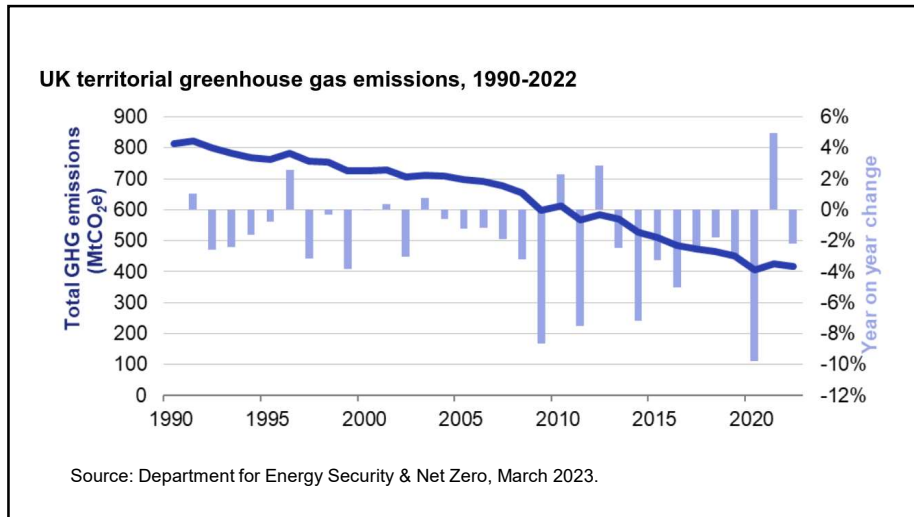
### Climate Change Evolution

- **Climate Change 1.0** (1896+)  
Does climate change exist? Is it caused by human action?
- **Climate Change 2.0** (2015+)  
Broad agreement that climate change exists and is caused by human action, with the majority of countries agreeing to reduce emissions.
- **Climate Change 3.0** (emerging)  
Realization that what politicians can do, and what most citizens will accept, are not consistent with current long-term policy.

### CC Response in Theory

- The Paris Agreement (COP21, 2015) was ratified by 193 countries. Set the goal of limiting warming to 2°C, and ideally 1.5°C. Required signatories to declare and then ratchet up “nationally determined contributions (NDCs).
- COP26 (2021) resolved to pursue 1.5°C, so requiring deep and sustained GHG emissions by 2030.
- The latest UK NDCs were set in 2020 (and updated 2022). The UK has committed to “**reducing economy-wide greenhouse gas emissions by at least 68% by 2030, compared to 1990 levels**”. [ And net zero by 2050 ].

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## CC: Response in Practice

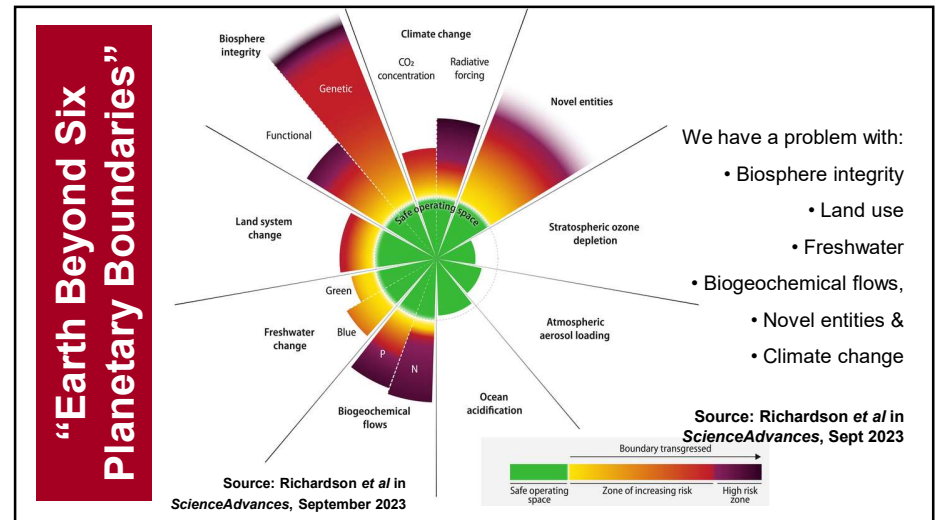
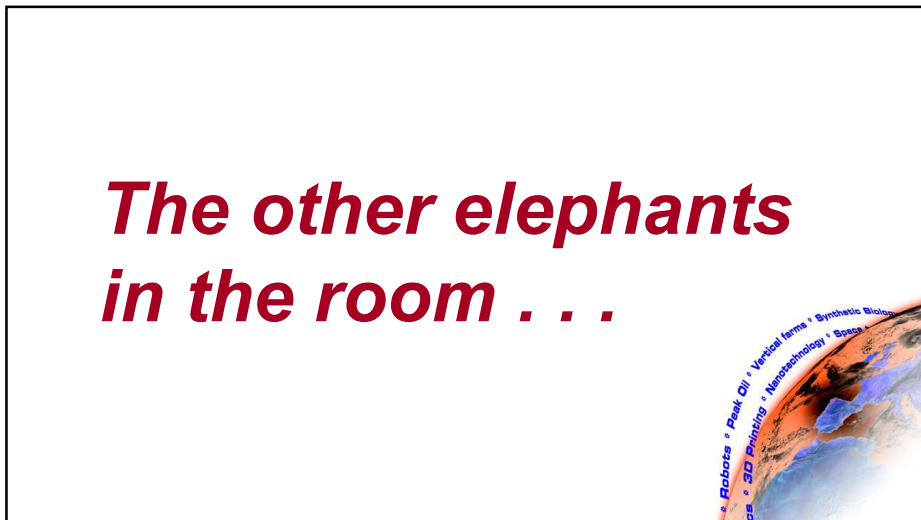
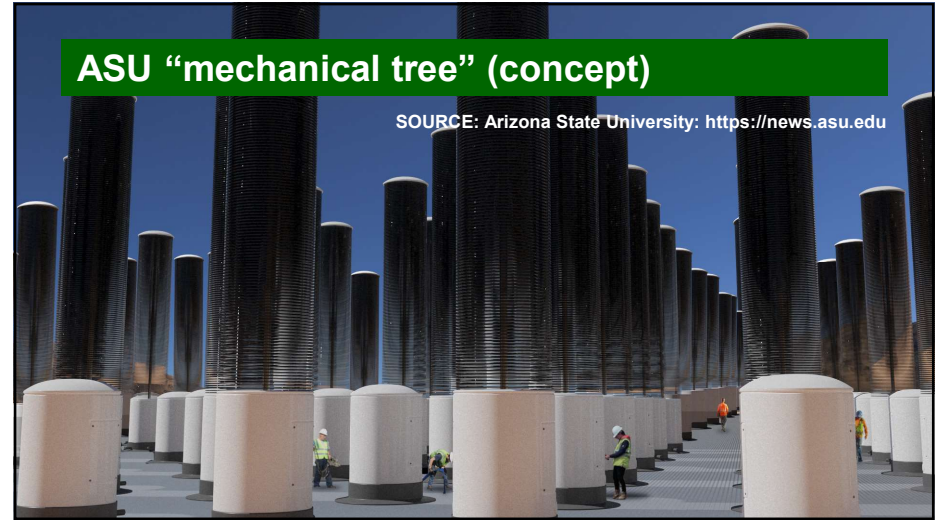
- The IPCC **AR6 Synthesis Report** “Climate Change 2023” states that global GHG emissions in 2030 implied by NDCs “announced by October 2021 make it likely that warming will exceed 1.5°C during the 21st century and make it harder to limit warming below 2°C”.
- There are gaps between projected emissions from policies and declared NDCs. (IPCC, 2023)
- Allocated finance is insufficient. (IPCC, 2023)
- **There is also no evidence that the majority will accept the dramatic measures required to meet NDCs.**

## My Prediction

- Because, as COVID-19 has reminded us, in the West we place the rights of individuals above the welfare of the society, many announced measures to reduce climate change will continue to crumble.
- No Western nation will have the political mechanisms to implement even their currently declared NDC ambition.
- **Because it is easier to regulate businesses rather than individuals (voters), Western governments will continue to set businesses impossible targets . . .**
- Long-term, geoengineering may be most realistic . . .

## Potential Geoengineering . . .

- ***In addition to Direct carbon capture and storage . . .***
- **Direct air capture (DAC), including “mechanical trees”**
- **Ocean fertilization**
- **Solar radiation modification (SRM), including:**
  - Spraying aerosols in the stratosphere
  - Cloud engineering
  - Placing solar reflectors in orbit



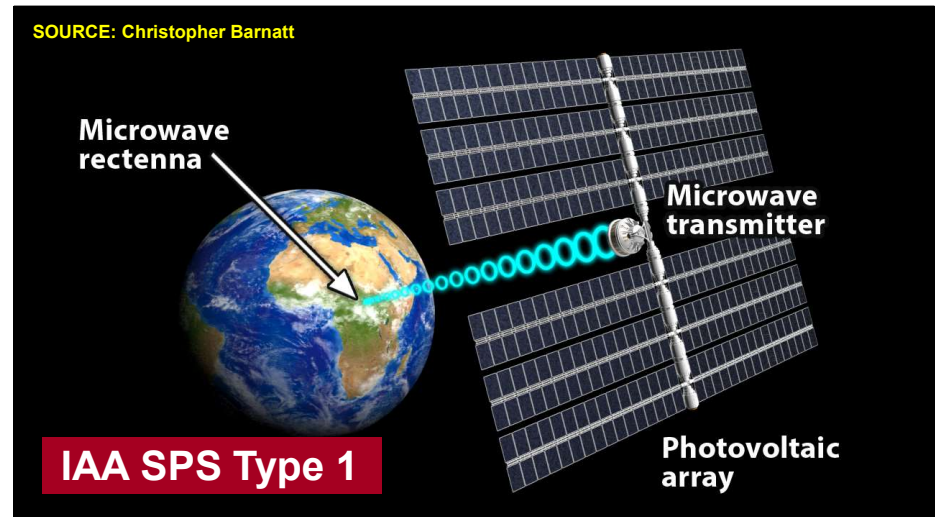
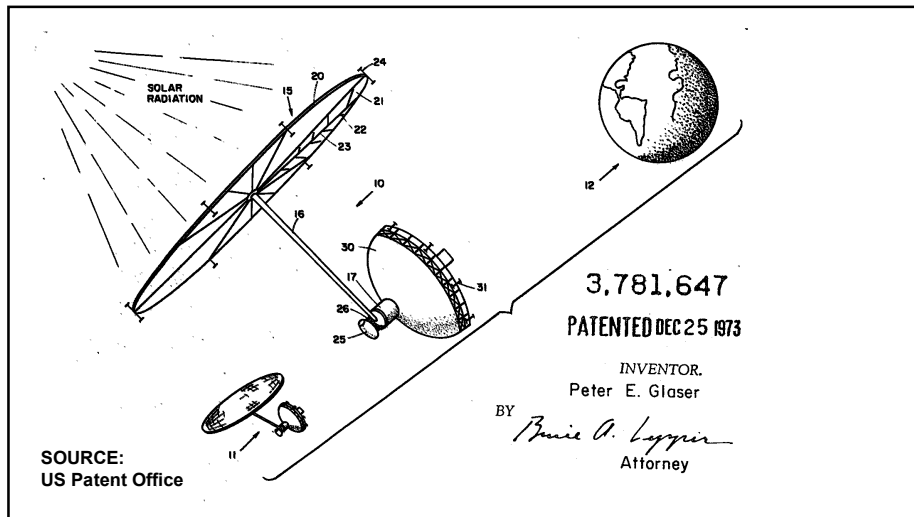
## The Future of “Sustainability”

- Global resource consumption continues to increase.
- In 1987, the UN Brundtland Commission defined “**sustainable development**” as “development that meets the needs of current generations without compromising the ability of future generations to meet their own needs”.
- Such “living for today without compromising tomorrow” is a lovely idea. **But, within a closed system it is also thermodynamically impossible.**
- In addition to consuming less, our future survival therefore has to depend on finding more resources . . .

## Resources from Space

Possible sources of energy and materials from beyond the closed system of our first planet:

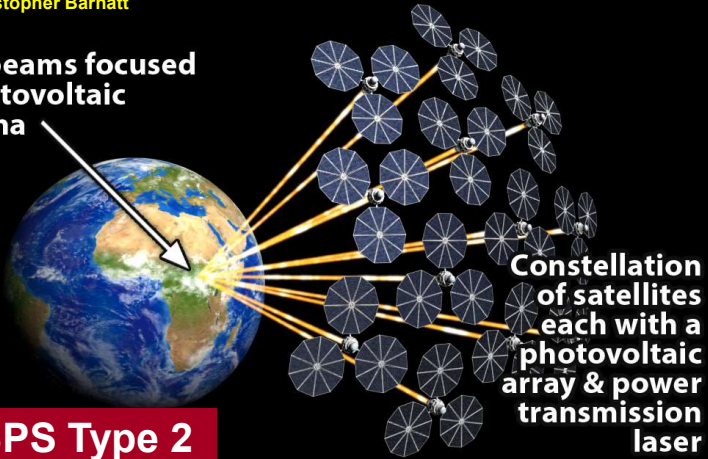
- **Space-Based Solar Power**
- **Asteroid Mining**
- **Mining the Moon**



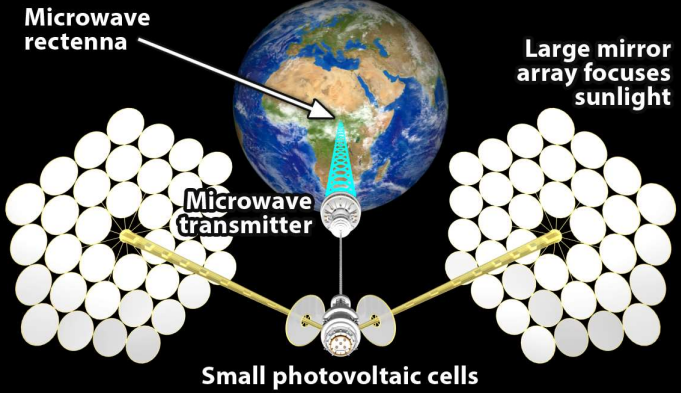
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SOURCE: Christopher Barnatt

Laser beams focused on photovoltaic rectenna

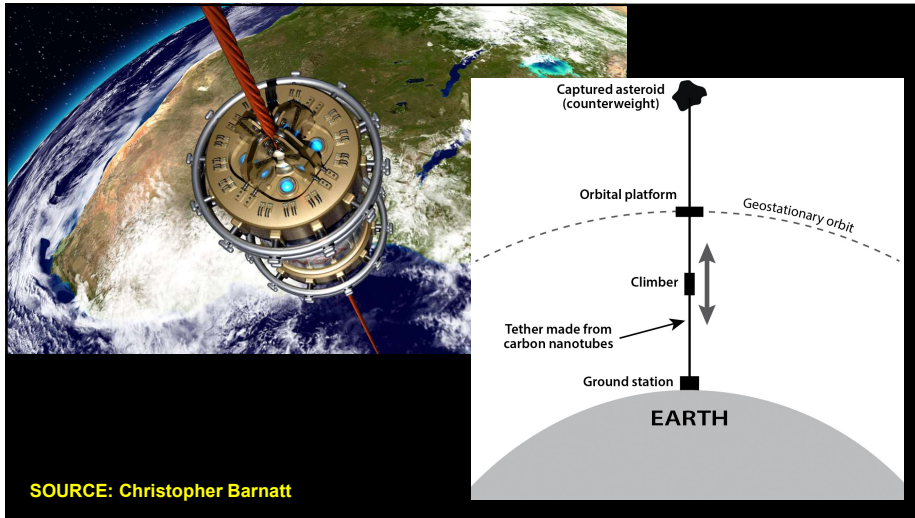


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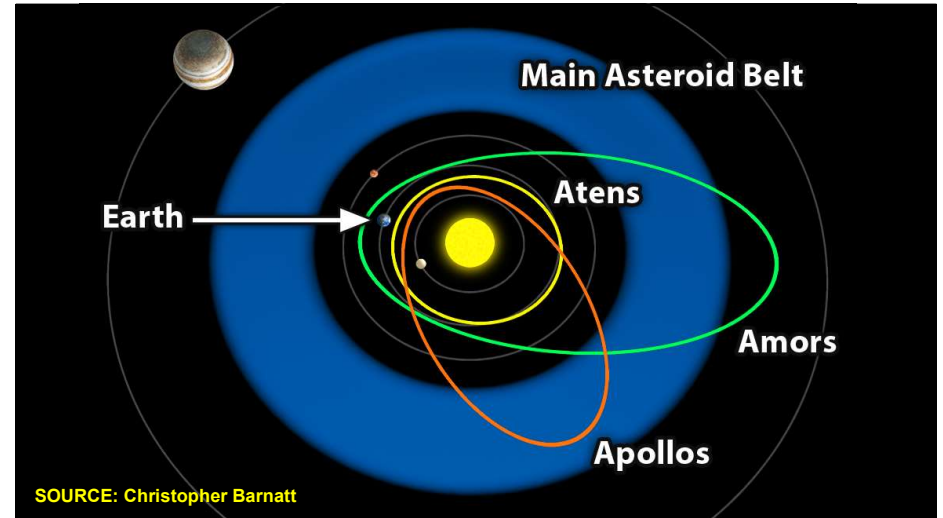


IAA SPS Type 3

SOURCE: Christopher Barnatt

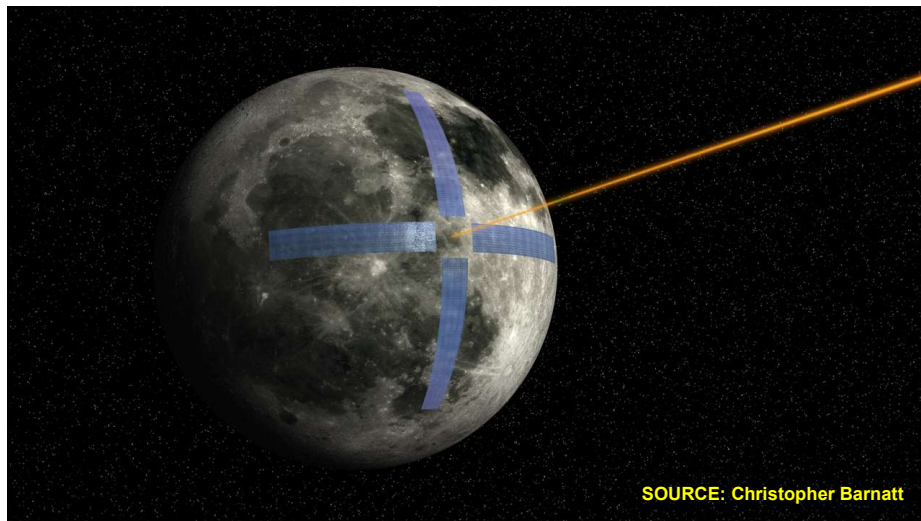
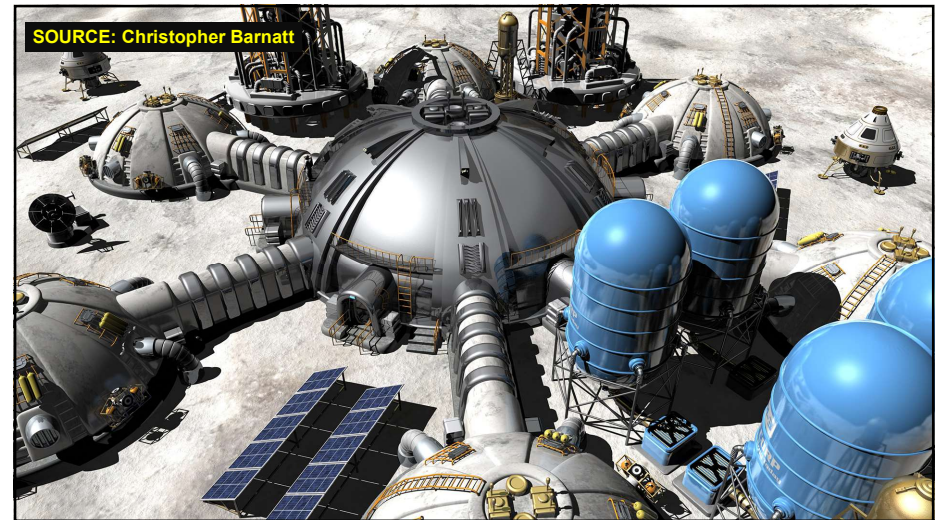
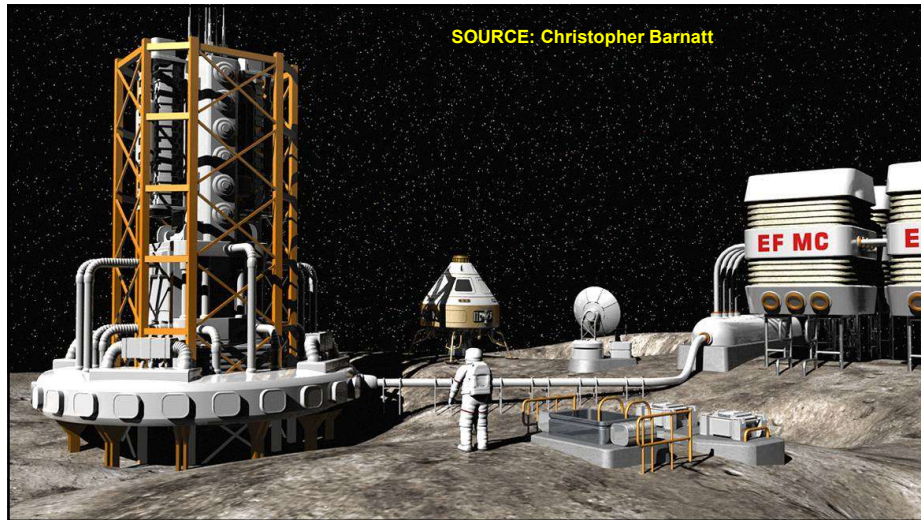


SOURCE: Christopher Barnatt



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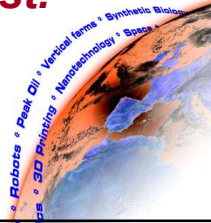
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## Grand Challenges & Responses

- Our responses to both climate change are more likely to involve doing grand things, rather than curtailing.
- Net zero by 2050 (or any year) is almost certainly a fantasy without geoengineering or mass depopulation. Ditto closed-system “sustainable development”.
- Human beings do not have a history of going backwards.
- **Which is more likely: hedonistic retreat, or the pursuit of grand adaptive and survival endeavours?**
- **The business challenge is to ride-out the short-term.**

*In the battle between the  
silent majority and the politicians,  
the politicians will blink first.*



**Questions**

