

**Fundamentals:** *350 Climate Potluck Discussion Rutland, Nov. 18, 2018. Alan Betts*

**Energy Imbalance of Earth:** GHG trigger; tripled by WV: 93% stored in oceans

*[Remove GHGs and earth freezes over in a few years!]*

**CO2, century+; CH4, 20 y; Water vapor 1 month;** ice, seasonal;

water cycle tightly coupled, close to 'equilibrium', slowly speeding up

**Warmer ocean:** expands, raising sea-level; long storage times; decades to overturn

**Stronger storms** with more precip.; cyclonic storms with stronger winds and storm surges: record storms 2017 and 2018

**Warmer Earth**, melting ice and snow; less reflection of sunlight; warming of poles and winter; double that of tropics and summer.

Arctic losing floating reflective icecap – accelerating change; less reflection, more evap. (GHG)

Antarctic and Greenland losing grounded ice, raising sea-level

Losing permafrost: methane leaking

**Changing global climate** as planet/Arctic warms; slowing down of westerly winds; larger amplitude jet stream waves, more 'stationary' weather, even hurricanes. More stationary means more rain, floods in one region and elsewhere droughts and fires.

**Farmers have to adapt; ecosystems** being pushed out of historical ranges; tropics desperate; species on mountains pushed into decline

**Losing habitat**, coral reefs, species; planetary support threatened for much of life and humanity in a few decades.

**Causes:** *no management of wastes and more broadly human impacts on planet: too many people; exploitative economic system (people and planet); growth not sustainability; driven by short-term profit, not long-term resilience for our children/Earth. No investment fund for future costs - becoming unpayable.*

*Unmanaged system based on 'Growth': invent, market, profit; no moral guidance: rich get richer; poor and earth suffer.*

**Impending collapse** as Earth dominant. Hidden beliefs: that free market is better than management; that technology will save us – we need it – directed in right direction!

**Politics disintegrating** into webs of delusion/lies; real pressures mounting as people get desperate.

**Change system guidelines:** phase out fossil fuels; **Fossil C tax to drive transition.**  
*\$50/ton tax credit for C capture and storage (Feb 2018) – ‘coal’?*

Abandon material growth; mindless consumption; and throw-away economy. **Away from “business as usual”.** Build for long-life with end-to-end recycling.

**Conscious shift away** from passive consumers, hooked on electronic escapism.  
**Stop sacrificing our children; and life on the Earth.**

**Science/Earth-based systems engineering, competent people, moral/ethical guidance: local control as long as central US govt. won’t/can’t**

*Maximize efficiency and minimize waste (End-to-end recycling)(Compost to food).*

**Shift to renewable power** with storage; shift away from single occupancy cars (App-based sharing); Electric assist bikes, trikes and scooters with new lanes.

**Shift to net-zero housing,** massive retrofits. [Flow batteries: 800MWh/200MW]

**Invest in localization:** of food, energy, currency, sharing economy and manufacture of long lasting goods. Transition town mentality. *Creative resilient solutions,*

*Slogans: Bold Humility* (Frances Moore Lappe); **Fiery Hope** (David Spangler)

*Grounded where?* Community; Individual reconnection to Earth (Wilderness): Value the living Earth

CREDs: You will be believed and respected if you yourself have acted

**Broad understanding,** long-term thinking, deep connections, *creativity,* awareness of need to change