

Health Reactors Climate

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Terms of Reference

Before we begin, I should disclose *my personal opinions* about some controversial issues that we will be discussing. Like most people, I believe my opinions to be based on established scientific facts; like most people, I am probably **wrong** about some of them. I hope we can all help each other discover the errors in our opinions. Here are some of mine, expressed as bold statements:

1. **Anthropic Global Climate Change (AGCC)**: Thanks in part to human activities and the “Greenhouse Effect”, the Earth’s atmosphere is retaining the Sun’s heat more effectively, causing overall global warming, sea level rise and destabilized weather patterns, manifested as an increased frequency of extreme weather events of all sorts. As the climate changes, positive feedback effects cause accelerated change.
2. The solution to **AGCC** is to stop mining and using fossil fuels, reduce wasteful use of power, restore natural forests and adopt better farming practices to grow back our living soil for carbon sequestration. (This is all easier said than done.)
3. Modern civilization requires an enormous amount of **energy**, without which we would have to drastically curtail our behaviour, give up most conveniences, and possibly *starve*. If we had much **more** reliable energy, we could take aggressive steps to *ameliorate AGCC*.
4. Site-dependent geothermal and hydroelectric power are already close to their limited capacity, whereas “**renewable**” energy sources such as solar and wind are *intermittent* and therefore inadequate to supply all our energy needs on calm nights without massive “batteries”.
5. Nuclear fission reactors have proven thousands of times safer than coal-burning power plants, even if you include Chernobyl. Moreover, *most radiation is relatively harmless* and can even be **beneficial** to health.

Some Initial Questions:

What do YOU think?

- Do you believe that the Earth is warming anomalously?
- Is this due to a 'greenhouse effect' caused by humans?
- Can we do anything to stop it now?
- Can “Civilization” survive without massive energy use?
- Can “Renewables” provide the needed energy?
- Can nuclear reactors be safe?
- Is all radioactivity dangerous?

Part I: AGCC

- Equilibrium
- Greenhouse Effect
- Hard Data
- Consenses
- Outlook

“Renewable” Energy

- Hydroelectric
- Geothermal
- Solar Cells
- Windmills
- Biofuels
- Improved Efficiency
- “Doing Without”

Part II: **RADIATION**

- *What is* radiation?
- How is it *measured*?
- What does it *do to us*?
- Where does it *come from*?
- Should we *fear* it?

Part III: REACTORS

- Basic *Nuclear Physics*
- *Types* of reactors
- *Licensing* of reactors
- *Cost* of reactors
- *Fusion* fantasies